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**ASSESSING THE IMPACT OF BUSINESS AGILITY MODEL ON
SMART ATTITUDE OF PEOPLE: AN EMPIRICAL ANALYSIS**

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ABSTRACT

In literature, there is increasing attention in trying to comprehend the concept of Agility. The changing nature of global competition, which requires organizations to quickly adapt and respond, is emphasizing the relevance of this concept, considered the differentiator between successful organizations and those who flounder. Hence, a comprehensive understanding of what factors make an organization agile is required. In this direction, having an agile workforce has recently emerged as a key element to succeed. Therefore, it become essential to comprehend what makes the workforce agile and which organizational levers play the key role in enhancing it. However, currently there are no structured studies on the impacts of Business Agility on people attitudes and behaviors.

The present explorative research aims at fulfilling one major gap: the lack of academic literature on the relationship between the Business Agility and the (Smart) Attitude of people. Particularly, this investigation has the aim to study these concepts with a higher level of detail, identifying the most powerful organizational levers to be implemented to enhance the Smart Attitude of people and its constituent elements. To accomplish these objectives, three theoretical frameworks have been developed and tested through statistical techniques (data collected from a survey Doxa on a representative sample of 1000 professionals in Italy), deepening step by step the level of detail, to properly reflect the real world behavior.

The results indicate that Business Agility positively impacts the Smart Attitude of people, but this impact is limited by the negative contribution of the lever Structure, which negatively affects each element of Smart Attitude. These findings contribute to develop new insights both from theoretical and managerial perspective, highlighting the key role played by the cultural lever and confirming the importance of a synergic approach. In conclusion, it has been proved that the essence of Business Agility does not stand in a new organizational model or new processes or practices, but it stands in the cultural and managerial model.

SOMMARIO

In letteratura, vi è una crescente attenzione nel cercare di comprendere il concetto di Agilità. La natura mutevole della competizione globale, che richiede alle organizzazioni di adattarsi e rispondere rapidamente, sta enfatizzando la rilevanza di questo concetto, visto come il discriminante tra organizzazioni di successo e non. È quindi necessaria una maggiore comprensione dei fattori che rendono agile una organizzazione. In questa direzione, è emerso come l'aver una forza lavoro agile sia l'elemento chiave per avere successo. È pertanto essenziale comprendere cosa rende agili le persone e quali leve organizzative hanno un ruolo chiave in questo. Tuttavia, ad oggi non esiste uno studio completo sugli impatti della Business Agility su attitudini e comportamenti delle persone.

La presente ricerca esplorativa mira a colmare questa lacuna: la carenza di letteratura accademica sulla relazione tra Business Agility e (Smart) Attitude delle persone; in particolare, ha lo scopo di studiare questi concetti con un maggior livello di dettaglio, identificando le principali leve organizzative per migliorare la Smart Attitude e ciascuno dei suoi elementi costitutivi. Per raggiungere questi obiettivi, tre modelli teorici sono stati sviluppati e testati tramite tecniche statistiche (dati collezionati da una survey Doxa su un campione rappresentativo di 1000 professionisti in Italia), approfondendo passo dopo passo il livello di dettaglio per riflettere adeguatamente il comportamento del mondo reale.

I risultati indicano che la Business Agility ha un impatto positivo sulla Smart Attitude delle persone, ma questo impatto è limitato dal contributo negativo della leva Struttura, che influisce negativamente su ciascun elemento della Smart Attitude. Questo lavoro contribuisce a sviluppare nuove conoscenze sia dal punto di vista teorico che pratico, evidenziando il ruolo chiave della leva culturale e confermando l'importanza di un approccio sinergico tra le varie leve. In conclusione, è stato dimostrato che la vera essenza della Business Agility non sta in un nuovo modello organizzativo o in nuovi processi o pratiche, ma si trova nel modello culturale e manageriale.

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EXECUTIVE SUMMARY

INTRODUCTION

The current competitive environment is characterized by high-intensity rivalry where volatility, uncertainty, complexity and ambiguity rule. This is compounded by the increased market pressure; the need to manage a new generation of workers with very different expectations and needs; and the incredible fast-changing needs and behaviors of customers. Moreover, changes in technology play a significant role towards higher uncertainty and competitive intensity. Lastly, the increasingly higher accessibility and transfer of information strongly contributes to increase the complexity of the current environment. Adaptability and responsiveness have become essential requirements for competing in the market. The difference between winners and losers does not stand in the access of new technology or big data, which nowadays can be seen as commodities (Murray, 2015), rather, it stands in the ability to respond swiftly and effectively to these changes, distinguishing successful organizations from those who flounder. No organization is immune to these changes that present both challenges and opportunities. In this new global scenario, it is risky to keep relying on traditional models and methods, which were very effective in the past, since what has traditionally kept organizations secured in the past may not do so in the future. Thus, organizations need a new paradigm of work to survive and flourish in this evolving context. This is no longer a matter of choice, organizations that embrace, not just new technologies but also new ways of working will continue to find a competitive edge in whichever area they choose to operate. In this direction, some organizations are embracing a new management paradigm with alacrity, forming a vast global movement that is transforming the world of work (Denning, 2017), the Agile movement.

This new paradigm enables organizations to thrive in a world of rapid and unpredictable change, while nimbly adapting and improving products and services to meet rapidly changing technology and customer needs. In other words, it enables the organization to flourish in a complex and increasingly challenging world (Denning, 2017). Therefore, there is the need to comprehensively understand which factors make an organization agile. In this direction, to build and lead an agile organization, it is crucial that leaders develop in their people the right attitudes and behaviors. Leaders need to develop a new set of skills based on a renewed understanding of the organization, while simultaneously, evolving the behaviors and attitudes of their people, allowing and preparing them to handle the complexity of a keep changing context (De Smet, 2018). This highlights the necessity for organizations to deeply understand the attributes of an agile workforce (Sherehiy and Karwowski, 2014), which is not just an advantage, but it is essential to survive, becoming a competitive differentiator in today's rapidly changing business environment. Therefore, it becomes fundamental to deeply understand what are the characteristics of an agile workforce, and which organizational levers play a key role in enhancing it. This represented the starting point of this research.

LITERATURE REVIEW

The literature review has been mainly focused on two streams of research: Business Agility and Smart Attitude, with the aim to structurally define and understand these concepts and their constituent elements, while at the same time identifying possible existing gaps.

In the recent past, there is increasing attention towards concept of Agility, especially in literature, where it is clear the difficulty to delineate this concept (Laanti et al., 2013). Among the several definitions, Kassm and Zain (2004) argue that “*Agility is the ability of a firm to face and adapt proficiently in a continuously changing and unpredictable business environment*” (Kassm and Zain, 2004), this is supported by other researchers who state that “*Agility is a set of principles that allows leaders, teams and entire organizations to anticipate and respond to change*” (Ebrahim et al., 2018;

Gren and Lenberg, 2019). The concept of Agility raised many decades ago, but its adoption and diffusion boomed more recently, in an unexpected field: software development (Denning, 2017), when various “rebellious” software developers met in Utah to share ideas for improving traditional software development. All their efforts brought to the creation of a new approach, coining the term Agile Software Development (Williams, 2012). After that, once these methods and practices reached a good level of diffusion within the software industry, agile methods have begun to revolutionize the project management field (Stettina and Hörz, 2015), impacting the organization, management and execution of many projects (Dybå and Dingsøy, 2008; Abrahamsson et al., 2009). Finally, after the success of the Agile methodologies in software development and project management, organizations started to expand the concept of Agility at the whole organizational level. Gartner (2006) has been one of the first to define Agility as “*the ability of an organization to sense or create environmental change and respond efficiently and effectively to that change*”, with the emphasis being on the organization rather than just its discrete elements. Nowadays, Business Agility is seen as a key enabler of competitive advantage (Ganguly et al., 2009), making organizations future-proof (Lockard and Cleff, 2016). However, despite the wide literature referring to this topic (see e.g. Sull, 2009; Alzoubi, et al., 2011; Williams and Lawler, 2013), there is a general lack of clearly defined frameworks for explaining Agility from the organizational perspective (Sherehiy et al., 2007; Li et al., 2008; Wendler and Stahlke, 2014). As a result, this lack of a common and shared approach creates disparities and debates among scholars about the attributes and levers of Business Agility, making hard for organizations and practitioners to properly identify and balance these levers. According to Aghina et al. (2015), Agile organizations are truly different, while “traditional” organizations are static, siloed and hierarchical, agile organizations act as a network of empowered teams operating in rapid learning and fast decision cycles. Therefore, people play a key role in making organizations able to properly respond to the changing context. Hence, it is essential for organizations to evolve their people attitudes and behaviors in order to prepare them to manage the increased complexity of the competitive context (De Smet, 2018). Hence, it is required to understand the attributes that prepare and

enhance the responsiveness of the workforce in facing the current context (Sherehiy and Karwowski, 2014), here the concept of Smart Attitude arises. This concept can be defined as *“the set of the most relevant skills and competences for the today’s workplace, at the foundation of a productive and balanced organizational behaviors and culture, which lead towards higher level of efficiency, efficacy, satisfaction and ultimately productivity”* (Smart Working Observatory, 2019). This concept integrates and classify the characteristics that allow people to succeed in today’s work environment. However, despite the relevance of this topic, there is a lack of detailed analysis regarding the effect that Business Agility could have on the attitudes and behaviors of people. The aim of this work is to in-depth analyze this impact.

OBJECTIVE

The present explorative research aims at fulfilling one major gap: the lack of academic literature on the relationship between the Business Agility and the Smart Attitude of people. Particularly, this investigation has the aim to study some more detailed aspects of these concepts, since a complete and structured study of these concepts is missing and additionally there is a lack of detailed description and study of the most relevant elements to describe them. Consequently, with the aim to cover the existing gap in literature, some research questions have been developed:

RQ1: Is the (Smart) Attitude of people affected by the Business Agility?

Answering this question is the starting point to increase the understanding of the potential impact that Business Agility has on people.

RQ2: Which of the Business Agility levers have the highest impact on the elements of the Smart Attitude?

Given the strong tradeoff between the wide portfolio of possible organizational levers and actions, and the limited resources available for the organizations, identifying the most relevant and impactful levers to strengthen the Smart Attitude of people provides a good contribution to support organizations in properly prioritize their actions towards higher level of agility.

METHODOLOGY

The steps followed in this research are summarize in the figure below (Figure 1).

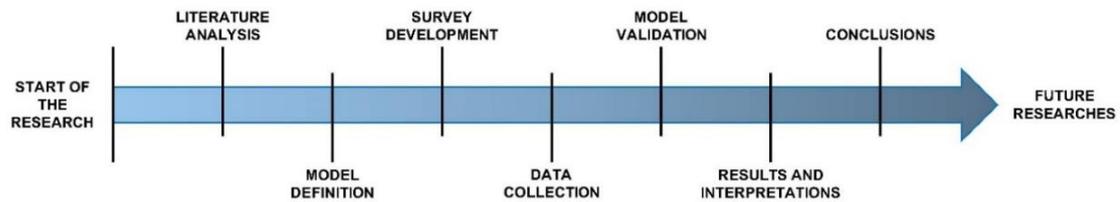


Figure 1 – Steps of the research

The starting point of the research process has been the analysis of the reference literature, an essential step to identify both the potential matches and gaps between the areas of research, establishing the initial bases and motivating this work. Moreover, through the analysis of the literature some research hypotheses have been developed.

H1: Business Agility positively impacts on the (Smart) Attitude of people.

H2: Each lever of Business Agility has a positive contribution on each aspect of Smart Attitude.

H3: The interaction between the levers of Business Agility has a positive impact on each element of Smart Attitude.

Parallely to the development of the research hypotheses, relying on the literature of reference it has been possible to develop the theoretical model of the investigation. In this sense, it is relevant to point out that this step has been built on two main branches, the former has the aim to assess the impact of Business Agility on Smart Attitude at the aggregate level (Figure 2).

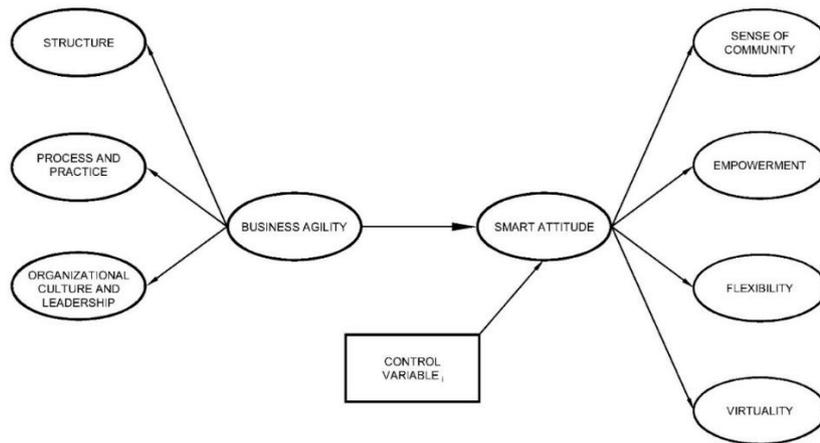


Figure 2 – Theoretical Framework 1

While, the latter has the aim to study the contribution that each lever of Business Agility has on each element of Smart Attitude (Figure 3). This approach has been dictated by the purpose to provide the highest value possible to this investigation. It has been judged more interesting and valuable to assess the in-depth effect of each lever of the Business Agility on each aspect of the Smart Attitude, to provide further insights both from the theoretical and practical perspective.

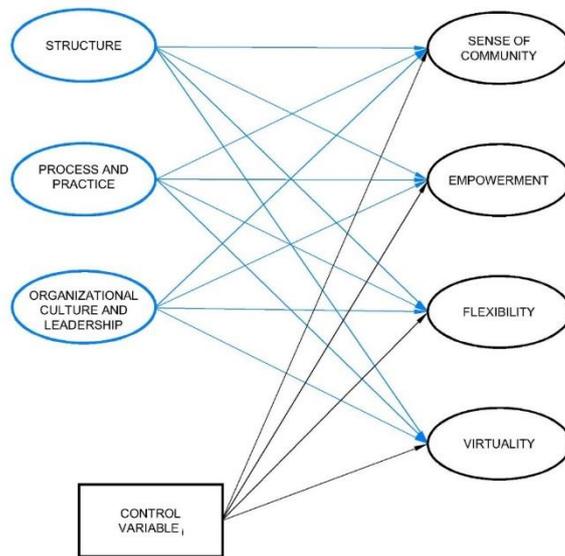


Figure 3 – Theoretical Framework 2

Additionally, to test the third hypothesis, a third model has been developed. Indeed, in literature it has been clearly pointed out that the real agility is achieved through an

interplay of the different levers (see e.g. Maples, 2009; Humble et al., 2014; Paasivaara et al., 2016; Fitzgerald and Stol, 2017), since they are strongly intertwined and need to be strategized in an integrated way (Ebrahim, 2018). For this purpose, new constructs have been created to represent the interaction effect of two levers. Where:

- STR_PPR = The interaction between Structure and Process and Practice;
- STR_OCL = The interaction between Structure and Organizational Culture and Leadership;
- PPR_OCL = The interaction between Process and Practice and Organizational Culture and Leadership.

This further step made the model more complex, but since the real world behaves this way, it is essential to reflect it in the model of investigation.

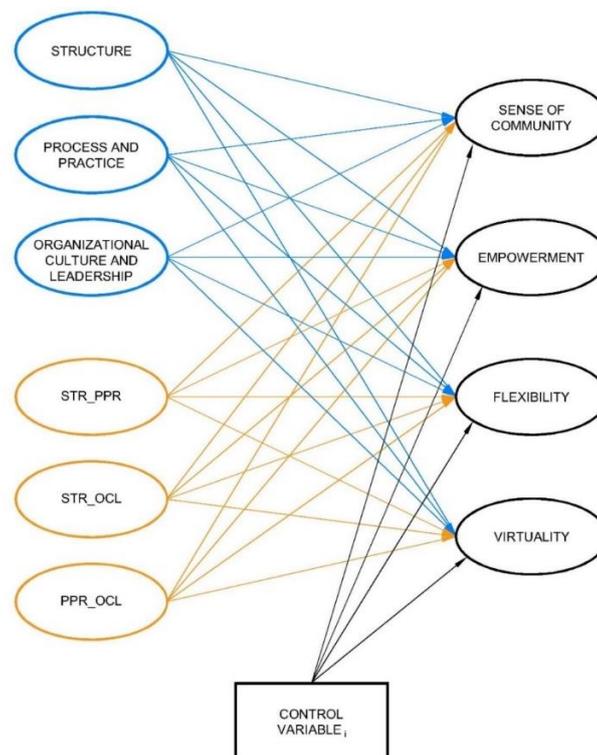


Figure 4 – Theoretical Framework 3

Again, the analysis of the literature has been essential in the definition of the constructs of the model and in the identification of the items to properly measure them. In this direction, with the purpose to measure the constructs of the model, measurement scales

adopted in previous academic investigations have been identified. The meaning of each construct has been summarized in Tables 1 and 2.

CONCEPT	CONSTRUCT	MEANING	REFERENCE
BUSINESS AGILITY	STRUCTURE	A network of empowered, cross-functional teams supported by the role mobility.	Aghina et al., 2018; Observatory, 2019
	PROCESS AND PRACTICE	Set of tools and working methods to support continuous improvement, task management and continuous feedback.	Aronowitz et al., 2015; Cabała, 2016; Aghina et al., 2018; Observatory, 2019
	ORGANIZATIONAL CULTURE AND LEADERSHIP	Culture oriented to the inclusiveness and involvement in the decisional processes of people, the transparency of the information, and the growth and development of the talents.	Breu, 2001; Spalek, 2013; Paterek, 2016; Hoda and Noble, 2017; Observatory, 2019

Table 1 – Business Agility constructs

CONCEPT	CONSTRUCT	MEANING	REFERENCE
SMART ATTITUDE	SENSE OF COMMUNITY	Set of skills to encourage collaboration, fostering the sense of belonging and aligning the people's values with the organizations' ones.	SW Observatory, 2016; SW Observatory, 2019
	EMPOWERMENT	Set of skills to make people accountable and responsible, involving them in the decisions and stimulating them to suggest ideas to improve the work.	SW Observatory, 2016; SW Observatory, 2019
	FLEXIBILITY	Set of skills to make people properly balance personal and professional life, making them resilient and with the right attitude towards the changes.	SW Observatory, 2016; SW Observatory, 2019

	VIRTUALITY	Set of skills needed to understand the most appropriate mix of tools to be used for each specific situation, lowering at the same time all the potential risks derived by an inadequate use of these tools.	SW Observatory, 2016; SW Observatory, 2019
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Table 2 – Smart Attitude constructs

After that, in order to answer the research questions, a questionnaire has been created in collaboration with Doxa. Here, particularly relevant has been the experience of the Smart Working Observatory, which supported the development and distribution of the online questionnaire (CAWI investigation) to a representative sample of 1000 professionals in Italy, belonging to the panel web of Doxa. After the distribution, all the answers have been stored in a structured database and analysed individually and collectively. Once the data preparation phase and the basic analyses on the sample have been accomplished, the next step has been to validate the robustness of the constructs identified relying on the Cronbach’s Alpha and to perform a confirmative analysis of the constructs of the models developed. These steps brought at the skimming of some elements and the formalization of the final models presented above. Additionally, in order to test the validity of the research hypotheses and the theoretical frameworks, the models have then been estimated through the Structural Equation Modelling (SEM) technique. Once the estimation has been performed, the goodness of the fit has been assessed, in order to evaluate how much the identified models fit the data. Specifically, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI) and Coefficient of Determination (CD) have been selected as good proxies of the goodness of the fit.

RESULTS AND DISCUSSION

Lastly, since the real value of research work lies in making appropriate suggestions based on the empirical findings, the outcomes of the analyses have been critically interpreted, with the purpose to highlight the main insights.

RQ1: Is the (Smart) Attitude of people affected by the Business Agility?

H1: *Business Agility positively impacts on the (Smart) Attitude of people.*

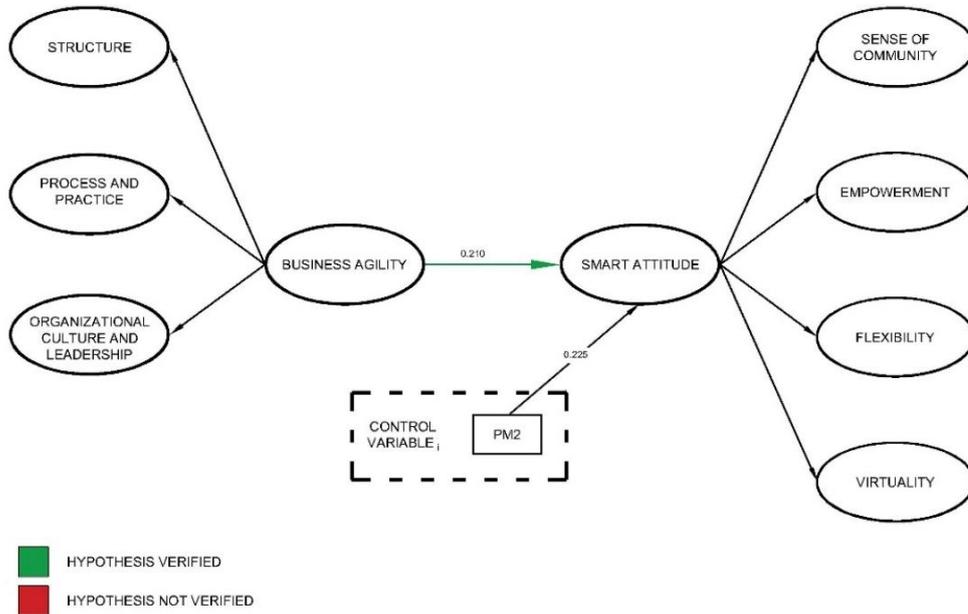


Figure 5 – Main findings Theoretical Framework 1

Through the estimation and test of the theoretical framework 1 it has been possible to prove that Business Agility has a positive statistically significant impact on Smart Attitude of people, successfully confirming the first hypothesis. However, this result just confirmed what both researchers and practitioners were already aware of, without really contributing the develop new insights. Additionally, despite the various control variables introduced in the model the only one statistically significant is related of being a people manager, which positively impact on Smart Attitude. However, few considerations can be done at this aggregate level. This reason led to the development and test of the other research hypotheses and models.

RQ2: *Which of the Business Agility levers have the highest impact on the elements of the Smart Attitude?*

H2: *Each lever of Business Agility has a positive contribution on each aspect of Smart Attitude.*

H3: *The interaction between the levers of Business Agility has a positive impact on each element of Smart Attitude.*

In this case a preliminary consideration is required. Given the fact that the theoretical framework 3 is the evolution of the theoretical framework 2, the results of the estimation of these models are aligned. Therefore, it has been judged more valuable to focus on the results of the most comprehensive framework, in order to provide a more structured and comprehensive analysis and interpretation of the outcomes. The main findings of these analyses have been summarized in the following figure.

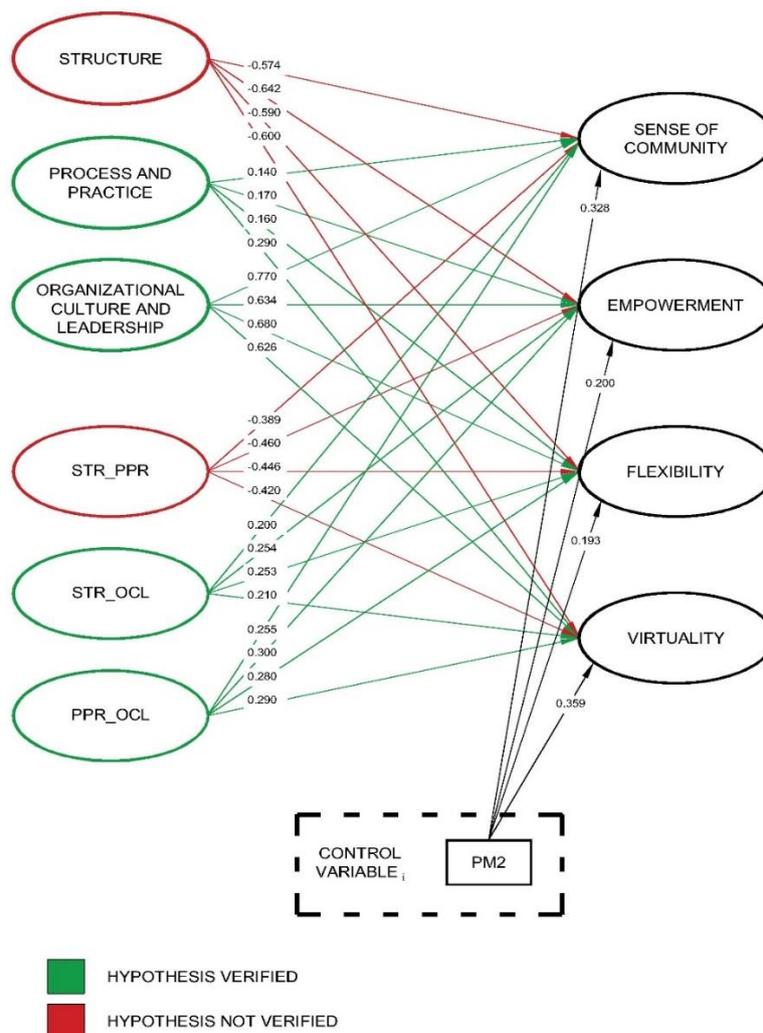


Figure 6 – Main findings Theoretical Framework 3

From the figure above it is possible to notice that even though all the hypotheses are statistically significant, not all the hypotheses tested have been confirmed. This is the case of Structure; whose results are negative regardless the element of Smart Attitude considered. This highlights some important considerations and new insights in this

field, since it contributes to enlighten aspects that were given for granted. The negative impact of structure on sense of community is explained by the fact that by working in cross-functional teams, if from one side it strongly enhances the personal network of the person, establishing new relationships, from the other there is a weakening of the sense of belonging, with the risk to lose the team or function identity. Similar considerations can be done for the negative impact of structure on the empowerment of people. Cross-functional teams increase the interdependence of the people within them, limiting the autonomy of each people. The negative impact on flexibility is explained by the resistance of people to change. This is not rare at all in the organizations that are transforming themselves (see e.g. Ebrahim et al., 2018). In the attempt to ensure higher autonomy to each team, the new structure imposes higher degree of coordination, interaction and planning for each member, leading to higher constraints for people which limit their flexibility. For virtuality instead, generally cross-functional teams are physically located together, in order to facilitate communication and coordination, since they require recurrent meetings. However, this favors the physical interactions rather than the virtual ones, negatively affecting the people abilities to properly and efficiently use digital tools.

The results of this explorative investigation clearly highlight the key role played by Culture to enhance the Smart Attitude of people. Even more, looking at the interaction between the different levers, the contribution of the cultural lever takes a new and more powerful meaning, since it makes the interaction with structure positive. This is explained by the fact that with the right culture and leadership styles people will not suffer from the loss of identity towards their original teams or functions and they will be able to properly balance communication and collaboration, both physically and virtually to reach the objectives. Hence, culture plays the key role in mitigating the resistance of the change due to the fear of the higher complexity to be managed in terms of coordination and planning. This is a very powerful message from the practitioners' point of view.

In conclusion Business Agility has a positive impact on the Smart Attitude of people. However, when disaggregating this impact in its elementary elements the negative contribution of Structure emerges, limiting the overall impact. Therefore, the second

and third hypotheses are not met. Structure has a negative impact on each element of Business Agility, and the mitigating effect of new processes and practices is not enough to make it positive. On the other side, the most impactful lever of the Business Agility on Smart Attitude is the cultural one, leading at the consideration that the essence of Business Agility does not stand in a new organizational structure or new processes or practices, but it stands in the cultural and managerial model. The spreading and adoption of the right culture and leadership style will not only ensure strong benefits on Smart Attitude, but it will positively improve the effect of the other levers. Additionally, given the higher level of detail of this model, also the variable People Manager takes new light. Being people manager positively impacts the Smart Attitude of people, and even more, it has an impact on each element of it. People Managers, compared to the employees, are characterized by higher maturity in each element of the Smart Attitude, where the most positively impacted element is Virtuality. This is explained by the necessity of people managers to coordinate and communicate with their people even remotely, enhancing their ability to use and select the right mix of tools to be most effective and efficient in the communication process.

CONCLUSIONS

This research has been inspired by the attempt to increase the understanding of the relationship between Business Agility and Smart Attitude. To accomplish this aim, a complete and structured study has been performed, resulting in new insights both from the theoretical and practical perspectives.

THEORETICAL CONTRIBUTIONS

Considering the objectives of this research, they have not only been widely accomplished, but they also allowed to cover the existing gaps towards the impacts of Business Agility on Smart Attitude. From the theoretical perspective, the outcomes of this investigation highlight a relevant benefit ensured by the cultural actions on each element of Smart Attitude, while it highlights the negative contribution of structure on it. Moreover, the study of two complex concepts as those considered requires specific studies of each concept. In this direction, this research makes a theoretical contribution

by extending the existing literature on the concept of Smart Attitude, verifying its constituent elements. On the other side, this investigation contributed to enlighten the concept of Business Agility, with particular concern for its specific levers. Indeed, as the literature review demonstrated, Business Agility is a widely discussed concept which needed clarity in its main levers. Finally, from the overall perspective, this investigation provides new directions on how to enhance the Smart Attitude of people by leveraging, in a prioritized way, on the organizational levers. Emphasizing the importance of a synergic approach among them.

MANAGERIAL CONTRIBUTIONS

The practical insights extracted from this work are, if possible, even more relevant. Nowadays, in the attempt to “reach” Agility, organizations are strongly committed towards a rethinking of their structure and processes, setting aside cultural actions, since these levers are perceived as essential to really abandon the traditional organizational models in favor of more agile ones. The results of this explorative research demonstrated the opposite: the cultural lever is the very first, and additionally the most positively impactful lever in the portfolio of the organizations. This investigation clearly points out the relevance and the priority of cultural actions to establish a common ground of values and leadership styles to support the adoption and implementation of the other levers. This is the most relevant contribution of this research from the practical point of view, since it allows to unhinge old beliefs and to push organizations towards a new and clearer horizon. At the same, from the findings emerge that structural change must be managed properly, in order to avoid potential drawbacks on people. This work provides an initial map of prioritized levers to be adopted for managing the complexity of the current context.

LIMITATIONS AND FUTURE RESEARCH

This work has some inevitable limitations. In this sense, in the future, researchers and practitioners can contribute to the present investigation by eliminating or at least mitigating the above limitations. A first limitation can be seen in the impossibility to study a real case where all the levers of the Business Agility have been implemented in practice and on a more systematic level. In the future, once the adoption of Business

Agility will be more widespread, it would be useful to confirm the findings of this research relying on a practical case. A second potential limit emerges in the measurement scale of the constructs of Smart Attitude. Given the novelty of the concept, there is a very limited number of papers or researches explicitly measuring these constructs. Still these constructs and their measurement have been previously tested by the SW Observatory, ensuring their reliability. Moreover, a limit could stand in the impossibility to test Business Agility and Smart Attitude with a certain time between them. This could be useful to properly catch the benefits deriving by the adoption and implementations of the Business Agility levers. Additionally, despite its relevance in the reference literature, the fourth limitation of this investigation has been the necessity to eliminate the construct “Ecosystem”, since the majority of the organizations have not implemented actions toward this lever yet, making the answers too much concentrated on the negative part of the scale, limiting the reliability of them for this work. In the future, it would be necessary to deeper analyze the lever ecosystem, once its maturity will be higher. This will enable a more comprehensive view of the synergic impact of Business Agility on Smart Attitude, enabling new findings. At the same time, it would be very interesting to further analyse the lever structure, in order to understand the reasons behind its negative contribution. Finally, in this investigation has not been considered the relationship between Smart Attitude and performance, future researches can focus in this direction in order to confirm the positive relation between them assumed in this study. At the very end, since the real value of a research is to look at its results with a critical perspective, looking at the control variable People Manager a last consideration arises: *is the “label” people manager that makes people attitude smarter, or it is the higher maturity in the Smart Attitude of people that enables them to have the responsibility of other people?* Even though for the moment it is hard to take a position, the results of this research encourages the first option, meant that being a people manager positively impacts on each element of Smart Attitude (and on the Smart Attitude itself), however, it would be very interesting to deepen this direction in future researches.

CHAPTER 1

THE RISE OF AGILITY

This chapter introduces a detailed analysis of the academic literature on the concept of Agility in all its fields, starting with a brief description of the main trends and the socio-economic aspects that are affecting the current context, strengthening the need for organizations to adopt new and more coherent configurations. Through the study of scientific papers, it is explained the rise of this concept and its relentless expansion from Software Development field only to the Business level. Starting from its origins in software development, passing through its diffusion in project management and finally arriving at its systemic and synergic view at the overall organizational level. After an in-depth study of these aspects, there will be the identification of the most recent and acknowledged frameworks of levers at the foundation of the so-called Business Agility. Concluding with a brief list of potential barriers and challenges that could slow down the adoption of this new philosophy at the business level.

1.1 THE EVOLUTION OF THE WORKING CONTEXT

In this paragraph there is a brief description of the trends shaping the workplace and the socio-economic context, with the purpose to point out the main reasons behind the growing need of higher responsiveness.

The work context is changing from its roots (Johnson, 2009), with consequences both in short- and in long-term: the continuous increase in the global competition, the

sudden technological innovations and ever-increasing customer expectations are all factors that determine a turbulent environment in which flexibility plays a key role for organizations (Sánchez et al., 2007). In this new global scenario, it is risky to keep relying on traditional models and methods, which were very effective in the past. Keep going in this direction could become a tough threat – and even a weakness – for managers and companies which feel the increasingly pressure in managing the relationships with their employees and customers.

In relation with these changes, it is possible to identify a shift in the organizational focus: moving away from the traditional models identified during the Industrial Revolution, where the focus was on the standardisation as the main lever to increase efficiency, towards a new direction enabled by the information era. Moreover, this new perspective of work is enabled by the emerging and increasingly powerful technologies (Bajer, 2017), these advanced technological opportunities result in new fundamental paradigm shifts and affect almost every enterprise, regardless of size or industry sector (Mathrani et al., 2013; Bley et al., 2016). These technologies ensure a better communication (Plantronics, 2013), making possible to overcome the spatial and temporal barriers of the traditional models (Lee et al., 2007; Cummings et al., 2009). This led to the death of the office as the way we know it. Nowadays, the most successful businesses are those who are able to be more responsive, keep their costs low while being able to work with their clients, balancing the necessities of their employees (Lutz, 2013). Hence, it is becoming always clearer the need to move away from the traditional models, that can be defined as “obsolete” and not able anymore to meet neither the organizational nor the individual needs (Pennesi, 2014).

In the following paragraph have been identified and briefly analysed the most relevant trends which are forcing organizations to consider new organizational models.

1.1.1 CURRENT TRENDS AND THEIR IMPLICATIONS

Nowadays, the tools, means and methods adopted to perform work activities have changed dramatically (Hamel, 2012), this is due to the increasing complexity of the competitive environment that forces firms to think how to adjust and sharpen their

models (Eustace, 2000), aiming to improve the efficiency and efficacy (IBM, 2010). To survive and succeed firms must be aware of the changes, while simultaneously adapting themselves to these changes, stimuli of the environment and the keep changing market rules. To do that they have to adopt new managerial and organizational configurations (Battilana and Casciaro, 2012). Indeed, successful organizations can be defined as those organizations who are able to properly recognize changing in context, shifting from inappropriate working configurations (Birkinshaw et al., 2008) and models, towards the adoption and implementation of innovative and winning organizational principles and layouts (see e.g. Vlaar et al., 2008; Leonardi and Bailey, 2008; Gastaldi et al., 2015). For this reason, to concretely and deeply understand the cause of these changes and the potential directions of the work scenario, it is useful to explore the main trends which are impacting the current and future working context:

The increasing *Globalization*, defined as the opportunity for firms to enter new markets (Friedman, 2005), is increasing the competition worldwide, impacting on societies, cultures and populations by interconnecting them (Wallace, et al., 2011). This trend is enhanced by the existence of information and communication technologies (ICTs), which enable the access to information whenever and in any place, so there is the gradual elimination of temporal and physical borders (Espinosa et al., 2003). To survive companies must work more efficiently and quickly (IBM, 2010). Hence, the globalization is pushing firms to find always more agile solutions to answer the ever-more quickly changes in the global competitive environment (Lake, 2013).

The *Information and Communication Technologies* (ICTs) are considered as the main tool to be used by firms to face the turbulent context in which they operate (Gajendran and Harrison, 2007). The development of new ICTs has a strong impact in the way people communicate, socialize and work (Lake, 2013). Their development and adoption have brought to new organizational scenarios (Ghezzi et al., 2012) and to new forms of work (Moen, 1996). The evolution of communication technologies has increased both productivity and flexibility within companies, supporting the creation

of integrated workplaces based on a combination of devices, applications, networks ensuring that the information sharing through the most appropriate means, regardless of the physical boundaries (Cisco, 2007). Studies have proven that thanks to the adoption of new ITCs there is an improvement also in the communications and in the relationships within teams geographically dispersed (Workman, et al., 2003) that is translated in a lower negative impact of the cultural differences. Lastly, this is turning mobility into a working style. Studies argue that all the generations, within the workforce, independently of job levels or titles are embracing mobility as a working style (Knoll, 2009). Here, a strong change in mentality is required, a change that is not just related to always being connected to the work, but more concretely it is related to the need to review the rules and policies of the communication between employees, especially linked to the requirement of being available in certain moments (Mazmanian, 2013). At the same time, technologies have sparked new forms of work and employment in the digital economy (Valenduc, 2019). Literature refers to these new types of workers with the terms neo-nomads (Naz, 2016), lifestyle-migrants (Rana, 2018) and most commonly as digital nomads (Dal Fiore et al., 2014; Richards, 2015). *Increased need of flexibility and autonomy* (Knoll, 2011). Several studies proved that employees wish to have an experience aligned with their values. More specifically, employees want a workplace shaped according to their identities, and not as traditionally happened just a workplace that tries to define them. Moreover, the desire for more flexibility at work can be interpreted as a reaction to the complexity of working for globally distributed organizations, which by operating in different time zones can require meetings in the late evening or the early morning. Lastly, people require more autonomy and trust to choose the most suitable way to organize their work (Flexibility, 2011).

The *growth in the connection and interconnections* among people, mainly ensured by the development of new technologies, which leads people to follow the so called “*always on business culture*” (Freedman, 2005). This new cultural approach is based on the belief that people should be always reachable – anytime and anywhere. There are no more empty moments where people can reflect or just stay off (Colbert et al.,

2016). Furthermore, this led to the so called “the new night shift” (Stone, 2014), when employees stay logged after normal business hours in order to address incoming electronic communications. Hence, understanding how to create awareness and to reduce the deleterious effects of electronic communications from work during nonwork time is valuable to organizations which are looking for new solutions to these negative impacts.

The development of the phenomenon of the “*intangible economy*”, fostered by the so called “*servitization*” and characterized by the trade of services instead of just physical products. With this new step in the economic history, the value is shifting away from tangible goods to the increasing importance of services, like the “knowledge intensity” in product and services, and the experience as an essential economic offer. In the intangible economy, based on intangible goods (e.g. culture, education, health, etc.), the ability of companies to engage valuable professionals with the right skills is a vital aspect for their success (Florida, 2003). For this reason, one of the most relevant emerging needs is the one to rethink the competitive advantage of the organizations, not based anymore on the tangible resources, but more linked on the competences and know-how of the employees (Sánchez et al., 2008);

The *relevance of sustainability*, which is acquiring more and more strength among the companies who want to improve their competitive position in the market (Brady et al., 2000). To be successful nowadays, companies cannot just focus on their economic results, but it is mandatory for them to address in a comprehensive way also environmental and social aspects. Hence, it is essential to operate in a sustainable way (Knoll, 2009), embracing the sustainability principles. It is important to notice that this trend is not led by the increase of demand of “green products”, rather by the aim of companies to reduce costs and risks, and to foster innovation and efficiency (Patz, 2008; Willard, 2012).

The *spread of “diversity”* which leads to the “coexistence” among diversified working populations (Dencker et al., 2010), mostly due to the *demographic change*. The increasing diversity in modern organizations requires a never-ending re-examination of how organizations can manage the multiple types of identities people bring into the

workplace in order to make organizations more innovative and effective (Freeland, 2012). To foster this diversity, there are empirical researches documenting clear generational differences on this and other workplace issues (Bectonet al., 2014). Today, the number on “digital natives” – those who are born or grown as native speaker of digital language of computers, video games and the Internet (Prensky, 2001) – entering the workforce is increasing (Colbert et al., 2016), for this reason there are several visions and values derived from the different generations composing the current workforce, a complexity that have to be managed, trying to balance the different visions, strengths and weaknesses, by simultaneously exploiting this diversity as a new source of advantage, scouting and catching new opportunities (Filipczak et al., 2000).

Lean Organizations and Re-engineering are becoming a standard. Relying on external partners for the non-core activities has become a way to reduce costs and gain flexibility (Lake, 2013). Moreover, through process reengineering organizations can boost the speed of the process, and at the same time reducing the resources required and improving productivity (Hammer et al., 1995). Lastly, researchers pointed out that the adoption of a lean structure helps organizations to develop competitive advantage against competitors (Hino, 2006; Abdumalek and Rajgopal, 2007).

In conclusion, rapid changes in demand, competition, technology, and regulations, enhanced by the need to manage a new generation of workers with very different expectations and needs have made more important than ever for organizations to be able to respond and adapt quickly. No organization is immune to these changes which present both challenges and opportunities. It is evident that organizations to survive and succeed need to develop, adopt and implement new ways of working. Organizations that embrace, not just the new technologies but also new ways of working will continue to find a competitive edge in whichever area they choose to operate. However, what has traditionally kept organizations secure in the past may not do so in the future. Thus, the companies need a new way of working to survive and flourish in this evolving context. Business Agility is not only promising to enable this new paradigm shift, but rather it actually delivers it. Some firms are embracing this

philosophy, forming a vast global movement: the agile movement, which is transforming the world of work (Denning, 2017) towards higher level of responsiveness.

1.2 AGILE SOFTWARE DEVELOPMENT

What can be defined the Agile movement (or revolution) began many decades ago, but its adoption and diffusion boomed more recently in an unexpected field: software development (Denning, 2017). In the mid-1990's the majority of the software development projects followed a linear and heavyweight development steps consisting of a completed set of requirements and design, followed by coding and testing activities based on a thorough plan (Williams, 2012). They were based on the philosophy to "Do it right the first time" (Williams, 2012). This was strengthened by the common belief among software development practitioners that strictly following methodology would have ensured the success in meeting the expectations and needs of their customers (Williams, 2012). However, according to Williams (2012), the reality was far from this, making difficult to meet the customers requests. The main problem in the software development field was that businesses moved fast, even in the past 20 years: within a very short period, requirements, needs, systems, and even entire businesses were likely to change, with the result that many projects were partially cancelled during the process, while the ones completed were not able to meet all the changed requirements, despite the fact that the project's original objectives were met. It is possible to identify two constant pillars in the software industry, which have not changed during time: (1) *constant growth*, and (2) the *rapidity in both the change in requisites and in the complexity of the software* itself. These elements made the software increasingly fragile and rigid in front of the fast-changing demand, forcing companies to develop higher responsiveness and flexibility to adapt to those changes of the markets (Leffinwell, 2011). In that scenario, it was common that product specifications were outdated by the time the software was delivered to customers, and the developers felt oppressed by bureaucratic procedures (Rigby, 2016).

These changes worsen during the time, companies were confronted with even higher frequency of changes due to innovations and new technology (Broy 2006), increasing the development and spreading of all kind of products into all markets. As a result, the amount of software and connected solutions increased exponentially during the last decades, making the fast development and distribution of high-quality software a competitive advantage.

The rise of agile methods and practices started to get significant attention almost 20 years ago with the “Manifesto for Agile Software Development”, often referred to as “Agile Manifesto”. In 2001, 17 rebellious software developers met in Snowbird, Utah, to share ideas for improving traditional software development, where detailed requirements and execution plans were created up front and then passed sequentially from function to function (Rigby, 2016). They recognized that this approach was suitable only for stable environments, but not anymore for software markets due to rapid and unpredictable changes. Rather than focusing on the differences and competitive advantages of the many software development methodologies that existed at that time, they put the emphasis on the common interests and philosophies with the purpose to effectively rocked the software industry. All their efforts brought to the creation of a new approach to software development, coining the term Agile Software Development (Williams, 2012), while the development frameworks that follow these values and principles are known as agile techniques (Rigby, 2016). According to several researchers these methods emerged as a reaction to the increased dissatisfaction of software developers with traditional, plan-based software development methods (Abbas et al., 2008). The Agile software development methods are based on a set of principles which enable developers to continuously adapt to the changing requirements (Lindlöf and Furuhjelm, 2018), these methods seem to be the solution to keep pace with the changes. However, it is fair to point out that if from one side, the rise of agile methods was welcomed with enthusiasm by many developers, from the other it also led to criticism. It is possible to identify at least two mindsets of approaching agile development, there are those developers who apply agile practices because they believe in the values and principles of the manifesto, seeing it as the “Holy Grail” for successful software development, and those who do it because they

perceive it as the current best practice. There is also a part of developers who believe that the manifesto is just a marketing gimmick to sell intuitive development behavior within a new livery (Hohl et al., 2018).

The Agile Manifesto is significant to this study because it is the seminal source for Agile software development methodologies and describes the specific values and principles on which modern day Agile software development is based.

1.2.1 THE AGILE MANIFESTO

The Manifesto for Agile Software Development, commonly called just Agile Manifesto, emerged with four core values for developing software and twelve principles to guide adherence to those values. According to Beck et al. (2001), the authors of the Manifesto sought to uncover better ways of developing software, summarizing them in core values and principles (Beck et al., 2001). The core values identified by the authors are: (a) Individuals and interactions over processes and tools; (b) Working software over comprehensive documentation; (c) Customer collaboration over contract negotiation; (d) Responding to change over following a plan.

While the principles listed in the Manifesto are (Beck et al., 2001): (a) Our highest priority is to satisfy the customer through early and continuous delivery of valuable software; (b) Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage; (c) Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale; (d) Business people and developers must work together daily throughout the project; (e) Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done; (f) The most efficient and effective method of conveying information to and within a development team is face-to-face conversation; (g) Working software is the primary measure of progress; (h) Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely; (i) Continuous attention to technical excellence and good design enhances agility; (j) Simplicity--the art of maximizing the amount of work not done--is essential; (k) The

best architectures, requirements, and designs emerge from self-organizing teams; (1) At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

The authors identified as their highest priority the need to satisfy the customer by delivering software early and continuously (Beck et al., 2001). At the same time, instead of trying to avoid requirements changes, the authors encourage changing requirements, even late in the process, claiming that the ability to manage changes ensures a competitive advantage and adds value for the customer (Beck et al., 2001).

Researches on agile software development is accumulating and maturing (see e.g. Dybå and Dingsøy, 2008; Jalali and Wohlin, 2012, Senapathi and Srinivasan, 2013; Kaisti et al., 2013). A variety of publications (Dingsøy et al. 2012; Theocharis et al. 2015) consider the evolution of agile software development after 2001. Several theoretical approaches based on different points of view and perspective of the manifesto have led to a wide range of publications within the last years. Agile methods have been both criticized and advocated, and research has shown that accommodating change may be a factor in both success and failure (Boehm, 2002). According to Williams (2012) this success has been enduring. Indeed, despite the numerous upgrades and improvements in the Agile software development practices occurred since its publication, the core principles defined within the Agile Manifesto remain highly valued, followed, and implemented within the software development community and industry.

The agile movement can be considered the alternative to the traditional software development methods. It can be defined as a set of iterative and incremental approaches that are advocated based on an “agile philosophy” captured in the Agile Manifesto (Fowler and Highsmith, 2001; Dikert, Paasivaara, and Lassenius, 2016). While, traditional methods focus on up-front planning and strict management of change, agile methods were designed to accept and efficiently manage rapid changes (Cockburn and Highsmith, 2001). During time, many agile methods have been proposed and developed in order to meet specific requirements and situations. Here a brief list of the most acknowledged examples in literature: Scrum and XP (Mikulénas

et al., 2011), Agile Unified Process (Kroll and MacIsaac, 2006), OpenUP and Agile Modeling (Ambler, 2002), Kanban (Ahmad et al., 2003), Lean Software Development Poppendieck and Poppendieck, 2003), etc. However, the researchers agree that two of the most popular agile methods are Scrum and Extreme Programming (XP) (Hamed and Abushama, 2013). Respectively, Scrum gives more emphasis on project management aspects, while XP is developed to be more responsive to changes in the customer requirement (Mikulénas et al., 2011). At the same time, many agile development implementations combine the two in some way (Fitzgerald et al., 2006).

1.2.2 BEFORE THE AGILE MANIFESTO

Researchers argue that while Agile software development has been most visible since the introduction of the Agile Manifesto in 2001, ‘Agile’ ideas, practices, and experiences were not new and have existed for decades longer before (Abbas et al., 2008). They state that the path towards the Agile development passed through an evolution of steps and approaches that have been successful for many decades. As the foundations of the agile manifesto there is the iterative and incremental software development, this was first described by Gerald Weinberg in 1957 (Larman and Basili, 2003), an IBM programmer. This is strengthened by the fact that the very first reference in literature considering iterative and incremental software development has been the “iterative Multi-Level Modeling - a methodology for computer system design”, published in 1968 (Zurcher and Randell, 1968).

Other authors, describe the history of Iterative and Incremental Software development, starting in the pre-70s and ending up with the manifesto in 2001 (Larman and Basili, 2003). In their researches, they divided the history of agile into decades. According to Larman and Basili (2003), the agile mindset started in the 1930s with the idea of “plan-do-study-act” cycles. Furthermore, they report several projects following this new approach, an example could be the NASA’s project Mercury where the authors highlighted that practices such as short iterations and test-first development were already used in the Mercury project. Nowadays, it is possible to find these practices in the agile methods such as Scrum or XP (Larman and Basili, 2003).

In the seventies, Royce (1970) published an article which is considered as the basis for the waterfall-model. In his article Royce describes his personal views of managing large software developments and what is “necessary to transform a risky development process into one that will provide the desired product” (Royce, 1970). His purpose was to reach the condition of delivering software on-time and within predefined costs (Royce, 1970). Royce proposes to use the waterfall model’s phases with an iterative relationship between successive phases, with the benefits ensured by the limitations of the development stages under certain limits (Royce 1970). He furthermore suggested to use prototypes in order to simulate the final product before concretely developed it, presenting at the same time the first reflections about iterative development, feedback and adaption (Larman and Basili 2003; Royce 1970).

In the 1980s, many approaches of incremental software development were presented (Wallis 1984; Swartout and Balzer 1982), e.g. the Boehm’s spiral model (Boehm 1986). The work presented by Boehm and others have been the basis for the Rapid Iterative Production Prototyping in the mid-to-late eighties (Buragga and Zaman, 2013), however these incremental-based approaches were not considered too much in this period, relegating them as secondary in front of the waterfall approach.

Finally, several decades of software development and best practices from development approaches and applications in industry ended up in the meeting in Utah, where the most suitable techniques were combined within the manifesto for agile software development.

1.2.3 BENEFITS OF AGILE SOFTWARE DEVELOPMENT

As compared to traditional, plan-based software development methodologies, Agile methodologies provide several benefits such as adaptability and flexibility to respond to frequently changing requirements and priorities, shorter development cycles, deliver functionality on a more frequent basis and increased focus on customer needs (Abbas et al., 2008; Barlow et al., 2011; Alqudah and Razali, 2016; Dikert et al., 2016; Hobbs and Petit, 2017).

At the same time, these methodologies ensure acceleration of time-to-market, better alignment with business goals, improved productivity, and increased customer satisfaction (Abbas et al., 2008; Barlow et al., 2011; van Waardenburg and van Vliet, 2013; Alqudah and Razali, 2016; Dikert et al., 2016; Gandomani and Nafchi, 2016; Hobbs and Petit, 2016). Across the software industry, there is a common view that using Agile on a software project will result in a greater likelihood of success (Henriksen and Arne, 2017). However, if from one hand it has been shown that agile methods have improved satisfaction of both customers and developers, on the other hand there is evidence that agile methods may not be a good fit for large undertakings (Dybå and Dingsøy, 2009). A proposed solution is that each organization seeks its own balance of agile and plan driven methods (Boehm, 2002).

1.3 AGILE PROJECT MANAGEMENT

Digital transformation results in a rapidly growing number of projects delivering advanced and innovative business services or products to customers and users. As the complexity, customization and rapid response expectations are constantly increasing, there is a need to search for more effective way to manage team and projects. Hence, although agile methods were developed by and for software developers, their relevance and appealing for other types of development projects has been intensifying. In other words, while originating in software development, after having reached a good level of diffusion within the software industry (Nishijima and Dos Santos, 2013) agile methods have begun revolutionizing the way work is organized, managed and executed and have gained increased attention in the wider field of project management (Stettina and Hörz, 2015). This has been confirmed by Google Trend, where in 2011, the term “agile project management” for the first time surpassed “agile software development”. Researchers and practitioners agree that Agile project management is one of the possible responses to properly deal with both market demand and competition, this led to increase its popularity pushing an important number of large-scale organizational changes through the process called Agile transformation (Gandomani and Nafchi, 2015; Dikert et al., 2016; Hoda and Noble, 2017; Denning,

2018). Agile project management methods caused a revolution in the organization, management and execution of many projects (Abrahamsson et al., 2009, Dybå and Dingsøy, 2008). On a principle level, agile methods align well with what development process theorists call an “experiential strategy” (Eisenhardt and Tabrizi, 1995), and what strategic management theorists call “dynamic capabilities” (Teece et al., 1997).

1.3.1 TRADITIONAL PROJECT MANAGEMENT

Project management, as a scientific discipline, has been developed since the 1960’s (Kerzner, 1987). At that time, projects were largely independent, and they were characterized by a long implementation period – estimated in months or years. Moreover, their degree of complexity was usually high, leading to great concerns at the budget level. For these reasons, the emphasis was to develop a detailed planning of tasks and then strictly monitor the implementation of the projects relying on the initial assumptions (Kerzner, 2013; Wyrozebski and Spalek, 2014). The most known “traditional” method of project management is the so-called Waterfall methods (Saynisch, 2010; Pellegrinelli, 2011; Spalek, 2015), which is characterized by its very structured nature based on distinctive steps (Royce, 1970). At the same time, Waterfall refers to an umbrella of methods based on similar principles and steps in development. These steps are always done in a predefined order, where one step is not started until the previous one is completed (Othman et al., 2017). While, when the step assumed fully completed, it will not be revisited (Hass, 2007). Intuitively, this puts a major focus on planning and controlling the project *ex ante*, with the highest level of detail in order to deeply understand the scope of the project. A key element in these methods is that everything in the project must be stable and predictable (Vallabhaneni, 2018) in order to make it feasible to plan the whole project *ex ante*. These methods normally have both strengths and weaknesses (Avison and Fitzgerald, 2006). Their main focus is on the relevance of clearly define the requirements and the initial stages of the development, which are considered as the backbone for the project. On opposite side, with these methods it becomes difficult to deal with the change in requirements during the project. Moreover, according to Othman et al. (2017) the waterfall model implies

the risk that errors from the previous phase can be transmitted to the next phase without a mechanism of correction, since the verification occurs at the end of the whole process or very closely to it. The Figure 1.1 shows the classical approach of the Waterfall model, clearly highlighting that the philosophy behind this approach require to have a set of well-defined requirements before starting the design phase and implementation of the project.

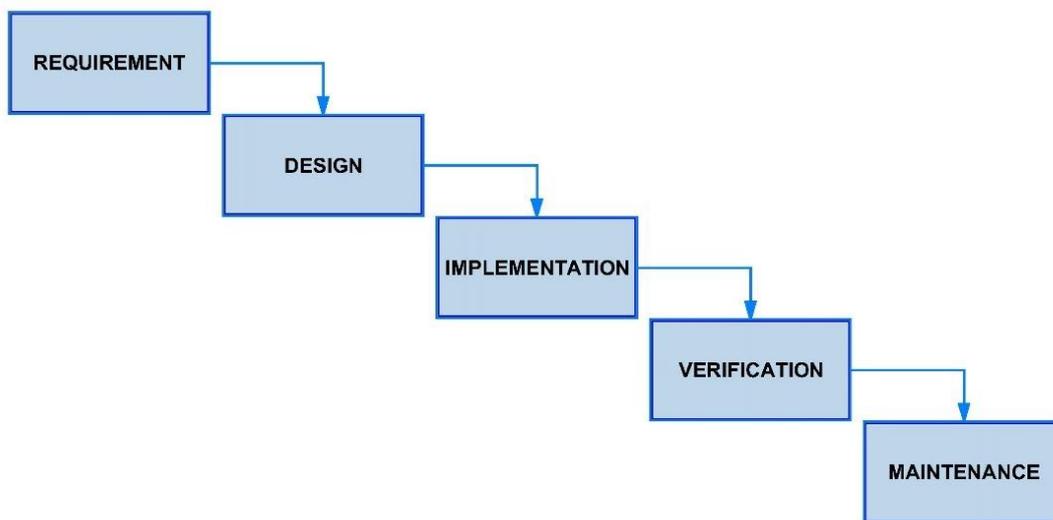


Figure 1.1 – Waterfall framework

In conclusion, traditional project management methods have been developed and improved over the last decades, consequently their broad application in managing the projects (Ji et al., 2011) is indisputable. However, the turn of the century brought new challenges as the number of projects significantly increased, creating multi-project environments in companies (Hofman, 2014). The need for time-to-market reduction, cost-cutting and enhancing client satisfaction generate new demands in managing the projects. The answer to this demand seems to be modern project management methods. In the search for new ways of dealing with that situation, the concept of agile project management rises leading to new methods of managing projects (Curlee, 2008).

1.3.2 AGILE PROJECT MANAGEMENT

Nowadays, much of the interest of both scientists and practitioners is focused on the agile project management, this is mostly due to the wide range of activities that can be covered from these methods within the organization. As for the Agile Manifesto, the priority of Agile project management is oriented at the client's needs with the main purpose to find always new ways to deal with the keep changing client's expectations. It is important to note that agile principles have not changed substantially since the development of the Agile Manifesto in 2001. Hence, Agile Project Management includes methods where both solutions and requirements evolve through collaboration between self-organizing, empowered and cross-functional teams (Jacobson, 2006; Gregg et al., 2016). Agile methods show different patterns of action from the traditional plan-based projects (Nerur and Balijepally, 2007; Thummadi et al., 2011). Compared to the traditional approach based on predictive project methodologies such as Waterfall, Agile is faster and more flexible due to frequent feedback loops, close interaction with customers, and iterative reviews (Stettina and Hörz, 2015). They are based on recurring activities, called routines (Pentland and Feldman, 2007), such as iterative delivery of intermediate results or periodical coordination meetings (Schwaber and Beedle, 2001; Williams, 2012), where the delivery of the project is a continuous process rather than just one delivery at the end of the it. The main reason behind this aspect is to increase the adaptability and responsiveness for facing the current context – in other terms, to be more “agile” (Cao and Ramesh, 2007; Nerur and Balijepally, 2007). This effective response to change, combined with good communication with stakeholders is the most important aspects of agile development (Pressman, 2009). According to Abbas (2008), Agile methods are a reaction to the increasing change in the business and technology environment where traditional approaches simply cannot cope with frequently changing requirements that occur over the life of a project. These new methods present a viable option to ensure frequent and continuous delivery of business value, quality products and services, a better alignment with business strategy and budget control (Campanelli and Parreiras, 2015).

It has been proved that the level of Agile methods used in a project has a statistically significant correlation to a project's efficiency, stakeholder satisfaction, and overall project success (Serrador and Pinto, 2015).

According to Overhage et al. (2011) the most popular agile methodology is Scrum, while sometimes it is mistakenly seen as the only agile practice (Klunder et al., 2017). It is the project management framework which helps to manage complex development projects (Schwaber and Beedle, 2001). One of its key points is working in short sprints (Moe et al., 2010), which can be seen as time boxed development cycle that takes from one or two weeks to one month (Figure 1.2).

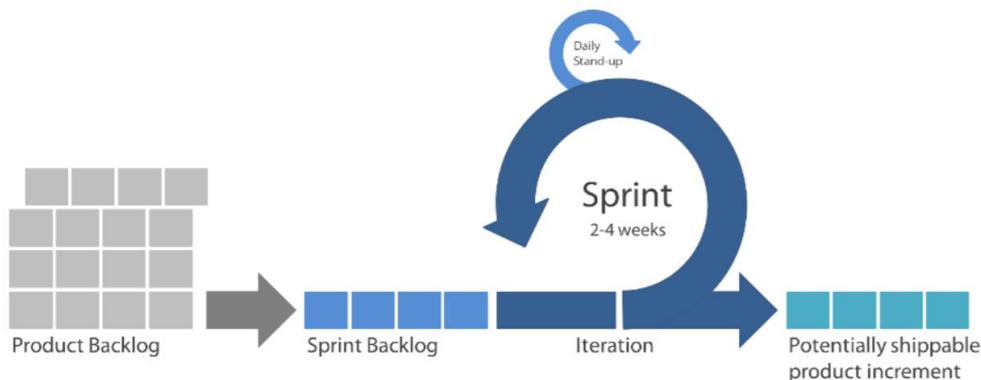


Figure 1.2 – Scrum framework: Sprint (Observatory, 2019)

Scrum is characterized by three major roles, respectively: (1) the development team, (2) the Scrum master, and (3) the product owner (Bass, 2013). The development team is responsible for implementing functionality based on this backlog (Vlietland et al., 2015), the team meet daily to discuss progress and obstacles in order to quickly implement the requirements. The Scrum master makes sure that the Scrum values and rules are correctly practiced (Cho, 2008), facilitating the activities related with the development team. Lastly, the product owner is responsible for maximizing the value of the product and the work of the development team (Sutherland and Schwaber, 2013), and it is also responsible to collect customer requirements, which are then listed on the product backlog.

According to Bass (2013), the product owner holds a central role in the process since it is in charge of the communication between customer and development team. It represents the voice of the customer during the project development steps supporting the quick implementation of new customer requirements. Finally, it has been proved that the relationship and collaboration among the three roles is vital (Yin et al., 2011). The Scum process is showed in the Figure 1.3, where first a product backlog is created, which is a list where the customer requirements priorities are selected. Then, the requirements identified are categorized into short term objectives, called Sprints (maximum three to four weeks), that are established by the project manager or scrum master (Linz, 2014). While the development teams is charge to identify and overcome potential obstacles to the implementation of the customers' requirements. Scrum is a method focusing on the project management perspective of the agile development (Schwaber and Beedle, 2002), prescribing timeboxing, continuous tracking of project progress, and customer centricity.

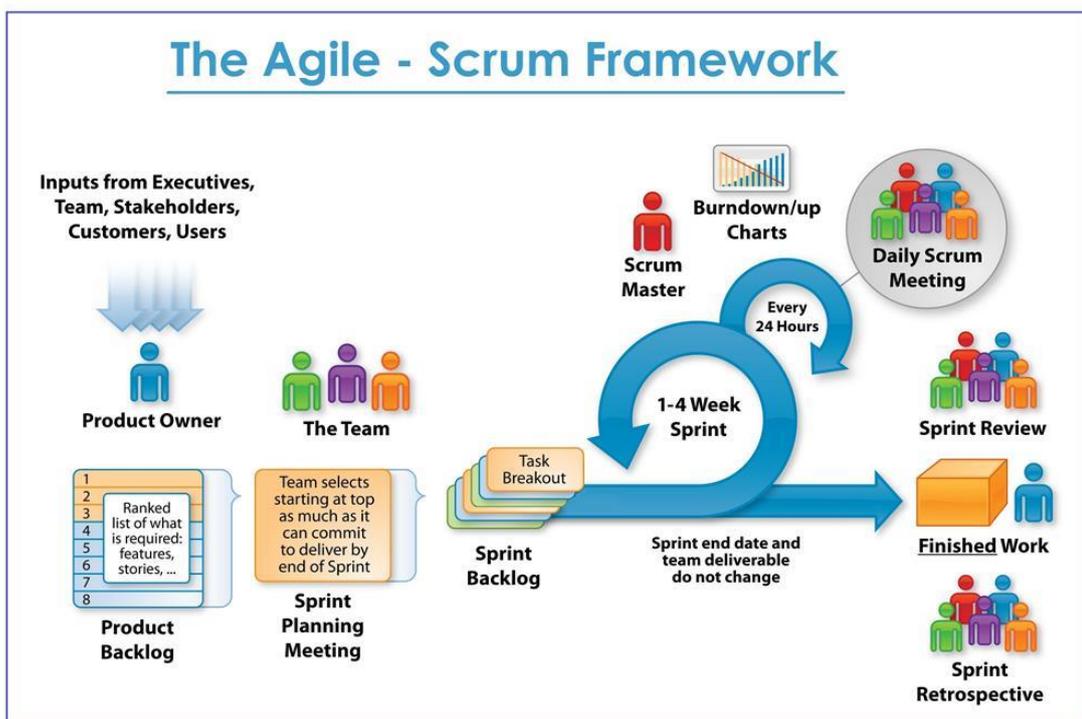


Figure 1.3 – Scrum framework (Mazzucco, 2019)

Achieving a higher degree of project agility means that the whole enterprise can achieve more values, improving its position in the rapidly changing and unpredictable context where it operates (Gandomani and Nafchi, 2014; Gurd and Ifandoudas, 2014). However, despite the increasing relevance of Agile methodologies in the project management field, it is important to notice that the current methods are bound to a “sweet spot” (Hoda et al., 2010) of small, co-located projects and individual teams.

Concluding, Agile methodologies have been transforming the way in which organizations undertake both software development and project management for the past decades (Rigby et al., 2016). Their adoption is booming, leading to a more recent and broader concept of applying agile practices to organization as a whole.

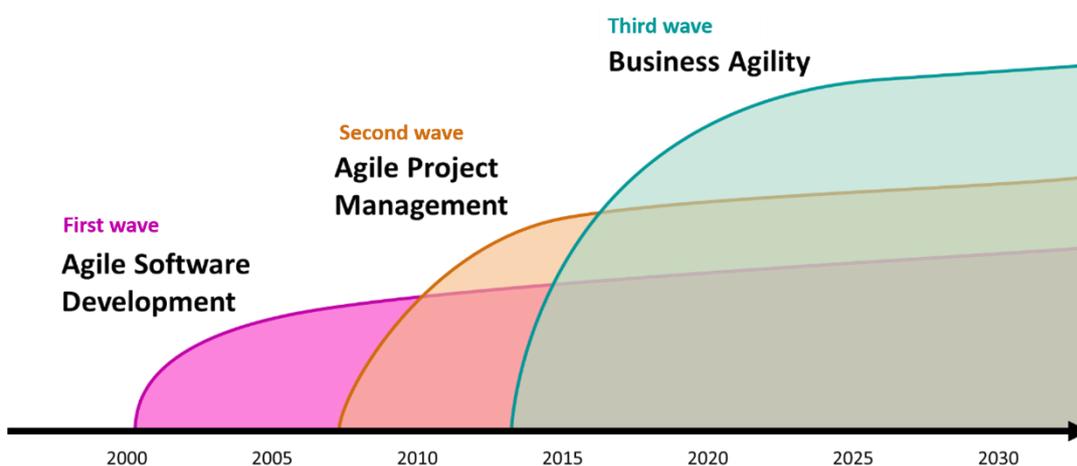


Figure 1.4 – The Agile expansion (Mazzucco, 2019)

1.4 BUSINESS AGILITY

In literature there is increasing attention in trying to comprehend the concept of agility. Globalization has caused markets, technologies, and organizations to be more interconnected, leading to global partnerships, outsourcing, and internationalization. Compounded by the intensification of the global rivalry is making competitive advantage increasingly temporary. Simultaneously, customers expect high quality products and services with a fast delivery and attractive prices, while there is a new

generation of workers which is approaching the work environment, with very different expectations and needs to be managed. Moreover, beyond the shifting nature of consumer preference, changes in technology play a significant role towards higher uncertainty and competitive intensity. Indeed, digitization enables worldwide connections, impacting at the same time both the consumer preferences and the lifecycle of products. For these reasons, agility is becoming vital for organizations. It enables quick adaptation and response, making it increasingly linked to the organizational success in today's competitive environment. According to Davis (2009), the world is experiencing not just another turn of the business cycle, but a broader and deeper restructuring of the business order. Therefore, there is the need to comprehensively understand which factors make an organization agile.

After the success of the Agile methodologies in software development and project management, organizations started to expand agile practices in other departments. These practices are adapted to better fit with the specific requirements and needs of each department involved, resulting in a large increase of agile practices and interpretations of the term 'agile'. Nowadays, this term incorporates an umbrella of terms with several definitions, interpretations and perspectives across both researchers and practitioners. All the different declinations of this term agree that Agile methodologies are iterative, self-organizing, incremental and emergent. All characteristics that help increase the maneuverability of an organization (Cockburn and Highsmith, 2001; Larman, 2004; Cohen et al., 2004; Abbas et al., 2007). According to Aghina et al. (2015), Agile organizations are truly different, while "traditional" organizations are static, siloed and hierarchical, agile organizations act as a network of empowered teams operating in rapid learning and fast decision cycles. If from one side, traditional organizations place the most powerful governance bodies at the top with goals and decision rights flowing down the hierarchy, from the other, agile organizations emphasize powerful common purpose and leverage on new data and insights to delegate decisions to teams closest to the information. In this way, agile organizations manage to combine velocity and adaptability with stability and efficiency (Aghina et al., 2015). For this reason, Business Agility is regarded as a key business factor and an enabler of competitive advantage (Ganguly et al., 2009),

promising to make companies future-proof (Lockard and Cleff, 2016). However, developers and organizations often declare themselves “agile” when just using Scrum by the book, this highlights a critical issue that nowadays occurs very often: the meaning of agility is wrongly interpreted, not understood, and commercialized (Klunder et al., 2017).

In the recent past, there has been increased activity in trying to comprehend the concept of agility especially in literature, where it is increasingly clear that this concept is difficult to delineate (Laanti et al., 2013). Agility emerged in practice and has been discussed across different scientific domains such as business management (Van Oosterhout, 2010), manufacturing and logistics (Booth and Harmer, 1995), information systems (Conboy, 2009), and sports science (Sheppard and Young, 2006), etc., and this variety of perspective and perceptions of agility makes it difficult to reach a common definition. According to a recent McKinsey Global Survey, despite its relevance as a strategic imperative for organizations, the concept of agility and even more, the concept of business agility is elusive for the most (Ebrahim et al., 2018). Nevertheless, before moving to the concept of business agility, it seems necessary to clarify the concept of agility in its broader terms, considering the different definitions of this concept. Indeed, without a common and shared definition of this concept, interpretations may vary between various organizational units, causing miscommunication, confusion, and even conflicts. However, this seems to be a complex task, since, if the construct is defined too broad, the individual team and organizational units will create their own, more narrow, interpretations based on their own needs, goals, and experiences, which, in turn, creates a misaligned organization (Gren and Lenberg, 2019). At the same time, agile has become a hollow and general concept, and organizations use this concept as a synonym of having a good software development or project management, completely missing the real meaning of it. Researchers argue that this might cause organizations to adopt agile methods for the wrong reason, just because they have to, without in-depth insights into what it means (Gren and Lenberg, 2019). In this case, organizations want to be classified as agile, but they might not be fully committed towards the implementation of the necessary changes. To further increase the complexity of giving clarity about this concept,

studies focused on practices stated that it is difficult to distinguish between agile and lean practices (Petersen, 2011). As support of this, it is possible to find a wide variety of methods and practices which have something in common between these two philosophies: the key principles of lean relate efficiency (i.e. doing things right), which is about removing waste while sustaining the same productivity (Womack and Jones, 2003). While, Agile relates to effectiveness – doing the right things. Finally, Gren and Lenberg (2019) argue that the majority, if not even all, of the organizations tailor the agile construct, meaning that they interpreted the definition so that it makes sense to their context, fostering the difficulty to find a common interpretation and direction.

1.4.1 DEFINITIONS

In the following section, there is a list of the most acknowledge definitions of agility, with the purpose to give clarity of this concept.

AGILITY

Some researchers tend to define agility and agile as a philosophy. Cockburn (2001) argue that “*Agile implies being effective and maneuverable. An Agile process is both light and sufficient. The lightness is a means of staying maneuverable. The sufficiency is a matter of staying in the game*” (Cockburn and Highsmith, 2001). Barry Boehm describes Agile methods as “*an outgrowth of rapid prototyping and rapid development experience as well as the resurgence of a philosophy that programming is a craft rather than an industrial process*” (Boehm and Turner, 2003). Another way to describe Agile methods is by stating the basic practices various methods share. Larman (2004) stated, “*It is not possible to exactly define agile methods, as specific practices vary. However short timeboxed iterations with adaptive, evolutionary refinements of plans and goals is a basic practice various method share*”. Boehm gives more practice-oriented definition, “*In general, agile methods are very lightweight processes that employ short iteration cycles; actively involve users to establish, prioritize, and verify requirements; and rely on tacit knowledge within a team as opposed to documentation*” (Boehm and Turner, 2003).

“Agility is the ability of a firm to face and adapt proficiently in a continuously changing and unpredictable business environment. Agility is not about how a firm responds to changes, but it is about having the capabilities and processes to respond to its environment that will always change in unexpected ways” (Kassm and Zain, 2004).

While Laanti et al. (2013) listed all the definition of agility up until 2013 in research, ranging from effectiveness, ability to steer, speed, flexibility, responsiveness, change, adaptability, competitiveness, to arrive at improvement, trust, and so on and so forth.

Others define Agility as *“a set of principles that allows leaders, teams and entire organizations to anticipate and respond to change”* (Ebrahim et al., 2018), this thesis is shared also by other researchers who argue that agile is all about responsiveness to change (Gren and Lenberg, 2019).

BUSINESS AGILITY

Once properly defined the concept of agility, it is essential to look this concept through the lens of the organization as a whole. As Business Agility is a research topic in various disciplines, there are many interpretations of what constitutes an agile organization and how it can be achieved (Li et al., 2008). Business Agility has been identified as critical to the survival of organizations in turbulent environments characterized by rapid shifts in technologies, customer preferences and competitive landscape. It is viewed as an important precursor to business success (Sull, 2009) and has witnessed a lot of interest from both academic and practitioner communities. The concept of Business Agility evolved as a management concept in recognition of the need of organizations to respond to changing organizational forms and dynamism of the organization’s competitive environment and as an evolution of earlier concepts such as flexibility, market orientation, dynamic capabilities (Teece et al., 1997) and absorptive capacity (Overby, 2006). Several definitions of Business Agility have since been proposed in the literature and there seems to be no single universally accepted definition (Gallegher and Worrel, 2007; Sherehiy et al., 2007), and in the academic papers is possible to find a wide variety of opinions referring to its meaning.

To make the complexity higher, in literature seems difficult to properly distinguish the concept of agility from the ones of flexibility and adaptability, with the results that all of them are used in the research to refer to the way the organizations can handle the variability and unpredictability of the current context (Sherehiy et al., 2007).

The concept of Business Agility was introduced in the context of environmental turbulence and a firm was considered agile if it was capable of operating profitably in a competitive environment of continually, and unpredictably, changing customer opportunities (Goldman, Nagel, and Preiss 1995). Gartner (2006) has been one of the first to define agility as “*the ability of an organization to sense or create environmental change and respond efficiently and effectively to that change*”, with the emphasis being on the organization rather than just its discrete elements. Other studies on Business Agility defined it as the combination of two distinguished elements: flexibility and adaptability (Falance, 2012; Holsapple and Li, 2008; see also Christopher and Towill, 2001; Sherehiy et al., 2007), where Agility is a measure of responsiveness; anticipated responses to an external stimulus are illustrative of an organization’s overall flexibility. The responses and decisions an organization makes in relation to environmental stimuli are a measure of the organization’s adaptability. These two responses (effectively planned or unplanned), are primary characteristics of agility that must be constantly enacted by an organization. Sambamurthy et al. (2003) define Business Agility, as “*the ability to consistently detect and seize market opportunities with speed and surprise*”, while other refer to it as “*organization’s ability to compete and thrive in an unstable business environment by quickly detecting and seizing opportunities and tackling threats*” (Sambamurthy, Bharadwaj and Grover, 2003). Lastly, reserachers define it also as “*a set of processes that allows an organization to sense changes in the internal and external environment, respond efficiently and effectively in a timely and cost-effective manner, and learn from the experience to improve the competencies of the organization*” (Seo and La Paz, 2008), or again, as “*the organization’s ability to consistently identify and capture business opportunities more quickly than its rivals do*” (Sull, 2009).

In summary, Agility is an ongoing process, much like continuous improvement. Business agility is more a matter of becoming than being (Holsapple and Li, 2008; Alzoubi, et al., 2011; Williams and Lawler, 2013). It is considered a core aspect for competitive advantage, and a differentiator that requires strategic thinking, an innovative mindset, exploitation of change and an unrelenting need to be adaptable and proactive. Agility thus becomes a business imperative for survival rather than a choice, it is the essential enabler of organizational effectiveness and excellence (Mische, 2000). It is a mean for reaching and sustaining high performance. Agility must exceed business process and be core characteristic of its people, teams and overall organizational culture.

1.4.2 FRAMEWORK FOR BUSINESS AGILITY

The principles and values, which would provide a definition of Agile, referred to as “the Agile Manifesto” arose in 2001. At that time, the concept of Agile became widely known and the implementation of the different frameworks began. The Agile Manifesto defined the core values and supporting principles, which act as a guideline to introduce what agile is fundamentally about. Starting from that point, a wide number of researchers have investigated the factors that contribute to the agility at the organizational level. Despite the wide literature referring to this topic, there is a general lack of clearly defined frameworks for explaining agility from an organizational perspective (Sherehiy et al., 2007; Wendler and Stahlke, 2014). As a result, this lack of a common and shared approach creates disparities and debates among scholars about the attributes and levers of agility, making hard for organizations and practitioners to properly identify and balance these levers. Over this period, scholars have designed a variety of agility frameworks that are similar, and occasionally at odds, with each other. Examples are Zhang and Sharifi (2000) who identified agility drivers, providers, strategies, and capabilities, or Hermansen and Caron (2003) who reported the main factors that impact a pro-agility organizational culture, or again Breu et al. (2002) who investigated on the workforce agility factors. While, Kassim and Zain (2004) stressed the importance of information systems which can deliver the right

information to make the organizations quickly adapt and responsive to changes, other authors identified four key enablers towards higher agility at the organization level, namely, the ability to (a) sense the context, (b) properly process the information gathered, (c) try to take advantage of the potential opportunities by mobilizing resources and processes, and (d) continuously learn and improve the operations of the organization (DeSouza, 2006). Bottani (2009, 2010) studied several assessment methods of organizational agility, identifying various clusters of organizations distinguished by different agility levels and then carrying out a principal component analysis to better describe the specific characteristics of each cluster. Wendler (2013) performed an extensive review of the literature comparing 28 frameworks or similar concepts, concluding that: the available approaches towards the definition of an agile framework suffer from some limitations which stands in either (a) a too specialized orientation and, hence, an insufficient reflection of the whole organization with its interaction of people, structures, process, and technologies, as outlined above, or (b) in the utilization of relatively complex algorithms, limiting an intuitive and ad hoc usage by management. Subsequently he proposed his own model built around six dimensions: (a) leadership and management; (b) innovation; (c) strategy; (d) culture; (e) learning and change; and (f) structure. While, Harraf et al. (2015) proposed a framework of agility which is an attempt to provide a simplified, easily applied representation of the most agreed aspects of agility. They identified the pillars of agility as: Culture of Innovation, (2) Empowerment, (3) Tolerance or Ambiguity, (4) Vision, (5) Change Management, (6) Communication, (7) Market Analysis and Response, (8) Operations Management, (9) Structural Fluidity, (10) Development of a Learning Organization. However, the authors pointed out that how the organization goes about employing the measures relating to each attribute should vary according to the needs of the organization itself. While others argued that “the ability to be both stable and dynamic is the essence of true organizational agility”, supporting this with the identification of three core organizational areas where balancing the inherent tension between stability and flexibility is important: (a) organizational structure, (b) governance, and (c) processes (Aghina et al., 2015). While with their researches, Juneja et al. (2018), identified in their own framework essential levers towards higher

agility at the organizational level: (a) Organizational structure: This will shift from hierarchy management structures to networks and teams who work closer to the customer base, having more control over decision making; (b) Teams and Projects: From fixed teams who work together regularly, to networks or 'squads' which are assembled quickly based on skill-sets and dismantled quickly once projects are complete; (c) Job Roles: Employees usually working under a job description will move to working on projects that make use of their skills, enabling staff to work on multiple projects across different areas within the business, offering diverse opportunities; (d) Management: Will no longer focus on just overseeing people and 'own' their development but will lead projects and sponsor the right employees to support project requirements; (e) Rewards and Promotions: Rather than rewarding employees based on their job level, continuous service or experience, rewards will be based on outcomes of tasks, reputation and sponsorship by colleagues or leaders.; and (f) Culture: Arguably the most important element in ensuring the agile organization is a success, the company's agile culture will have influence over every area and all functions within the business. Other studies report similar elements as essential framework for agile organizations, Ebrahim et al. (2018) define Business Agility as the ability to quickly reconfigure strategy, structure, processes, people, and technology toward value-creating and value-protecting opportunities, highlighting these as the main levers towards agility. On the other hand, the Business Agility Institute (2019) group different levers in five domains as: customer, relationship, leadership, individuals and operations. These domains and their common characteristics are the keys to business agility. None of these are more important than another. Rather they are complementary and mutually necessary to achieve agility.

Lastly, the most recent researches seem to converge on similar pillars towards the adoption of organizational agility. Aghina et al., 2018 have identified five trademarks, which an agile organization possesses in terms of strategy, structure, process, people and technology. Companies that aspire to build an agile organization can set their sights on these trademarks as concrete markers of their progress. They identified as the main element of agile organization: (1) Strategy which is built on actionable guidelines, shared vision and purpose, flexible resources allocation, and sensing and

seizing the opportunities; (2) Structure composed by open physical and virtual environment, active partnerships and ecosystem, action-oriented decision architecture, and fit-for-purpose accountable cells; (3) Process based on a standardized way of working, performance orientation, information transparency, and continuous learning; (4) People, meant as cohesive community, entrepreneurial drive, shared and servant leadership, role mobility; and lastly (5) technology which considers technology, systems and tools (McKinsey, 2017; Ebrahim et al., 2018). All these elements are the foundations that enable the overall vision and purpose, supported by a network of empowered teams, supporting of rapid decisions and learning in their processes, having dynamic, passionate people including a cohesive community as well as highly advanced technology. On the other hand, the Observatories of Politecnico di Milano (2019) has identify 4 main levers towards higher agility: (1) Structure; (2) Competence and culture; (3) process and tools; and (4) ecosystem. While each lever has intrinsic value, researches show that true agility comes only when all of them are in place and working together. Both describe the shift from the mechanic system to the organic system that enables organizational agility.

In summary, to give clarity among the different frameworks, levers and elements that an organization should consider to become agile, it is possible to identify in literature a consensus on few of them. The wide majority of the literate of the topic agree on some essential elements that the Agile transformation process requires. It requires (1) changes at all levels of the organizational structure (Gandomani and Nafchi, 2015; Denning, 2016; 2018c; Paterek, 2018) starting with the project team as a central unit (Gandomani and Nafchi, 2016; Denning, 2018a; 2018b). Moreover, it has been pointed out the relevance of the organizational context in which the organization operates (Cabała, 2016; Hofman, 2018). However, the most important enablers of the Agile transition process seem to be the processes and training (Spałek, 2013; Wyrozębki; 2014; Gandomani and Nafchi, 2016; Paterek, 2017b), human resources management and development (Dikert et al., 2016; Denning, 2018b), and the organizational culture (Paterek, 2016; Solinski, Petersen, 2016; Hoda, Noble, 2017) which play the key role in enabling a supporting new organizational behaviors and attitudes.

To summarize, there are multiple dimensions related to business agility as well as various levers to foster it. While many principles of enterprise agility can be found in the literature (see e.g. Harraf et al., 2015; Dikert et al., 2016; Paasivaara et al., 2018; Juneja et al., 2018; Aghina et al., 2018; etc.), holistic transformation towards enterprise agility necessitates a very sophisticated and unique interplay of all of these elements. In this direction, empirical studies (see e.g. Maples, 2009; Humble et al., 2014; Paasivaara et al., 2016; Fitzgerald and Stol, 2017) pointed out that is very challenging for most organizations to perform such a holistic and sustainable transformation. According to Dingsøyr et al. (2018), the Business Agility is not just simply considering multiple teams, rather, it needs the overall view of the organization, hence the shifts towards the agility is so hard because it requires many different considerations (lenses) to be applied all at once. At the same time there are many different paths to enterprise agility (Brosseau, 2019). Some organizations are born agile, meaning that they use an agile operating model from the start, while the majority of the organizations have to change and embrace business agility from their roots.

Ebrahim et al., (2018) report three types of journeys towards agile: (a) All-in, which entails an organization-wide commitment towards agile basing on continuous and sequential waves of agile transformation; (b) Step-wise, based on a more structured and discreet approach; and lastly, (c) Emergent, which basically follows a bottom up approach.

1.4.3 BUSINESS AGILITY BENEFITS

The reference literature of the benefits ensured by the adoption and expansion of the agile methodologies within the whole organization is wide. Compared to traditional management approaches, agile ones offer a great variety of benefits, all of them have been studied and documented. It increases team productivity and employee satisfaction, appearing at the same time as a powerful lever for innovation and learning (Bazigos et al., 2015). It minimizes the waste inherent in redundant meetings, excessive documentation, repetitive planning, low-value product features and quality defects (Rigby et al., 2016). Furthermore, by improving visibility and adaptability to

customers' changing requirements, needs and priorities, agile improves customer engagement and satisfaction, delivering faster end with lower risks the most valuable products and features to market. While, by creating cross-functional and cross-disciplined teams, it enlarges organizational experience and builds mutual trust, engagement, commitment and respect (Rigby et al., 2016). This is confirmed by the fact that an agile transformation results in an organization with happier, more engaged and more productive people (Conboy et al., 2011). Lastly, it ensures a strong reduction of the time wasted in the micro-management, allowing senior managers to fully focus on higher-value work that only they can do, such as prioritizing strategic initiatives; creating and adjusting the corporate vision; assigning the right people to tasks; increasing cross-functional collaboration; and removing impediments to progress; etc. (Rigby et al., 2016). At the same time, it offers to greater efficiency and productivity in some of the most relevant cost centers, improving simultaneously the operating architectures and the organizational models to increase coordination between agile teams and routine operations (Rigby et al., 2018).

Despite the strong benefits directly correlated with the adoption of business agility, just few companies are reaping these benefits, but this may soon change. Indeed, several researchers indicate that organizational agility is booming, and it is becoming a high strategic priority in business (Ebrahim et al., 2018). However, as already stated, it is important to remark that Agile is not for everyone (Cockburn, Highsmith, 2001). It is an approach for those organization that are not constrained by rigid processes, that value small teams with high level of autonomy and that have an own culture of people-centricity and collaboration. Before being able to adopt Agile, an organization should face these changes and deeply reason on its own propension to flexibility.

1.4.4 BOUNDARIES AND CHALLENGES

However, if from one side agile ensures strong benefits, from the other it can be characterized by some limitations that could slow down or even hinder its adoption. The Agile transition process is impacted by the number of unique barriers and challenges (Dikert et al., 2016; Denning, 2016; 2018; Paterek, 2017) requiring a lot of

long-term investment and collaboration across a variety of business units at all levels of the organization (Gandomani and Nafchi, 2015; Dikert et al., 2016; Hoda and Noble, 2017). The most common criticality stands in the scaling of the agile, indeed if getting start it is easy, scaling it is much harder (Ebrahim et al., 2018), moreover, these initiatives could radically impact the organization and its culture, and this could lead to some issues that must be managed properly to avoid potential negative escalations. Some firms are actively resisting the change. For established organizations that have been successfully managed in a traditional way for many years with settled processes, routines, attitudes, and values, the new management paradigm can be difficult, even baffling (Denning, 2017). The Scrum Alliance has found that more than 70% of agile practitioners report tension between their teams and the rest of the organization (Rigby et al., 2016). While, relying on the existing literature, Dumitriu et al. (2019) identified 12 challenges and grouped them into three main categories: (1) multi-team/multi-project environment: (i) implementing self-organizing teams (Rolland et al., 2016; Dikert et al., 2016; Hobbs and Petit, 2017), (ii) coordination of several agile teams teams (Boehm and Turner, 2005; Rolland et al., 2016; Dikert et al., 2016), (iii) different interpretations of agile between teams (Dingsøy and Falessi, 2019), (iv) managing and sharing knowledge with stakeholders (Uludag et al., 2018); (2) organizational transformation/change: (i) management change (Boehm and Turner, 2005; Paasivaara and Lassenius, 2016), (ii) culture and leadership behavior change (Karvonen et al., 2018), (iii) specialized knowledge in silos (Boehm and Turner, 2005; Paasivaara and Lassenius, 2016), (iv) integrating non-development functions (Boehm and Turner, 2005; Paasivaara and Lassenius, 2016), (v) integration of agile projects with the project environment's existing processes (Lindvall et al., 2004; Hobbs and Petit, 2017); and (3) alignment of individual projects to enterprise business goals: (i) conflicts between agile projects and holistic enterprise architecture (Duijs et al., 2018; Barlow et al., 2011), (ii) integration of Agile organization frameworks and agile development (Gill, 2015; Duijs et al., 2018), (iii) balancing between the agility of individual projects and the organization agility (Persson et al., 2016).

The most cited challenge in literature seems to be the team's coordination, while the most problematic agile characteristic when applying agile in large organizations is self-organizing team (Dumitriu et al., 2019).

Intuitively, implementing Agile methods in large organizations presents greater challenges than implementing in small organizations, in part because of the greater number of dependencies and coordination required between projects and teams, in part because size brings higher organizational inertia, which slows down organizational change, and successful adoption requires change of the entire organizational culture (Papadopolous, 2015; Paasivaara and Lassenius, 2016; Turetken et al., 2016). Changing the culture of a large organization is challenging (Denning, 2016) because it requires the reevaluation and adjustment of communication paths, human resource policies, and management approaches to better align with the team-based nature of Agile development (Papadopoulos, 2015). Leadership and culture have been identified as key challenges in agile transformations (see e.g. Maples, 2009; Humble et al., 2014; Paasivaara et al., 2018). The benefits of understanding and aligning the organizational culture have been addressed by many authors (see e.g. Cameron and Quinn, 2011; Carvalho et al., 2017; Schein, 2010), all of them agree that culture may either accelerate or hinder transformation towards enterprise agility. Moreover, large organizations also have more dependencies between projects and teams, which increases the need for formal documentation and inter-team coordination, thus reducing agility (Paasivaara and Lassenius, 2016). Despite concerns about increased complexity and the need for coordination, there is an industry trend towards adopting Agile methodologies at large scale (Dikert et al., 2016). As Agile adoption increases in popularity, large organizations must focus on the best practices of how to adopt and scale these methods (Dikert et al., 2016; Paasivaara and Lassenius, 2016).

In conclusion, Agile innovation has revolutionized the software industry, which has arguably undergone more rapid and profound change than any other area of business over the past 30 years. Now it is expanding to transform nearly every other function in every industry. At this point, the greatest impediment is not the need for better methodologies, empirical evidence of significant benefits, or proof that agile can work

outside IT. It is the behavior, attitude and culture of both executives and people that will make the real difference. Several researches state that the agile organization requires and support a fundamentally different kind of leadership, and that leadership and how leadership shapes culture and attitudes are simultaneously the biggest barriers and enablers of a successful shift towards agility (De Smet, 2018). Therefore, the development of new behaviors and attitude is not just required, but it is strongly encouraged and supported by the shift towards agility. Those who learn to lead agile extension into a broader range of business activities will accelerate profitable growth ensuring a strong competitive position and advantage to their organization.

1.4.5 THE AGILE WORKFORCE

In the era of globalization, rapid technological advancements, uncertainty and turbulence, to survive and succeed businesses must be agile. The complexity of the current environment is increased by the increasingly higher accessibility and transfer of information which strongly contributes to emphasize the need for agility. As information and knowledge expand, there is the need for organizations to quickly and properly respond by managing the maze of external information in order to determine relevant sources and the required actions. In this context, organizations can be seen as repositories of competences and knowledge, and as sites of invention, innovation, and learning (Amin and Cohendet, 2012). This highlights the necessity for organizations to deeply understand the attributes of an agile workforce (Sherehiy and Karwowski, 2014), which is not just an advantage, but it is essential to survival, becoming a competitive differentiator in today's rapidly changing business environment. Indeed, the changes enabled by the agile transformation are something more than simply choosing a set of methods or practices to deliver, rather, they encourage the development of new culture, attitudes and behaviors in order to support a self-organized and collaborative environment inside the organization. In other words, the agile philosophy has an impact on management styles, behaviors and new skills set (Nerur et al., 2005; Conboy et al., 2011).

In this direction, to build and lead an agile organization, it's crucial that leaders and people develop new mind-sets, behaviors and attitudes with the result to transform themselves and the organization itself. Leaders need to develop a new set of skills based on a renewed understanding of the organization, simultaneously, they need to evolve the behaviors and attitudes of their people allowing them to handle the complexity of a keep changing context (De Smet, 2018). This is supported by the agile philosophy which puts people at the center, with the first purpose to engage and empower everyone in the organization. While traditional organizations are built on a structural, static and siloed hierarchy, the agile ones are based on a network of empowered teams operating in rapid learning and decision-making cycles (Brosseau et al., 2019). Management gives teams higher degree of empowerment, and instead of controlling them, its priority is to protect the team from interruptions, removing potential obstacles (Moe and Dingsøy, 2008). Hence, trust becomes important as the management focus shifts from deadlines to priorities and results. Organizations that have done this, investing in (a) leadership which empowers and develops people, in (b) a strong community which supports and evolve culture, attitudes, behaviors, and in (c) the processes which foster the skill building of people (Aghina et al., 2018) have witnessed relevant benefits. Leaders in agile organizations have the main purpose to serve the people in the organization, empowering and developing them. Rather than planners, directors, and controllers, they become visionaries, architects, and coaches (Szetela and Mentel, 2016; Drop et al., 2017) that empower the people with the most relevant competencies so these can lead, collaborate, and deliver exceptional results (Ebrahim, 2018). They embrace a culture in which support of learning forms part of working life and its regular operations, daily routines, and conversations. Every meeting is simultaneously an opportunity to work on learning goals, pursue business excellence, and help people become more capable versions of themselves (Kegan and Lahey, 2016). Just as leaders of agile transformations began by developing their own mind-sets, attitudes and capabilities, they must foster capability building across the organization, giving everyone the opportunity to build the new attitude, mind-set and skills they will need in the new environment. This includes building new skills, such as the ability to influence rather than direct, manage conflict constructively, work in

ambiguity, manage complexity, think creatively, take initiative without being told exactly what to do, and take accountability, even without full control (De Smet et al., 2018). By focusing on their people, leaders will create a company that quickly executes its strategies, forming and reforming itself in this new world of constant change (Ebrahim, 2018).

In other terms, there is the demand for a workforce who is capable of speed and flexibility (Griffin and Hesketh, 2003). An agile workforce can be defined as a group of individuals with the skills to deal with environmental turbulence, developing innovative and effective responses to the changes, keeping in mind the preferences of customers (Zhang and Sharifi, 2000). It is well-trained and adapts easily to new opportunities and markets changes, supporting the organization in the management of the turbulent environment, for this reason it can be seen as the backbone of the Business Agility (Sherehiy and Karwowski, 2014). Therefore, having a workforce with various skills is the essential condition to meet the objectives of the organization (Nijssen and Paauwe, 2012). However, despite the increasing relevance of the topic, there is not a common and shared definition of workforce agility, given the novelty of the concept. In literature there are two main perspectives to define it, the former based on the ability perspective, and the latter more focused on the capability perspective. The supporters of the first perspective describe workers as having the ability to properly respond to changes while exploiting in the best way possible the opportunities of these changes (Zhang and Sharifi, 2000). From the other side, supporters of the latter perspective describe workers as being good at embracing and managing changes and new technologies, accepting responsibilities readily, learning and developing themselves (Muduli, 2017), they state that the key pillar in an agile workforce is the possession of the right information and knowledge (Qin and Nembhard, 2015). Employees in agile organizations exhibit entrepreneurial drive, taking ownership of team goals, decisions, and performance (e.g. people proactively identify and pursue opportunities to develop new initiatives, knowledge, and skills in their daily work). Furthermore, talent development in an agile organization is based on the idea to develop new skills through experiences, and this is supported by leaders who are in charge to influence others through coaching, rather than authority as in the past,

enabling and facilitating people with the most suitable capabilities for the work (De Smet, 2018).

However, it has been proved that a common – yet wrong – belief is constituted by the fact that nowadays many managers have little faith in their employees' ability to survive the twists and turns of a rapidly evolving economy (Fuller et al., 2019). This is not in line with the belief of employees, which instead are more focused to exploit in the best way possible the opportunities of the changes (Fuller et al., 2019). This gap in perspectives is a problem because it leads managers to underestimate employees' ambitions and underinvest in their skills. But even more, this gap shows the existence of a vast reserve of talent and energy that organizations can properly manage and develop to prepare themselves for the future: their workers with their attitudes and behaviors. Bold leaders create a future workforce that can adapt itself to the world as it changes, enabling and supporting the organization to do the same.

CHAPTER 2

SMART ATTITUDE AND SOFT SKILLS

2.1 SMART ATTITUDE

This chapter introduces the concept of Smart Attitude, starting from the analysis of the two terms from which it derives and its definition. After that, an analysis of its four constituent elements is provided, with the aim to highlight the elementary elements that constitute this new concept: the soft skills, which are further and comprehensively analysed in the second part of this chapter.

2.1.1 SMARTNESS

There has been considerable interest in the smartness concept over the past two decades, to the extent that we have examples across the whole A-Z spectrum, from Smart Aging to Smart Z-wave home monitoring. Alter (2018) provides a good overview of the exhaustive range of smart “things”. Economy, power, homes, people, work and so on, and even more cities, everything in the last years is becoming “smart”. This is the new era of the so-called smart economy, smart home, smart people, smart work, smart city. In other words, the concept of “smartness” is absolutely relevant nowadays, it is the new target of the society. But what does it mean for a person to be smart? Despite the relevance of the “smartness” theme, in literature there is no clear definition of smartness in terms of culture, behaviors or competences, particularly at

work. Most of the literature is focused on smartness in terms of smart devices, or even more smart city – which dominates the reference literature on smartness.

“Smart” is an adjective which is monopolizing the scientific literature, it is a term that persists beyond the change in time and space, contents that remain while the declinations of the word change. This word is taken from English language, and for this reason even more susceptible of lexical interpretation, generally in Italian the adjective smart is translated with sharp, brilliant, but also rapid, awake, quick and clever. It currently does not refer to a person’s intelligence quotient, but rather to their ability to be ready and reactive, to cultivate “good thinking” and “problem solving”, to be able to adapt and to react quickly. For many people, there is no difference between smartness and intelligence, because the words seem to be interchangeable. However, there is a difference between the meanings and use of these words. Smartness is not about something innate – like being intelligent – but it is something that make people do the right choice in terms of efficiency, effectiveness and productivity. It could be said: “*Smartness is doing the same things in faster, better, more complete and creative ways than others are doing*”, at the same time, having high level of smartness means to have the capacity to deal with complex situations and manage them in the optimal way.

2.1.2 ATTITUDE

Similarly, the concept of “attitude” is vaguely defined in the literature. However, it is possible to identify several definitions and interpretations this concept. The term attitude is a French term derived from the Italian word “attitudine” and from the Late Latin “aptitūdō” and “aptitūdin” (American Heritage Dictionary of the English Language, 2000; Venes, 2001), several dictionaries and thesauri defined attitude in various other terms, such as: “*A settled opinion and behavior reflecting this*” (Abate, 1999). “*Behavior based on conscious or unconscious mental views developed through cumulative experience*” (Venes, 2001), or again, “*a complex mental state involving beliefs and feelings and values and dispositions to act in certain ways*” (WordNet 2.0, 2003), while Dark, 2005 define this concept as “*an enduring, learned predisposition*

to behave in a consistent way toward a given class of objects, or a persistent mental state of readiness to react to a certain class of objects, not as they are but as they are conceived to be". Altmann (2008) in his research identified three domains of attitude, specifying that it has a cognitive, affective, and behavioral (Sanders, 1993; Small, 1995; Beatty, 2000) component, however concluding his work by explicitly stating that attitudes, like all psychological constructs, are latent, hence it is not possible to observe them directly. While psychological definition of attitude identifies behavior as key elements and supporters of this line of thought argue that if behavior has to change, attitude change must come first (see e.g. Kutner et al., 1970; Lewin, 1999). Other authors define attitude as "*a behavioral pattern, anticipatory set or tendency, predisposition to specific adjustment or more simply, a conditioned response to certain stimuli*" (Dockery and Bedeian, 1989). The complexity and definition of this concept have been largely increased by the fact that "attitude" has become something of a factotum for both psychologists and sociologists. But, despite all the critics, the term is now in nearly universal use and plays a central role (Allport, 1933). Perhaps the most widely accepted definition of attitude, however, was provided by Eagly and Chaiken (1993): "*A psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor*". To conclude, accordingly to Chaiklin (2011) there is no universally accepted convention where definition and measurement are integrated. Abandoning the mere psychological or sociological definition of attitude, the majority of the researches in the last decades have been focused on the relation between employees' attitude and organizational performances, both at the individual and cross-sectional levels, arguing the existence of a positive relationship between the people attitude and the performance of the firm (see e.g. Ryan et al., 1996; Koys, 2001; Harter et al., 2002; Schneider et al., 2003; Schleicher et al., 2004).

2.1.3 SMART ATTITUDE DEFINITION

Here, mixing the concept of Smartness and Attitude, the concept of Smart Attitude arises. For the purpose of this work, Smart Attitude is defined as “*a set of the most relevant skills and competence for the today’s workplace, at the foundation of a productive and balanced organizational behaviors and culture, which lead towards higher level of efficiency, efficacy, satisfaction and ultimately productivity*”. This definition has been coined with the support of the Smart Working Observatory of Politecnico di Milano, which in the last years has been strongly involved and focused in the topics of organizational culture and behaviors, bringing relevant contribution in this field. This institution is relevant for this study because in its researches, it identified and defined the four constituent aspects of the Smart Attitude, each of them established on a strong basis of skills essential to enable the right organizational behaviors to support the organizational performance. These four core aspects have been defined as (SW Observatory, 2019): (1) *Sense of community*, the set of skills to encourage collaboration, fostering the sense of belonging and aligning the people’s values with the organizations’ ones; (2) *Empowerment*, the set of skills to make people accountable and responsible, involving them in the decisions and stimulating them to suggest ideas to improve the work; (3) *Flexibility*, the set of skills to make people properly balance personal and professional life, making them resilient and with the right attitude towards the changes; and (4) *Virtuality*, the set of skills needed to understand the most appropriate mix of tools to be used for each specific situation, lowering at the same time all the potential risks derived by an inadequate use of these tools. These four conceptual areas are the foundations upon which build both smart culture and behaviors.

Hence, it becomes essential to go in depth in the study of soft skills, with the purpose to understand why nowadays both researchers and practitioners are focused on them and what are the most relevant soft skills for the today’s workplace.

2.2 SOFT SKILLS

This chapter introduces a detailed analysis of the academic literature on the concept of soft skills, starting from a complete definition of the term and the reasons why soft skills are becoming one of the top priorities among both researchers and practitioners (Linkedin, 2019), highlighting the trends at the basis of their growing importance and the benefits ensured by the possession of these skills and the boundaries that are slowing down their growth. Lastly, there will be the identification of the essential skills required to be successful to the employees in the today's changing work environment, with the aim to identify the most important skills needed today.

2.2.1 THE IMPORTANCE OF SOFT SKILLS

The fourth industrial revolution is bringing relevant changes in the nature of work and skills required to succeed. If from one side automation is likely to displace some occupations, new ones will be created. This, compounded by the evolution of the information economy into the knowledge- and service-based ones has led to a worldwide increase in the need for new skills (Zehr, 1998; Andrews and Higson, 2008; Toner, 2011; Cobo, 2013; OECD, 2013; World Economic Forum, 2015), and as a result, jobs nowadays place an emphasis on “new” skills. Furthermore, the new occupations created by the technological advancement are likely to be mainly focused on cognitive and nonroutine categories and they require skills that cannot be easily automated. Indeed, even if the advances in artificial intelligence and other powerful technologies are still at the beginning, the pace of change and adoption will be unquestionably fast leading to enormous changes in the way people and organizations are going to do their business. In the report “The Future of Jobs”, the World Economic Forum (2017) stated that amongst others artificial intelligence and machine learning as well as advanced robotics and autonomous transportation will be omnipresent by the year 2020. This at the same time will mean that over one third of skills (35%) considered important in today's workforce will change (WEF, 2017). In other word, technology is affecting the demand of new skills. The literature on technology's impact

on jobs and skills identified two main trends: (1) looking from the perspective of alarmist, these massive shifts in technology will lead at strong job losses, however, this perception have been revised to a more optimistic result, predicting a net increase in jobs. Still, these new emerging jobs are likely to be created in different industries than the existing ones, requiring workers to learn new skills or to strengthen some of the existing ones. (2) The second key trend is that technology will change the nature of work. This is based on the belief that the new emerging jobs are more likely to require higher-level skills, in order to perform non-routine activities and tasks that are unlikely to be automated (Ra, 2018). This is confirmed by ADB (2018) which found that the demand nonroutine cognitive jobs is grown faster than jobs requiring routine and manual tasks, and by Brungardt (2011) who noted that today's workers have less repetitive job tasks and need more autonomy and superior soft skills due to the flattening of the organizational structure. Hence, although the literature estimates that the technological advancement will not destroy jobs in the aggregate, there are no doubts that workers will face this shift, as jobs may decline in industries where technology is adopted but increase in other industries due to spillover effects (Autor and Salomons, 2017). In one of its studies, McKinsey (2017) estimated that about 375 million workers globally could need to shift from their actual occupational category to new ones (McKinsey Global Institute, 2017), and this means that they must learn new skills. At the same time, technology ensures also a very positive, offering people greater access to information, products, and services than before, enabling people to develop new skills and access to resources that previously were inaccessible.

In other terms, new technology and changing in the organizational aspects have made soft skills more important at work (Borghans et al., 2014), making the human capital within the workforce decisive (Anderson, 2008; Lanvin and Kralik, 2009; Kefela, 2010). Indeed, the current workplace requires highly skilled workers faced with increasingly complex and interactive tasks. This trend has been strengthening by the increased global competition resulting in an emergent workforce where soft skills are among the most valuable assets an employee can possess (Cobo, 2013). These changes have led at a shift in business to focus on worker knowledge to gain a competitive advantage (Sanchez et al., 2008; Wu et al., 2013). This shift has radically enhanced

the importance of worker soft skills (Borghans, 2014). Lastly, another important reason is why soft skills are becoming increasingly relevant is related to the workplace revolution, which is making hard skills not sufficient anymore. The fast transformation of the working scenario makes harder to identify the specific technical competences essential in the close future, since they are strongly related to the emerging professional profiles, where there are still a lot of question marks. During this period of uncertainty about the future professional profiles, soft skills are the only stable pillar, given their relevance regardless the specific role, sector or industry whatever will be the evolution of the working context. This argumentation is confirmed by Stephan Howeg – marketing and communication director of the Adecco Group, who stated that soft skills have an intrinsic value and they are an optimal indicator of the capacity to adapt to changes and to contribute to the success of the organization. To support these considerations, it has been estimated that half-life of the technical skill is nowadays considered to be five years (Thomas and Brown, 2011). In the past, people were hired because of their experience or job-specific skills, since the importance of these skills for that job would have last for many years, this is not true anymore. Today, organizations require people capable of developing new transversal skills, essential from different jobs, tasks and activities and not just constrained to a specific one. This seems to push people away from developing specialist skills, towards the development or generalist skills in order to make them capable of performing more than one specific job. However, this increasing focus on soft skills is not without critics. For some, this shift in focus represents the marginalization of hard skills and could lead to favouring the highly skilled workers who become more employable with the addition of soft skills at the expense of the less skilled ones, who instead are offered the possibility of soft skills as an alternative to technical competency (Grugulis and Vincent, 2009), this compounded by the fact that soft skills may not develop equally across dissimilar groups of workers (see e.g. Bacolod, et al., 2009; Hurrell, et al., 2012) lead to critics about the fairness of the process.

2.2.2 SOFT SKILLS BENEFITS

Soft skills are considered a strategic element in any industrial organization and they deserve high attention. The economics James Heckman (Nobel prize winner in 2000) said: “*Soft Skills predict success in life*”, this is then confirmed by other studies (see e.g. Kautz et al., 2014). It has been proven a cause-effect correlation between soft skills and personal and professional success (Kechagias, 2011; Cinque, 2015). According to the literature review, significant evidence demonstrated that soft skills are competencies that can help an individual better meet the needs of a particular job and help an individual advance in his or her career (Robles, 2012; Zhang, 2012; Cobo, 2013). Looking at the benefits related to the possession of soft skills, several studies have been carried out on the importance of soft skills in the workplace (Maes, Weldy, and Icenogel, 1997; Nealy, 2005; Smith, 2007; Klaus, 2010; Mitchell et al., 2010). Studies demonstrated that 75%-85% of long-term job success depends on people soft skills, while only 15%-25% is dependent on technical knowledge (see for example Watts and Watts, 2008; John, 2009; Klaus, 2010). Because soft skills are critical for productive performance in today’s workplace, current and future business leaders are emphasizing the development of these skills (Nealy, 2005). Moreover, leaders now are more aware of how soft skills contribute to employment productivity and consequently, they expect employees to have well developed soft skills (Nealy, 2015). This is confirmed by recent papers which prove the importance of soft skills also in new types of jobs, such as those working with Big Data (Brooks et al. 2018; Gardiner et al. 2018). Furthermore, these skills are associated with increased returns across the full spectrum of an individual’s work life and they are not just limited to the early stages of labour market participation (Hanushek et al., 2015). Marques (2013) contributed to the discussion of soft skills by stressing that soft skills are critical to individuals who want to achieve leadership positions in their organizations. Hence, it is possible to conclude that soft skills are critical to success in business (Dana, Hancock, and Phillips, 2011). Intuitively, a wrong decision in a candidate can be costly to an organization (Velasco, 2012), consequently, the study of soft skills is important since as already stated these skills have an impact on every worker and business

productivity (Kyllonen, 2013). Moreover, to be successful today, it seems it is necessary to have a personality compatible with the organization's culture, the right attitude to deal with people and complex situations, as well as the appropriate academic credentials or technical skills (Sultana, 2014). Based on the review of the literature, the right attitude and the capacity to deal with people and difficult situations are better performed when the individual has soft skills (Brungardt, 2011; Cobo, 2013; Robles, 2012). Lastly, it has been proved that the possession of soft skills enables to increase the individual employability (Clarke, 2017). Scholars agree that soft skills are a major asset for graduates when competing for job openings in addition to excellent academic results in hard skills (Che-Ani et al., 2014).

In summary, soft skills can be used to reach several aims: for instance, giving constructive feedbacks to make others learn and improve and adopting an engaging communication able to stimulate different people to work together for achieving common goals. The development of soft skills can be seen as a capacity building which ensures various benefits and can be applied in several domains, giving to the company, the team and the individual an important competitive advantage. Among the different benefits related to the possession of soft skills the most relevant ones are: (a) more efficient, harmonious and productive workplaces, with significant impacts on the company results; (b) the creation of stronger and more trustful relationships; (c) the maximization of the career and success perspectives. Furthermore, it is possible to identify side benefits like the fact that soft skills can be directly transferred to any job, industry and sector, ensuring (d) higher adaptability and broader professional opportunities in a keep-changing working environment. Different scholars agree that these skills have the common outcome of aiding personal growth, learning, and employment and life success (see e.g. Brungardt, 2011; Chamorro-Premuzic et al., 2010; Marques, 2013; Robles, 2012; Gibb, 2014).

2.2.3 BOUNDARIES AND CHALLENGES

As a result, employers are looking for people who can offer the right soft skills. In response, institutions of higher education are being called upon to ensure that their

graduates—the future workforce—possess these requisite soft skills. Unfortunately, a shortage of such skills has been noted by many employers around the world, who report that candidates lack the soft skills needed to fill the available positions (Manpower, 2017), and there is reason to believe that the knowledge driven information economy is widening the skills gap. Fifty percent of employers surveyed globally identified workers with a skills gap to be deficient in soft skills (Hurrell, 2016). Here it is important to clarify the difference between skills gap and skill mismatch: a skill gap is the difference between an organization's current competencies and the skills an organization needs to succeed (ATD, 2012), while the skills mismatch is defined as the discrepancies between the general and specific skills that an employee has and those that the position requires (Cobo, 2013).

In this direction, some researchers believe that the teaching of soft skills should be integrated into the curriculum and evaluated independently from other goals, since more employers are demanding graduates who are better prepared with soft skills. So, it is imperative to integrate soft skills education into future classroom teaching (Kahlon, 2013). This is the main reason why, many universities, job seekers and employability programs are now starting to place more emphasis on soft skills (Hillmer et al. 2007; Smith et al. 2015; Maitra and Gopalram 2016; Cornali 2018). However, Anthony (2014) noted that educators have to face significant challenges when integrating the teaching of soft skills into courses to avoid sacrificing important course content. The lack of relevant knowledge among college instructors is one of the factors that impacts the teaching and learning of soft skills among college students (Esa et al., 2015). They asserted that higher educational institutions need to add emphasis and effort in teaching soft skills, lectures should be innovative in integrating traditional methods of teaching and learning with technology, not only to help the teaching and learning process but also to contribute to improving soft skills among students (Pineteh, 2012). Conversely, Hassan and Maharoff (2014) noted that although there is interest in soft skills, there is still no consensus on how soft skills can be understood, defined, used, taught, and assessed in the education field.

2.2.4 DEFINITION AND EVOLUTION OF SOFT SKILLS IN TIME

Despite its compelling simplicity, in the academic literature there is no a clear and univocal definition of the concept of soft skills. It is a concept that most people know of, but it is challenging to properly define. Soft skills have been defined in different context including different perspectives, varying across various authors and times.

The idea of soft skills has evolved over time. According to Greene (2017), the earliest references to soft skills appeared in military training documents by Fry and Whitmore in 1972. Success in the military involved more than tactical skills in battle and incorporated service skills, teamwork, and the ability to inspire confidence in others. In a 1972 field manual, the U.S. Army defined soft skills as those involving primarily people and paper including troop inspection and supervision of personnel (Fry and Whitmore, 1972). Near the turn of the second millennium, soft skills became more predominant in the discussion of traits desired by employees and, therefore, more specific to the needs of the new workplace. These traits were affirmed in 2010, when the Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management conducted an in-depth study of the corporate perspective on the readiness of new entrants into the U.S. workforce. Nowadays, proponents of soft skills have recently taken to referring to such abilities as “uniquely human” (Aoun, 2017; PwC, 2017).

During this time, several authors tried to define the concept of “soft skills”, sometimes called even “competences”, with the result that a wide variety of nomenclature have been given to it increasing the variety of different definitions of them, different ways of classifying and clustering them (Cinque, 2016): life skills (WHO, 1993); critical skills (Lee et al, 1995); transversal skills (ISFOL, 1998, 2012); personal skills (Murch, 2001), soft factors (Caupin et al, 1999; Wohlin, 2005), people skills (Flannes, 2004), key skills (Simpson, 2006); lifelong learning competences (EU, 2006); human skills (Pant and Baroudi, 2008), interpersonal skills (Gillard, 2009), social skills (Azim et al, 2010), etc.

Since the late 1990s, use of the term “soft skills” has increased significantly (Collins, 2018) and its meaning it has been often equated with “interpersonal” or “people skills”, but generally the different definitions are often glossed and exceedingly broad, encompassing leadership skills, emotional intelligence and even personality traits. This term used to indicate a broad set of personal transversal competences, behaviors, attitudes, and personal qualities that enable people to effectively deal with the context, working well with others, and performing well, achieving their goals (Lippman et al., 2015). They are not directly connected to a specific task but necessary in any position but are those skills that apply across a variety of jobs and life situations (Karthikeyan and Baskaran, 2011). Traditionally, they are considered complementary to hard skills, or technical skills (Lippman et al., 2015), which refer to the specific capabilities to perform a particular job, because even if they are different in terms of how they are developed and implemented, they are both necessary for satisfactory employment and contribute to the success of the organization (Rego, 2017). Here it is important to introduce the main differences between hard and soft skills. Hard skills can be defined as technical skills including an individual’s mental and physical capacity (Robles, 2012; Zhang, 2012). Historically, hard skills were the only skills necessary for career employment and today more than ever, they just make people take the interviews, while soft skills are the ones which make people take and keep a job. Indeed, today’s workplace is showing that technical skills are not enough to keep individuals employed when organizations are right-sizing and cutting positions (James and James, 2004). Robles also emphasized that although soft skills could be learned and acquired, they are more difficult to obtain than hard skills. Moreover, differently than hard skills, many companies do not want to invest in providing training in soft skills since it is extremely challenging to quantify the return on investment (ROI) of this training and create an effective methodology to measure soft skills (Robles, 2012). Another important difference between hard and soft skills is in their development. Books, school, training, etc., are all effective ways to develop and strengthen hard skills. They are linear, in that there is a direct path towards excellence, and generally it is possible to demonstrate the hard skills levels of competency with degrees and certifications. On the other side, soft skills can be taught in school as well, but there is no real metric to

measure success or even curriculum that is universally accepted as instead there is for hard skills. There is not a linear path forward: they are learned through trial and error, in other words, through lived experience. However, even if it is harder to assess and measure soft skills, it does not mean that they cannot be learnt.

Lastly, another clarification is due, indeed, the terms “skill”, “competence” and “competency” are often used interchangeably, but they are not necessarily synonymous. Competencies may refer to sets of skills, it is a term that stands for a combination of practical and theoretical knowledge, cognitive skills, behavior and values used to improve performance. On the other side, competency is more of an umbrella term that also includes behaviors and knowledge, whereas skills are specific learned activities that may be part of a broader context.

According to Hurrell et al. (2012), soft skills are “*nontechnical and not reliant on abstract reasoning, involving interpersonal and intrapersonal abilities to facilitate mastered performance in particular contexts*”. While Parente et al. (2012) classified soft skills as “*people management skills*”. Differently, Fogle (2011) in its definition of soft skills included “teaming skills” in addition to “*communication and social skills*”, and again Hargis (2011) added “work ethic, critical thinking, and problem solving” skills as part and parcel of soft skills. While, Haselberger (2012) defined soft skills as “*a dynamic combination of cognitive and meta-cognitive skills, interpersonal, intellectual and practical skills*”, stating that “*soft skills help people to adapt and behave positively so that they can deal effectively with the challenges of their professional and everyday life*”. However, the most acknowledged and cited definition of soft skills seem to be the one of Robles (2012), who defined soft skills as “*character traits, attitudes, and behaviours - rather than technical aptitude or knowledge*”, explicitly stating that soft skills are more than just people skills. In her approach Robles clearly specify that soft skills include more than just behaviours.

Needless to say, in literature it is possible to find a wide variety of soft skills which are considered fundamental by organizations, there is no one univocal framework of the most relevant soft skills needed to succeed in the today’s workplace.

2.2.5 SOFT SKILLS FRAMEWORK

In this paragraph there is an analysis of the most relevant soft skills identified in the last decade, with the aim to develop a framework of the most updated soft skills for the today's workplace. Again, despite the fact that the number of studies looking into the required skills at work is growing, defining a univocal list of soft skills seems to be a tough challenge, since each study, researcher and organization proposes a wide variety of different sets of skills, each of them focusing on specific issues (see e.g. Kinkel et al., 2016; Grzybowska and Łupicka, 2017), furthermore, the keep changing work environment and its rapid changing needs and requirements increase the complexity to identify a common, shared and univocal set of the soft skills at work.

Furnham et al., (2010) created an inventory of fifteen soft skills based on previous literature: self-management, communicational, interpersonal, team-working, the ability to work under pressure, imagination or creativity, critical thinking, willingness to learn, attention to detail, taking responsibility, planning and organizing, insight, maturity, professionalism, and emotional intelligence. While Brungardt (2011) posited that today's workers from all industries have less repetitive tasks and much more autonomy in their work environment, which means that they have to make more decisions, interact with more people, and communicate effectively with people at different levels. Brungardt identified four soft skills necessary for any employee: (a) teamwork, (b) problem solving, (c) decision making, and (d) communication. Similarly, other studies identified two main categories of soft skills, the "must have" skills and the "good to have" skills (Remedios, 2012). The "must have" are the soft skills and the "good to have" are a subset derived from the soft skills, the last group appears to be more a description of all the different abilities that make up the soft skills. Remedios expanded the work of Brungardt by including also skills like (e) lifelong learning, (f) work ethics, (g) leadership, and (h) entrepreneurship. For example, Remedios argued that entrepreneurial skill is the ability to pursue business opportunity, develop risk awareness and to create and innovate, all of which could be valuable for an employee. Again, in his studies, Zhang (2012) listed the following skills in order of importance: (a) honesty and integrity, (b) communication skills, (c) analytical skills,

(d) teamwork, (e) interpersonal skills, (f) motivation, (g) flexibility and adaptability, (h) creative thinking, and (e) organizational skills. While Robles (2012) in her research, which is one of the most acknowledged and cited work on this topic, evaluated the top 10 critical skills considered vital by the top executives prioritizing the result in the following order of importance: (a) integrity, (b) communication, (c) courtesy, (d) responsibility, (e) interpersonal skills, (f) professionalism, (g) positive attitude, (h) teamwork, (i) flexibility, and (j) work ethic. She appeared to go further than some other scholars when she proposed that the set of soft skills could be divided into two components: interpersonal or people skills and personal or career attributes. Interpersonal or people skills include things like patience, a sense of humor, friendliness, self-control, empathy, and warmth (Robles, 2012). Personal or career attributes include qualities like customer service, teamwork, time management, leadership skills, likeability, and organizational skills (Robles, 2012). Career attributes are associated with working in a professional team environment; however, all the skills are important for employability. The studies of Robles have been a strong foundation for further studies. Accordingly to Lim et al., (2016) the soft skills that are highly rated by employers are: (a) analytical skills, (b) decision-making process, (c) communication skills, (d) problem solving, (e) teamwork, (f) ability to gather information, (g) and ability to work under pressure. Among all of these skills, written and oral communications skills were the most important skills that employers identified as necessary for any new employee to be successful (Lim et al., 2016). Here, it is important to distinguish communication from collaboration, the first one refers to send and receive information, while the second one implies to work together in order to make a decision or to deliver something. At the same time, as a result of a survey performed by NACE's Job Outlook (2016) with the aim to find the attributes required by the employers from graduates, the most cited skills have been communication, problem-solving and a strong work ethic. These findings have then been confirmed in a survey carried out in 2018 on more than 600 organizations, where in the top 5 most relevant skills required nowadays there were: (a) listening, (b) attention to detail, (c) interpersonal skills, (d) critical thinking, and (e) effective communication (Morning Consult, 2018). While other studies pointed out as the most relevant skills (a)

independent evaluation, (b) teamwork, (c) tolerance and empathy (Priksat et al., 2018). Relying on the work carried out by Beardmore (2019), after having identified the most relevant publications with clear and detailed references to soft skills (see e.g. Andrews and Higson, 2008; Toner, 2011; Robels, 2012; Heckman and Kautz, 2012; Cobo, 2013; Burstein, 2014; Wonderlic, 2016; Rider, 2016), the author developed a consensus of the most relevant soft skills at work, prioritizing them with the soft skills appearing most often at the top and those identified the fewest times at the bottom: (a) *Collaboration/teamwork*, as the ability to build relationships of participation and cooperation with other people. This involves sharing resources and knowledge, harmonising interests and contributing actively to reaching the objectives of the organisation; (b) *Interpersonal skills and cultural understanding*, as the ability to listen carefully and to empathize; (c) *Communication*, as the ability to transmit ideas, information and opinions clearly and convincingly both verbally and in writing, while listening and being receptive to the proposals of others; (d) *Critical thinking*, as the ability to draw conclusions and forecasts for the future by getting information from different sources and establishing cause and effect relationships, with the purpose to quickly and proactively take the decisions needed to achieve objectives; (e) *Initiative and self-management*, as the ability to takes responsible risks while managing and planning time and behaviour coping with pressure; (f) *Creativity and curiosity*, as the ability to contribute new ideas to develop improvements in the products or services of the organisation as well as in the activities performed in the job, with the aim of responding to the evolution needs of the organisation; (g) *Flexibility and adaptability*, as the ability to redirect the course of action to meet goals in a changing scenario; (h) *Integrity and professionalism*, as the ability to take actions with integrity while bearing in mind the principles and ethics of the profession in daily activities; (i) *Responsibility and leadership*, as the ability to be responsible, motivate and guide others to get them to contribute effectively and adequately to the attainment of objectives; (j) *Persistence and work ethic*, as the ability to stick with the commitment to the organization and to understand its specific characteristics by merging individual behavior and professional responsibilities with the values, principles and goals of the organization (Haselberger et al., 2012; Beardmore, 2019). This seem to be one of the most updated lists of soft

skills required in today’s workplace. These findings seem to be in line with the researches of the SW Observatory (2019) where it identified the most important soft skills needed for the smart workers. The framework identified incorporates several skills, which are then distinguished in four cultural aspects that are required to be successful in adopting and embracing the new organizational model, mindset and culture enabled and supporting the Smart Working (see Figure 2.1).

Soft Skills needed for the today's Smart Workers	
SENSE OF COMMUNITY	
Team Working	The ability to build relationships of participation and cooperation with other people. This involves sharing resources and knowledge, harmonising interests and contributing actively to reaching the objectives of the organisation.
Altruism	Ability to give support to colleagues even without an explicit request, showing it act without send purposes.
Engagement	The ability to share organizational mission and values and to be emotionally involved in the achievement of organizational aims. It is the emotional commitment towards the organization and its goals.
Organizational intelligence	Capability to quickly identify the reference points within and outside the company, to create a net and share information useful to achieve organizational objectives.
Social intelligence	Capability to communicate and interact to others in a quick and direct way, with the aim to stimulate communication and interaction.
EMPOWERMENT	
Proactivity	Attitude to independently act without external stimuli and pressures with the aim to improve results or avoid/anticipate problems.
Problem Solving	Capability to identify and solve autonomously potential issues, and take responsibility of the development of the solution.
Goal-centric thinking	Capability to organize and plan the activities in order to reach the predefined objectives, keeping a medium- and long-term perspective.
Openness	Attitude to acquire with interest and curiosity new knowledge and skills that will allow to grow the skill set possessed.
FLEXIBILITY	
Resilience	Capability to positively face the unexpected events, being able to reorganize the activities to deal with the criticalities. At the same time remaining aware of the potential opportunities hidden in the difficulty found.
Work-life Integration	Ability to effectively plan and manage the activities in order to properly balance professional and personal needs.
Time management	Capability to manage the working time by prioritizing the activities basing on the time and space of work.
Multitasking	Capability to execute and perform more activities simultaneously, ensuring at the same time high attention and accuracy.
VIRTUALITY	
Knowledge Networking	Ability to identify, locate, retrieve, value, share, store, organise and analyse digital information, available online on social networks and virtual communities.
Virtual Communication	Capability to communicate effectively, coordinate the projects and manage the identity in the digital environment.
Digital Awareness	Ability to create and edit digital contents to improve and integrate information, but also to know how to give understandable instructions for a computer system.
Creativity	Ability to use the digital tools in the right way, with the right caution and consideration to protect the balance between personal and professional aspects.
Self Empowerment	Ability to use the digital tools for solving complex problems using digital tools.

Figure 2.1 – Smart Working skills (SW Observatory, 2019)

This is particularly relevant because it points out a new direction in the study of the soft skills required to the knowledge workers nowadays: the digital soft skills. Nowadays, a major part of the researchers is focusing on this concept with the aim to provide a structured framework for identifying the most relevant digital soft skills for the workers. This is mostly due by the fact that the pervasivity of the Digital Transformation is forcing organizations to rethink their current business models, consumption patterns, and structures (Cochoy et al, 2017), while developing at the same time in each organizational area a mix on digital knowledge and skills. In this scenario, it is essential for people to be able to properly use these new tools in order to reach higher efficiency and effectiveness. For this reason, it is mandatory for people to develop new skills to face this revolution (Patterson et al., 1997). In the organizations, the adoption and use of ICT increases productivity, competitiveness and revenue, enhancing at the same time both innovation and employment. As a result, digital skills are not only vital to be part of the “knowledge society” (van Deursen and van Dijk, 2019), but they are also a strong enabler of the employment opportunities (Gómez et al., 2014). Moreover, the digital tools and technologies available for the people are spreading and updating quickly and this rapid integration of new tools requires a continuous evolution of the skills required to handle these technologies and tools (Janssen et al., 2013). Among the different skills a person must have to be competitive on the market, digital competences are becoming essential. The first step is to define what are the digital competences, and then to briefly describe the existing competence frameworks. In literature it is possible to identify several definitions of digital competences, broadly it is possible to define them as “*a set of competences and skills needed to properly use digital technologies*” (Planzi and Cavallaro, 2017). A first definition of Digital Competences has been proposed by the European Parliament, which defined a digital competence as: “*the ability to use with fluency and critical spirit the technologies existing in the information society for the working activities, free time and communication. Digital competences are supported by basic abilities of ICT like the adoption of computer to find, evaluate, preserve, produce, present, exchange information, and to communicate and participate in collaborative networks using Internet*” (European Parliament and the Council, 2006).

During the years, this definition has been adjusted and one of the most recent and comprehensive definition of digital competences defines them as “*the set of knowledge, skills, attitudes (thus including abilities, strategies, values and awareness) that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, socializing, consuming, and empowerment.*” (Ferrari, 2012). This is probably the most update definition of digital competences, since it is based on a model - DigComp framework developed by the European Commission – which is not only the most comprehensive, since is based on the study and integration of a relevant number of previous theoretical models, but it takes into consideration also the latest technological developments, embracing the most modern concept of Digital Society. Within the literature it is possible to identify several framework referring to the set of skills necessary to handle the new technologies and be literate or fluent in the Information and Digital Age. However, despite the growing interest of both universities and companies, there is still ambiguity on the theme of digital competences, regardless the existence of several models to map and assess these skills. Among them the most famous ones are (i) the Digital Soft Skills Framework, developed by the HR Innovation Practice Observatory of Politecnico di Milano (2016) which relying on the Digital Competence Framework (DIGCOMP), developed by the European Commission in order to assess the digital skills of a “good citizen”, it considers only the digital competences that knowledge workers must have to be successful today; (ii) the E-Competence Framework, developed by the European Commission and adopted by AgID (Agenzia per l’Italia Digitale) to map the digital competences; and (iii) the Collective Genius, to map the competences related to innovation and creativity. Still, relying on the framework developed by the Observatory, it is possible to distinguish five main digital soft skills essential today (Ferrari, 2013; SW Observatory, 2018): (1) *Knowledge Networking*, it is the ability to identify, locate, retrieve, value, share, store, organize and analyse digital information, available online on social networks and virtual communities. In this first category, the digital competences required are: Browsing, searching and

filtering information and digital contents; Evaluating information; Developing, integrating and reworking digital contents; Managing data, information and digital contents, storing and retrieving information; Information sharing through digital technologies. (2) *Virtual Communication*, it refers to the capacity to communicate effectively, coordinate the projects and manage the identity in the digital environment. Here, the category includes: Deal with digital technologies; Collaborate and communicate through digital tools; Manage the digital identity; Structure and visualize the digital contents. (3) *Creativity*, it refers at the creation and editing of digital contents to improve and integrate information, but also to know how to give understandable instructions for a computer system. In this category there are: Developing content; Integrating and re-elaborating; Copyright and licenses; Programming. (4) *Digital Awareness*, it comprises all those competences that ensure the proper use of the digital tools, with the right caution and consideration to protect the balance between personal and professional aspects. In this case, the model considers: Protecting devices; Protecting personal data and privacy; Protecting health and environment; Natiquette. Lastly, (5) *Self-Empowerment*, it refers to the possession of the competences and knowledge required to master the digital tools for solving complex problems using digital tools. In this category, the specific knowledge is directed at: Solving technical problems; Identify technological needs and how to deal with them; Identify the digital competence gaps; Being open (Observatories, 2019).

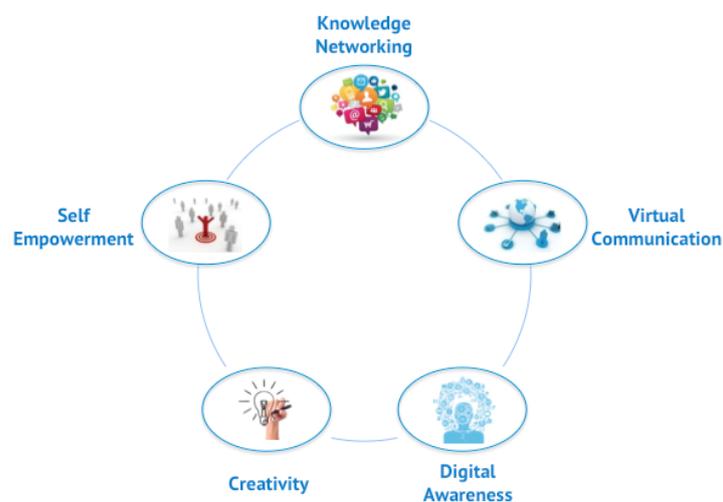


Figure 2.2 – Digital Soft Skills (Observatories, 2019)

However, despite the growing attention of companies and universities towards this category of soft skills, it is essential to be aware about the so-called Digital Mismatch: the gap between the competences possessed by today's workers and those required by companies. The need of digital competences is growing exponentially, but this growth is not met by the training provided by both universities and companies. The importance of digital skills concerns every sector, the European Commission estimates that within the 2020 about 90% of the professional profiles non-ICTs – so the profile that do not need ICT to carry out their activities – will require these new competences, strengthening the importance of these skills (Capoferro, 2019).

Concluding, although many scholars have conducted research to understand the importance of soft skills, it is inaccurate to assume that everything about soft skills has been stated and concluded. The technological advancements compounded by globalization and the increasingly fast pace of the changes in the working environment have made soft skills essential. They are the foundations and the enablers of new behaviors and attitudes required by the new ways of working developed in the last decade. The possession of these skills is not anymore just a suggestion, but it is an imperative both for people and for companies that want to compete in this increasingly complex world.

CHAPTER 3

METHODOLOGY

In this chapter there is a description of the different steps of this research and the tools adopted to perform it, with a specific focus on the objectives of the literature analysis, the development, test and validation of the theoretical framework through the analysis of the reference literature analysis. Starting from the description of the steps that brought to the construction of the theoretical framework, emphasizing in a dedicated section the definition and identification of constructs of the model, and lastly arriving at the description and formalization of the theoretical hypothesis. Lastly, it is presented a brief description of the methods used to test and validate the model: starting from the Cronbach's Alpha method to check the robustness of the model, passing through a confirmative analysis to finally arrive at the Structural Equation Modelling (SEM), which is a technique to test and validate the model identified. In conclusion the assessment of the fit and the cleaning phase have been performed to eliminate potential factors that could affect the results interpretation.

3.1 OBJECTIVES AND STEPS OF THE WORK

By defining in a more structured way the concept of Smart Attitude of people, the main aim of this work is to give a clearer insight of how the levers adopted towards the so-called Business Agility impact the attitude of people, particularly the Smart Attitude (see Chapter 2). In this direction, it has been essential to identify and define the

different aspects of Smart Attitude and analyse their relationship with the most acknowledged levers of the Business Agility. Accordingly, this research presents several required steps that involves firstly giving an overview of the concept of Smart Attitude, identifying the most significant aspects, and secondly identifying the correlation between the adoption of agile methodologies at business level and this concept. The whole process has been supported and enabled by both the analysis of the literature and the confrontations with practitioners in these fields. This allowed to: (a) identify the constituent elements – constructs – of Smart Attitude; (b) identify a set of the most relevant soft skills required today in the workplace, which are the foundation and enabler of Smart Attitude, (c) clarify the concept of Business Agility, widely debated in literature; and (d) define the most acknowledged levers adopted to expand the Agile philosophy at the organizational level. Surely, the analysis of literature has been essential to identify the areas that had not been investigated yet, increasing the value and interest of this research. Since the beginning, it has been clear that most of researchers have focused the attention on the study of the concept of Business Agility from a broader organizational perspective. This is confirmed by the fact that there is little known research referring to impact that this new paradigm has on the attitude of people.

To summarize, the whole investigation has the following objectives: (i) Assess the impact that Business Agility has on Smart Attitude; (ii) Identify the Business Agility levers which contributes the most on each element of Smart Attitude.

These objectives have then been translated in the following research questions:

RQ1: Is the (Smart) Attitude of people affected by the Business Agility?

RQ2: Which of the Business Agility levers have the highest impact on the elements of the Smart Attitude?

As already mentioned, the analysis of the academic papers has been essential in order to answer these questions, since it placed the theoretical bases to support the whole investigation. To reach the above-mentioned objectives, this work has been built on several steps: (1) the preliminary analysis of the concepts of Smart Attitude and

Business Agility, and the aspects that define and constitute them through the analysis of the reference literature; (2) the development, construction and formalization of both the theoretical model and the research hypotheses; (3) the identification of the right tools and questions to conduct the survey and collect the results; (4) the construction of the survey coherently with the objective of this research; and (5) the analysis of the data collected, with the purpose to test and validate the developed model.

These steps have been summarized in the figure Figure 3.1.

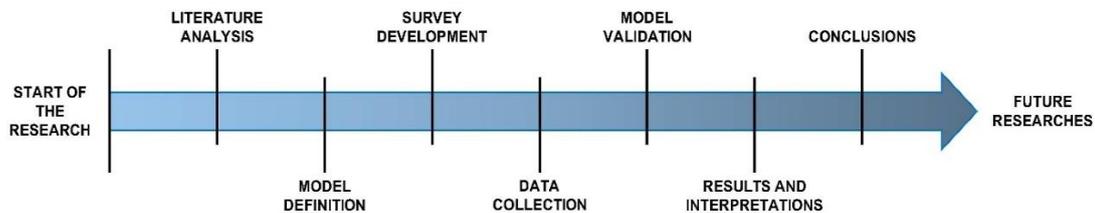


Figure 3.1 – Steps of the research

In conclusion, this study is intended to contribute to the literature on Smart Attitude and Business Agility by exploring the effect that the implementation and adoption of this new managerial paradigm has on the most relevant components of Smart Attitude.

3.2 LITERATURE ANALYSIS

The analysis of the reference has been the first step of this with the aim to identify and ultimately report the state-of-the-art knowledge regarding the topics of the previous chapters. Through the analysis of the reference literature, it has been possible to describe in a complete way all the characteristics of the agile philosophy such as its origins, evolution, expansion, values, principles, levers, benefits and boundaries (see Chapter 1). In the same way, relying on the existing academic papers it has been possible to give a very first definition to the concept of Smart Attitude, developing a more structured vision of its core elements (see Chapter 2). In both cases the first aim has been to report the state of the art until today in both these field and, secondly, to highlight the aspects that need to be studied more in depth, supporting the development

of the theoretical model of this work. For this purpose, it has been followed the systematic literature review approach, since this approach helps to synthesize academic literature in an accurate and reliable manner (Moher et al., 2009).

The research of the reference literature has been performed analyzing the publications of scientific journals in the fields of Business, Management and Accounting, Social Science, Psychology, Engineering, and Computer Science relying on the most acknowledge academic search engines and databases (see Fettke, 2016) as Google Scholar, Scopus, Science Direct and ISI Web of Knowledge. In this case, the choice of this specific channel has been dictated by the academic relevance and the scientific authoritativeness of the journal selected. For the search conducted within the databases, it has been used the respective search functionality with a combination of different search strings, using several combinations of the boolean and proximity operators, hence, the search was limited to abstracts, titles and keywords.

After that, from one side the attention has been concentrated on retrieving information about the concept of soft skills. The reference literature available on this topic is mostly limited to certain specific domains (e.g. school graduates, training programs, etc.), thus a support and integration of the academic studies with material from books, encyclopedias and online articles has been required. Through this process it has been possible to identify the most important soft skills for the today's workplace as well as the competences that employees should have to be successful. From the other side, the emphasis has been focused on collecting information about the most acknowledged implementation levers of the so-called Business Agility, in order to give clarity on the labyrinth constituted by the various definition, interpretation and framework developed over the last decades.

The search has been performed through key words¹ based on the research objectives which then have been grouped in the macro categories of reference (see Mayring, 2010) in order to be individually studied subsequentially to verify their relevance for this work. Agility has been the first concept to be considered, starting from a general overview of it. However, looking at the overwhelming number of results it has been necessary to restrict the research only on the very core aspects of the research topic.

¹ Examples of key words used in this research: *Agility, Business Agility, Agile Organization, Agile Project Management, Agile Levers, Agile Framework, Culture, ..., Smart Attitude, Smartness, Attitude, Sense of Community, Empowerment, Flexibility, Virtuality, Soft Skills, Hard Skills, Digital Skills*, etc.

Simultaneously, this stage of the research is resulted in the discovery of various other topics that are intertwined with the above-mentioned concept, enlarging the research branches. Intuitively, the concept of Smart Attitude has been treated in the same way. However here the research results have not been overabundant given the novelty of the topic, but still a structured screening has been essential.

In both cases, given the huge number of the results it has been necessary to proceed in a sequential process, performing various screening steps: the very first screening step has been performed by reading the title and the abstracts of the most promising papers, resulting that many of them were not consistent with the aim of this work. This helped a lot, but it was not enough to reach an affordable number of papers, so the following step has been to focus on the conclusions only of the remaining papers to be sure that they were relevant and coherent with the research purpose. Finally, the selected papers have been considered and analyzed in a structured format by creating an excel database where have been stored the most relevant information of each specific paper and they have been listed in the bibliography chapter at the end of this research. Specifically, it has been stored for each paper: (a) the broader field of research; (b) the topic of the papers; (c) the title; (d) the keywords; (e) the hypotheses of the research; (f) a summary of the most interesting and relevant outcomes from the perspective of this investigation; (g) a summary of both the practical and theoretical implications; (h) the authors; and (i) the publication year.

The whole phase has been supported by the adoption of the so called “grey literature” too, which helped to identify and follow a more generic approach towards both Smart Attitude and Business Agility. This has been particularly useful to articulate the two concepts into their main features, levers, values and benefits, the researches in this sense have been carried out through the web. In this case, the choice of this channel has been dictated by the wide amount of information available, their accessibility, immediacy and updating.

It is relevant to point out that the analysis of the academic papers and the grey literature has been also the first step in the identification and definition of the constructs and items of the model, and it has been crucial to define the most suitable scales for

assessing them. Moreover, through the analysis of the literature it has been possible to focus in depth on the single variables, with the purpose to identify and briefly define the most relevant components to describe the constructs, reaching an elevated level of detail in order to properly understand the specificity of each variable considered. This step has been essential for the construction and development of the final model, constructs and items to study.

3.3 THE MODEL

In this paragraph there is the description of the different stages followed for the development of the theoretical framework of this work. Starting from an analysis of the reference literature to understand the existing. This served as the basis for the development of the research hypotheses and the identification and definition of the constructs and items of the model.

3.3.1 GAPS IDENTIFICATION

Relying on the analysis of the reference literature it has been possible to identify the main gaps and the unaddressed aspects.

As mentioned above, the concept of Smart Attitude has not been deeply studied yet given its novelty, and this has emphasized the need to first define the construct in a structured way and then identify its main pillars. Therefore, it has been judged useful to define and focus on the foundations of this concept which are constituted by the concept of soft skills, relying on them to develop the specific constructs of the model. Different is the case of the Business Agility, which instead has been largely defined and analyzed in the last years, bringing the opposite issue: the need to clarify and select only the most acknowledge elements of this concept, in order to focus only on the right levers. Finally, this analysis brought to the selection of the most relevant and never investigated relations and impacts of the agile levers on the constituent aspects of the Smart Attitude. This process brought to the creation of the initial framework of the theoretical model, showed in the following paragraphs.

3.3.2 CONSTRUCTS IDENTIFICATION AND DEFINITION

As already mentioned, the theoretical constructs have been identified through the literature analysis. This step has been particularly useful to support the development of the model and to ensure relevance to the work. Moreover, the constructs identification process has been supported by the interaction with experienced practitioners in both the fields of this research, who gave a strong contribution in the identification of the constructs of the model. Once this first step has been concluded, the constructs identified have been selected relying on the reference literature and then have been formalized with the purpose to create the survey and test them. Moreover, once the construct definition and identification phase have been accomplished, the following step has been the identification of the most suitable items to describe and ultimately measure the constructs. Again, this step has been supported both from the theoretical perspective, with the identification of the items in the literature of reference, and the practical perspective, thanks to the confrontation with experts on these topics. As a result, the items identified and selected have been included in the survey, making the tool aligned and coherent with the objectives of this investigation (for further details see paragraph 3.4.4).

BUSINESS AGILITY CONSTRUCTS DEFINITION

Despite the wide literature referring to this topic, there is a general lack of clearly defined frameworks for explaining agility from an organizational perspective (Sherehiy et al., 2007; Wendler and Stahlke, 2014) meaning that there is limited or no consensus on the fundamental set of levers to support and enable the shift towards agility (see e.g. Alavi et al 2014; Muduli 2017). However, there are some shared pillars most cited in the literature.

Through the analysis of the academic papers it is clear that the shift towards the Business Agility requires changes at all levels of the organizational structure (Gandomani and Nafchi, 2015; Denning, 2016; 2018c; Paterek, 2018) starting with the project team as a central unit (Gandomani and Nafchi, 2016; Denning, 2018a; 2018b).

Moreover, it has been pointed out the relevance of the organizational context in which the organization operates (Cabała, 2016; Hofman, 2018). Still, the most important enablers of the Agile transition process seem to be the focus on processes and training (Spalek, 2013; Wyrozębski; 2014; Gandomani and Nafchi, 2016; Paterek, 2017b), human resources management and development (Dikert et al., 2016; Denning, 2018b), and the organizational culture (Paterek, 2016; Solinski and Petersen, 2016; Hoda and Noble, 2017) which play the key role in enabling a supporting new organizational behaviors and attitudes.

Organizational redesign required by the agile transformation involves the integration of structure, processes, and culture to encourage the implementation of the business agility and therefore goes beyond the traditional tinkering with “lines and boxes.” This process comprises also the rethinking of all the processes that people follow – as the development of employees’ skills, the management of individual performance, etc. (Aronowitz et al., 2015). Indeed, it has been proved that the new agile approach impacts the activities in term of the daily routines by significantly changing them, particularly the processes (Cabała, 2016), practices and methods (Trocki, 2013; Kisielnicki, 2014) by shifting from a long-term execution to a shorter-term one, based on an incremental adaptation of each subsequent iteration (Solinski and Petersen, 2016; Hoda and Noble, 2017). It has been proved that organizational practices are programs initiated and implemented by management and help to reinforce the workforce agility (Qin and Nembhard, 2015). Agile organizations leverage on standardized ways of working to facilitate interaction and communication between teams, including the use of common language, processes, meeting formats, etc., and this approach enables rapid iteration, input, and creativity in a way that fragmented and segmented working does not (Ebrahim, 2018). These processes in which the organization excel constitute a stable backbone for the organization, they can be explicitly standardized but for competitors they are hard to be replicated (Aghina et al., 2015).

However, it has widely pointed out that culture has the key role in the transition (McKinsey, 2017; Ebrahim, 2018; SW Observatory, 2019) and it could be the highest barrier and the biggest enabler of this new philosophy extended at the organization

level. Nevertheless, culture alone is not enough, if an organization wants to become agile, extensive training is needed. Indeed, the differences in structure between traditional and agile organization seem to greatly affect the way competences are organized. Researches argue that in order to increase the likelihood of success of an agile project, there is an increased need for a broader set of competences among the team members of the project (Hedberg, 2015). Moreover, training is needed to avoid misunderstanding of what agile means or to decrease the fear of skill deficiencies, so the fear to not possess the right skills to handle the transition (Schatz and Abdelhafi, 2005; Conboy et al., 2011; Drop et al., 2017), leading to possible resistances resulting from lower organizational performance due to a misunderstanding of agile concepts (Benefield, 2008; Drop et al., 2017; Ebrahim, 2018). At the same time, coaching is needed to foster the importance of trial and error which are common values in agile organizations (Schatz and Abdelhafi, 2005; Conboy et al., 2011; Drop et al., 2017). This is supported by the fact that agile teams focus on individual competences as a critical factor in project success. If the people allocated on the projects are good enough, they can adopt any process and accomplish their task, while if they are not good enough, no process will repair their inadequacy (Cockburn and Highsmith, 2001). In other words, processes are essential to ensure a useful framework for teams to collaborate and work together, but processes alone cannot overcome a lack of competence, while the opposite is true. That is why agile organizations seek to make continuous learning an ongoing, constant part of their DNA. This means that everyone can freely learn from his own and others' successes and failures and build on keep building new knowledge and capabilities to fit in their roles (Ebrahim, 2018). Lastly, a project is developed by people having different personalities and skills, working in a physical environment within an organizational culture which is the facilitator of both collaboration and shared objectives. Hence, the people, environment, and organizational culture all influence one another. For this reason, the company must also have a stable ecosystem in place to ensure that these teams are able to operate effectively (Ebrahim, 2018). Indeed, in the new principles enabled by the agile philosophy, people work hands-on and day to day with customers, vendors, and other partners to codevelop new products, services, and/or solutions and bring them to

market. At the same time, the environment in which the organization operates fosters itself the ongoing learning and adjustments, which help the organization to adapt and evolve rapidly to the changing environment. In this growing environment, people freely decide to spend dedicated time looking for ways to improve the business processes, which continuously improves business performance (Paterek, 2019).

SMART ATTITUDE CONSTRUCTS DEFINITION

Moreover, modern organizations are facing a new changing environment, characterized by an increasing in the employees responsibilities and an evolution of their tasks and activities which are more complex and less formalized and repetitive (Ilgen and Hollenbeck, 1991; Sluss et al., 2010; Brungardt, 2011), this is due to the unclear separation between tasks. Moreover, it is increasingly difficult to differentiate the tasks which are related or not to a specific role (Van Dyne and Ellis, 2004) and this requires to evolve from the traditional notion of “task assigned” by competences (Griffin et al., 2007; Martin et al., 2013). This new emerging context requires changes both in culture and working behaviors, highlighting the need to work differently. The complexity of the working environment is forcing the development of new behaviors directed to ensure (1) higher collaboration and communication; (2) higher flexibility and adaptability; (3) higher autonomy and empowerment; (4) higher efficiency through the adoption of new technologies and digital tools. However, the required condition to develop these new behaviors is that new attitudes are firstly developed and diffused (see e.g. Kutner et al., 1970; Lewin, 1999), here the concept of Smart Attitude arises. Nevertheless, if from one hand the concept of Business Agility has been widely debated in literature, from the other, the concept of Smart Attitude is a new concept. Therefore, given its novelty, it is challenging to find academic papers referring to it. For this reason, this work has been based on the research of the Smart Working Observatory, who firstly defined this concept (see Chapter 2) and then identified its constituent elements, namely: Sense of Community, Empowerment, Flexibility and Virtuality (SW Observatory, 2019). These four conceptual areas are the foundations upon which build both smart culture and behaviors.

Sense of community is defined as the set of skills to encourage collaboration, fostering the sense of belonging and aligning the people’s values with the organizations’ ones. This principle represents the shift from a hierarchical approach to an approach based on collaboration, which fosters a sense of identity and belonging in the employees. These feelings are then expanded to the whole company and to the individual networks itself (SW Observatory, 2019). Empowerment is defined as the set of skills to make people accountable and responsible, involving them in the decisions and stimulating them to suggest ideas to improve the work (SW Observatory, 2019). This principle is strongly related with the degree of autonomy and decision-making, that is defined as the degree of freedom that the employees have in taking decisions to achieve the planned targets, basing themselves on a strong sense of reciprocal trust, commitment and responsibility on the results (Conger and Kanungo, 1988). Flexibility is defined as the set of skills to make people properly balance personal and professional life, making them resilient and with the right attitude towards the changes (SW Observatory, 2019). It supports the ability of the organization to adapt to the changing needs and requests of the individuals. This factor requires a great degree of availability and relevant attention and respect towards individuals (Koroma, 2014; Fang, 2012). Lastly, Virtuality is defined as the set of skills needed to understand the most appropriate mix of tools to be used for each specific situation, lowering at the same time all the potential risks derived by an inadequate use of these tools (Harris, 2003; Golden, 2006; SW Observatory, 2019).

To summarize, the constructs identified have been reported in the following tables (Tables 3.1 and 3.2).

CONCEPT	CONSTRUCT	MEANING	REFERENCE
	STRUCTURE	A network of empowered, cross-functional teams supported by the role mobility.	Aghina et al., 2018; Observatory, 2019

BUSINESS AGILITY	PROCESS AND PRACTICE	Set of tools and working methods to support continuous improvement, task management and continuous feedback.	Aronowitz et al., 2015; Cabała, 2016; Aghina et al., 2018; Observatory, 2019
	ORGANIZATIONAL CULTURE AND LEADERSHIP	Culture oriented to the inclusiveness and involvement in the decisional processes of people, the transparency of the information, and the growth and development of the talents.	Breu, 2001; Spałek, 2013; Paterek, 2016; Hoda and Noble, 2017; Observatory, 2019
	ECOSYSTEM	Open physical and virtual environment and active partnerships.	Aghina et al., 2018; Observatory, 2019

Table 3.1 – Business Agility constructs

CONCEPT	CONSTRUCT	MEANING	REFERENCE
SMART ATTITUDE	SENSE OF COMMUNITY	Set of skills to encourage collaboration, fostering the sense of belonging and aligning the people’s values with the organizations’ ones.	SW Observatory, 2016; SW Observatory, 2019
	EMPOWERMENT	Set of skills to make people accountable and responsible, involving them in the decisions and stimulating them to suggest ideas to improve the work.	SW Observatory, 2016; SW Observatory, 2019
	FLEXIBILITY	Set of skills to make people properly balance personal and professional life, making them resilient and with the right attitude towards the changes.	SW Observatory, 2016; SW Observatory, 2019

	VIRTUALITY	Set of skills needed to understand the most appropriate mix of tools to be used for each specific situation, lowering at the same time all the potential risks derived by an inadequate use of these tools.	SW Observatory, 2016; SW Observatory, 2019
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Table 3.2 – Smart Attitude constructs

3.3.3 RESEARCH HYPOTHESES AND FORMALIZATION OF THE MODEL

The literature analysis has been essential to develop the research hypotheses and to ensure the relevance of the work. Moreover, given the opportunity to discuss of these topics with experts and practitioners it has been possible to develop hypotheses that were significant and valuable not only from the theoretical perspectives, but also from the practical one, with the purpose to establish the basis for future research on a field that seems to attract wide attention from the perspective of the organizations.

As mentioned above, the agile transformation requires more than the adoption of new practices or processes, it also requires and encourage a change of behaviors and culture across the organization. This suggests that organizations, and more specifically their people need to change their culture to become more agile (Gregory and Taylor, 2019). In other terms, the Agile philosophy has an impact on management styles, people attitude and behaviors (Conboy et al. 2011; Nerur et al. 2005). Here the first hypothesis of this work.

H1: *Business Agility positively impacts on the (Smart) Attitude of people.*

For this reason, a model dedicated has been developed and tested (Figure 3.2) considering the straightforward relationship between the Business Agility and Smart Attitude.

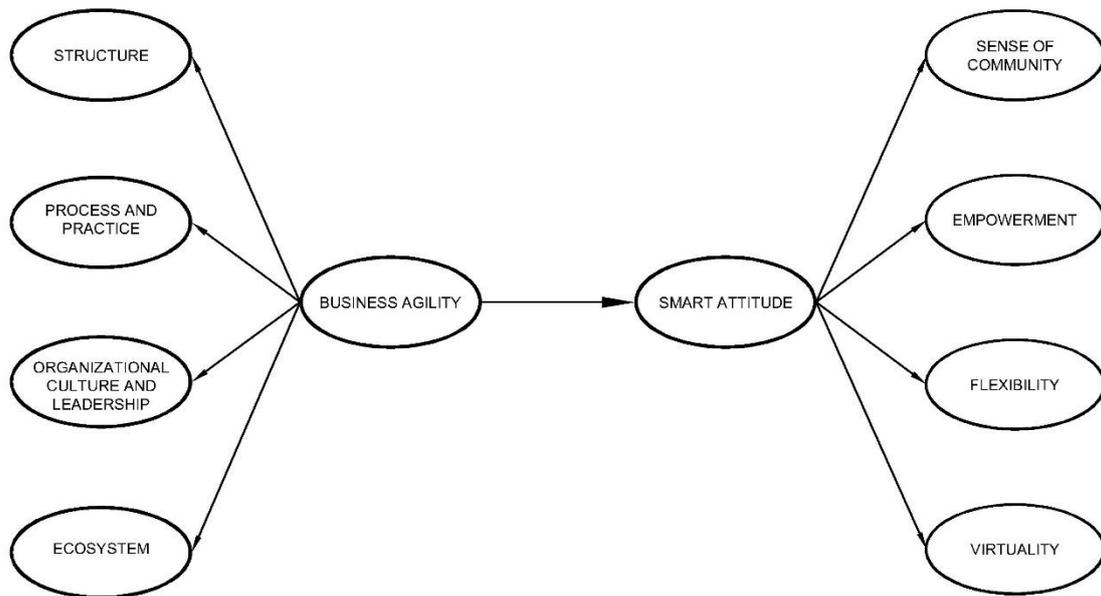


Figure 3.2 – Theoretical Model 1: step 1

However, it is relevant to point out an issue met during the development of the model, indeed, during the preliminary analyses the construct Ecosystem presents a main criticality: the answers received have highlighted the lack of implementation of the initiatives related to the variable ecosystem in the organizations mapped. As a result, most of the respondents were not able to answer about these initiatives. This, despite the relevance of the construct in the literature of reference, led to the necessity to eliminate the construct ecosystem from the model since it has been considered not reliable enough for the purpose of this work (see Figure 3.3).

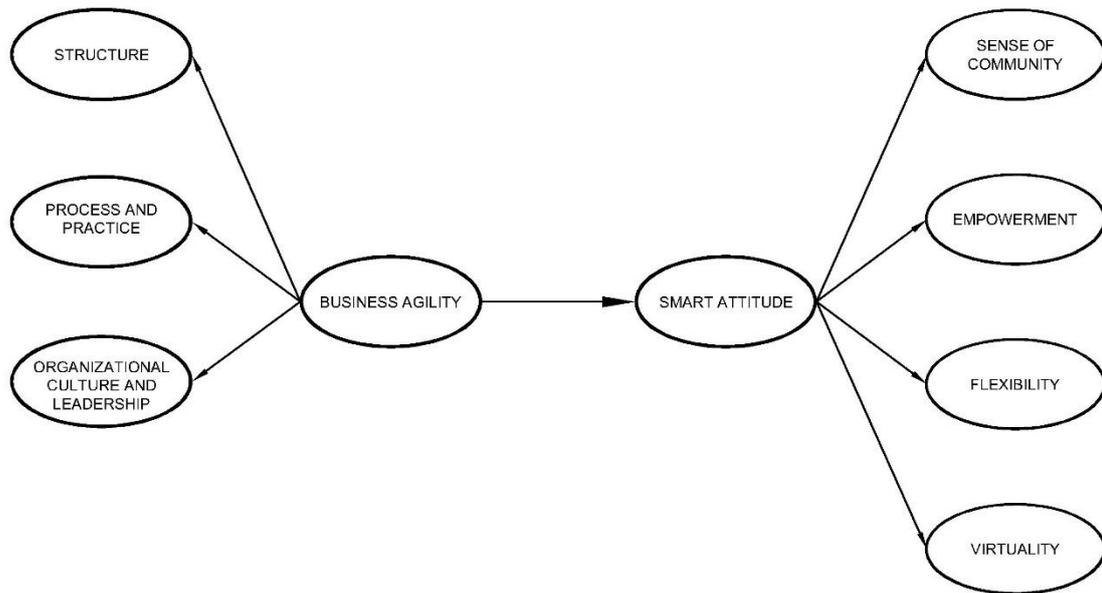


Figure 3.3 – Theoretical Model 1: step 2

At the very end, it is good to expect some mechanisms of control in the model, in order to identify other potential determinants of the Smart Attitude and to eliminate potential distortions of the system variables. For this reason, some variables of controls have been added in the model. There is an in-depth description of these variables in the dedicated section of the paragraph 3.4.4.

In conclusion, the final model to be tested it is presented in the figure below (Figure 3.4), while it is further analyzed in the following Chapter.

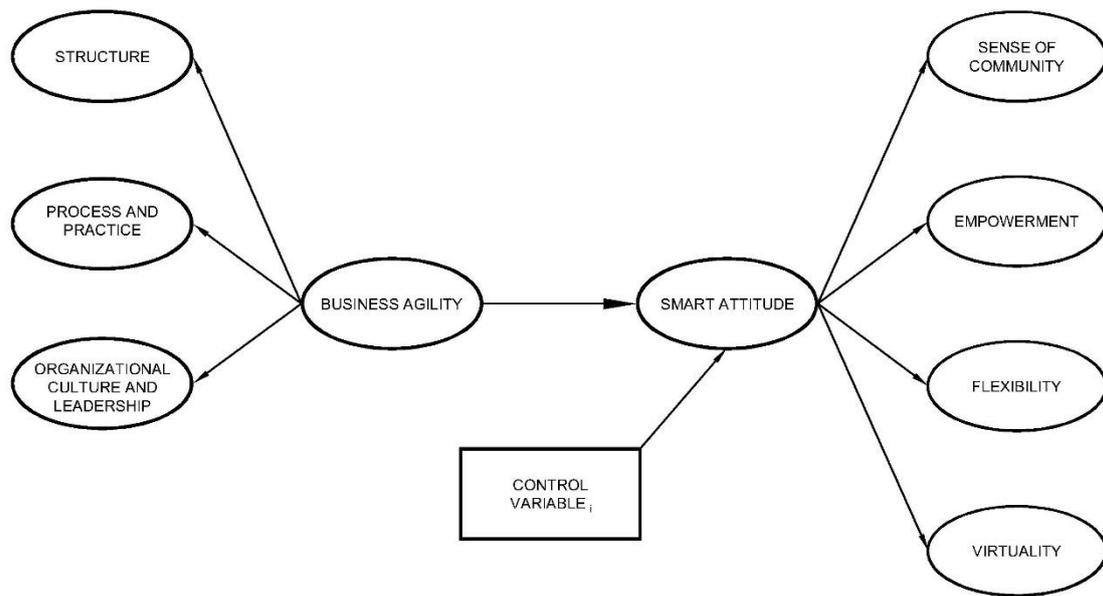


Figure 3.4 – Theoretical Model 1: final version

However, once this model has been successfully tested and validated, despite the findings derived by the analysis of the straightforward relationship between the construct Business Agility (which methodologically, is defined as a second level construct constituted by the different levers identified), and the second level construct Smart Attitude (constituted by the four key areas mentioned above), which has never been tested in literature, it has been decided to focus on a less methodologically-complex model (given the presence of two levels of latent variable that make this model very interesting and challenging from the methodological perspective) to exploit all the potentialities ensured by the strong basis of data. The main reason behind this choice is explained by the willingness to extrapolate the highest value possible from this investigation. Therefore, once the aggregate effect of Business Agility on Smart Attitude has been evaluated, it has been judged more interesting and valuable to assess the in-depth effects of each lever of the Business Agility on each aspect of the Smart Attitude, and not just the “superficial” global impact of it.

This choice has also been supported by the need to develop the most valuable model that could be tested with a single survey, without the need to proceed by sequential

steps, each of them requiring new questionnaires. Ultimately, basing on the above considerations, it has been decided to increase the value of this work by developing a model more detailed and challenging given the higher complexity in terms of number of relationships among them, with the aim to deeply understand the contribution of each individual lever of Business Agility on each element of Smart Attitude.

So, following this line of thought, a new hypothesis has been developed.

H2: Each lever of Business Agility has a positive contribution on each aspect of Smart Attitude.

The relevance of this hypothesis has then been confirmed by the confrontation with practitioners, partially overcoming the gap in literature about the impact of each single lever of the Business Agility on each element of the Smart Attitude. The impossibility to justify all the potential combinations of the model is mostly given by the novelty of both the research branches – Business Agility levers and Smart Attitude elements. For this reason, despite the difficulty to find papers on each combination, it has been judged useful to maintain and study all the relationships identified, with the main purpose to contribute in the development of the knowledge in these areas.

Several studies argue that the Agile transformation pushes towards a new mindset, passing from the traditional hierarchical approach, where managers restricted the involvement and transparency of their employees (Koh et al., 2003; Mc Millan, 1996), to a new mindset characterized by managers that favor the creation of external networks (i.e. with universities, clients, suppliers and other stakeholders) with the aim to support innovation and responsiveness (Jansen et al., 2009; Shen et al., 2008). This is further supported by the fact that agile organizations work through a network of small, self-organized, empowered and cross-functional teams (Jacobson, 2006; Gregg et al., 2016; Ebrahim, 2018), which replace much of the remaining traditional hierarchy with a flexible, scalable and autonomous units, operating in rapid learning and decision-making cycles. Networks are a natural way to organize efforts because they balance individual freedom and autonomy with collective coordination (Beck et al., 2001) and this emphasize the importance of collaboration and shared purpose of these organizations. To build agile organizations, leaders must build trust and promote

communication and collaboration among people (Mullen, 1997; Rovai, 2002), creating a cohesive community with a common culture, while at the same time they need to understand human networks (business and social), how to design and build them, how to collaborate across them, and how to nurture and sustain them. As a result, agile organizations comprise a dense network of empowered teams that operate with high standards of alignment, accountability, expertise, transparency, and collaboration. This is fostered by the fact that agile organizations allow and expect role mobility, where employees move regularly (both horizontally and vertically) between roles and teams, based on their personal-development goals. An open talent marketplace supports this by providing information on available roles, tasks, and/or projects as well as people's interests, capabilities, and development goals (Ebrahim, 2018). While, if the roles are unclear, people proactively resolve this with colleagues across levels and units, increasing their accountability, collaboration and network. These aspects enable a characteristic proper of Agile organizations which regularly rethink and, if necessary, redesign their structures, governance mechanisms, and processes with the aim to strike a balance between flexibility and stability (Aghina et al., 2015).

The agile culture is people-centered, based on an empowered and collaborative way of working, with the aim to engage and empower everyone in the organization to create value quickly, collaboratively, and effectively. Cultural norms are reinforced through positive peer behavior and influence in a high-trust environment, rather than through rules, processes, or hierarchy. Furthermore, the agile culture is deeply rooted in empowering people and ensuring the autonomous decision making (Breu, 2001). Indeed, according to Kukunda-Onyait (2019), the involvement of employees in decision making is vital in a dynamic environment as the changes taking place are happening at a fast pace. At the same time, limits on the people empowerment negatively impact on the willingness of people to take part in the process (Qin and Nembhard 2015). This is the case of the traditional command and control approach, where managers are very focused in setting and carefully monitoring the tasks assigned, without giving to the employees challenging and ambitious results (Kirkman et al., 2004). On the opposite side, in the agile organizations the aim is to reach a full empowerment approach, where managers fully involve and authorize their employees

to proactively define their personal aims, that of course should be coherent with the aims of the company (Merchant and Van der Stede, 2007). This culture has then supported by new and more flexible practices and processes. Indeed, it has been proved that employees with more freedom to choose when, what and how they get the task done are more likely adjust to unpredictable changes and even pursue opportunities leading to positive changes (Sherehiy and Karwowski 2014).

Furthermore, the focus on new processes help sustain the culture, including clear accountability paired with the autonomy and freedom to pursue opportunities, and the ongoing chance to have new experiences. While, to support their people, processes and activities, agile organizations rely on the next-generation-enabling technology. They radically rethink their existing technologies and the technological competences of their people towards quick iterations, higher deployment velocity, and flexibility through new practices and tools. In this sense, collaboration takes various forms (Open, Gel and Hopp 2001) (e.g. cross-functional teams, dispersed organization virtual teams or even collaborative ventures with various companies). For this reason, the teams are also cross-trained and multi-skilled in order to significantly improve the performance of the team in conditions of uncertainty (Qin et al 2015).

This is confirmed by Breu et al., (2001) who argue that an agile workforce is strongly connected with the ability to quickly acquire new skills, especially information technology (e.g. the ability to properly exploit new applications, new devices and modern technologies) and management skills required to be aligned with the organizational objectives. Indeed, technologies are forcing a new, digital culture in the DNA of the organization, which leads to an increase in productivity and employer brand (Dodson, 2019), hence, having the skills to properly exploit the benefits of these technologies is a critical element of competitive advantage. Moreover, these skills support a quick deployment of information systems within organizations (Breu et al 2001) which play a critical role in complex and uncertain context (Lu and Ramamurthy, 2011). According to Sherehiy and Karwowski (2014), the right use of the Information Technology further increases the level of agility of the workforce (hence of their organizations), particularly in the case of collaboration. Therefore, training is an essential pillar. Equipping people with a wide range of skills will impact

their ability to accomplish a wide range of activities (Glinska et al., 2012). While, according to Alavi et al., (2014), training activities are a good investment for organizations which wants to rapidly, efficiently and effectively respond to the environmental changes. As a result, teams and organizations embarking on an Agile transformation are not just making changes to their work practices but are readjusting their culture (Strode et al., 2009; Iivari and Iivari, 2011). Finally, Breu et al., (2002) argue that people can be considered agile when they collaborate effectively across different functional and organizational boundaries (Breu et al., 2002). At the same time, understanding the organizational ecosystem is essential, since in reality both processes and ecosystem change, but the agile approach honors the ecosystem and recognizes that not every process will work in every ecosystem (Cockburn and Highsmith, 2001).

Basing on the above literature it has been developed a new model in order to evaluate and test the contribution of each element of the Business Agility on each element of Smart Attitude. Again, as explained above, also in this case 2 other steps have been necessary: (i) to eliminate the construct ecosystem, since it has been considered not reliable enough for the purpose of this work; (ii) to integrate mechanisms of control, in order to identify other potential determinants of the Smart Attitude (Figure 3.5). The model is presented below (Figure 3.5). This model will be further analyzed in the following Chapter.

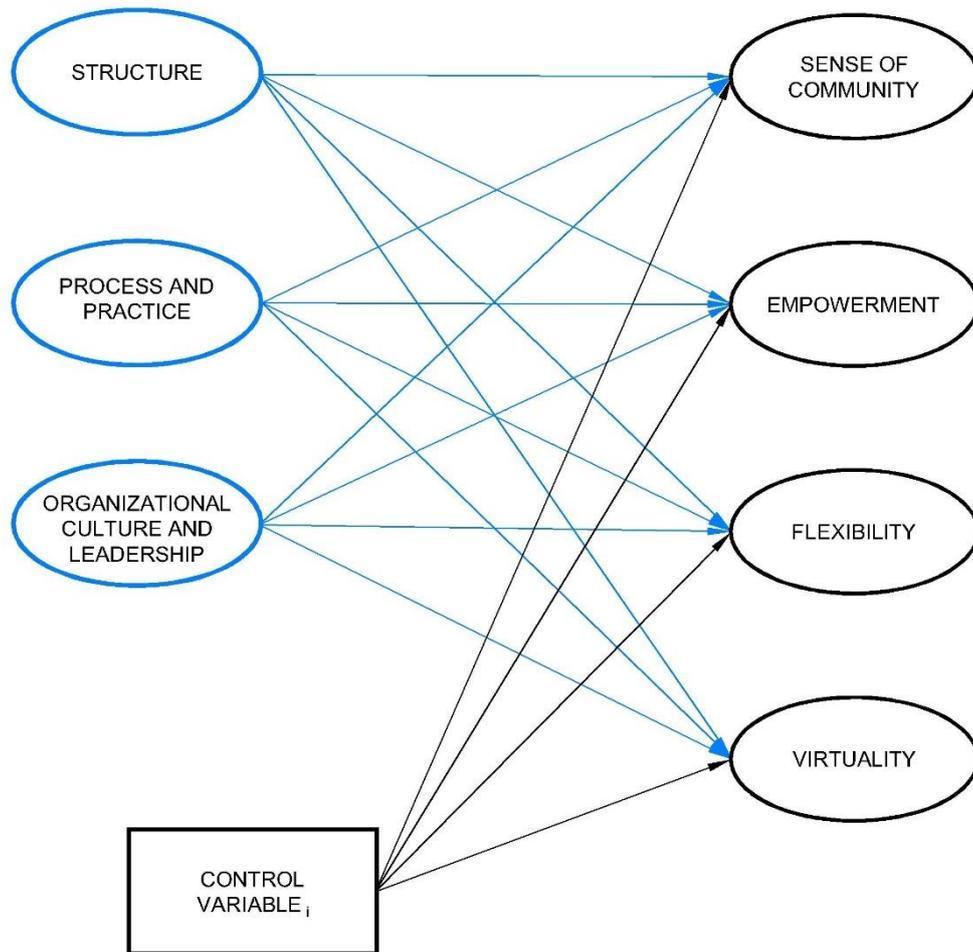


Figure 3.5 – Theoretical Model 2: final version

Hence, the second hypothesis (H2) has then been translated into sub-hypotheses, to target the specificity of each case. Below the list of the sub-hypotheses developed:

Hypothesis 2.1: Structure has a positive impact on each aspect of Smart Attitude.

Hypothesis 2.2: Process and Practice have a positive impact on on each aspect of Smart Attitude.

Hypothesis 2.3: Organizational Culture and Leadership have a positive impact on each aspect of Smart Attitude.

Lastly, it has been judged valuable to perform another step in this research, in order to deliver the highest value from its findings both from the theoretical and practical side.

Indeed, in literature it has been clearly pointed out that the real agility is achieved with an interplay of the different levers implemented (see e.g. Maples, 2009; Humble et al., 2014; Paasivaara et al., 2016; Fitzgerald and Stol, 2017; Observatory, 2019) hence, despite the already novelty and the potential contribution of this research, it would be minimal only to test the direct impact of the agile levers on the pillars of Smart Attitude. For this reason, it has been enlarged the model by considering also the moderation effects of the different levers on the aspects of Smart Attitude, making it more relevant both from an academic and practical perspective. The interest in these interactions has been supported and encouraged by the numerous articles claiming that the agile levers are strongly intertwined and need to be strategized in an integrated way (Ebrahim, 2018).

Here, the last hypothesis of this research arises:

H3: The interaction between the levers of Business Agility has a positive impact on each element of Smart Attitude.

Again, also in this case, a set of sub-hypotheses have been developed with the purpose to clearly study and analyze each specificity.

Hypothesis 3.1: The interaction of Structure with Process and Practice has a positive impact on each element of Smart Attitude.

Hypothesis 3.2: The interaction of Structure with Organizational Culture and Leadership has a positive impact on each element of Smart Attitude.

Hypothesis 3.3: The interaction of Process and Practice with Organizational Culture and Leadership has a positive impact on each element of Smart Attitude.

This third model has been built on the previous one, with the main purpose to assess the interaction effects of the levers of the Business Agility (Figure 3.6):

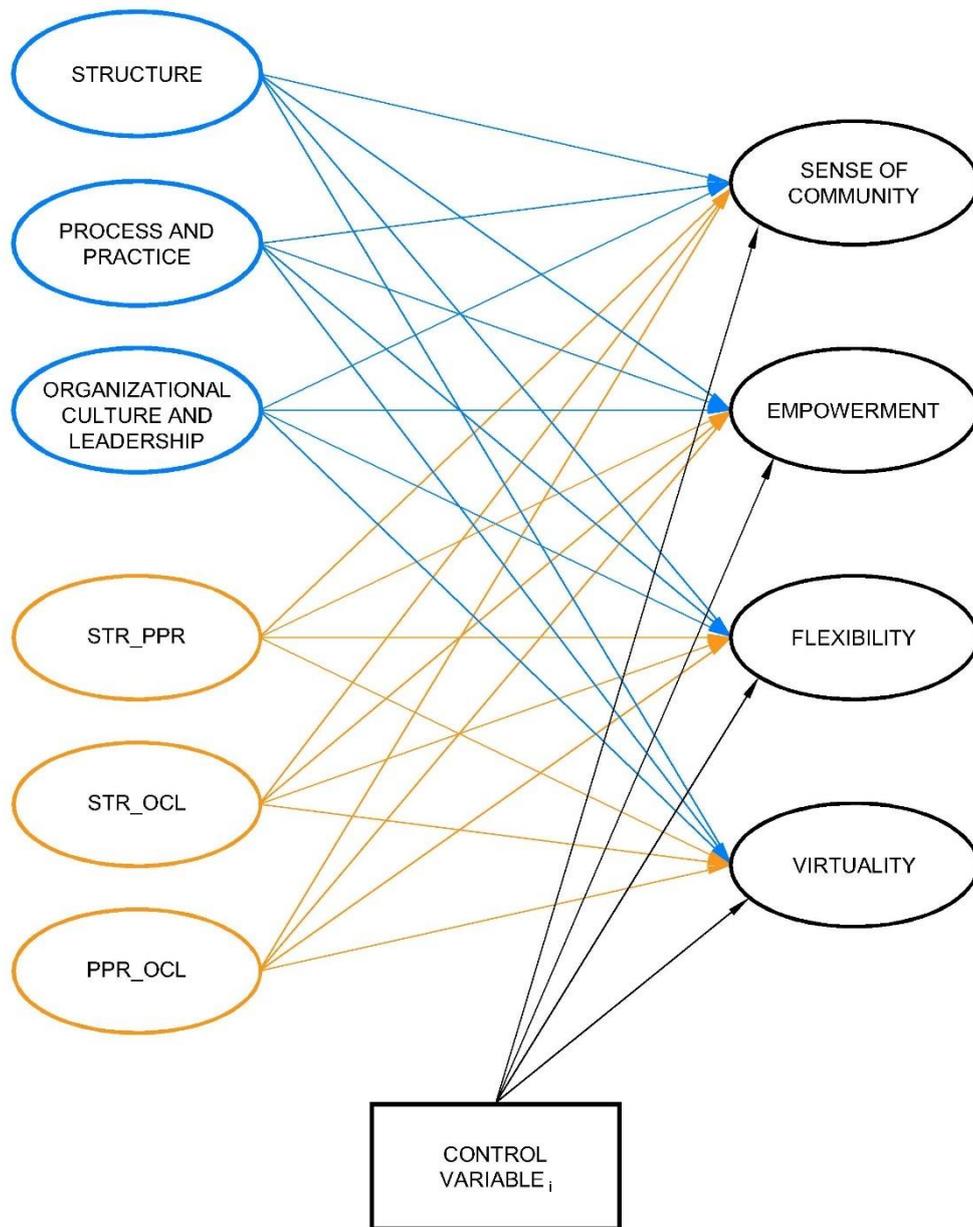


Figure 3.6 – Theoretical Model 3: final version

For this purpose, it has been identified new constructs which represent the interaction effect of two levers applied simultaneously. These new constructs identified refer to the interaction of two levers, they are formally defined as interaction terms. They are variables in charge to better explain the interaction between two independent variables,

in other terms, they indicate that a third variable influences the relationship between an independent and dependent variable. This type of effect makes the model more complex, but since the real world behaves this way, it is essential to reflect it in the model. Moreover, apart from the theoretical insights, understanding the effect of each of the above-mentioned constructs it is helpful from the practitioners' perspective, since it helps organization to better strategize and prioritize potential actions to move the organization towards agility by at the same time enhancing the Smart Attitude of their people.

This model will be analyzed in-depth in the following Chapter.

3.4 THE SURVEY

For the purpose of this work the tool used has been a survey, since it supports the collection of information in a neutral and anonymous way lowering the potential biases derived by influences on respondents, ensuring the reliability of the information gathered.

The main advantages derived by the adoption of this tool is (a) accessibility of the tool; (b) time saving due to the simultaneity in sending the investigation to the respondents; (c) the opportunity to consider wide categories of respondents; (d) lower risks to condition the respondents, leading to biases in the answers; (e) higher comfort for the respondents, who can fulfill the survey whenever they want. On the other hand, it presents also some limitations, namely (a) the long response time, hence the enlargement of the time required to collect all the answers; (b) the impossibility, or at least the difficulty, to support the respondents during the fulfillment of the survey (Fortini, 2000); (c) the impossibility to identify the respondents, which in this case helped to further lower the potential conditioning on the respondents; (d) higher difficulty to collect enough answers, which in this case has been covered by the fact that Doxa remunerate the answers.

The survey has been realized within a broader research, with the support of the Smart Working Observatory of Politecnico di Milano and Doxa. Then, on March 2019, it has been distributed online (CAWI investigation) among a representative sample – which is a subset of a population that seeks to accurately reflect the characteristics of the larger group – of 1000 professionals in Italy, belonging to the panel web of Doxa and working in

different industries, sectors, and roles. It is a representative sample of the workers for the professional roles considered (ISTAT, 2016). This sample will be further analyzed in the Chapter 4.

3.4.1 THE OBJECTIVES

The main aim of the survey, for the purpose of this work, has been to analyze the respondents based on both the elements characterizing the Business Agility, and the level of maturity of each element of Smart Attitude of the respondents. This to make it possible a confrontation between the elements of the two concepts, in order to understand if the levers of the Business Agility have a significant impact on the elements of the Smart Attitude.

3.4.2 THE SMART WORKING OBSERVATORY

The observatories of the School of Management of Politecnico di Milano have been founded in 1998. They represent the main link between the academic and the practitioner worlds with the main purpose to observe and study the current reality, trying to understand the role of the new technologies in the organizational strategies.

Particularly, the Smart Working Observatory founded in 2011, as the evolution and combination of other Observatories already existing (UCC, Enterprise 2.0 and Mobile Business), with the aim to study and integrate the way organizations are able to adopt new models to better adapt at the keep changing context. Particularly, focusing on aspects like collaboration and communication in response to the adoption of new tools and technologies (Corso and Gastaldi, 2013). However, as the name said, the ultimate mission of the Smart Working Observatory is to monitor and map the diffusion of this phenomenon in Italy, supporting the organizations in the understanding of the benefits derived by the adoption of Smart Working and spreading the case of success to increase its diffusion on the territory.

3.4.3 THE CREATION OF THE QUESTIONNAIRE

As already mentioned, the questions related to this work are incorporated in a wider survey developed by the SW Observatory with the aim to map the maturity of Smart Working initiatives in Italy. To develop the questionnaire, it has been possible to rely on the feedbacks and considerations from experts of the field. During the development of the questions essential attention has been focused on the right terminology to use considering the potential difficulties for the respondents to answer. Moreover, attention has also been concentrated in the attempt to avoid potential biases of the respondents, ensuring the neutrality of the questionnaire. This has also been supported by the selection of the most suitable scale to measure the responses, in order to fully reflect the opinions of the respondents. The main focus has been directed on the selection of the most relevant concepts to be investigated. Also in this case, the process has been built on several sequential stages, integrating feedbacks, adjusting and revisiting the tool several times. All this structured process has brought to the creation of the final questionnaire, formed of 8 macro-categories of questions (some of them characterized by branching) and a whole number of 36 questions (where 4 of them are related to the generic information of the respondents). The macro-categories defined in the survey are General Information, Typology of Work, Working Methods, Digital Technologies, Smart Attitude, Propension towards Smart Working, Smart Working benefits and criticalities, Fixed Data.

The typology of questions in the survey vary among:

- Multiple choices questions where it is possible to select only one option, they help in reducing the response time;
- Multiple choices questions with the possibility to select more than one option;
- Single choice questions based on a scale from 1 to 10. Where 1 was “completely disagree” and 10 “completely agree”;
- Single choice questions based on a scale from 1 to 10. Where 1 was “very negative” and 10 “very positive”.

The final version of the questions asked for this work is presented in the Appendix A.

In the next paragraph there will be an in-depth description of the most relevant questions for the purpose of this investigation.

3.4.4 DATA SYNTHESIS AND ANALYSIS

The purpose of this paragraph is to explain the main techniques and methods used to store and analyze the data in order to obtain the results presented in the following chapter.

The answers have then been collected in a structured database, specifically built for the questionnaire and containing a detailed description and explanation of each question. The data within the database have been organized in rows, where each row represented one of the 1000 respondents. This enabled from one hand, to track each answer, and for the other, to make cumulative analysis on each question, since all the answers were aligned in the same column. It has been used excel to store the raw dataset in order to enable further analyses, for this purpose several columns have been added allowing to translate some of the non-numerical answers into numerical ones. The initial analyses have been focused on the general information of the respondents and on the question related to Smart Attitude, with the aim to compare the different clusters of the sample (e.g. age, gender, etc.) on the bases of their level of Smart Attitude. This preliminary step allowed initial considerations that will be presented in the following chapter.

Finally, for the main objective of this investigation, the two most relevant questions are related to the concept of Smart Attitude and Business Agility, each of them is built on various constructs, formed by different items. The different constructs have the aim to explain the two concepts under investigation, whose relationship is statistically significant, and it finds interest and consistency both from the academic and the practical. In this direction, it is important to highlight the belonging of each items to the specific construct of reference, to clarify the connection the different items have been renamed in the following way, linking them to the specific question of the survey (see Table 3.3 - Table 3.10). As concern Business agility, the construct identified have been defined by the following items (see Tables 3.3 – 3.6).

CONSTRUCTS	ITEMS	STATEMENTS
STRUCTURE	STR1	My organization supports and facilitates internal mobility, both horizontal (assignment to equivalent tasks) and vertical (assignment to lower and higher tasks)
	STR2	My organization promotes the creation of work teams that have autonomy in defining the working methods and responsibility for the results to be achieved
	STR3	The communication within my organization is open and transversal to the various functions, the problems are solved through direct communications between three people, without resorting to the hierarchy
	STR4	To promote innovation, my organization promotes the creation of temporary teams with people from different organizational structures

Table 3.3 – Business Agility Construct: Structure

CONSTRUCTS	ITEMS	STATEMENTS
PROCESS AND PRACTICE	PPR1	Work planning and organization is supported by digital tools that allow you to measure and share the progress of activities within the work team
	PPR2	My organization provides methodologies and tools aimed at increasing the involvement of people from the early stages of a project
	PPR3	In my organization new work methods based on continuous improvement in the development of a product or service are present or are being tested (e.g. Agile methodology)
	PPR4	In my organization, mechanisms and tools for feedback and continuous comparison are promoted both between boss and collaborator and between colleagues to understand how to improve work organization

Table 3.4 – Business Agility Construct: Process and Practice

CONSTRUCTS	ITEMS	STATEMENTS
ORGANIZATIONAL CULTURE AND LEADERSHIP	OCL1	My organization continuously invests in the training of all people
	OCL2	My organization involves people in building their own personalized training path
	OCL3	My organization favors the professional growth of people trying to value individual inclinations and passions
	OCL4	My organization invests in the development of digital skills and entrepreneurial attitudes of people
	OCL5	My organization promotes a culture of transparency respect to salaries and awards (award, bonus, career advancement, ...)
	OCL6	My organization promotes an inclusive culture that supports people to express their potential
	OCL7	My organization promotes a collaborative approach to decision-making and autonomy in defining and organizing the activities to be carried out to achieve a certain result
	OCL8	My organization offers the possibility of cultivating personal passions and encouraging the work life balance

Table 3.5 – Business Agility Construct: Organizational Culture and Leadership

CONSTRUCTS	ITEMS	STATEMENTS
ECOSYSTEM	ECM1	My organization promotes opportunities for discussion with external actors (suppliers, customers, universities, competitors) as a source of stimulus and innovation
	ECM2	My organization creates spaces and initiatives to facilitate the development of new ideas by employees
	ECM3	My organization offers the possibility to make temporary experiences in other realities to acquire new skills and grow professionally
	ECM4	My organization works with startups (e.g. support to startups initiated by employees, mentorship of startups by their employees)

Table 3.6 – Business Agility Construct: Ecosystem

Similarly, for the concept Smart Attitude, the construct identified have been defined as follow (see Tables 3.7 – 3.10).

CONSTRUCTS	ITEMS	STATEMENTS	SOFTS SKILLS
SENSE OF COMMUNITY	SOC1	I can work in a team while maintaining the same effectiveness in relationships between colleagues, even working remotely	Team Working
	SOC2	I totally share the principles and values of the company and I am rationally and emotionally involved in achieving business performance	Engagement
	SOC3	I always know how to quickly identify the internal and external reference points that are appropriate for creating relationships and exchanging information useful for carrying out work activities	Organizational Intelligence

	SOC4	I always know how to properly involve colleagues in the activities to be carried out	Involvement
	SOC5	I always promote the motivation of colleagues to achieve common goals	Inspiration

Table 3.7 – Smart Attitude Construct: Sense of Community

CONSTRUCTS	ITEMS	STATEMENTS	SOFTS SKILLS
EMPOWERMENT	EMP1	I am always available to make decisions independently, even without explicit requests, when it is necessary to get results or avoid / anticipate problems	Proactivity
	EMP2	I can always organize my activities and plan them optimally according to the final objectives, maintaining long term vision	Goal – Centric Thinking
	EMP3	I am always inclined to acquire new knowledge with interest and curiosity that will allow me to increase my skills	Openness
	EMP4	I am always able to carry out my work activities independently and with full responsibility for achieving the objectives	Independence

Table 3.8 – Smart Attitude Construct: Empowerment

CONSTRUCTS	ITEMS	STATEMENTS	SOFTS SKILLS
FLEXIBILITY	FLX1	I always know how to cope optimally with the unexpected knowing I can reorganize my activities following difficulties or changes, remaining sensitive to the opportunities that the context offers	Resilience
	FLX2	I can always plan and manage my work responsibly taking into account not only their professional needs but also their personal needs	Work-life Integration
	FLX3	I always know how to react and adapt to changes with positivity and flexibility, whether they are unexpected everyday events or radical changes	Readiness to change
	FLX4	I always know how to manage different activities coordinating effectively with my boss and my colleagues, with a structured exchange of information and knowledge	Project Management
	FLX5	I can choose the most effective workplace (when possible) depending on the type of activity to be performed	Place esteem

Table 3.9 – Smart Attitude Construct: Flexibility

CONSTRUCTS	ITEMS	STATEMENTS	SOFTS SKILLS
VIRTUALITY	VRT1	I always know how to locate and retrieve precise information, and organize it and share it quickly on the web and in virtual communities	Knowledge Networking
	VRT2	I always know how to communicate effectively, coordinate projects through the use of digital tools in respect of others (verifying availability of correct interactions)	Virtual Communication
	VRT3	I always know how to protect sensitive corporate data, adapting my behavior to the context in which I find myself.	Security
	VRT4	I am always able to use digital tools correctly in respecting work-life balance and my health and the people I relate to	Project Management
	VRT5	I always know how to adapt the technologies and tools I use based on my business needs, integrating, if possible, professional and consumer solutions	Digital Awareness

Table 3.10 – Smart Attitude Construct: Virtuality

Then, before going on it is good to present the process that brought at the creation of the new constructs, which refer to the interaction of the different levers. Stata has been fundamental to enable the creation of these new variables; indeed, it is not enough just to consider the items of the two levers to assess the combined impact of them (Lin et al., 2010). The process is based on three main steps: (i) it is essential to mean center each item of the constructs that need to be combined. Where mean centering means subtracting the mean from each of the scores, that is, creating deviation scores. In order to mean center the items it is required to create a new variable which will includes all the mean centered values of the items considered. To do that it has been used the commands *summarize Xi*; where *Xi* stands for each item of the construct, and the

command *generate* $Xi_AVG = Xi - r(mean)$; where Xi_AVG is the new item created with the mean centered values of the old ones. (ii) Once the new items of each construct have been created, the next step is to multiply each single item of one construct, times the items of the other constructs. Again, to do that it is necessary to create a new variable which takes the result of the operation. In this case, the command used is: *generate new_var=X1_Construct1 * X1_Construct2*. The new variable created it is the first item of the construct that has the aim to assess the combined effect of Construct1 and Construct2. (iii) The very first step is during the creation of the model, in this step it is required to create a new construct which will be constituted by the new variables created (Lin et al., 2010). The items and construct created with this process have been summarized in the Table 3.9. Where the name of the different construct has been abbreviated to improve the legibility:

- STR = Structure;
- PPR = Process and Practice;
- OCL = Organizational Culture and Leadership.

The combination the above-mentioned constructs brought to the definition of new constructs, which stand to represent the mediated impact of the Business Agility levers.

Where:

- STR_PPR = The interaction between Structure and Process and Practice;
- STR_OCL = The interaction between Structure and Organizational Culture and Leadership;
- PPR_OCL = The interaction between Process and Practice and Organizational Culture and Leadership.

In the following table (Table 3.11) it is possible to see the items used to create the new constructs.

CONSTRUCTS	ITEMS
STR_PPR	STR_PPR1; STR_PPR2; STR_PPR3; STR_PPR4
STR_OCL	STR_OCL1; STR_OCL2; STR_OCL3; STR_OCL4; STR_OCL5; STR_OCL6; STR_OCL7; STR_OCL8
PPR_OCL	PPR_OCL1; PPR_OCL2; PPR_OCL3; PPR_OCL4; PPR_OCL5; PPR_OCL6; PPR_OCL7; PPR_OCL8

Table 3.11 – Business Agility Construct: Interaction

From the table above, it is possible to notice that the first variable is characterized by a lower number of items, this is explained by the fact that the construct Organizational Culture and Leadership (OCL) is formed by 6 items, hence increasing the number of the combinations.

Lastly, once the data preparation phase and the basic analysis on the sample have been accomplished, the next step has been to validate the robustness of the constructs identified relying on the Cronbach's Alpha (see next chapter for further detail). After that, the final models to be tested (i.e. Model 1; Model 2; and Model 3) and their hypotheses have been validated using the Structural Equation Modelling (SEM) technique (see next chapter for further detail). To support the whole process, the statistical software Stata 14, which is a general-purpose statistical software package created in 1985 by StataCorp. It is widely used in research since it allows a variety of activities (e.g. statistical analysis, modeling, data management, etc.).

CONFIRMATIVE ANALYSIS

Once the model has been developed from the theoretical perspective, relying on the literature of reference, it is necessary to verify and validate the constructs from the statistical perspective. To do that it has been performed a confirmatory analysis of the constructs. The factor analysis is mostly adopted for data reduction purposes (Kim et al., 1978), with the purpose to focus just on the relevant variables. To perform this analysis, it has been assessed the Cronbach's Alpha of each construct.

In other words, it has been evaluated and tested the robustness of the constructs by checking how the items of each construct were good in define it (Bollen, 2011; Wheaton et al., 1975; Hox e Bechger, 2010). The Cronbach's Alpha ranges from 0 and 1. It gives indications on the correlation level between the items and the construct. In this sense, if the items belonging to one construct are highly correlated it is possible to conclude that each item gives a strong contribution in the definition of the construct. Hence, this indicator helps to explain how good the different items selected are in explaining the construct. On the opposite side, to low Cronbach's Alpha corresponds the consideration that the items are weakly correlated among them and some of them are not properly able to explain the construct. In this case it is necessary to eliminate the critical items and to adjust the construct. This "cleaning" process has been performed for all the constructs in the model, as a result some items have been eliminated reducing the sheer amount of them, reducing the complexity both from the computational and methodological point of view.

Finally, the constructs of the model have been checked also through the Structural Equation Modelling (SEM) technique, which is a method (part of the multivariate statistical techniques family) and allows to evaluate and assess the causal relationships between several dependent and independent constructs (Gupta et al., 2013).

STRUCTURAL EQUATION MODELLING

Once the robustness of the model has been tested both from the theoretical and statistical perspective, the model and its research hypotheses have then been tested and evaluated through the Structural Equation Modelling (SEM) technique. However, it is important to notice that main objective of SEM technique is not to determine if a model is valid, but more to find a suitable model (Gefen et al., 2000). That is why it is based on already existing hypotheses related to a pattern of linear relationships between the constructs and between the constructs and the items. This method allows to test simultaneously a set of regression equations where these can be structured and modelled in order to visualize the process. This allows to perform basic activities but

also more complex operations, as for instance the factorial confirmative analysis (Shah and Goldstein, 2005; Hox and Bechger, 2010).

Broadly speaking, the whole process that led to the adoption and usage of the SEM methodology to test and validate the model is based on some key pillars highlighted in the Figure 3.6.

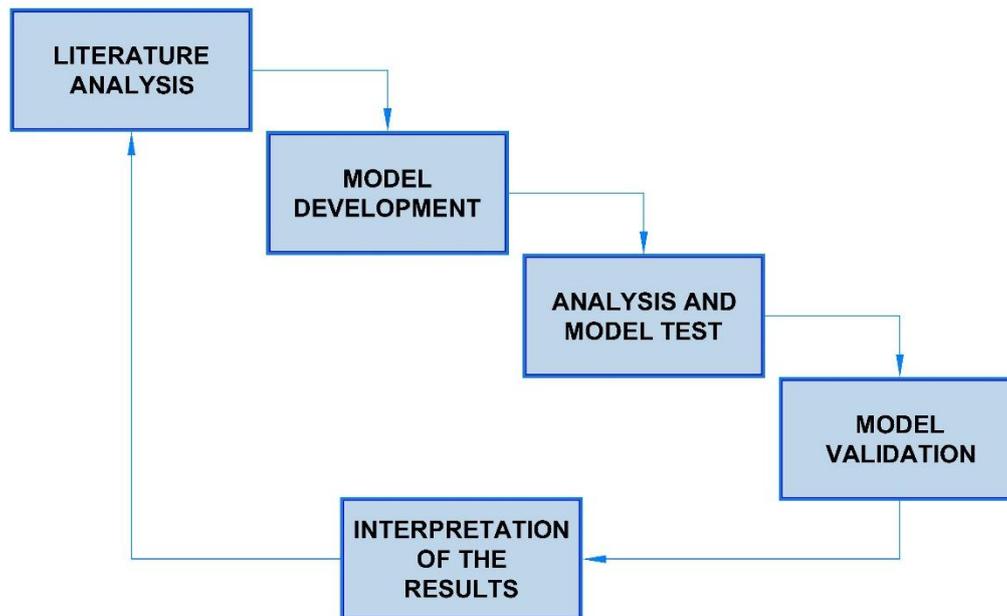


Figure 3.7 – Steps of the model validation process

As already mentioned, several times, the very first step relies on the theoretical perspective, which helps in a first definition of the model. After that, the literature helps to understand how the different constructs of the model can be assessed and how their items can be measured. This step is essential for the construction of the tool to collect the data, which are the enabler of the whole process. Once the data have been collected, they are inputted in the software to perform the SEM analysis (particularly, in this investigation it has been used Stata 14) to test the model. In this process the software run the estimation of the model inputted basing on the data and gives the results of the estimation. These results include the estimated parameters and the indicators of the fit of the model. This step is then followed by the interpretation of the results, which is probably the most important step in the whole process since it allows

to give sense to the results. If the model identified has a meaning just from the statistical perspective, but it does not make sense from the theoretical and logical perspectives, it is required to rethink the model itself. To do that it is important to reconsider the theoretical parts, that gives the most relevant contribution in the model definition phase and then to test again the new model, without relying only on the statistical results obtained from the software of analysis. Indeed, it is important to point out that the SEM methodology reports just the result of statistical operations, without considering the logical sense of them. At the basis of this methodology there is the creation of a covariance matrix of the different observable variables.

Here, it is important to highlight the difference between observable and unobservable variables. The observable variable (or items) are the variable that can be measured. They are the variable in charge to define, explain and ultimately measure the unobservable variables (also called latent variable or constructs). By definition, the latter kind of variable are hypothetical constructs that cannot be measured in a direct way, for this reason it is necessary to explain them through the observed variables – items. Finally, the constructs can be distinguished in independent (or exogenous) or dependent (or endogenous), where the former affects the latter by generating fluctuations in their value. According to Shah and Goldstein (2005), the independent variables directly, or not, affect the dependent ones.

Another important aspect of SEM is the possibility to use it to evaluate the validity of the constructs, or in other words, how much the items selected can describe the latent variable identified. A good way to check this is through the factor loading, which evaluate if the items of each construct properly measure the construct itself. It is possible to state that the factor loadings are the weights between each item and the construct of reference. The higher the load the more relevant the item in defining the construct.

Before deepening this methodology, it is good to briefly describe the notation of Stata 14 (Stata Corp., 2019), in order to understand the next steps of the analysis.

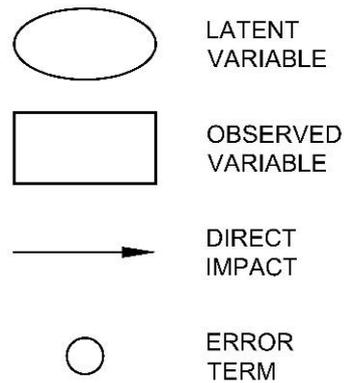


Figure 3.8 – Stata 14 Notation

To make the notation clearer, below it is provided a brief example with the aim to show how the different elements are used.

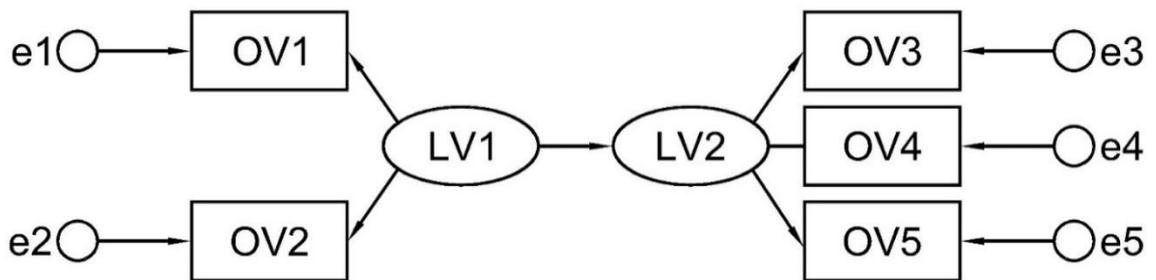


Figure 3.9 – Stata 14 SEM example

In the example it is evident the fact that each item is characterized by its own error term in the relationship with the construct. At the same time, it is possible to notice that the latent variable 1 (LV1) is measured by 2 items (OV1, OV2), while the latent variable 3 (LV2) by (OV3, OV4, OV5). Furthermore, the index on the relationship between items and construct indicates the factor loading. Lastly, from the example is clear that the latent variable 1 affects, or has an impact, on the latent variable 2.

It is possible to say that the SEM approach presents an iterative process which enables to estimate the relationship among the variables present in the model.

The estimation process is partial, because it analyses and solves the different group of variables one by one through both simple and multiple regressions.

Finally, the central point in analyzing structural models is the extent to which the hypothesized model fits or adequately describes the sample data (Byrne, 2001). Testing the fit of the model is considered an integral and important part of the research using structural equation modelling. In this direction, it is possible to assess the fit of the model by examining a wide variety of fit indices, where the model can be considered reliable and valid only if the result of these indices fulfill a tolerable criterion.

FIT INDEXES

Once the construct robustness and validity have been tested, the next step is to test the model validity, by checking if the model is consistent with the data inputted. To do that, it is necessary to rely on the fit indices, which indicate how much the identified model reproduces the data.

The most basic fit index is represented by the Chi-Square statistics, which measures how expectations compare to the model results. However, because this index is affected by the size of the sample considered Shah and Goldstein, (2006), it has been necessary to rely on other indexes given the huge number of observations. Among the other fit indexes, it is possible to identify the most used ones in: p-value, Root Mean Square Error of Approximation (RMSEA), Goodness-of-Fit Index (GFI), Tucker Lewis Index (TLI) and Comparative Fit Index (CFI). In this paragraph are briefly presented the fit indexes used to validate the model.

P-value (sometimes called level of significance) indicates the likelihood of obtaining test results at least as extreme as the results observed during the test, if the null hypothesis is correct. It is used to evaluate the statistical significance of the variable considered, the closer the p-value to 0, the more reliable and significant the result, on the opposite side, the closer this value to 1, the lower its significance. For the purpose of this investigation, a good threshold to consider the variable statistically significant has been placed at 0,05 (which means 5%), as a result, all the variables with p-values

higher than this threshold have been considered not statistically significant. Another index is the RMSEA (Root Mean Square Error of Approximation), which is widely used in Structural Equation Modeling to provide a mechanism for adjusting for sample size where chi-square statistics are used. It provides the average amount of misfit for a model considering the degree of freedom. The closer this index to 0, the better the adjustment of the model, on the opposite side the higher its value the worse it is the adjustment of the model (Steiger, 1990).

Moreover, another fit index adopted in this investigation is the CD (Coefficient of Determination) which has the main aim to measure how well the model explains the results. It is a good indicator of the level of the variability in the data inputted. It is usually used as a guideline to measure the model accuracy and generally its threshold is posted at 0,8, meaning that values higher than this threshold implies a good fit of the model.

Lastly, the CFI (Comparative Fit Index) which is used to measure the difference between the model estimated and the null model (which is define as a model where all the observed variables are independent among them). Again, the closer the CFI value to 0, the worse the adjusting of the model with the data inputted, the closer its value to 1 the better the fit.

In conclusion, despite the impossibility to perfectly reflect the real-world results, it is important that the model ensures a good approximation of the real world. For this reason, when a model is not able to reach this primary objective it is necessary to adjust it in order to improve its fit with the dataset.

MECHANISMS OF CONTROL

In conclusion, in the model have been introduced control variables with the main purpose to identify other potential determinants of the Smart Attitude or its elements, the dependent variable of the model. In this sense, given the novelty of the concept of Smart Attitude literature could not be adopted to directly support these variables, rather to give some indirect direction and support. Hence these variables have been introduced following both common sense and curiosity, moreover, this step has been

supported by basic analyses performed on the sample (see Chapter 4), leading at the identification of some control variables that could affect the Smart Attitude or its different elements. The variables identified are: (a) age; (b) gender; (c) qualification; (d) sector of belonging; (e) role of belonging; (f) responsibility of other persons (for further details see Tables 3.12 – 3.17). If the control variables identified have no impacts on the dependent variable it is possible to conclude that the specific construct is determined and explained by the constructs identified in the model, regardless the other dimensions like age, qualifications, sector and role of belonging, responsibility of other person and gender.

Often the control variables are used as dummy (or binary) variables which can take just 0 or 1. The main purpose of introducing these variables is to check whether the robustness of the model estimated is strong enough and it does not depend on other factors. In this direction, from N variables related to that specific control variable, it has been created N-1 binary variables that could take 0 or 1. This variable is then considered in a multiple regression, with the aim to understand and track the effect of a qualitative variable on the dependent one. Moreover, the control variables are used to eliminate the distortion of system variables.

Below there is an in-depth description of the different control variables selected, with the emphasis on the meaning of each of them.

AGE	
18-24 years	Age1
25-34 years	Age2
35-44 years	Age3
45-54 years	Age4
55+ years	Age5

Table 3.12 – Control Variable 1: Age

GENDER	
Male	Sex1
Female	Sex2

Table 3.13 – Control Variable 2: Gender

QUALIFICATION	
Primary school diploma	Qualification1
High school diploma	Qualification2
Bachelor degree diploma	Qualification3
Master degree diploma	Qualification4
Master/PhD	Qualification5

Table 3.14 – Control Variable 3: Qualification

ROLE	
Top manager	Role1
Middle manager	Role2
Employee	Role3

Table 3.15 – Control Variable 4: Role of belonging

PEOPLE MANAGER	
Employee	PM1
People Manager	PM2

Table 3.16 – Control Variable 4: People Manager

SECTOR	
Other services	Sector_Group1
Finance	Sector_Group2
ICT	Sector_Group3
Manufacturing	Sector_Group4
Public Administration	Sector_Group5
Retail	Sector_Group6

Table 3.17 – Control Variable 5: Sector of Belonging

CHAPTER 4

RESULTS AND DISCUSSION

The main aim of this chapter is to present the analyses performed and to discuss the results obtained through the methodological steps presented in the previous chapter. The analysis and results are presented in two main parts, the first part has the aim to show the results of the analyses, starting from the map of the concept of Smart Attitude on the different clusters of the sample, emphasising and briefly commenting the differences among them. Passing then at the results of the analyses performed with Stata, with the purpose to practically show the steps that brought to the verification of the research hypotheses and the validation of each of the three models developed. Presenting the confirmative factors analysis performed through the Cronbach's Alpha, the results and analyses of the model, to finally arrive at the assessment of the goodness of the model. In conclusion, since the real value of research work lies in making appropriate suggestions based on the empirical findings, the second part of this chapter has the aim to discuss the most relevant findings.

4.1 DATA ANALYSIS AND INTERPRETATION

4.1.1 MAP OF THE SMART ATTITUDE

The analysis of the data collected allowed to create a map of the Smart Attitude, assessing its level on the different clusters of the sample considered.

The main purpose of this part is to analyse the Smart Attitude of the different clusters, trying to understand if some variables play a major role in defining it. These basic analyses have been encouraged by the numerosity of the sample considered. Indeed, given the huge number of responses (1000 observations) the sample can be considered statistically significant. The second objective of this paragraph is to give a structured and more detailed representation of the sample considered.

To perform this analysis, the elements of Smart Attitude have been considered as a proxy of it. Hence, a weight has been given to each answer, following the scale used in the survey (Completely Disagree = 1; Completely Agree = 10). Then, it has been calculated the cumulative value of each element of the Smart Attitude for each respondent, which have then been used as a proxy of the level of Smart Attitude of the respondents (X). Finally, this level has then been confronted with a threshold (β), posted at 70%, which has been judged to be an adequate level of Smart Attitude. In other words, if the condition $X > \beta$ was verified, the respondent possesses an adequate level of Smart Attitude. Below have been presented the results of this analysis by grouping the respondents in clusters, basing on different variables.

It is important to state that the selection of these variables has not been causal, but it has been based on the assumptions related to the potential factors, apart from the one identified in literature, that could affect the Smart Attitude of people, supporting the very first considerations about the control variables identified.

AGE

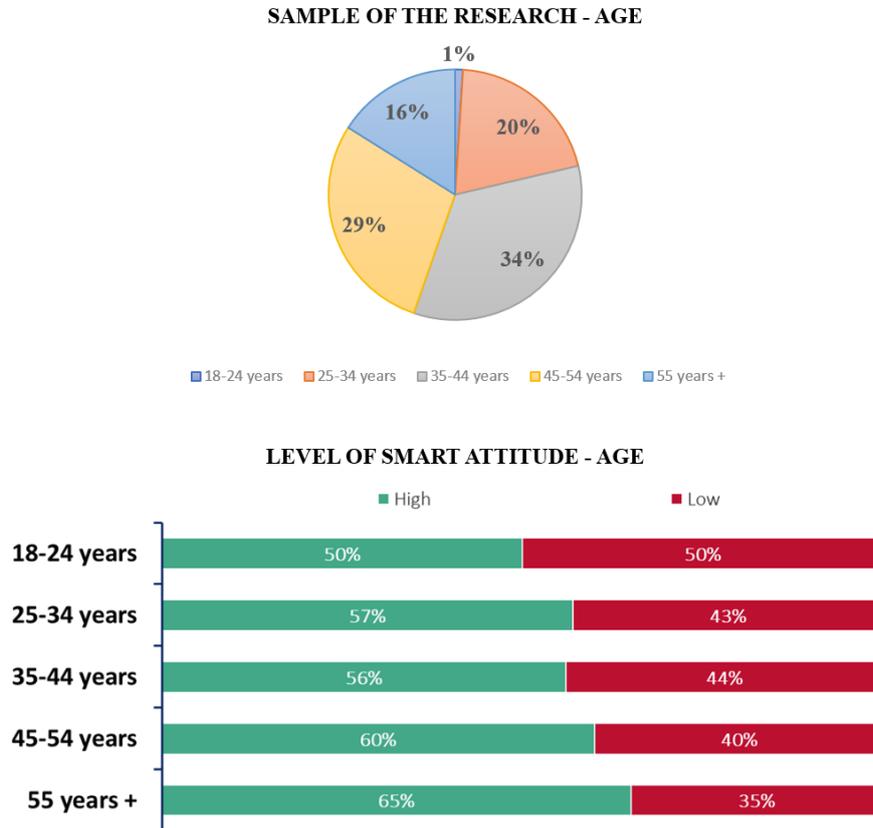
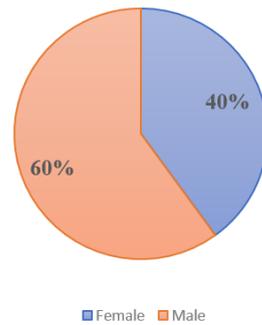


Figure 4.1 – Sample of the research: Age

As it is possible to notice, the major part of the sample it is characterized by professionals ranging from 35 to 54 years, while it is good to point out that only the 1% of the respondents is under 25 years old. Contrarily than expected the level of Smart Attitude seems to grow with the age, making the age a potential factor that could affect Smart Attitude. This consideration will be tested with the estimation of the model.

GENDER

SAMPLE OF THE RESEARCH - GENDER



LEVEL OF SMART ATTITUDE - GENDER

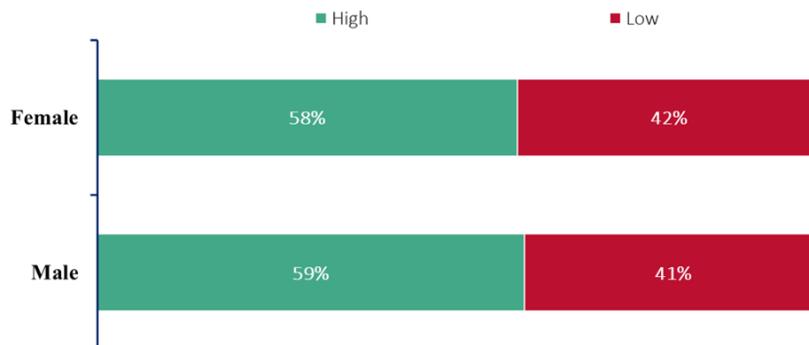


Figure 4.2 – Sample of the research: Gender

Here it is possible to notice a majority of male in the respondents (60%). Despite this, the level of Smart Attitude is the same in both the group, clearly suggesting an independence of it from the difference in gender. Although this consideration is in line with the expectations, it will be tested with the estimation of the model.

QUALIFICATION

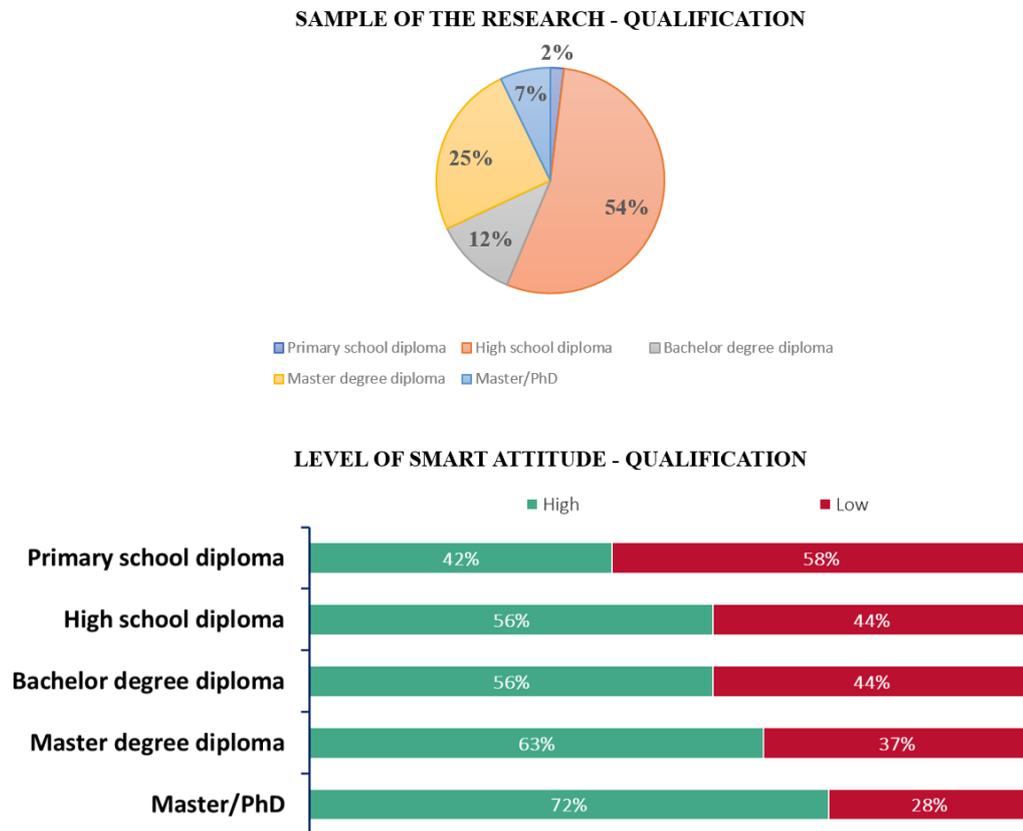


Figure 4.3 – Sample of the research: Qualification

Form the first graph it is possible to see that most of the respondents are characterized by a high school diploma (55%), this can be explained by the relatively maturity in term of age of the respondents. However, the most important consideration refers to the level of Smart Attitude. Also in this case it seems that there is correlation between the qualification achieved and the level of Smart Attitude of the respondents: higher the qualification achieved, higher the level of Smart Attitude developed. Again, this consideration has been essential in the selection of the qualification as a control variable, hence whether the qualification level can affect or not the Smart Attitude will be tested through the estimation of the model.

ROLE

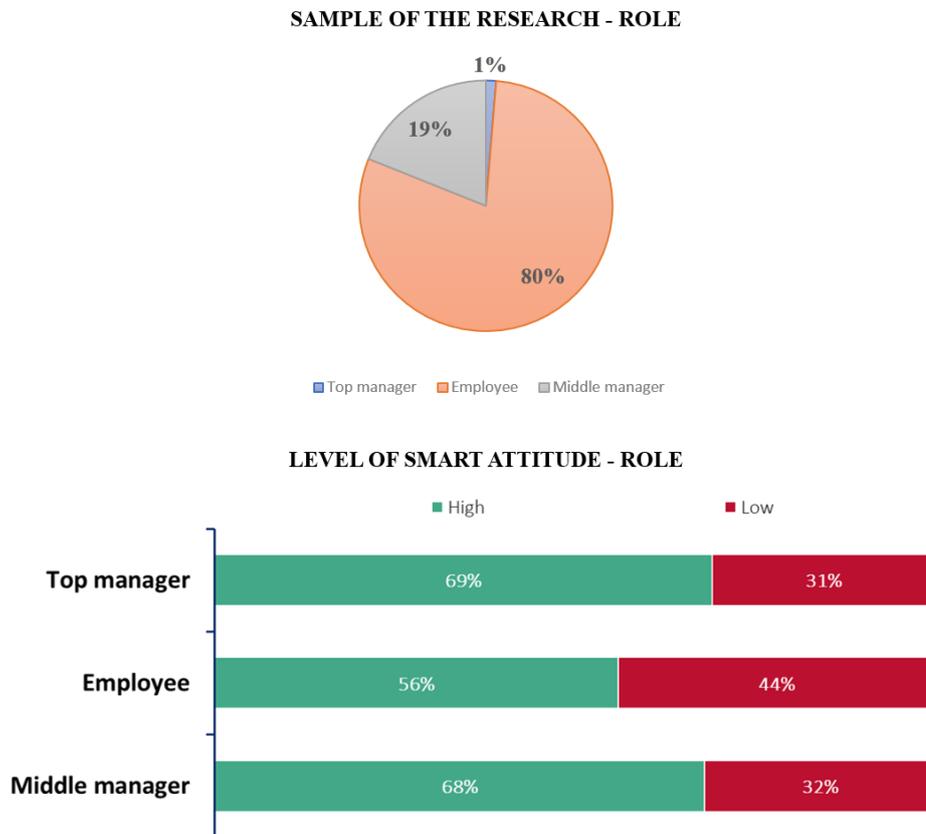
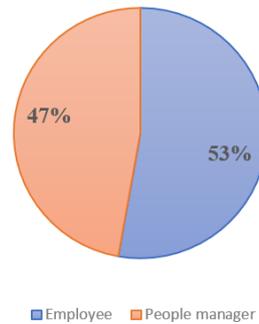


Figure 4.4 – Sample of the research: Role

As expected, most respondents are employees (80%). In this case it seems clear the difference in the level of Smart Attitude between employees and managers (both middle and top). Again, this seems to give a contribution towards higher level of Smart Attitude, but further analyses are required.

RESPONSIBILITY OF OTHER PEOPLE

SAMPLE OF THE RESEARCH - PEOPLE MANAGER VS EMPLOYEE



LEVEL OF SMART ATTITUDE - PEOPLE MANAGER VS EMPLOYEE

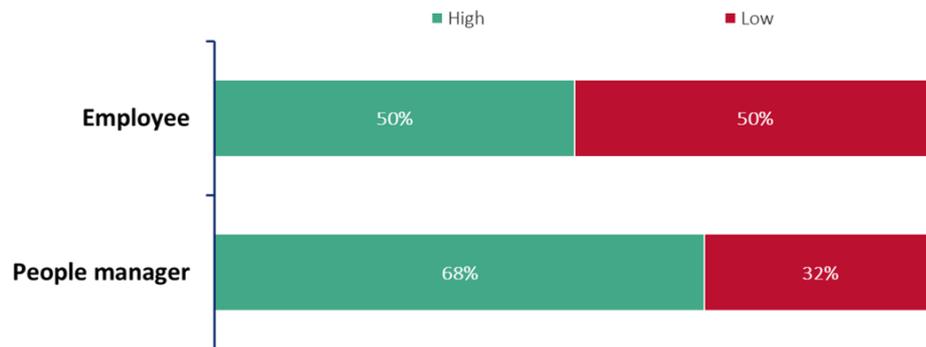
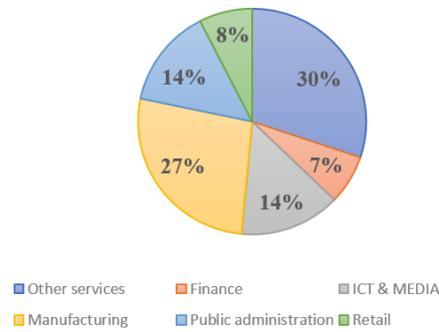


Figure 4.5 – Sample of the research: Responsibility of other people

As it is possible to notice, there is no difference in the sample between people manager (who has the responsibility of other people) and employees (here defined as people who do not have responsibility of others). In this case there is a deep gap between the two groups leading to the consideration that being a people manager will lead to an increase in the Smart Attitude. Again, this consideration will be tested through the estimation of the model, considering this variable as a control variable of Smart Attitude.

SECTOR

SAMPLE OF THE RESEARCH - SECTOR



LEVEL OF SMART ATTITUDE - SECTOR

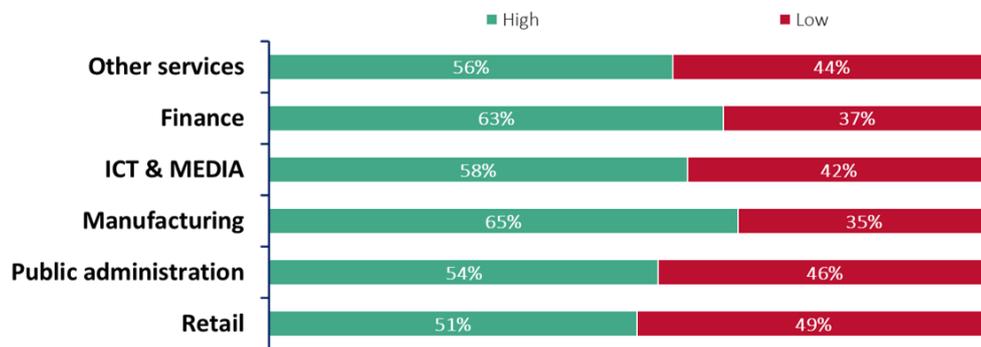
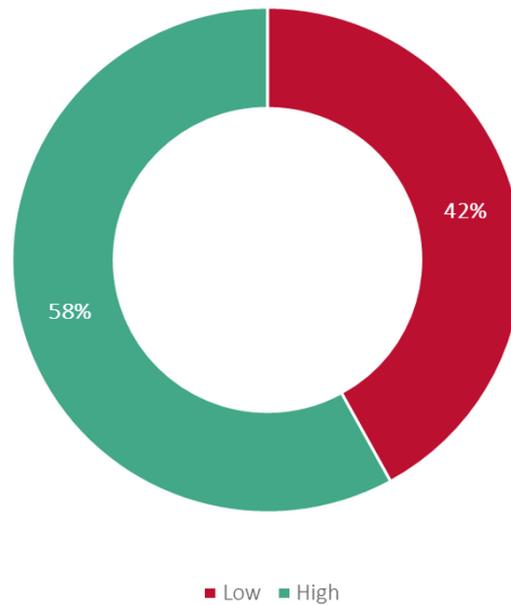


Figure 4.6 – Sample of the research: Sector

The major part of the sample it is concentrated on the manufacturing and other services sectors. In this case, there is no clear differences among the level of Smart Attitude across the different sector, despite the fact that finance and Manufacturing seems to have a higher level of it.

OVERALL SAMPLE

LEVEL OF SMART ATTITUDE – OVERALL SAMPLE



MATURITY LEVEL OF THE SMART ATTITUDE ELEMENTS

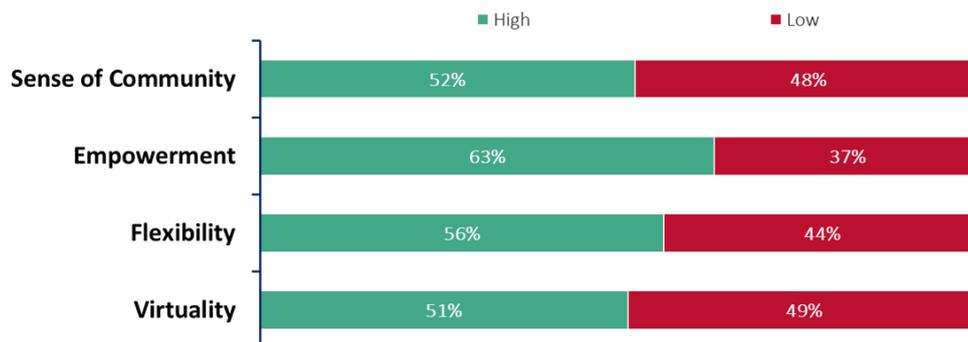


Figure 4.7 – Overall sample: Smart Attitude elements maturity level

Lastly, it is good to consider the whole picture. The sample considered presents a good level of Smart Attitude. Hence, it is good to understand which of the elements of this concept is the most mature, and which instead should need more attention. Looking at the second graph it is possible to notice that there is not a clear predominance of one

element on the others, however, empowerment seems to be more mature than the other elements, while on the other side, virtuality is the least mature. These findings could be explained from one side, by the fact that the sample considered is formed by professionals, who need to manage themselves in autonomy and who are accountable towards their professional goals. From the other, the relative low level of virtuality could be explained by the average age of the sample, which is unbalanced around 43 years old (weighted average of the sample). This can be interpreted by stating that the strong virtual and digital orientation of the new generations has not been widely represented here.

4.1.2 THE CRONBACH'S ALPHA

As already mentioned, the Cronbach's Alpha it is a method to verify the construct robustness (see chapter 3). This coefficient gives information about the level of correlation between the items of each construct. Higher are the correlations between the items of the same construct, the closer this coefficient to 1, similarly, the closer the Cronbach's Alpha to 0, the lower level of correlation among the items. In the last case, it is possible to state that some of the items of the construct should be eliminated since they are not part of the construct. Hence, there is the need to reformulate the construct by sequentially eliminating the various items that reduce the value of the Cronbach's Alpha.

For the purpose of this research, for this indicator it has been considered a threshold of 0,6. All the items below this threshold have been considered critical and then eliminated following a sequential process.

In the following tables it is possible to notice the Cronbach's Alpha of the final constructs, with the emphasis on the specific items that form them (Tables 4.1 – 4.2).

CONSTRUCTS	ITEMS	CRONBACH'S ALPHA
SENSE OF COMMUNITY	SOC1; SOC2; SOC3; SOC4; SOC5	0,8977
EMPOWERMENT	EMP1; EMP2; EMP3; EMP4	0,9155
FLEXIBILITY	FLX1; FLX2; FLX3; FLX4; FLX5	0,9057
VIRTUALITY	VRT1; VRT2; VRT3; VRT4; VRT5	0,9171

Table 4.1 – Cronbach's Alpha Smart Attitude elements

CONSTRUCTS	ITEMS	CRONBACH'S ALPHA
STRUCTURE	STR1; STR3; STR4	0,9123
PROCESS AND PRACTICE	PPR1; PPR2; PPR3; PPR4	0,9474
ORGANIZATIONAL CULTURE AND LEADERSHIP	OCL1; OCL3; OCL4; OCL5; OCL7; OCL8	0,9578

Table 4.2 – Cronbach's Alpha Business Agility levers

These considerations supported the development of all the models, however, model 1 and model 3 requires a further step. Indeed, the first model considers a second level construct, where the construct Business Agility and Smart Attitude are formed by other constructs as shown above. Hence, this require testing also the robustness of the second level construct, which is show in the tables below (Tables 4.3 and 4.4).

	CONSTRUCTS	ITEMS	CRONBACH'S ALPHA (ITEMS)	CRONBACH'S ALPHA (CONSTRUCTS)
SMART ATTITUDE	SENSE OF COMMUNITY	SOC1; SOC2; SOC3; SOC4; SOC5	0,8977	0,6827
	EMPOWERMENT	EMP1; EMP2; EMP3; EMP4	0,9155	
	FLEXIBILITY	FLX1; FLX2; FLX3; FLX4; FLX5	0,9057	
	VIRTUALITY	VRT1; VRT2; VRT3; VRT4; VRT5	0,9171	

Table 4.3 – Smart Attitude robustness

	CONSTRUCTS	ITEMS	CRONBACH'S ALPHA (ITEMS)	CRONBACH'S ALPHA (CONSTRUCTS)
BUSINESS AGILITY	STRUCTURE	STR1; STR3; STR4	0,9123	0,8278
	PROCESS AND PRACTICE	PPR1; PPR2; PPR3; PPR4	0,9474	
	ORGANIZATIONAL CULTURE AND LEADERSHIP	OCL1; OCL3; OCL4; OCL5; OCL7; OCL8	0,9578	

Table 4.4 – Business Agility robustness

Similar considerations can be done for the third model, which instead requires to test the robustness of the new constructs created by the interaction of the different levers of the Business Agility. The following tables summarized the results of the new constructs created.

CONSTRUCTS	ITEMS	CRONBACH'S ALPHA
STR_PPR	STR_PPR1; STR_PPR2; STR_PPR3; STR_PPR4	0,9034
STR_OCL	STR_OCL1; STR_OCL2; STR_OCL3; STR_OCL4; STR_OCL5; STR_OCL6	0,9230
PPR_OCL	PPR_OCL1; PPR_OCL2; PPR_OCL3; PPR_OCL4; PPR_OCL5; PPR_OCL6	0,9277

Table 4.5 – Cronbach's Alpha Business Agility interaction terms

In conclusion, from all the tables presented, it is possible to notice that all the constructs, both at the first and second level, have a good internal consistency, since their Cronbach's Alpha is higher than the threshold (0,6). Therefore, it is possible to conclude that the definition of each construct it is appropriate.

4.1.3 STATISTICAL VALIDATION OF THE HYPOTHESES

As already mentioned, once the construct definition phase has been successfully accomplished the next step is to assess the validity of the model identified in order to validate the research hypotheses. This process has been performed through the estimation of the SEM model.

A result is considered statistically significant when it is unlikely to occur given the null hypothesis. Here, it is good an in-depth explanation. To test a hypothesis, researchers rely on both (i) the so called significance level (α), this level can be seen as the probability to reject the null hypothesis (H_0) given while it is true; and (ii) the p-value, which is the likelihood to get a result at least as extreme, while H_0 is true. Ultimately, considering both these two values, a result is statistically significant when (and only when) it is verified the condition: $p\text{-value} < \alpha$; otherwise the results it is considered not statistically significant. Generally, the significance level is placed at 5%, however, the stricter the threshold, the harder verify the hypotheses. In other terms, the lower the

value decided for the significance level, the harder to verify the hypotheses, the stronger are the hypotheses verified.

In conclusion, in the following tables, it is possible to see the results of the estimation performed through the software Stata 14, with the aim to highlight which of the hypotheses developed has been verified. To ensure a good clarity of the table, it is decided to leave out the value of the path coefficient, the relationship between items and constructs and the error term, while the coefficients of the control variables have been avoided since further analyses will be provided in the following paragraphs.

In this step, each model has been analyzed individually in order to highlight its own specificities.

MODEL 1

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
BUSINESS AGILITY -> SMART ATTITUDE	0.211	0.000	Supported

Table 4.6 – Results of the estimation: Model 1

From the table above it is possible to notice that Business Agility has a statistically significant impact on Smart Attitude, this is in line with what expected at the beginning of this research. Hence, the first hypothesis has been successfully confirmed. This first step in the investigation played a key role in suggesting further analyses to increase the value of the research itself. Indeed, once the positive impact of Business Agility on Smart Attitude has been proved, the attention has been focused in the analysis of the contributions of each single lever of the Business Agility on each single element of the Smart Attitude. Therefore, this research developed and tested the other two models already presented.

MODEL 2

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
STRUCTURE -> SENSE OF COMMUNITY	-0.574	0.000	Supported
STRUCTURE -> EMPOWERMENT	-0.642	0.000	Supported
STRUCTURE -> FLEXIBILITY	-0.59	0.000	Supported
STRUCTURE -> VIRTUALITY	-0.6	0.000	Supported
PROCESS AND PRACTICE -> SENSE OF COMMUNITY	0.14	0.021	Supported
PROCESS E PRACTICE -> EMPOWERMENT	0.17	0.012	Supported
PROCESS E PRACTICE -> FLEXIBILITY	0.16	0.013	Supported
PROCESS E PRACTICE -> VIRTUALITY	0.29	0.000	Supported
ORGANIZATIONAL CULTURE AND LEADERSHIP -> SENSE OF COMMUNITY	0.77	0.000	Supported

ORGANIZATIONAL CULTURE AND LEADERSHIP -> EMPOWERMENT	0.634	0.009	Supported
ORGANIZATIONAL CULTURE AND LEADERSHIP -> FLEXIBILITY	0.68	0.000	Supported
ORGANIZATIONAL CULTURE AND LEADERSHIP -> VIRTUALITY	0.626	0.000	Supported

Table 4.7 – Results of the estimation: Model 2

From the table above it is possible to notice that all the hypotheses tested are statistically significant. Additionally, it is possible to see that in most of the cases the results are aligned with the initial hypotheses, with the exception of Structure, whose results obtained are negative regardless of the elements of Smart Attitude considered. Hence, while the validity of the hypothesis of the impact of this variable on each element of Smart Attitude is met, the contribution of this variable on the constituent elements of Smart Attitude is the opposite than expected. This is very interesting from the perspective of this research, since it helps to enlighten some aspects which were given for granted until this moment. These new findings will be further discussed in the dedicated paragraph (see paragraph 4.2).

MODEL 3

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
STRUCTURE -> SENSE OF COMMUNITY	-0.574	0.000	Supported
STRUCTURE -> EMPOWERMENT	-0.642	0.000	Supported
STRUCTURE -> FLEXIBILITY	-0.59	0.000	Supported
STRUCTURE -> VIRTUALITY	-0.6	0.000	Supported
PROCESS AND PRACTICE -> SENSE OF COMMUNITY	0.14	0.021	Supported
PROCESS E PRACTICE -> EMPOWERMENT	0.17	0.012	Supported
PROCESS E PRACTICE -> FLEXIBILITY	0.16	0.013	Supported
PROCESS E PRACTICE -> VIRTUALITY	0.29	0.000	Supported
ORGANIZATIONAL CULTURE AND LEADERSHIP -> SENSE OF COMMUNITY	0.77	0.000	Supported

ORGANIZATIONAL CULTURE AND LEADERSHIP -> EMPOWERMENT	0.634	0.009	Supported
ORGANIZATIONAL CULTURE AND LEADERSHIP -> FLEXIBILITY	0.68	0.000	Supported
ORGANIZATIONAL CULTURE AND LEADERSHIP -> VIRTUALITY	0.626	0.000	Supported

Table 4.8 – Results of the estimation: Model 3 – Direct effect

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
STR_PPR -> SENSE OF COMMUNITY	-0.389	0.000	Supported
STR_PPR -> EMPOWERMENT	-0.46	0.000	Supported
STR_PPR -> FLEXIBILITY	-0.446	0.000	Supported
STR_PPR -> VIRTUALITY	-0.42	0.000	Supported
STR_OCL -> SENSE OF COMMUNITY	0.20	0.000	Supported
STR_OCL -> EMPOWERMENT	0.254	0.000	Supported
STR_OCL -> FLEXIBILITY	0.253	0.000	Supported

STR_OCL -> VIRTUALITY	0.21	0.000	Supported
PPR_OCL -> SENSE OF COMMUNITY	0.255	0.000	Supported
PPR_OCL -> EMPOWERMENT	0.30	0.000	Supported
PPR_OCL -> FLEXIBILITY	0.28	0.000	Supported
PPR_OCL -> VIRTUALITY	0.29	0.000	Supported

Table 4.9 – Results of the estimation: Model 3 – Interaction

Identical considerations can be done for the results of the model 3, which is characterized by a higher degree of complexity than the model 2, since it considers also the interactions between the different levers of the Business Agility. From the tables above it is possible to notice that all the hypotheses tested are statistically significant. As expected, these findings are in line with the outcomes of the previous step, confirming the negative contribution of structure on each element of Smart Attitude. However, here some interesting findings emerge. In the Table 4.9, it is possible to notice that the interaction of structure with the other levers mitigates its negative contribution, even more, the interaction with structure and culture gives a positive contribution. Again, this outcome increases the relevance of this work underling some unexpected scenarios. These new findings will be further discussed in the dedicated paragraph (see section 4.2 for further details).

4.1.4 GOODNESS OF THE MODEL

Finally, once the estimation has been performed, it is necessary to assess the goodness of the model. As already mentioned (see chapter 3), central part of the research analysis in testing models is the extent to which the model fits (Byrne, 2001), in other word,

testing the goodness of fit of the model. This is considered as an integral and important part of the research using structural equation modelling. To do that, it is necessary to rely on the fit indices, which indicate how much the identified model fit the data.

In this case it has been decided to rely on some of the most adopted fit indexes, to strengthen the validity of the findings. Specifically, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI) and Coefficient of Determination (CD) have been selected as good proxies of the goodness of the fit (see the dedicated paragraph for further details).

These indicators have been considered acceptable if their values respected the thresholds of:

- $RMSEA < 0,1$;
- $CFI > 0,7$;
- $CD > 0,9$.

In the following tables, the fit indexes have been reported for each model estimated.

MODEL 1

FIT INDEX	THRESHOLD	RESULT
RMSEA	< 0.1	0.042
CFI	> 0.7	0.948
CD	> 0.8	1.000

Table 4.8 – Goodness of the fit: Model 1

As confirmed by the table above, it is possible to state that the goodness of the model is very good, hence it is possible to conclude that the model is appropriate to explain the dataset.

MODEL 2

FIT INDEX	THRESHOLD	RESULT
RMSEA	< 0.1	0.079
CFI	> 0.7	0.823
CD	> 0.8	1.000

Table 4.9 – Goodness of the fit: Model 2

Again, the results above report a very good goodness of the model, confirming that the model is appropriate to explain the dataset.

MODEL 3

FIT INDEX	THRESHOLD	RESULT
RMSEA	< 0.1	0.085
CFI	> 0.7	0.752
CD	> 0.8	1.000

Table 4.10 – Goodness of the fit: Model 3

Lastly, identical considerations can be done. The goodness of the model is very good, meaning that the model is good to explain the dataset. Additionally, the lowering in the coefficients of the fit indexes is caused by the higher degree of complexity introduced with the inclusion within the model of the interaction terms, which make the model slightly less good in representing the sample. It is important to highlight that this model has been enabled by the wide sample considered.

4.1.5 MECHANISMS OF CONTROL

Finally, as already mentioned, it has been judged appropriate to introduce some control variables with the purpose to identify the potential effect of other elements that could explain the concept of Smart Attitude or its elements. Also, in this case the different models are presented individually, to highlight potential specificities.

MODEL 1

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
SMART ATTITUDE	Sex2	.2210801	0.130	Not Supported
	PM2	.2252486	0.013	Supported
	Role2	-.2510458	0.507	Not Supported
	Role3	-.1938477	0.604	Not Supported
	Age2	.0239897	0.955	Not Supported
	Age3	.112831	0.790	Not Supported
	Age4	.4793023	0.261	Not Supported
	Age5	.4771417	0.268	Not Supported
	Sector_Group2	.2220599	0.201	Not Supported
	Sector_Group3	-.0553544	0.678	Not Supported
	Sector_Group4	.1637864	0.141	Not Supported
	Sector_Group5	-.3961276	0.054	Not Supported
	Sector_Group6	-.0891887	0.595	Not Supported
	Qualification2	-.1939653	0.277	Not Supported

	Qualification3	-.2488132	0.212	Not Supported
	Qualification4	-.2947065	0.087	Not Supported
	Qualification5	-.4926627	0.159	Not Supported

Table 4.11 – Control variables: Model 1

In this sense, the results of the estimation highlights that almost none of the identified variables has a valid effect on Smart Attitude at the aggregate level. In other terms, almost none of the control variables contribute to explain the Smart Attitude. Different considerations can be done for the variable PM, which stands for People Manager or not. In this case it is possible to see a statistical validity of this variable in affecting Smart Attitude, hence further considerations are required. This finding it is discussed in a dedicated section at the end of this chapter (see paragraph 4.2).

MODEL 2

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
SENSE OF COMMUNITY	Sex2	.2210801	0.278	Not Supported
	PM2	.2779871	0.003	Supported
	Role2	-.4493629	0.241	Not Supported
	Role3	-.5936977	0.117	Not Supported
	Age2	.2819066	0.515	Not Supported
	Age3	.307096	0.476	Not Supported
	Age4	.6846128	0.114	Not Supported
	Age5	.5386246	0.218	Not Supported

	Sector_Group2	-.2408229	0.175	Not Supported
	Sector_Group3	-.2088016	0.124	Not Supported
	Sector_Group4	.1380418	0.222	Not Supported
	Sector_Group5	-.4009702	0.104	Not Supported
	Sector_Group6	-.1181525	0.488	Not Supported
	Qualification2	-.2411348	0.078	Not Supported
	Qualification3	-.1831142	0.310	Not Supported
	Qualification4	-.2837604	0.054	Not Supported
	Qualification5	-.8381581	0.114	Not Supported

Table 4.12 – Control variables on SOC: Model 2

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
EMPOWERMENT	Sex2	.0402296	0.676	Not Supported
	PM2	.1413468	0.047	Supported
	Role2	-.4964045	0.221	Not Supported
	Role3	-.4825935	0.229	Not Supported
	Age2	.4418819	0.337	Not Supported
	Age3	.5115942	0.263	Not Supported
	Age4	1.00645	0.058	Not Supported
	Age5	.92644	0.056	Not Supported
	Sector_Group2	-.1084416	0.565	Not Supported

	Sector_Group3	-.1602774	0.265	Not Supported
	Sector_Group4	.2290835	0.056	Not Supported
	Sector_Group5	-.3333137	0.063	Not Supported
	Sector_Group6	-.1188764	0.511	Not Supported
	Qualification2	-.3408862	0.065	Not Supported
	Qualification3	-.0694189	0.711	Not Supported
	Qualification4	-.2775419	0.067	Not Supported
	Qualification5	-.633116	0.079	Not Supported

Table 4.13 – Control variables on EMP: Model 2

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
FLEXIBILITY	Sex2	.1655015	0.068	Not Supported
	PM2	.1360258	0.042	Supported
	Role2	-.4971097	0.194	Not Supported
	Role3	-.5221373	0.168	Not Supported
	Age2	.1763661	0.685	Not Supported
	Age3	.2789456	0.518	Not Supported
	Age4	.642246	0.138	Not Supported
	Age5	.5508873	0.209	Not Supported
	Sector_Group2	-.0104009	0.953	Not Supported
	Sector_Group3	-.126794	0.351	Not Supported

	Sector_Group4	.1603313	0.157	Not Supported
	Sector_Group5	-.3176797	0.122	Not Supported
	Sector_Group6	-.1976539	0.247	Not Supported
	Qualification2	-.0990664	0.430	Not Supported
	Qualification3	-.1133031	0.518	Not Supported
	Qualification4	-.1817362	0.197	Not Supported
	Qualification5	-.2913704	0.390	Not Supported

Table 4.14 – Control variables on FLX: Model 2

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
VIRTUALITY	Sex2	.1120717	0.255	Not Supported
	PM2	.3083677	0.002	Supported
	Role2	-.5723118	0.167	Not Supported
	Role3	-.5443034	0.183	Not Supported
	Age2	.1379646	0.770	Not Supported
	Age3	.2114871	0.652	Not Supported
	Age4	.5386212	0.252	Not Supported
	Age5	.3579956	0.451	Not Supported
	Sector_Group2	.0316664	0.870	Not Supported
	Sector_Group3	.0694985	0.637	Not Supported
	Sector_Group4	.1543923	0.209	Not Supported

	Sector_Group5	-.3077299	0.055	Not Supported
	Sector_Group6	-.1955227	0.291	Not Supported
	Qualification2	-.2223776	0.258	Not Supported
	Qualification3	.1482926	0.350	Not Supported
	Qualification4	.0324719	0.765	Not Supported
	Qualification5	-.2244098	0.522	Not Supported

Table 4.15 – Control variables on VRT: Model 2

Differently than expected, these outcomes are fully in line with the results of the previous model – the aggregated one. Also in this case the variable PM impacts each element of the Smart Attitude, as it did at the aggregate level (these results are interpreted at the end of the paragraph 4.2). However, a possible consideration in this case is related to other control variables (e.g. Sector_Group) which are lower than 0,1, in this case the condition placed in this research to be considered significant is not met, but they could be considered weakly significant, and should be further investigated.

MODEL 3

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
SENSE OF COMMUNITY	Sex2	.0709321	0.425	Not Supported
	PM2	.328046	0.000	Supported
	Role2	-.1145562	0.760	Not Supported
	Role3	-.1985592	0.592	Not Supported
	Age2	.4861195	0.251	Not Supported

	Age3	.3542427	0.400	Not Supported
	Age4	.8468466	0.054	Not Supported
	Age5	.6779357	0.112	Not Supported
	Sector_Group2	-.0057537	0.974	Not Supported
	Sector_Group3	-.0941305	0.476	Not Supported
	Sector_Group4	.0744547	0.502	Not Supported
	Sector_Group5	-.4210291	0.200	Not Supported
	Sector_Group6	.1043398	0.537	Not Supported
	Qualification2	-.213179	0.228	Not Supported
	Qualification3	-.2424038	0.220	Not Supported
	Qualification4	-.307766	0.071	Not Supported
	Qualification5	-1.269851	0.100	Not Supported

Table 4.16 – Control Variables on SOC: Model 3

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
EMPOWERMENT	Sex2	.008912	0.924	Not Supported
	PM2	.2004444	0.035	Supported
	Role2	-.0903934	0.819	Not Supported
	Role3	.0001721	1.000	Not Supported
	Age2	.6697244	0.134	Not Supported
	Age3	.5544739	0.212	Not Supported

	Age4	1.186844	0.058	Not Supported
	Age5	1.081717	0.056	Not Supported
	Sector_Group2	.1763142	0.335	Not Supported
	Sector_Group3	-.0232296	0.868	Not Supported
	Sector_Group4	.159511	0.173	Not Supported
	Sector_Group5	-.3532822	0.074	Not Supported
	Sector_Group6	.1609403	0.367	Not Supported
	Qualification2	-.2990514	0.109	Not Supported
	Qualification3	-.136229	0.513	Not Supported
	Qualification4	-.298496	0.097	Not Supported
	Qualification5	1.151983	0.052	Not Supported

Table 4.17 – Control Variables on EMP: Model 3

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
FLEXIBILITY	Sex2	.1357129	0.125	Not Supported
	PM2	.1925543	0.032	Supported
	Role2	-.096227	0.796	Not Supported
	Role3	-.0415983	0.910	Not Supported
	Age2	.3877427	0.357	Not Supported
	Age3	.3110021	0.457	Not Supported
	Age4	.8088152	0.054	Not Supported

	Age5	.6925927	0.102	Not Supported
	Sector_Group2	.2701438	0.117	Not Supported
	Sector_Group3	.0080673	0.951	Not Supported
	Sector_Group4	.0996396	0.366	Not Supported
	Sector_Group5	-.3317371	0.064	Not Supported
	Sector_Group6	.0854643	0.611	Not Supported
	Qualification2	-.056589	0.747	Not Supported
	Qualification3	-.1804789	0.357	Not Supported
	Qualification4	-.2014558	0.234	Not Supported
	Qualification5	-.7993949	0.070	Not Supported

Table 4.18 – Control variables on FLX: Model 3

	VARIABLE	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
VIRTUALITY	Sex2	.0756887	0.433	Not Supported
	PM2	.359211	0.000	Supported
	Role2	-.1661779	0.683	Not Supported
	Role3	-.0702235	0.861	Not Supported
	Age2	.3613437	0.431	Not Supported
	Age3	.2646343	0.562	Not Supported
	Age4	.7221463	0.115	Not Supported
	Age5	.5125707	0.268	Not Supported

	Sector_Group2	.2967816	0.114	Not Supported
	Sector_Group3	.1926073	0.179	Not Supported
	Sector_Group4	.0854007	0.477	Not Supported
	Sector_Group5	-.339853	0.071	Not Supported
	Sector_Group6	.0524312	0.775	Not Supported
	Qualification2	-.0358018	0.852	Not Supported
	Qualification3	.0317361	0.882	Not Supported
	Qualification4	-.0457232	0.805	Not Supported
	Qualification5	-.7584572	0.053	Not Supported

Table 4.19 – Control variables on VRT: Model 3

4.2 DISCUSSION OF THE RESULTS

This thesis is strongly based on the belief that the real value of research work lies in making appropriate suggestions based on the empirical findings. For this reason, in this second part of the chapter, all the most important findings are discussed in order to draw the final considerations of this research.

4.2.1 VERIFICATION OF THE HYPOTHESES

The main purpose of this paragraph is to discuss from a critical perspective the different hypotheses trying to look over just the numerical meaning, in order to enable considerations on the whole model meaning.

MODEL 1

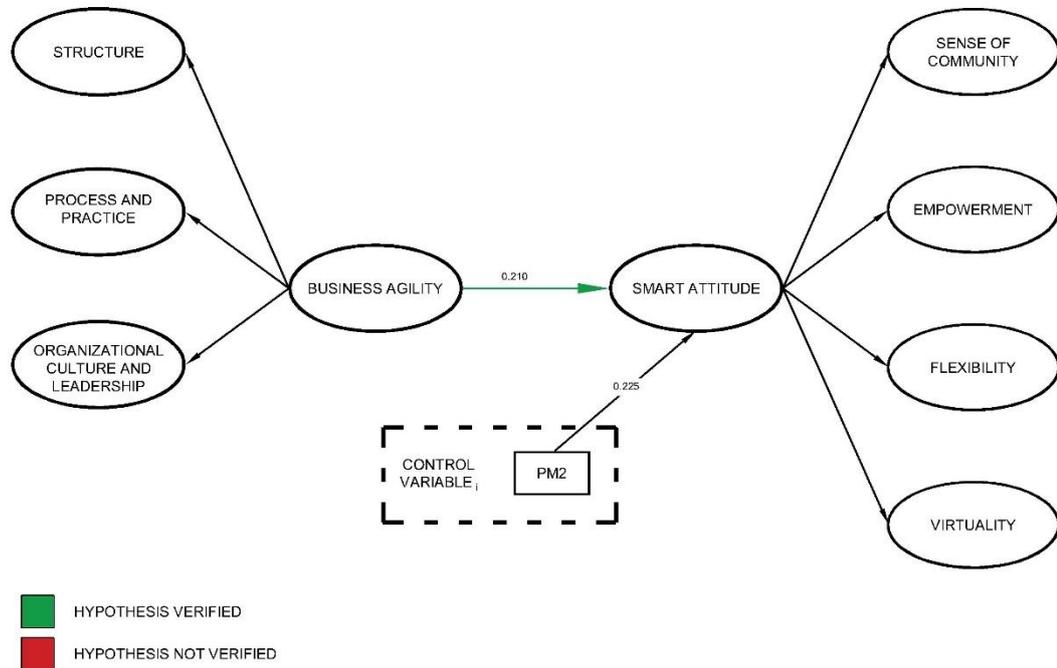


Figure 4.8 – Hypotheses verification: Model 1

RQ1: Is the (Smart) Attitude of people affected by the Business Agility?

H1: Business Agility positively impacts on the (Smart) Attitude of people.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
BUSINESS AGILITY -> SMART ATTITUDE	0.211	0.000	Supported	YES

Table 4.20 – Hypotheses verification: H1

Through the estimation and test of the theoretical framework 1 it has been possible to prove that Business Agility has a statistically significant impact on Smart Attitude, hence the first hypothesis has been successfully confirmed. In this direction it is possible to conclude that Business Agility has a positive impact on the Smart Attitude of people, answering to the first research question of this investigation. However, this is just a confirmation of what both researchers and practitioners already were aware of, hence given the aggregate nature of this model, the value of its result is limited to just a confirmation of a common belief shared unanimously. For this reason the other theoretical framework have been tested, to extract the highest value possible from this work.

MODELLO 2

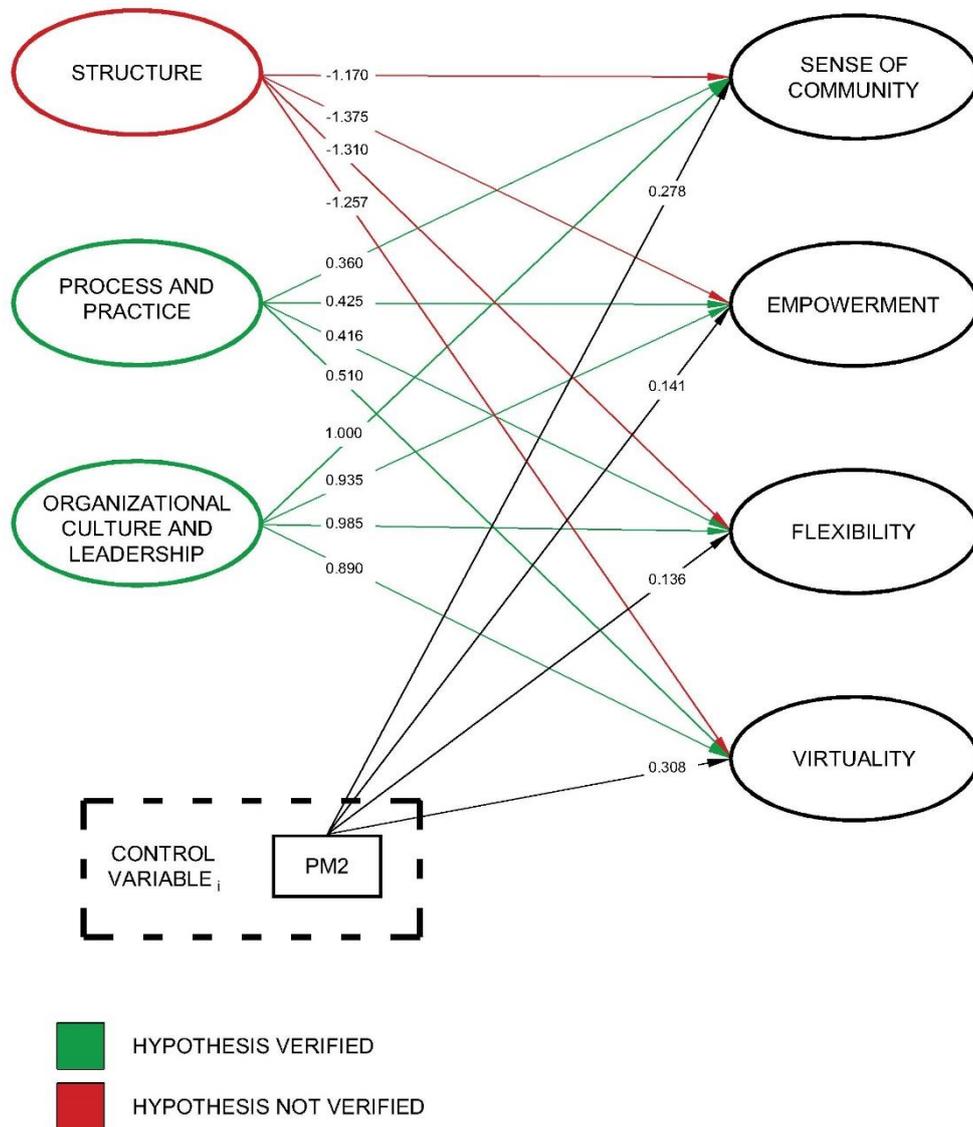


Figure 4.9 – Hypotheses verification: Model 2

RQ2: Which of the Business Agility levers have the highest impact on the elements of the Smart Attitude?

H2: Each lever of Business Agility has a positive contribution on each aspect of the Smart Attitude.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
STRUCTURE -> SENSE OF COMMUNITY	-1.170	0.000	Supported	NO
STRUCTURE -> EMPOWERMENT	-1.375	0.000	Supported	NO
STRUCTURE -> FLEXIBILITY	-1.310	0.000	Supported	NO
STRUCTURE -> VIRTUALITY	-1.257	0.000	Supported	NO

Table 4.21 – Hypothesis verification: H2.1

All these hypotheses have been validated through the implementation of SEM technique. However, if from one side the validity of the hypotheses have been largely verified, and it is possible to conclude that structure has an impact on each element of the Smart Attitude, from the other side it is interesting to notice that the sign of this impact is the opposite than the expected. Meaning that leveraging on actions oriented towards a more agile structure (e.g. Job rotation, Cross-functional team, etc.) lead to a decrease in the Smart Attitude of people, by lowering each of its constituted elements. For this reason, in this case it is good to analyse the potential causes of this. The negative impact of structure on sense of community can be explained by the fact that by working in cross-functional teams from one side, strongly enhance the personal network of the person, establishing new relationships, but from the other there is a weakening of the sense of belonging. People know new persons, but at the same time they lose their sense of identity, making for them increasingly difficult to recognize themselves in one team or function. This will negatively affect them. Similar considerations can be done for the negative impact of structure on the empowerment

of people. Actions on structure increase the interdependence of the people within each cross-functional team, making the work more interdependent. Moreover, cross functional teams can increase the complexity in terms of the autonomy of the person because the person will have to handle more than one project in once, hence more than one teams, this is finally compounded by the difficult to properly identify a direct manager of reference (see e.g. Rolland et al., 2016; Dikert et al., 2016; Hobbs and Petit, 2017; Stray et al., 2018; Mikalsen et al., 2019). For what concern the aspect of flexibility, this finding can be explain by the resistance of people to change as a reaction of a structural change. This is not rare at all in the organizations that are transforming themselves (see e.g. Ebrahim et al., 2018). In addition, in the attempt to ensure higher autonomy of each team, the new structure will impose on the other hand higher degree of coordination, interaction and planning for each member and for the whole team, leading to higher constraints for people. While for the virtuality it can be explained by the fact that cross-functional teams require recurrent meetings to define their work and activities. Generally, the development of cross-functional teams imply an higher requirement in terms of coordination, this when a change in structure of this entity occurs, people are physically located together in order to facilitate communication and coordination, in this context, people are pushed to favour the physical interactions rather than the virtual ones. This negatively affect the areas of virtuality of people, who preferring the physical coordination lose some of their abilities to properly and efficiently use digital tools.

In conclusion, it is possible to state that the second hypothesis is not met, since Structure has a negative impact on each element of the Business Agility.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
PROCESS AND PRACTICE -> SENSE OF COMMUNITY	0.360	0.021	Supported	YES
PROCESS E PRACTICE -> EMPOWERMENT	0.425	0.012	Supported	YES
PROCESS E PRACTICE -> FLEXIBILITY	0.416	0.013	Supported	YES
PROCESS E PRACTICE -> VIRTUALITY	0.510	0.000	Supported	YES

Table 4.22 – Hypothesis verification: H2.2

From the results above presented, it has been demonstrated that actions targeting the improvement of process and practice following the agile philosophy (e.g. introduction of new technologies to support processes, continuous improvement, feedback, etc.) have an impact on each element of the Smart Attitude. Here, it is important to point out that Virtuality undergoes the most significant impact. This can be explained by the fact that the agile philosophy strongly pushes towards the adoption of new technologies and tools to support the existing processes of the organizations, making them part of the companies' DNA (Dodson, 2019). At the same time, the adoption of these new solutions pushes people to develop and enhance their ability to identify the right mix of tools to be used and their ability to leverage on these tools to extract and use these information in a proper way (Breu et al., 2001).

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
ORGANIZATIONAL CULTURE AND LEADERSHIP -> SENSE OF COMMUNITY	1.000	0.000	Supported	YES
ORGANIZATIONAL CULTURE AND LEADERSHIP -> EMPOWERMENT	0.935	0.009	Supported	YES
ORGANIZATIONAL CULTURE AND LEADERSHIP -> FLEXIBILITY	0.985	0.000	Supported	YES
ORGANIZATIONAL CULTURE AND LEADERSHIP -> VIRTUALITY	0.890	0.000	Supported	YES

Table 4.23 – Hypothesis verification: H2.3

Finally, analysing the results from the table above, it is possible to conclude that by adopting and implementing the cultural lever the result will be a strong positive impact on the Smart Attitude of people. Hence, culture plays the key role in enhancing the Smart Attitude of People. This is a confirmation of the literature; indeed, the majority of the authors agree that culture is the very first element to be leveraged on to improve people attitude and behaviours (see e.g. Di Stefano et al., 2019; Al-Jundi et al., 2019) and performance (see e.g. Ibrahim, 2019). Additionally, it is possible to see that the most impacted element of the Smart Attitude is the Sense of Community, this can be

explained by the fact that by developing a culture of inclusiveness, based on transparency, collaborations and autonomy, will enhance the sense of belonging and identity of people, not just towards their teams or functions of belonging but at the whole organizational level, pushing them to enlarge their network. This is supported by the adoption of the right leadership styles, which encourage people to follow their passions, sustaining their growth.

In conclusion, it is possible to answer the second research question, by clearly stating that the Business Agility lever with the highest impact on the elements of Smart Attitude is the cultural one. Hence, the most important finding is that the core of Business Agility does not stand in a new organizational model or new processes or practices, but it stands in the cultural and managerial model.

MODEL 3

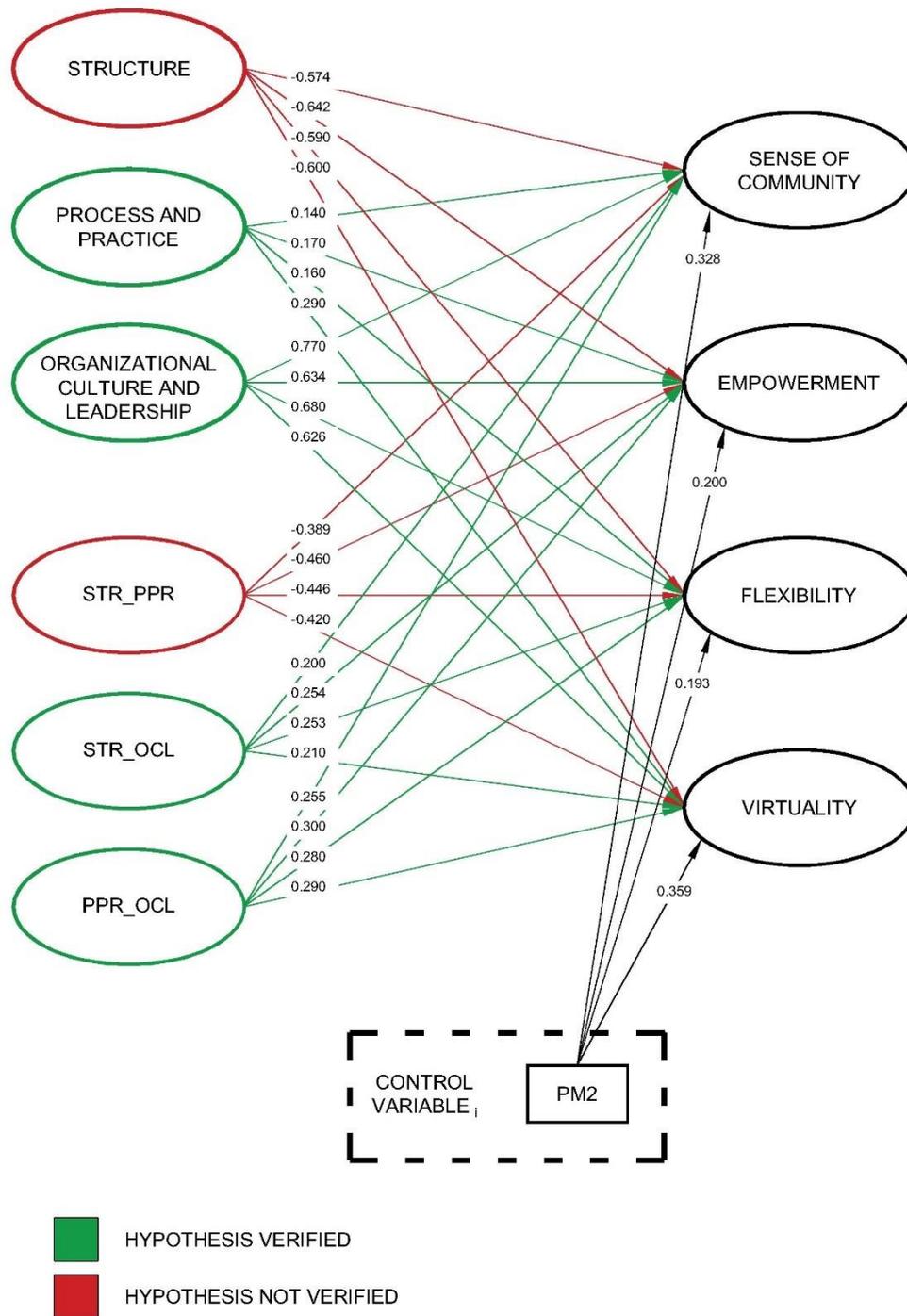


Figure 4.10 – Hypotheses verification: Model 3

H3: *The interaction between the levers of Business Agility has a positive impact on each element of the Smart Attitude.*

In this case a preliminary consideration must be done. Given the fact that the theoretical framework 3 is the evolution of the theoretical framework 2, the results of the estimation and test of these models are aligned. Indeed, looking at the results of the direct effect of each single lever of the Business Agility on each element of Smart Attitude, identical consideration must be done. Therefore, it has been judged redundant to repeat the same concepts and it has been reported only the results of the estimation.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
STRUCTURE -> SENSE OF COMMUNITY	-0.574	0.000	Supported	NO
STRUCTURE -> EMPOWERMENT	-0.642	0.000	Supported	NO
STRUCTURE -> FLEXIBILITY	-0.59	0.000	Supported	NO
STRUCTURE -> VIRTUALITY	-0.6	0.000	Supported	NO

Table 4.24 – Hypothesis verification: H2.1 Model 3

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
PROCESS AND PRACTICE -> SENSE OF COMMUNITY	0.14	0.021	Supported	YES
PROCESS E PRACTICE -> EMPOWERMENT	0.17	0.012	Supported	YES
PROCESS E PRACTICE -> FLEXIBILITY	0.16	0.013	Supported	YES
PROCESS E PRACTICE -> VIRTUALITY	0.29	0.000	Supported	YES

Table 4.25 – Hypothesis verification: H2.2 Model 3

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
ORGANIZATIONAL CULTURE AND LEADERSHIP -> SENSE OF COMMUNITY	0.77	0.000	Supported	YES
ORGANIZATIONAL CULTURE AND LEADERSHIP -> EMPOWERMENT	0.634	0.009	Supported	YES

ORGANIZATIONAL CULTURE AND LEADERSHIP -> FLEXIBILITY	0.68	0.000	Supported	YES
ORGANIZATIONAL CULTURE AND LEADERSHIP -> VIRTUALITY	0.626	0.000	Supported	YES

Table 4.26 – Hypothesis verification: H2.3 Model 3

Finally, looking at the impact of the interaction between the different levers of the Business Agility on the elements of Smart Attitude, it is possible to notice that all the combinations tested have resulted statistically significant, however also in this case some considerations are necessary.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
STR_PPR -> SENSE OF COMMUNITY	-0.389	0.000	Supported	NO
STR_PPR -> EMPOWERMENT	-0.46	0.000	Supported	NO
STR_PPR -> FLEXIBILITY	-0.446	0.000	Supported	NO
STR_PPR -> VIRTUALITY	-0.42	0.000	Supported	NO

Table 4.27 – Hypothesis verification: H3.1

It is possible to immediately conclude that the third hypothesis is not met. Indeed, despite the fact that the interaction between structure and process and practice has a statistically significant impact on each element of the Smart Attitude, the sign of this impact is negative. Hence, the mediation of the process and practice is not enough to make the structure positive. This result is in line with the reasons behind the negative result of structure alone. Indeed, the introduction of a new structure will result in a first moment of disorientation for people, and supporting it with the adoption of new processes of practices (hence new ways and methods to perform the activities, new relational models, etc) will result in a lower degree of confusion from the people perspective, but it will not be enough to make this contribution positive.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
STR_OCL -> SENSE OF COMMUNITY	0.20	0.000	Supported	YES
STR_OCL -> EMPOWERMENT	0.254	0.000	Supported	YES
STR_OCL -> FLEXIBILITY	0.253	0.000	Supported	YES
STR_OCL -> VIRTUALITY	0.21	0.000	Supported	YES

Table 4.28 – Hypothesis verification: H3.2

Different considerations can be done for the interaction between the cultural lever and the structural ones. Here the findings are, if possible, even more interesting from a practical perspective, since the interaction between structural and cultural actions results in a positive outcome. The mediating effect of cultural actions make structure

positive. Hence, it is possible to conclude that if companies are willing to improve the Smart Attitude of their people, they should consider the option to focus not just on structure but to support implementation of structural actions with the implementation of actions targeting culture and leadership styles of their people. With the implementation of specific cultural actions towards the adoption of a new structure (i.e. actions specifically targeting the values, principles, competence, etc. required to support the new structure) there will be a higher understanding for people of the change in the organizational structure, making the interaction between this two levers positive. In other words, the negative effect of structure is more than moderated by the adoption of the right culture and leadership styles, this can be explained by the fact that with the adoption of the right culture and leadership styles people will not suffer from the loss of identity towards their original team of function and will be able to properly balance communication and collaboration, both physically and virtually to reach the objectives. Hence, culture will play the key role in mitigating the resistance of the change due to the higher complexity to be managed in terms of coordination and planning.

Even more, this finding supports another consideration. Given the importance to sustain the agile transition with the right change in structure, the lever culture takes a complete new and more relevant meaning, indeed organizations need to change their structure to react to the environment (see e.g. Aghina, 2018; Ebrahim, 2018), however as it has been demonstrated, structure alone has a negative impact on the Smart Attitude of people, leading organizations on a edge of a dangerous trade-off. However, this work demonstrates that by supporting the adoption of a new more agile structure with the implementation of actions to spread the right organizational culture, the organizations will obtain a positive result, where before they obtained resistance to change (see e.g. Rigby et al., 2016; Dumitriu et al., 2019). This is a very powerful message from the practitioners' point of view.

HYPOTHESIS	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY	VERIFICATION
PPR_OCL -> SENSE OF COMMUNITY	0.255	0.000	Supported	YES
PPR_OCL -> EMPOWERMENT	0.30	0.000	Supported	YES
PPR_OCL -> FLEXIBILITY	0.28	0.000	Supported	YES
PPR_OCL -> VIRTUALITY	0.29	0.000	Supported	YES

Table 4.29 – Hypothesis verification: H3.3

Lastly, it is possible to report similar insights. Indeed, by supporting the introduction of agile processes and practice with the adoption and spread of the right organizational culture the result is positive. This can be explained by the fact that people will have higher awareness about the new processes and practices and will be more ready to adopt them, at the same time being aware of the potential criticalities that the new processes would imply. Here, another important consideration emerges, the interaction between culture and process seems to ensure higher benefits than process alone. This is explained by the fact that the introduction of new processes is supported by the spreading of the right awareness about the processes itself. In conclusion, the most relevant key point is the strong contribution of the cultural lever also from the perspective of the interaction with the other levers, it does not just positively mitigate the effects of the other levers, but it slightly improves them.

4.2.2 MEANING OF THE CONTROL VARIABLES

Although the majority of the control variables identified do not have a statistically significant impact, there is one of them that is worth a discussion. This is the case of PM, which stands for People Manager or not. More specifically, PM1 means being an employee, while PM2 means having the responsibility and management of other people. In this case it is possible to see a statistical validity of this variable, hence further considerations are required.

As already mentioned, these results should be read in comparative terms, between the variables coefficients that are depicted in the table and the ones of the reference category. The reference category (PM1 in this specific case) becomes the baseline in comparison to the other, and its variable coefficient becomes 0.

For this reason, in the table below, it is possible to compare the value of being a people manager or not (see Tables 4.30 – 4.32).

MODEL 1

PM2	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
SMART ATTITUDE	.2779871	0.003	Supported

Table 4.30 – Control variable Model 1: PM2

In the table above, it is possible to state that being a people manager positively impacts the Smart Attitude of people. However, few considerations can be done at this aggregate level.

As already stated several times, the results of models 2 and 3 are aligned, hence a unique analysis and interpretation is provided below.

MODEL 2

PM2	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
SENSE OF COMMUNITY	.2779871	0.003	Supported
EMPOWERMENT	.1413468	0.047	Supported
FLEXIBILITY	.1360258	0.042	Supported
VIRTUALITY	.3083677	0.002	Supported

Table 4.31 – Control variable Model 2: PM2

MODEL 3

PM2	PATH COEFFICIENT	P-VALUE	STATISTICAL VALIDITY
SENSE OF COMMUNITY	.328046	0.000	Supported
EMPOWERMENT	.2004444	0.035	Supported
FLEXIBILITY	.1925543	0.032	Supported
VIRTUALITY	.359211	0.000	Supported

Table 4.32 – Control variable Model 3: PM2

Starting from the values explicitly stated in the results, People Managers are characterized by higher maturity in each element of the Smart Attitude compared to the employees. The elements more impacted by this is the Virtuality. This can be explained by the necessity of people managers to get in touch with their people even remotely, this enhances their ability to use and select the right mix of tools to be most

efficient and effected in the communication process. While, employees are not required to master these capabilities at the same level of people manager, since their communication is mostly referred to the ones with their manager. On opposite side, flexibility is the element less impacted by the responsibility of other people. This can be mostly explained by the fact that nowadays both people managers and employees are required to be adaptable and responsive to changes, regardless their responsibility towards other persons.

Still, a final consideration arises, despite these findings, the real value of a research is to look at the results from a critical perspective. This pushes towards different points of view, trying to consider the very opposite direction of interpretations. In this direction, a question arises: *is the “label” people manager that makes people attitude smarter, or it is the higher Smart Attitude of people that enables them to have the responsibility of other people?* Here the considerations are twofold, from one side, the higher responsibility will end up by increasing the accountability, adaptability and most of the other elements at the basis of the Smart Attitude. On the other side, it seems appropriate also to state that having higher level of Smart Attitude it is an indicator of the readiness of that person towards higher responsibility in terms of management of people, hence someone could argue that is the Smart Attitude itself to be the enabler to become people manager. Even though for the moment it is hard to take a position, the results of this research seem to prefer the first option, but it would be very interesting to deepen this direction.

4.2.3 OVERALL MODEL MEANING

At the very end, by looking at the overall model it is possible to consider the meaning of the results from a more comprehensive perspective. The very first finding is the confirmation that Business Agility has a positive impact on Smart Attitude. However, looking at the whole picture with a higher level of detail, it is clear that the impact of the Business Agility on Smart Attitude is lowered by the effect of structure, which alone and without the proper precautions (constituted by the support of the right cultural initiatives) has a negative impact on the attitude of people. Looking at the

results it is possible to conclude that culture and leadership styles play the most relevant role enhancing the Smart Attitude of people, since their impact it is not just the direct ones, but it is also a positive mitigator of the other levers, given the fact that supporting the other levers with the right cultural initiatives will lead to an enhancement of their impacts on each element of the Smart Attitude, and on the Smart Attitude itself.

In the following chapter, the main considerations are drawn, with the purpose to highlights the contributions of this research both for the theoretical and managerial perspective.

CHAPTER 5

CONCLUSIONS

This chapter has the aim to conclude this research by presenting its practical and theoretical contributions and by highlighting the main limitations encountered during the whole path. Moreover, research is a continuous process, therefore, the conclusions presented are the starting point for future studies, which are suggested and encouraged at the end of this chapter, in order to indicate the future directions of research.

5.1 CONTRIBUTIONS

This work has been inspired by the attempt to increase the understanding of the relationship between the implementation of the Business Agility and the Smart Attitude. In order to reach this objective, this study has been pursued by combining the insights of both researchers and practitioners, which led at the formulation of the following research questions:

RQ1: Is the (Smart) Attitude of people affected by the Business Agility?

RQ2: Which of the Business Agility levers have the highest impact on the elements of the Smart Attitude?

Particularly, a complete and structured study on the levers of the Business Agility and the elements of the Smart Attitude has been performed, with the purpose to answer the above-mentioned research questions. The creation of a structured model to test the

hypotheses has been the main part in this exploratory research. As a result, a comprehensive framework to study the contribution that each lever of Business Agility has on the elements of Smart Attitude has been developed. This resulted in new insights both from the theoretical and practical perspective.

5.1.1 THEORETICAL IMPLICATIONS

This paragraph has been built on the main theoretical implications resulted from this research, in order to contribute to the existing literature on both the fields of the study.

The first theoretical contribution of this research refers to the existing gap in literature towards the impact that Business Agility has on Smart Attitude. The academic literature about this topic is very limited and fragmented, making difficult for researchers to find a key of this relationship. From the theoretical perspective, the outcomes of this investigation highlight a relevant benefit ensured by the cultural actions on each element of Smart Attitude, while structure presents a negative impact on them.

Moreover, in the attempt to answer the research questions, the study of two complex concepts, like the one considered, required specific studies of each concept. In this direction, this work makes a theoretical contribution by extending the previous literature on the concept of Smart Attitude. The academic literature about this topic is limited, making difficult for researchers to find the essence of it. Hence, the choice to perform an explorative research has been accomplished through a complete and structured study of the main variables of Smart Attitude. The result indicates four relevant elements, namely: Sense of Community; Empowerment; Flexibility; and Virtuality. Additionally, another relevant contribution towards the reference literature is the study performed on these elements with two main objectives: (i) understand if these elements were the right variables to describe the concept of Smart Attitude; and (ii) understand how it is possible to measure them, in order to further study them. These objectives have been successfully accomplished relying on the concept of soft skills. Hence, an analysis of the most acknowledged soft skills in the current workplace has been required, contributing to give clarity on a topic which is widely discussed in

literature. Finally, through the Cronbach's alpha, this research identified which of the identified soft skills were the most suitable to describe the different elements of Smart Attitude, directly linking each element to a set of skills.

On the other side, this investigation contributed to enlighten the concept of Business Agility, with particular concern for its specific levers. As the literature review demonstrated, Business Agility is a widely discussed topic which needed clarity in its main levers. Hence, the main contribution in this sense has been a structured study of the existing literature, by identifying the most suitable levers to describe this concept, namely: structure; process and practice; organizational culture and leadership; and ecosystem.

Finally, from the overall perspective, this investigation provides new directions on how to enhance the Smart Attitude of people by leveraging, in a prioritized way, on the organizational levers, emphasizing the importance of a synergic approach among them. Indeed, the results of this investigation confirmed that culture is the key lever in the organizational strategy, since it ensures the highest benefits, while positively interacting with the other levers. Emblematic is the case of the lever structure, which individually has a negative impact on each element of Smart Attitude, while when it interacts with the cultural lever makes their impact positive.

All these findings have at the same time a practical implication that will be deeper analysed in the next section.

5.1.2 MANAGERIAL IMPLICATIONS

Similarly, this paragraph has the objective to report the most insightful managerial implications emerged from this work, in order to support the organizations in the adoption and implementation of the right organizational levers.

This study highlighted that the environment where the organizations operate is characterized by high complexity and fast-changing pace, hence, in order to survive and flourish organizations are required to be more responsive to this changing context. For this reason, nowadays, the concept of Business Agility is spreading among both

practitioners and researchers. In the attempt to reach Agility, organizations are strongly committed towards a change in their organizational structure and processes, since these levers are perceived as essential to really abandon the traditional organizational models in favor of more agile ones. For this reason, nowadays the organizational focus is completely concentrated on these two levers, with the results that the cultural lever is too often given for granted and ignored. The results of this research clearly point out that this belief is not just misleading, but it is also dangerous for the organizations, since in this way organizations risk to compromise their change by leveraging on the wrong mix of levers. The findings of this research drawn a new direction, opposite than the one already crossed by the majority of the organizations: the cultural lever is the very first, and additionally the most positively impactful lever in the available portfolio of the organizations. This investigation emphasizes the relevance and priority of the cultural actions to establish a common ground of values, principles and management styles to support the adoption and implementation of the other levers.

Additionally, the wide (and keep increasing) literature available referring to new agile processes and practices (e.g. Scum, Sprint Design, Holacracy, etc.) makes organizations in a difficult position to decide which is the most suitable for them. All these approaches are complex to be implemented and are not easily adaptable to each specific case, sometimes resulting in strong side effects (e.g. resistance to the changes). This confirms the findings of this work, emphasizing the relevance of spreading the right organizational culture before focusing the attention on the other levers. In conclusion, it is possible to answer the second research question, by clearly stating that the Business Agility lever with the highest impact on the elements of Smart Attitude is the cultural one. Hence, the most important finding of this research is that the core of Business Agility does not stand in a new organizational structure or new processes or practices, but it stands in the cultural and managerial model.

This is the most relevant contribution of this research from the practical point of view, since it allows to unhinge old believes and to push organizations towards a new and clearer horizon.

5.2 LIMITATIONS

This paragraph has the aim to highlight the research limits of this work, which will be overcome by the future researches.

A first limitation can be seen in the impossibility to study a real case where all the levers of the Business Agility have been implemented in practice and on a more systematic level. Nowadays, the concept of Business Agility is concretely translated into the creation of team or areas with the specific objective to accelerate the degree of innovation and innovativeness of the organization, or even more this is still limited to the more operational level of the Software Development. Therefore, there is a lack of a more structural and systematic approach in the implementation of the Business Agility. For this reason, given the impossibility to rely on a concrete case study, this work has been built on statistical analyses on a representative sample of professionals, with all the limitations that this approach implies. Another limitation can be the fact that the survey simultaneously assesses both the level of Smart Attitude and the maturity of the organization in the implementation of the different levers of the Business Agility. It would have been better to test the level of Smart Attitude after the implementation of targeted initiatives towards the Business Agility, in order to properly catch the benefits of these initiatives. However, the main aim of this work is to explore an unexplored branch of research to establish solid bases for forthcoming studies.

Additionally, given the low reliability of the answers, it has been required to eliminate the construct “Ecosystem”. This constrained the comprehensive view of the research, limiting the study to 3 of the 4 levers identified.

A fourth limitation can be related to the necessity to “simplify” a concept which is very complex and articulated as the concept of Business Agility. The aim of this process is to allow the development of a model which reflects the concept to be tested, however this could lead to lose some information. Despite the structured and complete study of the concept, which ensured high validity of the constructs defined, this eventuality must be considered.

Another potential limit emerges in the measurement scale of the constructs of Smart Attitude. Given the novelty of the concept, there is a very limited number of papers or researches explicitly measuring these constructs, this research is based on the studies of Smart Working Observatory, which in its research already tested that this constructs effectively measure the Smart Attitude.

5.3 FUTURE RESEARCHES

In the future, researchers and practitioners with their researches can contribute to the present investigation by eliminating, or at least mitigating, the above limitations. Hence, in this paragraph the potential future directions of the research have been suggested, with the purpose to establish a solid research base. Indeed, starting from the findings, interpretations and conclusions emerged in this work, future researches can contribute towards new studies and insights both in the theoretical and practical field.

The very first future direction could be to focus on a real case of synergic implementation of the levers of the Business Agility. The study of a real case will strongly enhance the current findings, testing them on a more practical field. However, given the current scenario, where organizations are more focused just to embrace the agile values on niche part, functions or teams, this step could take some time. Another insightful research direction would be to deeper analyze the construct “Structure”, which resulted in a negative impact on each element of the Smart Attitude. At the same time, it would be necessary to deeper analyze the lever ecosystem, which need higher attention in the future researches. This will allow to check a synergic interaction between all the variables of the Business Agility on each element of the Smart Attitude, allowing new findings. Therefore, integrating the study of this lever in a new research could bring new insights on this concept.

Additionally, important source of knowledge could arrive by focusing on one lever only in order to lower the complexity of the framework and to isolate the most important specificities. In this case, the high complexity in terms of relationships and hypotheses to be tested is explained by the main aim of this exploratory research,

which was to provide a comprehensive and structured view of Business Agility, Smart Attitude and their relationship. However, new insights could arrive from the focus on few relationships per time. Moreover, another research referring at the impact that Business Agility has on Smart Attitude could take place in the following years in order to assess the maturity of each element of Smart Attitude after a concrete implementation of the Business Agility levers.

Finally, in this investigation has not been considered the relationship between Smart Attitude and performance which in this study has been assumed positive, future researches can focus in this direction in order to confirm the positive relation between them.

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OSSERVATORIO SMARTWORKING

S1. Tu sei...?

- Uomo
- Donna

S2. Qual è la tua età?

S3. Qual è la tua regione di residenza?

(20 regioni)

S4. Qual è il tuo titolo di studio? (una sola risposta)

- Master/Dottorato
- Laurea Specialistica/Laurea Quinquennale
- Laurea Primo Livello-Triennale/Diploma di Laurea
- Diploma di scuola media superiore
- Diploma di scuola media inferiore
- Licenza di scuola elementare
- Non ho conseguito nessun titolo di studio

TIPOLOGIA DI LAVORO - Screening

A TUTTI

1. Innanzitutto:

Lavoro

Non lavoro

CHIUDERE

→ RINGRAZIARE E

2. Ed in particolare sei: *(una sola risposta)*

Un lavoratore autonomo

CHIUDERE

→ RINGRAZIARE E

Lavori stabilmente per un'azienda privata come dipendente o con contratto simile

Lavori stabilmente per un'azienda pubblica come dipendente o con contratto simile

Altro e cioè _____

CHIUDERE

→ RINGRAZIARE E

3. In particolare, nell'azienda per cui lavori, tu sei... *(una sola risposta)*

Alto dirigente

Quadro/funzionario

Impiegato

Operaio specializzato

CHIUDERE

→ RINGRAZIARE E

Operaio/artigiano/agricoltore

CHIUDERE

→ RINGRAZIARE E

4. Quanti addetti lavorano nella tua azienda? *(una sola risposta)*

Meno di 10 dipendenti

CHIUDERE

→ RINGRAZIARE E

10 dipendenti ed oltre, cioè _____

5. Qual è il settore di appartenenza della tua azienda? (una sola risposta)

- Finanza/Assicurazioni** (macrosettore **F: Finance**)
- Professionisti/Studi professionali** (macrosettore **A: Altri servizi**)
- Pubblica Amministrazione** (macrosettore **PA: Pubblica Amministrazione**)
- Manifatturiero/Produzione** (macrosettore **M: Manifatturiero**)
- Pubblicità/Marketing** (macrosettore **A: Altri servizi**)
- Automotive** (macrosettore **M: Manifatturiero**)
- Media** (macrosettore **I: ICT, Media & Telco**)
- IT & Telecomunicazioni** (macrosettore **I: ICT, Media & Telco**)
- Edilizia/Costruzioni** (macrosettore **M: Manifatturiero**)
- Commercio al dettaglio e all'ingrosso** (macrosettore **R: Retail**)
- Logistica/Trasporti** (macrosettore **A: Altri servizi**)
- Istruzione/Formazione** (macrosettore **PA: Pubblica Amministrazione**)
- Sanità/Medicina** (macrosettore **PA: Pubblica Amministrazione**)
- Farmaceutico/Chimico/Biotecnologie** (macrosettore **M: Manifatturiero**)
- Agricoltura** (macrosettore **M: Manifatturiero**)
- Turismo/Hospitality/Ristorazione** (macrosettore **A: Altri servizi**)
- Immobiliare** (macrosettore **A: Altri servizi**)
- Enti/Associazioni/No profit** (macrosettore **A: Altri servizi**)
- Intrattenimento** (macrosettore **A: Altri servizi**)
- Servizi di consulenza per le aziende** (macrosettore **A: Altri servizi**)
- Utility/Energy** (macrosettore **M: Manifatturiero**)
- Altro** (macrosettore **A: Altri servizi**)

I settori vanno ricondotti nei seguenti macro settori (quote) → F: Finance; M: Manifatturiero; I: ICT, Media & Telco; R: Retail; A: Altri servizi; PA: Pubblica Amministrazione

Proseguono l'intervista: i lavoratori dipendenti con mansioni da ufficio che lavorano in aziende/PA con almeno 10 dipendenti

A TUTTI

6. Gestisci direttamente delle persone? (una sola risposta)

- No, nessuna
- Sì, ne coordino direttamente _____

SMART ATTITUDE

A TUTTI

7. **Indica in che misura sei d'accordo con le seguenti affermazioni** (ruotare le aree e gli item all'interno di ciascuna area)
 Per rispondere utilizza una scala da 1 a 10 dove 1 indica "per niente d'accordo" e 10 indica "completamente d'accordo"

Strumenti	Per niente d'accordo	2	...	9	Completamente d'accordo
Area A					
So lavorare in team mantenendo la stessa efficacia nelle relazioni tra colleghi anche lavorando da remoto	<input type="checkbox"/>				
Condivido totalmente i principi e i valori aziendali e sono coinvolto razionalmente ed emotivamente nel raggiungimento delle performance di business	<input type="checkbox"/>				
So sempre individuare velocemente i punti di riferimento interni ed esterni adeguati per creare relazioni e scambiare informazioni utili per lo svolgimento delle attività lavorative	<input type="checkbox"/>				
So sempre coinvolgere opportunamente i colleghi nelle attività da svolgere	<input type="checkbox"/>				
Promuovo sempre la motivazione dei colleghi nel raggiungere gli obiettivi comuni	<input type="checkbox"/>				
Area B					
Sono sempre disponibile a prendere delle decisioni autonomamente, anche senza richieste esplicite, quando è necessario per ottenere dei risultati o evitare/anticipare i problemi	<input type="checkbox"/>				
So organizzare sempre le mie attività e le pianifico in modo ottimale in funzione degli obiettivi finali, mantenendo una visione di medio e lungo termine	<input type="checkbox"/>				
Sono sempre propenso ad acquisire con interesse e curiosità nuove conoscenze che permettano di accrescere il mio bagaglio di competenze	<input type="checkbox"/>				
Sono sempre in grado di portare avanti le mie attività lavorative in autonomia e con piena responsabilità del raggiungimento degli obiettivi	<input type="checkbox"/>				

Area C					
So sempre far fronte ottimamente agli imprevisti sapendo riorganizzare le mie attività a seguito di difficoltà o cambiamenti, restando sensibile alle opportunità che il contesto offre	<input type="checkbox"/>				
So sempre pianificare e gestire il mio lavoro in modo responsabile tenendo conto non solo delle loro esigenze professionali ma anche di quelle personali	<input type="checkbox"/>				
So sempre reagire ed adattarmi con positività e flessibilità ai cambiamenti, siano essi imprevisti quotidiani oppure cambiamenti radicali	<input type="checkbox"/>				
So sempre gestire attività differenti coordinandomi efficacemente con il mio capo e i miei colleghi, con uno scambio strutturato di informazioni e conoscenza	<input type="checkbox"/>				
So scegliere il luogo di lavoro più efficace (quando possibile) a seconda del tipo di attività da svolgere	<input type="checkbox"/>				
Area D					
So sempre individuare e recuperare informazioni precise, e organizzarle e condividerle velocemente in rete e in community virtuali	<input type="checkbox"/>				
So sempre comunicare efficacemente, coordinare progetti attraverso l'utilizzo di strumenti digitali nel rispetto degli altri (verifica disponibilità interazioni corrette)	<input type="checkbox"/>				
So sempre come proteggere i dati aziendali sensibili, adeguando i miei comportamenti al contesto in cui mi trovo.	<input type="checkbox"/>				
Sono sempre in grado di utilizzare correttamente gli strumenti digitali nel il rispetto del work-life balance e della salute mia e delle persone con cui mi relaziono	<input type="checkbox"/>				
So sempre adattare le tecnologie e gli strumenti che uso sulla base delle mie esigenze lavorative integrando, se consentito, soluzioni professionali e consumer	<input type="checkbox"/>				