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A Configurational Approach to Enterprise Agility:
The Role of Organizational Cultural Attributes

By

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English Abstract

The global business climate has for many years been changing increasingly faster and some organizations have started to focus on becoming more agile to cope with this issue. Enterprise agility, generally defined as the ability of an enterprise to sense and respond to change timely, and appropriately, has been regarded as a core imperative for enterprise performance, efficiency, and effectiveness. The new challenge for organizations is how to cope with the unexpected environmental change.

Previous theory believed that enterprise agility is about different categories of capabilities that can enable or hinder the level of enterprise agility. However, recent research findings showed that enterprise agility depends much more on people within the organizational architecture than on hardware technologies. Moreover, developing innovation to drive agility in a company represents a challenge that starts chiefly with the people, and then translates into processes and technology. Therefore, the theory suggests that to achieve enterprise agility, it is more important to work on workforce agility and the Innovativeness inside a company.

The purpose of this research is to examine the role of organizational cultural aspects and their impact on both workforce agility and innovativeness through a configurational analytic framework. In line with this approach, we use fuzzy-set qualitative comparative analysis (fsQCA) to analyze Glassdoors data from culture 500 MIT Sloan management review. Moreover, we did the analysis for IT sector industries and other industries to examine if the IT sector companies are more agile and innovative than other industries.

Keywords: Enterprise Agility, Workforce Agility, Innovativeness, organizational culture, Fuzzy-Set Qualitative Comparative Analysis (fsQCA), Glassdoors Data.

Italian Abstract

Il clima aziendale globale è cambiato da molti anni sempre più rapidamente e alcune organizzazioni hanno iniziato a concentrarsi sul diventare più agili per far fronte a questo problema. L'agilità aziendale, generalmente definita come la capacità di un'azienda di percepire e rispondere ai cambiamenti in modo tempestivo e appropriato, è stata considerata un imperativo fondamentale per le prestazioni, l'efficienza e l'efficacia dell'azienda. La nuova sfida per le organizzazioni è come affrontare il cambiamento ambientale inaspettato. La teoria precedente riteneva che l'agilità aziendale riguardasse diverse categorie di capacità che possono abilitare o ostacolare il livello di agilità aziendale. Tuttavia, recenti risultati di ricerche hanno dimostrato che l'agilità aziendale dipende molto più dalle persone all'interno dell'architettura organizzativa che dalle tecnologie hardware. Inoltre, sviluppare l'innovazione per guidare l'agilità in un'azienda rappresenta una sfida che inizia principalmente con le persone e si traduce poi in processi e tecnologia. Pertanto, la teoria suggerisce che per raggiungere l'agilità aziendale, è più importante lavorare sull'agilità della forza lavoro e sull'innovatività all'interno di un'azienda. Lo scopo di questa ricerca è esaminare il ruolo degli aspetti culturali organizzativi e il loro impatto sia sull'agilità della forza lavoro che sull'innovazione attraverso un framework analitico configurazionale. In linea con questo approccio, utilizziamo l'analisi comparativa qualitativa fuzzy set (fsQCA) per analizzare i dati di Glassdoors dalla revisione della gestione della cultura 500 MIT Sloan. Inoltre, abbiamo effettuato l'analisi per le industrie del settore IT e altri settori per esaminare se le società del settore IT sono più agili e innovative rispetto ad altri settori.

Parole chiave: Agilità aziendale, Agilità della forza lavoro, Innovatività, Cultura organizzativa, Analisi comparativa qualitativa Fuzzy-Set (fsQCA), Dati Glassdoors.

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1 **Introduction**

In this chapter, the background of the study and the research gap is put forward. It is followed by a presentation of our research problem, purpose, and questions. The comprehensive literature review is presented in the next chapter.

The worldwide competition has for a long time been constraining organizations to cut costs and reduce expenses to have the option to survive. To cope with this, many organizations have started to focus on how to become more flexible. Volberda & Rutges (1999) define flexibility as the degree to which an organization has a variety of actual and potential managerial capabilities, and the speed at which they can be activated, to increase the control capacity of a management and improve the controllability of the organization (Volberda & Rutges, 1999, p. 101). Numerous organizations have embraced different methodologies to be flexible in order to cope with the expected environmental changes that could happen in the market. For example, numerous organizations have embraced distinctive lean methods of reasoning so as to satisfy the fluctuating need of their products or services, and examples of overcoming adversity because of leanness can be found in all sorts of enterprises (Verstraete, 2004). Flexibility can be able to cope with the expected environmental change, but what about the unexpected ones?

Enterprise agility is a strategic methodology that can be able to cope with the unexpected changes thanks to the enablers that can sense and respond to the emergency or unexpected changes and to cope with them. ''Agility is the ability to thrive in a competitive environment of continuous and unanticipated change and to respond quickly to rapidly changing, fragmenting global markets that are served by networked competitors with routine access to a worldwide production system and are driven by demand for high-quality, high-performance, low cost, customer-configured products and services (Goldman et al., 1995,

pg.277).'' Sherehiy et al. (2007) says that the concept of enterprise agility has been around for a few decades and been a main topic of research in both industry and academia due to the need for organizations to cope with unpredictable, dynamic and constantly changing environments. This is also supported by Mathiassen and Pries-Heje (2006). enterprise agility is driven by change and though change is not something new, it is now occurring more rapidly than ever before (Tseng and Lin, 2011). Enterprise agility concerns the overall firm strategy (Sherehiy, 2007), and is a shorter term for organizations ability to detect and respond to changes (Tsourveloudis and Valanvanis 2002; Overby, 2005). Overby et al. (2005, p.296) defined the notion enterprise agility as "the ability of firms to sense environmental change and respond appropriately". This importance of achieving high enterprise agility has come to the notice of many organizations worldwide. For instance, in a 2006 McKinsey Quarterly global survey of 1562 executives, almost nine out of ten responders stated that agility is either extremely- or very important to business performance and 91% thinks that the importance of agility and speed has increased in the past five years (The McKinsey Quarterly, 2006). BCG argues that agility is the new competitive advantage (BCG, 2011). Microsoft Executive Leadership Series publishes books for executives, and in 2009 they published the book "Business Agility: Sustainable Prosperity in a Relentlessly Competitive World" (Hugos, 2009). Based on a large study by Phillips and Wright (2009), the agility revolution is also highly present in the financial service business. Kodak is a recent example of a former successful organization that lacked the ability to adapt to the changing environment, which have led to the company filing for bankruptcy protection (Bloomberg, 2012). Another example is Facit AB, a mechanical calculator manufacturer who did not manage to adapt to the changes in technology, and finally was liquidated (Petersson, 2003). In a huge survey among Swedish chiefs, made by a Swedish IT-and the

board consultancy firm, agility was expressed by a greater part to be one of the most significant variables for their association later on. With this study as a background, the consultancy firm has requested that we build up an enterprise agility assessment tool, which will have the option to introduce an outcome that can serve as a discussion platform when meeting executives of potential customers. The tool ought not be attached to a specific kind of organization or industry (i.e., it ought to be generic).

Considering enterprise agility is an overall strategy of the company, there are enablers or even could be disablers/hinders for enterprise agility, which enable/disable the ability to sense and response to a change or to hinge it. The challenge is to understand the agility enablers, apply it, and to know the main variables of each enabler that can affect and enable the enterprise agility. IT, strategic variables, organizational architecture (process and personnel), and others are considered the main enablers/disablers for enterprise agility. We will go in deep in each factor in details in the literature review, but we mention it here in order to highlight some of the gaps we have found in the literature of enterprise agility.

There are some gaps we have found in the literature on enterprise agility. We will mention all of them and in some details in the literature review, then we will focus on specific gap for the research objective.

Firstly, the workforce agility and level of innovation required to achieve enterprise agility. Theory claims that the level of novelty innovation and workforce agility described by employees' attitude within a firm is the main enabler for enterprise agility. They believe that people and the Innovativeness are key enablers of agility and more important than other enablers. Previous theory believed that enterprise agility is about different categories of capabilities that can enable or hinder the level of enterprise agility. However, recent research

findings showed that enterprise agility depends much more on people and the organizational architecture than on technologies. An agile organization, of course, requires an agile workforce (Breu, Hemingway, & Bridger, 2002; Muduli, 2013). Moreover, developing innovation to drive organizational agility in a company represents a challenge that starts chiefly with the people, and then translates into processes and technology. Developing innovation to drive organizational agility in a company represents a challenge that starts chiefly with the people, and then translates into processes and technology (Ciro Pérez, 2018). To match the accelerating speed with which firms' market sectors are changing, companies must take a broader approach to becoming innovative. Therefore, theory suggest that in order to achieve enterprise agility, it is more important to work on workforce agility and the Innovativeness inside a company. Therefore, it is fruitful to analyze the effect of different agility attributes on the level of workforce agility and Innovativeness.

Secondly, there is a confusion in the definition of enterprise agility. There are similar concepts that cannot be considered enterprise agility such as flexibility, dynamic capabilities, market orientation, etc. There is no commonly accepted definition of EA, and there are many opinions concerning the meaning of this term. Currently, all three terms: adaptability, flexibility, and agility are used in the research on how an organization can cope with unpredicted and dynamically changing environments. There is by far no consensus as to what exactly agility is, nor on how to assess and achieve agility.

Thirdly, the need of agility. Creating and maintaining these capabilities is a costly proposition, so it is important to consider the contexts in which agility is needed and those in which agility may represent a waste of resources.

Fourthly, Enterprise agility has both analytical and intuitive sides. There are a lot of

attributes of enterprise agility. Although the main elements and concepts of enterprise agility has been identified, there is still no systematic tool to unite these concepts together and the link among them still cannot be considered clear. There is still no framework or guidance to analytically claim that the link and the interrelationship among the enterprise agility concepts and enablers are well-aligned. Also, there is no evidence to claim which enabler is more effective than another in order to response to main agile driver. Tsourveloudis and Valavanis (2002) noted that the agility metrics is difficult to develop due to the multidimensionality and fuzziness of the agility concept.

Last but not least, how to apply agility? What are the main variables that affect the level of enterprise agility? We need to understand the main variable of each enabler/disabler factors that can affect the level of agility. For instance, in the literature review, Sharifi and Zhang (1999) claimed that the organizational architecture (process and personnel) is one of the main enabler/disablers of enterprise agility.

The research problem and the purpose of this study is that instead of focusing on each unique attribute effect on agility while holding all other factors constant, we show how organizational culture elements combine into multiple configurations in different ways to achieve each type of agility. Furthermore, we examine the effect of the organizational culture elements on agility through two different industry sectors, IT sector and any other sectors.

2 Literature review

In this chapter we will discuss the main sections of the literature review in detail and we will highlight and discuss the primary doubts of each section that will give a comprehensive and detailed knowledge for the research purpose.

First of all, we start with an explanation of the market turbulence nowadays and how this turbulent business environment affects companies and request them for a change. Then, will come the rule of enterprise agility. We explain the definition and the meaning of the enterprise agility term in deep as well as a framework that describe how it works. After this, we explain the difference between enterprise agility and similar concepts as agility builds upon other concepts in management theory that pertain to firm success in turbulent environments in order to clarify what exactly the definition of the concept that we will built all the research on.

After that, we will illustrate one of the most common enterprise agility frameworks to show all elements that forming enterprise agility and illustrate components that have direct impact on agility. There are three main categories that form the framework of enterprise agility. These three components are: (1) the agility drivers, which refers to the unexpected environmental changes that require the firm to be agile, (2) the agility gaps, which refers to the gap between how agile the firm is and how agile it should be to cope with the change, (3) the agility enablers, which refer to the capabilities that a firm can have in order to cope with the change and enable the agility. The enablers are many, we will illustrate each on of them in detail because this chapter will lead to the main research problem we address.

The literature review ends with the research question and how we will go through it in order to answer the question through Qualitative Comparative Analysis.

2.1 Definition of enterprise agility

As strategic and operating conditions become progressively fierce due to components, for example, hyper-rivalry, expanding demands from clients, administrative and regulatory changes, and technological headways, the ability to sense pertinent change and react promptly turns into a significant determinant of firm achievement. The term 'agile' is commonly used to describe firms that are able to adapt to and perform well in rapidly changing environments (Dove, 2001; Weill et al., 2002; Sambamurthy et al., 2003; Gartner, 2004).

Enterprise agility is defined as the ability of firms to sense environmental change and respond readily (Eric Overby et al *2017)*. Enterprise agility consists of two main components: sensing the environmental changes and responding to it. Dove (2001) referred to the responding component as 'response ability', which he defines as the physical ability to act, and to the sensing component as 'knowledge management', which he defines as the intellectual ability to find appropriate things to act on. We take into consideration the environmental change to encompass changes precipitated by competitors' actions, consumer preference changes, regulatory or legal changes, economic shifts, and technological advancements. There are similar definitions of enterprise agility:

Table 1 Similar definitions of enterprise agility

''Agility is the ability to thrive in a competitive environment of continuous and unanticipated change and to respond quickly to rapidly changing, fragmenting global markets that are served by networked competitors with routine access to a worldwide production system and are driven by demand for high-quality, high-performance, low cost, customer-configured products and services (Goldman et al., 1995, pg. 277).''

‘‘Agility is primarily concerned with the ability of enterprises to cope with unexpected changes, to survive unprecedented threats from the business environment, and to take advantage of changes as opportunities (Sharifi & Zhang, 2000, pg.8).’’

‘‘The ability of an organization to thrive in a continuously changing, unpredictable business environment (Dove, 2001, pg.4).’’

‘‘The ability of an enterprise to develop and exploit its inter- and intra-organizational capabilities (Hooper et al., 2001, pg. 7).’’

‘‘Agility is the successful exploration of competitive bases (speed, flexibility, innovation pro-activity, quality, and profitability) through the integration of reconfigurable resources, and best practices in a knowledge-rich environment to provide customer-driven products and services in a fast-changing market environment (Ramasesh et al., 2001, pg. 22).’’

‘‘Agility is the continual readiness of an entity to rapidly or inherently, proactively, or reactively, embrace change, through high quality, simplistic, economical components, and relationships with its environment (Conboy & Fitzgerald, 2004, p. 37).’’

Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017 in their published paper titled as "Enterprise agility and the enabling role of information technology" mentioned a framework explaining the sensing and responding capabilities of enterprise agility with a description for each case according to the level of sensing capabilities and responding ones. The framework that is shown in Figure 1, consists of a 2×2 matrix with sensing capability on the x-axis and responding capability on the y-axis. Each cell contains a stylized profile of a firm that displays the relevant combination of sensing and responding capabilities.
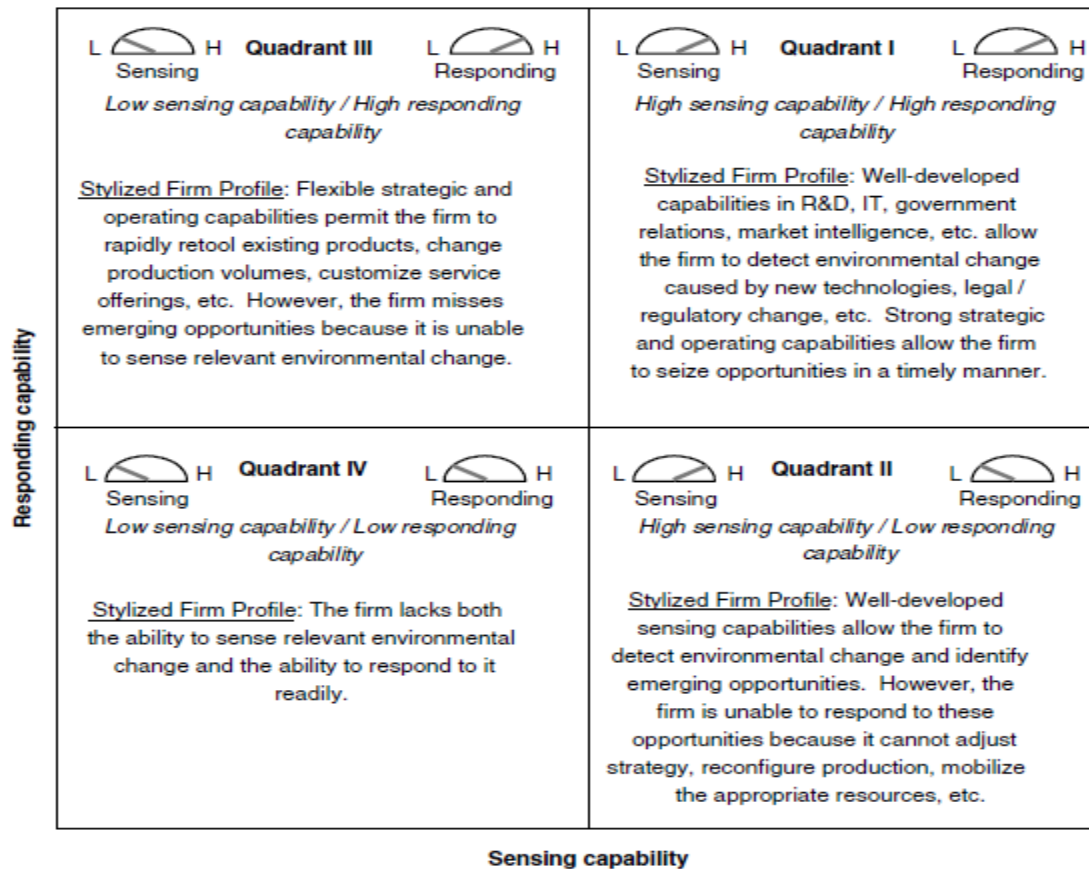
Figure 1 Framework of different combinations of sensing and responding capabilities (Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017)

This lack of a sensing capability may be due to several factors. For example, Lack of integration may hinder information flows within a firm, Over-reliance on outsourced providers may cause firm expertise in the outsourced area to atrophy, making it difficult to sense environmental change, and Competitive complacency may cause firms to become comfortable in their current strategic positions, causing them to ignore signals of change. This lack of a responding capability may be due to several factors. For example, Unnecessary bureaucracy or 'analysis paralysis', Risk aversion may cause firms to pass on an opportunity, Poorly integrated processes may slow down product development, and Agency problems may create incentives for managers to fail to act on opportunities that would be beneficial to the firm as a whole.

Positioning organizations into the framework: organizations are showing various cases of

sensing and responding capabilities in a particular context. Furthermore, it is feasible for organizations that have the sensing and responding capabilities to help and support enterprise agility to act in non-agile ways in a particular situation. The missed chances do not make it a non-agile organization. Accordingly, enterprise agility is best conceptualized as a matter of degree and not an on/off suggestion.

The need of Agility: Numerous operating and strategic capabilities support enterprise agility. Making and keeping up these capabilities is a costly proposition, so it is imperative to take into consideration the contexts in which agility is required and those in which agility may represent a waste of resources. It follows that enterprise agility is probably not going to be required and may represent wasted resources in stable situations.

2.2 Distinction from similar concepts

Agility builds upon other concepts in management theory that pertain to firm success in turbulent environments, including dynamic capabilities (Teece, 1997), strategic flexibility (Ansoff, 1980; Hitt et al., 1998), market orientation (Kohli & Jaworski, 1990; Narver & Slater, 1990), and absorptive capacity (Cohen & Levinthal, 1990; Zahra & George, 2003). Nonetheless, enterprise agility is particular from these ideas in significant ways.

(1) Dynamic capabilities are a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997). An essential principle is that organizations should constantly adjust their capabilities so as to look after competitiveness (and maybe competitive advantage.). Despite the fact that the idea of dynamic capabilities shares a significant number of similar ideas to enterprise agility – especially its pertinence to rapidly changing conditions – dynamic capabilities is a lot more extensive idea. The dynamic capacities idea is pertinent to a wide range of

firm processes, though enterprise agility incorporates just those processes significant for sensing and responding to environmental change. As it were, enterprise agility can be thought of as being empowered by a particular subset of dynamic capabilities.

(2) The market orientation of a firm is reflected in the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it (Kohli & Jaworski, 1990). Market intelligence incorporates data and information about clients, competitors, and different factors, for example, innovation and administrative turns of events. In that capacity, the market orientation concept incorporates the entirety of the drivers of 'environmental change' included in the definition of enterprise agility. Additionally, the two concepts unequivocally incorporate responsiveness to market intelligence and environmental change. Nonetheless, there are slight contrasts between the two ideas. For instance, market orientation is vigorously established in information processing: information is collected, dispersed across departments, and followed up on. On the contrary, enterprise agility is not as dependent on information processing. It is workable for organizations to act with agility without spreading information across departments. Likewise, it is conceivable that spreading information across departments may really defer reaction "response" and make organizations less agile.

(3) Absorptive capacity is a set of organizational routines and processes by which firms acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability (Zahra & George, 2003). The obtain and assimilate measurements of absorptive capacity allude to organizations' ability to gather and comprehend externally generated knowledge. This is like the sensing component of enterprise agility. The change and transform measurements are like the responding

component of enterprise agility in that they relate to organizations' ability to utilize the recently gained and acclimatized knowledge. The primary contrast absorptive capacity and enterprise agility is that absorptive capacity alludes dominatingly to organizations' ability to oversee information and manage knowledge (i.e., by procuring, absorbing, changing, and exploiting it), while enterprise agility alludes prevalently to organizations' ability to oversee change (i.e., by sensing and responding to it.). Therefore, enterprise agility is best seen as applying to long-winded and episodic occasions accelerated by environmental change, while absorptive capacity works on a more persistent basis.

(4) Flexibility is about the degree to which a firm has a variety of actual and potential managerial capabilities, and the speed at which they can be activated, to increase the control capacity of a management and improve the controllability of the organization' (Volberda & Rutges, 1999). Volberda (1997) distinguishes three types of flexibility:

a- Operational flexibility: reactive routines to familiar changes based on existing structures or organizational goals.

b- Structural flexibility: the capacity of the management to adapt its decision and communication processes within a given structure as well as the rapidity by which this can be accomplished.

c- Strategic flexibility: the capacity of the management to react in unstructured non-routine unfamiliar changes that have far-reaching consequences and need quick response. strategic flexibility applies to sensing and responding capabilities for specific processes and only operational issues, while Enterprise Agility applies to sensing and responding capabilities for the entire firm both in terms of strategic and operational issues.

To a huge degree (operational and structural) flexibility can be designed into a firm's processes and IT frameworks. In different cases, changes can emerge all the more out of the blue and require a reaction that is probably not going to be predetermined. Having the ability to act rapidly both on the strategic and operational level to such unpredictable changes requires another degree of flexibility, which we allude to as agility. Thus, agility can be believed to encompass and expand the concept of strategic flexibility.

To summarize: there is no commonly acknowledged definition of enterprise agility and there are numerous opinions concerning the definition of this term. As of now, every one of the three terms: "adaptability", "flexibility", and "agility" are utilized in the research on how firms can adapt to unpredicted and progressively evolving situations. there is by a long shot no agreement or consensus with respect to what precisely agility is, nor on how one could assess and accomplish agility.

2.3 Enterprise agility frameworks

In this section, we will discuss different conceptual frameworks in order to analyze enterprise agility in detail and underlying elements are explained that we built our research on. Firstly, we will discuss the framework of Marcel van Oosterhout, Eric Waarts & Jos van Hillegersberg (2017) (see figure 2), and simultaneously we will discuss similar frameworks to see a comprehensive view. Figure 2 shows Research model for studying business agility (Marcel van Oosterhout et al 2017). It consists of three inter-related elements:

(1) Change factors requiring agility: These are internal or external factors influencing the required level of business agility. In this model, they have identified six categories of change factors requiring agility. These factors require businesses to adjust.

(2) Agility gaps: Agility gaps arise when the firm has difficulty in meeting the required level of

agility (for a specific change factor) for changing from one state to another in a timely and cost-effective manner.

(3) Agility enablers and disablers: Agility enablers and disablers are the reasons behind the existence or nonexistence of agility gaps. They are the means or barriers for a business to enhance business agility. In this model the enablers and disablers are organized in six categories. Factors that are taken into account are the general external environment factors (Politics, Economics, Society, and Technology) and Goldman's et al. (1991) four key agility dimensions: Cooperating to Enhance Competitiveness, Enriching the Customer, Mastering Change & Uncertainty and Leveraging the Impact of People and Information. In addition, in line with Yusuf et al. (2004), Van Hoek et al. (2001) and Mason-Jones & Towill's (1999) they explicitly regard companies not as isolated entities, but as part of a business network that affects the level of agility of the individual company. A business network-wide strategy to cope with turbulence in the business environment is considered eminent for all parties in the network. Therefore, they have added the business network dimension to the original model of Sharifi & Zhang (1999) via two enabling factors (business network governance and business network architecture).
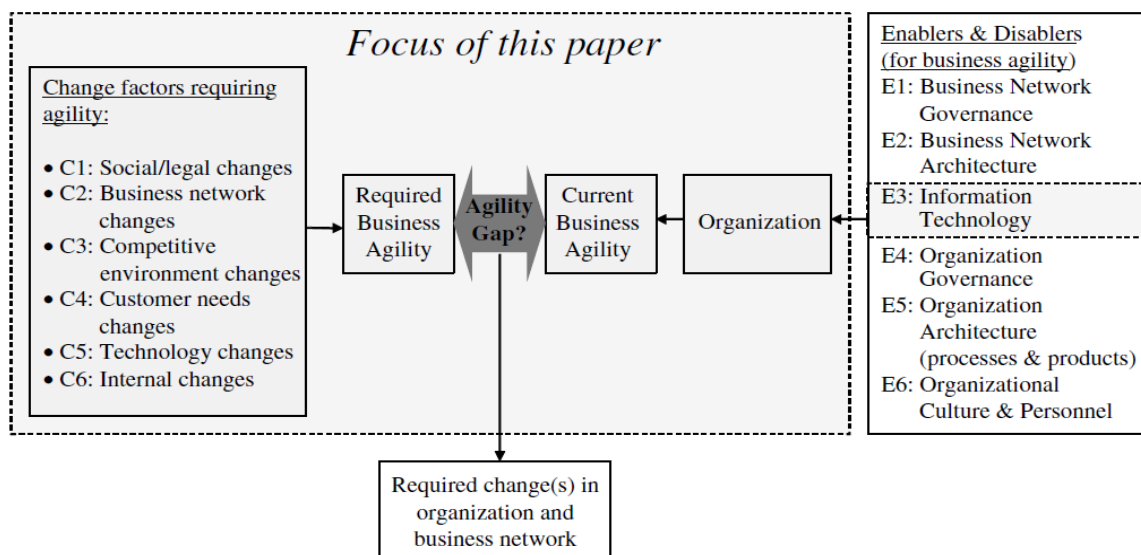
Figure 2 Research model for studying business agility (Marcel van Oosterhout et al) 2017

2.3.1 Change factors requiring enterprise agility

It is also known as "agility drivers". These are internal or external factors affecting the required level of enterprise agility. In this model, there are six identified categories of change factors requiring agility. These factors require businesses to adjust in order to sense and cope with the unexpected environmental change. In the following table 2, there are some examples of change factors requiring agility. (Change factors requiring agility and implications for IT by Marcel van Oosterhout, Eric Waarts & Jos van Hilslegersberg 2017).

Table 2 Overview of potential external and internal change factors requiring agility "adapted from Marcel van Oosterhout et al 2017"

Change factor Related literature references	Category Examples of change factors requiring agility	Related literature references
C1 Social/legal	• Deregulation	D'Aveni (1999)
	• Legal/political pressures	Gartner Research (2003)
	• Increased need for financial transparency (e.g. IFRS)	Sharifi & Zhang (1999)
	• Environmental changes and emergencies/disasters	Kaptein & Wempe (2002)
C2 Business network	• Competitors' mergers in the market	
	• Takeovers by competitors	Porter (1980)
	• Consolidations in the business network	Van Weele (2001)
	• Partnerships and collaboration between competitors	Best (2001)
C3 Competitive environment	• Increasing pressure on cost in the market	Porter (1980)
	• Responsiveness of competitors to changes	Sharifi & Zhang (1999)
	• Increasing rate of change in product models and	Swafford (2003)
	product lifetime shrinkage	Volberda (1999)
	• Threat of entry of new players	Goldman et al. (1995)

C4 Customer needs	• Demand for customized products and services • Need for quicker delivery time and time to market • Increasing expectation of quality • Sudden changes in order quantity and specification • Fundamental shifts in customer tastes	*Goldman et al. (1995)* *Sharifi & Zhang (1999)* *Da Silveira et al. (2001)* *Swafford (2003)* *Maskell (2001)* *Robben & Overstr. (1999)*
C5 Technology	• Introduction of wireless connectivity • Emerging technologies to easily connect to partners' information systems (applications integration / middleware / messaging) • Increasing number of viruses	*Swafford (2003)* *Gartner Research (2003)* *Vervest & Dunn (2000)*
C6 Internal	• Implementation of a new performance management system • Restructuring of internal IT systems and support • Internal strategy to be active in M&A	*Gartner Research (2003)* *Simon (2000)*

The general change areas in a business environment sorted as market unpredictability brought about by development and growth in the market niche, expanding the introduction of new products and product life, exceptional rivalry brought about by quickly evolving and changing markets, pressure from expanding costs, worldwide and international competitiveness, Internet use, and short development time for new products or services, changes in client requirements brought about by requests for customization, expanded expectations regarding quality, and faster delivery time, quickening innovative and technological changes brought about by the introduction of new and efficient production facilities and system incorporation, and changes in social variables brought about by environmental protection, workforce/work environment desires, and legal pressure.

2.3.2 Agility gaps

Agility gaps emerge when the organization experiences issues in meeting the necessary degree of agility (for a particular change factor) for changing starting with one state then onto the next in a timely and cost-effective way. Van Oosterhout, Waarts and van Hillegersberg (2017) have identified in their paper (Change factors requiring agility and implications for IT) have identified generic agility gaps that required enterprise agility. These generic gaps are the common ones in all sectors based on their average agility gap ratio. Change factors requiring agility that have a high probability of fundamental changes (score 4 or 5) and a high difficulty to cope with (score 4 or 5) create an agility gap. Here is the method they proposed to measure the agility gaps:

$$\text{Agility gap ratio}_i = \left[4 \times \left\{ \frac{\sum_{j=1}^{m}\left(\frac{\sum_{k=1}^{1}{}^{\text{pijk}}}{l}\right)}{m} \right\} . \left\{ \frac{\sum_{q=1}^{mt}\left(\frac{\sum_{r=1}^{S}{}^{e_{iqr}}}{l}\right)}{t} \right\} \right] \%$$

With the following meanings:

Table 3 meanings of agility gap ratio factors (Marcel van Oosterhout, Eric Waarts & Jos van Hillegersberg 2017)

p_{ijk}	The probability of business change, as indicated by respondent k, from company j, referring to change factor I (only non-blank answers have been taken into consideration).
e_{iqr}	The difficulty to achieve business change, as indicated by respondent r, from company q, referring to change factor i (only non-blank answers have been taken into consideration).
i	The change factor requiring agility concerned.
j	The company of the respondent who responded to the survey.
k	The individual respondent from company j.

l	The number of respondents from company j.
m	The number of responding companies.
q	The company of the respondent who responded to the survey with one or more individual respondent scoring p_{ijk} (the probability of business change on change factor i) with a high score of 4 or 5 (only if the probability of business change scored 4 or 5 a question was posed to the respondent about the difficulty to cope with this business change).
r	The individual respondent from company q scoring p_{ijk} (the probability of business change on change factor i) with a high score of 4 or 5.
s	The number of respondents from company q scoring p_{ijk} (the probability of business change on change factor i) with a high score of 4 or 5.
t	The number of responding companies with an individual respondent scoring p_{ijk} (the probability of business change on change factor i) with a high score of 4 or 5 (only if the probability of business change scored 4 or 5 a question was posed to the respondent about the difficulty to cope with this business change) (in case of a high agility gap ratio m=s).

In the next figure, you can find the most common 15 generic agility gaps found in all sectors by (Marcel van Oosterhout, Eric Waarts & Jos van Hillegersberg 2017). (see figure 3). Those generic agility gaps are considered as the main unexpected change factors that organizations' struggle to cope with and that is why they need to adapt enterprise agility strategy in order to be able to overcome the turbulent environment and survive in the market. The enterprise agility strategy requires adaptation of what is so called agility drivers that can be enabler or disabler for enterprise agility. The ratio of the agility gap may change in case of measuring the agility gap for specific sector. The ratio of the generic agility gaps is the average of the overall sectors.

Change factors requiring agility

Change factor	Agility Gap Ratio
Emerging price war (market focused on price) and Shrinking margins (C3).......................................	66%
Dropping levels of return on investment (C6).........	61%
Increasing time & money spent on maintenance & support of existing ICT infrastructure (C6)............	57%
Need for lower priced products and or services (C4).	56%
Major organizational change / merger / .... acquisition (C6)	54%
Increasing need to connect to customers' information systems (C5)...	52%
Dropping levels of customer loyalty (C4).............	52%
Increasing need to improve IS security (C5).........	51%
Increasing need to decrease delivery time (C4)......	50%
Need for quicker response to customer service requests (C4)...	49%
Need to be able to switch more easily between suppliers of products & services (C4)...............	47%
Increasing introduction of substitute products & services (C3)............................	46%
Need for multi-channel any time any place access to products & services (C4)............................	46%
Shortening of product lifecycle (C3)..................	46%
Shortening of competitors time to market of new products & services (C3)...............................	46%

Figure 3 Overall agility gap top 15 (Marcel van Oosterhout, Eric Waarts & Jos van Hillegersberg 2017)

2.3.3 Enabler/disabler "capabilities" of enterprise agility

Agility enablers and disablers are the purposes for the presence or nonexistence of agility gaps. They are the methods or hindrances for a business to improve business agility. In this model, the enablers and disablers are composed in six categories. We will discuss each of them in detail and show which enablers theory suggests acting and investing on more than others to achieve high level of enterprise agility.

2.3.3.1 Business Network Structure

Some of the above studies center solely around the impact of external resources and capacities inborn in supply chain partners accomplices as opposed to considering the impact of the whole organization structure on enterprise agility and firm performance. However, the network perspective demonstrates that firms could exploit their network structure to acquire more diverse and reliable avenues for external critical and valuable resources and capabilities (McEvily and Marcus, 2005; Zaheer and Bell, 2005; Gnyawali and Madhavan, 2001; Van Wijk et al., 2008). In addition, it also asserts that a firm's embeddedness in the network has a significant impact on firm performance (Koka and Prescott, 2008; Zaheer and Bell, 2005; Gulati et al., 2000). A company's network structure is viewed as an indicator of this resource store that controls the quality and amount of admittance or access to external resources through organizational network ties. The evidence of empirical studies shows that a superior network structure has significant implications for the enhancement of a firm's performance, attributed to the context in which firms could acquire access to external resources through their network relationships and so integrate them with internal resources to generate additional benefits (Zaheer and Bell, 2005). In this way, it is imperative to investigate explicitly how a network structure and its factors impact a company's performance.

The first element of network structure is a structural hole. A firm occupying structural holes in the network can create better social capital and then enhance its competitive advantage, thus improving firm performance (Burt, 1992, 2001; McEvily and Zaheer, 1999; Shipilov, 2009). The basic component of a

structural hole is that organizations in a network with rich structural holes can exploit benefits emerging out of controlling and expediting diverse resources and data among various detached gatherings across structural holes. All the more explicitly, organizations bridging structural holes may have more chances to have an inadequate network or approach various data or resource content. Accordingly, these organizations are bound to have extra advantages than others, since they have higher resource volume, non-repetitive resource sources, and various resource content. In entirety, organizations with a bridging position give themselves wide resource access and a controlling advantage to boost their social capital and performance.

Another network structure element is network closure, proposed by Coleman (1988). The network with closure is regarded as a source of social capital and firms benefit from it as it is attributed the norms and sanctions of the network. By this mechanism, firms could decrease the opportunism of alliance partners and increase the sharing mechanism among partners to obtain reliable resources early (Coleman, 1988, 1990). Having senior and superior network closure could assist organizations with pursuing profits by two viewpoints. One is that network closure advances the amount of admittance to external resources just as information. The acquirement of potential data dwelling in alliance partners in the network is a significant asset of social capital. The subsequent angle is the quality of external resources. An organization could encourage norms and sanctions created from the network to reduce allies' advantages and to advance trust, correspondence, and aggregate solidarity among partners. In particular, a significant level of trust, correspondence, and aggregate solidarity imply the

presence of dependable exchange relationships and shared understandings between the partners, which help organizations to acquire higher-quality and reliable external resources and information. In this manner, a firm with a predominant network closure could have different and qualified admittance to external resources and information that help it in reducing the expenses of searching resources and settling on right administrative and managerial decisions and investments that thusly support consequential social capital and organization performance.

2.3.3.2 Information Technology & Business Network Architecture

Several organization capabilities empower and enable the sensing and responding components of enterprise agility, including market intelligence, production, supply chain, and resource usage. This section centers around a particular enabler of enterprise agility: IT. IT plays an important role in enabling the sense and responding capabilities of firms (Bradley & Nolan, 1998; Weill & Broadbent, 1998; Sambamurthy et al., 2003) in two ways: directly and indirectly through the creation of digital options.

As a direct effect: In specific contexts, an organization's IT capability is directly identified with both the sensing and responding components of enterprise agility. Concerning sensing, firms must have a satisfactory level of IT capability to have the option to sense changes relevant to their business that are achieved explicitly because of advances in IT. Concerning responding, IT capability is basic for reacting and responding to chances in IT-driven businesses. IT capability is additionally significant for firms in different industries who depend on IT to support clients' and suppliers' channels. As the volume of data and

information that organizations need to process exceeds human ability to handle it, IT frameworks empower firms to bode well out of what might somehow overpower them. Correspondingly, responses in modern situations are regularly excessively complex for timely execution without such IT support as communication infrastructure and automation.

As an indirect effect: While the direct relationship between IT and agility is important, the indirect relationship may be even more pronounced. Much of the business value of IT stems from its complementarities with business processes (Barua et al., 1995). Theory suggests that IT indirectly supports agility by providing firms with digital options (Sambamurthy et al., 2003), which are defined as a set of IT-enabled capabilities in the form of digitized work processes and knowledge systems. An essential reason of this hypothesis is that IT improves the reach and richness of a company's information, knowledge, and its processes. Improvements in the expansiveness of resources (reach) and quality of information (richness) accessible to a firm improve its capability to sense and respond to unexpected environmental change, accordingly, making it more agile. The concept of 'digital options' encapsulates this ability of IT to make firms more agile (Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017). The term 'options' is used since a firm may apply its IT-related capacities to developing opportunities, or they may stay unused, contingent upon the company's condition and strategy. Figure 5 (Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017) represents how IT gives firms digital options and how these options improve enterprise agility. Figure 5 also shows the direct relationship between enterprise agility and IT depicted previously.

Figure 4 Relationship between IT, digital options, and enterprise agility (Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017)

In figure 4, it is shown the relationship between digital options and the enterprise agility framework. The framework maps firms' knowledge and process-oriented IT capabilities to the enterprise agility framework and illustrates the concept of instability in the digital options platform. (Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017).
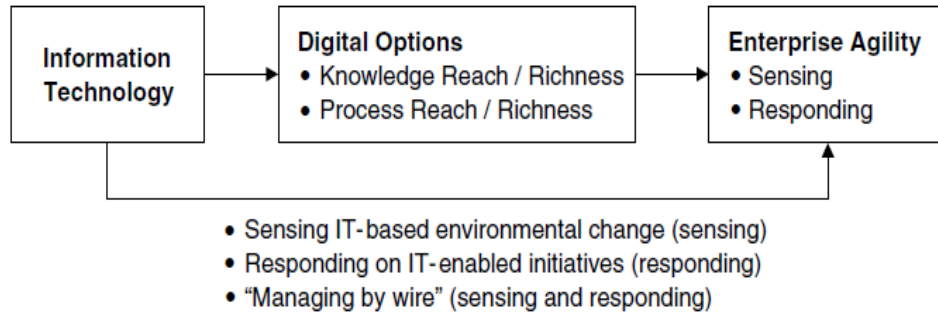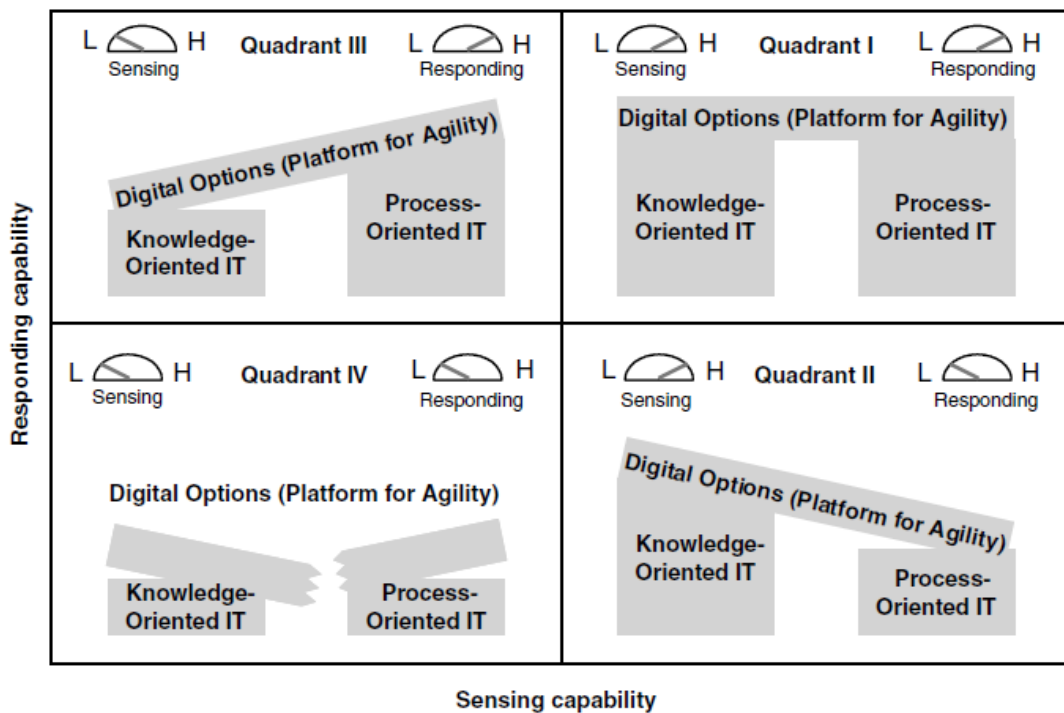

Figure 5 Relationship between digital options and the enterprise agility framework (Eric Overby, Anandhi Bharadwaj & V Sambamurthy 2017).

IT might hinder enterprise agility. Depending on how it is conveyed and overseen, IT might really hinder enterprise agility. For instance, rigid IT

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architectures may hinder agility by restricting the scope of responses accessible to a firm. Such structures may make it hard for the organization to alter processes to evolving conditions, making significant expenses when the organization tries to seek after new strategies. Different systems may restrict information visibility by storing information in manners that make it hard to recover and interpret. Likewise, a few systems may restrict process reach by being inconsistent with systems embraced by customers and suppliers. These issues, nonetheless, are not endemic to IT all in all, although some might be reflective of early ages of IT (e.g., rigid, incompatible.).

Rather, these issues come from inappropriate investment or interest in or its management of IT, similarly as issues may originate from wrong investment or interest in or management of other firm resources, for example, HR or manufacturing equipment. This points out the significance of firm-level IT arranging, planning, execution, support, and maintenance.

IT may also hinder enterprise agility as changing requirements may take long to execute and inadequate IT spending stays to be spent on advancement and innovation. Attributable to the presence of inflexible legacy IT systems, an expanding and increasing amount of time and cash should be spent on systems maintenance and support. Some agility gap can be directly contributed to inflexible and IT architectures. The IT departments were used to a steady and stable environment and responded to the new prerequisites by hiring enormous quantities of consultants. In any case, the change to a project organization and the frequently huge contrasts in culture of the internal and external employees caused impressive troubles in many cases. Everything of these levels require to

help coordination and fast connect and fast disconnect abilities to external partners.

On the lower infrastructure level, agility can be incorporated based on the idea of organic IT. Forrester defines organic IT as 'computing infrastructure built on cheap, redundant components that automatically shares and manages enterprise computing resources – software, processors, storage, and networks – across all applications within a data center.' At the organizational level, with agile one should not think of complete freedom to decentralized departments and business units to build or buy whatever system they need, nor of a rigid centralized system and inflexible IT department.

2.3.3.3 Organization Governance

Corporate governance alludes to the systems sets, standards, and processes that an organization is represented. They give the rules with regards to how the organization can be coordinated or controlled with the end goal that it can satisfy its objectives and targets in a way that adds to the value of the organization and is likewise gainful for all stakeholders in the long term. Governance structures and standards distinguish the distribution of rights, responsibilities, and obligations among various members in the corporation, (for example, managers, board of directors, creditors, shareholders, auditors, regulators, and other stakeholders) and include the principles, rules, and procedures for decision making for corporate issues.

Corporate governance is fundamental as a result of the possibility of conflicts circumstances and interests between stakeholders, principally among

shareholders and upper management, or among shareholders. Corporate governance combines the processes by which companies' objectives are set and searched after concerning the social, administrative, market condition, and economic situation. These incorporate checking the activities, strategies, policies, practices, and decisions of organizations, their agents, and influenced stakeholders. Corporate governance practices can be viewed as endeavors to adjust the interests of stakeholders.

ISO 26000, claims corporate governance as "a system that a firm makes and implements decisions in quest for its goals." In other words, corporate governance drives the agile organization.

Corporate Governance Principles are: Rights of shareholders: for example, convey or transfer shares and obtain relevant information on the corporation on a regular basis. Interest of stakeholders: social and market-driven obligations stakeholders for example employees, Investors, Creditors, Suppliers, communities, Customers, etc. Thus, corporate governance should encourage active cooperation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises. Role and responsibilities of the board: The board needs sufficient relevant skills and understanding to review and challenge management performance. In particular, the company should fulfill certain key functions, for example, setting performance objectives and overseeing major capital expenditures, acquisitions, and divestitures. Integrity and ethical behavior: Integrity should be a fundamental requirement in choosing corporate officers and board members. Organizations should develop a code of conduct for their directors and

executives that promotes ethical and responsible decision making. Disclosure and transparency: Disclosure of materials matters concerning the organization should be timely and balanced to ensure that all investors have access to clear, information Disclosure.

By definition and illustration, corporate governance is a main element that may enable or hinder enterprise agility. Rigid corporate governance hinders enterprise agility and increase bureaucratic issues. Also, it may open a room for opportunistic behavior among managers, BODs, or stakeholders that will negatively affect the business agility and the firm performance.

2.3.3.4 Organization Architecture (processes & products)

Organizational architecture has two totally different definitions. In one hand, it alludes to the organization's-built environment and in the other hand, it alludes to architecture figuratively, as a structure which fleshes out the organizations.

Organizational Architecture is "a theory of the firm, or various firms that incorporates the human actions and capital resource usage inside a structure of assignment allocation and coordination to accomplish wanted results and performance for both the short and strategic long run. The present perplexing, dynamic, and profoundly interconnected worldwide economy has made the capability to design and redesign organizations basically significant. In spite of the expanding significance and relevance of organizational design, organizational theorists have headed for focusing on descriptive and explanatory organizations instead of theories of design that anticipate and prescribe. By not focusing in adequately on anticipation and prescription, the field of organization

theory has failed to convey bits of knowledge that can illuminate practice and guide change for wanted results and performance. Organizational theory is significant for the design knowledge base, yet it is deficient in content and generally quiet on the process of design and change. Organizational architecture, then again, depends on the reason that new theoretical and empirical knowledge can be utilized to improve organization function and performance.

As a short review of the agility definitions shows, this idea contained the two qualities of adaptability and flexibility. It appears to be that these two terms speak to the advancement of the possibility of the organization that can change. The agile organization may illustrate the most recent phase of advancement of this concept, which could join exceptionally significant ideas from the adaptive and flexible organization concepts. Despite the fact that, concentrates on agility use a few thoughts and practices identified with the adaptive and flexible organization, numerous significant improvements on this subject from the organizational and the management field were neglected. So as to explain the agility concept and to categorize the huge, assorted variety of strategies, procedures, and practices that are referenced in the writing as components of agile enterprise need to have their roots examined. So as to integrate the agile enterprise concept, significant knowledge identified with dealing with the turbulent and changing environment should be evaluated.

Workforce adaptation and organizational flexibility that was led in such rooms as industrial and organizational psychology or organizational development and behavior likewise needs survey. There is not one worldwide strategy of

managing or organizing a firm, and that the organizing style is subject to the situational imperatives of the environment in which the firm works. Accordingly, so as to maintain effectiveness, firms need to adjust over the long run to fit evolving contingencies. The environment, organizational size, and strategy are considered as principle possibilities that shape the firm. The investigation of the relationship between the characteristics of the environment and organizations determined two main types of the organizational design, structure, or form: mechanistic and organic (Burns and Stalker, 1961).

Table 4 Characteristics of the organic and mechanistic design (Burns and Stalker, 1961).

Mechanistic design	Organic design
Hierarchy of authority	*Less adherence to authority and control*
Hierarchical communication	*Network communication*
Centralized knowledge and control	*Decentralized knowledge and control*
Insistence on loyalty and obedience to organization	*Loyalty and commitment to project or group*
High degree of formality	*High degree of flexibility and discretion*
Formal and impersonal coordination	*Informal and personal coordination*
Many rules and procedures	*Few rules and procedures*
High tasks specialization	*Shared tasks and Employee contribution to common tasks*

The outcomes indicated that in generally steady and predictable environments, the firms will in general have a mechanistic plan. The firms that work in the shaky, changing, and unpredictable environment for the most part have an organic design. On account of shaky, changing, and unpredictable environments, the high-level management cannot obtain all the required

information that changes with the environmental conditions, and the information, knowledge, and decision making must be appropriated and distributed among lower hierarchical levels.

Organizations in order to be adaptable have to cultivate inquiry, learning, experimentation, and divergent thinking, enhance external and internal interconnections, and develop diversity, specialization, differentiation, and integration (Dooley, 1997). How organizations develop and successfully integrate agility-enhancing "dynamic capabilities" (Sune and Gibb, 2015; Schuiling, 2014) such as coordination, cooperation, capability development and connection (Gulati, 2007) into their corporate activities is at the heart of the matter at hand.

By definition and illustration, organizational architecture with more focus on people and process is a main element that may enable or hinder enterprise agility. Focus on people within a firm with adequate agile and innovative way of working could be essential to enable enterprise agility.

2.3.3.5 Organizational Culture "Culture of change"

According to many authors (e.g. Dove 2005; Sherehiy et al. 2007; Tseng and Lin 2011; Yauch 2011), a culture of change is one of the cornerstones in an organization that seeks agility. The corporate culture should be aligned with the organizational strategy, and this culture of change proficiency has to be fostered, nurtured, and developed continually in the organization (Dove 2005; Sherehiy et al. 2007). Dyer and Shafer (2003) underline the importance of having a culture of employee empowerment in an agile organization. In their

review of business agility literature, Sherehiy et al. (2007, p.457) summarize the findings on a culture of change as following: "The term 'culture of change' is a description of an environment supportive of experimentation, learning, and innovation and is focused on a continuous monitoring environment to identify changes. Culture of change is an environment where people on all organizational levels have positive and fearless attitude to changes, different opinions, new ideas, and technology". According to Piercy (2009), for agile organizations it is also important to build a culture that encourages collaboration (internally and externally). Having a culture of change is identified by many researchers to be highly important when striving for agility (e.g. Pascale 1997; Crocitto and Youssef 2003; Dove 2005; Sherehiy et al. 2007; Tseng and Lin 2011; Yauch 2011). Culture of change is an environment where people on all organizational levels have positive and fearless attitude to changes, different opinions, new ideas, and technology". The same authors argue that clearly communicated information regarding the organization and its need for adapting to changes; working with continuous improvement; incentives promoting teamwork; employee training; and diversity are recurring as important factors in the research on business agility.

In today's volatile business situation it is important to have an environment that is positive towards changes, new ideas, people, and technology, and in order to achieve this it is important that the employees understand why change is needed (Sherehiy et al. 2007; Dessler 2009). This is also supported by Hugos (2009) and Sull (2010a), who both states that it is necessary that everyone in the organization understand what creates value for the company, and why change is

an important factor in the value creation process. The importance of diversity is also supported by Dessler (2009), who states that workforce diversity broadens the knowledge base and skills within the organization, which he argues are important components of being successful at dealing with organizational change. In a Harvard Business Review, Sull (2010a) argues that the most agile organizations he has studied have incentives, promoting both individual achievements and teamwork, for the employees. The importance of having incentives to promote learning and collaboration is also supported by Crocitto and Youssef (2003), Dessler (2009) and Piercy (2009). Nevertheless, Dessler (2009) also argues that incentive systems are complicated and can sometimes harm efficiency if not carefully developed. The author says that for incentives to work properly, they must have a clear alignment to the employee's goals.

Furthermore, Hugos (2009) states that the responsive organization creates value through constantly adjusting to evolving customer needs and changing economic circumstances, which requires everyone within the organization to be involved in the process of continuous improvement. To be able to obtain this environment, in which everyone works with continuous improvement and change, he argues that the workers has to be trained and rewarded in some way. This is also supported by Sambamurthy et al. (2003), who argue that operational agility requires a culture that promotes continuous quality enhancement, and a willingness to share strategic information across the partnership network. According to Hugos (2009, p.12), "a responsive organization constantly makes many small adjustments to better respond to its changing environment" and compares the effect of such continuous adjustments to the effect of compound

interest over time. The importance of continuous improvement to enhance agility is also supported by Pascale et al. (1997), Crocitto and Youssef (2003), and Sherehiy et al. (2007). Sull (2010a) says that to be able to increase agility it is extremely important to make knowledge-enhancing investments, which both improve the knowledge base within the organization and helps to attract the best new employees. Hugos (2009, p.13) also supports this and states that "responsiveness depends on experience, and it depends on higher levels of training and skills, and it continually increases the value of existing products and services as well as creates new ones". With visibility, he means that everyone in the organization should receive timely and accurate data regarding the effect of their efforts. Motivation is what drives people to decide on something and then act on it, and he argues that this is the heart of responsiveness. Educating the staff "is the most powerful leverage factor" (Hugos 2009, p.94). Sherehiy et al. (2009) argues that job rotation and training are vital for obtaining a knowledgeable and multi-skilled staff, which helps the organization to become more agile. Training should also comprise the organizations IT (Weill et al. 2002; Crocitto and Youssef 2003). According to Weill et al. (2002), educating the staff, including managers, in IT capabilities is often neglected. They found in their large study on how IT can enable agility, that organizations spending a higher percentage of their budgets than industry average on IT education had superior business process performance and lower total costs per workstation. Pascale et al. (1997) also supports the importance that the culture has on organizations agility, and that it is vital to communicate the vision, and need for change to every single employee, and also give them

the proper training to handle such change. When analyzing the agility of a number of organizations, Pascale et al. (1997, p.128) said, "the 800-pound gorilla that impaired performance and stifled change was culture".

To sum up, previous theory believed that enterprise agility is about different categories of capabilities that can enable or hinder the level of enterprise agility. In the past, it was believed that agility and flexibility responsiveness strategy can be achieved through IT capabilities and sophisticated technologies such as computer-integrated manufacturing (Youndt et al., 1996).

First, the theory and the proposed framework presented each of the agile capabilities as it stands alone without any interaction among the different capabilities. Moreover, it was clear after reviewing the literature that some enablers was much more important than others. Theory showed little attention to the Business Network Structure and Corporate governance enablers, while showed more attention to the role of the organizational architecture with a significant highlight on the role of people and process within the firm in order to enable enterprise agility.

These theories and thoughts were supported by the organizational culture literature. As it is illustrated above, the organizational culture has a significant impact on the sensing and responding capabilities of enterprise agility. Therefore, we found it fruitful to go deeper in the literature regarding two main elements: workforce agility that is relevant to the employees' agility within a firm, and Employee Innovativeness that is relevant to the internal process within the organization and how the employees perceive their firm as an innovative one. Theory suggests that working on those concepts can enable the sensing and responding components of enterprise agility. We will review the two concepts in relevant with the organizational cultural attributes in order to have a complete support by the theory that those factors are more relevant to enable enterprise agility than others.

2.4 Workforce Agility

Previous theory believed that enterprise agility is about different categories of capabilities that can enable or hinder the level of enterprise agility. However, recent research findings showed that enterprise agility depends much more on people and the organizational architecture than on technologies. Upton (1995) stated that although computer integration can provide important competitive advantages, results of his study showed that the operational flexibility - similar concept to enterprise agility - is determined primarily by plant operators and the extent to which managers communicate with them. Workforce agility is needed now more than ever. An agile organization, of course, requires an agile workforce (Breu, Hemingway, & Bridger, 2002; Muduli, 2013).

Workforce agility refers to an organization's ability to move people to support changes in the environment. (Cheryl Lasse, 2018). Agility is about an organization's ability to alter its direction or adjust to operate successfully. An agile organization requires its workforce to swiftly adapt to the changing needs of customers, employees, and the marketplace. (Gottfredson, 2019). Workforce agility is a reflection of organizational and competitive strategies to stay ahead of the relevancy curve and to stay in business. It requires nurturing individual agility, efficient staff development, working with the alternative workforce for talent optimization, and deployment of agile organizational management across your business (Marti Konstant, 2020). The demands of enterprise agility and agility management also led to a conclusion that agility cannot be achieved without leveraging of employee's knowledge and skills (Dove, 1993; Forsythe, 1997; Nagel and Dove, 1991; Plonka, 1997).

Rooted in organizational and cognitive theory, a study of 524 employees in India's manufacturing and service sectors proposes that workforce agility is the result of specific

organizational practices and psychological empowerment. Contributing to both management theory and practice, the findings show that an environment that encourages teamwork has the most influence in promoting agility, followed by programs that address reward systems, employee involvement, organizational learning and training, and information systems. In addition, the study found that agility is fostered by the psychological empowerment variable of impact, followed by self-determination, meaning, and competence. (Ashutosh Muduli, 2017).

In a survey of workforce agility, Beatty (2005) observed that agile workforce management allows companies to achieve their goals through innovation, enhances strategic capabilities, and can reduce structural workforce expenses on both a fixed and contingent basis. In a changing business environment, the agile workforce faces uncertainty and is expected to provide fast response to unexpected events (Plonka, 1997).

An agile workforce is also expected to effectively take part in any collaborative environment (Forsythe, 1997), whether it cross-functional project team, collaborative ventures with other companies, or a virtual organization (Van Oyen et al., 2001).

Changes from traditional approach to the agile one will place higher demands on the workforce in several domains of business. As a result, if an organization wants to enhance the agility of its workforce, it needs to ensure that its employees possess mindsets that allow them to view change positively and behave in ways that facilitate effective change. (Gottfredson, 2019).

Based on the review of the demands of agile and lean manufacturing, Plonka (1997) determined some important attributes of agile workforce: (1) attitude toward learning and self-development; (2) problem-solving ability; (3) being comfortable with change, new ideas, and new technologies; (4) the ability to generate innovative ideas, and (5) accepting new responsibilities.

Moreover, Gunasekaran (1999) defined the agile workforce characteristics as follows: IT-skilled workers, knowledge in team working, negotiation, advanced manufacturing strategies, technologies, empowered employees, multifunctional workforce, multi-lingual workforce, and self-directed teams.

Based on the review of the organizational agility literature, Breu et al. (2002) determined initial indicators of the workforce agility, such as responsiveness to external change, benchmark for skill assessment, speed of skill development, speed of adaptation to new work environments, speed of information access, speed of IT change, use of mobile technologies, workplace independence, mobile information access, collaborative technologies, virtual team, knowledge sharing, and employee empowerment.

Dyer and Shafer (2003) stated that achievement of organizational agility requires three main types of behavior in workforce: proactive, adaptive, and generative. Proactive behavior consists of two aspects: initiate and improvise. Proactive initiative means active search for opportunities to contribute to organizational success and take the lead in pursuing those opportunities that appear promising. Proactive improvisation requires devising and implementing new and creative approaches to pursuing opportunities and dealing with threats. Adaptive behaviors require assumption of multiple roles to perform in different capacities across levels, and projects often simultaneously move from one role to another very quickly. The employees must simultaneously learn in multiple competencies areas and educate by actively sharing of information and knowledge.

Table 5 presents workforce agility attributes described above adapted from a paper with the title of "A review of enterprise agility: Concepts, frameworks, and attributes" (Bohdana Sherehiy, Waldemar Karwowski_, John K. Layer, 2007).

Table 5 Workforce agility attributes

AUTHOR	WORKFORCE AGILITY ATTRIBUTES
PLONKA (1997)	- Attitude toward learning and self-development - Problem-solving ability - Being comfortable with change, new ideas, and new technologies - The ability to generate innovative ideas - Acceptance of new responsibilities
GUNASEKARAN (1999)	- IT-skilled workers - Knowledge in team working and negotiation - Knowledge in advanced manufacturing strategies and technologies - Empowered employees; self-directed teams - Multifunctional workforce; multi-lingual workforce
BREU ET AL. (2002)	- Responsiveness to external change - Benchmark for skill assessment; speed of skill development - Speed of adaptation to new work environments - Speed of information access; speed of IS change - Use of mobile technologies - Workplace independence; virtual teams - Mobile information access; collaborative technologies - Knowledge sharing; employee empowerment
DYER AND SHAFER (2003)	- Proactive behavior: initiate, improvise - Adaptive behavior: multiple roles assumption, rapid redeployment - Spontaneous collaboration - Generative behavior: learning, education

2.5 Innovativeness

In today's fast-paced competitive marketplace that's exceptionally competitive, businesses have no choice but to embrace agile practices to innovate quickly. Companies must ensure that their strategies, including their product and service portfolios, are adapting at the pace demanded by the Digital Age. Innovation is when an organization introduces new processes, services, or products to affect positive change in their business. This can include improving existing methods or practices or starting from scratch. Ultimately the goal is to reinvigorate a business, creating new value and boosting growth and/or productivity. (Cassidy F., 2018).

Innovativeness is a firm's ability and disposition to interact in new concepts and creative processes in product development (including service) or in high-tech advancement, which entails management structures. Based on the dynamic settings where organizations are domiciled, the long-term survival is accrued to its ambidexterity involving discovering innovative expertise, potential processes and skills, while efficiently exploiting their current knowledge, and competencies (Gibson & Birkinshaw, 2004; Raisch, Birkinshaw, Probst & Tushman, 2009).

At the instance of increasing agility, organizations ought to react to changes timely and as such; innovation is proven as a crucial antidote in improving organizational agility (Esterhuizen, Schutte &Toit, 2012; Van et al., 2006). Meanwhile, Wieland et al., (2013) view agility as a reactive dimension of resilience while firms' agility is proven as being significant to innovation capability. Ashrafi, Ravasan, Trkman & Afshari (2019), in their study, reveal that strategic agility is substantially driven by innovation capacity.

Businesses that succeed in making agile practices their competitive edge, by applying them to new idea generation and talent management, for example, will extend their corporate

longevity. To match the accelerating speed with which their market sectors are changing, companies must take a broader approach to becoming innovative — an approach that we refer to as 'enterprise agility.' By that, we mean an organization that can adapt all the core elements of its business — its strategy, product and service offerings, the business processes that create and fulfill demand for those offerings, its people's skills, and technology and IT infrastructure — at the pace that's required to stay competitive and solvent. That, in turn, means adopting an agile culture throughout the organization, not just in software development. (Mukherjee A., Wood C., 2018).

Agility across a whole enterprise combines speed and stability; helps role clarity, innovation, and operational discipline; and can produce positive outcomes for organizational health and performance (Aghina W., Handscomb C., Ludolph J., Rona D., West D., 2020). What companies need desperately are NOT more complicated ways of reorganizing the structures they already have, attempting to combine the capacity of large numbers of agile teams into their existing linear workflow model, but more sustainable ways to promote flexibility, resiliency, responsiveness to change, and product innovation. Ben claims that his clients confirm that the business impact and relevance of Agile scaling, as it is currently implemented, has done little to position the company for long term sustainability and product innovation success. (Linders B., 2015).

How does innovation contribute to agility? Developing innovation as a skill becomes a powerful tool for expressing agility within the organization, since it invites its leaders and collaborators to question their processes, communications, work dynamics, use of technological resources and customer relationships, as well as to address trends in their environment. Developing innovation to drive organizational agility in a company represents a challenge that starts chiefly with the people, and then translates into processes and technology

(Ciro Pérez, 2018). Agility is so critical, and innovation units are a way to achieve it. In search of a solution to the agility challenge, many companies have turned to innovation units in a variety of guises as part of the answer. In IESE Business School survey, 70 percent of respondents stated that innovation units were highly or extremely important in creating greater organizational agility. (:Prats J., Siota J., Wyman O., Gillespie D. Singleton N., 2018).

From the foregoing, it can be concluded that agile firms are more likely to pursue innovative ideas, which tends to permit prompt response to intending disruptions on their survival, even as the business environment becomes dynamic.

2.6 Antecedents of Agility

Based on the previous theory, there are some main attributes that is considered essential to enable the workforce agility and innovativeness.

2.6.1 Employees Empowerment

The empowerment of employees is interpreted as the process of giving employees in the organization the power, authority, responsibility, resources, freedom to take decisions and solve work related problems. On the other hand, empowerment means giving up control on employees and letting every employee make decisions, set goals, accomplish results, and receive rewards. It means making a person able to manage by himself. It is a process for helping right person at the right levels to makes the right decision for the right reasons. (Aparna J, 2018).

It is based on the theory of workforce agility attributes mentioned by different scholars. For example, "Attitude toward learning and self-development, Acceptance of new responsibilities" (Plonka (1997), "Empowered employees; self-directed teams" Gunasekaran (1999), and "Workplace independence; virtual

teams, employee empowerment" (Breu et al. (2002). All these attributes refer to the definition of Empowerment of employees. Moreover, Heather McCloskey (2020) in her article "8 Ways to Use Agile Principles to Drive Innovation in Large Organizations" suggests that the first way is about Trust and Autonomy Empowers Teams to Innovate. Product teams have both the power and trust to solve problems in the way they see fit. Once the problem is clearly identified, the team is free to determine the best solution. The team is usually very close to the customer and therefore can make the best judgment calls on what to build and how to build it. In addition, Sharifi and Zhang and Yusuf et al mentioned in their Attributes and practices of agile organization table that Empowered individuals working in teams is a way to achieve agility (Yusuf et al., 1999), Agility capabilities as defined by Sharifi and Zhang (1999).

Regarding Innovativeness, employees' feelings that their work is valuable and contributes significantly to the achievement of organizational goals inspire them to take risks, engage in experimentation, challenge organizations' existing norms and practices and strive for improvement and innovation (Pradhan & Jena, 2019; Thomas & Velthouse, 1990). In the private sector, empowerment has been linked to improved performance (Spreitzer, 1995; Lawler, Mohrman, and Ledford, 1992, 1995; Neilsen and Pedersen, 2003; Kirkman and Rosen, 1999). Fernandez and Moldogaziev in their paper called "Using Employee Empowerment to Encourage Innovative Behavior in the Public Sector" claim that the empirical results shows that while employee empowerment as an overall approach can increase encouragement to innovate, empowerment practices have divergent effects, and some may even discourage innovation. (Fernandez S. , Moldogaziev T., 2018).

The relationship between practices aimed at sharing power with employees and innovation is one that is well-established in the innovation literature. There are various ways in which granting discretion to employees can cause them to feel more encouraged to innovate. By loosening controls, managers give entrepreneurial employees the autonomy or freedom to tinker with existing elements and practices and reconfigure them in new ways (Levin and Senger, 1994; Kanter, 1983).

2.6.2 Employees Collaboration

The second attribute is about Employees Collaboration. It is interpreted as employees work together to successfully work toward a common goal with others. They include communicating clearly, actively listening to others, taking responsibility for mistakes, and respecting the diversity of your colleagues. (Doyle, A. 2020).

It is based on the theory of workforce agility attributes mentioned by different scholars. For example, "Knowledge in team working and negotiation" Gunasekaran (1999), "collaborative technologies, Knowledge sharing" (Breu et al. (2002), and "Spontaneous collaboration" Dyer and Shafer (2003). Collaboration has been identified by several researchers (e.g. Jackson and Johansson 2003; Lin et al. 2006; Vinodh et al. 2010; Tseng and Lin 2011) to be of great importance for an organization in order to become more agile. Weill et al. (2002) argue that it is vital that there is an internal collaboration between the heads of business units and IT professionals in order to avoid having incompatible IT systems, which will lead to e.g. delays and limited sharing of information, resources, and expertise by business units. They argue that by

collaborating on how to develop the right IT infrastructure, the organization will have a faster time to market, higher growth rates, and more sales from new products. Yusuf et al. (1999) state that by focusing on internal collaboration through the use of cross-functional teams, organization agility will be improved. This is also supported by Hugos (2009, p.40), who gives the following example: "When customer service people start working together more effectively with salespeople, and salespeople start working more effectively with operations people, and information technology people start working more effectively with everybody, then amazing things happen". Sull (2009, p.22) supports the importance of internal collaboration and gives the example an organization that achieved improved agility through an extensive effort on internal collaboration between different managers, which made the managers swap "insights on the changing business landscape and ideas for new ways to seize market share or improve efficiency".

Regarding innovativeness, Collaboration has the power to spark innovation in the workplace because everyone brings a unique set of knowledge and skills to the table. Working together and embracing these differences gives birth to new ideas through the blending of unique viewpoints. (Franco. G, 2017). To create a more innovative workforce that can tackle the challenges of the future, an organization needs to understand the proven link between employee collaboration and innovation (Kaplan M., 2019). Collaboration enhances the creation, sharing and transfer of knowledge (Hansen, 2009) and sustains a culture that favors discovery and innovation (Hurley & Hult, 1998), and subsequent impacts on organizational performance. Moreover, the majority of CEOs rank collaboration

among the top three most critical components of innovation and the most important trait they look for in their employees. Yet, although business leaders understand how critical agile collaboration is, they're simultaneously reporting that their cross-functional teams are completely dysfunctional (Catalant Staff, 2018). In addition, innovation management requires balance – extreme positions do not generally yield positive outcomes. Strive to balance agility, collaboration, and accountability, and make this balance part of an up-front contract as you proceed on your digital transformation journey (Jason Hall, 2020). Weill et al. (2002) argue that it is vital that there is an internal collaboration between the heads of business units and IT professionals in order to avoid having incompatible IT systems, which will lead to e.g. delays and limited sharing of information, resources, and expertise by business units. They argue that by collaborating on how to develop the right IT infrastructure, the organization will have a faster time to market, higher growth rates, and more sales from new products.

2.6.3 Diversity

It means that diversity in the workplace means that a company hires a wide range of diverse individuals. Diversity is often misconceived as solely multicultural matters; however, it also applies to diversity of gender, race, ethnicity, age, sexuality, language, educational, background, and the participation of these employees is equal (Dorsy J.,2019).

It is based on the theory of workforce agility attributes mentioned by different scholars. For example, "Multifunctional workforce; multi-lingual workforce" Gunasekaran (1999), and "virtual teams" Breu et al. (2002). Moreover, Dooley

claims that organizations in order to be agile have to develop diversity (Dooley, 1997). Furthermore, the internal diversity of the organization has to fit the variety and complexity of the environment in order to successfully handle the environment (Ashby, 1956). In addition, the diversity provides the requisite variety which is conductive for organizational agility because it allows the pursuit of multiple courses of action and quick changes from one course to another as the environment changes (Nonaka et al., 1996; Stewart et al., 2003). The importance of diversity is also supported by Dessler (2009), who states that workforce diversity broadens the knowledge base and skills within the organization, which he argues are important components of being successful at dealing with organizational change.

Regarding innovativeness, Diverse teams are better positioned to unlock innovation that drives market growth. Diversity further enables nonlinear novel thinking and adaptability that innovation requires. Moreover, those companies with the highest levels of digital investment exhibited the strongest link between diversity and innovation revenue (Levine S., 2020). Diversity is a key driver of innovation and is a critical component of being successful on a global scale. Senior executives are recognizing that a diverse set of experiences, perspectives, and backgrounds is crucial to innovation and the development of new ideas. When asked about the relationship between diversity and innovation, a majority of respondents agreed that diversity is crucial to encouraging different perspectives and ideas that foster innovation (Egan M., 2016). But the bottom line is that lack of diversity may negatively impact your innovation efforts, and emphasis on diversity is beneficial for your company. Why? The biggest reason is

that innovation profits from a variety of backgrounds and experiences, which is gained by hiring and creating an organizational culture of diversity. If you have people in a room with the same experiences, you're likely to encounter stagnant ideas (Zakon A. 2016).

2.6.4 Customer Centricity

Customer-centric is an approach to doing business that focuses on providing a positive customer experience both at the point of sale and after the sale in order to drive profit and gain competitive advantage (MacDonald St, 2020).

It is based on the theory of workforce agility attributes mentioned by different scholars. For example, "Strategic relationship with customers", "Customer driven innovations, Customer satisfaction" (Yusuf et al., 1999), "Responsiveness to external change" and "speed of information access; speed of IS change" Breu et al. (2002). Moreover, Goldman et al. (1995) developed four main strategic dimensions that underline the achievement of agile competitive capabilities. These authors suggest that each company can create a program of agility achievement based on the audit that relates the agility dimensions with current and future company operations. The first proposed strategic dimension of agility is enriching the customer. Enriching the customer means delivering value and solutions to the customer rather than products. Goldman et al. (1995). The success of this agile ecosystem is heavily dependent on the use of a customer-centric, product-focused operating model. The model has the ability to quickly respond to changing market conditions by enabling fast, flexible workflow across the entire enterprise. This operating model should enable the organization to focus on unmet customer wants in short, iterative, and incremental development cycles that

quickly respond to and adjust for changing customer demands (Dahl J., 2018).

According to innovativeness, CRM develops how the firm relates to consumers. Ramani and Kumar (2008) argue good customer relationship management between manufacturing firms and industrial customers not only retains customers but also encourages them to provide important suggestions for improving products and service. CRM helps firms refine their knowledge about customers' tastes and preferences. The effectiveness and efficiency of CRM are increasingly recognized as means for developing innovation capability and providing a lasting competitive advantage (Sahay and Ranjan, 2008). Customers can provide first-hand information regarding their needs, can help create innovative ideas for new products, and provide feedback regarding concepts and prototypes (Bruce and Biemans, 1995). Therefore, it showed the need to study the information sharing process from customers in the context of cocreation of value, rather than innovation mainly generated by company. (Roberts, Baker and Walker, 2005). By involving customers into the co-creation process, companies can enhance the value customers get when buying and using goods and services. It enables companies to understand and respond to deeper and more valuable customer needs and reduces the inherent risks of innovation (Maklan, et al., 2008).

2.7 Research Problem and Purpose of Study

To conclude, recent research shows that enterprise agility depends much more on the role of people within the organization and the concept of innovation that refer to the novelty of products, services, or processes than on hardware technologies (Upton, 1995). Moreover, it is better to focus on configurations of different agility enablers' attributes than to focus solely on

each individual enabler neglecting the interaction among them. Therefore, instead of focusing on each unique attribute effect on agility while holding all other factors constant, we show how organizational culture elements combine into multiple configurations in different ways to achieve each type of agility.

Our research model will analyze different organizational cultural inputs that contribute and drive the enhancement of workforce agility and Innovativeness of employees in order achieve enterprise agility. These inputs are built on the theory of enterprise agility, workforce agility, and innovation agility. However, the final outcome and the purpose of this research is about finding variables that is considered necessary to achieve workforce agility or Innovativeness and also variables that is considered necessary to negate workforce agility or Innovativeness. Moreover, we will analyze if there are configurations of the inputs, which is considered sufficient to enhance the workforce and innovation level and also configurations of the inputs, which is considered sufficient to hinder or disable the workforce and innovation level. Furthermore, we examine the effect of the organizational culture elements on agility through two different industry sectors, IT sector and any other sectors, because Agile Software development was born in that sector. Moreover, as theory claims that IT capabilities is one of the enterprise agility enablers Sharifi and Zhang (1999), we find it fruitful to examine the fact that if there is a direct relation between IT sector companies – as they literally rely on technologies in their business models – and enterprise agility. Broadly, we view our study as part of an emerging neo-configurational perspective (Misangyi et al., 2017) that examines causal complexity through the logic of set theory.

Based on the workforce agility attributes and innovation agility theory, we suggest a configurational analytic framework that departs from the standard linear paradigm to examine how the company culture and the sector of the company (IT sector or other) effects on agility is

embedded in a configuration of organizational and cultural elements, which are Employees Empowerment, Employees Collaboration, Surface-level Diversity, and Customer Centricity. Our study offers several contributions to the enterprise agility, workforce agility, and innovation agility literature and the impact of the organizational culture on each of them. We suggest a framework to conceptualize key constructs for workforce agility and innovation agility research by synthesizing the extant theoretical frameworks with a grounding in the information-processing view of organizations and the internal organizational culture. This framework augments the traditional input-output box of the sense-response cultural variables by more fully and explicitly explaining the core values of interpreting captured events and making decisions for action.

3 Methodology

In this chapter, the framework and the research approach are discussed and illustrated. The whole steps of the research are introduced, for example, data collection and the creation process of the enterprise agility framework. The results and outcomes are also discussed in the discussion and findings chapter.

As it is mentioned in the literature review, there are various frameworks for enterprise agility and there is consensus related to the workforce agility and the Innovativeness. Our research study focuses on which variables and configurations of variables have or have not direct effect on the workforce agility and the Innovativeness that will enhance agility level of the firm with IT industries sector companies and other sectors to examine if the IT sector companies are more agile and innovative than other industries. We have identified several variables and have built up a framework to be analyzed.

In order to assess if hypothesis really works truly, Dubois and Gadde (2002) claim that an abductive research approach can be appropriate. In such a methodology, the researcher switches among theory and reality on various occasions to formulate the last framework. This research process has been utilized to build up a few distinct sorts of business frameworks (for example Holmlund 2008; Storbacka 2011; Wendelin 2011). Initially, a broad direction in the enterprise agility theory was conducted, during which various fundamental categories inside enterprise agility were distinguished. This primer hypothetical framework was utilized to build up a basic hypothetical model. The focus was to all the more likely understand what principle hypothetical fields to additional investigate. With this info, a more focused hypothetical and theoretical framework was made that was utilized to build up a hypothesis for an enterprise agility assessment framework.

The ultimate purpose is to examines the role of cultural aspects inside a firm and its impact

on both workforce agility and Innovativeness. Based on the workforce agility attributes and innovation agility theory, we suggest a configurational analytic framework that departs from the standard linear paradigm to examine how the company culture effects on agility is embedded in a configuration of organizational and cultural elements within IT industries sector's firms and other sectors' firms, which are empowerment of employees, Employees Collaboration, Surface-level Diversity, and Customer Centricity.

3.1 Research Framework

Figure 6 Nomological Network of Configurations Producing Agility
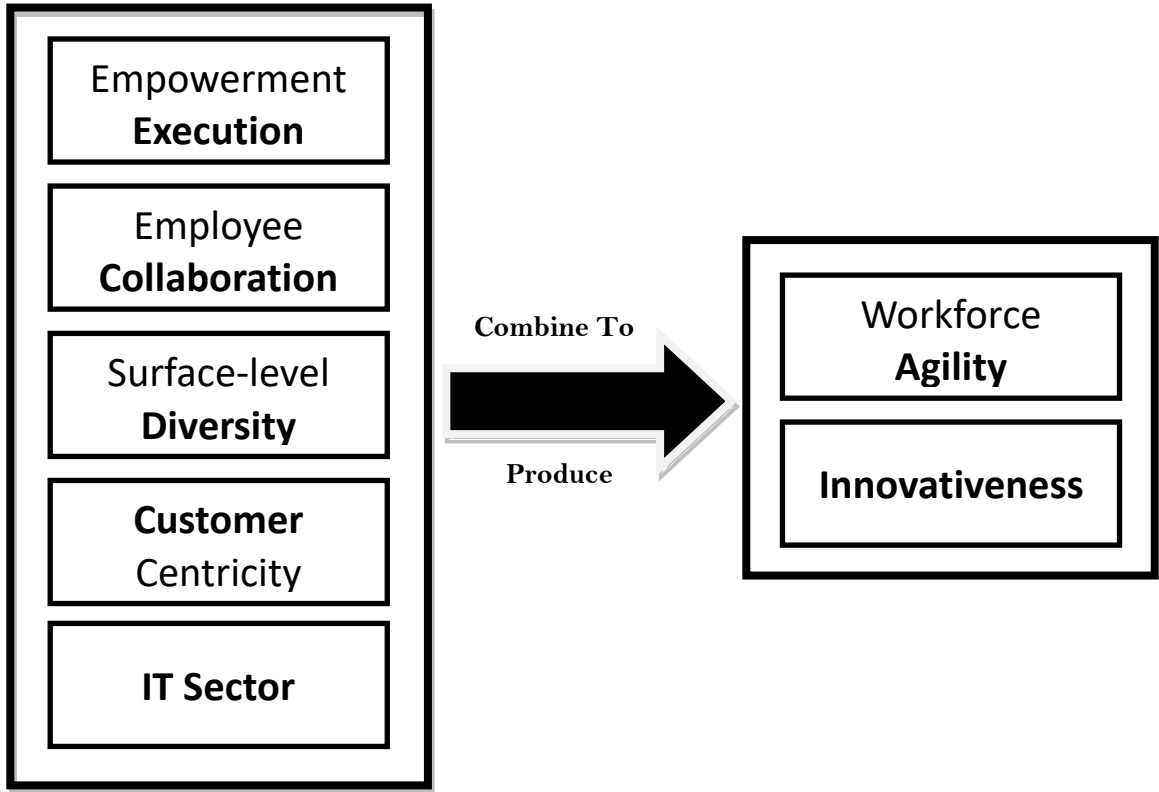
Agility as a type of dynamic capability views the source of competitive advantage not as independent individual elements but as configurations of organizational resources, IT, and competencies (El Sawy, Malhotra, Park, & Pavlou, 2010; Teece et al., 1997; Sambamurthy et al., 2003). Thus, a configurational approach best supports this view of organizational strategic

competitiveness by explaining how the internal organizational, cultural, and environmental elements combine into bundles to make the outcome of interest.

This is a conceptual framework (see figure 6) to establish the relationships and the logical connections between the agility attributes and the workforce agility and the Innovativeness outputs as a causal condition in enabling or even hindering enterprise agility. The figure illustrates the configuration paradigm we used to build a context-specific middle-range theory that explains complex simultaneous interactions between all the elements and that suggests specific, not general, prescriptive causal recipes to produce workforce agility and Innovativeness depending on specific organizational and cultural contexts.

Note that, in the current study, we align the configurational approach and fsQCA methods and use them in a retroductive way that embraces the view that social research advances most when it involves an iterative dialogue between ideas and evidence (Ragin, 1994). With this retroductive theory-building approach—also known as an abductive approach (Locke, Golden-Biddle, & Feldman, 2008; Van Maanen, Sorenson, & Mitchell, 2007)—we select and define theoretical concepts and ideas about cultural aspects and enterprise agility based on existing theories of agility and the information-processing view of organizations and on context-specific knowledge or past unmet expectations or findings. Then, we devise a theoretical framework that helps us collect empirical data and evidence and that further drives our theory elaboration and building about the cultural-workforce agility relationship. Therefore, we create a context-specific middle-range theory that comprises configurational propositions or hypotheses that others can further develop and advance with the retroductive approach or the deductive theory-testing approach. Thus, we build the findings and theoretical inferences that we present in this research with a retroductive theory-building approach, which is distinct from a traditional purely deductive approach that relies on only theoretical logic rather than evidence

to create hypotheses and from a traditional purely inductive approach that focuses on directly observing and avoiding theory testing.

We believe that, for social science research topics in which concepts are not all clear or knowledge is fragmented and inconsistent, this approach is particularly useful, and the configuration approach with fsQCA methods that we use in this research particularly suits such topics. For example, Misangyi and Acharya (2014) address the inconsistent arguments and findings of corporate governance studies. They argue that one main reason for the inconsistent findings is the traditional research approach that adopts deductive theory testing with correlation-based analyses. Then, using fsQCA with a retroductive approach, they investigate how key governance mechanisms combine and interact with each other to make the outcome of interest.

Based on the findings of configurations, they suggest theoretical propositions that can reconcile the inconsistencies in extant studies. Bensaou and Venkatram (1995) also adopted this approach: they develop a conceptual model on inter-organizational relations and derive a set of constructs and corresponding operational measures. Then, they empirically investigate how the elements naturally combine together and show consistent patterns, and they eventually suggest a configuration-based middle-range theory. One can find more examples that use this approach in the management literature (e.g., Misangyi et al., 2017; Crilly, 2011; Crilly, Zollo, & Hansen, 2012).

To sum up, we will rely on fuzzy set qualitative comparative analysis fsQCA method in our research. fsQCA is an analysis of set relations. In fsQCA, we transform our variables into sets. We then analyze what combination of causal sets constitute a subset of the outcome set. As we analyze the cause and effect relationship among various variables as inputs and the agility level

as outputs, we believe that fsQCA is the most appropriate analysis for the research purpose.

3.2 Data Collection

In order to not be blinded by theory and be able to develop a generic framework, we have chosen to first perform semi-structured interviews and surveys. Unfortunately, it was quite hard for us to collect primary data through interview or surveys due to covid-19 situation and most of our contacts were unavailable. On the other hand, the time for us was crucial in order to finish our research in time. Due to these conditions, we had to be agile in our decision and to find another mean to collect trustful data from trustful source such as MIT Sloan Management Review, Glassdoor, CultureX - that is aligned with our research scope in order to develop a generic framework.

Several papers relied in similar approaches in the data collection from the same and similar source, then they analyze the raw data in order to have a logical information to work on. For example, a paper was published with a name "Modeling Organizational Culture with Workplace Experiences Shared on Glassdoor" by (Das Swain, V., Saha, K., Reddy, M.D., Rajvanshy, H., Abowd, G.D., De Choudhury, M., 2019), they mentioned that "Alternatively, self-initiated workplace reviews on online platforms like Glassdoor provide the opportunity to leverage the richness of language to understand OC. (Das Swain, V., Saha, K., Reddy, M.D., Rajvanshy, H., Abowd, G.D., De Choudhury, M., 2019, pg. 3). In as much, first, we use multiple job descriptors to operationalize OC as a word vector representation. We validate this construct with language used in 650k different Glassdoor reviews". Moreover, Piercy and carr in their published paper titled as "Employer reviews may say as much about the employee as they do the employer: online disclosures, organizational attachments, and unethical behavior" claimed that "we examine how organizational identification and commitment relate to publicly

posting about one's organization. Self-presentation and organizational attachment are used to hypothesize how individuals selectively self-present organizational identities online. Structural equation modeling shows identification and commitment both positively relate to review ratings". (Piercy, Carr, 2020). Others, Suen, H.-Y., Hung, K.-E., Tseng, F.-H in their paper " Employer ratings through crowdsourcing on social media: An examination of U.S. Fortune 500 companies" aimed at examining the effect of crowdsourced employer ratings and employee recommendations of an employer as an employer of choice, to examine which employer ratings that represent different employee value propositions can predict the overall employer rating through crowdsourcing, to examine whether the Fortune 500 ranking can also influence overall employer ratings, and to mine which keywords are popularly used when employees post a comment about the pros and cons of their employers on a crowdsourced employer branding platform. The study collected crowdsourced employer review data from Glassdoor based on 2019 Fortune 500 companies, and the results found that crowdsourced employer ratings are positively associated with "recommend to a friend," while culture and values predominantly influence overall employer ratings (Suen, H.-Y., Hung, K.-E., Tseng, F.-H, 2020). Other examples for the same approach could be Employee satisfaction and the cost of corporate borrowing paper: "We use employee reviews on Glassdoor.com, a major employer rating platform, to gauge the employee satisfaction of U.S.-listed firms" (Chi W, Chen, Y., 2020). Employee review websites as source of recruitment communication: The role of source credibility, realistic information, and specific information". The three different recruitment media taken in this study are employee review website (www.glassdoor.com), professional networking website (www.linkedin.com) and the company's own webpages. (Kaur, T., Dubey, R.K., 2020).

Based on the papers previously mentioned, we worked on similar approach by collecting data

from the MIT Sloan Management Review, Glassdoor, CultureX - that is aligned with our research scope in order to develop a generic framework. Moreover, the data were already analyzed through different 9 cultural categories. These categories are aligned to the required data for our research framework. The data has been collected around November 2020. The framework was fine-tuned by using the data obtained through a quantitative and qualitative – theoretical and empirical - secondary data collected through trustful means.

According to the theory previously illustrated in the literature review, we had identified seven main agility enablers categories – five of them are inputs that represented by Empowerment Execution, Employee Collaboration, Surface-level Diversity, and Customer Centricity, IT sector, and two of them that represented by the Workforce Agility and Innovativeness are the outputs in order to analyze their impact on the level of enterprise agility. We have collected data related to 424 firms. We have selected all firms that had a rating on agility and innovation index. 133 of them in the IT industries sector. IT industries sector consists of IT Services Industry, IT Hardware Industry, Internet Industry, Tech Giants Industry, Enterprise Software Industry, Telecommunications Services Industry, Media and Entertainment Industry, and Communications Equipment Industry. The other 291 companies are from other different sectors such as Aerospace & Defense, Airlines, Apparel Retail, Business Process Outsourcing, Restaurants, Construction & Engineering, Finance, Consumer Goods, and others. All the list of the industries and companies will be in the references. We took into consideration the range level of the data of the chosen firms. For example, we had a range of the agility level (output) with higher agile firms and lower ones. We did and respected the same range of levels among the whole variables in order to have precise and accurate analysis outcomes.

We had studied and analyzed the data we have collected in order to understand and have a clear idea about the methodologies that were used to extract these data by the researchers. The

MIT SMR/Glassdoor Culture 500 report made by MIT Sloan Management review uses machine learning and human expertise to analyze the agility level, the innovation, cultural, and the organizational variables we chose using a data set of 1.4 million employee reviews on Glassdoor. Over a three-year period, the Culture 500 research team developed an AI-powered system for measuring culture using natural language processing to analyze text responses from actual employees. This human-machine approach allows us to create a more precise and accurate picture of culture that moves beyond the anecdotes and personal observations that managers often rely on to understand their own organizations. The research demonstrates how no two corporate cultures are exactly alike and how cultural values vary drastically across companies and industries. Using the Culture 500, leaders can now benchmark their organizations against direct competitors and best-in-class organizations and identify areas of strength or opportunities to improve their cultures. (MITsloanreview, methodology, 2020). The data has been collected around November 2020. https://sloanreview.mit.edu/culture500/

Table 6 Example of the data collection

Cases	Paylocity	Netflix	McKinsey	Aon	Uber
AGILITY	0.3878788	0.3818182	0.214953	0.1202532	0.3047337
COLLABORATION	0.715847	0.4098361	0.72072	0.5588235	0.4920635
CUSTOMER	0.5090909	0.2592593	0.50	0.3684211	0.1858108
EXECUTION	0.3979058	0.5725191	0.36082	0.2624113	0.4604966
DIVERSITY	0.4489796	0.3333333	0.517857	0.2794118	0.3532609
INNOVATION	0.6565657	0.5526316	0.37777	0.4	0.7411765
IT SECTOR	YES	YES	NO	NO	YES

3.3 Chosen variables

As we mentioned in the literature review, Innovation and workforce agility are the enablers that are consider more important to enable and enhance enterprise agility. Therefore, we have identified various and different variables that theory suggests in order to enable workforce agility and innovation, therefore enhance enterprise agility. We identified the inputs in order to analyze and test which configurations of the inputs are more effective for the agility level. Many factors and attributes are related to the enhancement of workforce agility. We have developed a framework based on the theory review that suggests four main inputs that directly drive the level of workforce agility and the Innovativeness.

(1) The first input is Empowerment/Execution. It means Employees are empowered to act, have the resources they need, adhere to process discipline, and are held accountable for results (culture 500 report definition).

(2) The second input is Collaboration. It means Employees work well together within their team and across different parts of the organization. (culture 500 report definition).

(3) The third input is Surface-level Diversity. It means the company promotes a diverse and inclusive workplace where no one is disadvantaged because of their gender, race, ethnicity, sexual orientation, religion, or nationality. (culture 500 report definition).

(4) The fourth input is Customer Centricity. It means Employees put customers at the center of everything they do, listening to them and prioritizing their needs. (culture 500 report definition).

(5) The fifth input is IT Sector. It means if the firm is playing in one of the IT industries sectors. The IT industries sector consists of IT Services Industry, IT Hardware Industry, Internet Industry, Tech Giants Industry, Enterprise Software Industry,

Telecommunications Services Industry, Media and Entertainment Industry, and Communications Equipment Industry. (culture 500 report definition).

(6) The first output is Workforce Agility. It means Employees can respond quickly and effectively to changes in the marketplace and seize new opportunities. (culture 500 report definition).

(7) The second output is Innovativeness. It means the company pioneers novel products, services, technologies, or ways of working. (culture 500 report definition).

3.4 Analysis method (fsQCA)

Unlike more quantitative methods which are based on correlation, fsQCA seeks to establish logical connections between the combinations of causal conditions (conjunctural causation) and an outcome, which results in rules that summarize the sufficiency between subsets of all the possible combinations based on their causal conditions (or their complement) and the outcome. The rules are connected to the output by the word OR whereby each of the rules represents a possible path from the causal conditions to the coveted outcome and represents equifinal causation, i.e. different causal combinations leading to the same desired outcome (Mendel and Korjani 2013). fsQCA is a technique that identifies meaningful cases and "sits midway between exploratory and hypothesis-testing research" (Kent 2005, p. 226). Thus, it provides a flexible tie between qualitative and quantitative characteristics because continuous variables are reinterpreted as the presence or absence of a specific feature while discrete variables are transformed into a continuous degree of "belonging" or "membership". By enabling contributions to explain complexity at the case level and generality across cases, fsQCA bridges quantitative and qualitative examination (Crilly 2011; Caracuel et al. 2014).

The sophisticated method is particularly appropriate when causality is complex. It offers

understanding of which factors are relevant for a desirable outcome and how to combine those to achieve such an outcome which helps furthermore to increase the understanding of the complementarities and substitutes in configurations (Fiss 2011; Chang and Cheng 2014).

When causality in the research phenomenon is both multiple – when an outcome has more than one cause – and conjunctive – when these causes work together to produce the outcome, fsQCA represents an appropriate method. Multiple conjunctural causations are identified by testing various combinations of antecedent conditions. Thereby, fsQCA aims to show conditions that are sufficient but not necessary to cause an outcome (Woodside 2011). Thus, fsQCA employs Boolean algebra logic to examine the relationships between an outcome and all binary combinations of the independent variables.

fsQCA entails the analysis of necessary and sufficient conditions to produce some outcome. Necessary conditions are conditions that are required to produce the outcome. All cases that exhibit the outcome also exhibit a necessary condition. Though, necessary conditions may not be enough by itself. It set notation; you can think of the outcome set as a subset of the necessary condition set. Sufficient conditions are conditions that always lead to the outcome. So, cases that exhibit the sufficient condition will also exhibit the outcome. Sufficient conditions may not be the only conditions that lead to the outcome, however. In set notation, you can think of the sufficient condition set as a subset of the outcome set. By focusing explicitly on localizing causal complexity, the fsQCA method may contribute to business and management research (Fiss 2007; Ragin 2008b). As the fsQCA method is increasing sharply in the most recent period of strategic management and organization studies, the researchers will take a deeper analysis into the research fields of entrepreneurship and innovation that counts around 30% of the total journal sample.

To sum up, the complex causality on which fsQCA focuses has several characteristics. First, fsQCA investigates how conditions work together as a causal recipe in causing an outcome. This is called conjunctional causation. Approaching causation like this is different from the net effects approach, which focuses on the effect of individual variables. Another aspect of complex causality is equifinality, which means that more than one condition or combination of conditions might lead to the same outcome. Further, QCA identifies if and how a condition works differently in different cases. In one case, the presence of a condition might lead to an outcome and in another case, the absence of that condition might lead to that outcome. QCA thus allows for a context-specific analysis of causation. Lastly, QCA assesses asymmetric causation. Asymmetry means that the recipe for the occurrence of the outcome is not simply the opposite of the recipe for the non-occurrence of the outcome. Therefore, the explanation of the non-occurrence of the outcome cannot be derived from the explanation of the occurrence of the outcome. The non-occurrence of the outcome needs to be assessed separately.

3.4.1 Calibration

In the first step of the fsQCA analysis, values of variables are operationalized as membership scores within predefined sets and are obtained through calibration (Ragin 2008a; Meuer 2014). This technique is based on fuzzy-set membership scores that express the degree to which cases belong to a set and which is any collective of distinct objects that can be described by certain properties or characteristics. The data can be imported from SPSS files, but will almost certainly need to be 'fuzzified' (Kent 2005).

In order to transform Likert scores into fuzzy-set membership scores, variables are calibrated for their degree of membership in sets of cases to produce scores ranging from 0.00 = full non membership to 1.00 = full membership in which 0.5 illustrates the crossover point and maximum ambiguity. Such calibration is possible only through the use of theoretical and

substantive knowledge that is essential in the specification of the three mentioned qualitative breakpoints (Ragin 2008b, p. 30). In specifying the referred breakpoints, a rational can be developed (Ragin 2009). Based on the membership scores, sub-set relations can be analyzed whereby two aspects, the consistency and coverage are mainly analyzed (Ragin 2006). In this context, set-theoretical consistency indicates how closely the sub-sets of conditions and outcome are related to each other and refers to the degree to which cases share conditions or combinations of conditions. Whereas the set-theoretical coverage provides information on the relevance of conditions for the outcome by referring on an indication of the degree to which the minimal formula is an outcome of the analysis covering observed cases. A low degree of coverage indicates several paths (combinations of conditions) to the same outcome (Ragin 2008b, 2009; Schneider and Wagemann 2012; Denk and Lehtinen 2014).

By using the calibrating function of the fsQCA software program, following the procedure detailed in Ragin (2008b), the interval scale variables and thus all research constructs can be converted to fuzzy-set membership scores (Ragin 2008c). Calibration is about assigning membership scores to cases. These scores establish whether or to what extent cases are member of the sets of the outcome and the conditions, and you do this for each case separately. First, you assign membership scores to case one, then you do it for case two, etc. there are two ways to do the calibration. Calibration steps are: First, you can determine whether cases are members of sets. In that case, you determine whether cases are in or out sets. For instance, let us say that you want to calibrate the wealth of countries. Then you would determine for each country whether in or out, they can be considered a member of the group of set of wealthy nations. Now, this is how QCA began. In the beginning, QCA only worked with in or out options. This is called Crisp-Set QCA. Fuzzy set QCA enables a more specific calibration, which can indicate the degree to which cases are members of sets.

Crisp set	3 Value fuzzy set	4 Value fuzzy set	6 Value fuzzy set
1 = fully in	1 = fully in	1 = fully in	0.8 = mostly in
0 = fully out	0.5 = neither fully in nor out	0.67 = more in than out	0.6 = more in than out
	0 = fully out	0.33 = more in than out	0.4 = more out than in
		0 = fully out	0.2 = mostly out
			0 = fully out

(Ragin, 2008, p.31)

This table 7 illustrates the difference between crisp and fuzzy sets. Crisp is shown in the left column in the red boxes. You can see that there are only two options in, indicated with code one and out indicated with code zero. Scores always vary from zero to one in both crisp and fuzzy sets. Zero is fully out, one is fully in. Otherwise, zero means that a case does not have a condition. So, the condition is absence. One means that the case does have a condition, so the condition is present. And the other columns display different types of fuzzy sets. You can work with either one of those scales. For instance, the second column shows a fuzzy set with three values with in, out, and a middle position. That is a three-value fuzzy set, which form of calibration you choose depends on what is possible and desirable theoretically and empirically. For instance, if your data set is specific and thus enables a very specific conclusions about the degree to which cases are members of sets, then you could work with more values. For instance, you could work with a 10-value fuzzy set. But if your data only enables general indications about set membership, then you should work with less values. For example, you could choose to work with the four-value fuzzy set or even a crisp set.

The results of the calibration - the set membership scores -should be noted in a data matrix like the one shown in table 8.

Table 8 Data matrix sample

Cases	Paylocity	Netflix	Ceridian	Slalom	Uber
AGILITY	1	1	1	1	1
COLLABORATION	1	0	0.33	1	0.33
CUSTOMER	0.67	0.33	0.67	0.67	0
EXECUTION	1	1	1	1	1
DIVERSITY	0.67	0.33	0.67	0.33	0.33
INNOVATION	1	0.67	1	0.67	1
IT SECTOR	1	1	1	0	1

A data matrix shows on each row the set membership scores on the conditions and the outcome of one case. Such a data matrix should be the result of any calibration.

3.4.2 Calibration sample and data matrix

We have calibrated the input variables using 4-value fuzzy set $(0 – 0.33 – 0.67 – 1)$ for the variables: AGILITY, COLLABORATION, CUSTOMER, EXECUTION, DIVERSITY, and INNOVATION as they are quantitative data. Only, IT SECTOR variable was calibrated using crisp set (0 or 1) as they are qualitative data, they in or out. We converted the values into a 4-value fuzzy set $(0 – 0.33 – 0.67 – 1)$, where the three cutoff points are equal to (Mean – Standard Deviation, Mean, Mean + Standard Deviation).

In the next table 9, there is a sample of the data collected. Moreover, in table 10, there is a sample of the calibration rule and the Data Matrix.

Table 9 sample of the data collected

Mean	0.10	0.52	0.40	0.20	0.37	0.48
St. Dev.	0.07	0.10	0.15	0.09	0.14	0.16
	AGILITY	**COLLABORATION**	**CUSTOMER**	**EXECUTION**	**DIVERSITY**	**INNOVATION**
Netflix	0.38	0.41	0.25	0.57	0.33	0.55
Kraft Heinz	0.23	0.44	0.19	0.24	0.28	0.25
McKinsey	0.21	0.72	0.50	0.36	0.52	0.38

Table 10 sample of the calibration rule and the Data Matrix

	AGL	**COLLAB**	**CUST**	**EXEC**	**DIVER**	**INNOV**	**IT SECTOR**
Netflix	1.0	0.0	0.33	1.0	0.33	0.67	1
Kraft Heinz	1.0	0.33	0.0	0.67	0.33	0.0	0
McKinsey	1.0	1.0	0.67	1.0	1.0	0.33	0

3.4.3 Truth Table Analysis

Once the variables were calibrated, the second step contains the determination of the truth table. The fuzzy-set scores are used to construct a data matrix as a truth table with 2k rows to operate the Boolean algebra (Ragin 2008c). In effect, the impact of each cause is examined in all logical contexts whereby 2k indicates the configurations of conditions and k represents the number of causal conditions (Ragin 2008b). Therefore, a thorough analysis of the effects of relevant causal conditions can be offered through examining all combinations of causal conditions that enables to construct experiment design-like contrasts in which only one causal condition at a time is allowed to vary (Ragin 2008b; Woodside and Baxter 2013).

However, limited sample cases do not necessarily meet all configurations and some of the

rows have zero cases or so-called remainders (Ragin 2009). In this case, the initial truth table needs to be improved by the second pillar in which the key task of the analysis is to determine which combinations of conditions are relevant based on the number of cases that exceed the crossover point of 0.5 membership in each combination by establishing a number of cases threshold (Ragin 2008c, 2009).

We discussed earlier that true calibration, each case is given scores for the outcome and conditions. These scores are noted in the data matrix and indicate whether or the degree to which cases are member of the sets of cases with the outcome and conditions. The next step investigates the relations between sets of cases that share a combination of conditions on the one hand and the set of cases with the outcome on the other. This assessment is facilitated by the truth table. The truth table is made from the data matrix, and both the truth table and the data matrix describe cases in terms of conditions and an outcome, but the data is structured differently in these tables. Data matrix rows mention set membership scores for one case. In contrast, truth table rows describe the outcome for each possible combination of present and absent conditions, for all cases that have that combination.

To make it more concrete, you can think of the example of female Parliamentary Representation (Table 10). Outcome Y would be the level of female representation, condition A could be quotas for a minimum number of female candidates, conditioned B could be progressive views on women's public role, and condition C could be the expectation within political elites that having female representatives is electorally favorable.

Table 10 example of female Parliamentary Representation

A	B	C	Y	Cases
1	0	1	1	X, Y, Z

By presenting data this way, the truth table enables the identification of subset relations. In these relations, are set of cases with a particular configuration exhibit the same outcome. In these instances, the configuration can be regarded as sufficient for the outcome.

This is primarily what the truth table does. It identifies which truth table rows are sufficient. The data in the truth table also enables the identification of conditions that are necessary for the outcome. The ultimate significance of sufficient truth table rows is that these rows will be included in the next research phase, which is logical minimization that we will talk about it in the next chapter.

3.4.4 Analysis by using Boolean algebra logic

Boolean algebra is the branch of algebra in which the values of the variables are the truth values true and false, usually denoted 1 and 0, respectively. Instead of elementary algebra, where the values of the variables are numbers and the prime operations are addition and multiplication, the main operations of Boolean algebra are the conjunction (and), the disjunction (or), and the negation (not). It is thus a formalism for describing logical operations, in the same way that elementary algebra describes numerical operations.

3.4.5 Frequency threshold & consistency threshold

fsQCA examines entire combinations of conditions simultaneously, instead of comparing individual variables. Therefore, in the third step these configurations are then minimized by algorithms and the initial truth table gets reduced by specifying the frequency and consistency threshold (Ragin 2008b, 2009; Chang and Cheng 2014).

The frequency threshold determines which combinations of conditions are relevant and should be between 1 or 2 or more for much more cases. While in a small-size sample situation (e.g. 10-50 cases) a threshold of 1 is appropriate, for large-scale samples (e.g. 150 cases) frequency

cutoffs should set higher (Ragin 2008b). In our research, the frequency threshold = 4.

The consistency threshold indicates which combinations exhibit high scores in the outcome, combinations with consistency scores below the threshold of 0.80, indicating substantial inconsistency, are coded with 0 and at or above the threshold, indicating a high consistency, are coded with 1 (Ragin 2009). So, it eliminates irrelevant conditions and thus identifies structures that may be characterized by the simultaneous presence of multiple crucial elements (Meuer 2014). Therefore, the third stage of analysis, following a review of the truth table, simplifies combinations and minimizes solutions by using an algorithm (Mas-Verdú et al. 2015). Consistency has to do with the whole idea of subset relations. If cases that share a condition or configuration have the same outcome, then the cases form a subset of instances of the outcome. The configuration in such a relationship can be interpreted as sufficient for the outcome, whether subset relations and sufficiency exist can be assessed with consistency. The importance of this is that sufficient truth table rows will be included in the next research phase, the process of logical minimization.

For crisp sets, consistency is indicated by the proportion of cases in a truth table row that display the outcome. Truth table rows with a consistency of at least 0.75 considered sufficient for the outcome. In that case, the outcome value for the row is one, the outcome value is zero if that is not the case. (Schneider & Wagemann (2012). For instance, let us say there are 10 cases with the same configuration. 8 cases display the outcome and 2 do not, then the proportion is eight of 10 cases or 0.8, so that is the consistency.

For fuzzy sets, the consistency of a configuration is determined in a two-step approach, which starts with determining the membership of all cases in the configuration of interest. The membership of a case in a configuration is the cases lowest membership score in the individual

conditions of the configuration. The second step of determining the consistency of a configuration in fuzzy set QCA until the comparison of the membership of all cases in the configuration of interests with the membership of all cases in the outcome. This comparison is relevant as consistency is indicated when membership scores are consistently less than or equal to membership scores in the outcome. Assessing consistency and sufficiency is part of building the truth table. In our research, we decided that the frequency value will be equal to 4 and the consistency value will be considered 0.9 thanks to the high number of cases.

3.4.6 Logical Minimization

Logical minimization is the next step in the analysis of set relations. The purpose of logical minimization is to systematically compare between the truth table rows with the sufficient combinations of conditions. First of all, the sufficient combinations of conditions in the truth table rows are called primitive expressions. These expressions can be described in a Boolean notation by the use of operators.

The first operator is the multiplication sign, which looks like an *. This sign denotes AND. For instance, between the letters A*B, it says conditions A and B. They should also be noted by writing the letters attached to each other AB.

The second operator we have is the + sign, which denotes OR, as in A+B = A or B.

The third operator ~ means NOT. You can use it to indicate the absence of a condition. Placed before the letter A, for instance, it means not A. An alternative is to note absent conditions in small letters and present conditions in capital letters. So, small letter a would mean not A.

Lastly, the arrow → denotes the connection between conditions and the outcome. For instance, A → Y, it means A is sufficient for Y.

The goal of logical minimization is to find a simpler notation of the primitive

expressions. Simply means shorter, less operators, and without redundant elements. This is achieved through pairwise comparison between primitive expressions. The logic of such comparison can be described as follows. If two primitive expressions differ in one condition, which is present in one expression and absent in the other, then that condition does not contribute to the occurrence of the outcome. So, that condition is logically redundant.

In the next chapter we will discuss the application of fsQCA analysis on our research and illustrate the findings.

4 Findings

In this chapter, we will demonstrate which analysis we have done, what variable/variables we have considered in the analysis, and which configurations or combinations found that is considered sufficient for achieving or not achieving agility as it is the outcome.

fsQCA focuses on the variables that is considered necessary for the outcome achievement or negation (necessary variables) and the combinations of conditions that are sufficient for the outcome achievement or negation (sufficient configurations). For identifying sufficient configurations fsQCA uses binary logic (using a truth table where the condition and outcome can have only two values: true or false). Dul, J. (2016a).

As was mentioned, First, fsQCA investigates how conditions work together as a causal recipe in causing an outcome. Another aspect of complex causality is equifinality, which means that more than one condition or combination of conditions might lead to the same outcome. Lastly, QCA assesses asymmetric causation. Asymmetry means that the recipe for the occurrence of the outcome is not simply the opposite of the recipe for the non-occurrence of the outcome.

Firstly, we have used fsQCA analysis in order to apply necessary analysis for each variable and the possible sufficient configurations or combinations of the proposed framework in both cases when agility is achieved and when agility is negated. As mentioned before, we applied the frequency threshold equal to 4 and the raw consistency equal to 0.9 in order to guarantee higher accuracy thanks to the high number of cases we have. The discussion of the findings is based on theory and logical explanation of the findings proposed by the fsQCA analysis.

4.1 Set-theoretic Configurational Analysis Results

4.2.1 Identifying Necessary Conditions

Due to its set-analytic nature, fsQCA allows one to identify both necessary conditions and

sufficient solutions for agility (Ragin, 2008; Rihoux & Ragin, 2009). In particular, if the value of set membership of a component is basically consistently equivalent to or higher than the value of set membership in the result, at that point that component is a contender for a necessary condition.

We confirmed this result via a necessary condition test that fsQCA provides. Our findings indicate that consistency values were the highest of Collaboration, Execution, and the absence of Diversity, 0.71, 0.77, and 0.73, respectively. Thus, below the typically used threshold of 0.90. This means that there is no one single necessary condition to achieve Workforce Agility of these inputs.

Doing the same analysis for the negation of Workforce Agility, our findings indicate that consistency values were the highest of the absence of Execution, the absence of Customer-centricity, and being a firm outside the IT industries sector were 0.78, 0.74, and 0.75, respectively. Thus, below the typically used threshold of 0.90. This means that there is no one single necessary condition causes the negation of Workforce Agility of these inputs.

Similarly, we have done the same with the achievement of Innovativeness. The highest consistency value was the Execution input 0.70. Thus, below the typically used threshold of 0.90. This means that there is no one single necessary condition to achieve Innovativeness of these inputs.

Same for the Innovativeness negation as the highest consistency value was for the absence of IT industries sector equal to 0.76. Thus, below the typically used threshold of 0.90.

To sum up, the analysis shows that there is no single condition that can be considered necessary to achieve or negate either workforce agility or Innovativeness.

4.2.2 Identifying Sufficient Solutions for Agility

Next, we focused on identifying causal recipes sufficient for agility using truth table analysis (Ragin, 2008). Table 12 presents the fsQCA results in the Boolean expression for intermediate solutions. + means logical OR, * means AND, and ~ means negation.

Table 12 Sufficient analysis results

Outcome	Intermediate solution For the outcome achievement	Intermediate solution For the outcome negation
Workforce Agility	- ~Customer*Execution*~Diversity - Collaboration*~Customer*IT - Execution*~Diversity*IT - ~Collaboration*Execution*IT	- ~Execution*~IT - ~Collaboration*Customer*~IT - ~Collaboration*Diversity*~IT - ~Collaboration*~Customer*~Execution*Diversity
Innovativeness	- Customer*Execution*IT - Execution*Diversity*IT	- Collaboration*~Customer*~Diversity*~IT - Collaboration*~Customer*Execution*~IT - ~Collaboration*Customer*~Execution*~Diversity*~IT

For example, for workforce agility, our findings indicate an intermediate solution with four combinations of elements producing high workforce agility: ~Customer*Execution*~Diversity, Collaboration*~Customer*IT, ~Collaboration*Execution*IT, and Execution*~Diversity*IT.

The first one can interpret as that organizations with a high level of focus on employees' empowerment and execution and independency in the speed of decision making process with just low level of being customer-centric and have low level of surface-level diversity can be sufficient configuration and likely to achieve workforce agility.

The second can interpret as that organizations that play in one of the IT sectors, with high focus on the internal employees' collaboration with lower attention of being customer-centric is sufficient enough configuration to achieve workforce agility.

The third combination is similar to the second one of being a firm that belongs to IT sector and has a high level of focus on empowerment and execution and independency in the speed of decision making process with just low level of being customer-centric can be sufficient configuration and likely to achieve workforce agility.

The fourth configuration that can be sufficient to achieve workforce agility can be interpret as a firm plays in the IT sector with high level of internal freedom within employees' empowerment and execution and independency in the speed of decision making process with lower focus on the collaboration. These configurations seem to suggest that being IT company has already a huge advantage to be an agile firm and with higher focus on employees' empowerment. Also, it suggests higher focus on internal collaboration than being customer-centric in order to achieve workforce agility.

Note that the absence of any term means low level of the term NOT the total absence of the term. We will discuss all findings and the interpretation of them in the discussion chapter.

Figure 7 and 8 graphically depict the results of Table 12 using the notation system from Ragin and Fiss (2008). In configuration tables, researchers commonly number the configurations based on core conditions to indicate first and second order equifinality (Fiss, 2011). Each rectangle in this figure (e.g., A1, B1) represents one configuration of conditions and corresponds to one recipe of the intermediate solution. Full circles indicate the presence of a condition, and crossed-out circles indicate its absence, which suggests that dark circle elements are an enabler for the outcome and that crossed-out elements may inhibit a firm from achieving the outcome. For example, the presence of Collaboration (dark circle) means that full membership in a high level of employees' Collaboration exists, and its absence (X circle) means that full membership in a high level of employees' Collaboration does not exist in the configuration that results in workforce agility. In addition, blank spaces indicate a "don't-care

situation" where the element may be either present or absent without effect in the configuration.

Figure 7 Sufficient analysis results of workforce agility

Configuration Elements	(1) Configurations for achieving Workforce Agility				(2) Configurations for negating Workforce Agility			
	A1	A2	A3	A4	B1	B2	B3	B4
COLLABORATION		●		⊗		⊗	⊗	⊗
CUSTOMER- CENTRIC	⊗	⊗		●		●		⊗
EXECUTION	●		●	●	⊗			⊗
DIVERSITY	⊗		⊗				●	●
IT SECTOR		●	●	●	⊗	⊗	⊗	
Consistency	0.90	0.87	0.90	0.90	0.81	0.92	0.87	0.90
Raw Coverage	0.49	0.20	0.22	0.22	0.61	0.29	0.35	0.35
Unique Coverage	0.29	0.04	0.01	0.02	0.23	0.01	0.02	0.11
Overall Solution Consistency	0.86				0.81			
Overall Solution Coverage	0.60				0.75			

Figure 8 Sufficient analysis results of Innovativeness

Configuration Elements	(1) Configurations for achieving Innovativeness		(2) Configurations for negating Innovativeness		
	C1	C2	D1	D2	D3
COLLABORATION			●	●	⊗
CUSTOMER- CENTRIC	●		⊗	⊗	●
EXECUTION	●	●		⊗	⊗
DIVERSITY		●	⊗		⊗
IT SECTOR	●	●	⊗	⊗	⊗
Consistency	0.87	0.89	0.88	0.88	0.88
Raw Coverage	0.18	0.22	0.26	0.30	0.19
Unique Coverage	0.04	0.08	0.04	0.07	0.07
Overall Solution Consistency	0.86		0.86		
Overall Solution Coverage	0.26		0.41		

By graphically showing combinations, we can more effectively interpret and compare the complex structures of combinations in such a way, which explains how the elements combine simultaneously and systemically to bring in the result and the role of each input in the dynamics engaged with accomplishing agility. Thus, unlike the traditional method such as cluster analysis, with fsQCA, we can not only find clusters of high agility but also examine in fine detail the connections between the elements and the role of each element of a configuration in achieving high agility and, thus, build a systemic middle-range theory (Fiss, 2007, 2011). In the next chapter, we further delve into the dynamics of agility by explaining the details of configurations for each type so we can more deeply understand the role of each input plays in firms' achieving agility.

5 Discussion

5.1 Workforce Agility

First, as Figure 7 shows, we found four configurations that organizations can adopt to achieve HIGH workforce agility, which indicates situation of equifinality. Execution (in configuration A3, A4), Collaboration (in configuration A2), and Customer- Centric (in configuration A4) can support IT sector firms to achieve workforce agility in fast and unpredictable environments. Interestingly, non- IT sector firms can achieve workforce agility only with high level of employees' empowerment and execution (in configuration A1) – they do not need a high level of surface level diversity neither customer-centricity approach. For configurations of HIGH workforce agility, Execution and Playing in one of IT industries are core elements that have a strong causal relationship with workforce agility, while customer-centricity and collaboration are a peripheral elements that may complement core Execution and Playing in one of IT industries in a firm's achieving high workforce agility. In addition, all the configurations of high workforce agility applied to the absence diversity, which means that organizational surface-level diversity does NOT matter for achieving high workforce agility.

To sum up, in order to achieve high workforce agility, there are four paths. For A1, for all firms whether in IT sector or not, employees need to be empowered to act, without too much internal diversity, and not necessary that you focus on the customer. Examples on A1 are DoorDash, Jabil, Kiewit. For A2, for companies that playing in IT sector, if the employees are not empowered to act, then they should overcome this by intensively focusing on collaboration inside your organization without much focus on the being customer centric. This can overcome the dependence style of work by sharing different opinions to act thanks to the collaboration. Examples on this are Nvidia, Atos-Syntel, Twitter. For A3, the configuration is very similar to A1, but with exclusivity towards IT sector firms. So, being in IT sector, one of the different

paths a firm can choose is to intensively empower the employees to act and work independently with low level of diversity. Other elements of collaboration and customer centricity needs to be in the I don't care position, which means they have adequate and balanced level inside the firm that goes with this path. Examples are DoorDash, CompuCom, Epic. Last but not least, for path A4, if a firm in IT sector that has very low level of internal collaboration, it still can have an option to achieve workforce agility by enabling high level of being customer-centric company with high level of employees empowerment and independence to act on objectives. For example, Amazon, Netflix, CATechnologies.

Figure 7 shows two types of measures for validating the solutions: consistency and coverage. First, workforce agility achievement overall solution consistency measures the degree to which all configurations together consistently result in high workforce agility. In this example, overall consistency was 0.86—far above the usually acceptable level of 0.80 (Ragin, 2008). Raw coverage is roughly the extent to which each configuration covers the cases of outcome, more exactly the proportion of cases that have membership in its respective path to the outcome. Thus, it shows an empirical relevance and effectiveness of the solution for the outcome, although a higher coverage does not necessarily mean theoretical importance (Ragin, 2008, p. 44). Thus, organizations can achieve workforce agility with different paths (i.e., equifinality), but individual paths differ in their empirical importance and effectiveness. In these equifinal solutions, configuration A1 has the largest coverage in an NON-IT firm's achieving workforce agility, while configuration A3 and A4 have the largest coverage in achieving workforce agility in an IT firm's achieving workforce agility, which means it is empirically most relevant and effective.

Second, as Figure 7 also shows, four configurations that if organizations adopt, they will have LOW workforce agility, which indicates situation of equifinality. The absence or the low level

of Collaboration (in configuration B2, B3, B4), and the absence or the low level of Execution (in configuration B1) can easily hinder any firm that is not playing in IT-sector and lead to low level of workforce agility. Interestingly, having high level of diversity can be a core element to hinder workforce agility. It is shown that the absence of diversity "I don't care position" in all configurations does not affect the level of workforce agility, while in configurations B3 and B4, it is obvious that only having a high level of diversity with the absence of other elements can hinder workforce agility. In other words, all the configurations of low workforce agility applied to the presence of diversity or "I don't care" position, which means that organizational surface-level diversity DOES matter for scoring low workforce agility. For configurations of LOW workforce agility, the absence of collaboration and the absence of playing in one of IT industries are core elements that have a strong causal relationship with low workforce agility, while the absence of customer-centricity and the absence of execution are a peripheral elements that may complement core Execution absence and Playing in one of IT industries in a firm's absence causing LOW workforce agility.

Figure 7 shows two types of measures for validating the solutions: consistency and coverage. First, workforce agility negation overall solution consistency measures the degree to which all configurations together consistently result in low workforce agility. In this example, overall consistency was 0.81—above the usually acceptable level of 0.80 (Ragin, 2008). Raw coverage is roughly the extent to which each configuration covers the cases of outcome, more exactly the proportion of cases that have membership in its respective path to the outcome. Thus, it shows an empirical relevance and effectiveness of the solution for the outcome, although a higher coverage does not necessarily mean theoretical importance (Ragin, 2008, p. 44). Thus, organizations can score low workforce agility with different paths (i.e., equifinality), but individual paths differ in their empirical importance and effectiveness. In these equifinal

solutions, configuration B1 has the largest coverage in an IT firm's with low workforce agility.

5.2 Innovativeness

First, as Figure 8 shows, two configurations are available for organizations to achieve HIGH level of Innovativeness, which indicates situation of equifinality, in which playing in IT-sector and execution are a core elements and present in both configurations, while Customer-Centricity and Surface Level Diversity are complement elements. Interestingly, Collaboration positioned in " I don't care" position in both configurations, which means that it is not a core element to have a high Innovativeness and the presence or absence of collaboration do not affect the level of Innovativeness. In both configuration, there is no element that its absence will directly lead to lower level of Innovativeness.

To conclude, for firms that are not in the IT industries, there is configurations that could help and be sufficient to achieve high level of innovativeness as there were too much diversity and these variables are not sufficient to identify a pattern, However, for firms in IT industry, there are two configurations to achieve high level of innovativeness. In both configurations, firms must empower the employees to act independently. To be highly innovative, you need to have empowered teams. Moreover, after being in IT sector and high level of empowerment, there are two paths for high innovativeness. Either these empowered teams focus on the customer and really responsive to their needs and desires in an outside-in approach as shown in C1. Example for C1 are Amazon, HubSpot, Cognizant. Or they focus on being very diverse internally, therefore the innovation emerges from the different innovative ideas coming from inside-out the teams as shown in C2. Example for C2 configuration are Accenture, Capgemini, Nvidia.

Figure 8 shows two types of measures for validating the solutions: consistency and coverage. In this example, overall consistency was 0.86—far above the usually acceptable level of 0.80 (Ragin, 2008). In these equifinal solutions, configuration C2 has the largest coverage 0.22,

which means it is empirically most relevant and effective in a firm's achieving Innovativeness. Second, as Figure 8 also shows, we found three configurations considered traps for organizations lead to LOW Innovativeness, which indicates situation of equifinality. The three configurations indicate that the absence or the low level of Execution (in configuration D2, D3), and the absence or the low level of Diversity (in configuration D1, D3) can easily hinder any firm that is not playing in IT-sector and lead to low level of Innovativeness. Moreover, having a high level of collaboration (in configuration D1, D2) with the absence of the other elements is not considered enough to achieve high level of Innovativeness and leads to low level of Innovativeness. In contrast of workforce agility, having low level of diversity can be a core element to hinder Innovativeness. For configurations of LOW Innovativeness, the absence of Diversity, the absence of execution, and the absence of Playing in one of IT industries are core elements that have a strong causal relationship with low Innovativeness, while Customer-Centricity and Execution are a peripheral elements that may complement core elements causing LOW workforce agility.

To conclude, for IT sector firms, there is no sufficient configurations identified for low level of innovativeness. However, for non-IT-sector firms, there are three configurations that can lead to low level of innovativeness. For D1 and D2, they are non-IT-firm that exclusively focus on internal collaboration but without any consideration for the external environment regarding customers. And there, the problems arises in two situations, either if you don't have a diverse organization because in that way the firm is too homogenous and therefore there is no different voice which tells you that you should go on different direction as in option D1, or you do not have empowered teams so there are some teams who actually tell how to achieve innovation, but without a chance to act or power to respond and implement innovation as in D2. On the other hand, different configuration D3 could be that if you look at the customer but only on the

customer doing exactly what they say but internally nobody is willing to collaborate and share knowledge, teams are not empowered to react so they are ordered to only work on what customers tell them, and there is no diversity. Therefore, it is all about efficiency and efficient respond to the customer needs. This makes firms less innovative.

Figure 8 shows two types of measures for validating the solutions: consistency and coverage. In this example, overall consistency was 0.86—far above the usually acceptable level of 0.80 (Ragin, 2008). In these equifinal solutions, configuration D2 has the largest coverage 0.30, which means it is empirically most relevant and effective in a firm's low Innovativeness.

Ultimately, from figure 7 and 8, we can visually extract the core elements intersected in the achievement of workforce agility and Innovativeness, and the core elements intersected in the negation of workforce agility and Innovativeness. In verbal terms, our results indicate that EXECUTION, and IT SECTOR Firms are core elements to achieve both workforce agility and Innovativeness. Moreover, the absence of EXECUTION, and IT SECTOR firms are also core elements to negate or have a low level of workforce agility and Innovativeness. Surprisingly and worthy to mention that, the absence of DIVERSITY is a core element to score low Innovativeness, while the presence of DIVERSITY is a core element to negate workforce agility. In general, across all the configurations for workforce agility and Innovativeness, IT-sector organizations need high EXECUTION to achieve workforce agility and Innovativeness, while other elements take a peripheral and complementary position and play multifaceted roles. Moreover, firms need to find the balance needed in the diversity element. We suggest that having adequate level of diversity can be a half-way meeting that balance the effect on both workforce agility and Innovativeness and position the element in the "I don't care" position.

6 Conclusion

With this study, we develop a richer understanding of the role of organizational culture in enterprise agility. We built a theoretical framework based on the information-processing view of an organization and dynamic capability from which we conceptualized enterprise agility and key components of organizational culture attributes. Then, with a configurational approach and fsQCA, we investigated how all elements combine in bundles to produce the two types of outputs that impact enterprise agility, workforce agility and Innovativeness. We found multiple configurations of workforce agility and Innovativeness in both cases; achievement and negation, which may represent institutionalized forms and best practices that many organizations adopt to achieve agility. The equifinal configurations imply that organizations can choose one of multiple paths to a high level of agility with a distinct set of organizational culture attributes that better fits their unique context. Thus, in accordance with the contingency perspective (e.g., Lawrence & Lorsch, 1967), the roles of Diversity and do not ubiquitously apply to all organizational contexts and environmental conditions. Furthermore, this study shows that organizations need to apply each type of execution to a specific context.

6.1 Contributions to theory

In the present progressively turbulent environmental business conditions, firms endeavor to achieve competitive advantage by investing more in forming adequate and relevant organizational culture with the goal that they can be agile in sensing and responding to market opportunities and threats. According to many authors (e.g. Dove 2005; Sherehiy et al. 2007; Tseng and Lin 2011; Yauch 2011), a culture of change is one of the cornerstones in an organization that seeks agility. The corporate culture should be aligned with the organizational strategy, and this culture of change proficiency has to be fostered, nurtured, and developed

continually in the organization (Dove 2005; Sherehiy et al. 2007). Dyer and Shafer (2003) underline the importance of having a culture of employee empowerment in an agile organization.

In this study, we build a middle-range theory of organizational culture relationship with agility that suggests the boundary conditions that determine the role that employees' empowerment and adequate level of diversity play in firms – especially IT sector firms- achieving all types of agility. Specifically, this study makes several significant theoretical to the workforce agility, Innovativeness, and enterprise agility literature.

First, we expand the enterprise agility literature by suggesting a theoretical framework to conceptualize key constructs for workforce agility and Innovativeness research and organizational culture research, which we synthesize the extant frameworks grounded on the view of organizations as information processing and interpretation systems and dynamic capabilities. This framework complements the traditional input-output box of the sense-response attributes by more fully and explicitly explaining the core tasks of interpretation of the captured events and strategic decision making for action. This contribution helped to fill some of the agility gaps and clarified that it is not just a matter of individual agility enabler contribute but it is about specific combinations among these enablers. Moreover, it appears that IT-sector companies are easier to be agile, which make sense as the agile paradigm emerged in digital companies.

Second, we explain the complex dynamics of workforce agility and Innovativeness with a holistic configurational approach. Instead of focusing on the additive linear net-effects of organizational culture on enterprise agility, we explain how workforce agility and Innovativeness and organizational and culture elements combine into multiple configurations. By doing so, we show multiple equifinal pathways to workforce agility and Innovativeness

achievement and also negation and the multifaceted role of organizational culture across the configurations. We empirically explain the systemic, complex nature of enterprise agility with workforce agility and Innovativeness relationships in which organizational culture attributes may be essential for producing or negating one type of the outcome of workforce agility or Innovativeness in some configurations but may be irrelevant or even counterproductive in other configurations. Thus, we show the different roles of culture elements in a firm's achieving agility, which resolves somewhat conflicting arguments of extant enterprise agility studies about the role of organizational architecture and culture of change in developing enterprise agility, pointing to organizational architecture and culture of change as enablers of (Marcel van Oosterhout et al) 2017 framework.

Third, we apply a configuration approach and fsQCA in information system research to investigate the complex relationship between organizational culture elements and workforce agility and Innovativeness in the form of configurations to enable or disable enterprise agility. We do not simply introduce the method but show how to adjust it to this research context. Further, we apply both raw consistency and PRI consistency to find more rigorous patterns in the relationship between organizational culture and agility. These contributions are significant according to the typology of the level of empirical studies' theoretical contributions (Colquitt & Zapata-Phelan, 2007).

6.2 Contributions to Practice

Our findings also have implications for practice. Practically, the multiple configurations of high agility and the multifaceted roles of organizational culture in the configurations imply that organizations in different conditions can focus their investments on specific dimensions and configurations and choose their own unique configurations that can be more effective and affordable in achieving agility for their own contextual condition, instead of randomly

investing in various individual variables. Thus, in practice, managers have various options to choose from to achieve high agility through workforce agility and Innovativeness enablers that can take advantage of their organization's capabilities and, thus, reduce the risk of failure. Moreover, as we highlighted the most relevant variables, it could help managers to develop agility KPIs matrix with the relevant variables in order to monitor the agility level of the enterprise. This can open new opportunities and new ways to improve and foster the decision-making processes.

At the same time, as we show in the fsQCA results, organizations can use few configurations to achieve high workforce agility and high Innovativeness therefore achieving high enterprise agility, and the effectiveness of each solution for the outcome is different from one another. This finding implies that there are a limited set of options that organizations can choose, which can reduce cognitive overload on managers when they need to make such a choice over multiple paths to agility.

6.3 Limitations and Future Research

This study has several limitations that suggest further study. First, our empirical fsQCA results and solutions might show only part - organizational culture and culture of change enabler - of the full potential role of all agility enablers achieving agility. Accordingly, separate studies need to further test and complement the other agility enablers variables and show full complete paths results to achieve enterprise agility.

Second, the data collected in this thesis was limited to secondary data retrieved online. This is a limitation because we do not exactly know how these data were collected. Therefore, it is possible that they used some of the indexes which we also used so there may be a fallacy in the construction of my experiment. Accordingly, a further research could be doing the same analysis based on a primary data collected from executives and employees to reflect on their

perception and explanation.

Third, the research showed that most of the agile companies are related to the digital sector. This make sense as the agile paradigm emerged in digital companies. Therefore, it may be interesting to a research whether enterprise agility is related only to the background of software industry as these digital companies have some different attributes?

Fourth, we explain how to achieve two types of agility - workforce agility and Innovativeness - and the role that organizational culture plays in achieving enterprise agility in different organizational and environmental contexts. However, in the current study, we did not empirically test if the configurations of agility achieve high firm performance or not. Depending on organizational and environmental contexts, distinct configurations can require different levels of the two types of agility (Nazir & Pinsonneault, 2012; Overby et al., 2006) to achieve high firm performance. Future studies can empirically show how to configure such agility with organizational culture and test if such configurations result in high firm performance.

Fifth, we provide guidance for future research on how to adopt the configurational approach with the fsQCA method for building richer theories in the interconnected, non-linear digital world. The configurational approach with fsQCA would allow researchers to rethink the structuring and form of those theories and, hopefully, further enrich and augment them. Thus, more generally, the approach would enable researchers to develop novel theories in the information systems area that capture the complexity of the interconnected digital world and that go beyond linear traditional relationships (Straub & Burton-Jones, 2007).

This study enriches our understanding of organizational culture's relationship with agility and provides new avenues for future research. We hope that it will stimulate other researchers to adopt a configurational theory-building approach with accompanying set-theoretic analysis to

advance our understanding of the complexity of the dynamics and intricacies of the structure of enterprise agility and the influence of organizational culture on how it is enabled or inhibited.

As a final note, we again emphasize the importance of the multifaceted role of organizational culture through workforce agility and Innovativeness in a firm's achieving enterprise agility as either enabling or inhibiting and either core or peripheral across multiple configurations. Organizational culture itself is not sufficient for producing the outcome but is an element of a systemic configurational solution in which organizational culture attributes together with other organizational and environmental elements in specific contexts can produce agility.

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