

# MIDDLE MANAGERS' ROLES AND CAPABILITIES IN TIMES OF TECHNOLOGICAL CHANGE

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**Abstract**

Technological changes are redefining the way organizations do business and they seem unavoidable for most – if not all – industries. However, its intricacies have not yet been fully understood by scientific research. Moreover, middle managers' roles and capabilities in times of technological change have not received enough attention. Being key players of change, middle managers' contributions often determine the success or failure of different change initiatives.

The purpose of this qualitative study is to increase our understanding of this phenomenon by focusing on middle managers' perceptions regarding their roles and capabilities in the context of technological change. In addition, the study bridges two streams of literature that have so far been developed separately, i.e. the literature on middle managers' roles and the literature on managerial capabilities.

The empirical data was collected by conducting twelve semi-structured interviews with middle managers from a variety of industries. By drawing on their perceptions, the objective was to gain insights on two main points: middle managers' roles during technological change and the competencies and capabilities they perceive to use in order to fulfil each of such roles.

The findings of this study indicate that several of the roles mentioned in the literature are performed by middle managers during times of technological change. The data suggests that middle managers are in a position that requires them to be simultaneously change receivers and change leaders. As change receivers, they (1) make sense of the technological change, (2) make sense of their role as change receivers and (3) manage their own resistance to change. In turn, as change leaders, they (1) implement the change, (2) help others through the change and (3) manage team members' resistance to change.

In addition, a variety of concrete competencies and skills were identified in the data as necessary capabilities for middle managers to effectively perform each of their roles. As such, the study contributes to existing research by drawing connections between the roles that middle managers enact during times of technological change, and the concrete competencies associated to each of their roles.

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**Keywords** organizational change, middle managers, managerial capabilities, change management

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## Table of Contents

1	INTRODUCTION.....	1
1.1	Research objectives and research questions .....	3
1.2	Structure of the paper.....	5
2	LITERATURE REVIEW.....	6
2.1	Middle managers' roles .....	6
2.1.1	Middle managers' multifaceted role during organizational change .....	9
2.1.2	Middle managers' resistance to change.....	16
2.2	Managerial change capabilities.....	19
2.2.1	Managerial cognition.....	24
2.2.2	Managerial human capital .....	26
2.2.3	Managerial social capital .....	27
2.3	Summary of the literature review .....	28
3	RESEARCH DESIGN AND METHODS .....	32
4	FINDINGS .....	36
4.1	Middle managers' roles as change receivers .....	36
4.1.1	Sense-making of technological changes.....	37
4.1.2	Sense-making of their role as change receivers.....	41
4.1.3	Managing their own resistance to change.....	43
4.2	Middle managers' roles as change leaders.....	45
4.2.1	Implementing the change.....	45
4.2.2	Helping others through change.....	47
4.2.3	Managing team members' resistance to change .....	49
4.3	Managerial capabilities as change receivers .....	51
4.3.1	Capabilities to make sense of the technological change.....	51
4.3.2	Capabilities to make sense of their role as change receivers.....	54
4.3.3	Capabilities to manage their own resistance to change .....	56
4.4	Managerial capabilities as change leaders .....	58
4.4.1	Capabilities to implement the change.....	58
4.4.2	Capabilities to help others through change.....	63
4.4.3	Capabilities to manage team members' resistance to change.....	72
4.5	Summary of findings .....	77
5	CONCLUSION .....	80
	REFERENCES .....	83

# 1 INTRODUCTION

Organizational change is a topic of increasing importance in today's changing business environment. Change seems unavoidable for most – if not all – industries, but its intricacies have not yet been fully understood by scientific research (Pádár, Pataki and Sebestyén, 2017). Moreover, technological developments and digitalization have acted as “accelerating factors” (Hirte and Sieger, 2018, p.3) of change and they added to the complexity of change management as organizations find themselves in a completely new setting with a myriad of new challenges (Wilson III, et al., 2004).

The purpose of this qualitative study is to increase our understanding of organizational change by focusing on middle managers' perceptions regarding their roles and capabilities in the context of technological change. As such, I wish to contribute to existing literature by helping unpack a phenomenon that is of increasing interest and whose complexity is far from being completely understood.

Middle managers are considered by research to be one category of organizational members who play a strategic role during times of organizational change (e.g. Wooldridge, Schmid and Floyd, 2008; Bryant and Stensaker, 2011) and whose contributions often determine the success or failure of certain change initiatives (Balogun, 2003). They often receive change from the top management and must drive that change down the hierarchy. In this line, research has claimed that middle managers carry out a dual role of being, at the same time, change receivers and change leaders (e.g. Huy, 2002).

As such, middle managers frequently face the challenge of reconciling conflicting interests between top management's expectations and organizational members' concerns (Bryant and Stensaker, 2011). In the process, they must also negotiate a shared understanding of the change and secure an effective allocation of resources, while carrying on with daily operational duties (Balogun, 2003).

Middle managers' role is, therefore, multifaceted and it entails the performing of a multiplicity of activities. They must "interpret and sell change every day" (Rouleau, 2005, p.1413), resolve immediate problems in a "fire-fighting" mode (Balogun, 2003, p.77), and act as change intermediaries between the higher and lower levels of the organization (Wooldridge, Schmid and Floyd, 2008).

Despite an abundant volume of literature on middle managers, their role in the particular context of technological change has not received enough attention by scientific studies (Taylor and Helfat, 2009). Much of the previous research has been carried out in the context of other types of changes, such as organizational restructuring (Balogun and Johnson, 2004), changes in product portfolio (Rouleau, 2005) or transformation of the company's business model (Huy, Corley and Kraatz, 2014), to name a few. Therefore, the role of middle managers in relation to technological change should be explored in more detail, and this study aims at filling this gap.

Furthermore, this study aims at contributing in enhancing our understanding of the competencies and capabilities that middle managers need in times of technological change as this issue has not received proper investigation either (Balogun, 2003). In order to fulfil their roles, middle managers must possess certain skills and abilities, and, as organizations are becoming increasingly complex (Balogun and Johnson, 2004), it is important to expand our research on the concrete competencies that different organizational members must acquire in order to properly fulfil their roles during change processes. Moreover, with the rise of digitalization, managerial capabilities constitute an organizational asset that has "become the critical source of value creation" (Collin, et al., 2015, p.15). Therefore, managerial competencies and capabilities in times of technological change should be on top of the agenda in every organization.

In this study, I wish to contribute to existing literature by exploring middle managers' perceptions regarding their roles and their capabilities during times of technological

change. I believe that this topic is relevant in today's increasingly digitalized world, as it can provide useful information to advance our understanding of this phenomenon.

The studies of middle managers' roles, on the one hand, and their capabilities, on the other, have so far been treated separately. Only few connections have been drawn by previous research. For instance, Bryant and Stensaker (2011) state that middle managers who are involved in roles related to change management must acquire new managerial skills; while Rouleau (2005) alludes to "emotive capabilities" (p.1438) and "relational and social competences" (p.1439) as some of the skills related to middle managers' sense-making and sense-giving roles. However, despite these tangential connections, to my knowledge, no study has taken a systematic approach in linking middle managers' roles and middle managers' capabilities. In this study, I aim at bridging these two streams of literature by discovering which competencies are used for which roles, according to middle managers' views.

## **1.1 Research objectives and research questions**

By drawing on middle managers' perceptions, the overarching purpose of this study is to gain insights on two main points: (1) middle managers' roles during times of technological change and (2) the competencies and capabilities they perceive to use in order to fulfil each of the roles.

As such, this research aims at extracting useful information that can shed light on middle managers' intricate and complex roles and it also offers the opportunity to identify concrete competencies and capabilities that should be the focus for future research. In addition, from a managerial point of view, the findings of this study can provide practical insight as to what needs to be improved in order for middle managers to be more effective

at managing change, as well as to discover how they see themselves in the context of technological change.

The topic of this thesis includes two main elements that compose the setting of the study. First, the context of the research is that of organizational change, and it concentrates on a specific type of change, that is: technological developments. Second, the actors who are the subjects of the study are middle managers.

In order to structure the different aspects of this topic, I have set two guiding objectives for this research. The first objective is to explore how middle managers perceive their role when technological changes are initiated in their organizations. The second objective is to identify which are the concrete managerial capabilities that middle managers perceive to use to effectively fulfil each of their roles in the mentioned context.

These two objectives are pursued by conducting semi-structured interviews with middle managers from a variety of industries. Interview participants were asked to elaborate on their views and opinions in relation to the topic of this study and the data collection was conducted among Finnish-based organizations.

In light of the objectives described, I have formulated the following two research questions:

RQ1. What are middle managers' perceptions regarding their roles in times of technological change?

RQ2. What are middle managers' perceptions regarding the competencies and capabilities that they must use to fulfil such roles?

By articulating these two research questions, I intend to achieve the two objectives mentioned before. I believe this two-fold outlook can provide an ample view to contribute

to existing literature and to offer avenues for future research. Moreover, the study can constitute valuable input for managers and consultants who face the challenge of adapting their practices to the new digital society (Wilson III, et al., 2004).

## **1.2 Structure of the paper**

Having offered an introduction outlining the setting of the study, its research objectives and research questions, the rest of the paper is organized as follows. First, I begin by reviewing and discussing the relevant academic literature on middle managers roles during organizational change, as well as on managerial capabilities. Second, I introduce a methodology section where I present the research design of the study, as well as the methods for data collection and data analysis. Third, I continue by presenting the empirical findings derived from the data collection, and I discuss them in light of the relevant literature. Finally, I offer a conclusion on the main research points, the theoretical and practical implications of the study, as well as suggestions for further research.



## **2 LITERATURE REVIEW**

In this section, I present an overview of the relevant literature in connection to the topic of my thesis. First, I discuss relevant academic studies in relation to middle managers' roles during organizational change and I explore which role have been identified by different scholars. Second, I examine the literature on managerial capabilities with a focus on Adner and Helfat's (2003) framework of dynamic managerial capabilities. By engaging with these two main bodies of literature, I aim at gaining a comprehensive view on the current state of scientific research in relation to my two research questions. This will lay the foundations on which I will analyse and discuss my empirical findings. Finally, I present a summary of the literature section of the study.

### **2.1 Middle managers' roles**

A role can be defined as “the recurring actions of an individual, appropriately interrelated with the repetitive activities of others so as to yield a predictable outcome” (Katz and Kahn, 1978, p.189 cited in Raes, et al., 2011). Research suggests that people's expectations regarding their own roles and other people's roles shape and determine the role behaviours that the person will adopt (Mantere, 2008). Moreover, role behaviours change and evolve over time, and they are influenced by the social position that the person has within the organization (Raes, et al., 2011)

As for the definition of “middle manager”, the literature is not without ambiguity (Wooldridge, Schmid and Floyd, 2008). Floyd and Wooldridge (1992) characterize middle managers from a functional perspective, defining middle management as the “coordination of an organizational unit's day-to-day activities with the activities of vertically related groups” (p.154). Dutton and Ashford (1993), on the other hand, adopt a

hierarchy perspective and claim that middle managers are those managers who operate “two or three levels below the CEO” (p.398).

A lack of consensus in the definition of middle managers is exacerbated by the fact that there has been a surge in unconventional organizational structures where traditional boundaries and hierarchies between functions and between levels are becoming blurred (Van Den Bosch and Van Wijk, 2000; Wilson III, et al., 2004). The digital transformation has also played a part in this phenomenon. Digitally enabled organizations require flexible leadership practices, where the role of leader versus follower shifts and adapts according to market needs (Collin, et al., 2015).

In this study, I refer to the position of middle managers in a broad sense. Therefore, I deem the term “middle manager” as comprising those management positions that are situated between top managers and first-line supervisors (Herzig and Jimmieson, 2006). However, as noted by Wooldridge, Schmid and Floyd (2008), what distinguishes middle managers from other organizational positions is not their position in the hierarchy, but their “access to top management coupled with their knowledge of operations” (p.1192).

The role of middle managers from a strategy perspective began to be researched in the 1970s (Wooldridge, Schmid and Floyd, 2008; Hirte and Sieger, 2018). Prior to that, middle managers were often portrayed as an obstacle to organizational change and growth. For instance, Huy (2002) describes how middle managers have been described by certain research as “de-energized” (p.32), emotionally weak and an obstacle to radical change. They have also been accused of being “unimaginative bureaucrats” (Huy, 2001, p.73), resisters of change (Balogun, 2003) and “obsolete due to the flattening of hierarchical organizational structures” (Herzig and Jimmieson, 2006). In consequence, middle management has been seen as a role to be eliminated from organizations (Balogun, 2003).

Despite this traditional view, a large bundle of the recent literature has found evidence that middle managers have a strategic role during times of organizational change (e.g. Bryant and Stensaker, 2011) and that they are “central to explaining key organizational outcomes” (Wooldridge, Schmid and Floyd, 2008, p.1191). For instance, middle managers have been found to be in a better position than top managers to understand and exploit the core capabilities extant in their organizations (Wooldridge, Schmid and Floyd, 2008).

In the context of technological change, they are also important actors in the creation of intra-organization connections among different units within the firm, which constitutes a key element for the orchestration of capabilities existing in different departments within the organization (Taylor and Helfat, 2009). Moreover, evidence suggest that middle managers are vital for the development of new organizational capabilities and the renewal of strategic initiatives according to changing environments (Mantere, 2008). As such, middle managers have a strategic value in “facilitating adaptability” (Floyd and Wooldridge, 1992, p.154), promoting innovation and fostering strategic renewal (Dutton and Ashford, 1993). Middle managers’ have thus been recognized by a broad set of literature as important “strategy practitioners” (Mantere, 2008, p.295) and strategy-makers (Herzig and Jimmieson, 2006).

However, existing research has not provided with enough empirical evidence as to how technological changes impact the role of middle managers and how new technologies and digital tools can affect their performance in the long term (Duparc, 2012). Therefore, this study constitutes an opportunity to explore the different roles that middle managers adopt in such context and the particularities that they present.

In next paragraphs, I will review existing literature on the varied and multifaceted roles that middle managers take upon in times of organizational change. In addition, I dedicate a section to discuss middle managers’ resistance to change.

### **2.1.1 Middle managers' multifaceted role during organizational change**

Middle managers have been portrayed by the literature as organizational members who carry out a myriad of roles during organizational change. In the following paragraphs, I discuss the main roles that can be found in existing research. These roles are: intermediation role, dual role of change receivers and change leaders, implementation role, role of helping others through change, role of undertaking personal change, entrepreneur role, knowledge management role and sense-making role.

#### ***Intermediation role***

Middle managers are in a position of intermediation between areas of the organization which would be otherwise disconnected (Wooldridge, Schmid and Floyd, 2008). They have been said to act as “linking pins” (Raes, et al., 2011, p.102), “organizational connectors” (Taylor and Helfat, 2009, p.719) and “mediators” (Mantere, 2008, p.295) between top managers and lower tiers of the organization.

Middle managers also play an important role during organizational change as they engage in activities that have the potential to influence the organization's strategy both up the hierarchy as well as downwards (Floyd and Wooldridge, 1992). According to Balogun (2003), middle managers fulfil a position of key “change intermediaries” (p. 70) during the deployment of change initiatives.

In relation to technological changes, middle managers' role as change intermediaries is mentioned in certain literature. Taylor and Helfat (2009) suggest that middle managers are vital for creating the appropriate nexuses between organizational units which are essential during technological changes. The authors claim that middle managers' role in creating internal linkages is “critical to the success or failure of technological transitions” (p.719). In the same line, Dutton and Ashford (1993) argue that middle managers play a key role in integrating and coordinating the efforts of the technical units and the institutional units within the firm.

### ***Dual role of change receivers and change leaders***

Middle managers are said to hold a dual role, as they are simultaneously change recipients and change agents (Huy, 2002). In other words, they receive the change that comes from the top and must lead the change down the hierarchy line. This dual role has been documented by different authors. Raes et al. (2011, p.103) argue that a middle manager is at the same time an “accomplice” of the top management and a “representative of organizational units” (p.103), while Giangreco and Peccei (2005) maintain that during organizational change, middle managers are simultaneously both the “victims” or “targets” of the change, as well as the “agents” or “carriers” of change (p.1813). In the same line, Floyd and Wooldridge (1992) note that middle managers are “a superior in one group is a subordinate in the next” (p.154), while Bryan and Stensaker (2011) ask themselves how middle managers “solve the dilemma of being both leader and follower” (p.369).

### ***Implementation role***

Strategy implementation is perhaps the role that has received the most attention from middle-management research and, according to Mantere (2008), it is possibly the most prevalent role expectation among middle managers themselves. Middle managers are regularly tasked with implementing the strategies and change initiatives coming from the top management (Floyd and Wooldridge, 1992). The implementation function consists of aligning subordinates’ activities with top-management strategic intent, in order to realize the goals and objectives set by the strategy plan (Mantere, 2008). This role often requires middle managers to apply changes in their own departments, such as putting in place new working practices and reorganizing tasks and responsibilities within their teams (Balogun, 2003). In addition, all of these coordination activities involve additional costs that middle managers must consider when reallocating the resources at their disposal (Taylor and Helfat, 2009).

### ***Role of helping others through change***

Another role that middle managers must fulfil during organizational change is what Balogun (2003) dubs “helping others through change” (p.70) or what Bryant and Stensaker (2011) identify as the “therapist” (p.357) role. This middle management role is related to giving support and coaching to their team members to help them navigate and adapt to the change.

This function has been studied extensively in the literature. For instance, Huy (2002) highlights middle managers’ position as “emotional balancers” (p.62) and key contributors to maintaining continuity during organizational change. In his study, the author found two patterns in middle managers’ emotional management practices that appear to facilitate organizational change. These patterns are, on the one hand, middle managers’ personal commitment to the change and, on the other, their acknowledgment and heeding of other people’s emotions. The author claims that when these two patterns are in place, middle managers act as emotional balancers within their organization. In turn, this was found by the author to be beneficial for the successful implementation of change initiatives (Huy, 2002).

The absence of one of these two patterns was found by Huy (2002) to create a different scenario. According to this study, the presence of middle managers’ commitment to the change combined with low attention to people’s emotions leads to organizational chaos. And, in turn, low commitment to the change initiative on the side of middle managers stimulates organizational inertia.

Moreover, in the context of technological change, Beatty and Lee (1992) found evidence that a middle management leadership approach that includes people skills is likely to prove more effective in facilitating technological adaptation than a leadership approach that focuses solely on technical skills to the detriment of team members’ issues and personal concerns.

### ***Role of undertaking personal change***

Balogun (2003) notes that organizational change also requires middle managers to undertake personal change. This role is said by the author to involve a re-definition of middle managers' own tasks and responsibilities, as well as the understanding of their new roles and the roles of their colleagues. According to the author, defining "who is responsible for what" (p.75) in the new setting calls for interpretation, dialogue and negotiation with different actors within the organization.

Giangreco and Peccei (2005) note that this adds pressure to middle managers, as they have change their own role and, at the same time, they are tasked with implementing the change as directed by the top management. Similarly, Huy (2002) found evidence that staying up-to-date with new technologies increases the pressure and the stress that middle managers are under.

### ***Entrepreneur role***

Another role that has been documented by abundant literature is that of middle managers as initiators of strategic change (e.g. Huy, 2001; Hirte and Sieger, 2018). For instance, Bryant and Stensaker (2011) argue that middle managers assume the role of "entrepreneur" (p.357) during change implementation. Similarly, Floyd and Wooldridge (1992) claim that middle managers often make efforts to influence their organization's strategy and drive initiatives. As such, these authors include "championing alternatives" as one of the roles that middle managers assume. Championing alternatives consists in selecting initiatives originated at the operating level of the organization and promoting them to the upper management as new strategic options (ibid). Similarly, Dutton and Ashford (1993) argue that middle managers have a key role in the deployment of resources to support new ideas.

Building on this notion, Mantere (2008) argues that championing alternatives to the top management requires an organizational setting where middle managers are allowed to participate in the planning of strategy. This role is then said to have an upward influence

on the formation of the organization's strategy as it serves as input for the top management when considering different strategic choices (Floyd and Wooldridge, 1992).

### ***Knowledge management role***

Another role present in the literature relates to middle managers as organizers of the information and knowledge flow within their units (e.g. Bryant and Stensaker, 2011). For instance, in times of technological changes, middle managers must ensure that their teams receive appropriate training and coaching in order to make an optimum use of new technologies and digital tools (Duparc, 2012).

On a related line, Floyd and Wooldridge (1992) refer to the middle management role of "synthesizing information" (p.154), which consists in gathering, interpreting and selecting the information that will later be sent to the top management. By doing this, middle managers can have an upward influence as they can decide which information will reach the top management and how this information will be portrayed to top executives (Floyd and Wooldridge, 1992; Mantere, 2008).

### ***Sense-making role***

All the roles undertaken by middle managers during times of change require the development of a myriad of activities and internal processes. They must, first and foremost, make an interpretation of the intended change, as well as engage in activities of sense-making and sense-giving (Balogun, 2003; Teulier and Rouleau, 2013). Interpretation requires that middle managers find a meaning of the change and consider its implications, both for their own roles as well as others' (Balogun, 2003).

Interpretation and sense-making are especially important during organizational change. In changing settings, middle managers must often undertake roles that are in conflict with each other, and the interpretation that they make of these competing roles will be informed and defined by their understanding and sense-making of the change (Bryant and Stensaker, 2011).



The importance of this interpretation and sense-making process is enhanced during technological transitions, as middle managers are confronted with new tools and ways of working that may generate high levels of uncertainty (Taylor and Helfat, 2009). For instance, middle managers must nowadays decide which meetings will be conducted through digital means – such as videoconference – and when it is necessary for them to meet with their teams or other stakeholders face-to-face (Duparc, 2012). In other words, middle managers must learn “when to work on virtual world and when to stay in real life” (Duparc, 2012, p.142).

Interpretation is therefore a central activity that informs and shapes all the roles that middle managers take upon. How they understand and how they make sense of the change will determine how they re-define their role, how they help others through the change, how they implement the changes in practice, and how they carry out the business’ daily operations (Balogun, 2003).

What is more, middle managers’ sense-making of the change will determine how they convey it to others and how they decode and communicate organizational goals to employees (Hirte and Sieger, 2018). For instance, in a study carried out by Rouleau (2005), the author found several every-day micro-practices – such as conversations and routines – that middle managers use to “sell” strategic change to other organizational members. Through daily interactions, they engage in sense-making practices that bring strategic value “in a world where value creation lies in details” (Rouleau, 2005, p.1415). Therefore, middle managers can be considered important players in building organizational sense-making (Rouleau, 2005).

The role of undertaking personal change – as mentioned earlier – also requires middle managers to make an interpretation of their new reality and their new professional profiles (Balogun, 2003; Giangreco and Peccei, 2005). Bryant and Stensaker (2011) address the issue of middle managers having competing roles during organizational change, and they view the interpretation process as a “series of negotiations” (p.359) that middle managers

must engage with, both with themselves as well as with the outside environment. According to the authors, these negotiations will determine how middle managers will define their roles: “the outcomes of such negotiations [with themselves] would undoubtedly influence how they interpret and communicate new ways of working” (p.367).

In this line, Bryant and Stensaker (2011) identify three levels of this negotiation process, which I will briefly describe next. The first level involves the negotiation of new ways in which daily work must be done. According to the authors, one of the challenges of this level of negotiation is that the changes have usually been decided by other actors, i.e. top management. This means that middle managers must often enforce changes that have been decided by someone else and imposed as an order. On a second level, middle managers must negotiate with themselves in order to decide if and how they are able to implement the desired changes. Finally, on a third level, middle managers must analyse and find out what are the existing organizational rules and boundaries within which they can legitimately negotiate such changes (Bryant and Stensaker, 2011).

Moreover, Bryant and Stensaker (2011) allude to the existence of “outside negotiation” (p.368), which takes place among other external stakeholders without the participation of the middle manager – such as top management decisions – and which will have a direct impact on the middle manager’s role. Middle managers must, therefore, engage in a variety of “micro-social interactions” which are influenced by “macro-organizational factors” (p.354), such as official rules and structures.

Interpretation and sense-making activities are often ignored or not given enough relevance by the top management and this can distort the intended results of the change initiative (Balogun, 2003). For instance, in a study by Balogun and Johnson (2005), the authors found evidence that middle managers’ sense-making processes combined with their lateral interactions may bring unplanned consequences to deliberate change strategies. Moreover, Balogun (2003) suggests that middle managers’ dual role can

constitute a possible cause for conflicts of interests and diverging loyalties. Therefore, middle managers' interpretations of the change can have a significant influence on the outcomes of the change implementation process.

As can be noted from previous paragraphs, this multiplicity of roles requires middle managers to perform a variety of activities such as self-reflection, interpretation and negotiation (Balogun, 2003). Therefore, a key challenge for middle managers is to be able to juggle between different and often conflicting roles (Bryant and Stensaker, 2011) as a result of being simultaneously change receivers and change leaders (Balogun, 2003).

As already mentioned, despite a large amount of literature on middle managers' roles, research has not paid enough attention to the particular context of technological change (Taylor and Helfat, 2009). Therefore, this study aims at contributing to existing literature by concentrating on this specific context and expanding our understanding of middle managers' roles.

### **2.1.2 Middle managers' resistance to change**

The literature has not only described the enabling roles of middle managers under conditions of change, but it has also addressed circumstances in which middle managers can resist and block change initiatives. Middle managers' attitudes towards changes have been deemed by several scholars as one of the reasons for failed change processes (e.g. Hirte and Sieger, 2018). For instance, Mantere (2008) suggests that middle managers may "slow down, or even sabotage" (p.295) change programs. Similarly, Huy (2011) notes that middle managers can "support or covertly dismiss" (p.1387) change plans, while Raes (2011) claims that middle managers have the "power to [...] accelerate strategy implementation, or to reduce the quality of implementation" (p.102).

In relation to technological changes, certain studies have argued that middle managers are particularly prone to resist changes related to digitalization and technological transitions (Taylor and Helfat, 2009). For instance, Galunic (2017) states that during the

course of digital changes, resistance among middle managers “can be especially strong” (p.1). However, academic research has not provided with thorough and systematic insights on middle manager’s resistance in the context of technological change. Therefore, this is an area that needs further exploration.

Resistance has been defined in the literature as a behaviour directed at averting change, which can cause change processes to be delayed and its costs to be increased (Pardo del Val and Martínez Fuentes, 2003). Resistant behaviours may range from passive indifference towards the change, to frontal and active dissent (Giangreco and Peccei, 2005). Research has documented different factors that may cause resistance. Next, I will briefly describe four main factors present in the literature. These are: change as a threat, lack of a clear benefit, time and legitimacy judgments of the change agent.

*Change as a threat.* A change may be perceived as a threat to those organizational members who receive the change. This threat can be related to individuals’ sense of control and freedom, as they may be required to learn new skills and master new technologies (Ford, Ford and D’Amelio, 2008; Galunic, 2017). The perceived threat may also be related to person’s sense of professional identity, expertise and position of hierarchy within the organization (Giangreco and Peccei, 2005). Therefore, recipients’ perceptions as to the content of the change as well as its consequences may act as triggering factors for change resistance.

*Lack of a clear benefit.* A change can also be resisted when the recipient does not see a clear benefit in adopting the change (Giangreco and Peccei, 2005) or perceives that his or her losses may be greater than the gains (Taylor and Helfat, 2009). For instance, in a study by Guth and MacMillan (1986), the authors make strong assertions that middle managers’ self-interest is a clear determinant for strategy adoption or strategy resistance. In the authors’ view, when middle managers perceive that their interests are compromised, they can “not only redirect a strategy, delay its implementation or reduce the quality of its implementation, but can also even totally sabotage the strategy” (p.313).

*Time.* Another factor identified by the literature as a possible cause of change resistance is lack of time (e.g. Galunic, 2017). In relation concretely to middle managers, Bryant and Stensaker (2011) claim that these organizational members often find themselves with increased workloads and demanding – or even unfair – expectations within tight schedules, which can have an impact on their receptivity of the change.

*Legitimacy judgments of the change agent.* On a different view, Huy, Corley and Kraatz (2014) argue that change resistance can find its root causes in the judgements that middle managers make of the legitimacy of the organizational members from whom the change initiative originates. In other words, middle managers' resistance to change may have its cause not in the content of the change itself, but on the perceived legitimacy of its initiators. As a consequence, the authors found that the same change may generate different reactions depending on the analysis that middle managers make regarding the motives and agendas of their change leaders. Thus, the authors call for research to make a distinction between resistance to change and “resistance to the change agent” (Huy, Corley and Kraatz, 2014, p.1654).

Despite different efforts to find the causes for change resistance, Giancreco and Peccei (2005) are of the opinion that existing research is limited and does not provide conclusive evidence. What seems clear is that resistance to change has been traditionally portrayed by the literature as a barrier to success and a problem that needs solving. Past studies have made the assumption that “change is good and resistance to change is bad”, while change resistors have been depicted as “dysfunctional” members of the organization (Huy, Corley and Kraatz, 2014, p.1653) and as “impediments” for successful change processes (Giangreco and Peccei, 2005, p.1814). These notions have fuelled a paradigm that exists even until today (Dent and Goldberg, 1999).

As a consequence, the causes or factors for resistance have been approached as challenges that the organization needs to overcome and, over the years, authors have proposed different solutions (Huy, Corley and Kraatz, 2014). For instance, certain studies advocate

for top managers to adopt enabling and supporting actions, such as allowing middle managers to participate in the planning phase of the change, providing explanations of the reasons behind the change, and awarding them trust and ownership for their work (e.g. Balogun, 2003; Herzig and Jimmieson, 2006; Bryant and Stensaker, 2011). Others advocate for economic and social incentives as a way of increasing middle managers' motivation in accepting and adopting the change (e.g. Taylor and Helfat, 2009). However, Huy, Corley and Kraatz (2014) warn that years of research have yielded inconclusive and even contradictory results on the effectiveness of such tactics.

Following a different direction, recent studies have challenged this paradigm, arguing that resistance to change is not necessarily a negative attitude that would undermine organizational change (e.g. Dent and Goldberg, 1999). On the contrary, change resistance is thought to be a natural reaction to shifting conditions (Giangreco and Peccei, 2005). What is more, recent studies have portrayed change resistance as a situation that can foster individuals' engagement to the change and a useful tool to obtain input on the suitability of the value proposition of the change (ibid).

All in all, as it was already mentioned, scientific research has not paid enough attention to middle managers' change resistance in the context of technological change. Therefore, this study serves as an opportunity to gain insights on this matter.

## **2.2 Managerial change capabilities**

In the previous section, I have presented an account on the most relevant literature regarding the roles of middle managers, who are the protagonists of this study. Having discussed their roles, activities and challenges, I will now focus on the managerial capabilities that middle managers use in times of organizational change.

This is an important point of my study as it aims at exploring those individual capabilities that allow middle managers to be most effective in fulfilling their role in times of technological changes in their organizations. As already mentioned, middle managers' capabilities in the context of technological change is an area that is under researched (Balogun, 2003). Therefore, this study aims at contributing to existing literature by shedding light on the competencies and capabilities that middle managers need in this particular type of change.

In the next paragraphs I will briefly describe some of the frameworks and insights offered in the literature for managerial capabilities for change. After that, I will concentrate on the work by of Adner and Helfat (2003) and their framework on dynamic managerial capabilities.

Taking the notion of capabilities in general, a capability can be defined as the “capacity to perform a particular activity in a reliable and at least minimally satisfactory manner” (Helfat and Winter, 2011, p.1244). This definition has important elements. As explained by Helfat and Martin (2015), a capability requires first and foremost the existence of a specific objective, a purpose. It also involves the presence of an activity, a “doing” of something. Moreover, a capability can be considered as such when it is the result of repeated activity, which the above definition denotes as “reliable”. Finally, the result of this activity must be reasonably close to its initial intentions (Helfat and Martin, 2015).

The function of managers, or the managerial function, is at the same time an activity of managing resources, and an organizational resource in itself (Van Den Bosch and Van Wijk, 2000). Moreover, the management function is a resource that is present in all organizations regardless of their particular characteristics: "managerial services are the only type which every firm, because of its very nature as an administrative organization, must make use of" (Penrose, 1959, p.48 cited in Van Den Bosch and Van Wijk, 2000).

During the implementation of changes, top management's strategies are mediated by middle managers' skills and capabilities to realize such strategies in practice (Beatty and Lee, 1992). Digitalization and technological development have made such capabilities a vital source of value creation in an environment that requires constant innovation (Collin, et al., 2015). This bears the question of which are such managerial capabilities that middle managers make use of and how they are created. Research has offered different answers to this question.

Welter, Bosse and Alvarez (2013) define managerial capabilities as “the ability to manage and organize people and resources” (p.274), and they argue that although technical capabilities and managerial capabilities are each standalone sources of high firm performance, the presence of both capabilities acting together further enhances the performance of the organization.

Van Den Bosch and Van Wijk (2000) approach the concept of managerial capabilities from a knowledge-based theory perspective, arguing that managerial capabilities are developed by integrating managerial knowledge, both tacit and explicit. The authors also suggest that the development of managerial capabilities through knowledge integration acts as a driver for the improvement of organizational capabilities (ibid). Similarly, Wilson III, et al. (2004) suggest that the development of knowledge is vital in organizations that require high degrees of technological innovation.

In turn, Anzengruber, et al. (2017), conducted a study to identify the most important capabilities needed for managers on different hierarchical positions, i.e. top-, middle- and low- management. The authors build their study around a framework of three types of managerial capabilities: task-, relations- and change- oriented capabilities. I will briefly describe them next.

Task-oriented capabilities are those focused on increasing the productivity of a specific area of work through building and implementing pre-defined structures. Examples of



task-oriented capabilities are: “planning, scheduling, clarifying, directing, coordinating and monitoring” (Anzengruber, et al., 2017, p.136) of work assignments. Relations-oriented capabilities, on the other hand, are concerned with the development of constructive relationships of trust and support, both within the organization as well as with external stakeholders. Some examples are: “supporting, coaching, mentoring, encouraging” (p.136). Finally, change-oriented capabilities are those directed to increase the organization’s flexibility to change. The study’s findings indicate that an effective middle management needs a broad skillset that includes all three types of capabilities.

Kurtmollaiev et al. (2018) propose yet another classification of managerial capabilities. By drawing on the work of Teece (2007), the authors offer a framework suggesting that the wider concept of managerial capabilities can be considered as containing three categories of capabilities. These are: sensing opportunities and threats, seizing opportunities and transforming organizational resources.

Furthermore, in a recent study on the impact of digitalization in Finnish organizations, Collin (2015) argues that the digital organizations of the future, or “DOOTF”, need their organizational members to have absorptive, adaptive and collaborative capabilities. In addition, the authors state that top managers should have the ability to balance the tension between “efficiency (stable mode of organizing) and flexibility (emergent mode of organizing)” (p.21).

Having offered a brief account on different theories of managerial capabilities, I will now concentrate on the work of Adner and Helfat (2003). In this study, I adopt these authors’ theoretical framework of dynamic managerial capabilities to serve as a lens from which to analyse the competencies and abilities used by middle managers in times of technological change.

The reason for adopting this framework is twofold. First, this construct is built on a strong theoretical base comprising a comprehensive study of previous research on managerial

capabilities. In addition, the framework was further developed by later research which incorporated new literature and extended on the concepts elaborated in the original work (e.g. Helfat and Martin, 2015). Second, the categorization of dynamic managerial capabilities by Adner and Helfat (2003) constitutes a systematic approach containing a broad range of capabilities that managers use in a wide variety of settings (Helfat and Martin, 2015). In the next paragraphs, I build on this theoretical framework and provide a detailed account on the construct of dynamic managerial capabilities.

Adner and Helfat (2003) introduced the term dynamic managerial capabilities fifteen years ago in an effort to shed light on the phenomenon that, even within the same industry and with the same set of changing external conditions, business performance can significantly vary among firms. According to the authors, the differentiating element of firm performance lays on the characteristics of its managerial decisions. In light of this, the concept of dynamic managerial capabilities is thought by the authors to serve as the underlying factor that produces heterogeneity in managerial decisions and, therefore, in business performance.

Adner and Helfat (2003) define dynamic managerial capabilities are those “with which managers build, integrate, and reconfigure organizational resources and competences” (p.1012). The authors note that this concept parallels Teece, Pisando and Shuen’s (1997) more general notion of organizational dynamic capabilities, as those that allow the firm to “integrate, build, and reconfigure internal and external competences” (p.516). Similarly, Helfat and Martin (2015) define dynamic managerial capabilities as those competences that managers make use of to “create, extend, and modify the ways in which firms make a living” (p.1282) in contexts of strategic change.

In Adner and Helfat’s (2003) framework, there are three categories of capabilities that underpin the wider notion of dynamic managerial capabilities. These categories are: (1) managerial cognition, (2) managerial human capital and (3) managerial social capital (Adner and Helfat, 2003).

As core elements, the three categories of capabilities come together to build competences that allow managers to navigate and steer strategic organizational change. As such, they do not act isolated, but interact and influence each other. And together, they shape managers' dynamic capabilities and determine the managerial impact on directing organizational change (ibid).

Adner and Helfat (2003) note that managers can have different dynamic capabilities or they may possess such capabilities in different degrees, a circumstance that may lead to differences in their decision-making process and in a subsequent level of firm performance. In light of this, Helfat and Martin (2015) argue that those organizations whose managers have "superior dynamic capabilities can adapt and change more successfully" (p.1304).

In the following section, I will describe in more detail each of the three categories of dynamic managerial capabilities. This will serve as an important theoretical basis with which to confront the results from my data collection.

### **2.2.1 Managerial cognition**

Managerial cognition is composed of managers' mental models, mental processes and emotions. They include traits such as managers' knowledge structures, beliefs, assumptions, attention, perceptions and interpretations (Adner and Helfat, 2003; Helfat and Martin, 2015). These attributes inform and shape how managers process the information they receive from the outside, what options they consider and the consequences of adopting one option or another. Ultimately, this process determines managers' decision-making processes and the concrete courses of action that they will decide on (ibid).

For instance, certain knowledge structures can limit managers' ability to make an accurate interpretation of their surrounding environment and, thus, they may hinder the success of their decisions. Walsh (1995) suggests that one of the reasons behind managers'

inaccurate interpretations may be rooted in the fact that their “information worlds are extremely complex, ambiguous, and munificent” (p.280). In turn, Nadkarni (2008) states that in industries where changes take place at a fast pace and with high frequency, it is challenging for managers to develop a thorough understanding of their environment. Managers must, therefore, create knowledge structures in order to facilitate the absorption and processing of high amounts of information. In other words, knowledge structures function as “mental templates” (Walsh, 1995, p.281) that help them to mentally organize and make sense of their information worlds.

Another reason for managers to inaccurately interpret their surroundings can also be rooted in their intrinsic bounded rationality, which limits their ability to fully grasp the intricacies of their environments (Nadkarni and Barr, 2008). For instance, Bettis and Prahalad (1995) found evidence that the organization’s dominant logic acts as a filter of information, as “organizational attention is focused only on data deemed relevant by the dominant logic” (p.7).

In the context of technological change, Taylor and Helfat (2009) suggest that managers’ decision making is highly influenced by their cognition. According to the authors, a successful technological transition may be hindered if managers display an “inflexible cognitive frame” regarding the new technology, or if they present mental models that are “rigidly attached to the old technology” (p.722). In this line, Tripsas and Gavetti (2000) found evidence that inappropriate mental models can cause managers to fail in adopting new technologies and seize new opportunities in accordance to changing market conditions.

Helfat and Martin (2015) also suggest that, in light of the evidence shown by different studies, managers who have been exposed to organizational change can more easily adapt to new settings. The reason for this would be that they may have developed more flexible and versatile knowledge structures that they can transfer and use in different contexts of change (ibid).

Thus, managerial cognition is thought to determine the characteristics of managers' strategic decisions and their response to changing environments (Adner and Helfat, 2003). In turn, differences in competitive advantages among similar competitors may find their cause in differences in the cognition of their managers (Johnson and Hoopes, 2003).

### **2.2.2 Managerial human capital**

Different definitions of managerial human capital can be found in the literature. For instance, Ployhart and Moliterno (2011) define it as “a unit-level resource that is created from the emergence of individuals' knowledge, skills, abilities, and other characteristics (KSAOs)” (p.128). In turn, Castanias and Helfat (1991) refer to human capital as those “innate and learned abilities, expertise and knowledge” (p.662).

In my view, both of the aforementioned definitions are rather vague. The inclusion of “other characteristics”, in the first case, and “innate abilities”, in the second, open the door to concepts difficult to delimit. Therefore, in this study, I consider managerial human capital as comprising the knowledge, skills and expertise acquired by managers through education, training and past experience (Adner and Helfat, 2003; Helfat and Martin, 2015).

Such skills and abilities vary between managers depending on their training and prior experience. This is what Castanias and Helfat (2001) denote as “skill differentials” (p.663). The authors also distinguish between four types of skills, i.e. “generic, related-industry, industry-specific, and firm-specific skills” (p.663). The categorization is based on the potential to transfer those skills from one organization or business unit to another, going from most transferable to least transferable in the order in which they are presented (Castanias and Helfat, 2001).

Human capital can be a source of advantage as it relates to managers' ability to sense and seize opportunities, as well as to reconfigure firm resources (Helfat and Martin, 2015). In this respect, Bailey and Helfat (2003) suggest that differences in managers' human capital

can lead to differences in organizational performance. In turn, Ployhart and Moliterno (2011) seek to discover how KSAOs are created and enhanced in order for them to become a strategic asset for the organization, and they propose a complex theoretical model to unpack the creation- and enhancing- process of KSAOs. Moreover, in the context of technological change, Rosenbloom (2000) found evidence that managerial human capital in the form of work experience can inform managers on how to better adapt to new technologies.

### **2.2.3 Managerial social capital**

Managerial social capital can be defined as “the good-will that is engendered by the fabric of social relations and that can be mobilized to facilitate action” (Adler and Kwon, 2002, p.17). In other words, managerial social capital is constituted by the social relationships and networks that managers have and can use as sources of information, resources and power (Helfat and Martin, 2015).

These relationships and social networks can be formal or informal, and they can be originated internally within the organization as well as with external stakeholders (Helfat and Martin, 2015). They may include ties with, for instance, colleagues, customers, suppliers, competitors and other organizations (Acquaah, 2007). Moreover, nowadays these relationships can be built and nurtured by virtual means, such as email and social media, without the need of meeting face to face (Duparc, 2012).

Social capital theory claims that social ties are a source of value to individuals as they can have the possibility to “tap into the resources embedded in such relationships for their benefit” (Acquaah, 2007, p.1238). In turn, managerial social capital has been found by certain research to improve organizational performance. From a managerial perspective, social capital offers channels for managers to acquire information and resources. For instance, managers can rely on social ties to obtain information on competitors and enhance the quality of their “environmental scanning” (Helfat and Martin, 2015, p.1286). Moreover, they may be benefited from having a more expeditious access to resources

such as financing. In turn, these assets can have a positive impact on managers sensing, seizing and transforming capabilities and on firm performance (Acquaah, 2007).

### **2.3 Summary of the literature review**

In the previous sections I have offered an overview on the main bodies of literature related to middle managers' roles as well as their managerial capabilities.

Academic research has accounted for several roles that middle managers take upon during organizational change, although the particular context of technological change still remains under researched. Table 1 summarizes the main studies described in previous sections and the roles that scholars have identified as being part of middle managers' activities in times of change. This serves as a basis for the data collection phase of the study, where managers reveal which roles they perceive to enact in the specific setting of technological change.

*Table 1: Summary of literature on middle managers' roles during organizational change*

<b>Author</b>	<b>Middle managers' roles</b>
Balogun (2003)	Sense-making activities: (1) undertaking personal change (2) helping others through change  Coordination activities: (3) implementing necessary changes in their departments (4) keeping the business going in the new conditions
Bryant and Stensaker (2011)	Simultaneously leader and follower  Four competing roles: (1) entrepreneur (2) communicator (3) therapist (4) tightrope artist
Floyd and Wooldridge (1992)	Simultaneously superior and subordinate  Four roles: (1) championing alternatives (2) facilitating adaptability (3) synthesizing information (4) implementing deliberate strategy
Huy (2002)	Simultaneously change agent and change recipient  Emotional balancer
Raes et al. (2011)	Simultaneously accomplice of the top management and representative of organizational units.  Linking pins between top management and lower echelons.
Rouleau (2005)	Interpreter and seller of strategic change at the micro level.
Taylor and Helfat (2009)	Organizational connectors.
Teulier and Rouleau (2013)	Sense-maker and sense-giver of the change.
Wooldridge, Schmid and Floyd (2008)	Intermediator between the top and the bottom.



Academic research has also accounted for different forms of managerial capabilities and Adner and Helfat (2003) offer a theoretical framework on what they call dynamic managerial capabilities, which was described in detail in previous sections. In this line, Table 2 contains a summary on the different competencies and abilities included in each category of dynamic managerial capabilities. This serves as a basis with which to contrast the empirical data in order to explore which capabilities are used by middle managers in the context of technological changes.

*Table 2: Summary of managerial dynamic capabilities (Adapted from Adner and Helfat, 2003)*

<b>Managerial cognition</b>	<b>Managerial human capital</b>	<b>Managerial social capital</b>
Mental models / knowledge structures: <ul style="list-style-type: none"> <li>- Beliefs</li> <li>- Assumptions</li> <li>- Perceptions</li> <li>- Interpretations</li> </ul>	<ul style="list-style-type: none"> <li>- Knowledge</li> <li>- Skills</li> <li>- Abilities</li> <li>- Expertise</li> </ul> <p><i>Acquired by:</i></p> <ul style="list-style-type: none"> <li>- Education</li> <li>- Training</li> <li>- Experience</li> </ul>	Social relationships and networks as sources of information, resources and power. <p>Categories:</p> <ul style="list-style-type: none"> <li>- Formal and informal</li> <li>- Internal and external</li> </ul>
Mental processes		
Emotions and emotion regulation		

Despite existing academic research on middle managers' roles and capabilities during times of change, the particular context of technological change has not received enough attention. Moreover, the research on middle managers' roles, on the one hand, and on managerial capabilities, on the other, have remained separated.

Therefore, this study aims at contributing to existing literature by enhancing our understanding of the roles that middle managers enact and the capabilities that they need when they face technological changes in their organizations. In addition, the study aims

at connecting the two streams of literature by exploring which capabilities are needed for each of the roles.

During the data collection phase of this study, I suspect that several of the roles mentioned in the literature will emerge as part of middle managers' activities during technological change. Moreover, my assumption is that all three categories of managerial capabilities must be activated in order to fulfil such roles. The next section of the study moves on to the research design and methods used for data collection and analysis.

### **3 RESEARCH DESIGN AND METHODS**

In this section, I present the research design and methods used in my study, as well as certain ethical considerations. In line with my research topic, this study is qualitative in nature. According to Eriksson and Kovalainen (2008), a qualitative approach allows the researcher to recognize reality as a phenomenon that is socially and culturally constructed. In this study, I seek to discover middle managers' perceptions within their particular social and cultural settings.

This study is thus of the exploratory type. The research seeks to explore middle managers' perceptions to discover which roles they see themselves enacting during technological changes in their organizations, as well as which managerial capabilities they perceive they use to fulfil such roles.

Accordingly, I formulated two research questions, which I restate here:

RQ1. What are middle managers' perceptions regarding their roles in times of technological change?

RQ2. What are middle managers' perceptions regarding the competencies and capabilities that they must use to fulfil such roles?

Regarding my data collection method, I considered that the most suitable choice was that of an interview study. As mentioned by Kvale (2007), the best way to find out about people's perceptions is to talk to them. My aim was to discover middle managers' perceptions, opinions and views about their roles and capabilities during technological change, therefore, conducting interviews was the most appropriate choice.

Thus, I collected my data by conducting twelve interviewees between May and July 2018. According to Kvale (2007), ten to fifteen interviewees is considered an appropriate number for this type of study. All the interviewees participants were middle managers who had experienced or were experiencing – at the time of the interview – organizational changes related to technological developments or digitalization. In addition, the interviewees had had or were having a role that directly involved them with the change.

There were four female interviewees and eight male interviewees. They represented the following industries: banking, construction, consulting, machinery, pulp and paper, software and technology. In Table 3, I present information regarding the date, duration and location of each interview.

*Table 3: Interviews*

<b>Interviewee</b>	<b>Date</b>	<b>Duration</b>	<b>Location</b>
Interviewee 1	29.05.2018	44 min	Helsinki
Interviewee 2	31.05.2018	32 min	Online
Interviewee 3	05.06.2018	34 min	Online
Interviewee 4	06.06.2018	31 min	Online
Interviewee 5	13.06.2018	41 min	Helsinki
Interviewee 6	18.06.2018	48 min	Helsinki
Interviewee 7	20.06.2018	36 min	Online
Interviewee 8	21.06.2018	42 min	Helsinki
Interviewee 9	26.06.2018	31 min	Helsinki
Interviewee 10	27.06.2018	33 min	Online
Interviewee 11	10.07.2018	60 min	Helsinki
Interviewee 12	12.10.2018	40 min	Helsinki

The interviews were semi-structured. The reason for this choice is that, in this type of interviews, participants can elaborate on their personal views while keeping their answers

within the topic and scope of the study (Given, 2008). A structured interview method could have restricted the thinking flow of interviewees and prevented them from sharing their true perceptions. On the other side of the spectrum, an unstructured interview could have led to a loss of focus regarding the topic of the study. Semi-structured interviews were, therefore, the best choice for this research study.

In this line, I designed an interview guide on which I based my interviews. I aimed at constructing it in a manner that would result in questions that were as neutral and as objective as possible, in order to avoid directing the interviewees' answers. Moreover, my questions were open-ended so that interviewees would have enough flexibility in elaborating on their perceptions. In addition to the interview guide, during each of the interviews I formulated additional questions as needed depending on the interviewees' answers. I also recorded the interviewees and transcribed them afterwards in a word-by-word manner. I did, however, leave out filler words and repetitions.

After collecting my empirical data, I analysed it through a thematic content analysis. This type of analysis allows the researcher to identify themes or concepts that constitute patterns within the collected data, and later interpret those patterns (Given, 2008). Therefore, it was the most suitable analysis method for this study.

I began the coding phase by identifying content that was related to my research questions. I then continued to go through my data and refine my codes as well as to create different categories. Then, I re-analysed the data, codes and categories in order to find patterns among the different interviews. Finally, I performed a detailed analysis of the patterns that emerged from the data and the different categories in each of them, and I draw connections among them.

In addition, some ethical considerations must be mentioned. In this study, interview participants were informed by email about the topic of my research and the confidentiality of their participation (Given, 2008). I also asked all the participants permission to record

the interviews, and I informed them of their right of withdrawal from the study until the time of publication of this work (Eriksson and Kovalainen, 2008).

Biases are another important point to be addressed. First, all of the interviews were conducted in English language although neither the interviewees nor myself are native English speakers. Therefore, it is important to note that language may have acted as a barrier to a certain extent. However, it is also worth mentioning that all the interviewees as well as myself are proficient in English, a circumstance that may have acted as a mitigating factor.

Second, other biases may have been present, e.g. cultural differences between the interviewees and myself and academic preconceptions on the topic of the study. Nevertheless, throughout all the research process I have kept in mind this point and remained aware and reflective on the importance of analyzing the data with impartiality and objectivity.

Third, it is important to note that the information obtained by the empirical data is limited to twelve interviews. Therefore, the findings of this study must be understood within their particular context and setting.

## 4 FINDINGS

In this section, I present and discuss the findings of my data analysis. In line with the literature, middle managers identify themselves as holding a dual role of change receivers and change leaders (e.g. Huy, 2002). Following this division, this section is organized as follows. In the first and second chapters, I examine the research findings in relation to my first research question, that is: middle managers' perceptions of their roles during technological changes. The first chapter relates to middle managers' roles as change receivers, and the second chapter covers middle managers' roles as change leaders.

In the third and fourth chapters, I discuss the findings in relation to my second research question, that is: middle managers' perceptions of the managerial capabilities that they use to fulfil such roles. The third chapter discusses middle managers' capabilities as change receivers, and the fourth chapter describes middle managers' capabilities as change leaders. Finally, the fifth chapter offers a summary of the empirical findings.

### 4.1 Middle managers' roles as change receivers

Interviewees acknowledged their role as being partially change recipients. This can be noted in the following quote:

*In the end it's the manager also receiving, I mean, you are also impacted by the change. (Interviewee 4)*

In this section, I describe the most salient roles that middle managers identified in their position as recipients of change. These are: sense-making of technological changes, sense-making of their role as change receivers and managing their own resistance to change.

#### 4.1.1 Sense-making of technological changes

Sense-making of the technological changes is a first and necessary step for understanding the change and its implications (Rouleau, 2005). Two main points stood out among interviewees. The first point is related to the origin of technological changes, while the second point addresses the degree of agreement with the change on the side of middle managers. I will describe these points next.

Firstly, interviewees overwhelmingly deem technological changes to be originated by factors alien to their own actions and decisions. Two main drivers of change were identified: top management and technological developments.

In the first case, technological changes are perceived to be decided upon and planned by fractions of the organization identified as upper echelons, while the rest of the organization is kept in the dark. The following quote summarizes this idea:

*The top management invents some change to happen and then the middle management is organizing that to happen. (Interviewee 3)*

Employee participation is perceived to be lacking when changes come from top-down. The following interviewee is an illustrative example. She did have the opportunity to participate in the planning and decision-making of a technological change within her organization, but she implies that this was the exception, as she mentions that she was “lucky” to be involved in this phase:

*I have been lucky in the sense that I have been involved in planning it, so I know a whole lot more than the rest of the organization. (Interviewee 5)*

For interviewees, an excessive top-down approach is believed to be counterproductive as it hinders organizational members’ ability to understand the reasoning behind the change. In turn, a lack of openness in the information and explanations provided by the top



management is thought to pose a challenge for organizational members down the hierarchy to accept and adopt the change. The following quotes are examples of this view:

*Sometimes the changes come too much straightforward from up to down, and there's not that much discussion or anything else, they just say that "now you must do this in this or that way", and I think that's the problem, that it's not easy to get people then to live with the new way to do things. (Interviewee 10)*

*If they explain and give the reasons behind some decision it's easier for people to accept it. (Interviewee 11)*

Current academic research seems to agree with the interviewees of this study. Middle managers often have the responsibility to implement top-down decisions and to ensure that employees under their supervision operate according to the top management's strategic intent (Floyd and Wooldridge, 1992; Mantere, 2008).

However, middle managers' involvement in the planning of strategic decisions has been seen to act as an incentive that fosters strategic thinking on their part (Floyd and Wooldridge, 1994), as well as the opportunity for top management to receive bottom-up input and new strategic ideas (Wooldridge, Schmid and Floyd, 2008). In turn, evidence suggests that middle managers' participation in strategy-making can contribute in the organization's strategic renewal and adaptability to changing environments (Dutton and Ashford, 1993).

Besides interviewees' view that change comes from upper management, they also seem to deem technological change as an inevitability, which is the second point mentioned before. Technological development is thought by interviewees to constitute a strong force that pushes organizations to change and embrace new technologies. Changes' arrival to organizations is, therefore, considered as an unavoidable fact of today's world and as such, a circumstance that is beyond the control of individual members. The implication

of this belief seems to be that middle managers perceive that they must accept the fact that technological change will inevitably arrive to their organizations, as expressed in the following quotes:

*I think that the pressure is also coming from those things that I said in the beginning that the world is changing and we better be prepared for that. (Interviewee 5)*

*I know for a fact that changes will happen, it's just a matter of the frequency, like how often they come, but they will come. (Interviewee 6)*

Interviewees also mentioned that technological change is bound to arrive to their organizations due to changes in the market conditions in which they operate. Different stakeholders such as clients and competitors are implementing technological change. Therefore, interviewees seem to perceive that their organizations must do the same in order to stay ahead of the industry. The following quotes convey this view:

*I think the main thing is just what's happening everywhere in the market, also our clients. [...] So we need to take modern tools in place, we need to utilize more this digitalization. (Interviewee 11)*

*At the same time of course everybody's doing that, so the question is who is going to be the fastest and the most innovative in the market to offer those new solutions. (Interviewee 5)*

This is in line with academic research. For instance, Hirte and Sieger (2018) claim that new technologies act as “accelerating forces” (p.3) for organizational change, while Huy (2002) suggests that technological changes are one of the reasons why many organizations are forced to change in order to survive.

In addition to rendering technological changes inevitable, middle managers seem to perceive that these changes are arriving rather rapidly and in high volumes. This seems to pose a challenge for them as change receivers, as they must cope with several changes being implemented simultaneously. The following quote gives testimony to this sentiment:

*We're doing plenty, and that's one of the main issues we're having in this company, we're running too many changes. (Interviewee 6)*

These views do not seem surprising in today's world, and rapid and pervasive use of new technologies is a situation that has been documented in recent literature. Digitalization demands agility and rapid adaptation to customers' expectations and competitors' new offerings (Collin, et al., 2015), while the markets are increasingly pushing organizations to move forward and to move fast (Herzig and Jimmieson, 2006).

Secondly, an interesting finding in this study is that interviewees widely agree with changes related to digitalization and technological advancements. This finding is worth noting for two main reasons. The first reason is related to middle managers resistance to change, which I will come back to in a later section. The second reason is that this is a situation that does not happen with other types of changes.

For instance, changes such as downsizing (e.g. De Vries, Manfred FR Kets and Balazs, 1997), mergers and acquisitions (e.g. Fugate, Kinicki and Scheck, 2002) and radical change (e.g. Huy, 2002) have been found by research to elicit negative emotions and disagreement among organizational members. In the case of technological changes, however, interviewees portray them as a source of advancement and an important step forward for the organization. The following quotes serve as examples of this:

*I wanted this [change] so badly. (Interviewee 6)*

*This whole digitalization and specifically this IoT and all of that is a massive opportunity for us in terms of business opportunities and creating new markets and opportunities. [...] I think it's exciting, I'm really looking forward to it. (Interviewee 5)*

*I've been waiting for it because the way how we work at this moment takes too much time out of our working day, so I hope that it leads to a change that we get more time for the real work instead of this bureaucracy. (Interviewee 2)*

A possible explanation to this profound belief in technological changes could be explained by what was expressed by Galunic (2017): “it is likely that their personal lives are filled with an abundance of digital technologies, so they understand the potential” (p.1.).

#### **4.1.2 Sense-making of their role as change receivers**

This aspect of sense-making relates to one of the two positions that middle managers assume in their dual role – that is: as change receivers (e.g. Huy, 2002). As such, interviewees seem to believe that they must support, commit and adapt to the changes introduced by the top management. The following quote conveys this idea:

*Four months ago started the new CEO, so he will introduce some changes shortly [...] and those will affect us, we will adjust to those. (Interviewee 9)*

In their interpretation of their role as change receivers (Rouleau, 2005), interviewees also stated that they must support such changes even if they do not agree with them. The main reason for this view seems to be that middle managers believe that, without their support to the change, it can be challenging for their team members to accept it, which may create problems for the organization. The following quotes exemplify this perception:

*I think that how the manager is dealing with change is reflecting to the team members. (Interviewee 3)*

*If I'm observing my leadership colleagues here, the main issue is they don't fully support the change by themselves. [...] And if your manager doesn't give you support or enough pressure to change, it won't happen. (Interviewee 6)*

The interviewees seem to believe that change also requires them to change themselves first. This perception is in line with the literature. For instance, Balogun (2003) has noted that middle managers must engage in a series of activities in order to re-define their roles and responsibilities as well as to adapt their business units to the new reality. Undertaking personal change is exemplified in the following quote:

*If we are talking about changing something, changing whether there's a way of working, a behaviour and so on, you cannot change an organization if you don't change yourself first. (Interviewee 7)*

In addition, interviewees expressed that, as change receivers, they too need the support of their superiors to accept the change and to navigate through its implementation. This is in line with Giangreco and Peccei's (2005) claim that middle managers are also "victims" (p.1813) of change initiatives. Top management's support is thought to increase middle management's openness to the change, which in turn is thought to ease the process of change implementation throughout the whole organization. Similarly, in the literature, Bryant and Stensaker (2011) have advocated for top managers to provide their support and adopt enabling actions to ease middle managers' change processes. This view is illustrated in the following quote:

*Managers are humans as well and they need also support to tolerate. [...] Upper management should take care of their teams as well, and that is very easily forgotten. (Interviewee 3)*

Interviewees also expressed that top managers should be personally committed to and involved in the change and that they should closely follow the different phases of its implementation. This commitment is thought to be an important element for the overall success of the initiative. The following quote illustrates this view:

*On paper, [top management] supports that fully, they send power points and stuff to their employees, but that's very sort of a disconnect from the real life. (Interviewee 6)*

Finally, interviewees highlighted the importance for top management to undertake personal change themselves and to set an example for the rest of the organization. Failure to do so is perceived by middle managers to be detrimental to the execution of the change initiative. The following quote illustrates this point:

*If the CEO says, “we need to change into this”, but then he doesn't role model, and then he shows completely different behaviour from what he's saying, that's gonna undermine the change. (Interviewee 7)*

#### **4.1.3 Managing their own resistance to change**

An interesting finding in the data was that, despite overwhelmingly agreeing with technological changes, middle managers seem to strive for managing their own resistance to change. For instance, interviewees seem to relate to the people below them in the sense that they must also receive and tolerate change. In the following quote, the interviewee illustrates how resistance takes place in multiple levels of the organization:

*Sometimes it's hard to change the ways you want to do things, like the people below me they have the same problem, but I have discussed with my manager and he has told me that he doesn't like all the changes either. (Interviewee 10)*

Interviewees also mentioned several reasons for resisting change, the most prevalent issues being personal reasons and a lack of transparency on the side of the top management when disseminating information about the change.

In the first point, interviewees seem to experience resistance when they cannot identify a personal benefit that the change can bring to them. This includes: possibilities for professional advancement, benefits related to their daily work becoming easier or faster, as well as concerns regarding their future in the company. An example of this is presented in the following quote:

*[I have resisted change] mostly because I don't really get it what it is for me. [...] I need to have this role clarity first in place and then what it is for me, what I'm getting out of it. (Interviewee 6)*

This is consistent with the findings of Giangreco and Peccei (2005). In their study, the authors found evidence that middle managers' perceptions on the benefits that the change may bring for them, as well as their participation in the development of the change have a clear impact on their proclivity to resist such changes.

In the second point, interviewees stated that they have resisted change due to the fact that top management had not shared enough information regarding the reasoning behind the changes. Middle managers might be more prone to change resistance in situations when the justifications for a change and the need for it are not communicated clearly. Moreover, interviewees expressed that they also need to be informed of the purpose of the changes and the concrete steps that are needed to successfully achieve the aimed goals of the change. The following quote exemplifies this view:

*If I have to bring some decision or information from the higher level that I don't know the reasoning and I don't agree with myself, then it's much more complicated. (Interviewee 11)*

This partially goes in line with the study conducted by Huy, Corley and Kraatz (2014), where resistance is deemed to be caused by factors alien to the change itself. In the aforementioned study, the causes for resistance are related to a perceived lack of legitimacy of the individual or individuals who are imposing the change as well as feelings of suspicion regarding the motives behind the initiative. In this study, the similarity lies on the fact that resistance is not rooted on the change itself, but on external factors.

As already mentioned, interviewees strongly believe in the benefits of digital changes. However, according to the data, issues regarding personal benefits and lack of organizational transparency act as drivers for middle managers resistance. Therefore, further research is needed to explore the particularities of middle managers' resistance in the context of technological changes.

## **4.2 Middle managers' roles as change leaders**

In addition to being change receivers, interviewees also acknowledged their role as change leaders. According to the data, once middle managers have received information and instructions – normally from the top management – regarding an upcoming change, they must engage in activities that aim at leading such change down the hierarchy.

In this section, I describe the most prominent roles that middle managers identified when they act as change leaders. These roles are: implementing the change, helping others through the change and managing team members' resistance to change.

### **4.2.1 Implementing the change**

Implementing the change is one of the responsibilities that middle managers seem to perceive as part of their role as change leaders. What is more, according to Mantere



(2008), implementing change is perhaps middle managers' *main* role expectation, as they are usually made responsible for executing top management strategies.

The data of this study supports this thinking. Interviewees seem to feel responsible for rolling out the change in their units and for making it a reality in their organizations. For instance, they must execute planned change initiatives and they must adapt their existing operational structures and people's activities to the new reality. They also expressed to be in charge of ensuring that everyone under their supervision will adopt the change, as is portrayed in the following quote:

*I will be responsible for people taking [the new software] into use.  
(Interviewee 2)*

This is in line with, for instance, Floyd and Wooldridge (1992), who claim that middle managers are normally responsible for executing change processes, and this means that they must ensure that their units and operations are re-organized to fit the new setting.

Rolling out changes thus requires middle managers to engage in and coordinate different activities. For instance, asset orchestration appears as one activity that middle managers must engage with, as they must allocate and re-allocate organizational assets and resources according to the needs of the change initiative at hand. The following quote illustrates this:

*My role will be really how do we put all of these elements together in order to make the transformation happen. (Interviewee 7)*

This is also in line with existing research. For instance, Balogun (2003) states that reallocating resources and reorganizing teams' tasks are some of the responsibilities of middle managers during times of change.

Moreover, knowledge management is yet another activity that middle managers mentioned to be responsible for. Change appears to require team members to acquire new skills and knowledge. In order to provide them with the necessary competences, middle managers expressed that they must manage the knowledge flow and, for instance, organize certain programs such as formal trainings and coaching sessions. Existing research has also recognized this activity as part of middle managers' responsibilities. For instance, Bryant and Stensaker (2011), who acknowledge that middle managers must regularly organize the information flow of their units.

Furthermore, when rolling out changes, middle managers expressed that time management is a constant challenge. The interviewees pointed out that change initiatives increase their workloads and tighten their schedules. Moreover, interviewees mentioned that their team members also see their workloads increased, and this poses a challenge for the execution of the change initiative. For instance, team members' formal trainings are difficult to fit in their busy schedules, as can be seen in the following quote:

*We had over 30 trainings this spring for different roles [...] but having people to come over trainings has been really difficult. (Interviewee 8)*

This is also consistent with existing literature. Balogun (2003) warns that insufficient time can jeopardize the effectiveness of middle managers tasks towards implementing change. In turn, Bryant and Stensaker (2011) call for top management to make themselves aware of this challenge and to adopt actions that would enable middle management to fulfil their role as implementors of change.

#### **4.2.2 Helping others through change**

Besides implementing and executing change, interviewees seem to feel responsible for helping team members navigate the change on an emotional level. The role of guiding others through change and addressing their concerns seems to be central to middle managers. Previous research has documented this notion. For instance, Huy has referred

to middle managers as “therapists” (2001, p. 77) and “emotional balancers” (2002, p.62), and rendered this role crucial in order to avoid organizational chaos during change. Moreover, Beatty and Lee (1992) have claimed that technological adaptation occurs more efficiently when middle managers prioritize and give attention to their teams’ personal concerns.

Consistently with the literature, middle managers seem to attribute great importance to their role in guiding and supporting their team members go through the change, as can be noted in the following quote:

*Me, as a manager, my role is to support the change and also take care that my team members are tolerating the change, so is it a good or a bad change, I need to support them to survive in the change. (Interviewee 3)*

Helping others through the change is thought by middle managers to contribute to team members’ understanding and sense-making of the content of the change as well as its implications. Interviewees highlighted the fact that, since change is usually decided by the top management, team members normally do not know in the beginning what the change means, which may create anxiety and speculation about their future. Middle managers seem to believe that they are responsible for guiding team members to find meaning in the change. The following quote offers an example:

*If you feel the wind of change but you don't know what all the changes are, especially in today's world, you're thinking about also “Will I lose my job? Should I play it safe?”. [...] Because change for many means uncertainty, [...] so managing that, managing expectations, ambitions, bringing certainty into your daily work, that needs a manager's o director's personal touch. (Interviewee 1)*

This is in line with certain literature that highlights the middle management role of sense-making and sense-giving (e.g. Balogun, 2003; Teulier and Rouleau, 2013). Middle managers regularly convey meaning of the change to their team members and guide them through their interpretation journeys. For instance, in a study carried out by Rouleau (2005), the author analyses how middle managers “sell” change to their teams through daily conversations and routines.

In the view of interviewees, helping others through change also entails that they must communicate with their team members in order to find out what are their fears and concerns. However, time management is mentioned as one of the challenges that they must cope with in relation to communication as well. In particular, finding time to have face-to-face conversations with individual team members was mentioned as especially challenging. This is illustrated in the following quotes:

*If they feel bad, I need to know. They are free to come to me and have these one-to-one talks. (Interviewee 6)*

*The key is time management, how to provide enough time for people, [...] how I can be a good manager for all of them if they have something in their mind. Because when things are getting hectic you need to manage projects or deadlines and stuff like that. (Interviewee 6)*

### **4.2.3 Managing team members’ resistance to change**

Another important role identified by interviewees is related to managing team members’ resistance to change. Interviewees mentioned that, although people react differently to change, at least some resistance must be expected in times of change. In light of this, middle managers seem to believe that they must always be prepared for handling resistance to change. The following quote illustrates this:

*There are people who are really eager to try everything new, but those people are few. The majority of us are people who might be excited if something new is coming, but then the status quo is so easy, you just go back to the same system. (Interviewee 8)*

Managing team members' resistance is mentioned in the literature as one of the roles that middle managers are expected to fulfil. For instance, Balogun (2003) states that middle managers must handle this resistance and provide support to their team members while managing their own personal transitions during the change. However, research does not provide a thorough account on how this role is carried out by middle managers.

The interviewees in this study mentioned that when a team member appears reluctant to accept the change, it is not enough to address his or her behaviour, but it is also important to explore the root causes for the resistance and to understand why they resisted in the first place.

Furthermore, middle managers expressed that the degree of acceptance or resistance can vary along the process of change implementation. In other words, the same team member might accept a change in the beginning, but reject it later on if such change does not fulfil his or her expectations. Huy, Corley and Kraatz (2014) found evidence that the degree of resistance can fluctuate depending on the judgments that individuals make of the person who is driving the change. The following quote exemplifies this idea:

*First they were really excited, when it started, [...] but then soon when we started in the first six months, people started to understand that [...] people need to make compromises [...] and then we got dissatisfied people that were really dissatisfied that "how can this be like this, this wasn't my vision". (Interviewee 8)*

### **4.3 Managerial capabilities as change receivers**

Having analysed middle managers' roles, both as change receivers as well as change leaders, I will now concentrate on the managerial capabilities that interviewees mentioned to use in order to fulfil each of the roles mentioned in the previous sections.

In this section, I present and discuss my findings related to the competences that middle managers use in relation to their roles as change receivers. These are: capabilities to make sense of the technological change, capabilities to make sense of their role as change receivers and capabilities to manage their own resistance to change. Moreover, I analyse each of these competences through the lens of Adner and Helfat's (2003) framework of managerial capabilities.

#### **4.3.1 Capabilities to make sense of the technological change**

Middle managers seem to employ their managerial cognition as well as their human capital (Adner and Helfat, 2003) to provide sense and meaning to technological changes in their organizations (Rouleau, 2005).

Interviewees seem to apply certain mental models and knowledge structures when uttering how change arrives to their organizations. As mentioned earlier, interviewees display a strong inclination towards the notion that change constitutes an organizational event that is initiated and decided upon by upper management and it is then imposed to lower levels of the organization (e.g. Floyd and Wooldridge, 1992). This notion seems to be embedded in interviewees' mental models and, as such, in their managerial cognition.

An example of this is the assumption that stakeholders such as CEOs are the ones who initiate the change, while interviewees see themselves as recipients of those decisions, along with the rest of the members of the organization. Interviewees often used the pronoun "they" when referring to the decision-makers of the change, and the pronoun

“us” when referring to the executors of the change. Such denotation seems to evidence a dominant logic (Bettis and Prahalad, 1995) in their organizations pertaining to the notion that change is decided by upper echelons. As such, this seems to be part of middle managers’ mental models. The following quote illustrates this point:

*Basically they [upper management] have set up a work team, [...] and then when they have done their work and chosen what kind of applications and what kind of tools we should use, then there will be an implementation phase. (Interviewee 2)*

Moreover, middle managers’ human capital also appears to inform their perception that technological change is an inevitable fact of today’s world. Human capital emerged in the interviews in the form of knowledge obtained by middle managers’ education and previous work experience (Adner and Helfat, 2003).

For instance, interviewees often located today’s technological changes within their work history. They also made comparisons between the “then” and the “now”, and concluded that change is inevitable nowadays. Their current work positions also contribute to this knowledge as middle managers can witness that other stakeholders within their industry – such as suppliers, clients and competitors – are also experiencing rapid changes.

The following quote is an interesting example of the use of managerial human capital for ascribing sense and meaning to the impending change. This interviewee reflects on her work experience within the last 20 years to explain the arrival of technological changes and to predict how similar changes will take place in the future:

*There have been different stages in the technological development. [...] My first touchpoint with this technological change was when we started getting these ERP systems [...] The second stage was that [...] there were different kind of versions of that in different units in use, and then there became this*

*need to harmonize those ERPs. [...] And now these different mobile apps, you start to have so many of them that you lose track of them, so then the question is: will there be some kind of harmonization at some point? (Interviewee 5)*

The previous quote is illustrative in two ways. First, it shows how managerial human capital can influence middle managers' sense-making regarding the arrival of changes in their organization. And second, it implies that human capital can also have an influence on how middle managers will handle future changes as it informs their sense-making activities (e.g. Rouleau, 2005; Bryant and Stensaker, 2011). Perhaps middle managers can find it easier to accept changes that go in line with their own experience – in the previous example: harmonization of existing mobile apps –, and more challenging to make sense of changes that contradict their own predictions – in the previous example: e.g. an even higher number of different or new mobile apps.

Human capital also informs middle managers when they must assess the need for a specific change. Years of work experience is mentioned by interviewees to serve as a source of knowledge that helps them evaluate which changes are needed in the organization and which changes should not be adopted by the top management. The following quote is an example of this point, where the interviewee mentions that his seniority allows him to possess a wider perspective:

*The speed [of changes] is quite fast and sometimes you stop to think that, do we really have a business case for taking those technologies in? [...] So, when you have a little bit more seniority and, let's say, a wider perspective, you not so easily fall in love with the technology, you look at what is the sense of that, rather than "hey, this is really cool". (Interviewee 3)*

The previous analysis shows that middle managers rely on certain assumptions and beliefs as well as on their knowledge and previous experience to make sense of organizational



change. Therefore, both managerial cognition and human capital are used for sense-making activities.

#### **4.3.2 Capabilities to make sense of their role as change receivers**

As mentioned before, middle managers seem to interpret (Rouleau, 2005) that their role of receivers of change as one that entails that they must support and commit to the initiatives coming from the upper management. Moreover, interviewees are of the opinion that top management must also commit to the change. Regarding these views, managerial cognition, human capital and social capital seem to be applied (Adner and Helfat, 2003).

Managerial cognition appears in the form of mental models. The data suggest that there is a widespread perception among interviewees that they must support the change initiatives that upper management dictates. Organizational change is, therefore, perceived to need the sponsorship of middle managers in order for it to be implemented successfully.

The following quote is an illustrative example. The interviewee is narrating how, at times, she does not agree with certain decisions made by the top management, but she assumes that she cannot voice her disagreement to her team members because she is their manager. By this testimony, it can be inferred that the interviewee's mental models dictate that middle managers must endorse the change that comes from upper management:

*Some of the decisions coming from the high, I agree with many of the team members. Ok, then, I'm in a manager position, then I just listen, but I cannot too much say anything because I agree with them that there is no sense [for the decision]. (Interviewee 11)*

What is more, interviewees seem to believe that they must personally commit to the change, as well as change themselves, as pointed out previously in this study (Balogun, 2003; Giangreco and Peccei, 2005). The main reason behind this belief seems to be that middle managers perceive that they should act as role models for their team members.

Human capital in the form of previous work experience seems to inform this idea, as can be seen in the following quote:

*I've seen many cases where everything boils down to the manager, so the team is a mirror of its manager. (Interviewee 8)*

In addition to this, interviewees expressed that they assign a certain degree of responsibility to the top management for them to also support the changes and for them to commit to them, as expressed by Bryant and Stensaker (2011). This view seems to originate both in their managerial cognition as well as in their human capital. In the first point, interviewees expressed this belief in the form of an “obvious” fact of life. As such, this can be considered as to be part of middle managers’ mental models. In the second point, human capital is used in the form of previous experience, which seems to confirm to interviewees the idea that middle managers need top management’s support and commitment to the change, as exemplified in the following quote:

*Our director for example said that whatever happens, or whatever we do personally somewhere, he's always gonna stand behind us. [...] A small gesture, but at the same time a huge thing to say, because it gives me the self confidence that our team can do anything and I don't have to be afraid of my future, or be ashamed that I'm not intelligent enough. (Interviewee 1)*

Finally, social capital is also referred to in the data. Interviewees’ social ties confirm their perception that they must support changes that are decided by the top management. In this line, Teulier and Rouleau (2013) mention that there is a growing interest in studying middle managers’ social relationships with their colleagues and the impact that these interactions have on their sense-making of the change. In the following quote, the interviewee seems to use internal social ties (Helfat and Martin, 2015) with his superior and expresses that his manager has told him that they must follow the orders given by their superiors:

*I have discussed with my manager that... he has told me that of course he doesn't like all the changes either but we just have to follow them and follow what our superiors want us to do. (Interviewee 10)*

### **4.3.3 Capabilities to manage their own resistance to change**

As change receivers, middle managers must cope with their own resistance to change. In this endeavour, managerial cognition, human capital and social capital (Adner and Helfat, 2003) take place to help middle managers in three main activities. These are: to recognize their own resistance, to identify the reasons behind it, and to decide on how to act on it.

When recognizing their own resistance to change, human capital serves as a useful tool. This appears in the form of knowledge obtained by previous education and work experience. For instance, the following interviewee expresses that it is easier for him to identify his own change resistance because he has studied change management:

*It's easier to me sort of figure it out because I have studied change management and change resistance so I can check the mirror and see myself, ok, that I'm resisting. (Interviewee 6)*

Middle managers' social capital also acts as a tool for them to identify their own resistance. In the following quote, the interviewee expresses that certain horizontal and vertical internal (Helfat and Martin, 2015) interactions help him recognize and manage his resistance:

*I'm not always buying everything myself that easily, but that's why we have this kind of discussions together with the colleagues and my manager. (Interviewee 10)*

In turn, when interviewees reflect on the reasons behind their resistance, managerial cognition emerges in the form of knowledge frameworks and beliefs. For instance, they

allude to the notion that change resistance is a normal part of human nature, as in the following quote:

*Change is not that easy and you don't want people to come to tell you how to do things, maybe that's one reason that of course I'm also a human. (Interviewee 10)*

Moreover, when assessing their expected behaviour, interviewees draw upon their managerial cognition in the form of mental models. One example of this is the managerial belief that individuals must obey their superiors, as in the following quote:

*When you do your work, you must listen to your superior. (Interviewee 8)*

Human capital in the form of previous work experience also seems to inform middle managers on how they should act with their own teams when they are experiencing resistance to change. In the following case, the interviewee's experience appears to dictate that the best course of action if for him to be honest with this team members:

*I've been also honest to the team [about my own resistance]. [...] From my point of view it's still better than to pretend you like the change and then it's... anyways it comes to the surface. (Interviewee 4)*

Finally, interviewees suggest that they benefit from their social capital (Acquaah, 2007) as it provides them with input and information on how they should behave once they recognize themselves as resistant. In the following quote, the interviewee has a mentor who provides advice on those issues:

*My mentor has said a few times like [...] "you have x amount of your joker cards" if you think about the card game, "use them wisely, because you can only use a handful per year". So, you can't resist everything otherwise you*

*will be marked, a huge “x” on your forehead and you're a troublemaker.  
(Interviewee 6)*

## **4.4 Managerial capabilities as change leaders**

Having analysed middle managers' capabilities as change receivers, I now focus on the competencies that interviewees use as change leaders. In this section of the study, I present and discuss my findings in relation to such capabilities, which are: capabilities to implement the change, capabilities to help others through change and capabilities to manage team members' resistance to change. In addition, I offer an analysis of each of these competencies within Adner and Helfat's (2003) framework of managerial capabilities.

### **4.4.1 Capabilities to implement the change**

As already mentioned, middle managers must implement the changes as instructed by the top management (e.g. Floyd and Wooldridge, 1992). Implementing change involves multiple activities that middle managers must engage with, as well as multiple skills and competencies that they must make use of. In the next paragraphs, I outline the main competencies that interviewees perceive as necessary in order to implement organizational change. These competencies are: designing change management plans, performing stakeholder analyses and organizing knowledge management.

#### *Designing change management plans*

Interviewees allude to the advantages of having the ability to plan the implementation of the change in the form of written change management plans. In Anzengruber, et al.'s (2017) framework, this can be considered a task-oriented capability.

Change management plans are perceived to be useful in clarifying the targets and goals of the change initiative. They are also seen as a useful tool to outline the steps that need to be followed during the implementation of change, and to provide practical advice and instructions to different organizational members on how to carry out each step in practice. Some interviewees go even further and call for the creation of very detailed change management plans that would serve as practical “toolkits” and that could be tailored to different functions within the organization, as in the following example:

*We could define a very nice, simple change management “toolkit”. [...] It can mean, for instance, an instructions manual telling you that these are the key elements that you need to have in place, and the communication plan, and [here are] some ideas how to build it. [...] If you are a middle manager, what is the toolkit for the middle manager. If you are a doer, what is the toolkit for the doer. (Interviewee 7)*

This perception on the utility of change management plans can be categorized within the set of capabilities found in managerial cognition (Adner and Helfat, 2003). Interviewees convey an assumption that change management plans are extremely useful or, in several cases, in fact necessary.

Moreover, capabilities related to human capital (ibid) can also be inferred from the data. Interviewees refer to their previous work experience as a source of knowledge that leads them to believe that change management plans serve as important tools for change implementation. The following quote serves as an example:

*We have developed quite much from the last 10 years. Now at least we have a change management procedure in place. (Interviewee 11)*

Middle managers also believe that plans regarding organizational changes should be communicated in a transparent manner throughout the entire organization in order to

convey a feeling among team members that they are being informed and included in the process. Interviewees do, however, recognize that transparency is not always sought after by the top management. And, in some cases, transparency is not possible due to legal limitations that impose non-disclosure policies. The following quote illustrates this point:

*Then, on the other hand, you have cases where, for example, organizational projects are kept or have to be kept under non-disclosure for legal or other reasons and people don't know what's gonna happen and are just presented with the result, then it's not going well. [...] That is what I see and I saw quite often. (Interviewee 4)*

The previous interviewee uses his human capital in the form of past work experience to reach the conclusion that non-disclosed change plans are not as successful as those which are communicated transparently throughout the organization.

### *Performing stakeholder analyses*

Another point highlighted by interviewees was the importance for them to be able to carry out effective stakeholder analyses in order to map the interests and roles that different individuals or groups might have in relation to the change. This is illustrated in the following quote:

*I think that the managers should be good at [...] understanding really thoroughly why, and all different stakeholders' whys. (Interviewee 8)*

Interviewees conveyed the idea that middle managers should be able to identify which stakeholder groups are to be affected by the change and how they are to be impacted by it. In addition, it is thought to be important for middle managers to be able to understand different stakeholder groups' needs and determine how each of them can obtain value from the change. This is a necessary step in the analysis as it is connected to persuading

different organizational members of the need of the change as well as the benefits that it will bring to the organization.

The interviewees pointed out that the ability to identify and analyse the different stakeholder groups helps them evaluate which approach is more suitable for each stakeholder. It is also said to help them assess the extent to which they must tailor their change management plans, as opposed to having a one-size-fits-all approach.

Performing stakeholder analyses seems to be among those capabilities that conform managers' human capital (Adner and Helfat, 2003). An accurate identification of the relevant stakeholders and an effective analysis of such stakeholders seems to be regarded by interviewees as a valuable skill that they acquire through their work experience. In the following quote, the interviewee states that stakeholder analyses also help him determine the appropriate communication strategy for each interest group:

*Quite soon comes some kind of stakeholder analysis that who are the stakeholder groups related to this [change], there are some groups who just need to know about it, kind of FYI-type of message, then there are some people who really need to change their behaviour, their way of working. Identifying different groups and then from there on different kind of approaches for different groups. (Interviewee 9)*

Social capital (Adner and Helfat, 2003) is another source of information that helps middle managers perform their stakeholder analyses. For instance, the following interviewee uses external social ties with potential customers (Acquaah, 2007) in order to perform an "environmental scanning" (Helfat and Martin, 2015, p.1286) and retrieve useful information:

*I have met with a couple of bigger companies and I've been surprised [...] how far they've come. And I noticed that the products and ideas and the future*



*they're envisioning is actually gonna help me sell my ideas within this organization. [...] So, if I can say that “this company and that company, I know for a fact that they're developing this, [...] we can be there with them as partners or they're gonna go way past us and it's gonna be [competitors]”; so they get a better sense of urgency and I can give concrete good examples of what's happening in the field. (Interviewee 1)*

### *Organizing knowledge management*

Interviewees also mentioned knowledge management skills as an important aspect of change implementation. Middle managers' human capital in the form of past work experience seems to inform this view (Adner and Helfat, 2003).

Knowledge management relates to providing team members with the necessary knowledge and competencies for them to work effectively in the new setting. Wilson III, et al. (2004) highlight the importance of knowledge management in environments that require innovation. Moreover, Van Den Bosch and Van Wijk (2000) argue that managerial capabilities are created and improved by integrating organizational knowledge.

Similarly, middle managers seem to attach significant importance to managerial skills related to organizing company trainings and coaching sessions that are suitable for the change and which are deployed in a timely manner. Trainings are thought by interviewees to help organizational members in adjusting to the change. The following quote conveys this idea:

*If you don't train people well enough, they don't use [the new IT systems]. [...] So I think there should be much more time reserved for trainings. (Interviewee 11)*

Moreover, interviewees seem to believe that trainings can provide employees not only with competencies and knowledge to use new digital tools, but also to enhance their confidence in carrying out changes. In addition, trainings are thought to foster team spirit and positive attitudes among team members, as can be seen in the following quote:

*The second [point] is giving them confidence because you give them some skills and capabilities so they have confidence that “ok, yes, we can do this”. And then, the third point is that after the training we do things together [...] and we're working as a team together. (Interviewee 7)*

#### **4.4.2 Capabilities to help others through change**

Interviewees referred to different capabilities that they must use in order to help other team members navigate the change (Balogun, 2003). In the next paragraphs, I describe the capabilities that are rendered by interviewees as the most important when assisting others into accepting the change. These are: sense-giving, managing emotions, organizing employee participation and motivating and persuading.

##### *Sense-giving*

Middle managers perceive that they must help their team members make sense of the change and its implications, both for the organization and for individual roles. Similarly to what was mentioned before about middle managers' need to make sense of the change, interviewees believe that their teams must also make sense of the change. This is in line with the literature that discusses the middle management role of sense-making and sense-giving (e.g. Balogun, 2003; Teulier and Rouleau, 2013).

In this line, interviewees mentioned the importance for them to be able to provide explanations to their team members as to, for instance, why the change is needed, what are the reasons behind it and what is its purpose. Providing suitable explanations and

justifications is thought by interviewees to help organizational members find a meaning for the change and understand its implications.

Interviewees seem to believe that certain tools, such as written explanations and instructions, are not enough for team members to find meaning in the change. Instead, they highlighted the importance of personally meeting with their subordinates and providing explanations face-to-face. This ability is originated in middle managers' human capital, as previous work experience informs them how they should approach their team members (Adner and Helfat, 2003). The following quote illustrates this idea:

*I spent with them early on quite much time to explain “what is your role” and “you're like a change agent”, [...] “you're an orchestra and everybody plays an instrument, it's not music if everybody an instrument at home, we need to play it together”. (Interviewee 8)*

Similarly to what was mentioned before regarding the implementation of changes, helping others make sense of the change is thought by interviewees to require transparency. Middle managers seem to believe that they must share the information that is available for them in an honest and open manner, avoiding giving explanations that are based on speculation or guesswork on their part. The reason for this is that honesty is believed to be an element that fosters positive feelings among team members. One example can be seen in next quote:

*What I believe is successful is to be transparent, be honest and give everybody the feeling that they are informed about goals, reasoning and what's happening. (Interviewee 4)*

This approach is consistent with what I described earlier. That is: middle managers feel the need to know the reasons behind changes and, accordingly, they seem to project this need towards their team members, assuming that they also need to hear the reasoning

behind the change. Middle managers' cognition seems to be in play in this case, as they are making an interpretation as to what team members require in order to successfully navigate changes (Adner and Helfat, 2003). Moreover, managerial cognition seems to be in use when middle managers decide what are the best tactics to help their teams make sense of the change. In the following quote, the interviewee illustrates that she chooses her tactics according to what she assumes to be a "tool-oriented" team:

*We're an organization of engineers and the way that they are geared is that they are very tool-oriented. (Interviewee 5)*

### *Managing emotions*

Middle managers seem to perceive that they need to understand and address team members' emotions before they can guide and support them through the change (e.g. Huy, 2002). As such, their managerial cognition seems to be in play as they engage in emotion regulation (Adner and Helfat, 2003).

Interviewees emphasized the need to allow for and to encourage open discussions with their team members, as a way to allow them to voice their opinions regarding the change initiative. Interviewees also mentioned the importance for them to have the ability to listen to their teams' views in order to understand the causes of their questions and concerns. The following quote shows this point.

*I think it has a lot to do with this open dialogue and being able to listen, that's very important, to hear their concerns, and not just say that "yeah, yeah, but we're gonna do this anyhow" but really trying to understand where they are coming from. (Interviewee 5)*

However, some interviewees expressed concern that, even when giving the opportunity for team members to share their views and emotions, there is always a risk that they will

not do so, due to fear of being seen in a negative light by their manager. Therefore, there seems to be a challenge for middle managers to obtain the truth from their team members, as can be seen in the following excerpt:

*Even if we make sure that we meet weekly and I ask you “how are you doing?”, [...] not all would give me a straight answer, because they're afraid that maybe I might misinterpret what they say. So you feel like there's maybe a risk [...] of losing face or be seen stupid or aggressive towards your boss or any kind of social pressure that is so individual that is difficult to predict. (Interviewee 1)*

In addition to open discussions, emotion regulation seems to require middle managers to be available for their team members when they need support. The phrase “being there for them” appeared several times in the data. This is in line with Beatty and Lee’s (1992) study on the importance for middle managers to address people’s personal concerns during technological changes. Interviewees seem to believe that they must make themselves available for their teams and provide them with emotional support. Moreover, interviewees highlighted the importance of being physically present to show their support. Face-to-face interaction is thought to be necessary when supporting others handle their emotions. The following quotes are examples of this idea:

*You have work plans that you do for the whole team, but then you spend a lot of time with single team members and then you need... or I believe it's important to adjust to the very personal needs and concerns. (Interviewee 4)*

*Being available and being present is the best way. (Interviewee 3)*

Interviewees also emphasized the importance for them to respect the individualities of each of their team members. Middle managers believe that they need to be tolerant towards people who might be perceived as different or who might have different needs

than the rest. Interviewees expressed that people go through different internal processes when coming to terms with a change, and that they adapt to changes at different paces.

According to the data, facing change is especially challenging for certain team members because changes can generate fear and anxiety. Some employees, for instance, tend to doubt their competencies to learn how to use the new tools that digitalization brings, and they also fear for their future in the organization. In these cases, interviewees express that empathy is a vital trait that they must have. The following quote offers a thorough view of this notion:

*All the humans are individuals at the end of the day and they handle difficult topics in different ways, they are in different phases in their change management curve and I think managers should read the situation very carefully and understand their characteristics. (Interviewee 3)*

Finally, managerial social capital emerges as another category of capabilities that middle managers use to manage teams' emotions (Adner and Helfat, 2003). To get information on how their teams are feeling about the changes, middle managers rely on their social relationships. For instance, the following interviewee uses informal interactions with her team members to obtain this information:

*It's more of this informal talk by the coffee machine or over lunch or something, there are different stages, especially when you're doing projects, so that there are different phases in the project that sometimes they are more active and then they are more this that you... it's not so hectic. (Interviewee 5)*

### *Organizing employee participation*

Organizing employee participation in the planning of the change seems to be another ability that middle managers render valuable. This view seems to be embedded in middle managers' managerial cognition in the form of mental models and beliefs which lead them to assume that employee participation is useful and valuable during change implementation (Adner and Helfat, 2003).

Creating channels for allowing team members to participate in the decision-making of the implementation of the change is thought to provide them with a sense of ownership in the process, at the same time that it gives them the opportunity to have a say in how the change will be implemented and how it will affect their roles. This is thought by the interviewees to help team members better adapt to the change and ease the process of change implementation. The following quote portrays a rich view on this point:

*It's much easier if you can sort of... how everybody could contribute to the change planning. [...] If you can do that, you break all these barriers, because if I'm sitting in a corporation in this ivory tower, it's easy to plan on paper, but for you as an employee it shows like "ok, they're now planning again this super-secret-mega change which is ruining my life". [...] But if you're able to contribute to the design and also chip in with your opinions, you can adapt during this planning phase to the upcoming change, so it's not a sudden change of your role and your responsibilities. (Interviewee 6)*

Despite this idea, middle managers' human capital in the form of work experience informs them that, in reality, employee participation is not always possible. Several reasons emerge in the data for a lack of employee participation.

One of the reasons is that, when the organization is very large, it is challenging to collect and analyse the input from dozens or hundreds of team members. Another reason

provided by the interviewees is that certain changes must be kept secret in the beginning of the change process due to legal reasons – for instance, in the case of listed companies. Finally, interviewees also pointed out that a lack of time combined with a high volume of changes taking place in the organization often conspires against involving employees in the planning of change initiatives. Research has identified a lack of time as one of the challenges that middle managers face (e.g. Bryant and Stensaker, 2011). The following quote exemplifies this last case. When asked whether employee participation takes place in reality, the interviewee answered:

*Nah, it doesn't. We're too busy of being busy. We have so many of these projects going on so of course it's all about the time management and getting something done and that's one of the challenges of the times that we're now living in. (Interviewee 6)*

### *Motivating and persuading*

Middle managers resort to their managerial cognition when deciding how to prompt their team members to adopt changes. According to the data, it can be inferred that middle managers' mental models (Adner and Helfat, 2003) dictate that motivation and persuasion are more effective than imposing decisions against their subordinates' will. While imposition is thought by interviewees to achieve only incomplete and superficial results, a motivation-based approach is perceived by interviewees to produce a deep and long-lasting acceptance of the change.

According to interviewees, possessing motivation- and persuasion- skills is beneficial when convincing team members into adopting changes. This set of skills seems to be acquired by education, training and work experience and, as such, these skills can be considered as part of middle managers' human capital (Adner and Helfat, 2003).



Interviewees mentioned different techniques to motivate and persuade their team members, the main ones being: aligning the message, creating a sense of urgency, making the change personal and finding change agents. In the next paragraphs I will describe each of these tactics.

First, aligning the message seems to be a vital element for successful persuasion. Middle managers expressed that when a change takes place, they must be careful to craft messages that are consistent throughout the change process. Within this process, managerial social capital is also used in the form of organizing meetings with colleagues to agree on the message that they will pass on to their team members. This horizontal communication among colleagues is thought by interviewees to be useful for middle managers to convey a consistent message not only within their teams, but also on a wider level along different organizational units. This is evidenced in the following quote:

*We have had some discussions with my colleagues and tried to get our focus to the same direction, so then our message to people below us would be the same. [...] And then after these discussions we must come out from the meeting room with the same opinions and the same message, because otherwise it won't work when we are telling this message to other people. [...] And I think the last years have been quite ok, we have been concentrating that when some change comes, how we tell it to people below us and try to keep the same message. (Interviewee 10)*

Second, having the ability to create a sense of urgency appears in the data as another tactic middle managers use to motivate and persuade their teams into adopting the change. The reasoning behind this assumption seems to be that, without a sense of urgency, team members might not feel the need to change, as mentioned in the following quote:

*You need to be also really good at... if you don't have the burning platform, to create one. Because if you don't have a burning platform, why should you change? (Interviewee 8)*

Third, interviewees seem to believe that motivating and persuading team members requires that they should make the change personal to the people under their supervision. This activity is thought by interviewees to require them to be skilful in creating a storyline of the change that portrays it as advantageous and beneficial for individual team members. This is dubbed by many of the interviewees as the “what’s in it for you” narrative. This is illustrated by the following interviewee:

*When you introduce a change - I have actually made studies by myself, change resistance was my thesis - you always should map your feelings and what it is for you as a user. So that's vital. By doing that you can be more successful implementing the changes. So I have been doing that with my own teams here, so what it is for them. (Interviewee 6)*

And fourth, having the ability to find change agents within their teams is thought by middle managers to be a valuable tool for team persuasion. Change agents seem to be those team members who have a significant influence towards other members of the team, and who can persuade other employees into accepting the change. The following quote is an example:

*You need to find the influencers, which kind of often they are not the head of departments, they are the designers, but they have a massive influence to the community around them. So you need to pinpoint and take extra care with them and provide this “what it is for you”, because when you get them to your side they will speak on behalf of the change. (Interviewee 6)*

In the same line, another interviewee adds that the strength of team influencers comes from the element of peer-to-peer rapport:

*If somebody is doubting something if you're able to tell them that "hey, come on, we have this example that you can go and talk to that person", when they are talking peer-to-peer that's very powerful. (Interviewee 5)*

#### **4.4.3 Capabilities to manage team members' resistance to change**

Finally, interviewees identified certain competencies and capabilities that seem to be useful when managing team members' resistance to change. These are: exploring the root causes for the resistance, fostering open dialogue and enforcing the change.

##### *Exploring the root causes for the resistance*

Middle managers seem to believe that it is important for them to explore and attempt to understand the root causes of their teams' change resistance. In order to do this, they turn to their managerial cognition (Adner and Helfat, 2003) to make interpretations and assumptions to identify the reasons behind the resistance.

Interviewees identified different root causes for team members' resistance. Some interviewees attribute resistance to human nature, stating that it is a natural impulse for individuals to cling on to familiar ways of working. In turn, other interviewees attribute resistance to flawed communication on the side of the organization, as in the following quote:

*We often talk about resistance, but to be honest, I'm not sure I like talking about resistance, because it takes two to tango. So, one of the key challenges I've seen is that we try to make change very complex and we use very complicated language and very complicated words. [...] There is resistance,*

*but there is resistance it means you haven't been able to really communicate properly. (Interviewee 7)*

Moreover, some middle managers refer to team resistance as a consequence of employees having fear for their future and the degree of stability of their work positions. Finally, others attribute change resistance to employees not being able to identify a clear benefit that the change would bring to their role, as in the next quote:

*It's just something some guy said from an ivory tower "let's change because it makes a difference for the business". But as an employee on the ground level I don't get it, what is for me? (Interviewee 6)*

Middle managers also analyse the root causes for change resistance by making use of their human capital in the form of knowledge acquired by their work experience and education (Adner and Helfat, 2003). In the following quote, the interviewee shares how he has learned that there is a "statistical deviation" in the number of change-resistant employees:

*Some people are really, really stubborn. [...] So I could say like "x" percentages are like that. [...] And that's like you could always have a statistical deviation, so we have these guys and then we have the opposite side which is the change agents. I have done my homework. (Interviewee 6)*

### *Fostering open dialogue*

When managing team resistance, interviewees highlighted the importance of opening channels for a two-way dialogue between middle managers and resisting employees. Their managerial cognition seems to be in place in the form of certain assumptions (Adner and Helfat, 2003).

For instance, open dialogue is thought by interviewees to serve as a way to promote discussion and provide mutual feedback. It also seems to serve as a way to encourage self-reflection on the side of the resisting employee by asking him or her what are the reasons for their resistance. In turn, self-reflection is perceived to be useful in having the employee reconsider her or his views, as in the following quote:

*I just talk to them and discuss with them and try to get some explanation from them also, like “why do you think this doesn't work?” and “why this couldn't be better than the way you are doing it at the moment?” and trying to get them thinking like that. (Interviewee 10)*

Middle managers also emphasize the value of explaining to their teams why the change is needed in order for them to realize the importance of it, as in the next quote:

*I always start with why, because just saying “do it differently” and not explaining why I don't think it's even fair, everybody needs to understand why this is so important. (Interviewee 8)*

In this activity, middle managers' social capital (Adner and Helfat, 2003) also plays an important role when preparing themselves to face resistant team members. This can be seen in the following quote:

*Usually it's easier to start with someone who I know that he's eager to new things, so discuss a little bit with these easier guys and then go to the hard ones after I have heard their questions and opinions about it, then I'm more prepared to sell these ideas also to the guys who are not that easy for the changes. (Interviewee 10)*

Finally, open dialogue allows middle managers to motivate resisting employees by highlighting the positive sides of the change, as well as emphasizing how the change can be beneficial for the team. The following quote illustrates this point:

*You will have to try to figure out some positive things that will happen after that, how it will make our living or their living or working easier and try to sell it like that. (Interviewee 10)*

### *Enforcing the change*

Another interesting finding in the data is that the ability to enforce the change appeared as a strong pattern among interviewees. Middle managers seem to believe that they need to be skilful in enforcing the change if such action is needed. The following quote is an example of this view:

*At some point you just have to draw the line because also another risk here is that you can discuss for as long as you want, but at some point you need to decide that “ok, this is it and this is what we're doing”. (Interviewee 5)*

For some interviewees, the alternative of enforcing the change is viewed as a last resource, while for others, this is thought to be the course of action that must be taken from the beginning. Examples of these two cases are presented as follows:

*That's the last point if they don't do the change, so I try to be more gentle of course in the beginning. (Interviewee 10)*

*One thing I think the manager has to be good that if we decide that we take a new system or whatever procedure in place, that we really be determined that then, if it's decided then we just follow. Because there's always somebody*

*complaining. [...] If we decide something then everybody goes that way. (Interviewee 11)*

Recent research has focused on persuasion rather than on enforcing changes. For instance, certain studies have advocated for open communication, employee participation and certain economic and social incentives (e.g. Herzig and Jimmieson, 2006; Taylor and Helfat, 2009). However, the interviewees in this study contemplate the possibility of enforcing changes as a visible reality. They find diverse reasons and justifications for this view. These reasons revolve mainly around the idea that having employees not following the change can create chaos and productivity challenges to the organization. For instance, there can be situations where some team members are following the change and others are not, and this is thought by interviewees to undermine the legitimacy of the change, as in the following quote:

*When there's one project team that works differently from the rest it actually ruins [...] the system and ruins the operating model. (Interviewee 8)*

In other cases, the reasoning behind enforcing the change responds to circumstances that the organization cannot avoid, such as the following quote, where the company had to acquire a software system in order to comply with the new GDPR regulations:


*Now with the GDPR you just have to have it because it was too big of a risk, [...] so we needed to change it because otherwise we would be in big trouble. [...] I think sometimes those changes are necessary and you can't ask people's opinions like do they wanna have it or not. (Interviewee 12)*

This notion of change enforcement seems to be originated in middle managers' mental models, as well as in knowledge acquired in their work experience. As such, both managerial cognition as well as human capital seem to be in use when middle managers decide to enforce changes (Adner and Helfat, 2003).

## 4.5 Summary of findings

The findings in this study shed light on the roles, competencies and capabilities of middle managers during technological change. A summary of these findings is presented in Figure 1.

Figure 1: Summary of empirical findings

	<b>Roles</b>	<b>Competencies</b>	
<b>As change receivers</b>	Sense-making of the technological change	<ul style="list-style-type: none"> <li>· Understanding of the origin of the change</li> </ul>	
	Sense-making of their role as change receivers	<ul style="list-style-type: none"> <li>· Supporting and committing to the change</li> </ul>	
	Managing their own resistance	<ul style="list-style-type: none"> <li>· Recognizing their own resistance</li> <li>· Identifying the reasons behind their resistance</li> <li>· Deciding how to act on their resistance</li> </ul>	
<b>As change leaders</b>	Implementing the change	<ul style="list-style-type: none"> <li>· Designing change management plans</li> <li>· Performing stakeholder analyses</li> <li>· Organizing knowledge management</li> </ul>	
	Helping others through the change	<ul style="list-style-type: none"> <li>· Sense-giving</li> <li>· Managing emotions</li> <li>· Organizing employee participation</li> <li>· Motivating and persuading</li> </ul>	
	Managing team resistance	<ul style="list-style-type: none"> <li>· Exploring the root causes for the resistance</li> <li>· Fostering open dialogue</li> <li>· Enforcing the change</li> </ul>	



In times of technological change, middle managers must enact a dual role of being simultaneously change receivers and change leaders. As receivers of change, they perform three main roles: sense-making of the technological change, sense-making of their role as change receivers and managing their own resistance. Sense-making of the change entails that middle managers must use their ability to understand the origin of the change. Sense-making of the role as change receivers supposes that they must use competencies related to supporting and committing to the change as planned by the top managers. Finally, managing their own resistance to change involves competencies related to recognizing this resistance, identifying the causes behind it, and consciously deciding on a specific course of action in relation to how they will handle such resistance.

In connection to this, an interesting finding that emerged from this study was that middle managers strongly agree with technological changes, and yet, they find themselves resisting those changes in certain circumstances. A detailed analysis on the particularities of middle managers' resistance to technological changes goes beyond the scope of this study. However, certain elements that emerged from the data were described in the previous section. Future research could benefit from exploring this point in more detail.

As to their position as change leaders, middle managers perform three specific roles: implementing the change, helping others through the change and managing team members' resistance. Implementing change requires middle managers to use competencies related to the designing of effective change management plans, performing stakeholder analyses and organizing the knowledge flow within their units. Helping others through the change involves abilities related to sense-giving, emotion management, organizing employee participation and motivating team members to adopt the change. Finally, managing team resistance calls for middle managers to be skilful at exploring the root cause for such resistance, fostering open dialogue and enforcing the change whenever needed.

In relation to managerial capabilities, all of the mentioned roles involved the use of the three categories presented in Adner and Helfat's (2003) framework, i.e. managerial cognition, managerial human capital and managerial social capital. The three categories of capabilities nurture middle managers' abilities and skills and contribute to the fulfilment of each of their roles in times of technological change.

## 5 CONCLUSION

In this qualitative study, I have explored middle managers' roles and capabilities during technological change. Rapid technological development constitutes a widespread phenomenon that affects organizations in virtually every industry nowadays. As such, this is a topic that is gaining increasing interest both in academia as well as among management practitioners.

The main purpose of this qualitative study was to enhance our understanding of this phenomenon in relation to the middle management function. In this line, I formulated the following research questions:

RQ1. What are middle managers' perceptions regarding their roles in times of technological change?

RQ2. What are middle managers' perceptions regarding the competencies and capabilities that they must use to fulfil such roles?

The findings of this study indicate that several of the roles mentioned in the literature are performed by middle managers during times of technological change. The data suggests that middle managers are in a position that requires them to be simultaneously change receivers and change leaders. As change receivers, they enact three main roles: (1) sense-making of the technological change, (2) sense-making of their role as change receivers and (3) managing their own resistance to change. In turn, as change leaders, they also enact three main roles: (1) implementing the change, (2) helping others through the change and (3) managing team members' resistance.

In addition, a variety of concrete competencies and skills are identified in the data as necessary capabilities for middle managers to effectively perform each of their roles.

Moreover, the findings suggest that all three categories of managerial capabilities included in Adner and Helfat's (2003) theoretical framework (i.e. managerial cognition, managerial human capital and managerial social capital) are deployed when middle managers face technological change.

From a theoretical perspective, these findings enrich the existing literature in two respects. First, specific roles are identified to be carried out by middle managers in the particular context of technological change. Although research has well documented the roles of middle managers during times of change, technological change as a particular type of change has not received enough attention. Therefore, this study contributes to existing research by shedding light on the roles that middle managers adopt in the context of technological change in particular.

Second, each of the roles identified by the interviewees are linked with concrete competencies that are used by middle managers in order to fulfil their duties effectively. Thus, this study bridges two streams of literature that have so far been developed separately. That is: the literature on middle managers' roles and the literature on managerial capabilities. As such, the study contributes to existing research by drawing connections between the roles that middle managers enact during times of technological change, and the concrete competencies associated to each of the roles they perform.

The findings of this study also have implications for practitioners who want to improve the capabilities needed for middle managers to successfully navigate change. The empirical data provides useful insights on the concrete competencies that middle managers use when performing each of their roles during times of technological change. This could help practitioners identify the skills that need to be in place among their middle managers, and it can provide guidance for the further development of such skills.

Moreover, the findings suggest that middle managers strongly agree with technological changes, which can be considered an advantageous starting point for organizations that need to acquire and implement new technologies.

The findings also offer opportunities for future research. This study is limited to twelve semi-structured interviews with participants from a variety of industries. Different methodologies, such as case studies, could provide further validation to the present findings. Future research could also offer deeper insights on how middle managers' competencies and capabilities can be improved. In addition, the fact that middle managers widely accept technological changes but still experience change resistance would need further research. Finally, new studies could take upon the task of exploring how the top management could provide better support to middle managers during technological changes.

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