Reinventing Organizations:

Middle Manager Contributions to Contextual Ambidexterity

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Abstract

Organizations need to adapt to their surroundings to achieve success or even just ensure survival. A concept that captures organizational adaptation is ambidexterity; the skill to simultaneously explore future capabilities while exploiting today's. Ambidexterity can be achieved by sequential or structural separation of exploitation and exploration elements, and by embedment in organizational context. The latter form is called contextual ambidexterity and requires management to arrange processes that enable individuals to divide their own time between exploration and exploitation. Middle management is argued to play a key role in realizing contextual ambidexterity due to their intermediate position and linking function. In this paper, middle manager practices contributing to contextual ambidexterity and the effectiveness of managerial influences on these practices were researched. A qualitative study was conducted in a governmental organization where a program to stimulate and direct ambidexterity was executed. Six middle manager practices (championing, synthesising, facilitating, implementing, boundary spanning and experimenting) are identified as positively influencing contextual ambidexterity. Furthermore, findings indicate that top management influences on social context and organizational cognition are perceived by middle managers as most effective stimuli for their practices. This study contributes to the fields of ambidexterity and middle manager research by drawing the connection between both concepts, giving insight in the practices and interfaces of exploitation and exploration in organizations and their influentials.

Key words: (contextual) ambidexterity; organizational adaptation; middle managers; managerial influences.

Contents

Introduction

Organizations need to adapt constantly to their environments to survive, thrive or become successful. Organizational adaptation, renewal and innovation are therefore enduring topics in both theory and practical organizational management. One of the concepts that captures organizational adaptation is ambidexterity. Literally referring to the ability to use both left and right hands with equal skill, ambidexterity is the organizational quality to compete in both current and in new markets, to simultaneously explore new businesses while exploiting existing ones (Duncan, 1976; Tushman & O'Reilly, 1996). Duncan (1976) was the first to use the concept in relation to organizations and research on ambidexterity increased exponentially after being readdressed by March (1991). Several methods ranging from case studies (e.g. Tushman and O'Reilly, 1996) to large sample longitudinal studies (e.g. Goosen, Bazzazian and Phelps, 2012) have thusfar been used to study ambidexterity. Moreover, different levels of analysis, samples from differing industries, a range of outcome variables and different measures of ambidexterity have been used. Empirical evidence built up thusfar shows that ambidexterity is positively related to myriad outcomes in firm performance like sales growth, innovation and firm survival (e.g. Auh and Menguc, 2005; Burgers, Jansen, Van den Bosch and Volberda, 2009; Hensmans and Johnson, 2007). These studies thus provide convincing cues on the potential success of organizational ambidexterity and therewith raise the question how firms can achieve ambidexterity.

Three main streams of thought provide an answer to this question: sequential or structural separation of exploitation and exploration elements, or embedment of both elements in organizational context, called contextual ambidexterity. The latter concept is generally seen as key in organizational adaptation yet hardest to attain since it involves altering organizational behavior and takes place on the individual level (O'Reilly and Tushman, 2013). Contextual ambidexterity is conceived by Gibson and Birkinshaw (2004) who argue that balancing exploration and exploitation depends on an organizational culture that provides stretch, discipline and trust. Furthermore, they argue that it requires a supportive organizational context that encourages individuals to make their own judgments on how to best divide their time between the conflicting demands of exploration and exploitation. Several studies have elaborated on the concept of contextual ambidexterity, some of which argue that a supportive culture is an outcome of alignment and adaptability (e.g. Bueschgens, Bausch & Balkin, 2010). Since contextual ambidexterity can provide organizations adaptability, takes place on the individual level and is dependant on a supportive organizational culture, two main questions arise that are key to achieving this trait: Where do ambidextrous processes take place in organizations and by whom? And how can the actors and processes be influenced?

Several studies provide convincing evidence on the pivotal role that middle managers play in organizations (e.g. Hambrick and Mason, 1984; Nonaka and Takeuchi, 1995; Floyd and Wooldridge, 1999). Where top management has an important effect on an organization by deciding on resource allocation and directing change, it is the middle managers who are the actual implementors of change and managers of paradoxes on the interface of exploration and exploitation (Wooldridge et al. 2008). This study therefore adopts the view that studying middle management practices can provide discernment on achieving contextual ambidexterity.

Hitherto, few scholars have connected middle management with ambidexterity. Taylor and Helfat (2009) did so, arguing that middle managers determine success or failure of technological transitions within firms by linking different complementary assets. They reason that middle managers promote ambidexterity by enabling firms to transition to a new technology while utilizing and adapting valuable preexisting capabilities (Taylor and Helfat, 2009). While the key role of middle managers is undisputed, scant attention is devoted to other than technological transitions. Supplemental contributions of middle managers therefore require further investigation and leave a gap in theory. This paper extends the findings of Taylor and Helfat by studying middle manager's contributions to contextual ambidexterity. By investigating four cases in an organization where top management launched a distinct effort to attain ambidexterity, this study aims to fill this gap in literature that explains middle manager contributions to contextual ambidexterity. Middle manager practices that aid in establishing contextual ambidexterity and influences on these practices are investigated using the following research question:

What are the practices of middle managers that contribute to contextual ambidexterity, and which top management influences are most effective in stimulating these practices?

By answering this question, two fields of research are connected and hence contributed to. On the one hand, the field of research on contextual ambidexterity is enriched by this research through wider usage of the middle management perspective. It provides a deeper insight in the practices of middle managers in respect to ambidexterity and lays bare the interfaces of exploration and exploitation. In addition, top management influences to attaining ambidexterity are exposed and explained. On the other hand, the field of research on middle management is extended by this study, therewith answering Wooldridge et al. (2008) who appealed for further investigation and uncovering the critical balancing acts underlying ambidexterity at the group or subunit levels. This research zooms in on contextual ambidexterity by researching the microprocesses that take place in the middle layer of organizations.

The practical relevance of this research is twofold. First, by researching practices of middle managers, this study may provide both insight and inspiration. The informational purpose for

practitioners increases awareness and hopefully also an exemplary or promotional purpose to those middle managers that are on the fence and doubt their own role or impact in organizational adaptation. Second, insight for top management teams is provided. They are presented a new view of the in-depth processes of organizations and the perceived effects of policies to renew and reinvent organizations. Depending on the type of organization they lead, this might serve an informational purpose in tweaking top-down processes to stimulate organizational transformation.

This paper is structured as follows: first the literature that this study is based upon is disseminated and working definitions of the used constructs are presented. Next, the research design and a rich description of the research context and methods is presented to provide a sound understanding of the foundation of this study. Then an overview of results shall be presented in two separate parts, the first views the manager's practices, the second zooms in on the managerial influences. Finally, a conclusion with overall implications of this research, its limitations and its potential for further research is presented.

Literature review

To find middle manager's contributions to contextual ambidexterity, the concept of middle management, its characteristics and its potential to embody change and adaptation is explained. Next, the concept of middle manager practices is positioned as a dependent variable for this research. In addition to this, an exposition of managerial influences is provided as a second dependent variable. But first, a brief summary of the field of research on ambidexterity is presented and the concept of contextual ambidexterity is explained. An overview of the main studies this research builds upon is found in table 1.

Ambidexterity

The concept of ambidexterity finds its origin with Duncan (1976), is further developed by March (1991) and has since accelerated into a fast growing body of literature. For the purpose of this research, ambidexterity is defined as the ability to simultaneously pursue both incremental and discontinuous innovation and change (Tushman and O'Reily, 1996). Ambidextrous organizations excel at exploiting existing products to enable incremental innovation and at exploring new opportunities to foster more radical innovation (Andriopoulos and Lewis, 2009; Lubatkin et al. 2006). Exploitation demands efficiency and convergent thinking to harness current capabilities and continuously improve product offerings (Wadhwa and Kotha, 2006). Exploration on the other hand entails search, variation, and experimentation efforts to generate novel recombinations of knowledge (Andriopoulos and Lewis, 2009).

Ambidexterity inherently creates tensions within organizations caused by the paradoxical nature of the concept. Exploitation drives out exploration and vice versa (Tushman and O'Reilly, 1996) and future opportunities are sought at the expense of today's operations (Gibson and Birkinshaw, 2004). Firms that spend too much effort into exploration suffer the fact that they will never gain the returns of their knowledge, while firms that chiefly pursue exploitation achieve returns that are proximate and predictable but will eventually suffer from obsolescence (Levinthal and March, 1993). Ambidexterity thus requires organizations to be managed with paradoxical strategies – strategies associated with contradictory yet integrated tensions (e.g., Duncan, 1976; March, 1991; Andriopoulos and Lewis, 2009; Smith, Binns and Tushman, 2010). The complexity of the tensions in this paradox intensifies management challenges. Sheremata (2000) describes innovation as a tug-of-war between centripetal and centrifugal forces that fuel discovery and synthesis. Since ambidexterity is shown by many scholars in various researches to be positively associated with different outcomes (e.g. firm performance, market share, etc.), the question on how to manage ambidexterity begs to be answered.

Sequential and structural ambidexterity

Multiple views on how paradoxal tensions can be managed and organizational ambidexterity can be achieved have evolved, from March's (1991) view in accepting it as a trade-off to paradoxical thinking (Eisenhardt, 2000; Lewis, 2000). Duncan (1976) argued that organizations achieve ambidexterity by shifting structures over time, called sequential ambidexterity. March (1991) acknowledges this view and proposed organizations to follow either exploration or exploitation to improve efficiency and innovation. Temporal ambidexterity is a variant of sequential ambidexterity and refers to periodically switching between exploratory and exploitative phases. (Venkatraman et al. 2007; Choi, 2014). In contrast to divided phases, Tushman and O'Reilly (1996) argue that separated ambidexterity is ineffective and suggest that organizations need to explore and exploit in a simultaneous fashion. They argue that this simultaneity is achieved by changing organizations structurally. They propose separation of explore and exploit subunits, each with its own alignment of people, structures, processes and cultures, but with targeted integration to ensure the efficient use of resources and capabilities.

Contextual ambidexterity

According to Raisch and Birkinshaw (2008), organizational designs, even ambidextrous ones, do not provide the steady state functionality required to deal with the entire range of boundary conditions that an organization faces over time. Gibson and Birkinshaw (2004) argue that organizations can enable individuals to divide their time between exploration and exploitation, naming it contextual ambidexterity. They propose contextual ambidexterity as a concept that emphasizes behavioral and social means of integrating exploitation and exploration (Gibson and Birkinshaw, 2004). Here, contextual ambidexterity is defined as the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit (Gibson and Birkinshaw, 2004). Alignment refers to the coherence in all the patterns of activities in the business unit and adaptability refers to the capacity to reconfigure activities in the business unit quickly to meet changing demands in the task environment (Gibson and Birkinshaw, 2004).

Contextual ambidexterity thus focuses on the individual level of the organization and is leveraged by organizational designs that permit individuals to choose between exploratory and exploitative activities (O'Reilly and Tushman, 2013). Examples of these designs are researched by Andriopoulos and Lewis (2009) who theorize that interplay among paradoxes of innovation and their management fuels virtuous cycles of ambidexterity. In contrast to sequential or structural

ambidexterity, the processes and systems required to achieve contextual ambidexterity have hitherto not been concretely specified. This leaves a hiatus in the literature as to what contextual ambidexterity actually looks like (O'Reilly and Tushman, 2013). Studies on companies like IDEO (Hargadon and Sutton, 1997) and Toyota (Adler, Goldoftas and Levine, 1999) try to conceptualize it, but capturing how a company manages exploration and exploitation from just the individual level has not been achieved yet. Middle managers are thought to provide an answer to this question and are conceptualized next.

Table 1 – main studies built upon by this research

Studies/year	Research focus	Methodology	Key findings
March (1991)	Ambidexterity	Conceptual paper	Trade-off between exploration and exploitation in organizational learning. Complications and risks of one-sided view are mentioned.
Leonard-Barton (1992)	Innovation, paradoxes	Conceptual paper	Core capabilities have core rigidities as a downside, inhibiting innovation and require managing of paradoxes.
Levinthal & March (1993)	Ambidexterity in organizational learning	Conceptual paper	Three types of organizational myopia are identified that may undermine organization's ability to explore.
Tushman & O'Reilly (1996)	Antecedents, ambidexterity	Field research	Development of the idea of ambidextrous organizations.
Floyd & Lane (2000)	Manager roles	Conceptual paper	Three subprocesses of organizational renewal require different roles of managers. Propositions for alleviations of possible role conflict.
Gibson & Birkinshaw (2004)	Antecedents, performance, outcomes	Survey	Stretch, discipline, support and trust facilitate contextual ambidexterity.
Smith & Tushman (2005)	Antecedents	Conceptual paper	Model for organizations to manage strategic contradictions and enabling paradoxical cognitive processes.
Wooldridge et al. (2008)	Middle managers contributions	Overview of literature	Contributions, synthesis and future research of middle managers in organizational literature.
Andriopoulos & Lewis (2009)	Ambidexterity in innovation	Explorative case study	Three paradoxes need managing to overcome exploration-exploitation tensions.
Taylor & Helfat (2009)	Middle manager linking activities	Dual case study	Middle manager's linking activities aid in ambidexterity leading to successful technological transitions.
Smith, Binns & Tushman (2010)	Antecedents	Conceptual paper	Team centric or leader centric structures are proposed to engage different functions in managing paradoxes.

Middle management

In organizational literature, general agreement is found on the proposition that top management is responsible for managing strategic contradictions. They do this through decisions regarding organization form and resource allocation (e.g. Smith and Tushman, 2005). Various scholars however argue that managing paradoxes is a shared responsibility, not only of top management, but across organizational levels (Andriopoulos and Lewis, 2009). Thompson (1967) stressed the importance of individuals in connecting disparate structural areas and sources of information. Tushman and Katz (1980) found that individuals act as boundary spanners within and between groups to facilitate information flow and coordination. Since top management is mainly involved in overarching processes and the operation layer with day-to-day activities, this study assumes middle managers to be key in navigating the different and often paradoxal processes in organizations.

The broadest view of middle management extends to managers located below top managers and above first-level supervision in the hierarchy (e.g., Dutton and Ashford, 1993; Uyterhoven, 1972). However, where they sit in the organization chart is not their most distinct feature. What makes middle managers unique is their access to top management coupled with their knowledge of operations, which makes them function as mediators between the organization's strategy and day-to-day activities (Nonaka, 1994). For the purpose of this research, middle managers are defined as those managers that have at least one layer of subordinates below them and report to a senior manager.

Several related fields of research view middle managers as influencers of organizational processes. Innovation, organizational learning and organizational adaptation are examples of this (Wooldridge et al. 2008). Their intermediate position in the organization presumably makes them important interfaces between the top and the operational level and connectors between actors and domains (Floyd and Wooldridge, 1999). They can both be a source of resistance (Guth and Macmillan, 1986) as well as potential change agents (Huy, 2002). They also complement the view of elites as a key source of influence in geographically dispersed and complex organizations that are hard to manage by single actors or small groups (Hambrick and Mason, 1984). Middle managers provide the required distributed and interactive leadership throughout organizations, mediating between levels and units (Balogun and Johnson, 2004). Also, middle managers are more likely than top managers able to penetrate the causal ambiguities surrounding relationships between an organization's capabilities and its economic performance (King and Zeithaml, 2001). A viable connection between middle managers and ambidexterity is therefore expected. Gibson and Birkinshaw (2004) state that even though ambidexterity is a characteristic of a business unit as a whole, it manifests itself in the specific actions of individuals throughout the organization. Thus,

middle managers are assumed to carry the ability to influence organizational processes, including contextual ambidexterity. Answering how middle managers might do this requires explaining the concept of middle manager practices which is elaborated on next.

Middle manager practices

The term practice is rich in meaning and at times ambiguous (Knorr Cetina, 1999), and leaves room for various interpretations, views and definitions. Social theories use the concept of practice as the behavior of social agents that is operated according to an implicite practical logic and bodily dispositions (Bourdieu, 2005). The 1958 working definition of a practice is a constellation built upon five components: purpose, values, knowledge, sanctions and methods (Holosko, 2003). Brown and Duguid (2001) define a practice as undertaking or engaging fully in a task, job or profession. Summarizing the above, middle manager practices are defined as purposeful, conscious social actions or interactions that take place within a set context. The myriad middle manager practices shall be elaborated on further. Having framed the concept of practice to fit this research, focus shall now be directed towards management efforts to influence these practices.

Managerial influences

A managerial influence is a predetermined organizational manipulation to guide organizations into a desired direction. This research follows Taylor and Helfat's (2009) division of managerial influences that affect the willingness and ability of middle managers to contribute to contextual ambidexterity: economic, structural, social and cognitive influences. Each of these influences builds on a rich body of literature and although multiple dimensions can be identified, the focus shall be limited to those aspects that directly influence middle manager practices. A brief overview of each influence is presented.

Economic incentives comprise monetary rewards and salary-increasing feats like bonuses, commissions or promotions (Taylor and Helfat, 2009). Firms can reward middle managers that significantly contribute to their enacted policy by increasing salary or bonuses or reward them in other forms of monetary compensation. Another type of economic incentive is to promote managers showing the desired behavior to positions where they have more influence, and on their turn have an increased ability to spread the desired policy.

Structural influences can take place by setting up cross-functional teams or specific coordination units to manage temporary or specific problems (Tushman and Nadler, 1978). Setting up coordination and communication channels to guide transitions are another way of altering the organizational structure directly (Taylor and Helfat, 2009). Also, the creation of dedicated units or

redirecting existing units, as well as assigning personnel temporarily to integrate specific functions are top management options of steering organizations.

Social influences consist of rewarding personnel by recognizing the success of their practices, giving them a (temporary) status or visibility, and therewith showing desired behavior and inspiring peers to follow the example. Status and reputation of organization members shift depending on organizational priority (Burkhardt and Brass, 1990). By influencing the social structures of the organization, top management can shape the context by highlighting desired behavior and therewith appointing the direction in which the organization needs to head.

Organizational cognition may reinforce the effect of social context on managerial choice and action (Taylor and Helfat, 2009). The shared assumptions and understanding reflect the values, norms of behavior and culture of the organization. Rindova and Kotha (2001) argue that the organizational setting in which decision making takes place has a significant effect on the shared assumptions of managers. The cognitive frame of the organization is therefore of importance and top management may influence and shape this frame. Articulation of a common vision and values that bridge dual contexts increases the likelihood of ambidexterity (O'Reilly and Tushman, 2008). Consistent and frequent messages in many forms are a way in which strategic direction and priorities can be set by top management. Emphasis on "relentless communication" are necessary for ambidexterity to succeed (O'Reilly and Tushman, 2008).

The concepts of contextual ambidexterity, middle management, middle manager practices and managerial influences are defined and explained. Next, the research methods, process and context is elaborated on.

Methods

Research design

For this research, a single embedded case study strategy with multiple cases is chosen. The purpose of this research is exploring new theory and leads to choosing this particular design (Yin, 2009). According to Eisenhardt and Graebner (2007) a case study strategy is relevant when a rich understanding of the context of the research and the processes being enacted is required. Since the focal point of this study is to further explore the link between middle management and ambidexterity, the choice for a case study is deemed appropriate.

Research setting

The organization researched is the Royal Netherlands Air Force, known within the Dutch Ministry of Defense (MoD) as Commando Luchtstrijdkrachten (in short CLSK, which shall be used hereafter). CLSK finds its origin in 1953, employs nearly 7.500 people and is, not unlike other military organizations known as a strongly hierarchical, non-profit, top-down driven, public organization. On the surface, CLSK seems to have no direct competitors, 'income' is earned from the Dutch government that distributes taxpayers' money, the only direct shareholder is the government, and so the environment appears to be relatively stable and calm.

The perception of stability is not shared by everyone in the organization, including a representation of CLSK top management (e.g. C-LSK (commandant/CEO), director of management, and head of innovation unit AIR). They view the world in which CLSK operates to be highly uncertain with many challenges and threats that can and will undermine the relevance, affordability and raison d'etre of the organization if not appropriately acted upon. A few of the challenges and threats they perceive are the increasing role that Big Data is playing, larger interconnectedness within a digitizing world, artificial intelligence, a changing society and therewith talent pool from which future personnel is to be drawn, uncertain threats in space, and the doubtful effectiveness of kinetic military means in contemporary conflicts against adversaries that organize themselves more efficiently than ever before. All of these, and many more reasons for top management to launch CLSK3.0, a project aimed at reinventing the airforce to increase and secure relevance, deployability and affordability.

The ultimate goal of CLSK is to contribute to peace, security and freedom. This means that in a world with shifting and asymmetrical powers, threats from different directions and domains, leaps in technology and many other developments, CLSK needs to be able to constantly adapt to its environment to remain relevant in achieving that goal, both in small steps and quantum leaps. Only

by full conviction with CLSK personnel of the urgency to become adaptable is this achievable. Being able and daring to attack the own core of the organization and change radically are viable options that, according to the originators, need to be imprinted in the minds of CLSK personnel:

> We are not afraid to go far. I have held a presentation a couple of times in which I mentioned that the Airforce will still be here in thirty years and we will still wear the uniform (...) but by the way... flying will no longer be our core business. (....) It will just be a means to an end when we're convinced that we can create different kinds of effects, the flying will shift, it will move to the side. We dare to discuss this with each other and make decisions to develop ourselves. (Sotthewes, 2015)

Although the term has not been literally used by any of the interviewees, CLSK expresses the ambition to become an ambidextrous organization. Today's capabilities will need to be utilized and improved whilst exploration of new capabilities needs to take place to ensure a good fit with any possible future environment. A quote by the head of AIR supports this statement:

> For us, innovation means constant improvement, incremental innovation and radical innovation. We have to do all three because innovating can be something small, it can be something big, it can be disruptive and it can be something that is hardly noticeable and add to efficiency. (....) [CLSK3.0] is about thinking differently, daring differently and doing differently. In order to remain relevant. (Boekholt – O'Sullivan, 2015)

Structural ambidexterity is accounted for with the establishment of innovation department AIR (Ambition, Innovation, Result), an eight FTE unit, the head of which reports directly to C-LSK and acts as his strategic consultant. The purpose of AIR is to function as a separate organizational element to inspire people and create 'movement' in the organization, identify and support innovative ideas and initiatives, open innovation and assist in finding solutions for organizational challenges. Examples of initiatives that AIR hitherto has undertaken are hosting of symposiums (AIR café's) about (mostly exploratory) themes, fostering and development of bottom-up initiatives, supporting prototyping of innovations and engaging in interaction with various kinds of organizations. AIR is a classic example of a Skunk Works type unit as described by Tushman & O'Reilly (1998) and is therefore the embodiment of structural ambidexterity.

Contextual ambidexterity is pursued under the CLSK3.0 banner. Technological, cultural and social innovation are the three main pillars of the project, with an emphasis on behavioral and social means of integrating exploitation and exploration. This becomes clear in the communication strategy which puts the 'Airforceman3.0' up front by stating that:

> ...'the human' is central, makes the difference (...) and needs to change the company in an innovative way from the bottom up (....) [and] needs direction and coherence (.) which are fundamental for the airforce of the future (....) [in a] process called CLSK3.0. (Strategisch Communicatieplan CLSK3.0, 2014)

The fact that this people-centric approach is the core of CLSK3.0 is communicated by the ideation of desired behavior and end state of the organization by C-LSK:

> I don't want people to just do things differently because they're told to, but I want see an innovative power emerge within the organization that allows people, independently or in smaller groups, in any case not in a rigid hierarchy, to change and develop and do it relatively fast. (Schnitger, 2015)

The way in which behavioral and social elements of the organization are being influenced takes different guises of which (strategic) communication appears to be the main effort. The phases in which the project is communicated to the organization range from inspiring and informing to activating and continuating (communicatieplan CLSK3.0, 2014). The aim is to familiarize the entire organization with the project and set her in motion by creating a sense of urgency, highlighting positive traits, and engaging personnel in the desired change.

Altering the social and cognitive elements of the organization by transmission of the '3.0 philosophy' plays a prominent role in CLSK3.0. This tacitness in combination with an output that is hard to measure make outcomes or possible success hardly quantifiable. The originators of the project have therefore chosen to use impact as their unit of measure:

> We don't have an x-matrix or KPI's that tell us whether we are successful. We measure impact, how many people are willing to invest in understanding what 3.0 means and act accordingly and experiment, and get up after having failed once or twice. (Boekholt – O'Sullivan, 2015)

In similar vein to the ambidextrous ambition, the desire to make it a permanent part of the organizational mindset is expressed by the official documentation and the originators of CLSK3.0. By setting a timespan of ten years they allow the organization to absorb the change, and also make it 'outlive' the temporary nature of the HR system where people hardly ever stay longer than three to four years in one particular position. The fact that CLSK3.0 is both the subject and an objective lead the originators to believe that the goal will never be reached, and the context, surroundings and circumstances have changed in such a manner that possibly a '4.0' stage is required and set as ambition. This underlines the desire to become adaptable and able to change with the environment.

The fact that implementing contextual ambidexterity is a massive challenge is well understood with the originators and shows that changing a context is generally harder than changing a structure. Among the various threats to the desired change, four major aspects mentioned by Boekholt – O'Sullivan (2015) stand out as the largest perceived obstacles on the path to success. The first, solitude or 'island-think' is a major concern. CLSK is a minor part of the larger Netherlands Ministry of Defence, which is a minor part of the larger government structure. To think that 3.0 will solve all the problems in splendid isolation is a utopia. Opening up to the wider environment and

enlarging the network is therefore a precondition for getting motion in the organization. Second, leadership is the key to endurance of the project and therefore an important determinant in the chances of success. If leadership ceases to genuinely support and carry CLSK3.0, succeeding will be impossible. Third, 'brave' decisions need to be made to institutionalize CLSK3.0. A different type of leadership is required so the persons that were destined to occupy certain influential positions will have to be replaced. People will have to keep spreading the word of change which requires courage in the less receptive environments. This leads to the last and probably hardest hurdle to take which is the internal environment and rigid mindset of the organization, often referred to as 'the clay layer' or the organizational 'immune-system'. This immune-system is hard to point out since it is everywhere and nowhere at the same time. When top management declares change to be desired, subordinates that openly disagree or resist are hard to find. However, in their actual behaviors, actions and interactions with others, a totally different mindset may become apparent. According to some, this is an immediate effect of the nature of the organization:

> Public organizations are inherently no innovative organizations. Big organizations are inherently no innovative organizations. Organizations that think they have a monopoly are inherently no innovative organizations. We also think we have a monopoly (...) a monopoly to use violence. But that image is shifting. (....) Together we're thinking we'll get our money anyway (...) so there's no need to innovate. But within 15 to 20 years from now, someone will stand up and question our relevance." (Sotthewes, 2015)

The lack of swiftness and agility to be constantly able to beat any challenge that the organization faces is inherently imprinted in the organization's DNA by political influences, reporting obligations, regulations, laws, rules, etc. which is acknowledged by C-LSK himself:

> The cultural side is hard, but the thing I struggle with most intellectually is organizational behavior. (...) The behavior of the organization is a precondition (...) in our hierarchichal, restrictive, repressive, organization. (....) How do you equip your company, how do you organize that huge governmental organization with everything that comes with it that we can't get rid of? (Schnitger, 2015)

Four different cases appear to be reaching out to C-LSK's call by middle managers showing behaviour that aligns with the desired mindset that CLSK3.0 envisions. These cases shall be narrated briefly.

Cases

The first case describes the development process of a capability that may add significant relevance to the output of CLSK by combining existing capabilities into a capability with potential strategic impact. A middle manager addressed one of his subordinates with the task of investigating the possibility of developing a capability that could fill a gap within the NATO spectrum of assets that was witnessed a

few years prior during an international operation. The subordinate, also a middle manager, found two co-innovators almost by incident and through personal relationships. Through contemplating on how they might add to the output quality of their organization, the originators found a way to leverage their personal specialisms into one greater goal. After pitching their plans internally, they quickly found their way up in the organization where the significance of these plans was acknowledged. They briefed several key players in their way up, until at some point they found themselves selling their idea to the Minister of Defense. They created a strong international network, made themselves master of the systems and challenges, and became experts. Currently, the originators have dispersed into the organization, leaving only one behind to develop their 'business case' and hand it over to a next generation that continues and institutionalises their idea.

The second case entails the development of an entity within the CLSK staff that will provide a service to both the organization and its surroundings. After deliberating with C-LSK, one of the involved middle managers decided to search for a way to fulfill a need that was hardly identified at that moment, yet fell within one of the larger domains of interest of C-LSK. Together with another manager, he started a quest for information and built up a network outside the organization to gain knowledge and create interest for their plans. Both governmental and semi-governmental organizations were drawn into cooperation. A third manager got involved and connections within the organization were made. Co-creation and mutual benefits were identified and venturing continued. Concrete plans for a service and the conception of a separate unit to provide it were drawn and, with help from C-LSK and the layers in between, put into action. Currently, the two FTE unit functions fully and is the starting point for a possible wider bureau or organization that serves both CLSK and society.

The third case started when while presenting his CLSK3.0 plans, C-LSK meets with a group of subordinates and challenges them to start working without rules. Enthused by the idea, a middle manager in charge of a training squadron raises his hand and accepts the challenge. After a while, agreements on how to concretize this were made with top management, and the manager in question starts creating motion in his unit. His superiors quitely agree and support him throughout. His subordinates are being told to go ahead without rules as well. Their task, training recruits and forging them into colleagues makes the challenge extra interesting since they feel they are creating the future of their organization. Currently, the first successful changes are implemented and the unit starts delivering results.

The last case revolves around one officer who started investigating certain phenomena close to his field of expertise and got so enthused by it that he started digging deeper. His superior did not allow him to spend any more than just half of his time on this, since his regular job had to be done as

well. Not being withheld by this restriction, he became an expert and found several others within other departments of the CLSK organization who saw his work as a base for several products and services that they together could develop. These products and services might add to the safety and quality of the output and therewith the relevance of C-LSK and the wider MoD organization. He continues to work on this hobby which, despite his efforts to institutionalize it, shall maintain this status in the foreseeable future since it is not considered core business by his direct superiors.

Data collection

Data collection took place in the second half of 2015, where several sources were consulted: (1) semistructured interviews, (2) project documentation and (3) literature. The interviews provided the primary source of inductive data where the project data supported understanding of the subject and its context.

A total of sixteen semi-structured interviews were conducted (fifteen men and one woman), divided into two phases. The first phase consisted of three exploratory interviews that aided in mapping the research context and fine-tuning the direction of the research process. This phase commenced with interviewing the head of innovation department AIR, who also provided access to the other two originators of CLSK3.0: the commandant (CEO) and the director of personnel and management. After these interviews, the research framework was shaped and the next interviewees were approached. The second phase consisted of the following thirteen interviews that covered a total of four cases. The cases were identified with the aid of the originators of CLSK3.0, corporate media and personal links. To ensure the most knowledgeable informants were included in the sample a 'snowballing technique' was adopted. By asking the interviewees to recommend others that could provide valuable information concerning that particular case, informants that provided further insight were found. All interviews (lasting 60 minutes on average) involved one interviewee and one researcher and were digitally recorded and transcribed verbatim to ensure reliability (Eisenhardt and Bourgeois, 1988).

An interview protocol was designed to extract information on the interviewees' view on the case they have been involved with, their actions, practices and roles within the case, and the perceived influences by their managers and top management. Interviews began with questions covering a general description of the case the interviewees were involved with. Due to the exploratory nature of the research, they were further encouraged to wander freely and give rich descriptions, and were probed where possible. An initially deductive research approach proved quickly to misfit with Taylor and Helfat's (2009) model and a more inductive approach proved more appropriate for the retrieved information (Yin, 2009). Further on in the interviews, questions concerning the activities and influences of higher management were posed. At the end of each

interview any additional information the interviewees might have was requested. Within each case, new informants were recruited until additional interviews failed to dispute existing, or reveal new information, that is, until theoretical saturation was achieved (Strauss and Corbin, 1990). Table 2 shows an overview of the data sources used for this research.

Table 2 – Data sources[1]

Group	Interview transcripts	Other data
TMT	Boekholt – O'Sullivan (2015), head of innovation department AIR	Studieplan CLSK (2014)
	Schnitger (2015), C-LSK (commandant/CEO)	Masterplan CLSK (2014)
	Sotthewes (2015), director of personnel and management	Strategisch Communicatieplan (2014)
Case 1	Interviewee 4 (2015), specialist C4ISR department Staff CLSK	Commander's Intent (2014)
	Interviewee 5, (2015) specialist Fighter department Staff CLSK	Commander's Guidance (2014)
	Interviewee 6 (2015), head intelligence department MoD	
Case 2	Interviewee 7 (2015), head of C4ISR department Staff CLSK	
	Interviewee 8 (2015), head Section policy consulting Staff CLSK	
	Interviewee 9 (2015), head Space department, Staff CLSK	
	Interviewee 10 (2015), employee of Space Security Center CLSK	
Case 3	Interviewee 11 (2015), commandant of training squadron	
	Interviewee 12 (2015), trainer	
	Interviewee 13 (2015), commandant of training airforce base	
Case 4	Interviewee 14 (2015), space meteorologist	
	Interviewee 15 (2015), commandant of meteorological group	
	Interviewee 16 (2015), head C2 special products department	

Furthermore, project reports and internal documents were examined. Prior the exploratory interviews with the originators of the case subject, this official documentation served as a basis for building understanding of the context, causes and contents of the case.

Data analysis

The raw data derived from the interviews was coded using qualitative analysis software. Proven methods and guidelines on qualitative data analysis (e.g. Gioia et al. 2012; Pratt, 2009; Doz, 2011) aided in developing specific themes into more general themes and concepts. Following Miles and Huberman (1994), iterative and systematic comparisons of emerging themes and re-evaluating written notes, data and literature revealed the underlying concepts.

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[1] For security purposes, case descriptions are described vaguely and only the three originators of CLSK3.0 are mentioned with their full names.

In the first stage, the four cases were narrated and the significant events were placed in a chronological structure to facilitate within-case analysis. In each of the cases, the activities and roles of the middle managers involved were coded in vivo and specified, leading to a quantity of approximately twenty different practices. A cross-case comparison aided by literature and logic led to a reduction to six categories. This data reduction is visible in figure 1 in the next chapter. Subsequently, framing and defining of the six concepts was aided by different streams of literature that captured the deeper meaning of the concepts which was iteratively checked with the data.

In the second stage, Taylor and Helfat's (2009) research was used as a deductive means to identify the different influences of management. Semi-structured coding with their named concepts led to identifying these managerial influences. Both the sending side (top management) and the receiving side (middle managers) were identified and viewed separately. This enabled framing of the context and laid the foundation for the results. The remaining data was coded in vivo and this predominantly contextual information was used to build up the narratives for the different practices and the perceived managerial influences. Reliability of all coding was ensured by consulting the thesis supervisor who probed and questioned the logic and reasoning behind the coding.

In the final stage, a model of the data structure was devised by assembling the different building blocks with Taylor and Helfat's (2009) managerial influences and the practices of middle managers leading to the managerial outcome. Figure 2 in the next chapter depicts this data structure for identified middle manager practices and its managerial influences.

Results

No, what we've done was very clearly not my job. (Interviewee 6, 2015)

The researched cases are exemplary of ambidextrous behaviour. In all cases future capabilities were being explored while current capabilities were being maintained and exploited while none of the interviewees served a dedicated exploratory function. With the quote above as an example, the informants were well aware of the fact that they were surpassing their job descriptions and therewith possibly contributing to future relevance of their organization. The different actions the middle managers have undertaken within their cases are classified into six categories of practices, visible in figure 1.

Figure 1 – Middle manager activities reduced to six practices

In part I, an exposition of these practices follows with a proposition for further research being posited for each of these practices. In part II, four managerial influences intended to stimulate and guide middle managers in undertaking ambidextrous practices are examined. These perceived managerial influences are expected antecedents of middle manager practices leading to contextual ambidexterity, an overview of which is presented in figure 2 .

Figure 2 – Middle manager practices, managerial influences and organizational outcome

Part I – Middle Manager Practices

Championing

In various fashions, all cases showed middle managers selling and marketing their ideas or projects to higher management. These practices usually involved multiple layers of middle management cooperating into evolving ideas into viable plans which were subsequently pitched 'up' into the higher regions of the hierarchy. This type of practice appeares in literature as nurturing and advocating (Bower, 1970) or championing (Burgelman, 1991; Floyd and Lane, 2000), which is used as the overarching term from hereon.

Choosing ones own path, exploring how much room of manouver one has within its budgets, time, and decision-making authority and therewith nurturing promising ideas prior pitching them into the larger organization are part of championing activity. "For a big boss it's easier to set the rules aside for once, and I sometimes succeed in it and say: money, I'll fix it, and if someone has to take the blame I'll do it, fine" (Interviewee 7, 2015). Another example of championing is showcased by a middle manager actively involving his superior with the purpose of getting him on his side and gaining support:

> We actively involved the layer above us. My manager (...) joined us a couple of times on those trips. The man likes to travel so it's a good way to involve him. That notorious visit (...) where for the first time we've seen what it really means. (....) [My manager] is also on it, on that particular picture. Maybe there have been questions on the management level, but if so, [my manager] intercepted them long before they would have reached me, who knows. (Interviewee 6, 2015)

Other examples of middle manager championing are the formal proposing of cases by writing proposals and giving presentations on their cases to higher management. The hierarchichal nature of the organization in particular prompts middle managers to sell their story multiple times to different stakeholders higher in the hierarchy to create support for their case. In one particular case, this even went outside the CLSK organization, via the Commander of the Armed Forces (CDS) up to the Minister of Defense, where two middle managers were able to present their plans to her excellence herself. This was not done on their own account since their superiors allowed them to do this by pushing them forward, yet they were able to champion their own case:

> We first worked out the idea within 'the tower', and with the [other organization]. We are used to working like, how that basically always goes, you start with your manager, go to the board, go to the director of operations in this case en from there on go to C-LSK via the Chief-of-Staff council, to C-LSK himself. (....) And then they said: the CDS needs to know this about this story. So that was easily

> arranged to meet him. (….) So the CDS also said: we need to go to the minister to talk about this. (Interviewee 4, 2015)

This behaviour of stimulating development, nurturing it, selling higher management the possible added value of the plan, putting pressure on 'getting it done' and trying to institutionalize the case into a long term capability is an activity that is necessary for contextual ambidexterity. Active exploration of new capabilities by individuals and subsequently elevating them in order to institutionalize or gain support for them is part of the adaptablility process and proposition 1 is therefore as follows:

Proposition 1: Middle manager championing is positively related to contextual ambidexterity.

Facilitating

A second practice appears to be a necessary precursor for ambidexterity and involves the creation of an environment to stimulate creativity, learning and safety to explore. This 'nourishing' and enabling is mentioned by Chakravarthy (1982) as facilitating learning and guiding adaptation. It occured on all levels interviewed and took many different forms. One of the most tacit ways of facilitating shown is the provision of subordinates with a separate, quiet workspace, a well functioning internet connection, or budget to buy literature and visit conventions. Another way of facilitating is inspiring people. Managers declared to feel enthused and inspired by their superiors who think creatively, promote people to think differently and embrace change. Two traits that are considered even more important are freedom and trust. Without exception, all interviewees declared that their receiving, taking and/or giving of space to invent, freedom to manouver and permission to venture was a key factor in their case and a critical antecedent for success. This underlines theory of Gibson and Birkinshaw (2004) on stretch, discipline and trust as necessary ingredients for contextual ambidexterity. As interviewee 9 (2015) states:

> One of the most important things is empowerment, which is what my manager does (….) he says: go ahead and if it gets out of hand, I'll intervene, so go and figure it out, he won't stop it. So he says if this is your proposal I won't hinder it. He just passes it right on up".

Facilitating is also providing protection by creating a safe environment. One of the cases involved a middle manager being in a position where he and his subordinates were exposed to influencers that brought negative criticism, wanted to draw attention from them or get involved otherwise. In that particular case, all layers involved formed a chain where every superior was protecting its subordinate(s) by fending off negative influences and creating an atmosphere allowing employees to prosper and contribute to innovating. The account of one of the middle managers involved is proof of this:

> At the point where things start taking off you have to be a facilitator. You have to be prepared to stand up for your people, stay away from micromanagement, completely trust people and at the point things do go wrong - and it will always happen sometime - don't panic and micromanage anyway, no, just face each other and say: so this went wrong, one thing we learned is how it doesn't work, on to the next one. And so you have to let go of things. (Interviewee 11, 2015)

Without providing room and time for inventing, making mistakes, venturing, networking, etcetera, exploration simply cannot take place and contextual ambidexterity is non-existent. If managers restrict their subordinates to their daily work and do not allow them to experiment and allow serendipity, necessary resources for middle managers to exploit the future are absent. On top of that, employees need a safe environment in order to function normally, let alone innovate or change their behaviour, which is therefore an important task of the middle manager. The pivotal point in facilitating appears to be the passing through of freedom and trust by every layer or person, therewith contributing to the culture of stretch, discipline and trust (Gibson and Birkinshaw, 2004). Those managers who appreciate being let free, trusted and supported in their ways of working also gave the same freedom and trust they enjoyed to their subordinates which contributed largely to the positive outcomes thusfar of the cases. In a multi-layer hierarchy like the researched organization, this chain is especially frail since there are many possible points of failure where good ideas can come to a halt or may be highjacked by superiors for their own benefit. Only when the whole chain cooperates and facilitates their subordinates, ideas are created and, assuming they are good enough, find their way to being realized. The shaping and guiding change by middle manager sensemaking (Balogun and Johnson, 2004) is herewith also testified. Thus, facilitating appears to be an important precondition for achieving contextual ambidexterity.

Proposition 2: Middle manager facilitating is positively related to contextual ambidexterity.

Synthesising

Middle managers interviewed gave account of blending strategic and hands-on information (Nonaka, 1988), selling issues to top management and finding support for their plans and innovations, e.g. synthesising (Floyd and Wooldridge, 1992). Different than championing, synthesizing is about (re)combining ideas, maintaining an overviewing position and making decisions. Depending on the situation, these practices require different approaches. An important function of synthesising is making the upward transition from practice to abstract which, in a hierarchical organization with many influencers, is necessary to get the right support and navigate ideas through the otherwise impermiable jungle of rules and regulations. Being ambidextrous requires stepping outside the boundaries of regular activities and sometimes communicating via unknown channels and in, for

some middle managers, unknown ways. Not every institution or entity that needs to be dealt with appears to be prepared for this, which underlines the importance of the middle manager's practices.

> We have an accountmanager for Defense who needs to be informed. And [other key manager] needs to be informed, because he will be asked questions and if he doesn't know, he'll think 'never mind' and then it's gone, and that's undesirable. So write your story, I'll modify it a bit, done, I'll pass it through, go with the banana. But if he does it directly and it's being dealt with in the [commission], no clue! You'll miss strength, and you don't want to have that. (Interviewee 15, 2015)

Other ways of synthesising are displayed by middle managers that tried to 'work ahead' by making policy, an activity that is normally exclusive for the political level. An assist in the right direction though is one of the actions middle managers have shown to undertake in attempts to concretise and institutionalize their plans. Interviewee 8 (2015) gives account of this by stating: "we've also written a sort of [subject] policy here (....). And then we've also took some steps towards where we want to be as airforce in the [subject] safety domain."

The pivotal role of filtering, combining and reinforcing plans on lower levels, and translating actions and ideas into potential policy and therewith steering it towards institutionalization show to be catalysts for organizational ambidexterity.

Proposition 3: Middle manager synthesising is positively related to contextual ambidexterity.

Implementing

A fourth practice of middle managers is the actual implementation of strategies, translation of goals into action plans and monitoring of activities. Floyd and Lane (2000) describe implementing as a competence deployment subprocess, which is a less exploratory, yet necessary activity of developing ideas into capabilities. Many of the implementing practices of the interviewees involved shaping of their cases. Writing function descriptions for personnel of a newly established department, employing apprentices, writing competence profiles for instructors and new pupils, writing of internal business proposals and institutionalizing of innovations are just a few of the many activities.

Although implementing is an important element of institutionalization, it is generally perceived as a necessary evil since it involves a fair amount of paperwork and is more about establishing rather than exploring or developing organizational capabilities. Two of the main drivers of implementing are the tacit outcome of implementing and the feeling of ownership due to the innovative nature of the developments and therefore ill-defined responsibilities. One of the middle managers underlines this by stating "simple things, just make sure there's an office, that there's money, that there's computers and licences. It takes a lot of time, but here the aphorism goes: just do it. No one else will do it for you." (Interviewee 9, 2015)

Implementing also constitutes coaching and motivating of subordinates, which often happened in conjunction with facilitating. An example of this is given by the attempt to change the mindset of an entire unit that received nearly unlimited freedom of action by their middle manager, resulting in hesitance and a certain state of shock:

> If you give it all back at once... they're like birds on the edge of the abyss. They've got the feathers, they've got the wings, but who dares to jump first? And when we started is was two or three per cent of the squadron. Me and maybe someone else. And then there was a large [sic], about 65 per cent who when you talk to them you'll think okay, they have an idea about how it should be done and when you tell them go ahead, nothing happens. And gradually you'll see people without informing me or asking five times it truly is allow, just have a good plan and start executing it. (Interviewee 11, 2015)

By constantly talking with people, envisioning desired behaviour, coaching subordinates, instigating hesitators and making use of the known change agents within a unit, implementing is an important practice of middle managers to actually create the aspired mindset of ambidexterity. Escpecially in organizations that do not carry inherent progression and innovation in their mindsets, making use of the proponent middle managers that have the ability to practice influence on their environment. Thus, middle managers have to implement by leading, translating and fulfill an exemplary role in order to create contextual ambidexterity.

Proposition 4: Middle manager implementing is positively related to contextual ambidexterity.

Boundary spanning

In different gradations, all cases showed the role of middle managers as connectors was evident. The generally used term boundary spanner seems to cover these activities. Floyd and Wooldridge (1997) define boundary spanning as mediating between the organization, its customers and its suppliers. Within the CLSK organization, boundary spanners found each other by informal relationships or encounters, reacting to published articles in professional journals, or simply just walking by and asking questions. Internal sections with different goals and visions proved to be of value to each other. Interactions with entities outside of the organization like technological- and aeronautical research institutes, meteorological institutes or research conglomerates were manifold and were mostly established by the involved middle managers through active networking, building relationships and proposing co-creation. Even though the MoD has an active policy in establishing relationships within a 'golden triangle' (e.g. Defense, research institutes and industry), these interactions were completely on the own accord of the middle managers and hardly ever imposed upon them. The boundary spanning consisted of sharing information, gathering knowledge, establishing long-term relationships, creating mutual benefits and thus opening the organization to

its environment. A vivid statement of the necessity of enhancing a project by boundary spanning is stated by one middle manager who was involved with setting up an internal agency to serve a wider-than-MoD purpose:

> So basically I am trying to cooperate from the start. And that serves a dual purpose: I try to create critical mass and I am trying to create support, but practically seen it is also very useful to spend every Euro just once, not twice and to cooperate as much as possible. (Interviewee 9, 2015)

Another middle manager gave notion to the fact that creating mutual benefits shared with another organization leveraged the development and accelerated the progression of the case. The combination of informal relationships, seeking mutual benefits and therewith increasing support for launching their idea proved to be a success:

> At a certain point we found out that the we had a system where the [other department] was in need of, and the [other organization] had a system that we were in need of. Hey, that might be handy! So there has been a lot of talking back and forth and at a certain point [interviewee 6] was involved. (…) and it accrued. And the [other department] was intensely happy. (Interviewee 5, 2015)

Other types of relationships were established with government departments like security and justice (Veiligheid en Justitie), international (potential) counterparts, yet also with educational institutions and fraternities. The latter is used in three cases to employ students as free workforce to develop concepts and study innovations, but also to enthuse them for a possible employment with CLSK/MoD and promote the MoD in a more general way.

Boundary spanning is shown to be a highly important activity in all cases. The development of the cases was dependant on boundary spanning due to provided information of externals, mutual benefits in long-term relationships and leveraging of the innovations by finding external support and purposes for them so they were more easily 'sold' within the organization. The fact that all these linkages were made on the own account of the middle managers shows intrinsic exploratory behaviour. This is one of the traits that defines ambidexterity and therefore leads to the next proposition.

Proposition 5: Middle manager boundary spanning is positively related to contextual ambidexterity.

Experimenting

The last category of middle manager ambidextrous practices is showcasing trialing, venturing, seeking for serendipity or 'fortunate happenstance' and entrepreneuring, i.e. experimenting. According to Floyd and Lane (2000), experimenting is a practice of the operational layer, while in the CLSK3.0 case it also proved to be an important middle manager practice. Technical, social and

behavioral experimenting was manifested in various ways like building a dashboard for monitoring space weather phenomena or trying completely different ways of training new CLSK recruits. Experimenting appears to be an important part of exploring which is a congruent finding in all four cases. Experimenting was at the heart of the cases, trying to figure out how relevance of the organization could be enlarged by "(...) contributing in throwing the stone ahead and renewing the operational domain (...)" (Interviewee 9, 2015). In the case where interviewee 13 raised his hand and accept the challenge of C-LSK to work 'without rules' is strong example of experimenting. The unit he was in charge of became a testing ground and delivered results:

> Yes, we are walking up front, we are a testing ground. We invent. We bump our noses. We get back up again. That is wat we do for [CLSK3.0]. We try things out to see if they work. That's one, that's the testing ground. But we also lay the foundation. Different boys and girls are delivered from our training than a half year, nine months ago. (Interviewee 13, 2015)

Another middle manager stated that "there are all kinds of beautiful things going on now, a pilot in [foreign country], measurements we are taking there, a model we develop for disturbances on [communication means], ideas for a dashboard, in short, that is what I'm doing" (Interviewee 14, 2015). These examples of experimental behaviour indicate ambidexterity since the managers in question were not specifically tasked for this, and still have an output to deliver while experimenting, thus negotiating exploration/exploitation tensions.

An often used punchline of CLSK3.0 is 'airforce reinvented'. If anything, experimenting and therewith exploring whilst the regular activities of units that are not inherently experimental and have to keep delivering their normal quota or output, this is reinvention and thus the base of contextual ambidexterity.

Proposition 6: Middle manager experimenting is positively related to contextual ambidexterity.

Summary

Summarizing part I, all six practices each have their own characteristics, dynamics and part of their contribution to contextual ambidexterity. The middle manager practices displayed however rarely occurred in isolation and were, often unconsciously, blended by the managers involved. According to the interviewees, this blending sometimes shifted temporally, yet also happened as a simultaneous and iterative process. Although studying this process of idea development lies beyond the scope of this research, a logic and order are identified to provide more insight in ambidextrous processes. A brief explanation of this process now follows. The expectation is that facilitating is the opening and prerequisite activity that allows people to experiment. Next, when viable ideas follow out of experimentation, synthesizing and boundary spanning happen to further develop ideas and 'prepare'

them for championing to higher levels. The last phase then consists of implementing of the idea or plan. This process is iterative for each idea and phases overlap each other. When championing is successful, less facilitating is required since top management support takes over the carrying of ideas. Also, experimenting is reduced when implementing and therewith institutionalizing take over. Figure 3 shows a coarse sketch of the middle manager practices in this process.

Figure 3 – The six middle manager practices over the course of time
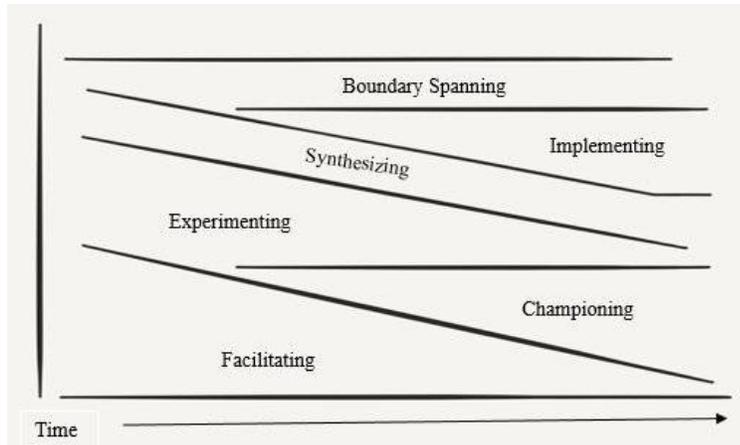
Part II – Perceived managerial influences

CLSK3.0 is a distinct strategy to influence organizational behaviour of which the four cases are exemplary. Since these cases are embodying CLSK3.0, the interviewed middle managers are assumed to be credible providers of feedback on the effectiveness of the intended managerial influences of CLSK3.0. To give insight in this effectiveness, both the intended and the perceived influences need matching and comparing. The managerial influences identified from both the project documentation and the exploratory interviews are categorized using Taylor and Helfat's (2009) division as a template. Next, per type of incentive, the perceived influences on the middle manager's practices are displayed, therewith providing an understanding of the effectiveness of the intended influences as categorized in table 3.

Table 3 – Managerial influences intended by CLSK3.0

Economic incentives	Promotions	• Promotion and strategic positioning of known proponents of 3.0 philosophy. • Selection of proven proponents of 3.0 philosophy prior career courses.
Structural influences	Degree of centralization Functional units Team formation	• Attempting to replace hierachichal structures with adaptive networks. • Prototyping / garage boxes. • Project-based deployment of initiatives. • Stimulation of existing teams to invest in area's of interest.
Social context	Recognition Visibility Responsibility	• 'Rewarding' innovators with a golden card that signifies their achievements. • Identifying figureheads and ambassadors, providing them toolkits and deploying them as change agents. • Engagement of personnel by highlighting positive and desired traits through communication. • Enabling, fostering and championing innovation by hosting innovation boards.
Organizational cognition	Shared assumptions Values	• Broad communication: informing, inspiring, activating and continuation through soapboxsessions, symposiums, presentations, etc. • Envisioning coarse desired developments (e.g. 3D printing, smart energy, unmanned systems, increased precision) as a framework and guideline for innovation. • Communication: commander's guidance and commander's intent that envision the desired change in organizational and individual behaviour. • Accepting failure in innovation (attempts) as possible outcome and valuable learning experience.

Economic incentives

Of the four categories of managerial influences, economic incentives appear to be the least impactful. Two explanations are available for this observation. Firstly, CLSK is a non-profit governmental organization and as a result has very limited possibilities of employing economic incentives (large bonuses, promotions, stock options, etc). Neither is top management entitled to make use of these incentives directly since this authority is delegated to each individual manager. Financial incentives therefore appeared to have been used sporadically. Secondly, none of the interviewees declared to care much for financial rewards. All interviewees worked for CLSK their entire career and know and respect the limitations of financial rewards. Other incentives therefore are said to play a larger role in stimulating the practices of middle managers. One frequently mentioned incentive was the feeling of the ability to contribute to relevance of either CLSK, MoD or society in general that inspired the middle managers into their activities. Interviewee 4 gives account of this by stating: "it is my job to deliver the product airpower better than ever". The other incentive was intrinsic motivation, the natural propensity to learn and assimilate, that, in combination with impact in increased relevance led to an adamant energy and spirit with the interviewees. Both of these motives to show desired behavior are hard to control or influence by top management and may therefore be viewed as a fortunate fact.

Three interviewees do state to have been promoted as a result of their practices, one of which was specifically posted on his current position due to his '3.0 mindset' even though he was not the most obvious candidate for the position at the time of application. Some of the interviewees argued that the strategically positioning of people is an underused instrument which could be deployed as a leverage for CLSK3.0. Hence, in the type of organization researched, economic incentives serve a limited purpose and might be leveraged best by identifying the known proponents and exemplars of the new organizational behaviour and strategically positioning them to increase their influence and therewith stimulation of the desired change.

Structural influences

The most obvious example of structural influences is the establishment of AIR, taking the previous statements of the originators into account about creating movement in the organization. Other structural influences appeared in various forms like lowering the degree of centralization, setting up ad-hoc teams, protoyping and enabling existing teams to deploy their capabilities into area's of interest. Most of these influences were initiated by the middle managers themselves and, after finding their way through the hierarchy, were concurred with by top management. One of the cases required a team to be formed in order to put the idea into practice. This led the middle managers

that originated the idea to find a team within the existing organization that may be retasked to execute and embody their idea. Within the business case they were developing at the moment of interviewing they would pitch this as their plan and they had high expectations of top management to agree. In another case, a two FTE unit was founded with the purpose of exploring the viability of the concept it was executing and probing, thus serving as a prototype organization. The motto of CLSK3.0 – think, dare, do – is thereby put into practice and affirmed by the middle managers as a successful possibility given by top management.

Some of the middle managers interviewed took a critical stance towards structural influences in general and believe that institutionalization of mechanisms should not be given a high priority and scarce resources could an should be distributed differently:

> Is that the way to establish it? I am personally convinced that you need your change agents in the organization. Not sitting on an ivory tower, or literally in an ivory tower and think about where we should be heading towards. (Interviewee 7, 2015)

Despite criticism, within the strict political limitations of CLSK, where changing the HR system is difficult and creating new job positions nearly impossible, the structural influences have been put to use relatively well and appear to be working according to most of the interviewees. They argue that it is a necessity to change the structure, if only to showcase the resistors within the organization that things do happen.

A structural influence that is lacking according to some of the interviewees is a long term plan with sufficient career perspective for middle managers that respond to the call to become ambidextrous. Those who stand out from the crowd, innovate and explore seem to derail themselves from a further career or the possibility to grow. By actively choosing to differentiate from the known paths they are taking risk, yet they argue that the organization is failing to sufficiently reward this structurally. Former jet pilots who now innovate may never fly again and are rejected by their HR person responsible as useless for 'career material'. This is perceived by many interviewees as a serious shortfall within the CLSK structure that scares off people who might be willing to participate in the desired change. Interviewee 14 (2015) states:

> I am amazed that I haven't been 'picked up' [by the system]. In a military organization that pretends to care about innovation, that declares that I do good stuff with innovating, but refuses to 'pick me up'. I find that a miracle!

A last influence mentioned by the interviewees as intended by CLSK3.0 is selection of employees. Top management declared to select their leadership prior career courses to ensure the desired mindset, and not just paying 'lip service' to CLSK3.0, yet also on the front side of the HR system a selection

appears required to change organizational behaviour. If certain area's of interest need to be explored as a future capability, selecting and hiring specialists (e.g. physicists, astronomers, data analysts, geologists) and employing them in the right manner is a necessity. So far, some of the structural influences like team formation and prototyping are viewed as successful, yet others like career guidance for the risk-takers or selection of the right people are open for improvement.

Social context

As mentioned earlier, the social context of CLSK3.0 is the hardest, yet also most necessary to change in order to find a way towards ambidexterity. Increasing visibility by showcasing results of ambidextrous behaviour, giving people responsibility and recognition for their achievements are the most appreciated and apparently functional alterations in the social context. An example of giving responsibility is by one of the middle managers that had his superior come up to him and tell him that a certain dossier was important, he had no clue what it was going to look like but that a smart man like him could perfectly well figure out how to do it. This coarse outlining of desired effects is transferred and accelerated by facilitating, yet needs to start at the top where the 'go' signal is given and the right example is set..

In contrast to economic influences, recognition of the right behavior an practices appears to be a more effective way of rewarding middle managers. The case that was briefed to the Minister of Defense is a vivid example of top management giving recognition as an effective means to stimulate and reward the desired behavior:

> Well, I've never experienced anything like this before, I don't know how such a thing normally goes. But within no-time we stood before the Minister with this dossier. And it struck me, because I expected this would bog down, or a Colonel would stand up and say: this is a nice project, I'll take care of it. But because of the leadership here and also in the [other organization] they said: this is your project. And so the Major and the Captain were just sent off to MinDef to tell this story. (Interviewee 4, 2015)

Another interviewee gave a smiling account of the fact that he – indirectly - received an e-mail from C-LSK who openly showed his appreciation for the interviewee's innovativeness and contribution to the relevance of the organization. AIR also plays a large role in altering the social context by sparring with innovators about certain challenges, giving advice on how to innovate, and bypassing the formal structures where possible. Their creation of movement in the organization and radiating it in- and outside the organization is a, by the middle managers interviewed acknowledged attempt to endorse and reward desired behaviour. C-LSK was also involved in providing direct support for this behaviour

by transmitting his personal hobbyhorses and ambitions that middle managers could refer to as a priority whenever resistance was felt within the organization.

Status is a possible influence on the social context that usually coincides with visibility in initiatives like 'employee of the month'. The innovation coin is one of the few known influences intended by CLSK3.0, yet none of the interviewees declared to have been in contact with this phenomenon or appeared to have any interest in it. Therefore, responsibility, recognition, visibility and direct support from top management in any form seem to be the most effective social influences.

Organizational Cognition

Organizational cognition is reflected in organizational values, norms of behaviour and culture (Taylor and Helfat, 2009). The communicated CLSK3.0 vision is the strongest perceived influence on organizational cognition as stated by the interviewees. Interviewee 16 (2015) reports: "CLSK3.0 to me was a gift from heaven. A first acquaintance was: finally someone has - I'm saying it a bit dismal - the balls to say what direction we have to go and we really have to change". Openly stating what you want to be and where you want to go as an organization sparked with others as well. Interviewee describes his first contact with CLSK3.0 as:

> [My superior] gave that [CLSK3.0 document] to me and I, because there are many interfaces with my personality, immediately became very excited. I was in, I was immediately in. And I showed it at once. And where you feel comfortable with, is where you're automatically heading to and in Airforce 3.0 I feel really comfortable. That is obvious. (Interviewee 12, 2015)

All involved interviewees acknowledged the shared vision as a 'green light' or 'wind in the sails' to finally do and change what they have always wanted within their work environment. Although a few expressed not to need CLSK3.0 to explore, innovate or show other ambidextrous behaviour, all agreed explicitly stating a common vision and values is necessary to to make the desired effects happen. A handful of interviewees were involved with their case prior the official announcement of CLSK3.0 and have therefore proven not to require 3.0 for themselves, but acknowledged the increased ease with which their cases developed once CLSK3.0 did get communicated. This proves that the perceived top management support as researched by many (e.g. Kuratko, Montagno and Hornsby, 1990) also serves as a positive factor for manoeuvring middle managers into desired ambidextrous behaviour.

A possible important aspect of organizational cognition mentioned by interviewees is diversity or the absence thereof. Whether it is homogeneity in the intake of personnel that obstructs the antecedents of true innovation or the fact that every C-LSK so far has always been a former F-16

pilot which bothers certain managers, diversity is a part of organizational cognition that requires attention according to the lion's share of interviewees. This is a salient observation, and as one manager states:

> You'll only get strong if you're capable of organizing your own retort. A sort of devil's advocate who we'll sometimes let ask hey, what are you doing? Even if it's just a type that everyone gets pimples from, yes that's something you also can and dare to let happen. Because that's what makes you stronger. (Interviewee 7, 2015)

A concluding remark is that CLSK3.0 is a concept that is hard to grasp for many and open for various interpretations. Due to its intended alteration of organizational behaviour it is mainly communicated in a few short lines, documents and a shared vision with different perspectives as a result. One interviewee stated:

> A few of the things I do I stick the 3.0 label on for its positive connotation, but it isn't 3.0 at all. 3.0 is when it leads the individual to be central, that people receive freedom and grasp it to determine their own happiness, that's 3.0 to me. (....) My experience is that when you question people about the 3.0-ness then it's very often just can-do, things that are really nice and well thought of, but I have a few things that wouldn't be 3.0 if I wouldn't have invented them. (Interviewee 13, 2015)

This discrepancy between different explanations of the same vision appear rather harmless, since regardless of how it is being interpreted, all middle managers state that it has a positive influence and can serve as a leverage to create, develop and institutionalize ideas. O'Reilly and Tushman (2008) mentioned articulation by top management of a common vision and values bridges dual contexts increases the likelihood of ambidexterity, which is herewith acknowledged.

Summary

The four categories of managerial influences have very different effects. The discrepancies between expected effects in literature and research can be explained by the different character of the researched organization. The absence of economic influences apart from promotions is conspicuous. The relatively large perceived impact of social and cognitive influences on the other hand are just as striking. Apparently, for this type of organization personnel feels a high level of commitment to the organization and its goals, and an intrinsic drive that inclines to idealism. This finding makes influencing hard and has limited transferability. It does show however that investing in selection of the right personnel and maintaining and developing their skills and commitment by providing career perspective and recognition may be promising long term managerial influences for succes.

Discussion and conclusion

This paper offers a perspective on middle manager practices contributing to contextual ambidexterity, and its managerial influences. Findings from this case study lead to answering the first part of the research question, arguing that six types of middle manager behaviour are contributing to contextual ambidexterity: championing, synthesising, facilitating, implementing, boundary spanning and experimenting. Despite the fact that the propositions need testing to provide conclusive evidence of the findings, the cues of middle manager contributions to contextual ambidexterity appear convincing. In addition, the display in the summary of part I gives a hint of the intertwining and coherence of the various practices. The frailty of some practices, e.g. facilitating, is evident, especially in large and hierarchical organizations where the possible points of failure increase with every layer.

The second part of the research question requires appointing the most effective managerial influences on the practices. The informants declared not to care too much for economic incentives, yet see strategic positioning of genuine proponents as a necessary means to institutionalize the required change in organizational behaviour. Structural influences were provided by higher management in most of the cases and proved their value according to the interviewees. A perceived shortfall is the lack of a well developed system to provide the middle managers that take risks with a career perspective as a coverage for the liability and reward for their behavior. Social influences appeared to work very effectively, especially in recognition and responsibility which were highly appreciated by the middle managers involved. A lack of diversity however was perceived by some as a caveat in policy that requires attention. Lastly, most of the influences of the project were directed at the organizational cognition. This appeared to be the strongest and most effective means of influencing the organization. Even though the shared assumptions differed among the interviewees on various aspects, a shared vision proved to be of value by the interviewees.

This research extends the field of ambidexterity by showcasing the microprocesses on the interfaces between exploration and exploitation. By focusing on the practices of middle managers, their contribution to contextual ambidexterity is further revealed and therewith answers the call for more research of several scholars (e.g. O'Reilly and Tushman, 2013). Where Taylor and Helfat (2009) concluded that middle manager linking activities contribute to technological changes and therewith ambidexterity, this research presents a wider array of middle manager practices that contributes to organizational ambidexterity and contextual ambidexterity in particular. Simultaneously, a contribution to the field of research on middle management is made by showcasing the importance of their role in organizational ambidexterity and the practices required to achieve it, therewith responding to scholars like Wooldridge et al. (2008). An interesting finding is that, as opposed to

Floyd and Lane (2000), middle managers appear to appreciate having to play various roles and practices rather than viewing them as conflicting responsibilities.

The practical implications for this research reside in the exposure middle managers get as strategic actors and enablers of top management policy. By showcasing the middle manager practices required to enable contextual ambidexterity, others may find inspiration. Also, by disseminating the perceived influences of top management, control and measurement of effectiveness of top management policy might be eased by the insight given in the perception of the middle managers.

Reflection

This research presents a number of limitations. First, the single case design serves an exploratory purpose yet limits the external validity of the research. The organization researched has very specific characteristics and transferability of results is therefore limited. Also, the middle management definition used was required for the size and hierarchy of the organization. Other organizations with less layers might have to use different criteria. Even for the purpose of this research, the definition might be debatable, since distinguishing between the operating and middle layer in the organization is officially undefined and therefore open to discussion. Second, the four cases are not completely separated from each other and cross-case analysis is therefore not undisturbed. Lines of reasoning are clear and internal validity is assessed to be high, yet the interconnectedness of certain informants might affect the clarity of the results. Third, the four cases comprise a sample that is limited and may influence the conclusiveness of the results. Lastly, the author is employed within the organization researched. This automatically leads to a bias in retrieving, viewing and assessing the gathered data.

Further research is suggested for testing the propositions stated by each of the practices. This will lead to accepting or refuting of the proposed practices and therewith refinement of the middle manager contributions to contextual ambidexterity. Furthermore, this research has solely focused on the managerial influences on middle manager practices, leaving other influential factors undiscussed. The influence of organizational characteristics, organizational surroundings including stakeholders and other factors may need to be researched in order to draw a clearer image of middle management. Third, the chain of events as displayed in the summary of part I requires further investigation. The display is a rough draft of the development process, yet is a logical conclusion of the findings and might provide a better view of the ambidextrous processes. Lastly, longevity of change is expected to play a large role, especially with organizations that carry an HR system that rotates personnel relatively fast. Studying the development of contextual ambidexterity as a dynamic capability (O'Reilly and Tushman, 2013; Schreyögg and Kliesch-Eberl, 2007) can provide organizations with the required information to increase endurance of change and adaptability.

Acknowledgements

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