JÖNKÖPING UNIVERSITY
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Licentiate Thesis

# Organisational ambidexterity in practice: a study of managerial work in manufacturing SMEs

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# Abstract

It is important for manufacturing small- and medium-sized enterprises to increase their innovative capability in order to attain both short-term and long-term success. This study was initiated in January 2018, and its purpose was to *investigate managerial work in manufacturing small- and medium-sized enterprises in order to understand organisational ambidexterity (OA) in practice.* A collaborative, and in-depth qualitative approach was chosen, including six manufacturing SMEs. Multiple data collection methods were used, such as focus groups, diaries, workshops, feedback sessions, interviews and shadowing, resulting in three papers and a pilot study. The findings identified that mismatched activities and unplanned work affected managerial work a lot; thus, just because a task was planned, it did not necessarily occur accordingly. Furthermore, almost 80% of the managerial activities were unplanned, allocating about 70% of the time. When investigating OA in practice, it appears that the contrasting logics are interdependent and very much intertwined. To conclude, the results show that mismatched activities and unplanned work are central in managerial work and could be seen as important building blocks to understand OA in practice as a duality. Analysis and reflection based on the individual company's context seems to be of utmost importance when identifying how the organisation wants to operate.

**Keywords:** Organisational ambidexterity, manufacturing SMEs, Managerial work

# Sammanfattning

Det är viktigt för tillverkande små till medelstora företag (SMF) att öka sin innovativa förmåga för att uppnå både kort- och långsiktig framgång. Denna studie inleddes i januari 2018 och syftet var att undersöka ledningsarbete i tillverkande små och medelstora företag för att förstå organisatorisk ambidexteritet (OA) i praktiken. Ett samarbetande, djuplodande och kvalitativt angreppssätt valdes, som inkluderade sex tillverkande SMF. Ett flertal olika data-insamlingsmetoder användes, så som fokusgrupper, dagböcker, workshops, feedbackmöten, intervjuer och skuggning. Detta resulterade i tre artiklar och en pilotstudie. Resultatet identifierade att missmatchade och oplanerade aktiviteter påverkar ledningsarbete, bara för att en aktivitet var planerad, var det inte säkert att den genomfördes som tänkt. Nästan 80% av ledningsarbetets aktiviteter var oplanerade och upptog närmare 70% av tiden. Vid undersökandet av OA i praktiken, så verkar det som att de två kontrasterande logikerna både är beroende av varandra men dessutom stundtals svåra att skilja åt. Avslutningsvis visar studien på att missmatchade aktiviteter och oplanerat arbete är centralt för ledningsarbete, och är viktiga byggstenar för att förstå OA i praktiken som en dualitet. Avslutningsvis tycks analys och reflektion baserad på det enskilda företagets kontext vara av yttersta vikt för att identifiera hur organisationen vill verka.

**Nyckelord:** Organisatorisk Ambidexteritet, Tillverkande Små till Medelstora Företag, Ledningsarbete

# Acknowledgements

# List of appended papers

**Paper I**
Sollander K., Engström A., Wikner J. (2018) A Framework for Task-Based Ambidexterity in Manufacturing SMEs. In: Moon I., Lee G., Park J., Kiritsis D., von Cieminski G. (eds*) Advances in Production Management Systems. Production Management for Data-Driven, Intelligent, Collaborative, and Sustainable Manufacturing. Vol. 535, 518-525.* Springer International Publishing. *Proceedings of the APMS Conference, Seoul, Korea, August 26-30 2018*

**Paper II**
Sollander K., Edh Mirzaei, N (2018). Contextualizing Ambidexterity in Small and Medium-Sized Manufacturing Enterprises. *Proceedings of the 25th International Annual European Operations Management Association (EurOMA) Conference, Budapest, Hungary, June 24-26, 2018.*

**Paper III**
Engström, A., Barry, D., Sollander, K., Edh Mirzaei, N., & Johansson, A. (2019). Embracing the Unplanned: Organizational Ambidexterity within Manufacturing SMEs. *Proceedings of the Academy of Management (AOM) Vol. 2019, No. 1, p. 14906. Conference, Boston, Massachusetts, USA, August 9-13 2019.*

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# 1 Introduction

This thesis focuses on investigating managerial work in manufacturing small and medium-sized enterprises, in order to understand organisational ambidexterity (OA) in practice.

## 1.1 Background

Due to the increased competitiveness from countries with low wages and higher margins, the importance of improving internal processes through innovation is increasing (Boyer, Swink, & Rosenzweig, 2005). Resources have to be used as efficiently as possible, focusing on all production factors, such as the use of energy, personnel, materials and capital (Lentes et al., 2017). Operations managers have the responsibility to manage some or all resources that create and deliver products and services relating to their functions (Slack & Brandon-Jones, 2018). The activities in operations management (OM) can be divided into four main categories: steering of operations and processes; shaping of processes, products and services; planning and controlling of ongoing operations; and finally, improvement of the operations' capabilities. The last category is receiving increasing attention since the current competitiveness demands continuous development of capabilities to improve performance (Slack & Brandon-Jones, 2018).

There are two types of operations improvements: major or dramatic change, dealing with exploration, often called breakthrough or radical innovation, and smaller improvement, dealing with exploitation, often called continuous or incremental innovation (Slack & Brandon-Jones, 2018). Schumpeter (2017, p. xix) defines innovation "as the commercial or industrial application of something new - a new product, process, or method of production; a new market or source of supply; a new form of commercial, business, or financial organization". Fagerberg (2007, p. 22) argues that Schumpeter further defines innovation as "'…new combinations' of new or existing knowledge, resources, equipment and so on…". Thus, OM includes the work of managing and improving processes and operations.

A growing research field for understanding innovation capabilities and long-term success deals with OA, that is, balancing exploitation and

exploration (Adler, Goldoftas, & Levine, 1999). Adler et al. (1999, p. 44), among others, define the two dimensions; exploitation is "the use of existing knowledge", and exploration is "the search for new knowledge". There is an ongoing discussion on whether OA is practised simultaneously in the organisation or sequentially over time (Chen & Katila, 2008) and if so, if it is done structurally (O'Reilly III & Tushman, 2008) or through contextual factors (Gibson & Birkinshaw, 2004).

Current research is rather united in that OA is beneficial for long-term survival. However, how OA is or should be practised is debated. Exploration and exploitation are perceived both as poles on a continuous line and as two separate dimensions, where Birkinshaw and Gupta (2013) argue for the latter. OA is also viewed as both a dualism, comprising two separate dimensions that are well-defined and do not overlap, and a duality, where the two dimensions are regarded as interdependent (Farjoun, 2010). There is an ongoing debate about this kind of contrasting logics, where Farjoun (2010), although emphasising the value of the dualism approach, also highlights its limitations, pushing for research where the dimensions are perceived as supporting entities.

Birkinshaw and Gupta (2013) emphasise that the usefulness of OA lies in aiming to understand how conflicting objectives are managed in an organisation, who manages them, and what is managed. OA is often related to different performance measures. For example, Junni, Sarala, Taras, and Tarba (2013) meta-analysis of OA performance identifies that exploration benefits growth, while exploitation benefits profit. The growing field of contextual ambidexterity emphasises that all individuals can be exploitative and through that, bring value to customers in their own functional areas. It is further argued that individuals can also be explorative and search for changes and improvements in their own work (Gibson & Birkinshaw, 2004). The contextual approach calls for research on how managers and employees can actually be involved in the achievement of OA and in what way this approach can be successful (Gibson & Birkinshaw, 2004; Simsek, 2009).

According to the Swedish Agency for Economic and Regional Growth[1] (SAERG), small and medium-sized enterprises (SMEs)

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[1] https://tillvaxtverket.se/vara-tjanster/publikationer/publikationer-2017/2017-09-27-foretagens-villkor-och-verklighet-2017.html. Downloaded November 4, 2019.

account for as high as 65% of the employment and about 60% of the turnover in the business sector. Thus, SMEs constitute an important factor for the wealth of society. The SAERG's data showed that the number of innovative Swedish SMEs slightly decreased between 2014 and 2017. The agency's data also indicated that the basis for innovative ideas often sprung from the organisations themselves.

For SMEs to achieve long-term success, they need to be not only innovative but also to deliver, thus be efficient, which makes the OA concept interesting to apply. Earlier research indicates that SMEs' organisational structure is commonly flat and flexible compared to that of larger organisations (Smith & Smith, 2007). SMEs tend to have limited resources but faster communication and more flexibility (Burton & Goldsby, 2009). Thus, the SMEs' context complicates their ability to separate the two rationales of exploration and exploitation among different divisions (Lubatkin, Simsek, Ling, & Veiga, 2006). Individuals working in SMEs often perform multiple roles, thus facing a higher variation of tasks compared to employees in larger companies (Karltun, 2007). SMEs are usually more sensitive to external factors compared to larger organisations, and due to scarce resources, proactively training or testing employees is often problematic (Welsh & White, 1981). In-depth studies on SMEs' managerial work provide insights into the chaotic work situation, including many disruptions, making the workday complex and difficult to plan (Florén, 2005). Thus, SMEs need to continuously find new ways to utilise their resources in general and human resources in particular (Lentes et al., 2017).

## 1.2 Motivation of research

SMEs' need for increased innovative capabilities, together with the employees' many roles, provides a good basis for studying managerial work from an OA perspective. How managers pursue OA in practice has received limited attention from the research community (Martin, Keller, & Fortwengel, 2019; O'Reilly III & Tushman, 2013). Good and Michel (2013) argue that the more dynamic and unpredictable the environment, the greater the importance of individual ambidexterity for success. O'Reilly III and Tushman (2013) emphasise the need for qualitative and in-depth studies to capture how managerial work is ambidextrous and furthermore, how the conflicts between exploration and exploitation are handled. Tengblad (2012) further argues that to

understand managerial work, a researcher needs to examine it based on its context by considering its complexity and practicality. Therefore, how should managerial work be viewed from an ambidextrous perspective? Moreover, how should OA be perceived from a managerial perspective? These questions open up a twofold research opportunity.

First, SMEs and their managers could benefit from explicitly understanding how they adapt OA practices to their work. This practical perspective could be a way for SME managers to understand their work and by doing so, make more explicit choices. Lewin (1945, p. 169) states, "Nothing is as practical as a good theory" – intending that to be good in practice, theories are needed and that good theories can be anchored in practice. Second, studying managerial work in the SME context could potentially open up new ways of understanding OA – in particular, managerial work related to OA. Studying SME managerial work from an OA perspective could therefore be the first step, among others, to respond to Birkinshaw and Gupta (2013) call for understanding how managers prioritise among competing objectives.

## 1.3  Purpose

Understanding managerial work in SMEs from an OA perspective offers multiple benefits. One advantage is that managers could make more explicit choices, in their path of finding ways to deal with conflicting logics, in order to be both explorative and exploitative. Understanding how managerial work includes these logics in practice could also add knowledge to the field of OA. By conducting an in-depth study of managerial work in manufacturing SMEs, a deeper understanding can be gained. Thus, the purpose of this study is to;

*investigate managerial work in manufacturing small- and medium-sized enterprises in order to understand organisational ambidexterity in practice.*

The central areas of focus in this research are managerial work, manufacturing SMEs and OA.

## 1.4  Scope of research

This research focuses on managerial work with OA in the context of OM in manufacturing SMEs. These delimitations imply that the collective managerial work is of interest, including the management teams and other employees with a management role. The study is based on how managers express themselves through speaking and acting, but personality traits are excluded. The organisational level of management is the focus. OA is about balancing exploration and exploitation, which in this thesis have a base in knowledge.

## 1.5  Thesis outline

This licentiate thesis consists of six chapters and includes three appended papers. A brief description of each chapter is presented below to provide an overview of the structure and content.

In **Chapter 2: Frame of reference**, previous research is summarised as a theoretical background, developing an analytical framework and finally leads to two research questions.

Thereafter, in **Chapter 3: Research methodology**, First, the research approach is explained, followed by the context and sample, and an explanation of the research process. The data collection and analysis procedures are then delineated for the three research steps, which consist of the three appended papers and a pilot study. The chapter ends with a discussion of research quality and ethical considerations.

**Chapter 4: Results** contains subchapters devoted to each of the three appended papers, as well as for the pilot study, where the main findings are conferred.

**Chapter 5: Analysis** contains of an analysis between the research questions, the result and the frame of references.

**Chapter 6: Discussion and conclusions**, a discussion is provided based on the research, followed by managerial implications, method reflection and future research. The chapter ends outlining the main conclusions of this thesis.

# 2 Frame of reference

This chapter provides the frame of reference for this thesis, starting with an overview of managerial work, including how work is broken down into tasks, activities and actions. Next, the exploration and the exploitation logics are presented, and an analytical framework is developed. Finally, two research questions are developed.

## 2.1 Managerial work

Managerial work, in many ways, concern numerous complex and interconnected problems, including the handling of human relationships and emotions (Tengblad, 2012). For a long time, the literature has created a picture of managerial work as rational in decision making (Banfield, 1973) and in control of everything. However, this picture has been criticised for not being applicable in practice. Carlson (1951) has raised the question of whether leadership can really be a science that can be applied or if it is rather a craft. Sayles (1964) has argued that to be successful, managerial work needs to handle both uncertainty and ambiguity. The fact that managerial work is complex and ad hoc is well known and does not align with the old-school thinking regarding the management theory that managerial work should be a well-organised and well-thought-out process (Tengblad, 2012).

In contrast to larger organisations, SMEs rarely have enough resources to have specific development departments; instead, developmental work needs to be done by the present staff, who are then required to perform multiple roles. However, due to scarce resources, there is rarely time for staff training (Welsh & White, 1981). Consequently, managerial work in SMEs often includes the work involved in several functions and roles – as different resources rely on them, regarding not only execution work but also development work. Here, managerial work plays an important role in managing both day-to-day operations and their development by pushing through decisions already made and capturing ideas from production.

Managerial work includes a lot of communication, especially among managers (Burns, 1957), by providing, receiving and asking for information in both informal and formal ways (Horne & Lupton, 1965).

Mintzberg (1973) argues that managerial work includes tasks that are often short and split and are on a more general basis. Managerial work consists of tasks, activities and actions, whose relationships are investigated in the following subsection.

### 2.1.1 Work, task, activity and action

Although *task* is a common word used in OM, it has rarely been defined by researchers (Wilson & Sharples, 2015). Instead, at least in the OM field, it seems that the words *task* and *activity* are sometimes used interchangeably. For example, Slack, Chambers, and Johnston (2010) use a project, major tasks (or subprojects), smaller tasks and a manageable series of tasks when explaining a work-breakdown structure (WBS). Stevenson (2012) also starts with a project when explaining a WBS, but instead of major tasks, he refers to them as major elements, then major supporting activities and finally, activities. In a job design, the hierarchy implicitly comprises processes, tasks and activities (Slack & Brandon-Jones, 2018).

To clarify the hierarchy of these terms, the literature on human ergonomics is used, where there seems to be a larger separation between tasks and activities. Duncan (1972) treats a *task* as the purpose of work, something that requires someone to be able to act. This suggests that a task is a challenge for the worker to confront (Wilson & Sharples, 2015). Diaper (1989) suggests a four-level hierarchy, whose top level is a *project*, which is built up by *tasks,* then by *subtasks* and finally, by *activities.* However, this hierarchy is criticised for its general applicability since it is problematic to apply the different terms in practice where several levels can be applied.

In this study, to investigate managerial work, it first needs to be broken down and defined. Within the work, an employee performs various tasks. Each task can be broken down into subtasks, and activities are then performed through actions. However, if no one performs an action, the activity does not occur. Hence, work also consists of actions. According to Rasmussen (1983), there are three levels of actions: skill-based, rule-based and knowledge-based levels. Skill-based actions are usually performed automatically and effortlessly. Rule-based ones are carried out consciously to some extent, taking a bit more time. Knowledge-based actions are undertaken with a higher level of consciousness, taking both time and effort. Ellström (2005) adds a fourth level, that of reflection-based actions,

where new knowledge is searched for. For the last two levels, it is important to have explicit knowledge about each task and its complexities (Ellström, 2005).

The subtasks and the employee's actions thus form different activities, see Figure 2.1. A challenge with this definition involves the different levels at which tasks, subtasks and activities can be found. For example, imagine that production planning comprises 10 different tasks, such as daily planning, replanning, material overview and so forth. These tasks can then be broken down into subtasks, which potentially could be further broken down into sub-subtasks. However, this definition is not meant to separate tasks from sub-subtasks; instead, the aim is to separate and clarify work, tasks, activities and actions.

During a workday, the employee is thus at the centre of a variety of activities. The activities constitute the connection between different types of subtasks and actions.
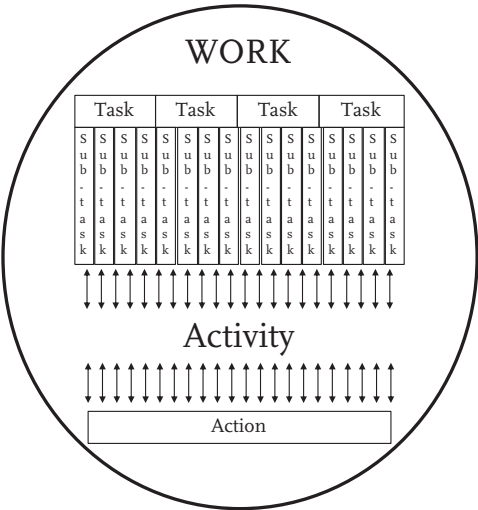


*Figure 2.1. Work: task, activity and action*

A practical example of a task in managerial work could be production planning. To do so, the human doing the managerial work has different subtasks to perform, such as controlling input and output of materials. This is done through the human's actions of actually checking the levels of the materials. Every time a subtask is responded to with an action, an activity occurs.

Hence, the work consists of different tasks and subtasks that comprise different activities, responded to through actions.

## 2.2 Exploitation and exploration in OA

The original meaning of ambidextrous is a person's ability to work equally well with both hands (Birkinshaw & Gupta, 2013). Adapting this ability to an organisation, the OA concept has been used to study how organisations can balance the work between conflicting logics, such as evolutionary and revolutionary work (Tushman & O'Reilly III, 1996), efficiency and flexibility (Eisenhardt, Furr, & Bingham, 2010), exploration and exploitation (He & Wong, 2004) and so on. In this thesis, the conflicting logics involve an organisation's ability to sequentially or simultaneously exploit and explore. Exploration and exploitation and their combination are viewed differently in the literature, see Table 2.1, and some researchers tend to perceive them as separate poles on a continuum, while others regard them as separate dimensions or constituting a paradox (Birkinshaw & Gupta, 2013).

*Table 2.1. Definitions of exploitation and exploration*

| Author(s) | Exploitation | Exploration |
|---|---|---|
| March, 1991, p. 71 | Described by terms such as refinement, choice, production, efficiency, selection, implementation [and] execution | Described by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery [and] innovation |
| Adler et al., 1999, p. 44 | The use of existing knowledge | The search for new knowledge |
| Raisch et al., 2009, p. 685 | Exploiting existing competencies | Exploring new opportunities |
| Fang et al., 2010, p. 626 | The use and propagation of known adaptations | The search for new, useful adaptations |
| Lavie et al., 2010, p. 110 | Enhances productivity and efficiency through choice, execution and variance reduction | Engages individuals and organisations in search, experimentation and variation |
| Burgess et al., 2015, p. 88 | Organization's ability to simultaneously use and develop existing knowledge to refine practice | Generate new knowledge through knowledge search and experimentation to advance existing frontiers of best practice |
| Swart et al., 2016, p. 514 | Exploitative HC (human capital) is specialist knowledge | Exploratory HC (human capital) is generalist knowledge |

What these definitions have in common is their basis in knowledge, both new and existing. In this thesis, exploitation entails the use of the existing and known, while exploration involves the search for something new and unknown. If the focus is to explore without exploitation, then the cost of experimentation is high, with the risk of not seeing its benefits. If the opposite occurs, and the focus is on exploiting without exploring, then it poses a high risk of facing a suboptimal stable equilibrium (March, 1991). Problematically, it is

argued that the two logics often compete for the same resources (Smith & Tushman, 2005). This often results in exploitative work being prioritised and a continuous flow of emergencies, resulting in a firefighting mentality (March, 1991). Gibson and Birkinshaw (2004) argue that exploration and exploitation support each other in learning.

The two logics can be performed in several ways; an organisation can be structurally ambidextrous by dividing exploration and exploitation into separate units. It can be contextually ambidextrous by developing a culture that enables employees to situationally switch between the logics. The organisation can be temporally ambidextrous by focusing on sequential changes between the two logics over time (Martin et al., 2019). Furthermore, a unit can be ambidextrous by dividing exploration and exploitation among different groups of people. A group of people can be ambidextrous by separating exploration and exploitation among different individuals, and so on (Martin et al., 2019).

Managers have been the focus of individual-level research. Mom, Van Den Bosch, and Volberda (2007) observe that managerial work is ambidextrous. This indicates that even the individual can be ambidextrous by performing different roles, some for exploitation and others for exploration. For example, it is suggested that individuals focusing on exploration activities differ in personality from individuals focusing on exploitation (Amabile, 1996). The individual is also affected by organisational mechanisms, such as socialisation, recognition and team building (Bartlett & Ghoshal, 1997). The different levels of analysis could potentially build on one another, where organisational conditions are needed for the individual to be able to work ambidextrously, and the ambidextrously working individual is needed for the organisational mechanisms. It is therefore important to study ambidexterity on several levels of analysis (Raisch, Birkinshaw, Probst, & Tushman, 2009).

However, research indicates that organisations that simultaneously balance ambidexterity tend to be more innovative (Chen & Katila, 2008). The tensions and the complementarities between the two logics could be better understood, and the views should be regarded as complementary to increase organisational effectiveness (Raisch et al., 2009).

Perceiving the two logics as dimensions, Adler et al. (1999) provide an example of production workers who perform two types of tasks – routine (exploitation) and nonroutine (exploration) – and switch

between them. The consequences of combining the two are unclear, but potential negative aspects can be observed, such as finding the explorative activities overtaken by the exploitative activities. It is discussed if individuals are even capable of performing well if they need to handle both exploration and exploitation on a high level (Inkpen & Tsang, 2005). Birkinshaw and Gupta (2013) argue that exploration and exploitation should be viewed as separate dimensions since it opens up the possibility to study organisations' ability to perform well on both. Raisch et al. (2009) contend that this tension requires the manager to find a suitable balance in the managerial work; however, this balance may be divergent for different companies. In contextual ambidexterity, it is suggested that individuals decide how their time should be allocated for explorative and exploitative tasks.

## 2.3  OA as two dimensions

The OA concept, with its base that the two logics of exploration and exploitation should work equally well for a long-term successful organisation, is discussed as both a dualism and a duality. The dualistic view, where the dimensions are perceived as separate and opposed, has stimulated a lot of researcher in the organisational field and has inspired models of learning, transformation and design but is challenging when complex subject matters are in the locus of the study (Farjoun, 2010). To capture this complexity, Farjoun (2010) suggests that OA should also be studied as a duality, where the two dimensions are regarded as interdependent, contradictory, as well as supportive and thus could be studied in relation to each other. An example of dualism could be the brakes and the gas of a car. Someone could study and improve them separately (dualism), but if studying them together (duality), one would find that thanks to the car's brakes, one could drive faster through a city. One could also refer back to a person's hands, focusing on how they separately perform tasks, or focus on how the hands together perform a task where they compete for the person's concentration yet contribute to the completion of the task.

The OA literature tends to be somewhat scattered in terms of how OA is practised. Nonetheless, independent of whether one views exploration and exploitation as a dualism or a duality, one has to use at least one of the logics, either sequentially, using the existing knowledge to later search for new knowledge, or simultaneously, performing them

at the same time. If the concept of ambidexterity is regarded as two dimensions, both need to somehow be performed. Based on the inspiration from the *yin-and-yang* symbol related to the balance between two extremes or forces, still mutually dependent, an analytical framework could be developed, see Figure 2.2.
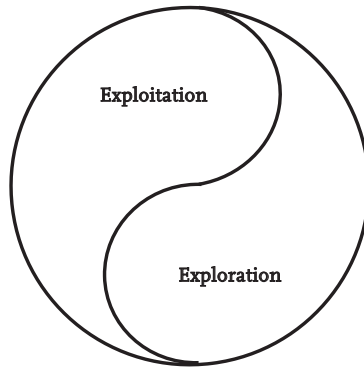


*Figure 2.2. Exploration and exploitation as two needed dimensions.*

## 2.4  Research questions

In this study, the unit of analysis is managerial work, see Figure 2.3. To investigate managerial work in relation to OA, managerial work first needs clarification; thus, it is of interest to investigate how the managers experience their work.
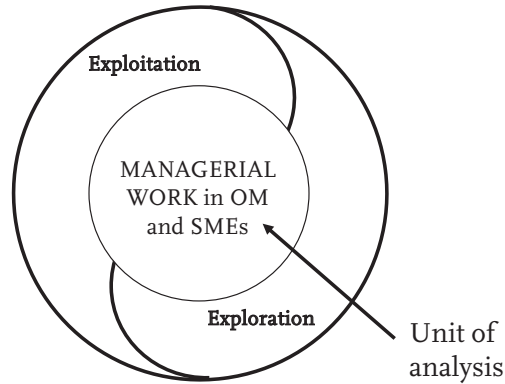
*Figure 2.3. Unit of analysis.*

The first step towards the fulfilment of the purpose, to investigate managerial work in manufacturing SMEs in order to understand OA in practice, is the identification of the characteristics of managerial work. Thus, the first research question (RQ) is as follows:

RQ 1. What characterises managerial work in SMEs?

After understanding managerial work and its characteristics, it is of interest to understand how it relates to OA in practice. Thus, the second RQ is as follows:

RQ 2. How can managerial work in SMEs be understood from an OA perspective?

By identifying characterises of managerial work in manufacturing SMEs and how the managerial work within these SMEs can be understood from an OA perspective, a deeper understanding could also be gained of how OA occurs in practice within the SMEs context, thus fulfilling the purpose of this thesis.

# 3  Research methodology

This chapter presents the methodology of this thesis. First is the research approach presented, then the context and sample, followed by the research process. Then the data collection and analysis are presented. In the end of the chapter research quality and ethical considerations are discussed.

## 3.1  Research approach

The ontological basis for this thesis is rather objective, where the world is perceived as a concrete process in which an organisation is an ever-changing organism (Morgan & Smircich, 1980). Applying this ontological view, it is believed that the employees of an organisation are able to interact with their world and are affected by and can affect their surroundings. It is therefore of interest to understand the mechanisms behind changes, processes and systems. Applying this view indicates that the epistemology is based in the domain of the critical realist (Guba & Lincoln, 1994).

    To investigate managerial work, a qualitative approach was used, particularly suitable when interested in investigating a phenomenon in depth and seeking in-depth knowledge (Easterby-Smith, Thorpe, & Jackson, 2015). The unit of analysis was the set of organisational mechanisms affecting managerial work. To investigate this, a collaborative research approach was chosen, suitable for driving joint learning and gaining insights for both academics and practitioners (Adler, Shani, & Styhre, 2004). Collaborative research can be conducted from a high to a low level – where a low level is exemplified by one or a few meetings, while a high level of collaboration is somewhere close to action research. This research followed a relatively high level of collaboration, and an interactive research approach was employed (Ellström, 2007), where a joint research problem was identified and practitioners and academics met several times over a two-year period.

    This study was conducted under Innovate, a research project undertaken at Jönköping University. Its purpose was to develop OA practices and frameworks that would be particularly well-suited to the constraints and the problems faced by manufacturing SMEs and thereby

increase the knowledge of how SMEs could improve their innovation capabilities in general. The researchers not only collected the data but also presented and discussed the results with the companies. The companies' homework was to discuss internally and later present their findings to the researchers; thus, both parties had separate analysis and learning cycles. The benefit of this interactive approach is that the results will more likely be relevant to both researchers and practitioners. Shani, Mohrman, Pasmore, Stymne, and Adler (2007) state that researchers in the management field benefit from close cooperation with practical managers since such collaboration enables mutual learning for both parties (Börjesson, 2011). This focus also indicates that it is an interactive research approach (Nielsen & Svensson, 2006). In the case of this study, the researcher did not initiate any changes in the manufacturing SMEs to examine such changes, separating this study from action research.

## 3.2  Research context and sample

Six manufacturing SMEs were connected to the research project Innovate. These companies were selected based on their good performances, having worked with operations improvements and now expressing their willingness to enhance their innovation capabilities. Five out of the six companies were subcontractors. Further company characteristics are listed in Table 3.1. The manufacturing SMEs' management teams were the ones that were mainly involved in the research project, and they hoped to be able to refine their innovation capabilities, finding practical implications to implement during and after the three-year duration of the project.

*Table 3.1. Company descriptions*

| Company | Argon | Bismuth | Fermium | Hydrogen | Lithium | Mercury |
|---|---|---|---|---|---|---|
| **Number of employees (2017)** | 41 | 90 | 100 | 23 | 26 | 50 |
| **Yearly revenue (2017)** | 12,4 MEUR | 21,5 MEUR | 14 MEUR | 5 MEUR | 3,7 MEUR | 7,3 MEUR |
| **Ownership** | Owned by current CEO | Private. Part of company group of 37 branches | Family business, 3rd generation | Private. Part of company group of 6 branches. In turn owned by family owned company group | Family business, 2nd generation | Family business, 1st generation. Part of company group of eight branches |
| **Type of production** | Customised plastic injection molding items | Customised turned metallic components | Parts or complete products for blow and fan solutions | Ventilation and fire protection | Customised high-pressure aluminium die casting items | Customised cutting in aluminium, steel, stainless steel and plastics |
| **Geographical markets** | Sweden (international outreach via customers) | Global | Europe, America, Asia | Sweden | Sweden (international outreach via customers) | Sweden (international outreach via customers) |
| **Main customer industry** | SubC. to Furniture and Automotive industry | SubC. to Automotive, Hydraulic and Pump and motor industry | SubC. to Automotive and Home electronics industry | Real estate and Construction industry | SubC. to Automotive, Disability Aid, Machinery, Telecom, and Building industry | SubC. to the Defence and Medical Technology industry |

Note:The company names are pseudonyms
*SubC: subcontractor

## 3.3  Research process

The part of the research project that is captured in this thesis was initiated in January 2018 and ended in December 2019. Being part of a research project has its pros and cons. In this case, it opened doors to companies and provided the possibility of discussing the methodology, the analysis and the results with other researchers, perhaps to a larger

degree than PhD students without an "external" research project. It also offered the possibility to practise different data collection methods. What is arguable in these settings is how much the PhD student actually participated in the methodical design of the research. This research process was divided into three main steps. A notable difference among these steps involved the design responsibilities and how they were distributed among the researchers. The author of this thesis alternated between creating her own design and participating in the design and the data collection initiated by others. The three steps followed an iterative design, where the results from step I were further studied in step II and even further in step III, see Figure 3.1 for an illustration of the process.

Step I was used to approach the phenomenon through the managers' perceptions of their work. The results of step I initiated step II; thus, step II continued approaching the phenomenon. The results of steps I and II indicated that a third step was of interest to capture not only the managers' perceptions of their work but also their actions. Steps I and III were designed by the author, while step II was jointly designed in the research project. During all three steps, the author participated in both data collection and data analysis.
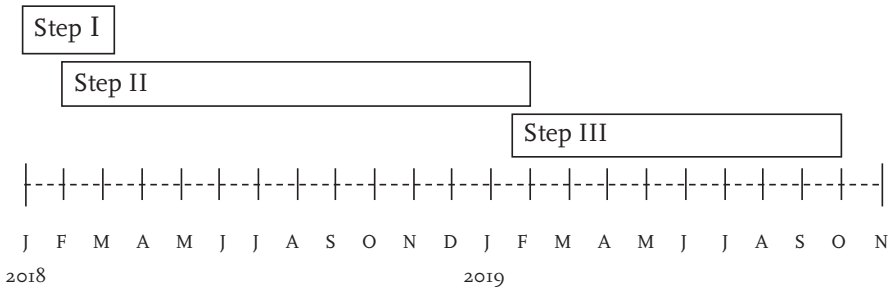


Figure 3.1. Timeline of the research process.

The findings in step I, a mixed focus group discussion held in February 2018, inspired how step II was carried out on a detailed level through focus groups, diaries, workshops, feedback sessions and interviews conducted between March and December 2018. In steps I and II, only the perceptions of the respondents were captured; thus, it was of interest to conduct further studies where the actual actions associated with managerial work were captured. Therefore, step III was initiated and consisted of a shadowing study performed in April 2019. The purpose of the study was to advance past the managers' perceptions of managerial work and instead focus on their actual work, that is, how

managerial work was performed through tasks and actions. For a timeline of the data collection process, see Figure 3.2.
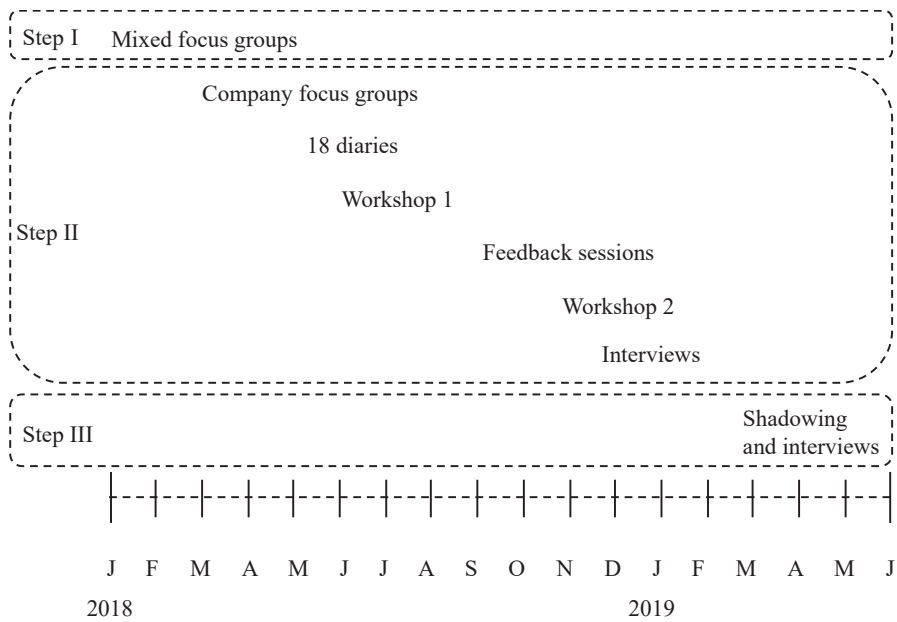


*Figure 3.2. Data collection process.*

## 3.4 Data collection

The three research steps included seven different data collection methods: mixed and company focus groups, diaries, workshops, feedback sessions, interviews and shadowing. The data were collected during nine smaller studies, including six companies and their respondents. Not all the companies participated in all the studies, see Table 3.2 for further details. A challenge was how to handle the amount of data collected since it could be overwhelming and complex; thus, it was important to find an appropriate way of analysing the data, being aware of the unit of analysis (managerial work) to avoid losing focus.

Table 3.2. Data collection methods and included participants

| Data collection | Argon | Bismuth | Fermium | Hydrogen | Lithium | Mercury |
|---|---|---|---|---|---|---|
| | Number of participants | | | | | |
| Mixed focus groups | 1 | 3 | 2 | 0 | 2 | 3 |
| Company focus groups (Mar. 2018) | 6 | 5 | 7 | *3* | 3 | 8 |
| Diaries (June 2018) | 6 | 3 | 2 | *2* | 2 | 3 |
| Workshop 1 (June 2018) | 1 | 3 | 2 | 1 | 2 | 3 |
| Workshop 2 (Nov. 2018) | 0 | 3 | 2 | 1 | 3 | 3 |
| Feedback session (Nov.-Dec. 2018) | 5 | 4 | 7 | 2 | 2 | 3 |
| Interviews (Dec. 2018) | | | | | 2 | 3 |
| Shadowing (Apr. 2019) | | | | | | 2 |
| Feedback session (May 2019) | | | | | | 3 |

## 3.4.1 Mixed focus groups

The mixed focus group discussions were conducted during the kick-off with the research project Innovate. A total of 11 participants from the companies' management teams attended the kick-off. For one hour during the kick-off, the participants were divided into three focus groups, each consisting of three to four participants from different companies' management teams. The group discussions focused on the participants' perceptions on exploration, exploitation and ambidexterity. The use of focus groups as a data collection method is suitable when comparing perspectives and perceptions about a certain topic (Wibeck, 2000). However, the studied concepts were not easily grasped without previous knowledge; thus, the researchers presented the underlying rationale of the concepts and offered several questions on which the focus groups would centre their discussions. The questions concerned these three topics: (1) exploration, (2) exploitation and (3) ambidexterity. Due to the lack of use of these terms in the Swedish language, they needed to be translated/simplified; thus, the following questions were presented:

(1a) What do "daily operations" mean to you?
(1b) What is needed to be good in "daily operations"?

(2a) What does "innovation work" mean to you?
(2b) What is required to be good in "innovation work"?
(3) How do you balance the two?

After 45 minutes of group discussions, a joint discussion was held among the three focus groups. Both the groups' discussions and the joint discussion were facilitated by a researcher. The data from each focus group were audio recorded and transcribed by the researchers. In step I, the unplanned work was identified, which was further investigated in step II.

### 3.4.2 Company-specific focus groups

Based on the mixed focus groups, a follow-up study was conducted. This time, a focus group discussion with similar questions was held in each of the six companies where their management teams participated. These company-specific focus group discussions were conducted by a bachelor-level student as the facilitator and by a researcher as an observer/supporter. Six questions were posed as means to guide the focus group discussions. The questions were formulated as follows:

(1) What do "daily operations" mean to you?
(2) What does "innovation work" mean to you?
(3) How do you balance the two?
(4) What challenges are posed by this balance?
(5) What opportunities are offered by this balance?
(6) From your perspective as a leader, what are the consequences of your view of the balance on the company's ability to be innovative?

### 3.4.3 Diaries

Using diary recordings as a data collection method is appropriate when a researcher seeks to explore a phenomenon in depth. It helps minimise memory problems and can provide a direct view of the respondent's own experience (Alaszewski, 2006). The representatives of the companies' management teams recorded their audio diaries for one week, making one recording in the morning about their plans for the day and another recording in the evening about how the day went. When completed, they listened to their own recordings and later discussed

with their co-workers in the company if they could observe any patterns. The identified patterns were presented at Workshop 1. The participants received the following written instructions:

Step 1: 'Talk' to your diary at least twice a day during a week. Start your morning by talking about what you see ahead and end your work day by talking about what has happened. Try to focus on not only what is happening but also how you think and feel about it. Note both negative and positive aspects. Try to stick to specific activities and situations; stop and try to describe the situation in more detail. Speak freely! It is better to talk too much than too little, spontaneously than well thought through and formulated.

Step 2: At the end of the week, you should replay your audio files, and see if there are any patterns that you can identify. Note your reflections.

Step 3: All participants in the diary exercise in the company should meet and share their experiences. Each person should present the patterns that they detected. Thereafter, try to identify what seems to be common and what separates your experiences.

Step 4: Prepare a joint presentation of your results for the researchers and the other companies at the next workshop.

### 3.4.4 Workshops

The workshops functioned as meeting points for the participating companies and the researchers. As a preparation for Workshop 1, the company representatives' homework was to record their diaries and reflect on them, as part of the interactive research approach. These reflections were presented at the workshop and discussed together. These presentations were audio recorded. For Workshop 2, the management teams' homework was to reflect on the structure of their meetings and to present that; these presentations were also audio recorded. Continuous discussions were held about management, planning and innovation throughout the workshops.

### 3.4.5 Feedback sessions

To verify and further understand the data from the mixed focus groups, the company-based focus groups and the voice-recorded diaries, a feedback session was held with each company's management teams. All the previously gathered data were coded in NVivo and presented in

feedback sessions using clustered themes. An open interactive discussion was held with the management teams, and through this, a deeper level of understanding was gained.

### 3.4.6  Interviews

At the end of the first year, it was of interest to identify real critical incidents where unplanned work/interruptions had led to innovations or improvements. Two of the participating companies were using two different approaches for innovation; one was more radical and experimenting, while the other made improvements based on deviations. Thus, phone interviews were conducted using Flanagan (1954) critical incident technique, aimed at capturing a full event by asking three types of questions, as follows: (1) What was the cause of the incident? (2) What were the characteristics of the incident? (3) What was the effect of the incident? The respondents were asked if they could provide two real incidents that originated from internal or external interruptions and led to any development activity. The interviews were split; this paper's author conducted three interviews, and another researcher in the project Innovate held two interviews. The interviews were audio recorded and transcribed.

### 3.4.7  Shadowing and interviews

For step III, it was of interest to further investigate the managerial work using an in-depth qualitative approach and particularly, the unplanned work, in order to capture the actions of the managers, not only their own perceptions of their actions. To really get close to the phenomenon and investigate what actually happened in the managerial work, two middle managers were shadowed and interviewed. What distinguishes shadowing from interviews is that in interviews, the researcher obtains data in the form of how the respondent experiences the work in retrospect, while when shadowing, the researcher can observe the phenomenon as it occurs. A risk with the shadowing approach is that the researcher himself or herself forms an idea of why incidents occur. Therefore, it is advantageous to conduct supplementary interviews with follow-up questions to deepen, clarify and validate the data (Barley & Kunda, 2001).

All six companies were suitable for this study since they were all manufacturing SMEs interested in developing their innovation capabilities and finding themselves struggling with unplanned work. For step III, one company was chosen as the first to conduct a pilot study and try out the method. It was chosen because its top management at that time was relatively steady, which was not the case for four of the other companies. With the plan to perform the same study on all companies, Mercury was chosen as the first company in which to investigate managerial work.

Using this method, the activities of two middle managers (the production manager [PM] and the production coordinator [PM]) were documented by taking field notes while shadowing them in the workplace. They were chosen in communication with the company, with the requirement that they should be part of OM and have some responsibility for human resources. Both had worked in the company for more than ten years, were internally recruited and both had started their current positions within the last six months. Furthermore, both agreed to participate in the study, which should not be taken for granted; having a researcher study what one does is not always easy. Data concerning the managerial work activities were collected; thus, every time a new person arrived, the setting was changed, or a new medium was used was defined as a new activity. Each activity was timed. For an overview of the days of shadowing, see Table 3.3.

*Table 3.3. Days of shadowing*

| Day | Purpose | Respondent |
|-----|---------|------------|
| 0a | Get to know | Production manager and Production coordinator |
| 1-3 | Shadow production manager | Production manager |
| 0b | Stay updated | None, attending daily meetings |
| 4-6 | Shadow production coordinator | Production coordinator |

To capture what was planned and unplanned, the respondents were interviewed in the morning and in the afternoon; these interviews were audio recorded. The activities of the day were written down in a notebook as distinctly as possible, trying to capture quotes from the managers, as well as their actions. When the workday was over, the researcher audio recorded her spoken thoughts and review of the series of activities in order to capture them as clearly as possible.

### 3.4.8  Feedback session (Mercury)

After the shadowing study was completed, a feedback session, in which the two respondents and the plant manager participated, was held. The results of the shadowing process were presented and discussed, and the researcher could then discuss and validate the data. This session was also audio recorded.

## 3.5  Data analysis

The following sections describe how the different types of data were analysed in the three research steps.

### 3.5.1  Step I – mixed focus group

The transcribed data were coded with the software NVivo. The coding of the data followed the logic of the questions asked and hence, included the definitions of "daily operations", "innovation work" and "ambidexterity". New terms were coined based on the patterns appearing in the transcribed data. For example, the participants frequently mentioned planned and unplanned activities in connection with daily operations, innovation work and ambidexterity. This approach is suitable when analysing relationships, which can explain how and why a phenomenon occurs (Fejes & Thornberg, 2009). A framework was created, visualising four types of work tasks and their inherent conflicts.

### 3.5.2  Step II – focus groups, diaries, workshops, feedback sessions and interviews

For step II, which consisted of multiple data collection methods, the analysis was performed consecutively. The recorded data were transcribed and empirically coded with NVivo based on how the respondents discussed their work in relation to OA. Based on the patterns that emerged from the empirical coding, a feedback session was held in each company to verify the data.

### 3.5.3 Step III – shadowing and interviews

The notes from the shadowing process were transcribed, as well as the audio recordings of the interviews and of the researchers' own reflections after each day. The analysis was conducted by coding the activities in NVivo based on whether they were planned (scheduled on the respondents' physical or mental calendar at the day's start) or unplanned (not scheduled on the respondents' physical or mental calendar at the day's start). This coding was done with the aid of the interviews. Then, an attempt to code explorative and exploitative activities was initiated, but not all activities could be classified as purely one or the other; thus, that attempt failed. The following process was long, with many retakes. More practice-based definitions of exploration and exploitation were applied, similar to March's (1991) definitions, but these also appeared as ineffective, since it meant that the tasks should be guiding the intended logic, not the actual action. Thus, that attempt also failed. Going back to the planned and the unplanned activities, they still needed a more distinct sorting, and after trying out different ways to categorise the data, the trigger of each activity was identified as interesting; thus, each activity was coded based on whether it was initiated internally (by the respondent) or externally (by something or someone else than the respondent). The tasks and the actions were then empirically coded, following the steps of Gioia, Corley, and Hamilton (2013). However, this thesis does not include more than a brief overview of the content of the internally and the externally initiated, planned and unplanned activities.

## 3.6  Research quality and ethical considerations

### 3.6.1  Trustworthiness

It is important to assure high trustworthiness when conducting research. Trustworthiness consists of four criteria, but research is often not strong in all of them (Eriksson, 2015). Credibility is (among others) achieved by studying the phenomenon using multiple data collection methods – in this research, by applying eight different data collection methods, (involving up to 30 respondents from six manufacturing SMEs), thus using multiple ways of triangulation. The respondents' own perceptions of the phenomena were captured in steps I and II, while their actions

were captured in step III. Through the many meetings and data collections with the companies, the data were discussed and verified, and through the collaborative and interactive approach, the respondents had the possibility to verify, correct or falsify the results, which strengthened credibility (Erlandson, Harris, Skipper, & Allen, 1993).

*Transferability* is attained by providing a description of the research context, so the results' transferability can be judged (Erlandson et al., 1993). This is achieved by describing the SMEs' context and applying the collaborative in-depth approach.

*Dependability* is achieved by explaining how the research has been conducted, so someone else can redo the study and obtain similar results by following a logical, traceable and well-documented research process (Wigren, 2007). This variable is aimed to be approved not only by being explicit in the set-up and research process, as well as in the data collection process, but also by audio-recording and transcribing.

Finally, to increase *confirmability*, there should be an attempt to ensure that the researcher's personal values and theoretical orientation, would not (at least, deliberately) affect the end results of the study (Bell, Bryman, & Harley, 2018). All coding was done with NVivo, which made it easy to access and control the coding. Quotes are used here as much as possible to help the readers form their own views of the topic and determine if they agree with the researcher's conclusions, without crossing the boundaries of any of the ethical considerations.

## 3.6.2 Ethical considerations

When involving humans and companies in projects, four principles should be accounted for: information, consent, confidentiality and utilisation requirements (Vetenskapsrådet, 2002). The respondents were informed about the intended use of the collected data, the interviews could be classified if the respondents desired to continue, and the respondents had the right to deny all types of recording. To protect the respondents, their identities were anonymised; however, their involvement in an official research project could make this requirement challenging. Thus, sensitive information was deleted, and discussions were held among the researchers to identify potential data that should be classified. No material was discussed outside of the research group, unless the respondents approved. The data were also only used for the research project's purpose.

# 4 Results

This chapter includes the findings reported in the appended papers, as well as the empirical data. Step I includes two papers (Papers I and II), followed by step II (which includes Paper III). This is then followed by step III, including the results of the pilot study, see Figure 4.1.
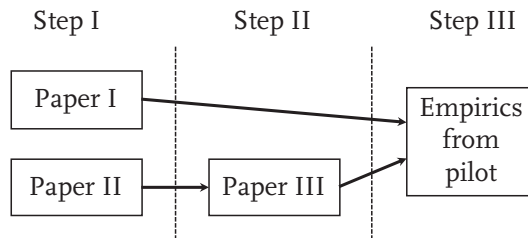


*Figure 4.1. Connection between the appended papers and research step III.*

The results from Paper II are further investigated in Paper III, and the results from these two papers, together with Paper I is continuously built on in the pilot study.

## 4.1 Paper I – A Framework for Task-Based Ambidexterity in Manufacturing SMEs

Paper I used a conceptual approach based on OA and was inspired by the mixed focus groups during the kick-off in step I and the questions arising there. Even if the framework was inspired by the mixed focus groups, it did not contain any empirical data. The purpose was to investigate what consequences would result from different dimensions of a task in relation to the types of its actions, as well as their effects on OA.

The paper identified that a work task could have not only three different design dimensions, but also three different performance dimensions, either being exploitative (Execute or Exe), explorative (Innovate or Inn) or both (Exovate or Exo). When the design and the perform dimensions of the task were combined, nine scenarios emerged in the framework, see Table 4.1.

*Table 4.1. Designing and performing a task*

| | | Design (Task dimension) | | |
| --- | --- | --- | --- | --- |
| | | Execute | Innovate | Exovate |
| **Perform** (Type of action) | Execute | *Exe-Exe* | *Exe-Inn* | *Exe-Exo* |
| | Innovate | *Inn-Exe* | *Inn-Inn* | *Inn-Exo* |
| | Exovate | *Exo-Exe* | *Exo-Inn* | *Exo-Exo* |

*Exe: execute; Inn: innovate; Exo: exovate

Exe-Exe, Inn-Inn and Exo-Exo are scenarios where design and performance would be aligned. An analysis of the scenarios indicates no single optimal scenario. Instead, there should be a movement between them; a dynamic adaptation should be encouraged in relation to changing conditions. The framework also shows six scenarios, identifying a potential mismatch between the dimensions of design and perform where one is explorative and the other one is exploitative or vice versa. Two examples of Exe-Inn are presented first, where the performer focus stresses execution, while the designer focus of the task is innovation. One reason for this mismatch could be overly high expectations from the designer compared to the capability of the performer, potentially causing frustration for both parties. In Inn-Exe, the performer focus is innovation, while the designer emphasises execution. One cause for this could be that the performer uses potential innovations that the designer is unable to capture. Scenarios in which the designer and the performer are aligned and share the same focus of the task dimensions will more likely be fruitful, with less frustration.

If supporting the idea that all employees can contribute to innovation, SMEs should define tasks that include both explorative and exploitative parts, either simultaneously or sequentially, to stimulate their employees to work ambidextrously. Bearing SMEs' dynamic and unpredictable context in mind, they will likely benefit from more explicit knowledge about how they are ambidextrous. It appears as if ambidexterity is more than a static mode and could be achieved in many ways.

The main contribution of Paper I is its first step in approaching the relationship between task and action, conceptualised as the designer–performer foci of the different dimensions. One should not interpret

these as if they refer to individuals, rather, perceive the designer as the organisation and the performers as the employees working in the organisation. There is also the intriguing idea (a problem with the planning logic) that perhaps it is not only how a task is designed but also how it is performed (the actions) that are important. Imagine a task, planned in a certain way, with a certain dimension in mind, and the actual action does not respond to it as planned. If this is the case, it means that the planning logic for managerial work has limitations if the planned task is not performed. It could also be that the job descriptions play a vital role in the employees' possibilities to be ambidextrous.

**Researcher's contribution:** The conceptual framework was initiated by the author and further developed in collaboration with Engström and Wikner.

## 4.2 Paper II – Contextualising ambidexterity in small- and medium-sized manufacturing enterprises

Paper II was based on the collected data from the mixed focus groups – involving a total of eleven participants from five different SME management teams. The purpose was to explore how SME managers understood exploitation and exploration and managed OA, where exploitation was explained as daily work, and exploration was defined as innovative work.

The managers discussed how the daily work was connected to control, change management, daily management, delegations, execution, pulse meetings, improvement work, firefighting and follow-up on investments and quality problems. The managers further discussed the innovative work and how it differed from the change management work, concluding that it appeared to be a grey area. The managers agreed about their interest in not only product innovations but also process innovations, focusing on finding new ways of being more efficient at work, dealing with problems and reducing waste.

Furthermore, the consequences of unplanned activities were identified – indicating how unplanned activities acted as disturbances to the planned work. The unplanned activities were those that were not planned beforehand, concerning matters such as quality issues, problems with the machinery and new demands from the customer. It appeared that the planned exploitative activities were often more prioritised than the planned explorative ones. By standardisation, the

managers tried to eliminate the unplanned activities to find time for the planned ones. A framework was developed, where the inherent conflicts between planned/unplanned work (degree of planning) and exploitative/explorative work (degree of innovation) were identified. It showed that the unplanned exploitative (C) work was prioritised the most, while the planned explorative work (B) was prioritised the least. The planned exploitative work (A) and the unplanned explorative work (D) seemed to be more equally prioritised, see Figure 4.2.

High

Degree of
planning

A          B

C          D

Low

Low          High

Degree of innovation
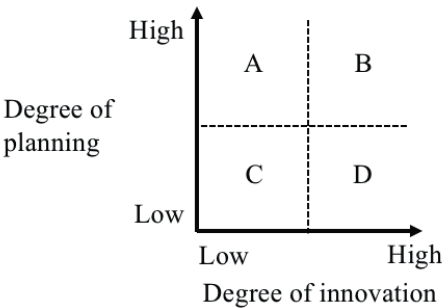
*Figure 4.2. Types of work tasks and their inherent conflicts*

To solve the problem with unplanned work, the managers expressed the need for structure, for more standardisation to be able to be more innovative and for tools to eliminate the unplanned work. The CEO of Company Air exemplifies how to be more innovative: *"This must be possible to solve using structure. I usually think like this: when you want to hang out and have a nice time you invite your friends. [But] then you do not just sit down and ask them: "OK, tonight we will have a really nice time. So, do you have a nice time now? Do you have a nice time now?" No, you do not do it like that. Instead you create conditions for it. You fix some food, clean and all of that. Then you will have a nice time. It must be the same factors here. You cannot only talk about innovation; you need to create conditions for it".* One mentioned way of structuring is to clarify the job descriptions. Based on the emphases of the unplanned activities, the following research focused on the unplanned work and its impact on ambidexterity.

The main contribution of Paper II was its identification of how the managers viewed exploitation and exploration, as well as their constant troubles in clearly separating the two logics, which sometimes constituted a grey area where the logics were mixed. Furthermore,

unplanned work as a disturbance was identified, including how it appeared to have implications on explorative and exploitative work.

**Researcher's contribution**: Sollander initiated the paper, and the main design was built by the author. The data were coded by the author and Edh Mirzaei, and mutual discussions about the results were held.


## 4.3  Paper III – Embracing the Unplanned: Organisational Ambidexterity within Manufacturing SMEs

Paper III was based on multiple data collection methods from Step II, including company focus groups, diaries, workshops, feedback sessions and interviews. The purpose was to investigate how OA practices were performed in an SME context.

In this paper, exploitation was related to the work of standardisation, and exploration was associated with the work of experimentation. The unplanned work was further investigated and explained in terms such as disturbances, fire brigade, stop, crash, interruption, replanning and reprioritising. From the diaries, stories evolved about how the managers had to rearrange their days and cancel meetings due to unplanned work. The CEO of Lithium said, *"Monday became like all other days, not at all as I planned"*. However, the unplanned work did not seem to have entirely negative consequences because it enabled more essential tasks to be prioritised. The finance manager of Bismuth said, *"Well… as usual, I didn't do all the little stuff that I had planned, but maybe it was more important things I did instead"*.

In the search for exploration, it appeared that unplanned work could act as a catalyst. Thus, a disturbance could lead to unplanned work, where a choice would need to be made on how the organisation should act. Should it continue with a fire-fighting mentality or stop and start to analyse the situation to identify its dominant mode (exploration or exploitation) in order to strengthen the other?

The main contribution of Paper III was in providing a deeper understanding of managerial work and how the actions initiated by unplanned work affected both exploration and exploitation. The paper concluded that unplanned work should be understood as a source of comprehending and balancing OA. The triangulation of the data

showed that unplanned work happened all the time and was central to managerial work. These findings inspired research step III.

**Researcher's contribution:** Engström initiated the paper and was responsible for the main design of the data collection, although Sollander, Edh Mirzaei and Johansson participated in the detailed design of the data collection and the analysis. The authors held mutual discussions regarding the results, the analysis and the discussion.

## 4.4 Results from pilot study – Managerial work in practice

The purpose the pilot study in step III was to investigate managerial work in practice in SMEs to understand unplanned work. This result chapter is divided into two parts, where the first illustrates managerial activities and identifies four categories, and the second provides an illustrative example of the four categories, as well as how the focus of an activity can be mismatched.

### 4.4.1  Time and content analysis

Six days of shadowing ended up covering a total of 646 activities, totalling 49.75 hours, where the average time spent per activity was about 4.6 minutes. More than half of the activities lasted 3 minutes or shorter, while only about 4% of the activities took 15 minutes or longer, see Table 4.2.

*Table 4.2. Managers' activities from a time perspective*

| Time spent on activity (minutes) | % of total time |
| --- | --- |
| 3 or less | 59.9 |
| 4–9 | 28.6 |
| 10–14 | 7.4 |
| 15–29 | 3.2 |
| 30 or more | 0.9 |

The data showed that the unplanned work dominated, constituting about 80% of the amount of activities and taking up 70% of the managers' time. Many of these activities in the unplanned work involved communication between the middle manager and someone else.

Slightly more than half of the unplanned activities were internally initiated.

These internally initiated activities took a shorter time than average, while the externally initiated activities lasted longer than average. By separating the activities in planned or unplanned work into either internally or externally initiated, four categories were identified, see Figure 4.3.

Activity

|  | UNPLANNED | PLANNED |
|---|---|---|
| EXTERNALLY INITIATED | EU<br>39% activities<br>43% time<br>5.2 min/ activity | EP<br>6% activities<br>16% time<br>11.3 min/ activity |
| INTERNALLY INITIATED | IU<br>39% activities<br>27,5% time<br>3.3 min/ activity | IP<br>16% activities<br>14% time<br>4 min/ activity |

*Figure 4.3. (Un)planned activities and their initiators*

## Externally initiated unplanned work (EU)

The activities under the externally initiated unplanned work (EU) category was initiated by someone or something else and were not part of the physical or the mental calendar at the day's start. In the EU category, it was often someone else in the company who had a question, needed help with something or wanted something to be done. This category identified the need for managerial work to be flexible when someone else sought attention, since the external part might have a problem that needed to be fixed, such as calling for a crisis meeting to deal with the effects of a machine collision. Almost two-fifths of the activities belonged to this category, allocating more than two-fifths of the managers' time; thus, in one work week, two days would be spent on EU. On average, each activity in EU took half a minute longer than the average time of 4.6 minutes.

## Internally initiated unplanned work (IU)

The activities under the internally initiated unplanned work (IU) category were initiated by the respondents themselves and not part of the physical or the mental calendar at the day's start. In the IU category, the respondents took the initiative to do activities, such as asking other

employees how things went or controlling things. This category indicated that managerial work included actions to control what and how things would be performed. It was also in this category that the respondents expressed the most reflections about possible improvements. Moreover, this category held two-fifths of the managerial work's activities but allocated only about one-third of the managerial work; thus, in one work week, one and a half days would be spent on IU. The average time per activity in IU was shorter than the average of 4.6 minutes.

**Externally initiated planned work (EP)**
The activities under the externally initiated planned work (EP) category were initiated by someone or something else and planned in a physical or a mental calendar at the day's start. The EP category had relatively few activities, often formal meetings, mostly including planning and control. However, the activities under this category took a long time, and EP accounted for one-sixth of the managerial work; thus, in one work week, about half a day would be spent on EP activities. The average activity lasted almost three times longer than the average of 4.6 minutes.

**Internally initiated planned work (IP)**
The activities under the internally initiated planned work (IP) category were initiated by the respondents themselves and planned in a physical or a mental calendar at the day's start. The activities under the IP category matched those that the managers should perform according to their job descriptions, as well as what the respondents actually intended to perform. This category also constituted few activities, one-sixth to be precise, allocating the same amount of time; thus, in one work week, about half a day would be spent on IP activities. The average activity took a shorter time than the average of 4.6 minutes.

### 4.4.2 Illustrative example of the activities around a machine breakdown

The example presented here illustrates the activities related to a machine crash that occurred during the shadowing of the PM. Among others, two other managers are mentioned: the plant manager, who held a higher position in the hierarchy than the PM, and the PC, who had a

lower position in the hierarchy than the PM. The seven sequences are described as follows:

*Sequence 1 (IU)*
During an informal morning meeting on the shop floor on day 2, the PM and the PC discuss the matter about machine crashes. They have had a few minor incidents, and the PC problematises about the set-up routines. The operators need to change programs and thereby "put in numbers" in the system. The PC explains, *"It is problematic with numbers. If they [operators] write the wrong numbers, the tools collide. How can we handle this?"* The PM answers, *"Why don't you think about it [this problem]?"* and rushes off.

*Sequence 2 (IU)*
Later in the afternoon, the PM and the PC had another informal meeting on the shop floor. The PC pushes for the need for a formal meeting regarding a smaller collision in machine 34. The PM is positive about the meeting and asks the PC for a calendar invitation to it but does not receive any invitation during the rest of the day.

*Sequence 3 (EP)*
On the morning meeting on day 3, the PM is informed that a machine collided during the night shift. The plant manager takes it seriously and calmly says, *"This is very serious! PM, you gather the concerned group and perform a 5 Why[2]. We have to get to the bottom of this. This should not happen!"*

*Sequence 4 (EU)*
When the morning meeting is finished, the PM, the PC and a programmer (P1) discuss the collision. The PC says, *"I would at least have expected that someone would have called me in the morning to tell me about the collision. That is not the case. But it seems like someone mixed up the codes for the tools".* The PM replies, *"We have to solve this; will we get anywhere with the 5 Whys? We already know what the problem is; they [operators] need to learn".* The PC adds, *"When a human is part of the process and changes things, there is no one in the*

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[2] A 5 Why meeting is a tool for analysis and identification of the primary cause of a problem. By asking five times why something happened, the primary cause can be identified.

*background checking that it is correct”*. The PM continues, *“Who should we summon for this meeting? I will schedule it”*. The group splits up, and the three of them resume their work; the PM heads back to the office and schedules a meeting one hour later. He then starts to search for information about 5 Why meetings. He says, *“I have never held a 5 Why meeting in this context before”*.

*Sequence 5 (EU)*
The 5 Why meeting starts at 9:30 AM; the participants are the PM, the PC, a technician and three operators (OPs) from the day shift. The PM explains that they should do a 5 Why; he has a 5 Why template in front of him and explains that he has not done this before. Together, they define the problem: they crashed a machine. Why 1? OP 1 explains that the wrong order was scanned into the system. Why 2? OP 1 asks, *“The order before was completed?”* The absurdity of the following question, Why 3, why the order was completed, makes the participants burst into laughter. The meeting continues, and several issues are mentioned. The technician explains that it is very easy to put in the numbers incorrectly. The PC asks if the supplier of the machine has any solutions to this problem and follows up with *“how do other companies do?”* The focus is suddenly changed. The group concludes that Why 2 is not that the wrong order was scanned; it was carelessness. The PC adds, *“We need to ask those who did it”*. Another operator adds, *“Should we even change orders during the night shift?”* The technician asks, *“Can we limit the options in the software?”* Why 3 is identified; the primary cause is that a human made an error. The PC raises the question of competence by asking, *“Are the operators on the night shift trained for this? If not, it is very serious”*. The meeting participants conclude that they need to talk to the night shift operators. The PM will meet them in three days and ask them. The PC adds, *“With the info I have, it is unclear who made the change of the order since it was two operators working on the machine”*. However, the mentioned reasons are not recorded when the 25-minute meeting ends. The PM needs to attend another meeting that is about to start.

*Sequence 6 (EP)*
The PM encounters the plant manager in the next meeting, and they talk about the 5 Why meeting. The PM explains that it was hard to do. The plant manager asks if anything can be done with the software. They are interrupted by colleagues and start the intended meeting.

*Sequence 7 (EU)*
In the afternoon, the PM, the PC and an operator on the evening shift discuss the collision. The operator is sure that *"it is carelessness"*; the PM and the PC agree.

### 4.4.3  Concluding remarks about the pilot study

The results of the pilot study show what challenges are encountered in managerial work, with an average of just over 100 activities per day, the majority of them lasting for less than 3 minutes each, with an average of 4.6 minutes, and about 80% are unplanned at the start of the day. The unplanned work seems to be central and creates demands on flexibility and communication skills. Additionally, there appears to be actions of control that permeate the unplanned, which the middle managers themselves drive. It could almost be said that the managers disturb themselves. Controlling and communicating about the operations might provide an opportunity to detect faults and deficiencies in the organisation – which seems to be a pattern of unplanned work, at least in IU.

**Researcher's contribution**: Sollander initiated the study, and the main design was undertaken by her; so were the data collection and the analysis.

# 5 Analysis

The results of the appended papers and the pilot study presented in the previous chapter are here analysed in the context of the research questions.

## 5.1 What characterises managerial work in SMEs?

The results show that managerial work is characterised by two things. First, there is a mismatch in how a task is designed and later performed at the activity level between tasks and actions. Second, the unplanned work is extensive and initiated both by the respondent and by external factors.

### 5.1.1 Mismatched activities

The relationship between tasks and actions appears to be complex. In Paper I, the potential for a mismatch between a task and an action was conceptualised. This implies that the task can be viewed as having a rule-based design (Rasmussen, 1983) but performed with a reflective or knowledge-based focus. The task could also be mismatched the other way around, meaning that the task has a reflective-based focus but is performed with a rule-based action.

This mismatch could be identified in the illustrative example in the pilot study. In sequence 3, the plant manager tells the PC to get to the bottom of machine crashes in order to stop them from occurring; thus, the plant manager is likely wishing for something close to Ellström's (2005) reflection-based action to be performed. In sequence 4, they discuss how much they really need the 5 Why meeting since they believe that the origin of the problem is obviously carelessness. However, the 5 Why meeting is scheduled, perhaps because in the hierarchy, the higher-level plant manager ordered it. This is in line with Burns (1957) description of how the managerial work of the middle manager includes doing things even if he or she thinks that these are unnecessary. In sequence 5, the 5 Why meeting is held, and even if

some of the participants' reflections identify some potential causes, their initial perceptions are maintained when the meeting ends. The fact that the middle manager (PM) has not received any training in leading that type of meeting could be a factor why it did not lead to any changed prerequisites for the workers. It appears that Welsh and White (1981) statement about the lack of training for the staff in SMEs is still valid, almost 40 years after it was written. Thus, it seems to be a potential mismatch in how the tasks are designed and performed.

### 5.1.2 Unplanned work

In Papers II and III and in the pilot study, unplanned work was identified and investigated. In Paper II, the managers discussed the planned and the unplanned work, where their actions (prioritisations) appeared to differ, depending on whether the activity was planned or unplanned, explorative or exploitative. It seemed that both planned and unplanned work could be more or less innovative. Interestingly, while the managers quoted in Paper II expressed the unplanned work as a negative thing, it evolved, and in Paper III, it was discussed as something inescapable and with possible potentials. The results of the pilot study showed that almost 80% of the managers' activities were unplanned, thus accounting for a large part of the managerial work that was actually being done. Many of the unplanned activities were connected to communication among people, which also supports Burns' (1957) findings that managerial work for middle managers includes a lot of communication.

The results of the pilot study further indicated that planned and unplanned work could be both internally and externally driven and found that the IU work included much controlling but was also where the middle managers reflected the most. This controlling-reflecting phenomenon is explained by Ellström (2005), who highlights the importance of explicit knowledge regarding a task and its complexities in order to achieve the knowledge and reflection-based actions. Thus, through the knowledge that the managers gained during the controlling activities in IU, they could collect information, providing them with the necessary conditions for the knowledge and reflection-based actions.

Tengblad (2012) argues that there is an old understanding of the manager as knowing everything and having control over everything. The managers involved in this study appeared to wish to withhold this view of their work, finding it problematic that they could not do so

because of the unplanned work. When interviewed about the unplanned work, the managers mostly mentioned the externally initiated activities. However, the results of the pilot study, where the managers were shadowed, showed that they caused as many unplanned activities themselves. The IU seems implicit, and as long as something is implicit, it is unconsciously performed and thus difficult to change (Ellström, 2011). If the unplanned work is viewed as a disturbance, it appears that the managers implicitly disturb themselves in the IU.

### 5.1.3  Characteristics of SME managerial work

Mintzberg (1973) argues that managerial activities take a short time; this confirms the findings of the pilot study, where the average time per activity was 4.6 minutes. The old-school view that management should be a well-organised and well-thought-out process is continually being weakened, supporting the findings of Tengblad (2012). With the many unplanned activities, it appears that the managerial work is somehow triggered by circumstances that are not part of the initial plan. Furthermore, when the managers act, they do not always do it as the activity might have been planned. Thus, the activities in the managerial work appear to be mismatched and unplanned, see Figure 5.1.

Mismatched
Unplanned
MANAGERIAL
WORK

*Figure 5.1. Mismatched, unplanned activities in managerial work.*

More than 50 years ago, Sayles (1964) argued that managers should be able to handle uncertainty. It seems to be the case today as well, with activities that are mismatched, short term and often unplanned.

## 5.2 How can managerial work in SMEs be understood from an OA perspective?

If managerial work is done through skill-based or rule-based actions Rasmussen (1983), the actions are likely to have an exploitative nature using existing knowledge. In contrast, if managerial work is done through knowledge- or reflection-based actions (Ellström (2005), the actions are likely to have an explorative nature, searching for new knowledge (Adler et al., 1999). A practical case of how exploration and exploitation are performed in relation to the mismatch and the unplanned work can be seen in the pilot study's illustrative example.

In sequence 1, the PM initiates an unplanned informal meeting on the shop floor, with the lower in hierarchy middle manager, the PC. During the meeting, the PC brings up the known problem with machine crashes and mentions that they need to look into it together. By doing so, they identify that they need to search for new knowledge (Adler et al., 1999). With the many roles common to SME managerial work (Karltun, 2007), it appears unclear who should actually take the responsibility for this particular issue.

In sequence 2, another unplanned informal meeting is initiated by the PM, where the PC brings up the problem with the machine crashes again. The PM responds positively and encourages the PC to invite him to the meeting. However, the PM does not receive any invitation that day, and it could be the case that this (to-be) planned exploration is less prioritised by the PC, who might be stuck in exploitation, which is common, as noticed by March (1991).

In sequence 3, at an externally planned morning meeting, information is shared that a machine has crashed. The plant manager delegates to the PM the task of holding a meeting to identify the problem and find solutions. Reflection-based actions appear to be needed (Ellström, 2005), and the meeting would probably have benefited from their explorative nature.

In sequence 4, an unplanned externally initiated meeting is held on the shop floor among the PM, the PC and a programmer. They discuss who else should be invited and whether the meeting is needed, since they already know what the problem is. It appears that they are still stuck in exploitation through their bias. A meeting is scheduled within the next hour.

In sequence 5, the unplanned externally initiated 5 Why meeting starts. The unplanned activity of a machine breakdown seems to have prioritised the meeting that the PC asked for in sequences 1 and 2. However, the group of people who are gathered appear to already have an idea of why the problem occurred. Some of them then started to reflect and search for new thoughts, being explorative (Adler et al., 1999) and mentioning potential reasons. This sudden change in focus could be because of organisational conditions, such as their common will to solve the issue (Bartlett & Ghoshal, 1997). Nonetheless, they seem to fail in subjecting the reasons to analysis. This supports the argument that managerial work in SMEs includes ambidextrous work also on the individual level (Mom et al., 2007).

In sequence 6, in a planned externally initiated meeting held straight after the 5 Why meeting, the PM meets the plant manager. They briefly discuss the machine crash, and the PM describes the 5 Why meeting as difficult.

In sequence 7, an unplanned externally initiated informal meeting on the shop floor is held in the afternoon. The PM, the PC and a shift leader discuss the machine crash and conclude that the reason is carelessness. Thus, the PM and the PC never manage to change their initial point of view, and it could be argued that they are stuck in exploitation (March, 1991).

From the pilot study's illustrative example, it appears that the unplanned explorative activities take priority over the planned explorative activities, supporting the results presented in Paper II. Taking advantage of the unplanned activities can therefore be important for developing the organisation. It also seems that the unplanned activities trigger the managers' performance of both exploitative and explorative work, but for the latter, it is not necessary that they actually succeed in "searching for knowledge" (as shown in the illustrative example). It is equally likely that the mismatch could occur the other way, where the focus should be exploitation, such as a reconciling meeting, but exploration is emphasised instead. If the managers do manage to find the intended focus, balancing their exploitative and explorative work, they will likely be more innovative (Chen & Katila, 2008). The mismatched and unplanned work appears to be part of how the exploration and exploitation logics are performed, see Figure 5.2.
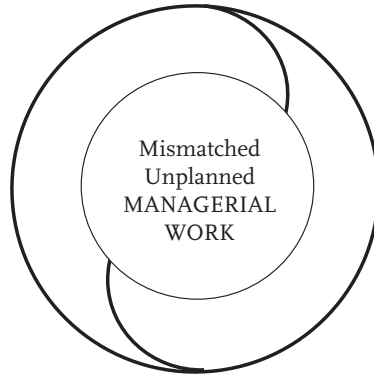
*Figure 5.2. Exploration and exploitation, affected by the mismatched, unplanned managerial work.*

A challenge seems to be connected to the managers' possibility to take the time for exploration; reflection may take time, and with an average time of 4.6 minutes per activity, it could be tough. Thus, a conflict arises between the exploration and the exploitation logics, at the same time as the logics are problematic to separate in practice. In the pilot study, exploration is mainly observed when the respondent is part of a group or engages in discussions' bringing up problems for scrutiny.

# 6  Discussion and conclusions

In this chapter, the findings reported in the appended papers are discussed in relation to the purpose of this study. The main managerial implications are thereafter presented. This is followed by the method reflection, suggestions for future research and finally, the conclusions.

## 6.1  Discussion

The purpose of this thesis is to *investigate managerial work in manufacturing SMEs in order to understand OA in practice.*

To understand managerial work from an OA perspective, there is first a need to highlight how the interpretation of OA has evolved during this research. In the beginning, emphasis was placed on structural OA, how it occurred, if it was simultaneous or sequential and so on, with the idea of identifying how it occurred in manufacturing SMEs. However, the results show something else. When investigating managerial work with an in-depth approach, the two logics are problematic to separate.

Building on the work of Farjoun (2010), four areas are identified that exemplify OA in practice from both the dualism and the duality perspectives, see Figure 6.1. Exploitation within exploitation and exploration within exploration visualise the dualism perspective, where a researcher could study the two dimensions apart from each other, which is the most dominant view in theoretical and empirical research and in how research has guided practice (Farjoun, 2010). If focusing on the top-left to bottom-right diagonal, the example of exploitation within exploitation could be a reconciliation meeting, only using the existing knowledge, while the example of exploration within exploration could be a brainstorming meeting, searching for new knowledge, representing structural ambidexterity.
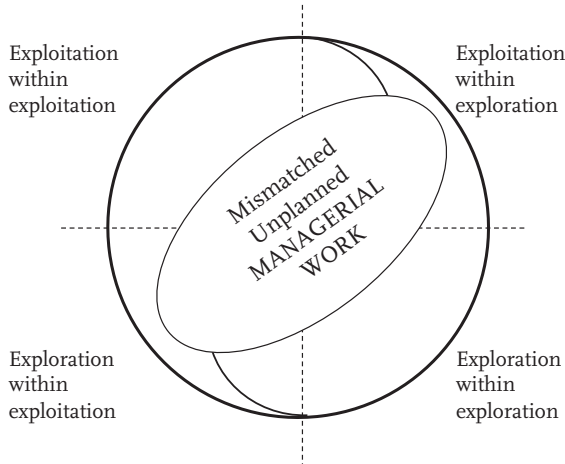
*Figure 6.1. Organisational ambidexterity in managerial work*

If the duality perspective is taken instead, a researcher could identify exploration within exploitation, as well as exploitation within exploration, seeing the dimensions as interrelated, potentially capturing complexities. On one hand, if focusing on the bottom-left to top-right diagonal, exploitation within exploration could be the process of experimenting using a structured approach, close to what Lithium searched for, focusing on exploration but performed with the help of exploitation, searching for new knowledge and using existing knowledge. On the other hand, as in the case of Mercury, exploration within exploitation could be the process of standardisation, with a need to reflect to find out how it should be done, focusing on exploitation but performed with the aid of exploration, and extending the existing knowledge by searching for new knowledge, thus exemplifying contextual ambidexterity. The results presented in this thesis highlight this diagonal when studying OA in practice.

Florén (2005) argues that managerial work is complex, which can be confirmed by this thesis. The managerial work includes both exploration and exploitation, and the logics seem to be conflicting, where exploitation steals resources in the form of time and focus from exploration or vice versa. Interestingly, the two logics also appear to feed each other, in accordance with Ellström's (2005) view that humans need to know things in order to reflect and in turn, learn through reflection, transforming the new knowledge into existing knowledge. Building on Farjoun's (2010) work, perhaps managers should be aware of the conflict between the logics and bear in mind their interdependent

relationship when improving one or the other and thus understand how the explorative and the exploitative dimensions compete yet strengthen each other.

Managerial work includes many disruptions and shows that unplanned work is central, as supported by earlier in-depth studies (Florén, 2005). The managers perceive the unplanned work as problematic and as disturbances, but it turns out that they disturb themselves almost as much as others do, by communicating, controlling and managing the operations. As explained by Burton and Goldsby (2009), the SME context, with its high flexibility, fast communication and employees performing multiple roles, could be a potential reason for all the unplanned activities. Nonetheless, it is also possible that some unspoken or forgotten parts are important to consider but difficult to schedule and plan. Perhaps the rational planning logic is missing something if there are implicit organisational goals or tasks that the managers achieve by disturbing themselves. It appears that the managers, if applying a planning logic, should at least plan for the unplanned and thus schedule time for it, which could be supported by Dant and Francis (1998) argument that a rational plan should be made to fit reality, thus encountering contingent activities. Could it in fact be the embracing of the unplanned work that makes the participating SMEs successful? Perhaps the unplanned work implicitly forces them to deal with OA without being aware of it. If so, the mismatched activities could also be indicators that the other logic is needed and/or that either design or the perform lacks the necessary conditions. SMEs could probably benefit from learning how to deal with or accept the unplanned, as well as from undergoing training in reflection and analysis.

To bring back the example of gas and brakes in a car, related to the equally well-performing left and right hands, they should be equally good in ambidexterity; however, they are not necessarily much used equally. If considering the idea of exploitation and exploration as separate, either one gas or brakes, by studying them apart, they could be improved separately. Instead, if considering exploitation and exploration as interrelated, a researcher could study how the gas and the brakes work towards the same goal. Since a driver rarely hits the gas pedal and the brakes at the same time, he or she would instead perceive it as a journey of stepping on the gas pedal and braking, and through that, capture the complexity added by contextual factors, such as the road, the weather and the design of the car itself, in order to arrive at

the intended destination. If so, seeing OA as a duality would emphasise a higher purpose, on the way towards a goal. If the gas and the brakes are exchanged with the explorative and the exploitative work in manufacturing SMEs, viewing it as a duality would mean that the logics are not developed separately. Instead, the manufacturing SMEs would need to consider the context in which they work and together with their organisational aspirations identify how they should work considering the two logics at the same time.

## 6.2  Managerial implications

Throughout this research, many disruptions in managerial work were observed, confirming earlier research findings. The unplanned work appears to be something of value that managers should try to identify and make explicit in order to find an appropriate balance between exploration and exploitation. What might be surprising for managers is that their unplanned and self-initiated activities appear to act as triggers for reflection. Awareness of how managerial work is performed in SMEs could be a way for SME managers to understand their organisations and by that, make more explicit choices. By making explicit the unplanned work and its impact on and potential for explorative work, managers can evolve their present view of unplanned managerial work, from a disturbance to a potential. They could then work towards organisational conditions to make exploration and exploitation help each other. It could perhaps be done by having those performing managerial work undergo training on reflection and adding planned time on the calendar for unplanned work. Understanding how the explorative and the exploitative dimensions can both compete and strengthen each other could end up in new ways of working for SME managers. For SMEs to explicitly work with OA in practice, they need to understand not only their own context but also how they want to evolve. Based on the large extension of unplanned work, the complex aspects of managerial work also need to be accepted, influencing the training and education of future managers.

## 6.3  Method reflection and future research

This thesis is just in the early stage of understanding the OA phenomenon in practice and has employed an in-depth approach in studying managerial work in manufacturing SMEs. More research needs to be done to build on the ideas presented, especially regarding the results of the pilot study, where only two managers were shadowed. Shadowing as a method has its limitations in how the researcher interprets different situations. This was dealt with through triangulation with interviews and a feedback session. The methodology's usefulness however made it possible to observe both the unplanned work and mismatches in reality, which could be problematic to identify using other methods.

When working in these highly collaborative settings, where the researcher and the respondents get to know each other, it is easy for the researcher to become biased and thus unknowingly influence the results. To avoid this pitfall, the research team held open discussions, where the different researchers "pulled the alarm" if subjective feelings started to influence the analysis. The data were also empirically coded with NVivo, and coding of the separate activities could limit the subjective values and feelings that the researcher might have had. The collaborative approach also opened up the possibility to drive joint learning and insights for both academics and practitioners.

The Swedish context could have a potential limiting factor for the analytical generalisability. It is not necessarily true that managerial work in other countries encourages participation in developmental work or democratic processes. Furthermore, the work of non-managers, such as from the workers' perspective, has not been examined but could be of interest in future studies.

It should also be recalled that the included SMEs in this research were all perceived as long-term, stable and successful businesses. Could it be because they responded to the unplanned work, thereby being ambidextrous? The unplanned work in relation to OA needs to be continuously investigated.

It would also be of interest to study OA, considering how exploitation can benefit exploration and vice versa. Thus, it would also be interesting to identify the content of the bottom-left to top-right diagonal in Figure 6.1, recognising the value of capturing OA as a duality to further understand the phenomenon in practice.

## 6.4  Conclusions

To conclude, this study's results show that mismatched activities and unplanned work are central in managerial work and important to understand OA in practice. In a context where managerial work includes several roles, with both explorative and exploitative focuses, it appears as if OA is important to understand as a duality. Thus, analysis and reflections according to the interplay between the two intertwined logics of exploration and exploitation need to be done based on the single manufacturing SME's context.

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