THE STRATEGIC ROLE OF PROCESS MANAGEMENT IN SMEs

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ABSTRACT

Literature indicates a greater use of process management in large companies than in small and medium-sized enterprises (SMEs). SMEs are a major contributor to the global economy, and just like large companies, SMEs face challenges such as a need to respond promptly and effectively to their business environment, despite having limited resources.

Practitioners and researchers within process management refer to a trade-off between the operative support that process management provides and the strategic ability of organisations to be flexible in response to their environment and customer requests. The strategic role of process management has not been highlighted in depth in the literature. Hence, the use of process management and its strategic role in SMEs is a research gap which needs to be investigated. This research should include approaches to process management that support the fulfilment of strategic goals without compromising flexibility.

The purpose of this dissertation is to enhance the understanding of the strategic role of process management in SMEs. To address this purpose, two research questions were designed. The first research question explores how the fundamentals of process management contribute to the understanding of the strategic role of process management. The second research question explores and analyses the conditions of SMEs and suggests how process management could be adapted to be used in SMEs.

This dissertation includes a longitudinal study, with an action research approach, conducted at two companies. This approach provided a deep understanding of the companies and a strong connection between research and managerial usefulness.

The results of the dissertation suggest a need for a contingent approach to process management where the activities that lead to competitive advantage are identified. This identification, together with a connection to the strategic goals of the organisations can then be the basis for determining the need for process development of the organisation. In this way, process management efforts can be focused on processes that lead the organisations to gain competitive advantage. Hence, with the connection to competitive advantage, the strategic goals of the organisations and the continuous improvement principle of process management enhance the understanding of the strategic role of process management.

The contribution of this dissertation is primarily in the field of process management, by providing results and analyses that support its strategic relevancy in general and specifically for SMEs. A dynamic capabilities lens has been used to enhance the connection between competitive advantage and the strategic role of process management. This dissertation also contributes to research into dynamic capabilities, by providing concrete examples of the interpretation of dynamic capabilities and a connection between dynamic capabilities and a managerial approach such as process management. The context of this dissertation includes environmental sustainability as a societal need to be addressed by the road freight transport (RFT) business sector, constituted mostly by SMEs. RFT companies, in particular SMEs, have limited resources and simultaneously need to be responsive to various and challenging customer demands. The use of this context enabled the inclusion of examples and analysis with a managerial contribution for, but not limited to, RFTs.
SAMMANFATTNING

Enligt litteraturen används processledning i större utsträckning av stora företag än små och medelstora företag (SME). En stor del av den globala ekonomin upprätthålls av SME:er. Dessa företag står inför utmaningar såsom att ta vara på möjligheter och reagera snabbt och effektivt på förändringar i omgivningen, samtidigt som de har begränsade resurser.

Praktiker och forskare inom processledning hänvisar till avvägningen mellan det operativa stöd som processledning kan ge och organisationers strategiska förmåga att vara flexibla gentemot sin omgivning och kundernas önskemål. Processledningens strategiska roll har inte lyfts fram i litteraturen. Därför är användningen av processledning och dess strategiska roll i SME:er ett gap inom forskningen som behöver undersökas. Dessutom saknar litteraturen tillvägagångssätt för processledning som stödjer den strategiska måluppfyllelsen utan att kompromissa med flexibiliteten.


Avhandlingen baseras på en longitudinell studie genomförd tillsammans med två företag, som har utförts med en aktionsforskningssansats. Tillvägagångssättet gav en djup förståelse för företagen och en stark koppling mellan forskningens resultat och nyttan för verksamheten.


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“Success is a journey, not a destination. The doing is often more important than the outcome.”

- Arthur Ashe

The journey for my PhD was filled with lessons, cooperation, laughs, some tears, and wonderful people without whom I would not have reached my destination. I want to take this opportunity to thank all those people who contributed to my journey.

I want to express my gratitude to The Kamprad Family Foundation for Entrepreneurship, Research & Charity, who believed in my research and financed both research projects.

I am sincerely grateful to the people from the case companies. They opened the doors to their organisations from the first meeting and let us learn from them. I especially thank all the people who participated in project meetings. I learned so much from all of you and I thank you for those lessons, for your charisma, and for all the laughs we have shared.

I would also like to express my gratitude to Lars, Mats, Mattias, Daniel and Ida, who contributed along the way with constructive input on previous versions of my work. I also thank my colleagues at the LQ and LiU for all their support, contributions, and jokes. It is an honour to work with such amazing and brilliant colleagues.

I want to especially thank my mentors and friends, Maria and Peter. You have been my guide through the entire journey, taught me, supported me, encouraged me and inspired me all the way. I am incredibly thankful for everything and without you this journey wouldn’t have been as fun. This journey has now come to an end, but I hope it is just the first of many research journeys together.

My parents were always a constant inspiration and example for chasing my dreams. Thank you, Mom and Dad, for giving me the strength and the courage to reach for the stars. Caro, Patry, Tita and the rest of my family, thank you for listening to me, for letting me annoy you now and then and for encouraging me every time. Caro thank you for your beautiful design for the cover, no one could have gotten me the way you did. Lena and Kenneth, my bonus parents, you have encouraged me, cared for me and loved me since day one, thank you!

A lot of people along the way helped me conserve my sanity (or at least tried). Thank you to all my friends who patiently listened to me and passionately encouraged me to continue my journey. Emily, Marina, Mariana, Pamela, Mariela, Maritza, Hanna Stina, and Camilla, thank you and your families for your advice, for all the great times, the reels spamming and for making sure I kept healthy both physically and mentally.

Antonia and Alexander, you asked many times when “my book” would be ready, well, here it is. This book may not be the kind of book we would read at bedtime, but it is a book written for you. You are my strength and my everything and I hope God gives me life to see you grow up and chase your own dreams.

Christoffer, my partner in crime and soulmate, for you a thank you is not enough. You have been my cheerleader, my punching bag, my pillow to cry on and my most honest critic. Thank you for always being my rock. You and me!

And to all others who have contributed to this dissertation, in one way or the other, thank you!

Sincerely,

Priscilla
# ABBREVIATION LIST

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>DC</td>
<td>Dynamic capabilities</td>
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<tr>
<td>GL</td>
<td>Green Logistics</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organisation for Standardisation</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<tr>
<td>RFT</td>
<td>Road Freight Transport</td>
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<tr>
<td>SIQ</td>
<td>Swedish Institute for Quality</td>
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<tr>
<td>SME</td>
<td>Small and medium-sized enterprises</td>
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<tr>
<td>SQMA</td>
<td>Swedish Quality Management Academy</td>
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<td>QM</td>
<td>Quality Management</td>
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</tbody>
</table>
CONTENTS

ABSTRACT .......................................................................................................................... III
SAMMANFATTNING .......................................................................................................... IV
ACKNOWLEDGEMENTS ................................................................................................. V
ABBREVIATION LIST ....................................................................................................... VI
CONTENTS ........................................................................................................................ VII
LIST OF TABLES AND FIGURES ..................................................................................... X
LIST OF APPENDED PAPERS ........................................................................................... XI

1. INTRODUCTION ........................................................................................................... 12
   1.1. BACKGROUND AND RESEARCH PROBLEM ..................................................... 12
   1.2. POSITIONING MY RESEARCH .......................................................................... 14
   1.3. PURPOSE AND RESEARCH QUESTIONS ......................................................... 15
   1.4. DELIMITATION AND SCOPE ........................................................................ 17
   1.5. OUTLINE OF THE DISSERTATION .................................................................. 18

2. FRAME OF REFERENCE ................................................................................................. 19
   2.1. QUALITY MANAGEMENT .................................................................................... 19
       2.1.1. What is quality management? ...................................................................... 19
       2.1.2. A modern view of quality management ...................................................... 20
   2.2. PROCESS MANAGEMENT .................................................................................. 20
       2.2.1. Definition .................................................................................................. 20
       2.2.2. Fundamentals of process management ....................................................... 21
       2.2.3. Process management implementation ....................................................... 27
   2.3. DYNAMIC CAPABILITIES ................................................................................. 30
       2.3.1. Definition .................................................................................................. 30
       2.3.2. Key elements of dynamic capabilities ........................................................ 30
       2.3.3. Capabilities hierarchy .............................................................................. 31
       2.3.4. Long-term sustained competitive advantage .......................................... 32
       2.3.5. Microfoundations for dynamic capabilities .............................................. 32
       2.3.6. Dynamic capabilities and strategy ............................................................ 37
   2.4. LINKS BETWEEN PROCESS MANAGEMENT AND DYNAMIC CAPABILITIES ....... 39
   2.5. SMALL AND MEDIUM SIZE ENTERPRISES (SMEs) ......................................... 39
       2.5.1. Process management in SMEs .................................................................. 41

3. RESEARCH METHODOLOGY ....................................................................................... 43
   3.1. RESEARCH APPROACH ..................................................................................... 43
   3.2. ACTION RESEARCH .......................................................................................... 44
       3.2.1. What is action research? ............................................................................ 44
       3.2.2. The researcher’s role ................................................................................ 45
       3.2.3. My action research approach .................................................................... 46
   3.3. THE LITERATURE REVIEWS .......................................................................... 50
   3.4. THE LONGITUDINAL STUDY ......................................................................... 51
       3.4.1. Phase I ....................................................................................................... 51
       3.4.2. Phase II ..................................................................................................... 52
       3.4.3. The case companies ................................................................................. 53
   3.5. THE DATA COLLECTION METHODS .................................................................. 53
       3.5.1. Interviews .................................................................................................. 53
       3.5.1. Observations ............................................................................................. 54
LIST OF TABLES AND FIGURES

Figures

Figure 1. Fundamentals of process management ................................................................. 26
Figure 2. Process management maturity model ................................................................. 29
Figure 3. Capabilities hierarchy .......................................................................................... 32
Figure 4. Foundations of dynamic capabilities and business performance ....................... 34
Figure 5. Continuous improvement as dynamic capability ................................................ 38
Figure 6. Timeline for the longitudinal study ...................................................................... 44
Figure 7. Action research model ......................................................................................... 45
Figure 8. A model of knowledge creation through interactive research. .......................... 45
Figure 9. Methods in management research ...................................................................... 46
Figure 10. Applied action research model ......................................................................... 48
Figure 11. Applied action research model (continuation) .................................................. 48
Figure 12. Data collection for phase I ................................................................................ 52
Figure 13. Data collection for phase II ............................................................................. 52
Figure 14. Organisational structure of Company A ........................................................... 66
Figure 15. Organisational structure for Company B ........................................................... 72

Tables

Table 1. Interpretation of microfoundations........................................................................... 35
Table 2. Different roles of management in entrepreneurial leadership ............................... 40
Table 3. Action research approach of my dissertation ....................................................... 49
Table 4. Action research approach of my dissertation (continuation) ................................. 50
Table 5. Literature reviews for the dissertation ................................................................ 51
Table 6. Search string for additional narrative literature reviews ..................................... 51
Table 7. Interview summary for the study ......................................................................... 55
Table 8. Summary of study visits and meetings for the longitudinal study ....................... 56
Table 9. Summary of workshops and joint meetings .......................................................... 58
Table 10. Comparison of Company A before and after process management .................. 70
Table 11. Comparison of Company B before and after process management ................... 74
Table 12. Contributions of the papers to the research questions of the dissertation .......... 75
Table 13. Fundamentals and their connections to the strategic role of process management .. 96
LIST OF APPENDED PAPERS

The complete versions of the following papers are appended to this dissertation. Section 5 presents an extended summary of the papers. For papers II – V, the analyses were done by the authors jointly.

Paper I
DOI: 10.1108/IJQSS-02-2020-0029

Paper II
DOI: 10.1080/16258312.2018.1486141

The design of the paper was done jointly by all the authors. I was responsible for the design and conducting the data collection. All content revisions were completed jointly.

Paper III

I contributed to the design and performed the empirical data collection. All the authors jointly revised and rewrote the manuscript.

Paper IV

I was the main person responsible for the design of the paper, the literature reviews, the development of the first draft of results and analysis of the manuscript. All the authors revised and rewrote the manuscript.

Paper V

I am responsible for the original idea and design of the paper. I also designed and conducted the initial data collection. The literature review and data collection from the workshops were developed by both authors. Both authors revised and rewrote all sections of the manuscript.
1. INTRODUCTION

This chapter introduces the main topic of the dissertation. First, I present the background for the dissertation, with the problematisation that leads the purpose of the dissertation. The purpose was achieved by answering two research questions, also presented in this chapter. In this chapter I also introduce key concepts that form the core of the dissertation. Finally, the chapter presents the outline of the dissertation.

1.1. Background and research problem

This dissertation is about understanding the strategic role of process management in small and medium-sized enterprises (SMEs). In this dissertation, process management is defined as a structured managerial approach used by many organisations with the purpose of obtaining higher quality, gaining more satisfied customers, and reducing non-conformance costs. In several business sectors, this managerial approach has proven to be an effective means for standardising operations and creating structures that everyone in an organisation can follow (Poksinska et al., 2003; Palmberg, 2010). However, process management has previously been criticised for being too rigid and limiting innovation and flexibility (i.e. Benner and Tushman, 2003; Benner, 2009; Antunes and Tate, 2022). For an understanding of the background leading to this dissertation, I present a metaphor in the following paragraphs.

I was born and raised in Costa Rica, a country in Central America. My country is just 51 100 km$^2$ which means it could fit about nine times within Sweden’s borders. Despite its small area, it is located on not one but two tectonic plates. Specifically, Costa Rica is located between two plates, the Caribbean, and the Cocos tectonic plates. It is no wonder then that there are, on average, close to 23 seismic events per day.

As a child I remember waking up at night during a quake. I had my own room on the second floor of my parents’ house while the rest of the family slept on the first floor. It happened a couple of times, maybe more than I care to admit, that I would wake up to my father screaming from downstairs because he was worried that I was still in bed as a strong seism or earthquake was happening. How could she sleep through an earthquake, you might wonder. Well, the reason might be that seismic events are not that uncommon or maybe that I was a deep sleeper. Honestly, I blame my house. The second floor was built in such a way that would not remain completely static when a seismic event happened. Instead, it would somehow move with the movement of the seism. I am no architect so I cannot really go into details on the building structure. However, from the inside of the building, and from my irresponsible teenager perspective, I can describe the movement as soothing. The movement felt like I was sleeping in a cot while someone was peacefully and slowly rocking it.

By now you are probably wondering why I am telling you this story. Yes, I am aware that my childhood is not so interesting that I can write a dissertation on it. The reason for starting with this story is that I compare my childhood house to the way organisations should be nowadays. In this house metaphor, the house is an organisation, I am the customer, and the seism event is part of the changes in the surroundings that cannot always be controlled. Rigid structures and lack of flexibility would turn the house into ruins with a strong earthquake. In contrast, adapting to the movement would enable the house to survive these changes in its environment while conserving its integrity and structure. As a customer, I am quite happy to have the latter as I was kept safe and comfortable without any negative experience of the shaking ground due to the construction of the house. In this metaphor, the construction of the house allowed for it to be less vulnerable to its surroundings, just as organisations need to be nowadays.
Organisations usually have an organisational structure in place with a certain level of hierarchy. People within an organisation have their ways of working, routines, and approaches for achieving their goals, while avoiding a state of chaos. In some organisations, the structure surrounding those ways of working is determined by processes, which can be seen as guidelines for supporting activities so that everyone knows what to do and how to do it. The use of processes is key to process management since they support organisations in achieving clearer structures. Also, they are a ground for identifying, managing, and following up requirements to achieve customer requests and needs (Ljungberg and Larsson, 2012).

Literature shows that process management has been extensively used, but literature has mostly described the use of process management in large companies (Hellström and Eriksson, 2008; Palmberg, 2010). In contrast to other managerial approaches, interest in process management has remained high over the years (Hellström and Eriksson, 2008; Palmberg, 2010; Iden, 2012; Dumas et al., 2018). However, process management is still perceived as rigid and normative by some practitioners, who opt not to introduce it into their companies. Historically, large companies are more likely than small companies to opt for certifications such as ISO which leads them to incorporate elements of process management to obtain structure, standardisation and traceability (Pokinska et al., 2003). Moreover, large companies may see a clear benefit in this managerial approach by providing them structure and a way to standardise their working practices, enabling them to achieve the desired results despite the number of employees, departments, and facilities (Weitlaner and Kohlbacher, 2014).

Rummler and Brache (2013) explain that process management provides a managerial approach to organise companies with a systemic perspective. Process management provides companies with ways to achieve their performance goals through constant monitoring, analysis and improvement (Dumas et al., 2018). Following this line of thought, all companies should be aware of their surroundings and adapt to their environment, and especially their market (Rummler and Brache, 2013). Rummler and Brache (2013) explain that organisations without this systemic perspective and drive to adapt are more likely to cease to exist.

In contrast to the practices of large companies, the use of process management is not as common in SMEs (Weitlaner and Kohlbacher, 2014). SMEs usually opt for more informal managerial approaches, with less structure and a higher degree of trust. Davenport (2015) explains that there is a historical antipathy from the people that develop the activities (employees) towards formalised processes. The author further explains that structures are seen by employees as bureaucratic and a procedural annoyance. SMEs might thus associate process management with an idea that they would lose the flexibility that characterises them (Weitlaner and Kohlbacher, 2014). This makes understanding process management and everything that its use entails for SMEs an interesting topic for research.

The World Economic Forum refers to SMEs as the backbone of the global economy, since they represent 90% of all companies and close to 70% of jobs and GDP globally (WEF, 2022). SMEs constantly face challenges in terms of their size, their resource availability, increases in stakeholders demands (e.g. environmental sustainability and social sustainability), and business continuity. This clearly indicates the importance of SMEs being successful. SMEs require tools and managerial approaches for their development and operations that support them in not only surviving but generating competitive advantages that allow them to be a success. Several researchers explain that one of the purposes of process management is to manage and improve business processes to achieve not only customer satisfaction but also long-term sustained
The traditional view of process management is that it is quite static. In this view, processes are dogmas, leading to static processes that risk dying in documentation. Process management has long been criticised for leading organisations to compromises in terms of the flexible use of their resources and their efforts towards innovation. More specifically, Benner and Tushman (2003) refer to a risk of organisations getting trapped in trying to overcome challenges while limiting themselves to their own standardisation and stifling creativity and innovation. Hence, a need for flexibility in the design of business processes has emerged (Rosemann et al., 2008). Antunes and Tate (2022) mention a trade-off between the support that process management can provide organisations in reaching their goals and the flexibility the company can have. The authors explain that a highly structured system is presumed to provide a high level of process support but low flexibility. On the other hand, a highly unstructured system is presumed to lead to better capabilities for flexibility and low support. Their findings reflect the consideration of practitioners in SMEs that a highly structured system in their organisations may risk their ability to be flexible and respond to their environment and the requests of their customers (Weitlaner and Kohlbacher, 2014).

Ljungberg and Larsson (2012) explain that process management provides structure to companies, based on a process orientation approach. Some researchers explain that processes alone cannot provide organisations with the benefits from the use of process management (e.g. Ljungberg and Larsson, 2012; Chión et al., 2019). Ljungberg and Larsson (2012) mention continuous improvement as key for generating benefits from using process management. Continuous improvement, together with other fundamentals from process management can contribute to understanding its strategic role for organisations. Moreover, this understanding is important to determine the adaptations needed by process management to support organisations without negatively affecting their flexibility.

Considering the needs of SMEs, it is important to investigate ways in which process management can support them to become successful without limiting their capability to be creative, innovative, and flexible to requirements and expectations from their customers. Returning to the metaphor, SMEs need to build houses that can give them stable structures while not restricting their reactions to the movements of their business environments. That is what will help them to remain standing after strong seismic events.

1.2. Positioning my research

Vom Brocke et al. (2021) mention that small organisations may require a different approach to process management than that used by large companies. Moreover, as explained by several researchers, all organisations need to be aware of their business environment and react promptly to survive in the market (e.g. Lombardi et al., 2020; Usman et al., 2020; Magd and H.J., 2021; WEF, 2022; Lepistö et al., 2023). Researchers highlight the importance of SMEs in the global economy and their contribution to factors of high global priority, such as sustainable development (e.g. Magd and H.J., 2021; Lepistö et al., 2023). For this reason it is important for SMEs to be able to react to their environment in ways that can lead to their success. Moreover, they require managerial approach to support them. Returning to the house metaphor, we can compare the need for SMEs to react to their environment to the need for the house to have more

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1 For this dissertation, the term long-term sustained competitive advantage is interchangeable with “sustainable competitive advantage”. The term refers to competitive advantages that can last in time. This interchange is done to avoid confusions due to the inclusion of environmental sustainability in the study.
flexibility in its foundations to avoid becoming a ruin by trying to maintain its structure during a seismic event.

Process management, with its structure and intended process improvement, could be a potential managerial approach to be used by SMEs. Hence, there is a need for process management to have higher context awareness and perform adaptations that increase its usability (Rosemann, 2014). Moreover, while the tactic and operative roles of process management have been presented in literature its strategic role is scarcely mentioned. The strategic role in this dissertation is seen as, but not limited to, the potential to manage organisation to set a direction and ensure the fulfilment of the organisations’ future plans.

My dissertation focuses specifically on the research gap of the need to understand the strategic role of process management. Moreover, this dissertation contributes to the research gap of how process management can be used in SMEs while allowing long-term sustained competitive advantage. My dissertation intends to contribute to an enhanced understanding of the strategic role of process management in general and to outline adaptations to process management that enhance its usability by SMEs. Hence, the purpose and research questions are presented below.

1.3. Purpose and research questions

The main interest of the dissertation is on process management and its use for SMEs. I am particularly interested in a more dynamic view of process management. In this view, process management supports the achievement of operational goals while also supporting innovation and flexibility. Continuous improvement is also seen in this dissertation as one of the key ingredients of process management, required for it to have this dynamic view. Moreover, continuous improvement is viewed as an intentional change and a means for gaining competitive advantage. Based on this view and the background presented above, the purpose of the dissertation is:

To enhance the understanding of the strategic role of process management and its usability in SMEs.

To achieve this purpose, it is important to return to a basic concept, namely strategy. Strategy is not the focus of this dissertation; however, its definition provides relevant knowledge for understanding the purpose and the design of the research questions. For this reason, it is briefly explained here.

Strategy, in management, is a concept that has been studied by several scholars. Strategy can basically be defined as plans and actions undertaken by an organisation to achieve its goals and objectives in the long term (e.g. Mintzberg and waters, 1985). Three perspectives for looking at strategy are presented by Sandberg and Abrahamsson (2011), who explain that these three perspectives should be seen as complementary rather than substitutions for one another. The first perspective is based on the view presented by Porter (1985). Porter (1996) defined strategy as “the creation of a unique and valuable position, involving a different set of activities” (p. 68). In this view, strategy is about making choices that differentiate an organisation from its competitors to gain competitive advantage. Competitive advantage in this view are advantages that are preserved over time.

Later, Barney (1991) and Grant (1991), among others, referred to the second perspective, wherein the resources of the company are what generate competitive advantage. Strategy is then the choices that an organisation makes to generate competitive advantage using their resources and ensuring they are unique and difficult to imitate, among other things. Barney (1991)
presents competitive advantage as something that should not only last over time but also be difficult to be copied, imitated, or competed away.

The third and final perspective takes a more dynamic view by attributing greater importance to the surroundings of the organisation. This perspective, presented by Teece and Pisano (1994), is rooted in the suggestion that it is not enough to have resources that are unique and difficult to imitate; they also require transformations and reconfigurations to translate into competitive advantage. Hence, competitive advantage requires the resources and capabilities of an organisation to be transformed over time for the competitive advantage to be considered sustainable.

Process management has been widely studied in the past and benefits from its use have been presented by several researchers. However, much of the literature provides the means to understand process management mainly from an operative point of view. Nonetheless, fundamentals and tools within process management suggest a potential for a more relevant role for this managerial approach in terms of its strategic value. Hence, there is a need for a better understanding of what such a role can represent for process management. Therefore, RQ1 is designed as follows.

**RQ1: How can the strategic role of process management be understood?**

From the three perspectives of strategy, a key concept is that of competitive advantage, which is in turn the purpose of having a strategy. For this reason, when performing this study to understand the strategic role of process management, I needed to identify which activities, resources or capabilities lead organisations to gain competitive advantage. Moreover, as indicated in previous sections, the understanding of SMEs and finding methods to support their survival is of particular interest for the global economy. Hence, the following research question.

**RQ2: How can process management be adapted to fit SMEs?**

This research question is intended to make a strong contribution to the connection between theoretical and practical aspects of the use of process management by SMEs. First, by determining challenges and opportunities for the use of process management in SMEs to further understand the compatibility of SMEs and process management. Second, to provide suggestions on adaptations to increase the usability of process management for SMEs.

The study comprises a longitudinal case study at two companies which increased my understanding of the companies and allowed the identification of such sources of competitive advantages. With this question, I am interested in investigating more practical adaptations needed for process management. These adaptations aim at giving companies the flexibility required to fulfill both customer and societal needs, specifically for SMEs.

Once these resources, activities and capabilities are identified, it is possible to analyse them in terms of their connection to process management and their strategic importance. To identify their strategic importance, I study their potential to generate and sustain competitive advantage. For this study, I use a theoretical lens building on strategy literature, more specifically I use dynamic capabilities (DC) as a strategic lens. I previously referred to three perspectives for defining strategy and mentioned that they are built on each other and should therefore be seen as complementary (e.g. Sandberg and Abrahamsson, 2011). Gutierrez-Gutierrez and Antony (2020) explain that the dynamic capabilities perspective emerged from the other two views of strategy with consideration of the dynamic and turbulent business environments that surround organisations. These authors further explain, from a quality management perspective, that DC is among the most established theories used to explain long-term sustained competitive
advantage and how organisations can generate and sustain it. This is part of the reason for selecting this perspective to identify connections between process management and strategy. This leads to the strategic role of process management.

To understand this strategic role with the support of concrete examples, I study different fundamentals of process management from a dynamic capabilities perspective – for example, the striving for continuous improvement, the involvement of all employees, customer focus orientation and management commitment. I also study tools within process management that could support the generation and sustainment of competitive advantage. Examples of these tools include process mapping, process support documents and qualitative analysis.

To answer these research questions and achieve the purpose of this dissertation, I perform the analysis with special consideration of, but not limited to, environmental sustainability. In this dissertation, environmental sustainability is considered a strategic goal due to its societal relevancy. This strategic goal, together with resource availability and the proportion of SMEs constituting the market, are the reasons for the choice of the context for this dissertation. This context selection is briefly explained in Chapter 3. This is followed by Chapter 4, which includes a further explanation and description of the context and case companies.

Besides the contribution to process management, my intention is to also contribute to the field of dynamic capabilities by investigating the potential for process management to support long-term sustained competitive advantage at SMEs in the road freight transport sector. Long-term sustained competitive advantage refers to assets, resources, capabilities or characteristics that enable an organisation to deliver superior compared with its competitors (e.g. Teece, 2014a).

1.4. Delimitation and scope

From the Total Quality Management research field, the dissertation focuses specifically on process management. Moreover, the concept of sustainability involves a triad including economic, social and environmental sustainability (Brundtland, 1987). Process management’s fundamentals allow it to influence the enhancement of economic sustainability (Palmberg, 2010). My research, however, is focused on the aspect of environmental sustainability as a strategic goal for SMEs.

A clarification must also be made concerning the context of this dissertation. The study is centred on road freight transport companies striving for environmental sustainability. Road freight transport can be described as a subset of logistics. A known concept among logistics academics and practitioners is green logistics. This term is used in most of the appended papers and is used in this dissertation to refer to logistics activities in terms of environmental sustainability.

Green logistics involves many activities to reduce the environmental impact of logistics, from the recycling of materials to the development of electric vehicles (McKinnon, 2010). My dissertation focuses on the managerial aspects of green logistics using the context of road freight transport companies. Furthermore, this dissertation is limited to the context of small and medium size companies of the road freight transport sector.

Research on dynamic capabilities is mostly centred within organisations and several researchers have identified the need to investigate the opportunities of DC between organisations (Defee and Fugate, 2010; Mitrega et al., 2012; Sandberg et al., 2021). Mitrega and Pfajfar (2015) mention the possibility of process management focusing on business relationships in order to generate dynamic capabilities that concern external parties to the organisation. The authors suggest that this approach could improve the performance of supplier relationships. In this dissertation I prioritise the internal processes of the companies. Certain aspects included in this
dissertation have their grounds in the companies’ collaborations with suppliers, customers, and governmental entities. They are included due to their effect on the internal operations and strategic choices. The scope of this dissertation does not, however, include the perspectives of the external actors in these collaborations. It is limited to the internal efforts of the case companies, the purpose of the interactions and the effect of those interactions.

1.5. Outline of the dissertation

This dissertation is presented with a compilation summary, followed by five appended papers. The dissertation is divided into seven chapters. Chapter 1 presents the introduction of the dissertation, including the problematisation that led to the purpose and research questions of the dissertation. Chapter 2 presents that frame of reference, with the concepts and theoretical perspectives surrounding the dissertation. Chapter 3 describes the methodology used for the research. Chapter 4 follows with a presentation of the context of the dissertation and a summary of the cases, including information from the case companies. An overview of the appended papers is included in Chapter 5. The analysis of the dissertation is found in Chapter 6. Finally, Chapter 7 features the answers to the research questions and the purpose of the dissertation, followed by a proposed research agenda and contributions of the dissertation to academia and practitioners.
2. FRAME OF REFERENCE

In this chapter I include the theoretical grounds for my research, first by presenting relevant literature for process management. I include literature on the implementation of process management as a basis for identifying the required adaptations for SMEs. Additionally, I present relevant literature on dynamic capabilities to understand the lens used for studying process management. This section also includes an explanation of long-term competitive advantage, which is considered a strategic goal for organisations. Finally, I present literature found in the intersection of process management and dynamic capabilities, which is a basis for understanding their relationship.

2.1. Quality Management

The main subject of this dissertation is process management. However, I briefly present Quality Management (QM) in this frame of reference since process management is a methodology included in QM.

2.1.1. What is quality management?

Process management has its theoretical roots in quality management (QM) and it is seen as one of its central elements (Hackman and Wageman, 1995; Hellsten and Klefsjö, 2000). Stravinskiene and Serafinas (2020) explain that process management is not usually seen as an independent managerial discipline. Rather, it is seen as a connection to QM. Hence, I present QM as an introduction to process management in this frame of reference.

QM is a research field which was born from the need to produce high quality goods with limited available resources (Dahlgaard-Park, 2011; Soltani et al., 2008). In the past, QM has been referred to as “Total Quality Management”. This inclusion of the word “total”, as explained by Weick (2000), has a more static view of the world. The word “total” was removed for this reason, since according to Bergman et al. (2022), QM relies on six cornerstones. They are 1) customer focus, 2) continuous improvement, 3) fact-based decisions, 4) getting everybody on board, 5) committed leadership and management and 6) focus on processes. These six cornerstones are also founded on the application of system thinking. Moreover, within QM there are several methodologies and tools that have been developed over the years to achieve higher quality, more effective use of resources and, for some decades now, higher customer satisfaction (e.g. Hellsten and Klefsjö, 2000). Some of these methodologies have been revisited in the past with a view to satisfying customers and society – for example through enhancing environmental sustainability. Some of the applications of QM for sustainability include applications of the Lean philosophy (Sawhney et al., 2007; Carvalho et al., 2011; Green et al., 2019), the development of quality management systems with consideration of sustainability (Savino and Mazza, 2016), and the use of quality management for sustainable product design (Siva et al., 2018).

QM focuses on quality which, as mentioned by Martin et al. (2020), can be defined from several perspectives. Martin et al. (2020) performed a study on the meanings of quality and developed a definition which is modern and supports sustainable operations. The authors explained that quality can be defined from four perspectives. The first two perspectives are quality as customer value and quality as agreed delivery. These perspectives are studied from the standpoint of a single actor and relate to a more traditional view of QM. The authors explain that two other perspectives have a scope that includes multiple interested parties – quality as ecosystems
integration and quality as a society values. These perspectives belong to a more modern view of QM.

### 2.1.2. A modern view of quality management

Deleryd and Fundin (2020) and Gremyr et al. (2020) refer to a QM that is merging from a narrow scope to one where multiple stakeholders should be included. Deleryd and Fundin (2020) mention the need for management models to be further developed so that they are capable of managing the challenges that companies face nowadays. These authors present the emergence of a more developed form of quality management, namely Quality 5.0. This quality concept explains a shift in the quality management movement from identifying and fulfilling customer requirements to one in which societal satisfaction is also involved. Sustainability is mentioned by these two authors as one of the main requirements for societal satisfaction. Other studies reinforce this finding, referring to a need to revisit the methodologies and tools included within QM in order to be able to support companies in dealing with the current requirements (e.g. Fundin et al., 2020; Hallencreutz et al., 2020). Fundin et al. (2020) present a research agenda, as a mission from the Swedish Institute for Quality (SIQ). This agenda establishes societal satisfaction as a priority for research, including environmental sustainability as a current challenge for companies and as a target for quality management to focus on.

Among the most popular methodologies for achieving customer satisfaction is process management, which was grounded on a focus on processes for achieving better results (see for example Deming, 1986, Deming, 1993). This methodology has proved successful in many business sectors and for diverse requirements, both latent and explicit (Palmberg, 2010; Cronemyr and Danielsson, 2013). Stravinskiene and Serafinas (2020) present process management as a means of organising companies in business processes and converting strategies into business processes for achieving consistent effective management. Process management is the methodology within QM in which this dissertation is centred, as explained in the following section.

### 2.2. Process Management

#### 2.2.1. Definition

As mentioned above, process management has traditionally focused on identifying customers’ requirements and needs, both concrete and latent, in order to translate them into output that satisfies those customers (e.g. Paim et al., 2008, Palmberg, 2009, Palmberg, 2010). The traditional needs that process management deals with include cost, time and quality. Process management has then become a managerial approach used for effectively transforming those needs into output, with the correct use of resources, while increasing customer satisfaction (Palmberg, 2010). For my dissertation I use the following definition of process.

*Process management is a structured managerial approach to continually operating and improving processes with the purpose of obtaining higher quality, by gaining more satisfied customers, and reducing non-conformance costs.*

In process management, the word *process* is a central concept which ironically lacks a standard definition. Davenport (1993), a distinguished researcher within the field, defined process as “a structured, measured set of activities designed to produce a specified output for a particular customer or market” (p. 5). More recently, Palmberg (2009b) defined process as “a horizontal
sequence of activities that transforms an input (need) to an output (result) to meet the customers or stakeholders” (p. 204). For my dissertation, I use the following definition:

A process is a chain of activities that are repeated in time and fulfil the needs from internal or external customers by transforming input into valuable output.

In this definition, the customers are the receivers of the result of the process and can therefore be internal or external to the organisation. Moreover, this definition of process applies for iterative chains of activities and not one-time-only activities. Dean and Bowen (1994) claim that organisations are constituted by sets of processes. The authors explain that processes are not only interrelated in an organisation but also require of continuous improvement to be able to satisfy customers’ needs and requirements. This is the purpose of process management, to provide a managerial approach that supports organisations in managing processes and continuously improving them to achieve customer satisfaction.

The context of this dissertation is in logistics. Therefore, it is fair to mention that in logistics, literature usually includes the word process to refer to activities or steps required to get a result, the ways of working. However, the word is not given a distinct definition as it has in the process management literature. First, in process management, processes are repetitive. Second, this repetitiveness allows for a feedback loop in the form of analysis of measurements, results and observations that are used to continuously improve the processes (Isaksson, 2016).

Process management has proven to support the more efficient use of resources in companies. However, as mentioned in the previous chapter, it has been long criticised due to possible trade-offs between the support it can provide for achieving goals and the flexibility it enables for creativity and innovation (Benner and Tushman, 2003; Benner, 2009; Antunes and Tate, 2022). Nonetheless, as explained by Balzarova et al. (2004), process management has a dynamic rather than static nature. The authors explain that process management requires efforts to continually update and improve the organisations based on the internal and external conditions surrounding them. These improvements are, however, conditional to the resources, capabilities and goals of the organisations. Vom Brocke (2021) explains that a more contingent approach is required in which the specific needs of the organisations are accounted for. This in turn can lead to the identification of processes in need of a more creativity-focused approach and those that have a higher structure-focused need. Moreover, understanding the fundamentals on which process management is based can contribute to understanding its strategic role.

2.2.2. Fundamentals of process management

Several aspects of process management can be considered as fundamentals and critical factors (Armistead, 1996; Palmberg, 2009a; Trkman, 2010; Dumas et al., 2018). Among these fundamentals are employee involvement, continuous improvement, management support, process orientation. Some of these fundamentals have proven to have an effect on the strategic choices of organisations, such as a drive towards sustainable development (Lepistö et al., 2023).

Lepistö et al. (2023) performed a study in which they tested the effect on SMEs of soft total quality management for sustainable development. In their study they found that elements such as strategic goal development, governability, identification of stakeholder management support and feedback management positively correlate with sustainable development, in terms of both the environmental and social aspects. All these elements are embedded in process management and are considered as critical factors (Balzarova et al., 2004; Palmberg, 2009b; Trkman, 2010). Moreover, Lepistö et al. (2023) provided evidence in their study that a systematic approach to process improvement is not positively correlated with sustainable development. However,
aspects related to continuous improvement in a less systematic way were considered to have a potential effect on sustainable development. More specifically, goal setting for relevant processes and stating the governability of those processes were proven to have an effect when included in the business management system. In this study I focus on six of these aspects and refer to them as fundamentals of process management.

**Organisational Structure**

Process management enables a structure that considers both hierarchy and flow to allow the prioritisation of improvement efforts and distinguishes the processes that generate direct value for the customers (Biazzo and Bernardi, 2003; Hellström and Eriksson, 2008; Kohlbacher and Gruenwald, 2011). Process management provides structures based on the process but also sees an importance in the organisational hierarchical and functional structures (Dumas et al., 2018). Several researchers among process management literature argue that with process management, organisations should transition from a traditional functional organisation to one that is entirely based on the processes of the organisation (Balzarova et al., 2004; Lockamy and McCormack, 2004; Nadarajah and Syed A. Kadir, 2016). Other researchers consider that the functional structure should not be replaced by a process structure. They argue that with process management, the organisational structure should be seen like a matrix between the functional organisation and the processes (Pritchard and Armistead, 1999; Hertz et al., 2001; Küng and Hagen, 2007). Regardless of the approach taken to the structure of the organisation, it is an important fundamental to process management (Palmberg, 2010).

Willoch (1994) explains that the hierarchical organisation enables consistency in following-up and controlling the different issues present at a company. Moreover, the hierarchical organisation creates a bridge between the different functions of an organisation (Willoch, 1994). Through process management, the organisation can combine the organisational hierarchical structure with the flow required to create value for the customer, i.e. processes (Willoch, 1994; Rentzhog, 1998; Bergman et al., 2022).

In this dissertation I consider organisational structure to be a fundamental for process management due to two main reasons. First, because the functional and hierarchical structure of an organisation support the allocation of resources and ensures that those resources can perform the activities needed for the process to give satisfactory results (Dumas et al., 2018). Second, because the purpose of process management is to continually improve the performance of organisations. The organisational structure is then key for prioritizing resources, leading the path of the organisation, supporting and encourage change in the organisation.

**Process orientation**

Kohlbacher and Gruenwald (2011) explain, based on several definitions from other researchers (e.g. Reijers, 2006), that a process orientation refers to the organisational effort required making business processes the platform for organisational structure and strategic planning (p.267). With this orientation, the functional and hierarchical structures of an organisation have less emphasis and the focus is centred on the flow and the chains of activities required for the business operations (Reijers, 2006). Several researchers present process orientation as a critical factor for a successful implementation of process management (Davenport, 1993; Hammer and Champy, 1993; Reijers, 2006; Kohlbacher and Gruenwald, 2011; Kohlbacher, 2013)

The holistic view of process management highlights the interdependency of strategy, people, processes and technology which are required to achieve the business objectives (DeToro and McCabe, 1997). Balzarova et al. (2004) explain that process-based management considers the
hierarchical and functional organisation of a company, but focuses on the processes. Furthermore, Tang et al. (2013) explain that process orientation is not only a way of working but also a way of thinking. This mindset enables employees to visualize the impact of their work and avoid functional silos (Tang et al., 2013). Process orientation integrates inputs required for the processes into outputs that satisfy and are valuable for the customer (Kohlbacher and Gruenwald, 2011; Tang et al., 2013). Ljungberg and Larsson (2012) agree that a process-based orientation implies the structurization of the organisation into processes. The authors further explain that this orientation also implies constant efforts to continuously improve those processes. A process orientation, as explained by Sever (2007), supports organisations interested in breaking down barriers, facilitates problem solving and support on increasing customer value.

Among the registered benefits from having this process orientation are the improvement in the internal and external communication, the increase in structure and standardisation, increase in customer satisfaction and a more efficient use of resources (Reijers, 2006; Sever, 2007; Kohlbacher, 2010; Kohlbacher and Gruenwald, 2011). These effects are however, linked to a customer focus in the entire company (Paim et al., 2008; Palmberg, 2009b; Palmberg, 2010; Bergman, 2016).

A process-based orientation represents certain challenges for the organisations. Balzarova et al. (2004) mention that a process orientation may represent a difficulty in managing the processes within the company since they are interrelated and do not act as silos, as they do in a static functional organisation. Moreover, the authors identify top management and key stakeholders’ support as a requirement for successful implementation of a process-based management system.

**Management**

Management engagement, support and leadership style are also important aspects of process management (Palmberg, 2009b; Trkman, 2010; Gremyr et al., 2020; Bergman et al., 2022). This applies also when striving towards strategic goals, such as environmental initiatives. Gavronski et al. (2011) found that process management can be utilised for the formalisation and institutionalisation of environmental practices into the operational routines of the organisation. Albeit they specify that top management commitment is an important requirement for this endeavour as a strategic goal. Similarly, Wong et al. (2013) argue that both, management commitment and employee involvement are part of the managerial capabilities of an organisation and are required for process management to generate competitive advantage. The authors also argue that these capabilities affect capabilities such as the strategic alignment and the IT infrastructure, which are also important for the performance and the generation of competitive advantage in an organisation. Moreover, Wong et al. (2013) explain, based on Mata et al. (1995) that managerial capabilities are valuable for organisations since they are capabilities that are difficult for competitors to imitate.

Balzarova et al. (2004) present several critical factors for the implementation and use of process management that influence its effect on performance. First, management should allow sufficient time for the evolution from a functional management to a process-based management. During this evolution, the authors explain that it is important for management to assemble and motivate key stakeholders. Moreover, Balzarova et al. (2004) explains that management should ensure a good communication among the organisation, involvement from the employees and motivate the employees for the use of process management. Also, Balzarova et al. (2004) explains that management should ensure that the performance of the organisation is measured and analysed to identify improvement needs and opportunities. Moreover, the measurements should be linked
to the goals of the organisation, which should be clear for all employees to have a shared understanding of the purpose of the organisation (Balzarova et al., 2004).

Several researchers have found that entrepreneurial leadership and good governance are positively related to process management (Gupta et al., 2004; Usman et al., 2020). The authors explain that process management has historically had a focus on operational performance, but the involvement of entrepreneurial leadership and good governance allows for better compatibility between the real status of the company and its goals (Gupta et al., 2004; Rodriguez Ferradas et al., 2017).

Usman et al. (2020) explain that leaders at SME should have a motivational and inspirational role besides the guiding, diplomatic and encouraging roles, among others. The authors explain that a leadership style with a focus on innovation and continuous improvement can have a contagious effect through the company. Moreover, Anand et al. (2009) explain that the leadership style is key for improvement. The authors mention that management should motivate, inspire and encourage the employees to strive for improvement (Newman et al., 2018). In SMEs this can be critical for creating a continuous improvement culture, at the same time it can be facilitated by proximity among the employees. Furthermore, Anand et al. (2009) explain that the alignment between organisational goals and the strategic orientation of an organisation can be facilitated if top management involves lower levels of management in the formation of objectives for their respective areas.

**People**

Employee involvement is also one of the fundamentals for process management. In process management, as in QM, everyone should be involved. Wang (2004) states that in process management all employees should have responsibility for their own work. Deming (1993) explain that people involvement is an important concept for process management.

Anand et al. (2009) make the distinction that managerial approaches that provide organisational structure involving a top-down strategy planning are poorly suited for the development of dynamic capabilities. The authors explain that in these systems, the responsibility of the formulation and implementation of the organisational strategy relies on top management only. Process management strives for the involvement of all employees. Employees are involved from the start in the design and development of the processes, including the establishment of metrics that can affect the outputs of the processes and that can work as a way to monitor their performance (Palmberg, 2009a; Palmberg, 2009b; Abdulkader et al., 2020).

**Knowledge**

In the implementation and use of process management, it is important to understand the role of knowledge. Knowledge is a critical factor for an organisation to be successful (Lombardi et al., 2020; Biloslavo and Lombardi, 2021) and is an element that can affect a company’s potential to achieve long-term sustained competitive advantage (De Luca and Cano Rubio, 2018). Zheng et al. (2010) explain that knowledge is a determinant, together with performance, in the obtention of competitive advantages and state that having an appropriate approach to manage knowledge can increase organisational effectiveness, when aligned with organisational culture, the organisational structure, and the strategy of the organisation.

Nonaka and Takeuchi (1995) explain that knowledge is created through the conversion and sharing of explicit and tacit knowledge. The explicit knowledge is available to everyone and can be included in process maps, training material, instruction manuals, policies, courses, and so on. Tacit knowledge comes from experiential learning and it is more focused on the
individual. Nonaka and Takeuchi (1995) explain that the acquisition of knowledge is possible by enabling the tacit knowledge to be translated into explicit knowledge and to allow the explicit knowledge to lead to more tacit knowledge.

Several researchers classify knowledge into different types, depending on the source. For example, Sammarra and Biggiero (2008) divide knowledge into managerial, technical and market technical, which includes know-how knowledge. The know-how knowledge leads to experiential learning which is recognised by process management as a means for empowering people to learn from their mistakes, while knowledge and knowledge transfer enable the development of processes and allow companies to have faster responses to their environment (Sammarra and Biggiero, 2008; Biloslavo and Lombardi, 2021).

Knowledge transfer is the process through which two or more parties share knowledge and learn from each other (Kumar and Ganesh, 2009). Balzarova et al. (2004) explains that working in groups provides a means for knowledge sharing which can lead to new insights and innovations. The authors state that the knowledge sharing facilities communication and awareness, which is one of the pillars for the successful implementation of process-based management. Furthermore, Keane et al. (2007) explain that process maps play a key role in the management of knowledge and the transferring from tacit to explicit knowledge. The authors explain that it is through process maps that knowledge is made explicitly available to all employees. ISO certifications can also support knowledge sharing due to the standards’ requirements to continuously improve the processes and documentation. Results from evaluations and reports are considered for the updating of the documentation, which enables knowledge to be made explicit.

**Continuous improvement**

A central concept within process management is continuous improvement. Continuous improvement is one of the pillars from QM, allowing companies to achieve better results and to gain competitive advantage. Garcia-Sabater and Marin-Garcia (2011) take a stance on Deming’s (1993) view of continuous improvement and define it as the planned, organised and systematic process of continued and incremental change (Garcia-Sabater and Marin-Garcia, 2011, p. 29). Hung (2006) explains that the importance of continuous improvement can be attributed to its contribution to the attainment of goals in an organisation. The author explains that drastic and incremental improvements contribute to an organisation becoming more efficient and effective.

Hung (2006) mentions that the process management has as aim to continuously improve business processes. By doing so, business processes can contribute to attaining the goals of the organisation. In turn, this contributes to sustaining competitive advantage over time and having alignment between the strategic goals and business operations of an organisation (Hung, 2006). Van Looy and Van den Bergh (2017) further explain that one of the main purposes of the improvement work is to generate competitive advantage that is sustained over the long term.

In processes management, processes are living entities meaning that they should be constantly changing, constantly updated and improved (Deming, 1993; CMMI Product Team, 2002; Rosemann and De Bruin, 2005; Cronemyr and Danielsson, 2013). The strive for continuous improvement from process management allows to continually improve organisations in a planned, systematic, incremental, and organised way (Balzarova et al., 2004). The improvements are process-base, considering the purpose of the processes and the strategy of the company. Then by improving each process with a connection to the goals of the organisation, it is possible to achieve strategic fit (Nadler and Tushman, 1980).
Gremyr et al. (2020) explain that the Plan-Do-Study-Act cycle is a ground for continuous improvement. Deming (1993) presented this framework known as the PDSA cycle, also known as the Deming cycle or the Deming wheel. This is a cycle with four phases: Plan, Do, Study, Act (PDSA). The purpose of the cycle is to have a systematic process for performing continuous improvements on a process, product or service while gaining valuable learning and knowledge. 

The author explains that Plan is the first step of the cycle, and its focus is on planning a change by identifying a purpose, formulating a theory, defining metrics, and putting the plan into action. The implementation of the plan is the purpose of the Do phase of the cycle – for example, developing processes or making a product. Then the performance should be analysed. This is done in the Study phase of the cycle. Study focuses on monitoring the metrics for validating the plan and identifying signs of process, signs of success, issues, or opportunities for improvement. Finally, the Act phase integrates the knowledge obtained through the other three phases of the cycle. The purpose of this is to adjust goals, adapt the methods used in the change, reformulate a theory or increase learning within the organisation. Repeating these phases as a cycle is what enables an organisation to strive for continuous improvement, by providing a way to obtain and integrate continual learning and improvement.

The previous six fundamentals are often mentioned in literature on process management as critical factors. Figure 1 presents these fundamentals, together with some of the characteristics that contribute to process management. These fundamentals are important for process management. However, the way process management is implemented in a company also have an impact in the results. Therefore, the next section focuses on the implementation of process management.

Figure 1. Fundamentals of process management
2.2.3. Process management implementation

Cronemyr and Danielsson (2013) state that the implementation of process management should be done stepwise to increase its success, based on the maturity levels of the processes. According to Röglinger et al. (2012), determining the maturity levels of processes allows for the current state of the processes to be assessed and the desirable state to be agreed. In this section, I explain three maturity models available.

There are several maturity models that can be related to process management (Rosemann and De Bruin, 2005; Hammer, 2007; Vom Brocke and Rosemann, 2010; Heller and Varney, 2013). Most maturity models include levels that vary from processes that are unstructured and poorly defined (ad-hoc) to integrated maturity, where process management becomes part of the culture of the organisation (Röglinger et al., 2012). Rosemann and De Bruin (2005), for example, present a very complete maturity model called Business Process Management Maturity (BPMM). In BPMM, three dimensions are considered to underline the level of maturity. This model is, as previously mentioned, complete and it is designed for wide practical application, although the focus of its design and development is on software and IT solutions. The multidimensionality of this model also makes comparing it with other models more complex.

Another maturity model is Capability Maturity Model Integration (CMMI). This is a model designed by the Software Engineering Institute of USA for the purpose of assessing the maturity of the processes within an organisation (CMMI Product Team, 2002). It is also intended to provide guidance on process improvement, with a focus on IT solutions and software development.

A third maturity model is presented by Cronemyr and Danielsson (2013) and further developed by Cronemyr and Huge Brodin (2019). Process management 1-2-3 is a model with certain preconditions for assessing the maturity of the processes. Moreover, three main steps are presented. The preconditions allow for an assessment of efforts that can be a ground for process management and its implementation. In this dissertation, I focus on this last maturity model. This selection is done based on the definition provided for process management by each of the models. Other models are based on the conception of business process management and grounded in the perception that processes require a deep connection to IT solutions (vom Brocke and Sinnl, 2011). My view of process management is that IT solutions can support the efforts for process orientation, and process management is an appropriate methodology to translate the business needs into IT solutions. However, the IT solutions are not a requirement, and most process management efforts needs to be in place for the IT solutions to be incorporated in a beneficial way. Moreover, the selection of this maturity model is due to its usability as both a diagnostic tool for the as-is process management efforts of a company and as a prescriptive tool to determine the desirable maturity levels for the processes of a company.

The preconditions (0.1-0.5) and implementation steps (1,2,3) for the maturity model used in this dissertation are explained below. They are mainly based on Cronemyr and Danielsson (2013) and Cronemyr and Huge-Brodin (2019). However, clarifications have been adapted from the other two maturity models.

0.1) ad-hoc: when there are no routines or controls, and there is no guide provided by any document or agreement.

0.2) Tacit agreement: when agreements are made between two or more parties without any record, discussion, or information to anyone other than the people involved. This precondition also includes informal written communication.

0.3) Spoken agreement: when there are agreements that have been discussed and other parties inside or outside the organisation have been notified. Documentation of the
agreement might be available but not in the form of routine descriptions, instructions, or policies. Examples of these agreements are the ones made during workshops, meetings and seminars, and cultural agreements.

0.4) **Policy document:** when there is a policy document that guides the routines and ways of working to provide a common idea of the expectations. Examples could be the creation of rules, policies, contracts, and statements.

0.5) **Detailed instruction document:** when there are rudimentary routine descriptions that guide employees in their tasks. These descriptions allow for a more united way of working but are not as detailed as process maps. There is no requirement for governance in the processes and no established routines for ensuring the continuous improvement of the ways of working. Examples of these documents can be checklists, bullet point lists and procedures. Once the detailed instruction documents mature into process maps with established governance, they move into the first maturity step: process development.

1) **Process development:** In this step, process governance is established. The process owner, process team and other important roles are established. The processes are designed, developed, and mapped. The personnel are informed of the establishment of the process and the personnel who will use the process are trained in it. The purpose of the process, its goals and the metrics for monitoring them are established.

2) **Process improvement:** is performed once the processes are established, and they have been functioning for certain time. This allows for data gathering in the form of measurements, results, customer feedback and improvement suggestions from employees. Once data is available, it is analysed by the process team and owner. The analysis can be done using qualitative or quantitative tools. They analyse the issues and find root causes in order to make improvements. The problems and solutions are analysed and prioritised based on the context, nature, and strategic goals of the organisation. This step includes the reduction of variation in the results due to special causes.

3) **Process control:** To begin the process control step, the process needs to be continually improved. This allows for continuous monitoring and significant improvements to be done with the goal of establishing stable processes that are adaptable and more flexible, in order to provide the organisation with competitive advantages. This level of maturity includes reductions in variation due to common causes.

From these steps it can be seen that the degree of structure of an organisation’s processes is higher for higher levels of maturity. Antunes and Tate (2022) explain that a higher degree of structure in processes might decrease the flexibility of the processes, reducing their capability to innovate. This phenomenon is also presented by Rosemann (2014) as the Maturity-Innovation conflict. The author explains that an outside-in perspective that includes business environment sensing has a more proactive approach and higher levels of process flexibility. This is more compatible with lower levels of process maturity, which have fewer structures. An inside-out perspective is then linked to a more reactive approach. This is a better fit for higher levels of maturity, with more and clearer organisational structures. These are important considerations for the implementation of process management, since it could affect the capabilities of the organisations to generate long-term sustained competitive advantage.

The following figure graphically represents the levels of maturity, combined with the levels of control and elements from process management included for each level of maturity.
Figure 2. Process management maturity model
Based on Rosemann and De Bruin (2005); Cronemyr and Danielsson (2013); and Cronemyr and Huge Brodin (2019)
2.3. Dynamic capabilities

Resources are a key factor in dynamic capabilities. Dynamic capabilities, as explained by Teece et al. (1997) and Teece (2014a), refer to the abilities of organisations to intentionally reconfigure their base of resources to generate long-term sustained competitive advantage. Long-term sustained competitive advantage is a competitive advantage that not only differentiates organisations from competitors in the long term, but is also difficult to be competed away when duplicated by other organisations. As explained in Chapter 1, the dynamic capabilities view of competitive advantage is better suited to the business environment that organisations currently face.

2.3.1. Definition

In the view of Teece and Pisano, there is a need to constantly renew and adapt those resources to the changes in the environment (Teece and Pisano, 1994; Teece et al., 1997). In other words, dynamic capabilities are about having the ability to modify the resource base of an organisation with the purpose of generating long-term competitive advantage. In the DC view, the main key to generating long-term sustained competitive advantage is the ability to modify the resources, depending on the needs of the environment. Teece (2007) explains that dynamic capabilities focus on evolutionary fitness over time instead of short-term efficiency. Definitions of dynamic capabilities include connections to process orientation. Helfat and Peteraf (2003) define dynamic capabilities as coordinated tasks that enable organisations to achieve a particular result, while Wade and Hulland (2004) present dynamic capabilities as repeatable patterns of actions. These two definitions of dynamic capabilities suggest a connection to the process perspective of DC. Plattfaut (2014) presents a framework based on these connections and explains that business processes can be considered as operational capabilities. The author further explains that the methodology for managing those processes – namely business process management – can be considered as a dynamic capability since it enables a company to generate long-term sustained competitive advantage.

Helfat et al. (2007) explain that for an organisation to really sustain competitive advantage, it should combine its resources and static capabilities with the dynamic ones. Static or operational capabilities refer to the ability to use the resources of an organisation to fulfil the organisation’s purpose. Capabilities can be seen as crucial for exploiting resources. For example, and to make the connection to the context of my dissertation, the resources of a freight transport company would refer to the drivers, the vehicles, the routes, the IT systems, etc. The operational capabilities would then refer to the ability of incorporate all these resources in a mix that allows their use to transport goods for the customers from one place to another. In addition, organisations need capabilities that allow them to generate and sustain competitive advantage in order for resources to become strategically valuable.

2.3.2. Key elements of dynamic capabilities

As mentioned in the previous chapter, Teece (2014) explains that ordinary capabilities are on a lower hierarchy level than dynamic capabilities in terms of strategic value. Teece (2018b) presents the key elements of dynamic capabilities and certain elements that can affect them. The organisation’s capabilities refer to the ability of the organisation to make changes effectively and exploit its resources. These capabilities are considered as nested elements and activities. The base of these capabilities lies in the ordinary capabilities. Dynamic capabilities are then capabilities that allow the company to modify the other capabilities with the purpose of achieving long-term competitive advantage (Teece et al., 1997; Helfat and Peteraf, 2003).
The capabilities, especially dynamic capabilities are determined by the *strategy* of the organisation and the *resources* the organisation has. For the dynamic capabilities, there resources should be difficult to replicate, valuable and unique. The capabilities of an organisation are also determined by some external elements. These external elements can affect an organisation and the way it answers to its business environment, which is the reason for their importance. These external elements are *institutions, complementors* and *rivals*.

The *resources, strategy and capabilities* of an organisation constitute a system of elements which are interrelated and together determine the competitiveness of an organisation. Teece (2018b) explains that competitive advantage is enhanced when these three elements are *aligned*. In other words, an organisation needs alignment between its strategy, its resources, and the ability to make use of those resources (capabilities). However, for the organisation to gain long-term competitive advantage it should have alignment between strategy, resources and the abilities that allow the organisation to constantly modify the ways in which its resources are used (Teece, 2018b).

Dynamic capabilities are hence the abilities to purposefully change other capabilities within the company (Helfat and Peteraf, 2009). As an example, a dynamic capability could be the ability to identify new customer requirements, even those implicit for other companies. Another example could be once those new customer requirements are identified, to capture the opportunities they represent by making the right investment choices at the right time to fulfil those requirements before competitors do. Finally, the company should ensure its future ability to scan other opportunities and to seize those opportunities. This means that they should be able to transform their resources based on the required changes.

**2.3.3. Capabilities hierarchy**

Some researchers refer to the hierarchy of the capabilities that an organisation might possess (e.g. Zollo and Winter, 2002; Winter, 2003; Teece, 2018b), dynamic capabilities included, as they are summarised in the figure below. In this figure, the lower hierarchy belongs to the ordinary capabilities. Ordinary capabilities are the abilities of an organisation to deploy and use resources (e.g. people, facilities, equipment, knowledge) to perform operational tasks for the functioning of the organisation. Ordinary capabilities can become strong ordinary capabilities when they allow organisations to achieve high levels of efficiency to the point of becoming best-practice among their competitors. However, strong ordinary capabilities have no bearing on the suitability of the output plan in the future. Teece (2018b) states that strong ordinary capabilities are not reliable as a long-term advantage, explaining that by being sources of best practice, they lend themselves to being measured and benchmarked, which in turn allows for easier replicability. Teece (2018b) mentions that dynamic capabilities are more difficult to replicate, and their purpose is to achieve competitive advantage in the long-term, namely long-term sustained competitive advantage. Hence, they belong to a higher hierarchical level.

Cepeda and Vera (2007) explain that there are several kinds of capabilities, including operational capabilities, which the authors refer to as capabilities relating to “how you earn your living” (Cepeda and Vera, 2007 p. 426). The authors present dynamic capabilities as another kind and refer to them as capabilities relating to “how you change your operational routines” (Cepeda and Vera, 2007 p. 426). The authors suggest a need to determine the interplay between dynamic capabilities and operational capabilities, arguing that the link between these two hierarchical levels of capabilities is knowledge management. As explained by Zollo and Winter (2002), the generation and evolution of dynamic capabilities requires knowledge management, in terms of knowledge articulation and codification. Cepeda and Vera (2007) further explain that operational routines are the foundation of the knowledge base of an organisation. As an
organisation operates, it learns from it experiences, which in turn allows it to renew its resource base and generate long-term sustained competitive advantage.

<table>
<thead>
<tr>
<th>Abilities that enable a company to have long-term sustained competitive advantage and are difficult to replicate.</th>
<th>Dynamic capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow attainment of best practice levels of efficiency without concern to suitability of the output plan in the</td>
<td>Strong ordinary capabilities</td>
</tr>
<tr>
<td>Ability to deploy resources to perform operational tasks.</td>
<td>Ordinary capabilities</td>
</tr>
<tr>
<td>People, facilities, equipment, knowledge, etc available for the organisations to use.</td>
<td>Resource base</td>
</tr>
</tbody>
</table>

Figure 3. Capabilities hierarchy
Based on Teece (2018)

2.3.4. Long-term sustained competitive advantage

In simple words, competitive advantage is anything that allows a company to be chosen by the customers over its competitors. This may be advantages in terms of cost, time, efficiency, or others. It is important, however, for these advantages to continue and improve over time and for them to not be replicable by the company’s competitors (Gowen and Tallon, 2005). This is what turns them into long-term sustained competitive advantages. Coyne (1986) stated that a competitive advantage should comply with three criteria to be considered a long-term sustained competitive advantage. First, the customers should be able to perceive a difference in favour of the company in respect to its competitors. Second, the company should have a capability that enables it to have the competitive advantage and it should be difficult for the competitors to imitate or obtain the same capability. Third, both the advantage and the capability should be able to endure over time. Similarly, Teece et al. (1997) explained that competitive advantage can become sustainable by being rare, hard to copy or imitate and valuable for the customer, but the capabilities used to perform that advantage must also be hard to imitate and replicate. Later, Teece (2007) presented a classification of dynamic capabilities and the microfoundations for having them.

2.3.5. Microfoundations for dynamic capabilities

There are several frameworks for DC (Zahra and George, 2002; Teece, 2007; Eriksson, 2014; Sheng, 2017; Zahra et al., 2022). One of the most commonly known, as presented by Teece (2007), is the framework I have selected for this dissertation. Teece (2007) proposed a framework for the foundations of the highest level of the capabilities: dynamic capabilities. The classification proposed for DC is sensing, seizing and transforming. The author explains that sensing capabilities are the abilities of an organisation to scan for opportunities and threats. Once those opportunities and threats are identified, the organisation can seize them by developing solutions. Finally, the third foundation presented by the author is transforming.

Transforming consists of continuously updating the tangible and intangible resources of the organisation, when needed. Dynamic capabilities require certain building blocks for them to be developed. These building blocks are known as microfoundations (Teece, 2007). The microfoundations are obtained by having certain elements in place with the organisations, in
terms of for example routines or abilities. The framework proposed by Teece is presented in Figure 4. Researchers have criticised DC by arguing a lack of coherency as a theoretical foundation due to its weak empirical support and unclear practical implications. Therefore, I present my interpretation of this framework in Table 1. I applied this interpretation to study process management and activities performed by the companies to generate and/or sustain long-term competitive advantage.

Winter (2003) highlights the importance of differentiating between a dynamic capability and ad-hoc problem-solving as two different kinds of changes. The author explains that the latter refers to unpredictable, non-repetitious and not highly patterned changes. In contrast, dynamic capabilities are patterned, planned, and usually involve routines. Moreover, the author emphasises the importance of distinguishing the type of change needed for a company. Developing and deploying dynamic capabilities can be expensive and require resources. Hence, the importance of determining whether the change requires dynamic capabilities or just ad-hoc problem-solving. Process management involves tools and metrics for constantly monitoring and evaluating the processes (Palmberg, 2009b). This can provide more information about each problem to estimate its dimension and the need for change – leading to a more educated decision on distinguishing between the need for dynamic capabilities and ad-hoc problem-solving.
Figure 4. Foundations of dynamic capabilities and business performance
Taken from Teece (2007, p.1342)
Table 1. Interpretation of microfoundations.
Based on Teece (2007); Teece (2018a)

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Microfoundation</th>
<th>Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing</td>
<td>Tools, systems, and individual skills that enable learning, scanning and analysis of opportunities in order to filter, shape and calibrate them.</td>
<td>Processes for managing internal research and development and selecting new technologies for the company. Processes for exploiting innovation from other actors, such as suppliers and competitors. Processes for exploiting developments in science and technology. Capability to embrace potential collaborators and innovation. Processes for identifying new target market segments, changes in customer needs and customer innovations. Having the ability to identify new suppliers and customers</td>
</tr>
<tr>
<td>Seizing</td>
<td>Organisational structure, routines, development, and incentives for capturing opportunities.</td>
<td>Capabilities to select the right target customers, product/service design, define and identify business models, and having mechanisms that enable value to be captured. Having processes and routines for decision making that enable: • Capture of critical moments for making decisions on innovation and investments • Avoidance of mistakes in decision making • Avoidance of bureaucratic obstacles to fast decision making and investments. Selecting company boundaries for a correct management of resources and ensuring that innovation brings benefits for the company instead of its imitators and other companies with similar ideas. This includes: • Refinement of resource uniqueness and specificity • Managing resources that cause bottlenecks for innovation. • Assessing appropriability of the innovations for the company and its strategy • Recognising, managing, and capturing other actors in the supply chain that are compatible with the company and have potential for obtaining cospecialisation Build loyalty and commitment by: • Having appropriate leadership skills • Having effective communication • Identifying non-compatible factors, values and culture among employees, suppliers, customers, and other stakeholders.</td>
</tr>
</tbody>
</table>
Transforming
Capabilities for ensuring the company is able to maintain its competitiveness by enhancing, combining, protecting its resource base. Drastic transformations can be done by reconfiguring the business’ resources.

Continuous alignment and realignment of specific tangible and intangible resources.

<table>
<thead>
<tr>
<th>Decentralisation and endurance by:</th>
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<tbody>
<tr>
<td>• Decentralising decision making</td>
</tr>
<tr>
<td>• Being open to innovation and ideas</td>
</tr>
<tr>
<td>• Developing integration and coordination skills</td>
</tr>
</tbody>
</table>

Having appropriate governance for:
• Incentive structures that enable learning and generation of new knowledge, while achieving profitable performance.
• Proactive protection mechanisms for innovations, such as intellectual property protection accountability procedures, etc.
• Protection against financial misconducts
• Attracting and retaining committed talent
• Clarifying responsibilities and goals
• Blocking depreciation of resources
• Crafting work specifications, developing corporate culture and designing reward systems.
• Obtaining managerial skills for conflict management
• Having mechanisms to avoid rent dissipation by management and employees

Cospecialisation or fit between assets or between strategy and processes. Cospecialisation makes the imitation of capabilities difficult. In cospecialisation, the usability is linked to the value of the assets. It requires managing strategic fit to enhance value.

Knowledge management is required to ensure the ability to learn, share knowledge, and capture tacit knowledge and knowledge transfer. Knowledge integration is also part of knowledge management and a key microfoundation.
2.3.6. Dynamic capabilities and strategy

Schoemaker et al. (2018) explain that dynamic capabilities are closely connected to strategy, but they are not the same. The authors suggest that having strong dynamic capabilities allows for a coherent set of knowledge and skills that are needed for seizing market opportunities and development. The strategy of an organisation is then the ways in which the organisation decides to seize those opportunities, considering the behaviour of competitors. As the authors put it, when an organisation has strong dynamic capabilities it can sense and seize opportunities before its competitors. Furthermore, they explain that dynamic capabilities enable business growth without necessarily affecting the existing activities. Moreover, the authors mention that dynamic capabilities “reside, in part, in ‘signature’ organisational processes that emerge from each firm’s unique history, investment, culture, experience, and problem-solving techniques” (Schoemaker et al., 2018, p.19). Therefore, they can be difficult to imitate. This provides a direct connection to process management, which focuses on developing, monitoring, and improving an organisation’s processes. The development of these processes is carefully done by people within the organisation who know the needs for each process and the organisation’s culture (Cronemyr, 2007; Palmberg, 2009b).

Dynamic capabilities theory approaches resource use from an organisation’s perspective – instead of focusing on the individuals, it focuses on the whole organisation (Eisenhardt and Martin, 2000; Zollo and Winter, 2002). Teece (2018b) highlights the connection between the DC framework and systems theory, which implies that an organisation should be seen as more than just the sum of its parts for it to be truly understood. Teece (2018b) explains that while dynamic capabilities are usually studied at corporate levels, they can be found even at individual managerial levels. Moreover the author explains that systems theory recognises the importance of feedback, both as a simple feedback loop and as a double feedback loop for learning (Argyris, 1977). The simple loop involves information from external changes that is used within the organisation to obtain desired results. The double feedback loop is a continuation of the single loop which allows for learning and internal alignment in the organisations. The internal alignment can also be connected with strategic fit, which as explained by Nadler and Tushman (1980), is the degree to which the needs, demands, goals or structure of a component can be matched to the ones of another component. According to Tamayo-Torres et al. (2016), strategic fit is an important element when dealing with dynamic environments and they suggest that organisations require strategic fit, both internally and externally, to sustain their competitive advantages.

Tamayo-Torres et al. (2016) also explain the importance of organisational learning from a dynamic capabilities’ perspective. The authors tested and confirmed that organisations with the capability to learn efficiently from their resources can perceive their own strengths and weaknesses in an easier way. Moreover, the authors explain that organisations can learn from their own mistakes and experiences, which can help them in generating capabilities to breed new ideas, processes, services, and products. In line with this, some researchers consider continuous improvement as a dynamic capability due to its contribution to continually making progress and achieving better results (Anand et al., 2009).

Dynamic capabilities and continuous improvement

Anand et al. (2009) take a stance on the dynamic capabilities theory and define continuous improvement as actively and repeatedly making process improvements (p.444). The authors propose that continuous improvement can be considered a dynamic capability when it includes
a comprehensive organisational context. Furthermore, the authors presented a comparison between continuous improvement and dynamic capabilities, which is reproduced below.

In the figure, Anand et al. (2009) present continuous improvement and dynamic capabilities from an organisational learning perspective. The authors emphasise that continuous improvement requires the inclusion of a coherent infrastructure in order to be considered as a dynamic capability. They explain that this infrastructure refers to having processes in place that enable a systematic, planned, and organised way of continually discovering and implementing process changes. A stronger connection between continuous improvement, processes and dynamic capabilities is drawn by the authors. They explain that the absence of processes leads companies to continually improve via ad-hoc projects, which allows competitors to imitate their efforts. In contrast, having systematic processes in place, with clear coordination and supporting activities to ensure continuous improvement in prioritising projects, preserving lessons learned from the projects and training and motivating of personnel can increase the complexity and make it more difficult for others to imitate their capabilities (Anand et al., 2009; Kohlbacher, 2013). Anand et al (2009) explain this infrastructure in terms of organisational structure and management style.
2.4. Links between process management and dynamic capabilities

Processes are no strangers to DC literature. Some researchers have previously identified the importance of routines for supporting the development of dynamic capabilities in organisations (e.g. Eisenhardt and Martin, 2000; Zollo and Winter, 2002; Winter, 2003). This connection can be found, for example, in the way dynamic capabilities are described by some researchers. Zollo and Winter (2002) describe DC as “learned and stable patterns of collective activity through which the organisation systematically generates and modifies its operating routines in pursuit of improved effectiveness” (p. 340). Similarly, Eisenhardt and Martin (2000) mention that dynamic capabilities involve specific strategic and organisational processes, which create value for firms by using resources to develop new value-creating strategies. Winter (2003) emphasises that dynamic capabilities usually involve routines to give them structure and be planned. Also, Teece (2018a) states that dynamic capabilities are supported by routines, processes and managerial skills. From these definitions and statements, it is possible to see a potential connection between dynamic capabilities and process management, especially when dealing with processes connected to innovation, development, scanning and change (Kohlbacher, 2013).

Researchers such as Bititci et al. (2010) and Bititci et al. (2011) propose that the dynamic capabilities of an organisation are dependent on the interconnectedness of the processes. They explain that higher levels of process maturity provide more adequate conditions for greater interconnectedness and higher performance levels. A proper balance between short-term performance management activities and long-term activities may provide support for a sustained organisational performance (Bititci et al., 2011). Moreover, Gutierrez-Gutierrez and Antony (2020) mention that a connection between processes and the dynamic capabilities view is based on the alignment between organisational strategic goals and process goals. The authors explain that this alignment creates a bridge between the operational results and the strategical goals which ensures that all employees work in the direction towards the organisational goals. Furthermore, Nuhu et al. (2019) explain that managerial processes can lead to dynamic capabilities through using other capabilities, such as employee empowerment and strategic flexibility.

Research into dynamic capabilities has also involved the connection between DC theory and sustainability, environmental sustainability included. In this dissertation, environmental sustainability is seen as a strategic goal for a company. Some researchers suggest that dynamic capabilities can be a determinant for innovation on environmental aspects (Jiang et al., 2018). Jiang et al. (2018) mention that processes dedicated to environmental results can be considered as dynamic capabilities: for example, processes for initiating environmental innovations, processes for proactiveness in sensing for environmental opportunities, and processes related to decision making and risk management regarding environmental efforts. In line with this, process management, coupled with a dynamic capability’s perspective, could have the potential to assist companies in enhancing environmental sustainability.

2.5. Small and medium size enterprises (SMEs)

According to the European Comission (2020), an SME is a micro, small or medium-sized enterprise. These companies create more than 85% of new jobs in Europe and are considered the engine of the European economy. These categories include enterprises that employ less than 250 persons and those that have an annual turnover of less than EUR 50 million and/or an annual balance sheet total of less than EUR 43 million. (European Comission, 2020)

SME are characterised for their entrepreneurial management style which is critical for them to survive in the market (Usman et al., 2020). This type of managerial approaches rather a more
creative way of working in which the employees are entrusted with decisions (Newman et al., 2018). Usman et al. (2020) explained that this kind of leadership involves striving for innovation, taking risks, reacting fast and taking advantage of opportunities. However, due to their size, top management is usually involved in, or at least aware of, the decision-making process.

The corporate culture is also a particularity at SMEs, where the management is available to the employees and their involvement in decisions and the operations is high (Rodriguez Ferradas et al., 2017). In these companies, the leader acts as a guide, a motivator and an inspiration source for their employees (Gupta et al., 2004; Usman et al., 2020), see Table 2.

The proximity between the employees and the management of an SME is also a special characteristic since it facilitates knowledge transfer (mostly tacit) and enhances trust (Rodriguez Ferradas et al., 2017).

Another characteristic of SMEs is the range of available skills they possess. SMEs, as previously mentioned, have limited resources, including limited or insufficient management and technical skills to overcome challenges. Thus, an important element that affects the success of SMEs is knowledge – more specifically, how well they share their experiential and explicit knowledge (Petrakis and Kostis, 2015).

External elements that affect the opportunities for SMEs to be successful include financing opportunities, policies affecting the market to which they belong, the power of their buyers and suppliers and their competitors (Porter, 2008; Mahendrawathi and Nurmadewi, 2020). Rodriguez Ferradas et al. (2017) mention that innovation is important to SMEs in achieving competitive advantage. They state that SMEs require a separation of the resources relating to day-to-day activities from the resources related to innovation practices. According to the authors, doing this is how SMEs achieve a balance between their short-term objectives and their medium to long-term objectives.

Table 2. Different roles of management in entrepreneurial leadership.
Taken from Usman et al., (2020, p.409)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Roles</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario Enactment</td>
<td>Framing the challenge (specifying high challenges but realistic outcomes for the cast of actors to accomplish)</td>
<td>Performance oriented Ambitious Informed Has extra insight</td>
</tr>
<tr>
<td></td>
<td>Absorbing uncertainty (taking the burden of responsibility for the future)</td>
<td>Visionary Foresight Confidence builder</td>
</tr>
<tr>
<td></td>
<td>Path clearing (negotiating opposition and clearing the path for scenario enactment)</td>
<td>Diplomatic Effective bargainer Convincing Encouraging</td>
</tr>
<tr>
<td>Cast Enactment</td>
<td>Building commitment (building as inspired common purpose)</td>
<td>Inspirational Enthusiastic Team builder Improvement-oriented</td>
</tr>
<tr>
<td></td>
<td>Specifying limits (building a common understanding and agreement of what can and cannot be done)</td>
<td>Integrator Intellectually Stimulating Positive Decisive</td>
</tr>
</tbody>
</table>
2.5.1. Process management in SMEs

In literature, the usability of process management by SMEs has focused on operational aspects. Moreover, process management has historically been more used on large organisations than in SMEs. Van Looy and Van den Bergh (2017) explain that while this has been the case historically, SMEs are catching up and the use of process management is increasing in these kinds of organisations. The authors attribute this increase to the impact of the fast-changing business environments.

Weitlaner and Kohlbacher (2014) explain that the implementation of process management in SMEs usually relies on top management but the interest in process management is low. They attribute this phenomenon to a lack of understanding and a belief in the uselessness of process management efforts – for example, efforts directed towards documentation and process mapping. Feldbacher et al. (2011) performed a survey on process management practices at SMEs and found that the growth of the company is an initiator for the implementation of process management. Further, they found that companies with a higher usage of technology and IT solutions had higher levels of process documentation. However, they did not find a connection between a higher use of technology and IT solutions and to the level of process maturity of the companies.

Desouza and Awazu (2006) explain that SMEs have the particularity that they do not share knowledge in the same way as large companies, and the researchers propose five peculiarities that distinguish SMEs from large companies, when it comes to knowledge. First, there is a lack of knowledge repositories, in the form of an intranet or large databases. This leads to knowledge transfer commonly being from manager to employee and not the other way. Moreover, knowledge is transferred mostly by socialising. Second, there is a dominance of common knowledge (i.e. having a similar foundation and grounding with regard to the organisation), in terms of depth and breadth. This characteristic facilitates the understanding of the happenings in the organisation and facilitates communication since everybody is aware of the functions and tasks of the others. Röglinger et al. (2012) explained that higher levels of process maturity establish explicit ways to transfer knowledge. On the other hand, lower levels of process maturity deal with a more informal means of knowledge transfer. In SMEs, for example, this knowledge transfer can happen through storytelling among colleagues from work experiences, discussions about challenges and observations (Petrakis and Kostis, 2015).

In SMEs a considerable portion of knowledge is created and transmitted through socialisation and externalisation, respectively, followed by internalization. Socialisation, according to Nonaka and Takeuchi (1995), is the process of converting experiences into tacit knowledge by verbally sharing them. Externalisation is the conversion to explicit knowledge through the sharing of experiences with peers. Internalisation is the process in which the explicit knowledge is transformed into tacit knowledge by an individual through reflection and analysis. Trust can then be considered the basis for the knowledge creation cycle. If employees trust in the competences of their peers and experience the sense that the organisation trusts in their competences, they will have a higher tendency to share their knowledge and have less fear of risks (Ferres et al., 2004; Hejase et al., 2014).

Curado and Vieira (2019) explain that employees are of great importance for the success of SMEs. Several researchers mention strengths of SMEs that are linked to their human resources (Desouza and Awazu, 2006; Petrakis and Kostis, 2015; Ali et al., 2019; Curado and Vieira, 2019; Biloslavo and Lombardi, 2021). Most of these researchers highlight the proximity between employees as a strength that can lead to more effective knowledge sharing (Petrakis
and Kostis, 2015; Curado and Vieira, 2019). Furthermore, trust is mentioned as a strength of SME and a critical factor for innovation (Petrakis and Kostis, 2015; Curado and Vieira, 2019). Trust among employees, as explained by Curado and Vieira (2019) supports knowledge sharing. Employees that trust their peers are more willing to share their experiences and learn from each other. This sharing can then be the base for improvements.

Zighan and Ruel (2021) studied the role of continuous improvement for SMEs and determined that continuous improvement efforts can provide SMEs with a more proactive approach to deal with the changes in their business environment. The authors explain that, through the prediction of future risks and by taking proactive steps it is possible for SMEs to comply with regulations and customer requirements while reacting to their business environment. According to the authors a continuous improvement approach (incremental changes instead of radical changes) is compatible with SMEs due to their limited resources, both financial and in terms of knowledge. However, as highlighted by Zighan and Ruel (2021), this type of continuous improvement relies on the premise that everyone in the company shares responsibility for the improvements. Furthermore, it requires engaged, empowered, and motivated employees.
3. RESEARCH METHODOLOGY

The dissertation was conducted using qualitative methods and action research. The data collection for the dissertation was performed using observations, document studies, interviews, and workshops. The empirical data collection was performed at two freight transport companies and during their interactions with some of their partners.

3.1. Research approach

The dissertation involves one longitudinal study, the timeline for which is presented in Figure 6. The study was divided in two phases. Phase I was the initial phase, during which I explored the potential for process management to enhance environmental sustainability in the road freight transport sector. During this phase, I developed a better understanding of the practices in the business sector. In turn, this allowed me to select a theoretical lens with potential to further develop process management. Consequently, I decided to include a dynamic capabilities perspective, which led to Phase II of the study. The data collected involved a cooperation with two case companies using action research. I used this data and the literature from the literature studies to achieve the purpose and to answer the research questions.

The longitudinal study is connected to two research projects, the second of which is a continuation of the first one. The aim of both research projects was to investigate if process management could be useful to SMEs in the RFT business sector, specifically for enhancing their environmental sustainability. Both research projects were financed by the Kamprad Family Foundation for Entrepreneurship, Research and Charity.

During Phase I, as in most doctoral processes, my contribution to the research projects was of lesser scope than during phase II of my study. In this first phase, I had stronger support and guidance from my supervisors, who are also my colleagues of both projects. They are a professor in green logistics and a docent with considerable expertise in process management. Their guidance and support allowed me to become a more independent researcher during the second phase of my study and to have a better understanding of both green logistics and process management research domains, which were the context of the research projects. In the figure below I have included two periods of parental leave and the timeframe for the Covid-19 pandemic. The reason for including them is that during the parental leave I had no research activity. During the Covid-19 pandemic, the activity in the research project was gradually reduced due to constraints on physically meeting and on performing data gathering.

The dissertation was developed with a qualitative approach and was written in the form of a compilation. I designed and conducted literature reviews for all the appended papers, as well as complementary literature reviews for the dissertation. For Papers II, III, IV and V, an empirical study was performed. Part of the design of the data collection was based on findings from literature. However, thanks to the action research aspects, the design of the data collection also includes experiences with practitioners. I later compared the empirical results to those from the literature reviews. This comparison constituted part of the analysis for the dissertation. The other part of the analysis involved comparing both between the companies and within them. The analysis within constituted looking at their development from the initial state and throughout their implementation of process management. It is my intention that this analysis will allow me to contribute to theory in the research fields of process management and dynamic capabilities.
3.2. Action research

3.2.1. What is action research?

The dissertation was done using action research. In action research, the research is conducted by or with practitioners (Herr and Andersson, 2015). Therefore, the researcher can have different roles according to the degree of the relationship they have with the practitioners. Huge-Brodin and Cronemyr (2019) explain that traditional researchers are usually passive observers of their object of the study in order to have minimal influence on the outcome. In contrast, action researchers can have a passive role during some phases of the research and have closer interaction with the organisations they study. The researcher can then support, mentor, educate and empower the practitioners (Ng et al., 2018). In action research, the researcher is an agent of change instead of just being an observer, external to the design, development and execution of the change (Westlander, 2006; Herr and Andersson, 2015).

Lewin (1947) states that in action research a change should be designed and tested, then it should be revised to make modifications to obtain better results, in an iterative manner. Likewise, Herr and Andersson (2015) explain that due to the proximity between the researchers and the object of study, it is important for the researchers so seek the review of outsiders with skills in and knowledge on the subject. For this reason, I have presented the outcomes of my research at several conferences and seminars with both academics in the areas of quality management, logistics and green logistics, as well as practitioners.

Lewin (1947) explains that an important element of action research is the iterations after each action. These iterations allow readjustments to the original plan in order to lead the research on the right path to achieve its purpose (see Figure 7).

Lewin (1947) explains that one of the main objectives of using action research is to provide support for practitioners in taking actions of change, in a planned manner. Throughout the study, change has been designed and readjusted to help the case companies enhance their environmental sustainability and improve their performance and management skills. The readjustments have been inspired and guided by both research and practice (Ellström, 2008). From the research system, theories, and concepts in the areas of process management, dynamic capabilities and green logistics have been used. From the practice system, the experiences from the case companies as well as market changes and competitors’ decisions have also shaped the changes. This is graphically shown in Figure 8.
3.2.2. The researcher’s role

Several researchers have classified the participation of the researcher based on their proximity to the organisations (Westlander, 1999; Westlander, 2006; Herr and Andersson, 2015; Huge-Brodin and Cronemyr, 2019). In the literature, the different roles are described as ranging from a passive role where the researcher is an observer to an active role where the researcher is an insider in the organisation. Figure 9 is taken from Huge-Brodin and Cronemyr (2019) and is a useful illustration to describe the action research approach I have adopted for my dissertation. In the figure, the dashed squares represent my role in the research, which is explained in the section below.
3.2.3. My action research approach

Rosemann (2014) called for greater contextual awareness with regards to process management. The author explains that a rigid implementation of process management can limit the capabilities of the organisations to innovate and adapt. At the same time, SMEs greatly need support in order to achieve success with their limited resources. Moreover, Brodie et al. (2016) explain that theoretical advances also require managerial usefulness. Aagaard Nielsen and Svensson (2006) highlight not only a need to close the gap between theory and practice but also to do it in a democratic way where both academic and practitioners are involved in knowledge creation. For these reasons I chose to adopt an action research approach for my studies. The intended contribution of my studies is not only to the theoretical grounds of process management but also to the relevancy and usefulness of the knowledge created with and by the case companies.

In Figure 9, it can be observed that management research is divided in two branches, one where the researcher is a passive observer and the second where the researcher is an active part of the object of study. The first branch describes a researcher in a passive role, as an observer. In my research I took a more passive role when accompanying people from company B to meetings with customers and partners. I also took a more passive role in performing some document studies, such as the study of documentation from certifications, audit reports, quality system documents and documents related to customer relations. The first set of semi-structured interviews for both phases of the study could also be categorised as having a somewhat passive role since the purpose of the interviews was exploration and recognition of the companies. These shades of a passive role are mostly present at the beginning of phase I of my study. I refer to them as shades of passive roles because they always had some influence on the revisions to the general plan and on the design and decisions regarding the changes. My proximity to the companies due to the longitudinal study and my active role limited my passive participation in the rest of the study.

Huge-Brodin and Cronemyr (2019) categorise the active role of an action researcher according to the belonging of the researcher, either as an outsider or as an insider for the organisation. In my research, I have been an outsider in the organisations and my link to the companies has been
strictly through the research projects. In this researcher as an outsider category, Huge-Brodin and Crónemryr (2019) distinguish among three types of roles which they compare to three approaches of action research presented by Elg et al. (2020). The first one is when the researcher is a consultant whose main intention is to create some form of practice enhancement. The second role is a researcher, whose purpose is to enhance theory. The third role, and the one closest to my research, is where the researcher focuses on concept development.

Among the roles of the action researcher, Herr and Andersson (2015) describe the reciprocal collaboration with insider and outsider teams. This categorisation is also in line with the research methodology of my dissertation. As described by Herr and Andersson (2015), in this kind of relationship, teams are formed that include participants from academia and the organisations. This is the case for the research projects on which I worked they involved three researchers from academia and two to three members of each of the companies included in the study. According to Herr and Andersson (2015), this type of team contributes to creating a knowledge base, enabling critiqued practice and allowing organisational transformation. Moreover, this type of action research is seen as a collaborative form of participatory action research with the potential to achieve equitable relations in terms of power (Herr and Andersson, 2015).

I have included action research in the form of workshops, where I actively participated in the design, implementation and analysis of the outcomes. Moreover, some of the semi-structured interviews had certain elements of action research where I was able to apply critical questioning during the interview. The meetings also involved an action research participation, in what I participated in the design, implementation, and analysis of the meetings. However, the meetings were mostly led by the leader of the research project. An analysis of the meeting was briefly conducted verbally among the researchers directly afterwards. This analysis was a short analysis of the way the meetings went and the lessons learned, which contributed to the design of subsequent meetings. In addition, I also performed my own analysis after each meeting and a deeper analysis for the dissertation. Furthermore, I had brief participation closer to the role of a consultant in the first phase of the study, where I participated in the design of forms for the collection of customer feedback and improvement suggestions from the employees from both companies. During the workshops and meetings, I and the other two researchers involved in the research project contributed with ideas, recommendations and knowledge on the areas of process management, green logistics and competitive advantage.

To better understand the specific action research approach in my dissertation, I present the figures and tables below. In Figures 10 and 11, I make a connection between my research approach and the model presented by Lewin (1947), see Figure 7. In the action research model I applied for my dissertation, I include certain events that are usually part of the process for a PhD candidate. However, these events are not commonly included in the research methodology chapter of the dissertations. I decided to include dissertation proposals, the licentiate dissertation presentation, internal seminars and external seminars linked to Lewin’s model due to the action research approach. In action research, the researcher is an agent of change. As such, I consider it important to include all events that led to the change development in my research. Dissertation proposals, seminars and presentations to academics allowed me to decide on the path for the changes and the updates to my general plan.
Figure 10. Applied action research model
Based on Lewin (1947), as adapted by Cronemyr (2007)

Figure 11. Applied action research model (continuation)
Based on Lewin (1947), as adapted by Cronemyr (2007)
The following tables provide a detailed description of each of the action steps, reconnaissance of results for each step and the decisions for each following step. After every decision, I performed an update of the general plan. Additionally, I make a connection between the actions and the timeline of my research. The tables are divided by the event of my licentiate dissertation presentation. The reason for this division is due to a more drastic change in the general plan compared to other action steps. The licentiate dissertation allowed me to explore process management as a means of enhancing environmental sustainability in road freight transport companies. After the licentiate dissertation, my research was conducted on more strategical factors related to process management. I designed a new purpose and research questions and the degree of autonomy between my own research and the research project was increased significantly.

Table 3. Action research approach of my dissertation

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Step</th>
<th>Action</th>
<th>Reconnaissance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2016</td>
<td>Idea</td>
<td>Process management for greening the road freight transport sector</td>
<td>Proposal of purpose and research questions</td>
<td>Preliminary purpose, research questions and data collection plan.</td>
</tr>
<tr>
<td>Autumn 2016</td>
<td>General plan</td>
<td>Preliminary plan for dissertation</td>
<td>Document studies</td>
<td>Selection of research domains, research purpose and research questions.</td>
</tr>
<tr>
<td>Spring 2017</td>
<td>Action step 1</td>
<td>Study of process management and green logistics</td>
<td>Literature reviews and analysis</td>
<td>Implementation of processes at each company, use of process and process governance according to the management.</td>
</tr>
<tr>
<td>Autumn 2017</td>
<td>Action step 2</td>
<td>Study of process development Lic. dissertation proposal 1</td>
<td>Workshops</td>
<td>Implementation of process improvement system at each company.</td>
</tr>
<tr>
<td>Spring 2018</td>
<td>Action step 3</td>
<td>Study of process improvement</td>
<td>Literature reviews and analysis</td>
<td>New research question related to strategy processes and proactive environmental initiatives.</td>
</tr>
<tr>
<td>Autumn 2018, Autumn 2019</td>
<td>Action step 4</td>
<td>Connection to strategy Lic. dissertation proposal 2 (2018) Lic. internal seminar (2019)</td>
<td>Literature reviews and analysis</td>
<td>During this time, the following actions were performed in the research project:</td>
</tr>
<tr>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Action research approach of my dissertation (continuation)

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Step</th>
<th>Action</th>
<th>Reconnaissance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>GENERAL</td>
<td>Process management for greening the road freight transport sector,</td>
<td></td>
<td>Updated general plan</td>
</tr>
<tr>
<td></td>
<td>PLAN:</td>
<td>using a dynamic capabilities lens to understand the strategic role of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>revisiting</td>
<td>process management.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2020</td>
<td>Action step 5</td>
<td>Inclusion of dynamic capabilities</td>
<td>Literature reviews and analysis - Document studies - Observations</td>
<td>Design of preliminary purpose and research questions regarding the strategic role of process management. Data collection plan.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autumn 2021</td>
<td>Action step 6</td>
<td>Inventory of competitive advantages</td>
<td>Interviews - Observations - Competitive advantages inventory - Observations of Company B - Interaction on external project</td>
<td>Connection between process management and competitive advantages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2022</td>
<td>Action step 7</td>
<td>PhD dissertation proposal</td>
<td>Presentation of analysis and results on connection between process management and the companies' strategy - Validation of results</td>
<td>Selection of new research questions and purpose.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autumn 2022</td>
<td>Action step 8</td>
<td>Process management prioritisation for greening the road freight transport sector.</td>
<td>Workshops - Education on dynamic capabilities for the companies - Academic validation, on internal seminar</td>
<td>Contingent approach to process management based on strategic fit.</td>
</tr>
<tr>
<td>2023</td>
<td>Action step 9</td>
<td>Validation of results and reflections</td>
<td>Academic validation, at external seminar</td>
<td>Last version of PhD dissertation.</td>
</tr>
</tbody>
</table>

For each of the action steps, certain events were performed, as well as reconnaissance of results that were based on literature reviews and data collection methods. They are explained in the following sections.

3.3. The literature reviews

Snyder (2019) explains that the building block of all academic research activities is existing knowledge, and that the existing knowledge of a research discipline is available through published literature. Hence, a literature review is an essential part of any research. For my dissertation the literature reviews were performed in order to write the appended papers, the approach for each paper is detailed in Table 5. Additional narrative literature reviews were performed during the process of writing this dissertation; the initial search strings are shown in Table 6. This additional narrative literature review was needed since the dynamic capabilities lens was not part of the initial plan of the research. Certain aspects from the papers developed before the inclusion of dynamic capabilities required a revisit to enhance or add the strategic feature.
Table 5. Literature reviews for the dissertation

<table>
<thead>
<tr>
<th>Literature reviews</th>
<th>Systematic</th>
<th>Narrative with search strings and filters</th>
<th>Narrative with snowball approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper I</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Paper II</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Paper III</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Paper IV</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Paper V</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

Table 6. Search string for additional narrative literature reviews

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Search strings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studying organisational structure from DC lens</td>
<td>“Process management” AND “dynamic capabilities” AND “organisational structure”  \n“Process management” AND “dynamic capabilities” AND structure \n“Dynamic capabilities” AND “organisational structure”</td>
</tr>
<tr>
<td>Studying process orientation from DC lens</td>
<td>“Process management” AND “dynamic capabilities” AND “process orientation” \n“Dynamic capabilities” AND “process orientation”</td>
</tr>
<tr>
<td>Studying management from DC lens</td>
<td>“Process management” AND “dynamic capabilities” AND “management” OR leader \n“Dynamic capabilities” AND “management” OR leader</td>
</tr>
<tr>
<td>Studying people from DC lens</td>
<td>“Process management” AND “dynamic capabilities” AND people OR employees \n“Dynamic capabilities” AND people OR employees</td>
</tr>
<tr>
<td>Studying knowledge from DC lens</td>
<td>“Process management” AND “dynamic capabilities” AND knowledge \n“Dynamic capabilities” AND knowledge</td>
</tr>
<tr>
<td>Studying DC and SME</td>
<td>“Dynamic capabilities” AND SME</td>
</tr>
</tbody>
</table>

3.4. The longitudinal study

For my dissertation I use a longitudinal study. The study is divided in two phases and includes two case companies. The reason for the division into two phases is that I am interested in conducting a pattern analysis between the literature and each of the two companies, first including process management and then by using a dynamic capabilities lens. I am also interested in performing an analysis within each company and between them. The phases of the study are explained below.

3.4.1. Phase I

The first phase of the study is divided in two parts. Part A started with an exploration of the companies before they introduced process management. For this, we, the researchers of the project, focused on inventoring aspects of the companies’ management systems and working methods that were related to process management through interviews, document studies and observations. Later, workshops were performed in order to introduce and implement the managerial approach to the companies.

During this process, the researchers of the project guided and supported the design of the elements of process management to include for each company – for example, the development of the most important process maps for each company. However, the final decision on what would be done, and the way it was done was entirely left to the management of each company.
After the development of the processes was completed for each company, a meeting was held. In this meeting the companies had the opportunity to present their work to their peers and discuss the lessons learned and the results. After the implementation, a new set of interviews was performed, and a joint workshop was held with both companies and our experts in process management and green logistics, the other two researchers on the project.

The second part of Phase I, part B has process improvement as the focus. Initially, the researchers of the project guided and supported with the design of process improvement documents such as forms for collecting employee improvement suggestions and forms for collecting customer feedback. The researchers educated the top management of the companies for making use of the forms, performing simplified versions of root cause analysis and establishing a process improvement system. As in Part A, the final decision on what would be implemented, and the way it was implemented was entirely left to the management of each company. Workshops were held at each company and meetings were held at both companies and with their peers to review their lessons and results. After the implementation of the improvement systems, the researchers performed another set of interviews to review the progress of the results. The data collection from phase I is detailed in Figure 12 and my contribution for each data collection method is explained in a following section.

3.4.2. Phase II

Phase II follows on from the results obtained during Phase I. This phase started in 2020 and was affected by the restrictions of the Covid-19 pandemic. The data collection for phase II involved a first set of interviews for familiarisation with the practices and strategies from the companies that could be connected to dynamic capabilities and process management. Document studies also formed part of this study, including standard operating procedures (SOPs), documents from their management system, and agreement documents with partners, such as suppliers, governmental institutions, and customers. The data collection for phase II is presented in Figure 13 and my contribution for each data collection method is explained in a following section.
As previously mentioned, the longitudinal study was conducted at two Swedish freight transport companies – the case companies. For confidentiality purposes I refer to the companies as Company A and Company B in my dissertation. However, in the appended papers they are referred to as Haulier and Forwarder respectively. They are presented below.

3.4.3. The case companies.

The case companies are briefly described in this section. An extended description of the companies is found in Chapter 4.

Company A

Company A is a family-owned haulier, a medium-sized Swedish road freight company that was established in 1937. Since then, the company has grown and is now part of a group of six companies with a turnover of approximately SEK 110 million. The company employs approximately 100 people, of whom nine are administrative personnel, including two of the owners who have sales and management responsibilities. The company is managed by one of the owners and operates mostly in the Swedish territory, predominantly on a regional level. The priority of the company, confirmed by its reputation, is to provide high quality transports. The company also profiles itself as a company that cares about and works for the benefit of the environment.

Company B

The second case company, Company B, is a Swedish hauliers’ cooperative with over 120 haulier members. The company has more than 30 years in the market and has a turnover of close to SEK 0.5 billion. The hauliers within Company B currently employ approximately 250 people, 20 of whom are administrative personnel for the cooperative. Like Company A, Company B focuses exclusively on road freight transport. However, they also have terminals at which they manage products from several customers. The company operates in Swedish territory, mostly on a regional level, with a few deliveries to Germany and Denmark. Company B profiles itself as innovative, environmentally friendly and as a high-quality transporter.

Both case companies are considered environmentally ambitious due to their drive to enhance their environmental sustainability. Their environmental efforts include changing the fuel to an environmentally better option, hydrogenated vegetable oil (HVO); changing part of their fleet to biomethane trucks, investments on electric vehicles; and using route optimisation for the delivery of the goods. At each company, data have been collected in the form of interviews, document studies, observations, and workshops. The respective methods are briefly explained below.

3.5. The data collection methods

3.5.1. Interviews

The beginning of each phase of the study had an exploratory nature and therefore all initial interviews were personal and semi-structured, following a previously designed and reviewed questionnaire guide (Westlander, 1999; Westlander, 2006; Yin, 2013). A second and third
round of interviews were completed for each phase with a view to gaining a deeper understanding of the companies and their relation to the purpose of each interview.

The interview guides were designed based on the findings from literature, the experiences with the companies and the knowledge and experiences of the researchers regarding working on the research projects. Additionally to these, and for the second round of interviews, the guides were designed using experiences, observations, and notes from meetings with the companies, allowing a unique connection to be made between the literature and each company. This process of connecting the literature and the experiences was especially important for the interviews in phase II. In these guides, the interviews were personally adapted to each interviewee and their functions in the companies. Also, the literature on dynamic capabilities can be considered somewhat abstract for the interviewees to properly translate into their everyday work without knowledge of DC. Therefore, the interview guides and the interviews themselves required certain translation and adaptation to the companies’ internal language. This was facilitated for the interviewer by the action research approach used for the study and the experiences from the first research project, which mostly covered phase I (Westlander, 2006). The interview guides used for each interview can be found in the Appendices of the dissertation. A summary of the interviews conducted per each study is shown in Table 7.

3.5.1. Observations

Mulhall (2003) states that observations are a means for the researcher to capture the context of a phenomenon and to illustrate the whole picture. For my dissertation, all observations were conducted during study visits and meetings. The meetings included those booked through the research projects and additional meetings in which the companies invited me to participate. An example of these additional meetings involved partnership meetings with customers and governmental institutions.

The focus of the observations was on answering the research questions and achieving the purpose of the dissertation. More specifically, the observations focused on, but were not limited to their internal and external interactions, the way they make decisions and develop strategy, their environmental awareness, work routines, commitment, values and principles of the companies, and their corporate culture. The observations worked as a tool for verification of the information gathered during the interviews. They also provided information that could not be gathered merely by means of interviews, for example by observing interactions between the personnel, management, and partners. Table 8 presents the meetings and study visits where observations were made. Additionally to these meetings and study visits, observations were also made during the workshops.

3.5.1. Document studies

The document studies are used in my dissertation to provide a basis for the description of the companies and to obtain authentic and meaningful information about the companies (Bryman and Bell (2011). For the study at Company B, I obtained full access to the documentation of the companies, involving business plans, partnership and customer procedures, organisational charts, policies, and documents regarding environmental awareness. For the study at Company A, I had access to the administrative documentation they had available, excluding customer contracts due to confidentiality issues. Having access to this documentation has allowed me to do verifications to the observations and interviews. It also facilitated a better understanding of the companies.
Table 7. Interview summary for the study.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Case company</th>
<th>Subject of the interview</th>
<th>Interviewee</th>
<th>Number of interviews</th>
<th>Interview guide</th>
<th>Duration (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A</td>
<td>Process management, March 2017</td>
<td>Administrative personnel and management</td>
<td>5</td>
<td>1a</td>
<td>60-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Green logistics, April 2017</td>
<td>Administrative personnel and management</td>
<td>5</td>
<td>1b</td>
<td>60-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Process improvement design, October 2017</td>
<td>Administrative personnel and management</td>
<td>3</td>
<td>2</td>
<td>40-60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Process improvement results, May 2018</td>
<td>Administrative personnel and management</td>
<td>2</td>
<td>2</td>
<td>60-80</td>
</tr>
<tr>
<td>II</td>
<td>A</td>
<td>Process management and DC, October 2021</td>
<td>Administrative personnel and management</td>
<td>3</td>
<td>3</td>
<td>25-50</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Process management and DC for environmental sustainability, November 2021</td>
<td>Administrative personnel and management</td>
<td>3</td>
<td>4</td>
<td>35-70</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Process management and DC, October 2021</td>
<td>Administrative personnel and management</td>
<td>3</td>
<td>3</td>
<td>25-55</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Process management and DC for environmental sustainability, November 2021</td>
<td>Administrative personnel and management</td>
<td>6</td>
<td>4</td>
<td>40-90</td>
</tr>
</tbody>
</table>
Table 8. Summary of study visits and meetings for the longitudinal study

<table>
<thead>
<tr>
<th>Phase</th>
<th>Case company</th>
<th>Observations</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A</td>
<td>Study visit (combined with interviews). March 2017</td>
<td>2 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit (combined with interviews). October 2017.</td>
<td>2 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. October 2017.</td>
<td>2 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. November 2017.</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. February 2018</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. May 2018</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Study visit (combined with interviews). March 2017</td>
<td>5 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit (combined with interviews). April 2017</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting (combined with interviews). October 2017</td>
<td>2 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. November 2017</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. February 2018</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. April 2018</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit and meeting. May 2018</td>
<td>1 day</td>
</tr>
<tr>
<td>Joint</td>
<td></td>
<td>Meeting and study visit at Company A. October 2016.</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meeting and study visit at Company B. October 2016.</td>
<td>1 day</td>
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<tr>
<td></td>
<td></td>
<td>Meeting. January 2017</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meeting. September 2017</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meeting. January 2018</td>
<td>1 day</td>
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<tr>
<td></td>
<td></td>
<td>Meeting. June 2018</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meeting. June 2019</td>
<td>1 day</td>
</tr>
<tr>
<td>II</td>
<td>A</td>
<td>Study visit. October 2021</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit. November 2021</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit (combined with interviews). October 2021</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study visit. May 2022</td>
<td>1 day</td>
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<td>Study visit and meeting at Company A. April 2023</td>
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3.5.2. Workshops

The workshops provided a means to increase the action research approach by increasing the interaction between the researchers and the practitioners and are summarised in Table 9. During the workshops, the findings from the interviews and document studies were presented by the researchers. In the workshops the practitioners could comment the findings and clarify misunderstandings or errors in the interpretation made by the researchers. The purpose of each workshop was according to the intended purpose of the phase of the study. In part A of phase I – for example, the first workshops involved education on process management to increase the awareness of the process orientation. These first workshops also included the determination of the processes of the companies; and the designation of process owners and process teams.

The design of the workshops depended on the purpose of the phase of the study. The workshops in Phase I were designed by one of the researchers in the research project who has experience in designing and conducting workshops at other organisations. Nonetheless, I had an active role during the workshops and after them in the analysis of the workshops. After the completion of the workshops at each case company, a joint workshop was held by the researchers of the project. In the joint workshop, the companies presented the elements of process management they implemented and explained how they conducted the implementation. Finally, the participants interacted to compare their implementations, the achieved results and the lessons learned from the implementation.

For phase II, I designed and conducted a separate workshop for each company. The workshops were custom-designed for each of the companies according to their process maturity level. The material for the workshops was reviewed by a colleague who researches on dynamic capabilities and is the co-author of Paper V. For the workshop at Company A, the participants included me as the leader of the workshop, the researcher as an expert on dynamic capabilities, the CEO of the company and administrative personnel. The participants of the workshop at Company B included me, the researcher as an expert on dynamic capabilities, a researcher on the research project as an expert on green logistics, the CEO of the company, the administrative director, the environment, quality and security director and a business area manager.

After the workshops were developed at each of the companies a discussion took place including the researchers on the project and the management of both companies. The discussion was part of a project meeting between the companies and the projects’ researchers. The discussion included the ways they manage their resources for creating competitive advantage and how process management has supported them in develop capabilities to manage their resources. The discussion also included the opportunities and challenges that process management could represent in this context. The workshops were focused on, but not limited to, the opportunities connected to enhancing environmental sustainability. The intention of the discussions was for the companies to engage in reflective ideas and interactions that in turn could lead to the development of solutions for the companies.
3.6. The analysis

I performed a *within case analysis* for each of the companies in the study, followed by a *cross case analysis* between the case companies (Miles and Huberman, 1994). This was done for each of the phases. The analysis was separated in this way to make a comparison and contrast between different levels of maturity of the process, and the approach for implementing process management. Using the analysis, my intention was to investigate the role of process management in the generation and sustainment of competitive advantage. Also, I investigated the opportunities that dynamic capabilities can provide for further developing process management. The analysis was done using pattern matching between literature and empirical data.

The analysis included a cross case analysis between the case companies for each of the research questions (Miles and Huberman, 1994). Moreover, I used the framework presented by Teece (2007) and other relevant literature on microfoundations as a base to analyse activities and events in the companies that contribute to their competitive advantage. I analysed how competitive advantages from these events and activities are associated with the use of process management. Furthermore, I included in my analysis the competitive advantages, events and activities associated with process management that contribute to enhancement of environmental sustainability.

For research question 1, the analysis was performed by comparing each of the fundamentals found in literature to the importance they have for strategy. The findings from literature relating process management to strategy were used to understand the strategic role of process management. The basis for this analysis also included the findings and analyses from the papers, the empirical data gathered and my own experience and knowledge about the companies as an action researcher. Examples of competitive advantages of the case companies before and after the use of process management provided an understanding of how process management can be associated to strategy.

The analysis for research question 2 was done by conducting an inventory of all the activities that provide the companies with competitive advantages and drawing connections to elements of process management. Connections were also drawn to the literature found on SME company characteristics and their use of process management. Moreover, I analysed the use of process management in the companies and their experiences with the managerial approach in order to suggest adaptations to process management for SMEs.
3.7. Quality of the research

For this dissertation, I used an action research approach that included several iterations, departing from a general plan and alternating between a theoretical and practical perspectives in an iterative way. I learned and reflected on the direction of my research with every iteration. For this reason, my research is considered abductive qualitative research. Elg et al. (2020) explain that many action researchers take this approach due to the cyclical nature of action research.

There are several alternatives for assessing the quality of qualitative research. Some of these criteria are presented by Lincoln and Guba (1985); Bryman and Bell (2011); Merriam and Tisdell (2016); and Yin (2018). However, as explained by Herr and Andersson (2015) and Elg et al. (2020) there is a lack of discussion in the literature on research quality criteria as related specifically to action research. Herr and Andersson (2015) recognise that there is an overlap between other naturalistic and positivistic quality criteria, such as the ones previously mentioned, and the one presented by them for action research. Their claim is that the dissemination beyond local sites and the difference in the role of the researcher call for different, and more specific, criteria for action research. Elg et al. (2020) strengthen this claim by adding that one of the purposes of action research refers to its practical relevance.

Following this line of thought, I base the assessment of the quality of my research on the criteria presented by Herr and Andersson (2015) and further explained by Elg et al. (2020) – namely 1) dialogic and process validity, 2) outcome validity, 3) catalytic validity, 4) democratic validity; and 5) process validity. The explanation for these criteria is presented below. The explanation of the criteria is followed by an assessment of the quality of my own research.

3.7.1. Dialogic and process validity

This criterion is based on the goal of action research to generate new knowledge. This criterion is compatible with the criteria presented by other schools of research quality referring to the “goodness” of research and triangulation. According to Herr and Andersson (2015), this is achieved by having peer reviews of the research outcomes. Elg et al. (2020) further explain that this criterion is enhanced by having a multi-actor approach, for example by working in research teams and having dialogue with other researchers. Elg et al. (2020) expand by including the view of practitioners as the other stakeholders in this criterion. The authors explain that this is achieved by building good researcher-practitioner relationships, for example by having face-to-face interactions.

For my research I complied with this criterion first by working in the research projects with two other researchers, and by working with two other researchers for Paper IV and Paper V respectively. Externally, my research complies with this criterion by having peer reviews of the articles and the manuscript of my dissertation. These peer reviews were in the form of opponents during dissertation proposal seminars, mid-term internal seminars, mid-term external seminars, and doctoral workshops. Peer reviews were also performed on conference papers and by the reviewers in the submission processes for journals. The researcher-practitioner relationship in my research was strengthened by having face-to-face interviews, meetings, workshops, and social gatherings where knowledge was enhanced through discussions. An exception to this face-to-face criterion was made for some meetings during 2021 due to the covid-19 pandemic. However, the relationship between me as a researcher and the practitioners was already established, since the first research project started at the end of 2016.
3.7.2. Outcome validity

This criterion is linked to the action research goal of achieving action-oriented outcomes (Herr and Andersson, 2015). Herr and Andersson (2015) explain that outcome validity is about how successful the outcomes of the project were for the practitioners, but also in generating new questions and identifying new problems. This criterion was fulfilled by discussing the results of every change with the case companies, both separately at each company and together within the research project. A particularity of action research is that changes are made based on a general plan, generating new courses of action (Lewin, 1947). In my research the outcomes of the research are assessed in terms of the purpose and research questions presented in Chapter 1. For the research projects, this assessment occurred through discussions in the closure meetings for each research project and in the reports developed for the financier of the projects.

3.7.3. Catalytic validity

The third goal of action research is the education of the researchers and practitioners involved in the action research. This goal is the base for the catalytic validity criterion. This criterion, as explained by Elg et al. (2020), builds on the principle of iterative research. The authors explain that it is important for researchers and practitioners to revisit their views and reflect on the outcomes of the changes and reality. This is as important as being open to changes and reorientations of the focus of the projects based on the reality. For my research, this was done internally in the research project during the joint meeting within the research projects and individually by presenting my interpretations, findings and analysis in workshops and dissertation proposal seminars. These two events enabled a more critical review of the orientation of my research. Moreover, the participants of the research project from the companies confirmed that the studies on process management and dynamic capabilities have contributed to enhance their own understanding of their companies, to discover new ways of working, new methods to apply in their work and ways to reflect on their business, its development and strategy.

3.7.4. Democratic validity

This criterion targets the action research goal of obtaining results that are relevant to the local context. It is compatible with the criterion of applicability used by researchers conducting other kinds of qualitative research. Elg et al. (2020) mention that this is achieved by including views of participants other than the researcher and practitioners from the research project. For my research this was done through meetings and workshops in which the findings, interpretations and analysis were presented to members of the companies involved in the research projects. Moreover, the interpretations made during the interviews were corroborated by the interviewees through the sharing of notes and transcriptions. This sharing was done only with each interviewee to ensure anonymity of the people interviewed. Democratic validity was also achieved through the presentation of the research outcomes at industry related events. For example, meetings with governmental institutions, customers, and partners. In these events, the results were presented and the relevancy for the business sector was validated.

3.7.5. Process validity

Process validity is about achieving the goal of having an appropriate methodology for the action research. This criterion is achieved through triangulation, establishing good face-to-face relationships with participants, and having a broad view of the evidence, while recording it and defining it in an appropriate way (Elg et al. 2020). This was done, in the research projects, by
establishing meeting agendas for all meetings and sharing them before the meetings. The agendas provided a structure for the interactions between researchers and practitioners.

For the interviews, this criterion was achieved by comparing notes among the researchers, revising doubts on interpretations with the practitioners during interactions, and transcribing some of the interviews so they could be coded. This was also achieved by elaborating summaries with my interpretations after the interviews and reviewing them with the interviewees. Moreover, there was rigour in the data collection for recording the minutes of the interviews, the people interviewed, and the questions asked. The questions were also reviewed by researchers in the field on which the interviews focused. For example, the questions on green logistics in the first research project were reviewed by a professor of green logistics, a member of the research project. For the interviews in the first research project, two researchers were present during the interviews, including me. I compared the notes of the researchers in order to elaborate the summaries, which were later reviewed by the interviewees. For the interviews in the second research project, I was the sole interviewer. However, all the interviews were transcribed and made available to the other researchers. Moreover, the interviews were listened to, coded, and analysed by the two researchers of Paper V.

### 3.7.6. Ethical considerations

According to the Swedish Research Council (Vetenskapsrådet, 2017), research ethics are about the capability of the researcher to constantly reflect on the content of their research from an ethical perspective. There is a set of eight rules that have been established to guide this reflection in terms of ethical, practical, and intellectual problems related to research. These rules are included in the “Good research practice” report from the Swedish Research Council (Vetenskapsrådet, 2017).

My research, on which this dissertation is based, has been performed following these eight rules. I have told the truth in my research, and I have been transparent with the method and the phenomena observed. The method has been extensively described to reflect this transparency to reflect the rigour of the research.

All participation in my research and the research projects has been voluntary and the interviews have been anonymous to ensure the integrity and security of the people involved. Prior to the interviews and workshops, the participants were informed of the purpose of the study and that the information gathered would be used for research purposes only. Before the interviews, the interviewees were assured of their anonymity and confidentiality. Moreover, the interpretations made after the interviews were reviewed by each interviewee to ensure their veracity. These interviews have been documented and the information has been kept secure and confidential with regards to external parties. Furthermore, no harm came to people, animals or the environment during my research.

### 3.8. Reflections on my action research approach

The action research approach has enabled me understand the practice of the companies in a deeper and closer way (Gummesson, 2000; Westlander, 2006; Herr and Andersson, 2015). This was possible by having more access to the management decisions and the processes involved with the managerial approaches of the companies. Additionally, the action research approach opened up the possibility of understanding their organisational culture and their values in a way I could not have achieved with a strictly case study approach. Consequently, the design of the research questions for this study was affected by my experiences with the companies. Moreover, the longitudinal form of my study and the proximity to the companies allowed areas
of interest for the dynamic capabilities view to be identified in a way that would have been difficult to interpret and analyse with other form of research. As stated by Herr and Andersson (2015), the proximity and long-term relations inherent in an action research approach enhance the trust that the organisations can have on the researcher, making confidential and sensitive information available. This has been the case for my research, generating useful data for the analysis on competitive advantages.
4. THE CONTEXT OF MY DISSERTATION AND THE CASE STUDIES

This chapter presents the context of my dissertation, namely Green Logistics. More specifically, the chapter presents the efforts that the road freight transport sector has gone to, according to literature, to enhance environmental sustainability. This, with the purpose of understanding environmental sustainability as a strategic goal. Moreover, the chapter presents the case descriptions from the cases used for this dissertation. First the case Company A is presented, followed by the case at Company B.

4.1. Green logistics and the road freight transport

As stated in the first chapter of this dissertation, road freight transport is a business sector that is particularly affected by demands for environmental sustainability. These companies are dedicated to transporting goods from a place to another by means of the road network. Their customers vary, including manufacturers, end customers, forwarders and third party logistics. These customers are increasing their push for services with lower environmental impact.

There is a certain uniqueness to what environmental sustainability represents for this business sector. First, it is usually a latent need, not always explicitly named by the customers, and a need for which customers are not always prepared or willing to pay (Piecyk et al., 2015). Second, this need can come from customers and from society. Furthermore, McKinnon (2018) explains that decreasing the environmental impact of this business sector is a formidable challenge for two reasons. First, demand for freight transport is rising sharply. Second, the business sector has a high dependency on fossil fuels. Thus, the emissions largely depend on the type of fuel used for the transport (Piecyk et al., 2015).

Moreover, the business sector is affected by legislation, several standards and can anticipate new legislation regarding environmental sustainability, specifically their environmental impact (McKinnon, 2018). Legislation at EU level includes the EURO emission standard, which is applicable to the engine of the vehicles. This standard regulates the emissions from diesel heavy goods vehicles. Specifically in Sweden, there are requirements for the drivers of these vehicles to be educated in environmentally friendly driving skills (Eco-driving). Moreover, there are voluntary environmental management standards available for freight transport companies, such as ISO 14001 and Fair Transport. Fair Transport is an initiative specifically for road transport in Sweden which allows transport companies to certify themselves according to a set of requirements based on sustainability criteria (FairTransport, 2022).

Indeed, the anticipated legislation has pressured customers to set special requirements which have made the goal clearer to an extent. Still, a challenge for these companies is that even when environmental sustainability is asked for explicitly by the customers, the requirements are not always concrete or clear. Jazairy (2020) explains that some of these requirements are too general and lack specifications that can be translated to their everyday operations. Other requirements can be overly specific and related to aspects which are difficult to measure in order to provide evidence of compliance. Other requirements might include misalignments such as demanding lowest possible emissions and shortest time for the deliveries. Finally, other requirements can be unfeasible, such as demanding high investments in new technologies and using inter-modal transport systems when there are no other modals available (Jazairy, 2020).

Specifically, Sweden has set a goal to cut greenhouse gas emissions from the freight transport sector by 70% by the year 2030, compared to the emissions in 2010 (Sverige, 2021). Furthermore, Swedish freight transport has been challenged by the government to be completely fossil-free by 2045. This is certainly a tough goal, especially when considering that...
this will need to be done while increasing their traffic by 40%. Heavy road freight transport in Sweden (over 3.5 tons) is responsible for approximately a third of the negative emissions to the environment from transport.

Indeed, this description so far exemplifies the drive for the business sector to find solutions. The challenge intensifies when considering that transport is one of the major contributors to environmental impact in a supply chain but it is not usually considered a value-added or core activity by the manufacturers. According to McKinnon (2018), this may be the reason why managerial efforts and investments are not directed towards transport. Moreover, while transport is a major contributor to the environmental impact (McKinnon et al., 2015), the responsibility for that impact is not always shared by the different links in the supply chain (Sallnäs and Björklund, 2020). Sallnäs and Björklund (2020) explain that the environmental impact of the logistics operations makes transport companies easy targets to become the sole accountable links in the supply chain. Decreasing the environmental impact of transport is seldom a cheap endeavour, which also represents a considerable challenge for the low-margin business sector. Nevertheless, environmental sustainability is one of the current priorities for the road freight transport sector in Sweden. (Sverige, 2018; Sverige, 2021)

The road freight transport business sector has introduced many environmental efforts into their operations (Colicchia et al., 2013). Efforts to decrease the environmental impact of their services include the use of adapted bodywork with aerodynamic improvements to decrease fuel consumption (e.g. Johannes et al., 2018). Another is the use of alternative fuels such as hydrogenated vegetable oil (HVO), biogas and hydrogenated gas (e.g. Osman et al., 2022). The use of alternative technologies is another set of efforts to reduce the environmental impact, making use of electric vehicles, robots and drones for deliveries (e.g. Dong et al., 2021). Optimisation of routes and the use of intermodal transport alternatives such as the combination of rail and road transport are also included in the efforts from this business sector to decrease its environmental impact.

These environmental efforts have the potential to cut the environmental impact and in some cases they can lead to other benefits – for example, the financial gains from using route optimisation (Liu et al., 2021). However, their use requires the development of resources and competences. Road freight transport companies have had to change the way they manage their resources to use them more effectively. Furthermore, they have had to allocate new resources and competences to deal with the reduction of their environmental impact. This business sector has also seen the need to develop new solutions involving practices that help them reduce their environmental impact. Among the current environmental practices in road freight transport are the use of electric vehicles and alternative fuels such as HVO and biogas (Liimatainen et al., 2019; Monios and Bergqvist, 2019); the use of new communication technologies (Wang et al., 2015; Li and Yu, 2017; Chatti, 2020; Chatti, 2021); and the use of intermodal solutions (McKinnon, 2018; Kelle et al., 2019). Other solutions have been researched and tested but are not yet used in the business sector, for example the electrification of the road infrastructure (Schulte and Ny, 2018) and the use of self-driving vehicles (Paddeu and Denby, 2021).

Nonetheless, a considerable challenge for the companies in this business sector is their size. Most companies from the road freight transport sector in Sweden are SMEs with tight profit margins. This fact limits their purchasing power for environmental initiatives such as the investment in electric heavy vehicles (Sverige, 2021).
4.2. The cases

4.2.1. The case of Company A

Company A is a road freight transport company located in a region in the east of Sweden. It was selected to be part of the study due to their ambition for decreasing their environmental impact. This company was interested in environmental issues earlier than many of their competitors. The company was also chosen due to the availability of their management and their interest in participating in research projects.

About Company A

Company A is a road freight transport company located in a region in the east of Sweden. They were selected to be part of the study due to their ambition to decrease their environmental impact. This company was interested in environmental issues earlier than many of their competitors. The company was also chosen due to the availability of their management and their interest in participating in research projects.

Company A is a family company which was founded three generations ago with one truck. The company was run by this generation for 43 years, before it passed to the next generation. This second generation increased the number of vehicles, routes and destinations. After approximately 40 years, the company’s management changed to the third generation and it is now one of the biggest haulage companies in its home city.

Moreover, the fundamentals of the company have changed from being a haulier to a group of six companies, all owned and led by the same family. The group has an approximate turnover of 110 million Swedish kronor (SEK) and the main focus of the companies is freight transport.

Company A is interested in offering their customers flexible solutions. It is important for the company to have the competences of a big company while offering immediate customer contact and short decision-making paths, which are traditionally a characteristic of a small company.

Moreover, Company A offers their customers transport, storage and logistics services. Specifically, they offer the market high-quality and sustainable transport solutions. Company A operates mostly within Sweden and Norway, but also offers transport services across Europe.

The management of the company strives to offer solutions that have a lower environmental impact by using biogas and HVO in their fleet. They also decrease the environmental impact of their transport by having programmes for tyre management and driving policies. Their drivers receive Eco-driving training according to the regulations applicable to this business sector.

Organisational structure

The company currently employs approximately 100 people. The administrative team comprises nine people, two of whom are owners and have management and sales responsibilities. The group of companies is all under a board of directors constituted by the family members. The administrative structure for the transport company is shown in the following figure. The board of owners performs a yearly audit of the outcomes of the company and supports large investment decisions. The CEO, one of the owners, is responsible for the operative and strategic decisions. The size of the company leads to a somewhat diffuse delimitation of responsibilities and the roles within the company are therefore not restricted to individuals. For example, the CEO performs the traditional tasks of a leader of a company, but also has responsibilities for customer contact in the case of large customers, sales to potentially large and longstanding customers, and other operational tasks.
customers, and even works as a truck driver, when required. The other owner supports the CEO in management and strategic decisions, when required. He is also responsible for sales, management, and customer service for one of their largest customers, a large global leader in logistics and international shipping solutions. This customer requires an exclusive fleet with its profiling on the vehicles. Another special customer for the company is the local municipality, to which they provide goods purchasing and distribution to municipal units.

![Organisational structure of Company A](image)

**Leadership style**

The CEO leads the company. The CEO is interested in innovation and having high quality services. He encourages individual initiative, innovation, and proactivity among the employees. He is considered by his employees to be accessible, approachable and visionary. At the beginning of the project, the CEO was involved in all the operations and was aware of all the issues. As the company grew, this task became more difficult, and the company now has a more trust-based management style. Each member of the administrative team is responsible for their area, but they have constant communication with the CEO.

> “Some years ago I had control of everything and I knew exactly how most of the tasks were done in the company. Since we started growing I have delegated much of the work and now I don’t have the same control of everything [...] we talk a lot during coffee breaks and lunches, that helps to keep updated and know if there is a problem”

- CEO, Company A, Research project II

(translated from Swedish)

A more trust-based management style has also intensified the need for communication between the different areas of the company, since the CEO no longer has all the data from all the areas of the company. The following quote refers to a weekly meeting that they implemented as a result of the process management research project.
Having weekly meetings has helped us to have a time in which most of us [administrative personnel] are present. We can then inform each other about things that happen, problems we have. I can ask questions when I don’t understand the problem and it is easier to find solutions together instead of someone fixing the problems on their own because that may affect other people’s work and then they wouldn’t like the solution”.

- Employee, Company A, Research project II
(Translated from Swedish)

The top executive at Company A stated that before they grew, top management had an awareness of and control over all decisions, operations, and tasks for each one of their routines. He also explained that one problem with this was the workload top management had and the vulnerability of the company if the CEO was not available. As they grew, they realised that they had to entrust the tasks to the employees and the more they grew, the less expertise they had on the different processes. The manager explained that they have always entrusted their personnel with the decisions, but the CEO was aware of every decision, so it was easier to estimate risks and avoid mistakes. This has resulted in the employees developing their own routines, which in most cases are not documented.

As an effect of the participation in the research project and the efforts to implement elements of process management, a weekly meeting was instated. The meeting is for all administrative personnel, and it is intended as a platform to discuss the challenges of the company from different perspectives. According to one of the employees, these discussions support the creation of solutions that involve different areas of the company and increase the compatibility of the actions throughout the company. The CEO specifically considered that the use of processes would decrease the dependency on the individuals. If processes were established and available, then it would be easier to show people how to do the work and to communicate with each other to understand the connections between processes.

The CEO of the company explains that they are aware of the need for processes to reduce vulnerability and increase standardisation. However, they face challenges with its implementation in terms of knowledge of process management, as well as resources such as time. The CEO explains that daily activities take priority over systemized improvement work, such as implementing process management.

**Logistics**

Company A offers comprehensive solutions to their customers including storage, transport and logistics solutions. They own a storage facility located next to their centre of operation. They also provide support for logistics decisions, in terms of fill rates, routes and goods management. Additionally, within their services, they offer third-party logistics.

**IT systems**

Company A is supported by several IT systems. For finance and human resources coordination, they use a system called TransPA, which was specifically developed for the transport sector. This system is also used to perform transport coordination activities, together with Navision, a system used for route decision and transport booking purposes. Moreover, the company uses a custom-made application that supports the operations of the company. Each employee can
download the application to their mobile phones. The application serves as a communication tool between management and the personnel. Through the application, management can message their employees and employees can message management. For example, if an employee has a problem or an improvement suggestion, they can communicate it to management through the app. It also serves as a platform to make policies easily available to the personnel. Additionally, through the app, they make support documents about the main customers available to their immediate customer contacts and drivers, including detailed instructions for the performance of the services.

**Partnerships and relations**

Company A strives for long-lasting relations with some of their customers. Their services are currently 40% for end customers of one large customer (a global carrier) and 60% for other customers. The large customer is a longstanding customer but is not seen as a partner since their influence on the services is limited.

**Environmental initiatives**

Company A takes pride in having sustainable solutions in terms of good working conditions for their employees and transport with a lower environmental impact than that of their competitors. In terms of environmental sustainability, the company has been awarded several regional and national prizes as a result of their efforts to cut their environmental impact. They have an environmental policy in which they state their awareness of their environmental impact as a transport company, with their main impact in the environment originating in the consumption of vehicle fuel and the carbon emissions this entails. To reduce these emissions, Company A has modern vehicles and technological solutions for their vehicles that reduce the fuel consumption. Their fleet comprises 19 vehicles using liquified biogas (LBG), 1 electric truck and 55 vehicles using HVO100 or biodiesel (42% mix of renewable fuels). Recently, the company acquired an LBG station, in cooperation with a supplier. This provides them with lower prices for the fuel and certain power over the supply of the fuel.

Moreover, Company A is Fair Transport certified and is a member of a regional environmental network that strives to spread knowledge and inspiration on environmental initiatives. Company A has also developed projects for determining better tyre management requirements and technological solutions. The technological solutions include updates to the outside structures of the vehicles to improve their aerodynamics and decrease their fuel consumption.

**Company A before and after process management**

As seen in Paper II, key managerial and operational processes were developed for both companies. As part of this development, governance was established for the identified processes, with the governance including process owners and process teams. This development clarified the connection between the different processes of the companies for all the employees involved. It also clarified the requirements for the customers so that the outputs of the processes could be aligned with them. For Company A, this understanding was in the mind of the CEO. However, for the rest of the employees the different activities were silos and the employees understood what was expected of them but the understanding of how their work influenced customer satisfaction was unclear. After the development of the processes, the understanding was enhanced, and the employees gained a clearer view of the entire company, instead of having a limited view of the silos of their activities.
During the second research project, it was mentioned by the CEO of the company that this awareness had enhanced the roles of the employees and reduced the need for him to be involved in everyday decisions. The employees experienced a higher sense of empowerment and dared to solve problems by talking to each other instead of involving the CEO. Moreover, the CEO of this company explained that the incorporation of routines, instructions and other elements of process management has contributed to a bigger perspective of the company. Also, they mention that these elements have contributed to clearer structures and clearer responsibilities. Consequently, this has clarified to the employees which roles are responsible for certain areas of the company so the employees can discuss situations, issues, and improvement with the right personnel instead of the CEO. Company A also mentioned that the inclusion of these elements has contributed to decrease their vulnerability on an individual level. Routines and instructions make knowledge available for everyone.

As stated in Paper II, process improvement support documents were developed for some of the key processes. These documents included forms for gathering customer and employee feedback, as well as simplified templates for qualitative problem analysis. This form of process improvement proved unsuccessful in the long-term. However, continuous improvement was obtained in the processes even without the use of the support documents. For example, employees would discuss issues among their colleagues, either in informal gatherings, such as coffee and lunch breaks, or at more formal gatherings, such as meetings. As mentioned in Paper V, these discussions enable more robust solutions to the problems by analysing them from different perspectives within the companies. This difference in the company’s ways of working allowed for a more proactive approach to continuously improving their processes. However, the documentation on problem solving and improvements is still limited to email conversations and meeting protocols.

The discussions, together with greater awareness about the company, has allowed the employees to be more innovative in improving their tasks. It also has helped to increase the participation of some employees in activities directed towards environmental initiatives, marketing, and network events. According to the CEO, this difference has its positive and negative sides. On the positive side, his working conditions have improved since responsibilities for problem-solving and improvement have been distributed within the company. On the negative side, and because of their growth in recent years, he has less knowledge about each of the processes of the company. The following quote illustrates this.

“Before [the research projects], I knew exactly what everybody did, why they did it and how they did it. Now I know what I have to do as the CEO and I know who I have to contact within the organisation if there is a problem. But I can’t do it for them since they have become experts in their own areas, and I trust them.”

- CEO, Company A, end of Research project II

(translated from Swedish)
The following table is a comparison of the findings in the company at the beginning of the first phase, before process management was implemented; and after the conclusion of phase II, once process management was implemented in the company.

Table 10. Comparison of Company A before and after process management

<table>
<thead>
<tr>
<th>Challenges of PM</th>
<th>Before PM</th>
<th>After PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Prioritisation of everyday tasks.</td>
<td>*No process documentation, some simple policies exist but are not easily available to all employees.</td>
<td>*Some processes documented, policies easily available to all employees.</td>
</tr>
<tr>
<td>*Responsibility for managing the process management work.</td>
<td>*Innovation initiatives rely on the CEO.</td>
<td>*Innovation initiatives rely on the CEO and the person responsible for the tasks.</td>
</tr>
<tr>
<td>*Lack of knowledge about process management.</td>
<td>*Environmental initiatives rely on the CEO.</td>
<td>*Environmental initiatives rely mostly on the CEO, but other employees are aware of the challenge and interested in it.</td>
</tr>
<tr>
<td></td>
<td>*Clear division of the tasks according to the functional organisation.</td>
<td>*Clear division of the tasks based on the functional organisation but more interaction between functions, especially for problem solving.</td>
</tr>
<tr>
<td></td>
<td>*Flat organisation and CEO has deep knowledge of all parts of the company.</td>
<td>*Flat organisation and the employees have more expertise in their areas.</td>
</tr>
<tr>
<td></td>
<td>*Good communication between the employees and the CEO (vis-a-vis)</td>
<td>*Good communication between the employees and the CEO, as well as among the employees.</td>
</tr>
<tr>
<td></td>
<td>*Knowledge sharing for the CEO through communication with employees. Knowledge sharing between the employees limited to informal conversations during the breaks.</td>
<td>*Knowledge sharing through meetings and conversations. There is also knowledge sharing through routines for key customers.</td>
</tr>
</tbody>
</table>
4.2.2. The case of Company B

Company B is, as mentioned previously, a forwarder in the form of a cooperative association of approximately 100 hauliers. It is located in the south of Sweden. Like Company A, Company B was selected to be part of the study due to their ambition to decrease their environmental impact and the early incorporation of environmental affairs. The company was also selected due to the availability of their management.

About Company B

Company B is a forwarder with over 30 years of experience in road freight transports. This company takes pride in selling services that are safe, secure and sustainable. The company considers their human resources as a core part of their business and states that it is through satisfied employees that they can satisfy their customers and generate gains for the company. Moreover, they have an administrative manager who is responsible for the well-being of their employees. As a result of their drive to improve and their belief in human resources, they have provided sales and administrative personnel with courses on strategic thinking.

Their ISO certification and the need to show their way of working to potential members of the cooperative have encouraged them to establish a clear structure for the organisation and the activities involved in their operations. They thus have a developed management system available for external audit entities and their employees. Their system has reached an outstanding result from the ISO audits.

Organisational structure

Company B currently has 20 administrative personnel. Among them are the CEO, a manager per business area, an administrative manager, a quality, environment and security manager, and a finance manager.

In this cooperative, the forwarder (Company B) establishes the requirements for the vehicles and the employees of the haulier members. They also manage customer contact and transport management, including booking of business, route decisions and follow-up of the services.

The company is led by the CEO and the management team and overseen by a board of directors. The company’s structure is clear and the responsibilities of the personnel are well established and delimited. Company B is divided into three business areas, namely construction logistics, distribution and long-haul logistics and terminal and third-party logistics. The administrative area supports these three business areas in terms of finances, human resources, and IT-support. These areas can be seen in the organisational structure in Figure 15.

The strategy of the company is developed by all the management team and reviewed and approved by the board of directors. Top management at Company B designs organisational goals to reach their strategy, which is discussed by the management team. Each business area develops its own business plan, including the organisational goals for each area and an analysis on strengths, weaknesses and opportunities related to their operations and the goals of the company. The business plans are then sent to the board of directors for review a week prior to a meeting where the goals and strategy are discussed and decided upon. The establishment of the organisational goals and the objectives for all business areas is based on an iterative development.
As mentioned previously, Company B offers transport services for construction purposes, freight transport and third-party logistics. The case was focused mainly on the freight transport business area. However, the administration was included in the case due to its support for the transport operations.

**IT- systems**

Company B uses several IT solutions for their operations, including one for their quality management system. In the systems, all processes, policies, instructions, and standard operating procedures are available to the administrative personnel. Moreover, they use Power Bi as a tool for monitoring the daily performance of their operations and sell this as a complement to their services for customers. In addition, they use other IT solutions for the booking and management of the transport jobs and for the financial management of the company. They also use an IT-tool which helps them estimate the wellbeing of their employees by conducting questionnaires about the work environment and health at work. They also own a mobile application which was designed specifically for the company. The app is used to communicate easily and promptly with their employees, and to make important documentation and information easily accessible to them.

**Partnerships and relations**

Company B strives for long-lasting relations with their main customers. These relations are supported in many cases by standard operating procedures (SOPs). These documents are developed iteratively in cooperation with the customer, and set out responsibilities, routines and
requirements for the handling of the goods. Moreover, the company makes certain decisions to strengthen the relations with their customers. For example, they started using Science Based Targets for one of their customers, as a method of reducing emissions and boosting environmental work in line with the goals of the Paris Agreement.

Besides the relations with partners, Company B participates in various networks. Company B strives to have collaborations with members of those networks in a bid to gather useful information about their environment and future challenges. The company’s collaborations include research and diagnosis projects with universities, collaborations with the regional government and other companies on the development of an industrial park, and collaboration with members of their business sector that are not direct competitors.

**Sustainability initiatives**

The CEO of the company sees in environmental sustainability a competence that needs to be developed in today’s market. For this reason, they are striving to enhance their environmental sustainability through several environmental initiatives. For example, they are Fair Transport certified company, and they are certified in accordance with ISO9001 and ISO14001. Moreover, they own an HVO station to ensure a better price and supply for their vehicles, as well as cutting carbon emissions compared to the results from using diesel. Company B also has Eco-driving training for their drivers. In terms of social sustainability, Company B follows ISO 26000 and is a supporter of social causes through donations to different organisations.

**Company B before and after process management**

Company B was already ISO 9001 certified when the first project was initiated. This means that the company had already implemented process management, in a way, before the project. However, their approach to process management was closer to a static view of the managerial approach in which the processes were merely documentation and the functional structure was prioritised over the processes. There was no process governance, and the process maps and documentation were developed by the quality manager. Since this approach of process management is not the same as the one I use for my dissertation, I refer to a “before and after process management” to compare the company before and after the more dynamic approach of process management was implemented.

During the initial phase of the first research project, process governance was established for all the processes of the company. Moreover, process maps were developed for the processes categorised by top management as most relevant. For some of these processes goals and metrics were established according to the goals of the company, but also metrics connected to the strategic goal of environmental sustainability. Furthermore, insufficient knowledge was found to be a challenge for the employees to engage in process work. Therefore, education on process management and the strategic goal of environmental sustainability were offered to the process owners to enhance their understanding of the manager approach and of the strategic goal. For more details on the implementation and the education see Paper II.

The company has always had the reputation of providing high quality transport services and being a valuable partner for their customers. Before the implementation of process management, Company B had good relationships with their customers and they pursued customer satisfaction by having metrics for their operational processes (transports). However, no proactive gathering of customer satisfaction nor employee satisfaction was done.

After the implementation of process management, the sense of ownership of the processes had increased and the process owners and teams felt more empowered to make changes in the
documents and process maps which resulted in process maps that mirrored their reality. However, the employees interviewed mentioned that most of the improvements were identified and developed during meetings since formal ways of information gathering did not work for them. They argued that the efforts for using process management were not prioritised over their everyday tasks since the pressure from their customers was high.

In terms of the revisions of the process maps and other document of the company, the responsibility was delegated to the process owners and teams. This task was the sole responsibility of the quality manager before the implementation.

Before the implementation most innovation for the activities performed by the employees was done by the employees themselves, but the improvements that involved innovation relied on the CEO. This was not the case after the implementation of process management. Innovation initiatives were also suggested and developed by the rest of the management team such as the use of new IT tools and the addition to new services for the internal use of the company.

Another interesting aspect that was interesting from this implementation was the way the company manages knowledge. Before the implementation, experiential knowledge was shared through meetings, and it was seldom included in documents. After the implementation, the sharing of experiential knowledge was still done through meetings and communication, but the process owners had the responsibility to keep their process maps updated which encouraged them to include this knowledge in the process maps, making the knowledge explicit.

The following table is a comparison of the findings in the company at the beginning of the first phase, before dynamic process management was implemented, and after the conclusion of phase II, once process management had been implemented in the company.

<table>
<thead>
<tr>
<th>Prevision to PM</th>
<th>After PM</th>
<th>Challenges of PM</th>
</tr>
</thead>
</table>
| *Documentation for ISO certification purposes, rudimentary processes elaborated by one manager.  
*Innovation initiatives rely mostly on the CEO.  
*Good communication within the company.  
*No efforts towards proactive improvement suggestions.  
*Processes updated for audit purposes by one single manager.  
*Experiential knowledge sharing through meetings | *Documentation updated more often, responsibilities for each process assigned. Increased awareness of processes and ownership of each process. Processes developed and/or updated in process teams.  
*Innovation initiatives rely on the top management team.  
*Good communication but clearer responsibilities.  
*Top management makes efforts to gather improving suggestions.  
*Processes updated for audit purposes by the process team.  
*Experiential knowledge sharing through meetings, process owner is responsible for updating the process descriptions. | *Prioritisation of everyday tasks.  
*Limited knowledge on the use of process management. |

Additional examples can be found in Paper V.
5. OVERVIEW OF APPENDED PAPERS

This chapter presents a summary of the papers appended to the dissertation. Paper I and Paper II have been published in journals. Papers III–V have been accepted and presented at conferences. Paper IV and Paper V are working papers intended for journal submissions. The overview of the papers is intended to provide the most relevant findings of the appended papers. By means of these findings, I intend to answer parts of the research questions in the following chapters.

Each of the papers included in the dissertation was intended to contribute to the purpose of the dissertation and answer the research questions therein. Table 11 summarises the contributions from each paper to the research questions.

<table>
<thead>
<tr>
<th>Paper</th>
<th>Contribution to research question 1 of the dissertation</th>
<th>Contribution to research question 2 of the dissertation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper I</td>
<td>Connection of process management to environmental sustainability and its strategic importance.</td>
<td>Initial analysis of the need for adaptations to process management</td>
</tr>
<tr>
<td>Paper II</td>
<td>Measurement, goal setting and governance are an important aspect to consider when trying to understand the strategic role of process management.</td>
<td>Measurement, goal setting, process development and governance are important aspects for defining adaptations to process management.</td>
</tr>
<tr>
<td>Paper III</td>
<td>Continuous improvement is a connection between process management and long-term sustained competitive advantage. Hence, it is an important element for the strategic role of process management.</td>
<td>The paper highlights the need within the case companies to use process management to enhance environmental sustainability.</td>
</tr>
<tr>
<td>Paper IV</td>
<td>Synergies and conflicts between dynamic capabilities and process management. Then contribute to understanding the connection between process management and long-term sustained competitive advantage. In turn, this helps to explain the strategic role of process management.</td>
<td>The conflicts provided insights into the adaptations required for process management.</td>
</tr>
<tr>
<td>Paper V</td>
<td>Understanding of the role of process management for long-term sustained competitive advantage and how its use supports environmental sustainability efforts</td>
<td>The paper provides empirical data that enables an understanding of the needs of the case companies when it comes to designing the adaptations to process management.</td>
</tr>
</tbody>
</table>
5.1. Paper I

Applying quality methods for achieving environmental sustainability in the freight transport sector – reviewing process management and lean

5.1.1. Purpose

To revisit lean manufacturing and process management to review how they have targeted environmental sustainability, and to determine whether they have the potential to achieve environmental sustainability at companies in the freight transport sector.

5.1.2. Research questions

RQ1: How has process management been used for achieving environmental sustainability?
RQ2: How has lean manufacturing been used for achieving environmental sustainability?
RQ3: Does process management have the potential for greening the freight transport sector?
RQ4: Does lean manufacturing have the potential for greening the freight transport sector?

5.1.3. Findings

Among the findings in Paper I, process management was found to provide a clearer structure that facilitates the measurement of environmental impact – this by dividing the operations of the companies into smaller parts, processes. Each process consists of a chain of activities and for each process it is possible to establish goals. Hence, environmental goals can be established for each process and consequently measurements can be attained for relevant activities to assess the environmental impact of companies. It was also found that a process view supports the implementation of an environmental management system, ISO 14000. Literature on the use of process management in the specific sector of freight transport was found to be limited and scarce, which challenges the development of concrete suggestions for managerial approaches that support the greening of the business sector.

Certain tools from lean, such as value stream mapping, were found to be useful in some organisations to identify waste from an environmental point of view. Similar approaches were found to be used in the freight transport business sector. In literature, the extent of the use of lean was broader than that of process management for achieving environmental sustainability.

In conclusion, the paper suggests that process management and lean have potential to support the pursuit of environmental sustainability. Albeit they do it by using different approaches. Lean targets environmental sustainability from an operative level, while the potential for process management to contribute to the task is higher at a strategic level.

An important contribution from the paper is that both process management and lean require adaptations to be applied in the quest towards environmental sustainability for companies in the road freight transport business sector. Process management and lean need to evolve from a resource perspective and a performance perspective. They both require the inclusion of environmental sustainability as a clear objective.

The road freight transport business sector could then benefit from the implementation of both methodologies, at different levels. Additionally, while the use of lean is researched in the business sector, literature on the use of process management is limited. Thus represents a need and an opportunity to expand the frontiers on this type of research. The business sector is in an urgent drive to find solutions to the environmental impact challenge. Road freight transport
companies constantly face tough goals on environmental impact, the emergence of new technology and tougher demands from customers – hence the need to support management in this business sector with managerial approaches that not only underpin their operations but help them on a strategic level.

5.1.4. Theoretical contributions
The paper provided findings from a literature review on two relevant aspects of QM, one a managerial approach and the other one a philosophy. This paper can then be seen as a base for further research and a source for performing other literature reviews to gain a better understanding on the use of process management and lean in supporting environmental sustainability.

5.1.5. Managerial contributions
The managerial contribution is limited but provides support for practitioners when choosing between process management and lean to enhance environmental sustainability.

5.1.6. Contribution to the dissertation
The contribution of this paper to my dissertation is to strengthen the argument for choosing process management as the focus of my study. Its main contribution, however, was to explore the principles and tools of process management and identify ways in which other companies have implemented these elements of the managerial approach. A major contribution to this dissertation was the finding that process management has the potential to enhance environmental sustainability not only on an operational level but also on a strategical level. This finding supports the choice of using the DC lens for process management.

5.1.7. Reflections on the paper
The focus of this paper was on the usability of lean and process management to enhance environmental sustainability. Environmental sustainability is seen in this dissertation as a strategic goal with relevance for societal satisfaction.

This paper is written based on literature reviews. Hence, the findings of the paper could be expanded if new literature reviews were performed today.

5.2. Paper II
Greening logistics by introducing process management – a viable tool for freight transport companies going green

5.2.1. Purpose
To investigate how process management can enhance a customer-focused greening of the transport and logistics sector.

5.2.2. Research questions
RQ1: How is the use of process management to enhance environmental sustainability in the freight transport industry described in current research?
RQ2: How is process management applied in environmentally ambitious freight transport companies?

RQ3: How can process management be introduced to enhance environmental sustainability in the freight transport business?

5.2.3. Findings

The findings of this paper contributed to a better understanding of the use of process management in the road freight transport business sector. This paper evidenced a limited and fragmented use of process management for enhancing environmental sustainability in the road freight transport business sector. Among these findings, process orientation was found to be a means for increasing efficiency and effectiveness in logistics. Also, it was found that logistics management is flow oriented and that a process focus can lead to value creation.

The findings of the paper also indicated positive relations between some of the elements commonly used for process management and the business sector – for example, customer focus and management commitment.

The paper also presents the use of workshops with thematical experts as an efficient approach for introducing process management to these companies and for integrating green logistics aspects and process management.

The paper suggests a potential for process management to enhance environmental sustainability in the business sector with a more proactive approach. It also suggests an opportunity for researchers to contribute to filling the large research gap between process management, environmental sustainability and road freight transport.

5.2.4. Theoretical contributions

The paper provides a literature review that contributes to mapping the intersection between process management, environmental sustainability and road freight transport. It provides insights into how process management can enhance environmental sustainability with a focus on operative processes. Moreover, it contributes to plugging the gap between process management and green logistics.

5.2.5. Managerial contributions

The paper presents practical contributions related to the implementation of process management. It also presents the use of workshops with thematical experts as an effective and proactive way to introduce process management regarding environmental practices. The paper presents the introduction of process management with a focus on operative processes.

5.2.6. Contribution to the dissertation

This paper presents the data collected during some of the literature reviews for the exploration of process management, environmental sustainability and road freight transport, as well as their intersections. The paper provided a deeper understanding of the ways process management could be implemented in road freight transport companies. The empirical findings provided insights for understanding the adaptations required to process management. This paper is an early publication from the longitudinal project collaborations. I have followed the development in the organisations also after the publication of the article, and later findings are accounted for in Chapter 4 of the dissertation.
5.2.7. Reflections on the paper

The focus of this paper was on studying the introduction of process management in organisations, regarding environmental sustainability. The study and writing of this paper enhanced my understanding of SMEs and their challenges in introducing process management to their organisations.

5.3. Paper III

How to implement green logistics: using improvement processes for increasing environmental initiatives in freight transport companies

5.3.1. Purpose

To explore the possibilities of using improvement systems, based on process management, for increasing environmental initiatives in freight transport companies.

5.3.2. Research questions

RQ1: How could improvement processes facilitate environmental initiatives in freight transport companies?

RQ2: What are the challenges of implementing improvement processes in freight transport companies?

RQ3: What are the potentials of implementing improvement processes in freight transport companies?

5.3.3. Findings

The findings of the paper included empirical evidence of the ways road freight transport companies can work to improve their processes. The paper suggests that improvement processes could facilitate environmental initiatives by contributing a structured approach that not only manages the processes of the companies but also leads and oversees their improvement. The use of improvement processes in the companies was found to be a proactive approach for gathering improvement suggestions and customer feedback. It was also found that the use of improvement processes enabled environmental initiatives to be driven by management and employees. However, SMEs in the RFT business sector need simple tools that support their improvement work, such as simplified forms for collection of improvement suggestions and for conducting root cause analysis.

The findings of this paper also included four challenges for these companies to have improvement processes. First, established processes facilitate the implementation of an improvement system. A lack of established processes would then have the opposite effect. The underdevelopment of the processes of the companies was a challenge for their process improvement efforts. Second, the contribution from employees to environmental initiatives was lower than the one from top management. It was found that higher levels of process maturity can lead to more environmental and improvement initiatives, both from top management and from employees. Third, the standardisation and formalisation of processes creates fear among the employees for not following the processes properly. This leads to a need to identify a
suitable level of formalisation that does not limit the companies’ flexibility. Finally, the fourth challenge was found to be limitations of resources in terms of administrative and financial resources.

5.3.4.  Theoretical contributions

The paper expands the literature on how road freight companies can enhance their environmental sustainability from a managerial perspective, namely by implementing process management. It also presents action research as an opportunity for researchers to make discoveries in a pragmatic and effective way.

5.3.5.  Managerial contributions

This paper contributed practical examples of how SMEs can apply process management, especially road freight transport companies with an interest in improving their environmental sustainability. The paper also provides examples of environmental initiatives from this type of company. Moreover, the action research approach provides a concrete example of how companies can work in cooperation with researchers for the development of their companies.

5.3.6.  Contribution to the dissertation

This paper contributed to the identification of adaptations needed to process management in order to enhance environmental sustainability. It also contributed to the identification of factors needed during the implementation of process management for it to be successful, contribute to the enhancement of environmental sustainability, and support the development and maintenance of dynamic capabilities. Furthermore, it provided an understanding of the continuous improvement element from process management which I could later analyse with reference to dynamic capabilities literature.

5.3.7.  Reflections on the paper

The focus of this paper was on improvement work based on process management. Within the findings of this paper, we mention benefits from formal improvement systems. However, after the paper was published, we noticed that these formal improvement systems were not compatible with SMEs with low process maturity levels. For these companies, a more informal approach based on knowledge sharing, informal communication, and the use of IT tools (i.e. apps) was more compatible with their organisations. This is also reflected in Chapters 4 and 6 of the dissertation.

5.4. Paper IV

Dynamic capabilities and process management: synergies, conflicts, and missing relations

5.4.1.  Purpose

The purpose of Paper IV is to explore the relations between process management (PM) and theory on Dynamic Capabilities (DC) by identifying synergies, conflicts, and missing relations between them.
5.4.2. Research questions

RQ1: What are the synergies between dynamic capabilities and process management?
RQ2: What are the conflicts and missing relations between dynamic capabilities and process management?

5.4.3. Findings

In this paper we identified two types of synergies between process management and dynamic capabilities, namely conceptual synergies and practical support synergies. The theoretical synergies refer to connections among the principles from process management and the basis that allows capabilities to give companies long-term sustained competitive advantages. Furthermore, a relation between the definitions of process management and dynamic capabilities was found in the literature through a connection between dynamic capabilities and the systematic routines that enable them (Eisenhardt and Martin, 2000; Niehaves et al., 2014; Bernardo et al., 2017). However, the degree of rigour in the standardisation and systematisation of routines was not found.

A second theoretical synergy was found in the governance of processes (Balzarova et al., 2004; Trkman, 2010). The governance of processes was found to be a key factor for achieving a process orientation and having a continuous improvement culture. Nonetheless, the degree of governance for the processes that would enable process orientation was not found. A connection with the continuous improvement principle was also found and is considered to require process orientation and management commitment (Kohlbacher, 2013). Moreover, it was found that studying process management with a DC lens increases the opportunities for increasing long-term sustained competitive advantage when supported by IT capabilities.

Among the findings of the paper, several researchers consider process management as a dynamic capability in itself, which strengthens the strategic role of the managerial approach (Ortbach et al., 2012; Niehaves et al., 2014).

An important finding of the paper is that the conceptualisation of process management through dynamic capabilities theory enables a better understanding of the managerial approach (Anand et al., 2009; Trkman, 2010; Bernardo et al., 2017).

The second synergy found in the paper between process management and dynamic capabilities was based on the support they provide for each other. Process management supports the development and sustaining of dynamic capabilities through the establishment and control of processes whose purpose is to innovate and provide strategic development (Benner, 2009; Ortbach et al., 2012; Bernardo et al., 2017; Bagheri et al., 2019). Moreover, a known effect of the successful implementation of process management is a more efficient use of resources. This leads to a liberation of resources which can be dedicated to efforts towards innovation and improvement. Furthermore, the structure of process management provides companies with a systematic view of the organisations and allows for a constant monitoring and improvement of the organisation. For this reason, some researchers highlight the relevance of managerial processes for the strategy of the organisation (Bititci et al., 2010; Bititci et al., 2011).

The main findings from the paper can be then summarised in the types of relations (conceptual and support) that the managerial approach and the literature on DC theory have. For each relation, similarities and differences were identified and analysed.
5.4.4. **Theoretical contributions**

This paper contributes to the identification of the gap between process management and dynamic capabilities. It also provides a mapping of the existing literature and the synergies and conflicts between the two. In addition, the paper identifies areas of improvement and support for process management.

5.4.5. **Managerial contributions**

The managerial contributions of this paper are limited due to the nature of the paper (conceptual). However, practitioners can use the paper for understanding the role of process management in managerial roles.

5.4.6. **Contribution to the dissertation**

The main contribution of this paper to the dissertation was in identifying and understanding the conceptual relations between process management and dynamic capabilities. It provided data, both empirical and from the literature, and an analysis that allowed me to identify the challenges and benefits that freight transport companies may encounter when implementing process management to enhance environmental sustainability while using the dynamic capabilities lens. With the misfits and missing relations, I was able to identify relevant factors to be considered when using the dynamic capabilities lens to study process management and while using process management to support the development of dynamic capabilities for SMEs within the road freight transport sector. This paper was a relevant source for understanding the strategic role of process management.

5.4.7. **Reflections on the paper**

This paper provided a means for increasing my understanding of dynamic capabilities. It also enabled me to make clearer connections between dynamic capabilities and process management. In turn, this allowed me to identify long-term competitive advantages in the case companies and make connections between the ways in which they generate and sustain them with their ways of working and the fundamentals from process management. Theory on dynamic capabilities can be abstract in certain ways and its application to concrete examples from the organisations can be difficult. The writing of this paper, specifically the development of the analysis, provided a means for discussing and testing my interpretations with other researchers. One of the authors of this paper is a researcher specialising in strategy, including dynamic capabilities. Hence, writing this paper, enabled me to make more accurate interpretations and strengthened my ability to use a DC lens for this dissertation. The analysis and discussions presented in this dissertation take off from this paper.
5.5. Paper V

Pursuing sustainable competitive advantage through the use of process management

5.5.1. Purpose

The purpose of Paper V is to explore how process management can support SMEs in their pursuit of long-term sustained competitive advantage.

5.5.2. Research questions

RQ1: Which activities and practices can be found in SMEs that lead to competitive advantage?
RQ2: How can process management support those activities for achieving long-term sustained competitive advantage?

5.5.3. Findings

This paper presents examples of operative and managerial activities and their connection to competitive advantage, by using a dynamic capabilities lens. In the paper we identified activities and practices related to different sources of competitive advantage of the organisations — namely human resources, management, management of knowledge, innovation, external interactions and customer satisfaction. The activities were linked to elements that

In terms of the human resources, we found that activities and practices related to motivating, empowering, encouraging, and inspiring employees support competitive advantage. These factors enable employees to make decisions and improvements in their processes. The management style was found to contribute to developing these skills and characteristics in the employees. The communication and proximity among the employees, characteristic of SMEs was found to contribute to knowledge share and transfer which is important for organisational learning. The empirical examples from the case companies showed that innovation is possible through engaged management and employees.

The previously mentioned factors are supported by process management. Process management was found to contribute to the generation and sustainment of competitive advantages from different perspectives. First, the process-oriented structure contributes to a clearer understanding of the company. This understanding supports the deployment of goals into performance monitoring, with customer focus. Second, the process orientation facilitates the communication among the company to speak the same language when developing solutions and improvements. Third, process management supports the management of knowledge by making it shared and explicit. Fourth, continuous improvement, which is the purpose of process management constitutes a constant, systematic and planned way to make changes in the organisations and their resources. This, coupled with a clear strategy, can lead to competitive advantages.

5.5.4. Theoretical contributions

This paper builds on the literature found in Paper IV and provides empirical data and additional findings from literature that support the findings of that paper. Additionally, Paper V makes a more explicit connection between process management and dynamic capabilities by providing concrete examples of the generation of competitive advantage. Hence, the strategic role of process management is analysed, strengthening process management from a theoretical perspective. The paper contributes to filling the gap in the support that process management
can give to SMEs in the RFT business sector. It also contributes to dynamic capabilities theory by presenting practices and operational activities and analysing strategic choices and the connection to the microfoundations framework.

5.5.5. Managerial contributions

The paper provides empirical data that work as examples for companies interested in implementing process management. It provides arguments that advocate for the implementation of process management to strive for structure, organisation and continuous improvement while explaining its relevance in organisational strategy.

5.5.6. Contribution to the dissertation

This paper contributes to the dissertation in terms of understanding theoretical and practical connections between process management and dynamic capabilities when it comes to enhancing competitive advantage. It also contributes examples on how capabilities are developed for enhancing environmental sustainability and the role that processes can have in this enhancement. Additionally, this paper is included in the dissertation to provide the perspective of those external parties that could also generate competitive advantages and that could be supported by using process management.

5.5.7. Reflections on the paper

Similarly to Paper IV, this paper contributed to enhancing my ability to use a DC lens for the dissertation. Moreover, it provided a stronger connection between DC theory and concrete examples for the companies. The analysis and discussions performed for the writing of the paper contributed significantly to my knowledge of DC and to my understanding process management from a strategic perspective.

A previous version of this paper was written using another frame of reference known within DC literature. Discussions and analyses among the authors and with other researchers within DC led to the decision to base the paper on the framework presented by Teece (2007). Still, the previous version of the paper enhanced my understanding of DC and enabled me to reflect and analyse the empirical data from different DC frameworks. Indeed, this broadened my view and deepened my understanding of the theory and how process management can be analysed, strategically, with this perspective.
6. ANALYSIS

In this chapter, I present the analysis for my dissertation. Here, I present the findings and results of the dissertation and relate them to the purpose and the research questions presented in the introduction chapter. This chapter is structured according to the research questions.

In Chapter 1, I introduced the purpose of this dissertation, which was to enhance the understanding of the strategic role of process management in SMEs. I also presented the two research questions designed to contribute to this purpose. The analysis of this dissertation is structured around these two research questions.

6.1. Research Question 1

How can the strategic role of process management be understood?

This first research question focuses on understanding the strategic role of process management from a dynamic capabilities perspective. For this, I analysed the fundamentals of process management, presented in the frame of reference, with a DC lens. More specifically, I analyse each of the fundamentals by considering their relation to long-term competitive advantage. I intend to contribute to understanding the strategic role of process management by identifying connections between each of the fundamentals and their support for organisations in reacting to the business environment. To illustrate this with the metaphor presented in the introduction chapter of the dissertation, I analyse how each fundamental supports the movement the house (organisation) requires to survive seismic activities (changes in the environment). I used the fundamentals presented in the frame of reference to structure the analysis around answering RQ1 in this dissertation. In this analysis I also present empirical illustrations to support the analysis.

6.1.1. Organisational structure

Process management literature mentions that a clear hierarchical organisational structure provides clear roles that can provide support to innovation initiatives (Willoch, 1994; Rentzhog, 1998; Hung, 2006; Ljungberg and Larsson, 2012).

The deployment of processes within the organisations, as a result of implementing process management, enables the establishment of goals in lower levels of the companies (processes). From literature on process management, the establishment of these goals should be aligned to the strategic goals of the company (Hung et al., 2009; Bagheri et al., 2019). Literature on DC refers to a need for interrelatedness and connection between the resources, strategy, and capabilities (Teece et al., 1997; Zollo and Winter, 2002; Helfat and Peteraf, 2003). Such interrelatedness and connections can then be facilitated by having established functional and hierarchical structures, together with processes.

In the case companies, it was seen that the hierarchical structure was well established (see figures 15 and 16). Nonetheless, the interviewed employees would describe the companies as flat organisations in terms of hierarchy. This was due to the proximity between employees and management and the leadership style of management, as shown in Paper V. In line with Hung (2006), a flat organisation contributes to communication and a shared view of the organisation, increasing the consistency to the organisation’s strategy.

Organisational structure can also contribute to a clearer base for communication. At the beginning of the implementation of process management, it is important that the hierarchical
structure of the organisation inspires and encourages everyone in the organisation (Balzarova et al., 2004; Cronemyr and Danielsson, 2013). Moreover, management should delegate the processes to those employees that use the processes and have the most knowledge of the process and assign process owners and teams (Balzarova et al., 2004; Cronemyr and Danielsson, 2013). After the implementation of process management, the structure of the organisation will have a focus on the processes instead of the functions. The visualisation of the organisation based on processes is more closely related to the process orientation fundamental. Nonetheless, a clear communication and representation of the organisation may support decision making for the functional structure of the organisation.

For company B, the use of processes facilitated a focus on the flow to generate results that satisfied the customer. The functional and hierarchical structures were well defined in their systems and the functional managers were responsible for ensuring that the resources were available and capable of performing the processes. For this company, the hierarchical and functional structures supported the processes of the company aimed at achieving customer satisfaction. Moreover, the visualisation of the organisation into processes supported decision making by providing a clear picture of the processes linked to each business area. Thus, each business area management could make decisions about new recruitment needs, personnel development needs, and decisions about the processes included in the business area. This is shown in the story provided below and is in line with literature from several process management researchers regarding the benefits of the organisational structure that process management establishes (Rentzhog, 1998; Kohlbacher and Gruenwald, 2011; Dumas et al., 2018; Bergman et al., 2022).

A new administrative manager was recruited for Company B.

He explained during an interview that processes in the company had helped him to get a better introduction as a new employee but also supported him in understanding the functions and processes required from the personnel he oversees, as well as the expected results. This in turn, supported him in making decisions related to personnel development and allocation.

- Manager, Company B, beginning of Research project II
(translated from Swedish)

The alignment of the process results and the customer requirements allows a way to follow up the performance of the organisation and increase the chances of fulfilling customer requirements (Gutierrez-Gutierrez and Antony, 2020). In the case companies, the close and prompt communication within the companies provides a thriving environment for communication and coordination. The process management implementation in Company A was limited. However, the effect of the communication improvement was seen in the improvements and problem solving resulting from meetings and communication among the employees. Moreover, within DC literature it is possible to find this connection between processes and strategy. Basile and Faraci (2015) explain that the management of processes and their performance are a means for recognising problems and improving performance. Moreover, the authors explain that through alignment between these processes and the business goals, it is possible to identify and make decisions that are of high importance for the business strategy. They explain that dynamic capabilities from a managerial perspective are a basis for renewing processes and dealing with changes in the business environment.
Therefore, process management as a managerial approach can be relevant from a strategic perspective, by supporting decision-making through gathering and analysis of data that affects the future of the companies. In Company B, it was possible to see this through the process for strategy development. Data from all areas of the company was used as input for the strategy development process. In this process, analysis was done and a new strategy was developed for the company to follow in the upcoming years. Then, the strategy was translated into needs to be fulfilled by the rest of the areas of the company and their respective processes.

The strategic role of process management can therefore be partly explained by the fundamental of organisational structure. First, organisational structure provides a clear and holistic view of the organisation in terms of functions and hierarchy. Having this clarified is especially useful during the introduction of process management to the organisation – for example when determining the processes of the company and assigning process owners and teams. Second, the deployment of the organisations in smaller structure entities (processes) allows for the establishment of goals and measurements that are aligned with the strategic goals of the company. Third, a clear and flat structure facilitates communication and allow employees to feel empowered and make decisions on improving their ways of working, facilitating processes. Fourth, the data collected through the processes enables a bases for decision making on the future of the organisations. Fifth, the hierarchical and functional structures can identify needs for allocation or development of resources so that the resources are ready to be used by the processes. This contributes to a reconfiguration of the resources for achieving the strategical goals. Finally, processes and the designation of process governance clarify responsibilities for improving the processes, which contributes to ensuring the processes are constantly improved. This last reason is further discussed under the following sections.

6.1.2. Process orientation

In process management, organisations should be structured with processes as a base. These processes make use of resources. In the dynamic capabilities literature, several researchers refer to processes as operational capabilities that enable companies to make use of their resources (e.g. Eisenhardt and Martin, 2000; Zollo and Winter, 2002). Helfat et al. (2007) mention that for operational capabilities to generate long-term sustained competitive advantage, they should not only be able to make use of the resources but should also be dynamic.

In the DC literature, dynamic refers to the capabilities that enable an organisation to constantly transform its resource base to match its business environment (Teece et al., 1997). Within process management, a main fundamental is not only to develop processes but also to constantly monitor them and improve them based on feedback loops (Isaksson, 2016). This continuous improvement of the bases of the organisational structure could then contribute to understanding the strategic role of process management. Process monitoring and analysis based on employee improvement suggestions, customer feedback and process monitoring, among others, enables the means to scan for issues and improvement opportunities, seize those opportunities by introducing the improvements in the processes and to transform resources – for example by identifying needs for competence development among the resources. This is in line with what is exposed by several researchers concerning DC with connections to process management (Bititci et al., 2010; Bititci et al., 2011).

The process orientation fundamental allows for a clearer structure of the organisation. With processes, it is possible to view the organisation as a whole and to understand the interactions and connections between the different process (Rentzhog, 1998; Palmberg, 2009a; Ljungberg and Larsson, 2012; Bergman et al., 2022). This is then used to identify and fulfil customer and societal requirements. A clear process structure allows employees and other actors to see
activities and their flow in the company, including the connection between the different processes (Sever, 2007; Kohlbacher and Gruenwald, 2011; Tang et al., 2013). This enables a better understanding of the organisation and a system perspective on the organisation (Hung, 2006).

Hellström and Eriksson (2008) mention that process management improves communication in organisations by providing a visual representation of the whole organisation and creating awareness of the chain of activities. By visualising the organisation through process maps, it is possible to identify the connections between the processes and it is easier for everybody to “speak the same language” and ensure an alignment between the operative and strategical goals of the organisation. This interconnectedness is also found in DC literature. Researchers such as Bititci et al. (2010); Bititci et al. (2011) explain that this interconnectedness allows for the pursuit of a balance between short and long-term performance that can lead to higher levels of organisational performance and sometimes to long-term sustained competitive advantage. In the frame of reference, the alignment between the process performance and the strategic goals for the organisation were presented as part of the organisational structure fundamental. However, the alignment between the strategic goals of the organisation and the performance of the processes of the organisation resemble a process orientation which is why the alignment should be part of this fundamental.

In the case companies, the process orientation that was visible provided a clear view of the flow required for identifying and fulfilling customer requirements. In the DC view, as mentioned by Teece (2018b), an organisation should be seen as more than just the sum of its parts in order to be truly understood. A process orientation is not only the deployment of the organisation but, it is also through process orientation, that the organisation can be seen as a whole and the interactions between processes can be understood (Sever, 2007; Kohlbacher and Gruenwald, 2011; Tang et al., 2013). This overview of the flow and the processes facilitated a faster response to needs through prompt communication of, and a clear path for, the necessary process steps (see Paper V). This view of the organisation, with an emphasis on the processes, allows an evolution of the mindset of the employees that is focused on the flow and the result to be delivered to the customers, instead of results based on the functional areas of the organisation (Reijers, 2006; Kohlbacher, 2010; Kohlbacher and Gruenwald, 2011; Tang et al., 2013; Nadarajah and Syed A. Kadir, 2016). Both companies have top management that is characterised as available and committed. This is in line with Kohlbacher (2013), who states that a process orientation alone might not lead to innovation and improvements. It is together with a committed management that the process orientation can reach these results.

For this study, none of the companies reached high levels of process maturity (Cronemyr and Danielsson, 2013; Cronemyr and Huge Brodin, 2019). Still, both companies increased their levels of maturity for processes. Company A increased their process awareness and developed routines and instructions for their most critical processes. Company B also increased their level of process awareness — they have developed processes, governability for the processes and goals set for them. Still, not all processes are measured and constantly monitored. The effect of the process orientation could be seen in both companies. Company A showed the biggest difference in terms of employees’ understanding of the entire company, comparing before and after the study (See Chapter 4). In line with Hung (2006), the understanding increased by having more structured ways of working and having more and frequent communication among the different areas of the company. This can be seen in DC literature where several researchers have emphasised the importance of a focus on the organisation as a whole (Eisenhardt and Martin, 2000; Zollo and Winter, 2002; Winter, 2003).

The process orientation fundamental leads to a drive for more efficient processes, which influences the competitive advantages of the companies. Process orientation, together with
employee engagement and empowerment, has a connection to DC, as seen by Teece (2007). Process orientation allows for process awareness, which facilitates an understanding of the contribution that each task makes towards the fulfilment of the customer requirements (Cronemyr and Danielsson, 2013). It is then easier for employees to scan for areas in need of changes in order to make improvement. Employees dare to seize these opportunities and make improvements due to their employee empowerment. Discussions among the employees, due to process awareness, also allow for identification of how the improvement may affect other areas of the company.

A process orientation allows for a clearer view of the company, its resources, and the ability to identify business opportunities, determine how to seize those opportunities and transform the resources to be able to sustain those capabilities. Moreover, with process management the strategic goals of a company are broken down into objectives or goals for each process. This enables the employees to have more accurate and clear information for their own decision-making and improvement development for the processes they work with. Moreover, an alignment from within facilitates a common view of what the company has as long-term goals. Consequently, decision-making processes can be supported and the future path of the company can be decided. This contributes to understanding the strategic role of process management.

6.1.3. Management

Process management implementation and the use of dynamic capabilities require managerial support (Palmberg, 2009a; Plattfaut, 2014). Research in the fields of DC and innovation mention that it is critical that management motivates, inspires, and encourages employees to strive for improvement (Anand et al., 2009; Newman et al., 2018). This was evidenced, as previously mentioned, in the case companies since innovation ideas and processes emerged from the employees, who were empowered by management to take initiatives. Examples of these initiatives are the development of new services for Company B, which were initially proposed and developed by one of the middle managers at the company. This manage worked with an employee to design a new service for third-party logistics which led to several new customers and partnerships. The initiative was encouraged and supported by top management.

The DC lens is here represented by Anand et al. (2009), who explained that top management can facilitate the connection between the organisational goals and the strategic orientation of the organisation by involving middle and lower management in the formation of objectives for their areas. In the case companies, I found there was delegation and involvement of middle and low management levels in objective formulation. This is suggested in DC literature by Anand et al. (2009) and Nuhu et al. (2019) as a way to increase the connection between the organisational results and the strategy.

Process management researchers argue that management commitment is important for its use to lead to competitive advantage (Balzarova et al., 2004; Wong et al., 2013). Other researchers see management commitment to the process management implementation as a key factor in its success (Balzarova et al., 2004; Cronemyr and Danielsson, 2013). Moreover, from a DC perspective, Schoemaker et al. (2018) explain that fast-changing business environments require certain strategic leadership skills, among which are the ability to anticipate changes in the business environment, the ability to challenge thinking and be critical and the ability to make the right decisions in a timely manner.

These skills are also mentioned by Teece (2007) as capabilities associated with anticipating, analysing and making the right decisions, for example for technological investments, before others in order to gain competitive advantage. This was evidenced in the case companies, specifically in the adoption of environmental initiatives. Examples of these initiatives are the
acquisition of test vehicles from manufacturers (see Paper V), the early use of alternative fuels for most of their fleet (see Paper II); and the acquisition of electric vehicles and IT solutions (see Paper V). With these investments, the companies were early adopters compared to their competitors. Furthermore, the early adoption allowed them to acquire knowledge which increased the value of their services. This enabled them to gain competitive advantage that lasted over time even when their competitors were able to acquire the same technology.

The strategic role of process management can then be seen in at least two aspects of the leadership style. First, a leadership style that encourages, motivates, inspires, and is committed can contribute to understanding the strategic role of process management. Second, the inclusion of middle and lower management in the development of goals contributes to a better alignment between the operational performance and the strategic goals. Third, management should be able to scan the business environment and anticipate needs and opportunities for improvement. Management needs to be willing to take risks and make quick decisions to seize those opportunities before their competitors. Moreover, management should ensure that employees feel empowered and can learn from their innovations in order for the resources in the company to be transformed and generate competitive advantage. Thus, process management can contribute to making that knowledge organisation-based rather than individual-based. This is further discussed in section 6.1.5.

6.1.4. People

In process management, a major responsibility of the process teams is to gather information to scan for problems. This is done from both the employees’ perspective and the customers’ perspective (e.g. Palmberg, 2010; Cronenmyr and Danielsson, 2013). The employees can supply the process team with improvement suggestions, ideas, and identification of problems. The customers’ perspective is gathered through means such as direct customer contact, enquiries, and surveys. The customer feedback can be gathered either actively or reactively. Active gathering refers to maintaining direct contact with the customer and asking them for their feedback, while reactive gathering refers to feedback customers give when they have encountered a problem. The process team is then responsible for prioritising the problems and developing solutions based on their previous experiences, knowledge, information gathered from customers and employees, etc. The process governance then becomes a key element in translating the scanned surroundings of the company into opportunities waiting to be seized.

However, as explained by Deming (1993) and Wang (2004), in process management employee involvement is essential, and everyone should be responsible for their actions. Furthermore, the dynamic capabilities literature mentions the importance of empowering employees and involving them in decision-making (Teece, 2007). Employee empowerment can be considered a dynamic capability when it facilitates innovation and adaptation to changes (Nuhu et al., 2019). This can contribute to understanding the strategic role of process management. From the case companies, I could see that the employees’ empowerment, together with their knowledge on the interconnectedness between the different processes of the company, supported their ability and their willingness to make improvements. Meetings were a useful platform for the sharing of experiential knowledge and elevating knowledge from the individual to a group level.

In sum a contribution to understanding the strategic role of process management is that the employee involvement, empowerment, and responsibility delegation contribute to facilitating innovation and adaptation. The employees feel comfortable and dare to make changes and improvements. Then, the responsibility for improvement work is shared by the entire organisation instead of relying on top management and individuals.
6.1.5. Knowledge

Within DC literature, Tamayo-Torres et al. (2016) concluded that tacit knowledge is important for innovativeness, which in turn can lead to competitive advantage. They found that to innovate, organisations need to be able to identify valuable information that is useful for generating new ideas and innovating. The authors expand on the matter by stating that tacit knowledge from experiences should be shared within the organisation. Furthermore, other researchers explain that it is through this knowledge sharing that the organisations develop the capacity to identify opportunities and generate new products, services and innovation (Sammarra and Biggiero, 2008; Biloslavo and Lombardi, 2021).

In an SME, tacit knowledge (Nonaka and Takeuchi, 1995) is a more common type of knowledge (Desouza and Awazu, 2006). Employees learn from doing their work and from their experiences. Then, they can share that knowledge with their peers, either in formal or informal environments – for example, in the case companies, meetings for discussion can be considered formal environments where the employees can discuss their challenges and determine solutions. The coffee and lunch breaks give employees a space to discuss these issues in a more informal way. The proximity between employees and management in an SME increases its importance. The sharing and co-creation factors of knowledge require the inclusion of trust among the individuals, which is facilitated by the proximity. This is in line with Biloslavo and Lombardi (2021), who specifically refer to knowledge transferring within SMEs. The authors explain that in SMEs most of the knowledge sharing is done vis-à-vis. Transferring knowledge into explicit knowledge by including it in processes can be a way to increase the availability of knowledge and ensure that the knowledge is kept in the organisational level. This could be extrapolated to organisational knowledge where trust in individuals and their capabilities can have the potential to enable knowledge creation and facilitate sharing, in both a tacit and an explicit way. Having an appropriate approach to managing knowledge is thus critical for SMEs (Petrakis and Kostis, 2015).

Processes can play an important role in the way knowledge is managed, for example as a means of making knowledge explicit to all employees. Experiential and tacit knowledge from one employee can be elevated to a process level which makes the knowledge explicit to the rest of the organisation (Nonaka and Takeuchi, 1995; Keane et al., 2007). Knowledge can thus provide additional information about the processes and goals of the organisation, to increase internal alignment. This enables employees to evaluate the compatibility between personal goals and organisational objectives. It also allows them to make decisions that consider aspects of the company other than those ones referent to their responsibilities. Moreover, if employees feel that their knowledge and experience benefit the organisation, they can be encouraged to share it (Ferres et al., 2004; Hejase et al., 2014). In the case companies, it is possible to see this benefit from managing knowledge in processes. In Company A, the use of routines for key customers makes the customer requirements available to all employees, and knowledge that employees obtain through experience is then included in the routines, so they are available to others through the organisation’s quality system. In Company B, the use of standard operating procedures allows all employees to have the same information about key customers, which ensures a minimum level of quality as a standard for those customers. Moreover, in Company B, the use of ISO certifications supports the management of knowledge since knowledge is transferred through the continuous revisions and improvements required to obtain the certification (Chión et al., 2019).

The management of knowledge is a fundamental that plays an important role in understanding the strategic role of process management. First, the management of knowledge enables the organisation to transform tacit knowledge into explicit knowledge. Second, it provides a way
of expanding knowledge in a company from the individual to the organisation level. Third, it makes the knowledge available for the future, both for the process that enabled the knowledge and the knowledge itself. This in turn, supports the sustainment of competitive advantage.

6.1.6. Continuous improvement

One of the most frequently cited fundamentals of process management in literature is continuous improvement. The connections between continuous improvement and the search for long-term sustained competitive advantage have been researched in the past (e.g. Hung, 2006; Ambrosini and Bowman, 2009; Anand et al., 2009; Hung et al., 2009; Gutierrez-Gutierrez and Antony, 2020), with several researchers suggesting that continuous improvement can be considered a dynamic capability (e.g. Anand et al., 2009; Kohlbacher, 2013).

Within process management literature, the establishment of process objectives, goals and measurements allows for their monitoring (Balzarova et al., 2004; Palmberg, 2009a; Bergman, 2016; Gremyr et al., 2020; Bergman et al., 2022), thus forming the basis for performing improvements. Aligning these improvements with the organisation’s strategy enables internal alignment (Nadler and Tushman, 1980). This alignment allows for a stakeholder focus and assurance that the operative results of the organisation lead to the fulfilment of stakeholder needs (Garvare and Johansson, 2010). As such, alignment also leads to the fulfilment of the organisational goals.

Continuous improvement can be linked to the definition of dynamic capabilities presented by Helfat and Peteraf (2009). The authors explain that dynamic capabilities are the abilities to purposefully change other capabilities. The definition of continuous improvement relates to dynamic capabilities literature, since it defines continuous improvement as a planned, organised and systematic process for developing and implementing continual incremental change (Garcia-Sabater and Marin-Garcia, 2011).

Van Looy and Van den Bergh (2017) explain that the main purpose of continuous improvement is to generate long-term sustained competitive advantage. Within process management, processes are used as a basis for determining metrics, setting goals, and monitoring their performance. This information is then used to identify problems and gaps to determine what improvements are needed. In process management, continuous improvement is planned and performed systematically, which contributes to intentional and incremental changes (Anand et al., 2009). Dynamic capabilities are about intentionally reconfiguring resources to generate long-term sustained competitive advantages (Teece, 2014a). Based on this, continuous improvement in the context of process management could contribute to generating and sustaining competitive advantage. This in turn contributes to understanding the strategic importance of process management.

According to DC literature, internal alignment supports decision making processes by creating a common purpose and facilitating decisions-making by all employees (Anand et al., 2009; Tamayo-Torres et al., 2016; Nuhu et al., 2019). This coupled with employee empowerment, has the potential to reduce bureaucracy and can help with making decisions faster than others, as found in DC literature (Anand et al., 2009). In Company A, the connection between the strategy and the organisational goals relies on the CEO of company. This task made more difficult by the absence of an explicit and documented strategy that is available to the rest of the employees. On the contrary, the process followed by Company B for the development of their strategy is done by top management, but the strategy is deployed into the business areas of the company so that lower levels of management are also involved. Then the strategy plans for each business area and the whole company are reviewed by the board of directors. This iterative process
enables a review of the strategy from the perspectives of different stakeholders (Garvare and Johansson, 2010).

The following example illustrates how continuous improvement contributed to the competitive advantage of the companies. The case companies implemented a quality management deployment tool called Green Karma (Cronemyr and Huge-Brodin, 2021). This tool provided a way to incentive and follow-up initiatives related to a strategic goal, environmental sustainability. Moreover, the tool provided a way to go from short-term focused performance improvements to long-term effects, which is then linked to their strategy. The tool proved to be helpful for increasing pro-active behaviour among the companies, through visualising the initiatives and their development.

From my participation in the research project in which the tool was developed, I could identify an increase in the understanding of the employees involved in the strategic goal through the use of this tool. The tool does not provide a measurable way of following-up the environmental initiatives but gives a visual representation of the progress from idea to implementation of the initiative. The employees could be aware of the initiatives that were done in the company, the journey from idea to developed solution was improved since the employees could contribute to the development and reflect how their own processes could affect or be affected by them. The employees could see the environmental initiatives from an organisational perspective since they understood how their processes were connected to other processes. This process thinking supported the development of the ideas since they understood the consequences and opportunities from every initiative from a broader perspective than one from a functional silo. From a DC perspective, Green Karma was a way to scan internally for ideas, based on needs or opportunities that were identified by the employees. These ideas could then be seized by informing and involving other employees from the organisation. Moreover, the tool provided a means for transforming resources, the developed ideas and the initiatives could be used for marketing purposes to show the customers their efforts towards environmental sustainability and identify needs for improvement and development of new initiatives.

Examples for continuous improvement in the case companies illustrate processes that can be compared to the PDSA cycle (Deming, 1993) in which a plan is designed, implemented, tested, analysed, and updated. In Company B this can be seen in the process for developing the company’s strategy. This process also exemplifies the delegation and involvement of top, middle, and lower management in the development of the goals of the company and enables management to establish objectives that are in line with the strategy of the company. The process further enables the development of an organisational strategy from a bottom-up perspective, which is in line with the propositions made by Anand et al. (2009) for enabling continuous improvement to be a dynamic capability. To further understand the contribution of continuous improvement to the strategic role of process management, I include an analysis of the PDSA cycle through the lens of DC. This is presented below.

The PDSA cycle

As explained by Deming (1993), continuous improvement should be based on the PDSA cycle. This connection suggests a need to analyse the cycle from a dynamic perspective and thus contributes to seeing the importance of continuous improvement for understanding the strategic role of process management.

In the Plan step of the PDSA cycle, changes and improvements are planned based on the knowledge and results of the performance of the company (Deming, 1993; Garcia-Sabater and Marin-Garcia, 2011). This step can then be linked to sensing capabilities. Continuous improvement requires constant monitoring, goal setting and analysis based on the processes.
(Balzarova et al., 2004; Hung, 2006; Bergman et al., 2022; Lepistö et al., 2023). This constant monitoring and scanning for processes allows for a feedback loop (Isaksson, 2016) to identify improvement opportunities, threads, and changes in the customer’s and society’s needs (both explicit and latent). This scanning or identification can be done by comparing between the actual performance and the desired results. From a dynamic capabilities’ perspective, continuous improvement contributes to performing constant scanning on the internal needs and the business environment of the organisations. Moreover, the definition of goals for performing the monitoring enables a connection to the strategy of the organisations when they are aligned to the strategic goals (Nadler and Tushman, 1980). This scanning can be linked to the sensing capabilities (Teece, 2007; Kohlbacher, 2010; Kohlbacher, 2013; Gutierrez-Gutierrez and Antony, 2020).

The Plan step of the cycle can also be linked to seizing capabilities. The sensing for the processes, together with the responsibilities assigned by the process governance enable educated decision-making with a purpose and a connection to the organisation’s strategic goals (Hung, 2006). This connection between the operations of the organisation and the strategic goals strengthens the strategic importance of process management. Moreover, it provides prompt information to support decision-making, which strengthens seizing capabilities to address the opportunities and fulfil the needs of the customers or the business environment.

The Do step can also be viewed through the DC lens. The seizing capability relates to taking advantage of the opportunities found by sensing internally and externally (Teece, 2007). In the Do step, the changes are implemented and tested (Deming, 1993). The operational processes are responsible for producing results and outputs for external stakeholders, directly and indirectly (DeToro and McCabe, 1997; Palmberg, 2009b). Therefore, seizing capabilities have their grounds in operational processes but are overseeing and planned by the managerial processes.

The Study step of the PDSA cycle relates to analysing the results and assessing the change in terms of the method and outputs, and validating the change (Deming, 1993). The Act step of the cycle relates to adopting the change and integrating the learning into future change plans and improvements to be made in the future. These steps can be associated with the links between managerial and operational processes. Learning from what a company does enables processes to be updated and continually improved. This learning can also help the company to ensure the capability of maintaining its advantages by constantly improving them and to capture tacit knowledge. Therefore, these steps can be related to the transforming capabilities (Teece, 2007).

The final step, Act, is about integrating the lessons learned from the previous steps into the organisation. This knowledge can then contribute to updating and changing goals and metrics. One of the most important aspects of the PDSA cycle for continuous improvement is learning and integrating new knowledge when developing new changes (Deming, 1993). In process management, this new knowledge is transformed from tacit and know-how knowledge to explicit knowledge by, for example, including it in process maps. This knowledge transformation enables its integration into the organisation (Nonaka and Takeuchi, 1995). Then capabilities are based on the organisation instead of them being based on the individual (Zollo and Winter, 2002; Teece, 2007; Teece, 2014b). Consequently, the vulnerability of the organisation decreases since it will not be as dependent on the individual to make use of the capabilities.

Continuous improvement is thus a fundamental that contributes to understanding the strategic role of process management. This is done by providing a coherent structure that enables the involvement of employees in the development of organisational strategy. Moreover, the PDSA cycle has connections to sensing, seizing, and transforming capabilities that can contribute to
generating and sustaining competitive advantages, which in turn contributes to an understanding the strategic role that process management plays.

The following table shows some of the main elements in this analysis and it is inspired by Dean and Bowen (1994). The table presents each of the fundamentals of process management that have a contribution to understanding its strategic role. This table is presented to show the connection between operative practices and their contribution to the strategic role of process management. The table also presents examples of the practices found in the companies that supported those fundamentals. Finally, the third row of the table presents the techniques and methods used for those practices that have a connection to process management. I used this table as a base for identifying important aspects of process management in order to identify the adaptation required to answer RQ2.
Table 13. Fundamentals and their connections to the strategic role of process management

<table>
<thead>
<tr>
<th>Connection to the strategic role</th>
<th>Organisational structure</th>
<th>Process orientation</th>
<th>Management</th>
<th>People</th>
<th>Knowledge</th>
<th>Continuous improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear and holistic view of the organisation</td>
<td>Understanding the flow to achieve customer and societal satisfaction.</td>
<td>Management style: Inspiring, motivational, encouraging entrepreneurial leadership.</td>
<td>Sharing responsibilities for process development and improvement.</td>
<td>External and internal knowledge used for transformation of resources and development of new resources.</td>
<td>Continuously improving processes and the company to generate long-term sustained competitive advantages.</td>
<td></td>
</tr>
<tr>
<td>Alignment between strategic goals and processes</td>
<td>Process awareness, understanding of interconnectedness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitates communication between employees and management</td>
<td>Alignment between strategic goals and processes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supports resource development, allocation, and prioritisation</td>
<td>Performance analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supports decision-making</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Examples of practices

| Process mapping and measurement | Process development | Entrepreneurial management | Process governance | Conversion of tacit knowledge into explicit knowledge | Green Karma (QFD) |
| Process governance | Process governance | Middle and lower management involvement | Strategic plan development | Interactions with customers and suppliers | Process improvement |
| Strategic plan development and deployment | Documentation | Closeness between employees and management. | Communication | Meetings and discussions | Projects with educational entities |
| Partnerships with suppliers and customers | Meetings | | | | Monitoring and analysis of key results. |
| Weekly meetings | Process measurement and goal setting | | | | |
| Employee empowerment | | | | | |
| Strategic plan development | | | | | |

<table>
<thead>
<tr>
<th>People</th>
<th>Management</th>
<th>Knowledge</th>
<th>Continuous improvement</th>
</tr>
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<table>
<thead>
<tr>
<th>People</th>
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<th>Knowledge</th>
<th>Continuous improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing responsibilities for process development and improvement.</td>
<td></td>
<td></td>
<td>Continuously improving processes and the company to generate long-term sustained competitive advantages.</td>
</tr>
<tr>
<td>External and internal knowledge used for transformation of resources and development of new resources.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management style: Inspiring, motivational, encouraging entrepreneurial leadership.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples of practices

- Process mapping and measurement
- Process governance
- Strategic plan development and deployment
- Partnerships with suppliers and customers
- Weekly meetings
- Employee empowerment
- Strategic plan development

- Process development
- Entrepreneurial management
- Process governance
- Middle and lower management involvement
- Conversion of tacit knowledge into explicit knowledge
- Closeness between employees and management.
- Communication
- Meetings and goal setting
- Meetings and discussions
- Green Karma (QFD)
- Process improvement
- Projects with educational entities
- Monitoring and analysis of key results.
<table>
<thead>
<tr>
<th>Methods</th>
<th>Cross-disciplinary meetings</th>
<th>SOP development</th>
<th>Workshops for developing solutions</th>
<th>Informal communication and networking activities</th>
<th>Internal communication</th>
<th>Simplified and informal root cause analysis</th>
<th>Process mapping</th>
<th>Goal and measurement setting</th>
<th>SWOT analysis</th>
<th>Continuous communication</th>
<th>Process mapping</th>
<th>Management and administrative meetings</th>
<th>Informal discussions</th>
<th>Discussions with customers in order to develop, or improve services.</th>
<th>QFD</th>
<th>Customer feedback</th>
<th>Improvement suggestions</th>
<th>IT- solutions</th>
<th>Process analysis</th>
<th>Gap analysis</th>
<th>Diagnostic projects</th>
<th>Improvements</th>
</tr>
</thead>
</table>
6.2. Research question 2

How can process management be adapted to fit SMEs?

When adapting process management to SMEs, a simplification is needed (Brambilla, 2013; Rosemann, 2014). However, to make this simplification, we need to understand the needs and capabilities of SMEs. In this section I present an analysis of process management for SMEs. This analysis builds on the analysis that answered RQ1. In RQ1, I identified aspects that are relevant for understanding the strategic role of process management. I use the same classification to structure the analysis of how SMEs can use process management, considering their needs. Finally I propose certain adaptations to process management based on this analysis.

6.2.1. Process management for SMEs

In this part of the analysis, examples from the case companies illustrate the challenges, opportunities and needs the SMEs have related to the fundamentals and implementation of process management.

Interest in the use of process management is historically low among SMEs (Weitlaner and Kohlbacher, 2014). From the case companies, Company A showed a low interest in implementing process management at the beginning of the first research project. This was explained by the interviewees to be due to a high workload, with limited resources in terms of knowledge of process management, time and people among the most critical challenges (see Paper II). However, during later phases of the project, the same interviewees referred to a higher interest in using processes. They explained that this could be attributed to their growth, the process awareness generated through education from the research projects and experiences where employees had left the company and their capabilities were lost because they were on an individual level. This is in line with the findings from Feldbacher et al. (2011) and Weitlaner and Kohlbacher (2014). The companies increased their interest in process management as they grew. However, both companies presented challenges for implementing process management, some of which can be linked to the fundamentals presented in the analysis for RQ1. These challenges were considered in determining the adaptations to process management that were required to answer RQ2.

The following quote from the CEO of Company A exemplifies some of the challenges for SMEs.

“[processes] reduce the need for administrative work in management. You do not need to be so hands on if there is a structure that people can follow in their everyday work. Not having processes is more expensive for us from an administrative point of view. Still, we need to do our work and it is difficult to make time to work on processes. It is important for us to have structures and order but we need to be flexible. We have routines and work descriptions for the operative personnel. But rigid structures[processes] would slow us down.

We need to be open to change and quick to respond to the market and the customers. We need to be the best and the first.”

- CEO, Company A Research project II

(Translated from Swedish)
The previous quote shows several concerns that SMEs have regarding process management. First, the resources required to implement process management can be difficult to allocate due to prioritisation of their everyday activities. Also, the employees lack knowledge on how to work with process development and how to work with documentation for it to be a living system. Third, they are highly pressured to be flexible, to adapt quickly, to innovate and to be the first to differentiate themselves from other transport companies. As explained in Chapter 5, these companies experience a fast-changing business environment with new technologies and solutions.

One of these new technologies is the use of electric vehicles, which represents challenges both operatively and administratively. Early adoption of these technologies gave the case companies advantages in terms of knowledge and identification of operative and managerial requirements for the technologies – for example, participating as testers in projects from vehicle manufacturers allowed Company A to gather information about the requirements, challenges and opportunities associated with using the new engines before their competitors. They could then be prepared in terms of infrastructure, managerial decisions, and operative routines, for when the technologies were available. This was also the case for Company B and their participation in governmental forums and projects to gain firsthand information about new regulations, infrastructure requirements and vehicle requirements to be able to operate in important areas of their region.

Interviewees from both companies showed an increased awareness of the importance of working with processes. Yet, the awareness for the importance of documentation for those processes was still low. From the interviews at Company A, it was found that documentation was considered unnecessary since all employees were aware of their activities and had ownership over their own activities. However, they could still understand the vulnerability that having no established processes represents, since all capabilities lie with the individuals who perform the tasks.

Company B had more documentation and established processes. Still, I found the same challenges in terms of prioritisation of resources. The following quote exemplifies this challenge.

“We [RFT companies] work in a business environment where the customers are demanding and we need to innovate and be able to respond to what they require from us fast. Processes help us organise work and we understand the benefits we get from them. But, we must still do our everyday work, which takes up most of our time. Sot there is not much time for innovation. We need everything to be able to happen automatically, everyday tasks, to just work and be organised so we can have time and energy to innovate and make sure we can foresee and capture the customer’s needs.”

- CEO, Company B, Research project I
(translated from Swedish)

In this quote, the CEO of Company B explains that one of the biggest challenges for SMEs in the road freight transport business sector is to find a balance between the daily operations that are needed for their survival and the activities that lead to innovation and improvement. Companies have to choose between the operative activities and improvement efforts, which usually results in a prioritisation of the former due to daily requirements. However, this might
have an impact on their future competitive advantages. This challenge in prioritising resources is in line with the challenges for SMEs presented by Weitlaner and Kohlbacher (2014) and Van Looy and Van den Bergh (2017).

The dilemma for SMEs presented above is a challenge since they need to prioritise short term results over development that can support long-term competitive advantage and its sustainment. In the first research project, we chose to continue with process improvement efforts even when the companies had low maturity levels in their processes, to test the effects of this choice. In line with Cronemyr and Danielsson (2013) and Huge-Brodin and Cronemyr (2019), I found this approach to be inaccurate since the organisations were not ready to work on improvement in a formal way. Both companies showed incremental continuous improvements as a result of customer requests, discussions and analysis on results and experiences. However, tests for incorporating improvement suggestions documentation and customer feedback documentation failed.

Operatively, process management can lead to a more efficient use of resources (Palmberg, 2009a; Dumas et al., 2018). This in turn can lead to a liberation of resources, as shown in Paper III. The freed resources could then be directed towards innovation and improvement which can later lead to competitive advantage. This is of particular interest for SMEs since much of their competitive advantage relies on the ability to respond quickly to their business environment and the requests and needs of their customers (Nicolescu, 2009; Lepistö et al., 2023). The case study at the companies showed that having a formal approach for process management with structure documentation and formalisation might be challenging for SMEs. Their limited resources and high pressure from their business environment pushes them into prioritising operative and everyday work over making efforts to develop and improve their organisations at an administrative and strategic level.

In sum, the challenges found in the case companies are related to insufficient knowledge on process management, resource allocation and prioritisation of everyday work over development work. However, SMEs possess several characteristics that can be favourable when implementing and using process management.

Organisational structure

Process management structures organisations by means of processes and governance (Willoch, 1994; Ljungberg and Larsson, 2012). From the case companies, it was found that Company B had a higher degree of maturity in process management than Company A. The CEO of Company B explained that the reason for having more hierarchical structures and more structure in terms of processes is because of the nature of the company. This company is a cooperative of hauliers. For this reason, the administrative personnel and the management are employed by a board of cooperative members. Therefore, a clearer structure is needed to have better defined responsibilities within the company. Because of the growth of the company, new business areas have been developed, leading to other branches in the hierarchical structure and to additional processes in the organisation.

The increase in interest in processes and structurisation due to a growth of the organisation was also observed in Company A. However, Company A demonstrated greater challenges regarding the implementation of process management in terms of knowledge and resources. Company A has few administrative personnel, and none has clear responsibility for the process management implementation. More challenges for this implementation can be found in Paper II. This is also in line with findings of the relation between growth and interest in process management done by Weitlaner and Kohlbacher (2014) and Feldbacher et al. (2011). For Company B,
structurisation and documentation are linked to the ISO certification, which has such requirements. This is in line with Poksinska et al. (2003), who suggest that ISO certifications lead to higher levels of structurisation and documentation due to their process orientation.

The communication and cooperation between the different areas of the company were effective and prompt, which is in line with Petrakis and Kostis (2015) and Curado and Vieira (2019). The interviewees explained that the shallow hierarchy of their organisations, coupled with available and engaged management, contributed to a focus on what satisfies the customer instead of their own tasks. This is in line with several researchers that highlight the importance and strength of SMEs in having low bureaucracy, appropriate leaders and a culture where learning from experiences and mistakes is encouraged (Gupta et al., 2004; Curado and Vieira, 2019; Usman et al., 2020). Here, a shift towards a higher process orientation and customer focus from the functional structure was found (Kohlbacher and Gruenwald, 2011). The process awareness increased and the employees could understand how their tasks contributed to fulfilling customer requirements, avoiding functional silos (Cronemyr and Danielsson, 2013; Tang et al., 2013).

**Process orientation**

Processes are a key capability for organisations to adapt and be able to respond to their business environment (Zollo and Winter, 2002), but this is also dependent on the level of maturity of the processes. The case companies did not reach high levels of process maturity which was a constraint on having advanced methods for feedback on the processes, such as process measurements (Cronemyr and Danielsson, 2013). The use of formal improvement systems was not successful for the case companies, with possible reasons for this failure including their level of process maturity (Cronemyr and Danielsson, 2013) or the time allowed for the implementation (Balzarova et al., 2004).

Both companies showed higher levels of employee commitment and motivation with regard to performing their processes once process awareness was involved. Simplified options for gathering suggestions for process improvement were found to be useful for these SMEs for a short period of time, but failed in the long run. The employee empowerment and sense of ownership, together with their knowledge of their specific processes enabled them to make improvements based on the gathered information and their own experiences. In this way, they could scan the performance of their own processes based on experiential knowledge, informal customer feedback and communication with other employees. They discussed improvements, when required, at meetings and during conversations. Management was then able to identify areas in which resource development was required so that the resources could be transformed (see Paper V). The processes and performance of the companies were improved even when the formal data collection for improvement had failed. The close communication between the employees and management and among the different areas of the companies enabled them to identify and perform improvement efforts in a continuous manner, focusing on the flow instead of their functional activities.

Process awareness and orientation in the companies enabled the employees to have a more holistic perspective of the company, which in turn allowed them to work towards common goals and customer satisfaction (Palmberg, 2009b). Both companies showed different maturity levels. In Company A, which had the lowest level of maturity between the companies, the improvement efforts were discussed in a weekly administrative meeting. The meeting provided more structure for discussing issues and solutions, as well as other situations such as changes in customer requirements. This can be exemplified by the following quote from an employee of Company A.
In Company B, each business area discussed its processes at the business area meetings. Improvements in the processes were included in the process descriptions and maps before the subsequent revision for ISO audits. Between the companies, the greatest difference I saw was that in Company A, the processes linked to operative purposes were known by all the employees, and moreover, it was each process owner who made improvements to the respective processes. Processes linked to managerial purposes and strategic decisions were known by the two owners of the company but the responsibility for those processes relied mostly on the CEO. Likewise, activities related to innovation were mostly the responsibility of the CEO and it was the CEO who knew the processes — thus, the company stays vulnerable by keeping all the capabilities related to innovation dependant on one individual. On the other hand, Company B, described their strategic processes and they were available to all members of the management team. Including these processes in the company’s quality system enabled the capabilities to be based in the organisation instead of the individual.

Management

In the analysis of RQ1, I mentioned that the management of SMEs should encourage, motivate, inspire, and be committed to the use of process management. Moreover, I mentioned that lower levels of management should be involved in the determination of goals and measurements. These goals and the overall purpose of the organisations should be clear to everyone in the organisation. The particularities that characterise SMEs (Desouza and Awazu, 2006) might be the reason for the difference in the choice of managerial approaches for achieving long-term sustained competitive advantage. In general, SMEs are enterprises with limited resources and they usually face market failures, exposing them to financial, research, innovation, and environmental challenges. Hence, the management style is also an important factor to consider when implementing a managerial approach.

In Company A, the objectives for each area are not explicitly stated. However, the constant communication and the closeness between the employees and top management enable a way
for top management to ensure that the organisational results lead to the intended purpose. The weekly meetings allow for an analysis of different situations from the perspectives of the different areas of the company. The employees can present problems or obstacles and their potential solution. The solution can then be discussed with the other attendees of the meeting, belonging to different areas of the company.

In Company B, as shown in Paper II and in line with Gavronski et al. (2011), the inclusion of practices and measurements related to strategic goals, such as environmental sustainability can be linked to operational routines or processes. However, management commitment was an important requirement for the practices and measurements to hold over time. This shows that management commitment can support elements of process management, such as process measurement and goal setting. In turn, management commitment is required for the establishment and sustaining of these elements, which can lead to the achievement of strategic goals.

From the previous examples, management in these SMEs was committed to the implementation. The flat organisation and close communication among the different areas of the companies, together with an entrepreneurial and available management, contributed to an organisational culture where people can take ownership of their processes and feel comfortable making decisions. This is exemplified in the following quote from a manager from Company B. In the interview, the manager explains how the top management of the company allows decision-making, empowering and motivating people to take initiative and make decisions.

“We have a flat organisation. I have been working here for a while now and I know exactly what I am supposed to do and what decisions I can make on my own. Decisions here must be taken quickly, even those involving financial aspects. We can’t have bureaucracy like in big companies.

[Being fast] is key for us and it is a marketing tool. Since we are good at it, it is a competitive advantage for us. [Fast decisions] become an incentive for us to show that we are ahead others and that we work towards relevant goals such as environmental issues, sustainability issues and other aspects that are important for everyone.”

- Manager, Company B on making decisions for his own processes, Research project II

(translated from Swedish)

Indeed a strength for both case companies lies on their management style. The entrepreneurial management style seen in the case companies lay mostly on the individuals (CEOs and managers). This management style allows them to avoid bureaucracy, and take risks and make fast decisions, which enhance their flexibility to respond to changes in the business environment and customer demands. Moreover, they have capabilities that allow them to anticipate changes in the demands of the customers and their business environment. The activities used for these capabilities could indeed be replicated by others – for example, holding social events with potential customers, having projects with universities and governmental institutions. However, the availability of the management and their vision for translating the sensing they do into opportunities they can seize may rely on the individuals. Including the activities in processes makes them available to the rest of the employees but it through working closely with these leaders that the capabilities have the potential to become long-term sustained competitive advantages.
People

Process management literature mentions the importance of people for this method. Employee involvement, motivation, encouragement, and empowerment are needed for processes to be continually improved (Balzarova et al., 2004). Rodriguez Ferradas et al. (2017) highlighted the importance of people for SMEs, explaining that the involvement of the employees is important for increasing innovation in an SME. In the case companies, it was found that innovation relied mostly on top management (see Papers III and V). On an operative level, employees felt empowered to make decisions and improvements in their own processes. Nonetheless, those improvements were not always incorporated in the routines and processes since the employees diminished the importance of documentation for their own tasks. This was one of the findings from the first research project. The interviews during the second research project revealed a change and an increase in the process awareness and documentation at both companies. However, the prioritisation of resources mentioned in a previous section of this chapter, made the process development step slow and ineffective. The following quotes from the interviews exemplify this challenge and the change in the process awareness.

“Each of us [the employees] knows what we have to do so there is no point in developing processes and documenting them for ourselves [...] when I need to change my way of working I just do it, nobody else knows what I do.”

- Employee X, Company A, Research project I

“I feel it is unnecessary to document every process, but we have learned that people can leave and then nobody knows what is supposed to be done and exactly how that person did everything. If we had had processes or at least routines for what that person did then it would have been easier for us [the organisation] to overcome the loss.”

- Employee X, Company A, Research project II

(Translated from Swedish)

The communication and proximity between the employees in an SME are strengths since the experiential knowledge is shared on a regular basis through informal communication (Petrakis and Kostis, 2015; Curado and Vieira, 2019). This proved to be a strength for these companies, since the employees are aware of the issues and situation in a timely manner. With employee empowerment and a management style that encourages initiatives from the employees and innovations, more improvements can be made to the performance of the organisation. Processes enhance the empowerment of the employees by giving them responsibility for their own processes.

Knowledge

In line with Petrakis and Kostis (2015), knowledge was found to be transferred by socialising, during verbal conversations and meetings at Company A. For Company B, most knowledge was transferred, at the administrative level, through socialising and meetings. Both companies registered important considerations through meeting protocols, which contributed to organisational memory. In Company B, however, the use of processes allowed this knowledge to be made explicit during verbal communication and when it was included in the processes.
For Company A, knowledge was made explicit if it was included in the routines on an operational level, but it was not included explicitly in routines, processes nor instructions on an administrative level. Additionally, for Company B, their internal and external audits for ISO certification purposes represented a periodic revision and update of the processes and documentation of the company. This is line with Röglinger et al. (2012), since Company B had more mature processes and therefore they had a base for presenting the knowledge in an explicit and written way. Company A, on the contrary, had lower maturity in their processes and the knowledge was transferred in a less explicit way. This affects their organisational memory, as presented by Desouza and Awazu (2006). In other words, the knowledge is based on the individuals, and the availability of the knowledge is limited to the people participating in the meetings and conversations.

Desouza and Awazu (2006) found five peculiarities of SMEs related to the way they manage knowledge. The authors explain that much of the competitive advantage of this type of company relies on their know-how, which is the reason why the way they manage knowledge is important. From a DC perspective, Tamayo-Torres et al. (2016) explain that organisational learning is important for competitive advantage. The authors further explain that it is important for employees to learn from their mistakes and experiences and that it is through organisational learning that perceiving strengths and weaknesses becomes easier for organisations.

In the case companies, it was found that their know-how is a quality that supports them in achieving their purposes. More specifically, the know-how helps them gain new customers and expand their services to existing customers. In Company A, for example, the technical and operative knowledge of its CEO has helped him understand the challenges that personnel and customers may face in performing transports. They have also supported him in finding solutions and suggesting new service configurations that lead to customer satisfaction. In Company B, this was also seen as an improvement to the customer service offered to key customers. The company has used its knowledge of environmental practices to educate and support its customers. Knowledge is a strength that the companies have identified and applied to their operations. For example, both companies recruited personnel with knowledge of the market and contacts in the branches of the industry. This allows them to run more effective recruitment drives and to attract potentially valuable personnel, which is in line with Desouza and Awazu (2006). A process management approach for this type of company should then make a contribution to the way they manage knowledge and ensure that the know-how is highlighted and secured in order to maintain it as a long-term competitive advantage.

For the companies, it was found that lower maturity levels of the process bring a higher risk of failing at integrating knowledge (see Paper V). Lack of governance on incorporating knowledge into the processes may result in limiting the learning possibilities to the involved employees instead of becoming knowledge within the company. Nonetheless, it was found that informal and formal communication enhanced the availability of knowledge to others within the company. For example, the weekly meeting at both companies provided a platform to discuss issues and develop solutions in a way that they could be analysed from different perspectives, leading to more robust solutions and to the knowledge sharing among the employees. This also enabled the transformation of tacit knowledge into more explicit knowledge. However, it was limited to the attendees of the meetings when the knowledge was not documented in the processes.

The way SMEs manage knowledge is important. They have the advantage that tacit knowledge is rapidly and constantly shared among the employees, but if the knowledge is not included in processes, routines, instructions, or other documentation, its availability is limited to the
participants of the sharing. Including knowledge in processes allows this knowledge to be available for all employees and for the future of the organisation.

**Continuous improvement**

According to Zighan and Ruel (2021) incremental changes can be more compatible with SMEs. In the case companies, I could see that systematic, structured, and documented improvement efforts were not compatible with the companies. The ability of the companies to deal with requests from their customers and to changes in their business environment proved that they have incremental improvements and can innovate and be flexible. This is in line with Zighan and Ruel (2021), who explained that SMEs’ process governance consists of assigning a process team and a process owner to each process. One of the main responsibilities of these roles is to make sure the process does not become static. Nadler and Tushman (1980) presents the alignment between the improvement and the strategic goals of an organisation as a key factor for success. This proposition from Nadler and Tushman (1980) can be linked to the suggestion from Anand et al. (2009), who posit that this internal alignment can facilitate decision making for the employees by providing a connection to the direction in which the organisation wants to go, i.e. the organisation’s strategy. Moreover, the importance for alignment can be also linked to the need for strategic fit presented by Tamayo-Torres et al. (2016), who, from a DC perspective, explain that strategic fit sustains competitive advantages for organisations.

In the case companies, it was observed that in processes with higher levels of maturity, it was easier to make a comparison between the desired and actual performance of the company, to determine needs for improvement. This is in line with several studies in process management (Rosemann and De Bruin, 2005; Palmberg, 2010; Röglinger et al., 2012; Cronemyr and Danielsson, 2013; Plattfaut, 2014). For example, in processes related to the performance of the transport services in Company B, the level of maturity was higher. The processes were developed, the process governance was clearly stated, and the processes were constantly monitored. This facilitated communication and the identification of issues to develop solutions. The customer account manager took responsibility for ensuring that the solutions satisfied the customer and had value for them. This was done through close relations and communication with the customer.

Moreover, both case companies benefitted from the use of digital tools for monitoring the performance of the company. The simplicity and accessibility of the digital tools through websites and mobile applications enabled employees to communicate issues in a timely manner and for the information to be delivered to the right person. Thus, decisions could be made faster, and solutions could be developed in a shorter time. An example from Company A is the use of the app to communicate faults with the vehicles. The application allows employees to report failures and include pictures. This allows the maintenance personnel to assess the severity of the failure and book the vehicle for service with the right priority level. Moreover, the service is booked directly, and the information is available for the transport planners so that the availability of the resources is also updated in the system. In turn, the planners have more accurate information for booking the transport services and for responding faster to customer requests.

I saw in the case companies that they constantly work on improving their performance. However, lower maturity levels render it difficult to make decisions in a fast manner without risking making the wrong decision. The wrong decision might be made because there is no data about the issue and management has to react based on the last information gathered instead of looking at the bigger picture to have a more accurate perspective of the performance of the organisation. Still, the difficulty in allocating resources to implement process management
inhibit SMEs from using this managerial approach. For this reason, the following adaptations suggest an approach to prioritise the implementation of process management based on the strategic importance of the activities of the organisations. For the development of the adaptations, I have considered the challenges and the strengths of the SMEs.

6.2.2. Adaptations for process management

The challenges and characteristics mentioned above are the basis for the adaptations I suggest in order for process management to be used in SMEs. These adaptations are intended as a more appropriate approach to focus their efforts and implement process management with a strategic relevance.

In this adaptation, I suggest a three step approach. First, an inventory of the activities that generate competitive advantage for the companies should be done. This inventory contributes to the alignment of the strategic goals of the company to its processes and improvement work. Second, the processes to which those activities belong should be identified. Third, process management efforts should be applied to those processes in a simplified way. The steps are explained below.

1) Inventorying activities

From the strengths found in the analysis, management of knowledge, managerial style and employee commitment were found to be important. The knowledge that management has about the organisation and its constituent processes allows them to identify activities that are of value due to their contribution to competitive advantage. Once the activities are identified, an inventory can be done. The inventory of activities provides a basis for selecting the most important activities for the company to generate competitive advantage and prioritise efforts. First and foremost, it is important to be able to identify competitive advantages and to be able to rank them depending on the importance they have for the company. According to Coyne (1986), there are three criteria for a competitive advantage to be considered a long-term sustained competitive advantage. It should be a source of favourable differentiation against competitors. The competitive advantage should be difficult to imitate and it should also be difficult for other to obtain the ability to secure the competitive advantage. Finally, the competitive advantage and the capability to obtain it should last over time. In Paper V it was found that seminars for education on competitive advantage enhance understanding and facilitate the identification of activities that are sources of competitive advantage.

In this step, the company should identify all sources of long-term sustained competitive advantage and sources of competitive advantage that might not be sustainable but that is of high importance for the achievement of the company’s strategy. The activities should also be analysed to identify those that have the most relevant effect, in order to prioritise efforts in these areas and make improvements to enhance their results. Then, it is time for the next step.

2) Identifying processes

Once the most relevant activities in terms of competitive advantage are identified, it is time to identify processes or chains of activities that are required to obtain the competitive advantage. Once the processes that have the most relevance for the competitive advantage of the organisation are identified and prioritised, the implementation of process management can be initiated in a way that the strategic relevance for the organisation is enhanced. Furthermore, it is important that top management make active choices on the desired maturity levels for the selected processes (Cronemyr and Huge Brodin, 2020). For the implementation, and as a first
step in the implementation, management should assign process owners to each process, as well as process teams. These people will be responsible for developing and continuously improving the processes. Process owners and teams will contribute to increasing the empowerment of the employees and their sense of ownership. In turn, coupled with employee engagement and motivation, more improvements can be done to the processes to achieve higher performance, aligned with the strategy of the company.

3) Simplified process management efforts

This step can differ for each company and should be implemented in line with each company’s skills, knowledge, resource availability and ambition for the implementation. In other words, the elements to implement are selected for each company based on their resource base and their goals. Thus, a contingency approach (Tenhiälä, 2011) should be used when implementing process management at SMEs. The following description of the process management efforts is based on the model presented by Cronemyr and Danielsson (2013) and further developed by Cronemyr and Huge Brodin (2019).

The first effort required for this step is at a top management level, but based on a bottom-up perspective (Garcia-Sabater and Marin-Garcia, 2011). For this, discussions and workshops can contribute to obtaining the employees’ perspective on the company’s operational strategy.

First, a simple and high level process map should be created to visualise the processes of the company and understand their connections and the flow of the activities. The key roles for each of the processes should then be identified and established. In this step, personnel should be selected according to their degree of knowledge about the process. The reason for these criteria is that they are responsible for the design and development of the processes. This groundwork provides a basis for process management efforts for the future.

Taking the selected processes from the second step, the flow, and the requirements for each of the activities in those processes need to be identified. Now, process maps can be developed for just those processes that were identified in the second step.

Once the processes are developed and in place, performance indicators can be developed for each process. These indicators should be aligned with the strategic goals of the company and contribute to the competitive advantage(s) linked to the process. The indicators should also be designed in a way that they contribute to the criteria presented by Coyle (1986). Then, to make the connection to environmental sustainability, indicators should also be established relating to environmental sustainability and the company’s goals for this aspect.

Certain processes or chains of activities (ways of working) can be identified as necessary to support the processes covering the activities that generate competitive advantage. These ways of working may be repetitive, have low complexity and not require a considerable amount of attention and decision-making. In these cases, processes can also be developed for these ways of working so they can happen “automatically”, i.e. so that the everyday processes require less effort from the company. Having these “automatic” processes may lead to a liberation of resources, specifically in terms of the attention that employees need to pay to those activities. Furthermore, it would allow, in case of further growth, for the involvement of new personnel and facilitate the transition so that the more experienced personnel can focus on activities that require more problem-solving, decision making and creative solutions.
7. CONCLUSIONS

In this final chapter, I present the conclusions for my dissertation, divided by the research questions. Later, I present a general discussion related to the purpose of the dissertation. I also present in this chapter the theoretical and managerial contributions of my dissertation. Moreover, I include suggestions for future research related to the dissertation. Finally, I present a brief reflection on the method used for this dissertation.

In Chapter 1, I presented the purpose of this dissertation, which was to enhance the understanding of the strategic role of process management and its usability in SMEs. To achieve this purpose, I presented two research questions, which are briefly answered here.

7.1. Research question 1

How can the strategic role of process management be understood?

To understand the strategic role of process management I have chosen to look at the fundamentals of the managerial approach. This was an attempt to deploy the managerial approach in order to understand it in a deeper way. I found that the strategic role of process management, as part of quality management, can be understood by studying each of its fundamentals through a strategic lens I used a dynamic capabilities lens in this case. For the analysis, I studied the fundamentals of organisational structure, process orientation, people, management, knowledge and continuous improvement.

The fundamental that was found to make the greatest contribution to understanding the strategic role of process management was continuous improvement. Albeit all other fundamentals were found to contribute to understanding the strategic role of process management in different aspects.

The pursuit towards continuous improvement contributes to understanding the strategic role of process management. Continuous improvement is related to the PDSA cycle which can be related to sensing, seizing, and transforming capabilities with potential to generate or sustain long term competitive advantage. Through process management a constant sensing is done internally, based on performance indicators, measurements and improvement suggestions. Process management, when used more effectively, involves a living system rather than a static or (only) documented processes.

The feedback loop for processes works as a base for continuous improvement and enables organisations to scan for gaps in the performance and for changes in customer needs. This scan is also done externally by including customer feedback and information from partners and the business environment as a continuous task of the organisation. Moreover, the opportunities and needs from the sensing can be seized using resources and processes from the organisation. Finally, organisations that are willing and able to transform their resources based on the seized needs have potential to generate long-term sustained competitive advantage. This transformation is done by transferring knowledge from an individual level to an organisational level and making it explicit. Including knowledge explicitly in routines and processes contributes to this purpose and to making the knowledge available in the long term.

Employee empowerment, an appropriate leadership style, a flat organisation and a clear structure were found to facilitate these internal and external sensing. A clear structure for, and governance of, the processes allows the right people to be able to see the sensing and transform the opportunities into actions that can be done by the company to generate or sustain competitive advantage. The quest for customer satisfaction represents a constant need to seek
new opportunities, which is also linked to the sensing type of dynamic capabilities and can lead to long-term sustained competitive advantage.

The sensing type of dynamic capabilities is also a way to explain the strategic role of process management. The measurements, performance monitoring, continuous improvement and efficient use of resources enable companies to seize the opportunities and develop services, products and processes for handling new ideas and customer requirements. Moreover, a clear structure, involvement of all employees and management commitment support the making of fast decisions, which allows companies to seize the opportunities before their competitors. Furthermore, the view of the organisation as a whole and the ability to see all the connections between the different processes in a company enables the possibility of having stronger and more robust structures in place that facilitate understanding and communication, as well as learning within the organisation and with partners.

Finally, the transforming type of dynamic capabilities is present in the way knowledge is managed within the organisation. The ability of the organisations to share knowledge and transform tacit knowledge into explicit knowledge can impact the capability of the organisation to generate and sustain long-term competitive advantage. Processes can be the means to increase the availability and decrease the vulnerability of knowledge. This can affect capabilities to scan and seize opportunities in the future.

The use of process management can lead to long-term sustained competitive advantage, and this contributes to explaining its strategic role. However, several of the elements from process management that lead to long-term sustained competitive advantage are a result of higher levels of process maturity. Such levels of process maturity have processes that are established, can be monitored, and have goals that relate to the strategic goals of the company to ensure the strategic fit. Furthermore, higher levels of maturity are closer to a process orientation than a functional structure. Still, particularities of SMEs could be advantageous for the implementation and use of process management, such as flat organisational structure, effective and close communication within the organisation, tacit knowledge transfer through communication and low bureaucracy.

Management commitment, combined with a certain degree of freedom to allow employee empowerment and inspiration can also lead to competitive advantages. However, the management style is important to make it sustainable. Visionary, open-minded yet structured management can provide organisations with a reasonable degree of structure that liberates resources without sacrificing the ability to innovate and be flexible to the surroundings of the company.

Understanding the strategic role of process management can contribute to determining which aspects of this managerial approach are critical for organisations. Based on the analysis for this first research question, I answered the second research question as follows.

7.2. Research question 2

How can process management be adapted to fit SMEs?

Small and medium-sized enterprises (SMEs) face challenges in the implementation and use of process management in terms of insufficient knowledge, limited resources and high customer demands. Moreover, these challenges push them into prioritising everyday work over development and improvement efforts, such as the ones required for process management. Hence, process management needs to be simplified to be more useful for SMEs in the road freight transport sector. In this dissertation I used the context of SMEs in the road freight
transport sector. From my findings and analysis, a contingency approach is needed when implementing process management. Furthermore, from literature, characteristics from SMEs can represent suitable conditions for the use of process management. In the analysis for this research question, I presented characteristics from SMEs, exemplified by the case companies, linked to each of the fundamentals of process management. Then I presented a general approach for simplifying the managerial approach, considering the role of strategy.

For the simplification of process management, it is important to understand that every organisation has different strengths and challenges which shape the way they generate and sustain competitive advantages. Understanding their challenges and strengths is specifically important in the case of SMEs, where the resources are limited and specific for the organisation. Hence, the simplification should start by considering those strengths and challenges.

Once they are identified, it is important to implement process management in close connection with the strategy of the organisation. For this reason, I suggest inventorying activities that provide the companies with competitive advantages. These competitive advantages can be a basis for identifying activities that should be prioritised for the process management implementation. Activities that are repetitive and that have potential to be standardised should be included, since they can lead to the liberation of resources that can facilitate allocating resources for innovation, improvement and searching for competitive advantage.

A contingency approach is required, since no process management recipe will have the same results for all organisations. Organisations should make active choices in the prioritisation of the process efforts based on their resources, their capabilities, and their strategy, to make the best combination of process management elements for the organisation.

The prioritisation of activities to include in the process management implementation should also regard strategic goals, such as environmental sustainability. This can be done by establishing goals and measurements that connect the activities to relevant aspects that affect those strategic goals.

For the specific case of SMEs in the road freight transport sector, I found that technical and operational knowledge on the resources of the companies facilitates tasks related to risk assessment of investments and changes in the working environment for the employees. That way, the times for decision-making were reduced which led to other competitive advantages. However, the insufficient knowledge on process management and a lack of clear governance in the implementation of the managerial approach can reduce the opportunities of success in implementing process management. Moreover, higher levels of process maturity can be associated with elements that increase the opportunities of generating and maintaining long-term sustained competitive advantages.

7.3. Revisiting the purpose

Most of the elements presented as an answer to RQ1 and RQ2 are linked to the way organisations manage their knowledge and the way they continuously improve. Learning from experiences, from their performance and their business environment are the basis for identifying and developing new ideas for continuous improvement. This is a critical aspect for generating long-term sustained competitive advantage. Therefore, I suggest that the main link between process management and the generation and management of long-term sustained competitive advantage for SMEs is the management of knowledge and continuous improvement. In addition, a clear structure that reduces bureaucracy and supports the most relevant processes in terms of competitive advantage facilitates capabilities related to making decisions and investments at the right time which can lead to long-term sustained competitive advantages.
Proper performance management system is also needed to enable the monitoring and analysis of each of the processes linked to competitive advantages. The performance management requires simple and easily monitored tools, such as the use of mobile applications, that facilitate information gathering for management that supports decision making and the identification of improvement opportunities. Also, leaders who are inspiring, visionary, and accessible could support innovation and improvement in a company. In the special case of environmental sustainability, as a strategic goal, leaders who are willing to take risks and are interested in environmental sustainability drive and support initiatives that enhance environmental sustainability.

The operative role of process management has been explained in literature by mentioning improvements in the performance of the processes, among other benefits. Still, the strategic role of process management is not as explicitly explained as the operative role. In this dissertation I intended to contribute to this understanding by providing findings and analysis that support the connection between the fundamentals of process management and their strategic value for achieving long-term sustained competitive advantage. The answer to the first research question had a more general intention, since it focuses on the managerial approach. The answer to the second research question is more specific for SMEs, since they are organisations facing challenges with process management and their contribution to the global economy enhances the importance of their survival.

7.4. Theoretical contributions

There are several theoretical contributions intended for this dissertation. I present the main ones below for each of the research areas included in the study.

7.4.1. Process management

The operative benefits from the process management implementation have been researched since the beginnings of the managerial approach (Palmberg, 2010). However, literature related to the strategic role of process management is not as extensive. With my dissertation, I answer the call made by other researchers to widen the scope of process management such that it helps organisations be more aware of their business environment (Rosemann, 2014; Bergman, 2016). I contribute plugging to the gap by enhancing the understanding of process management from a strategic perspective. Moreover, the use of dynamic capabilities as a lens contributed not only to the strategic role but also to increasing awareness of the business environment of the organisations.

The dissertation refers to concepts within process management such as processes, governance, leadership and knowledge management seen from a strategic perspective. However, a connection to practical examples and operative activities allows for a clearer understanding of process management. By answering RQ1 and designing the adaptations regarding the fundamentals of process management, my dissertation also contributes to understanding the connection between customer focus, organisations’ strategy, and process orientation.

I also contribute to a further development of process management in terms of its application. Literature on process management for large companies is extensive but its implementation in SMEs is not as widely addressed (Van Looy and Van den Bergh, 2017). This dissertation contributes to understanding the differences between SME and large companies for the implementation of process management. Furthermore, I present a simplification of process management to increase its usability for SMEs. The simplification, coupled with the analysis
enables the reader to understand the inclusion of each fundamental of process management incorporated in the simplification.

7.4.2. Dynamic capabilities

First, this dissertation provides examples of dynamic capabilities’ theory applied to different operational routines and activities of companies. The examples contribute to an understanding of the theory with a more concrete approach and using a managerial approach in the context of SMEs. Hopefully this will aid other researchers by providing examples of the connection between theory and practical cases. Moreover, my interpretation of the framework presented by Teece (2007) can help other researchers from research fields other than strategic management to understand the framework and literature based on it and use the interpretation in their fields of study.

To my knowledge, the connection between dynamic capabilities and process management has not been researched in depth (Benner, 2009; Kohlbacher, 2013; Bergman, 2016). This dissertation is intended as a contribution to that knowledge gap in literature, continuing some of the research threads left by previous researchers. This dissertation is also a contribution to literature on DC in SMEs. Moreover, this dissertation contributes to the research field of dynamic capabilities by presenting process management as a managerial approach that has proved to improve the performance of organisations and that has the potential to support the generation and sustainment of competitive advantage. In the past, several researchers within dynamic capabilities have identified a link between DC and processes (Eisenhardt and Martin, 2000; Zollo and Winter, 2002; Winter, 2003). However, in this dissertation I conduct a deeper analysis on a managerial approach, the scope of which goes beyond just processes or routines.

7.5. Managerial contributions

This dissertation suggests that process management requires simplification in order to be implemented in SMEs. The traditional view of process management requires a considerable number of resources, which complexifies its implementation in SME. Resources such as time and knowledge of the managerial approach limit its accessibility for companies that have limited resources and profits.

In this work I present suggestions for prioritising process management efforts based on the competitive strengths of the companies. This facilitates resource allocation and prioritisation to ensure an implementation of process management that has the building blocks to achieve a greater impact with lower resource utilisation.

Furthermore, the examples of practices related to competitive advantage are a managerial contribution. Practitioners can find concrete examples on how process management efforts, documentation and practices can be related to strategy, clarifying their importance for the future of organisations.

7.6. Future research

This section proposes future research ideas based on this dissertation’s findings, analysis and development process.

Contingency theory

As mentioned by several researchers in the process management literature, there is a need to consider the context and the characteristics of the organisations when implementing process management (Tenhiälä, 2011; Niehaves et al., 2014; Rosemann, 2014). In Papers IV, V and in
this dissertation, I have provided data and analysis that supports this suggestion. A study of process management using contingency theory (Trkman, 2010; Zelt et al., 2018) could contribute to further development of the adaptations suggested in this dissertation.

Methodology

A limitation of this dissertation is the collection of data at two Swedish companies. Furthermore, the method used for this research was qualitative, taking an action research approach. This limits the generalisability of this study. Therefore, the findings and analysis from this study could be tested for other companies, business sectors and sizes of companies. Quantitative approaches could also increase the generalisability of the study.

Greening logistics

This study was born out of an interest in supporting the enhancement of environmental sustainability for road freight transport companies. The study evolved to focus on the strategic role of process management. However, the relevancy and challenges surrounding the greening of logistics is of strategic value for all organisations and is a topic that could be further investigated. More specifically, the impact of using process management to monitor the greening of RFT organisations while increasing value for the customer could be an interesting topic for several actors in the supply chain and the organisations themselves, considering that transports are one of the major contributors to the environmental impact within the supply chain (McKinnon et al., 2015).

Process management maturity models

The findings in the case companies suggest that the use of the traditional maturity models (Rosemann and De Bruin, 2005; Röglinger et al., 2012; Cronemyr and Danielsson, 2013) may not be suitable for SMEs (Cronemyr and Huge Brodin, 2019). Moreover, it can be anticipated that start-ups and smaller companies face considerable challenges when facing decisions on whether and how to implement process management. Studies on process management implementation for SMEs might be an interesting topic of research.

Study of other strategic goals

This study centred on environmental sustainability as a strategic goal. However, organisations can have different strategic goals and they may vary according to the business sectors and the size of the companies, among other factors. An investigation of the connection between other strategic goals and process management is interesting for determining the strategic strengths of process management.

External interactions

From this study, it was found that important competitive advantages for the studied companies come from external interactions – for example, participation in technological projects or the generation of partnerships within the supply chain. Therefore, an interesting study would be the effect of using process management on external interactions.

SMEs vs large organisations

In the introduction chapter I explained that this dissertation was limited to the context of SMEs in the RFT business sector. This implies that a revisitation would be needed for large companies interested in using the results presented in this dissertation. A revisitation is also needed for other SMEs in different business sectors interested in making use of this study. This calls for other researchers to expand on these research gaps.
7.7. Discussion on the use of the DC lens

My main field of studies is Quality Management, specifically process management. Therefore, the inclusion of a strategic lens such as DC was a challenge. DC can be complicated to understand and concretise (Ambrosini and Bowman, 2009; Wu et al., 2013; Teece, 2018b). In DC literature, words such as processes, routines and instructions are used without the same importance that they carry in process management literature. Other concepts such as continuous improvement might also refer to different approaches to improvement. Therefore, in some case it was challenging to interpret the literature and distinguish which papers referred to words and concepts that could be linked to process management. In other cases, I found that literature within process management and DC can be confounded which presents difficulties in separating one from the other. However, if the researcher has studied both process management and DC literature, this task is simplified.

This dissertation is based on a longitudinal study. Following the case companies and their progress over these years has enabled me to understand their actions in a deeper way. It has also contributed to an easier identification of their competitive advantages and understanding why customers prefer their services over those of their competitors. Indeed, this represents an advantage for using the DC lens.

I also found it challenging, in some cases, to clearly separate some of the findings from literature within process management from DC. In some cases, the descriptions made for continuous improvement, for example, could be interpreted as a dynamic capability.

7.8. Final reflections

The development of this dissertation allowed me to further understand process management by studying it from a more strategic perspective. Several of the sections in this dissertation can be perceived to be focused on operative levels. However, as explained by Cepeda and Vera (2007), it can be difficult to separate operational and dynamic capabilities completely, since the former is required for the latter.

My experience from the analysis is that theory on dynamic capabilities can be somewhat tricky in terms of the separation between the theory itself and the reality of the companies which is much more operative. In answering RQ1, I have analysed process management using the dynamic capabilities lens to understand its strategic role. This research question is intended to contribute mostly to process management. However, its answer also includes contributions to theory on dynamic capabilities and a concretisation of the theory. This is done by providing examples of practices connected to process management that can support the generation and sustainment of dynamic capabilities.

Long-term sustained competitive advantage is also a complex factor to analyse, since one of the requirements for these competitive advantages is that they last over time. This presupposes a long period of time to analyse their generation and evolution through time. Although my research is based on a longitudinal case study, it was difficult to distinguish between long-term sustained competitive advantages and competitive advantages. For example, the definition of long-term sustained competitive advantage does not usually include a time that limits its longevity. Also, in the road freight transport sector new innovations in terms of tangible resources and IT solutions are constantly appearing. A competitive advantage today might not be a competitive advantage after a short time. There is a need to establish a clearer criterion, with a stronger connection to practical cases, that enables a distinction to be drawn between long-term sustained competitive advantage and competitive advantage.
It would not be right to end of this dissertation without returning to the metaphor I presented in the first chapter. What do buildings and process management have in common and why would process management help avoid an organisation from crashing after a seismic event? I told the story of my childhood home at the beginning of this dissertation and explained that it had an interesting structure that allowed the house to move at the pace of a seismic event. In my metaphor, the house represented organisations and the seismic event all the situations and events that can change in the business environment or an organisation and can affect that organisation. Just as the house needed a specific structure that could withstand the movement, organisations also need structures that allow them to be flexible regarding their business environment. In this dissertation I presented process management and contributed to the understanding of its strategic role. By answering the two research questions of the dissertation I have presented process management from a strategy perspective and as a structure that can support organisations to sense their environment and react to it. Process management can thus be the dynamic structure that organisations need to move with their business environment instead of crashing down because of their rigidness.
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APPENDICES
INTERVIEW GUIDES
A. Interview guides

1. Interview guide 1
   
a. Process Management interview guide (translated from Swedish)

Purpose: To gather information for the development of a case study in which we can compare the findings in the existing literature with the reality at the case company. This case study is part of a research project based at Linköping University. The case company is a partner in the project. This interview guide was developed based on a previously conducted literature review. Therefore, the purpose of the interviews is to compare the results found in the literature with the reality of the company.

The information provided during this interview will be handled with anonymity. We will analyse all the data gathered from the interviews and presented during the workshop for the company and the joint workshop.

After the interview, you will receive a summary of the information provided by you to be evaluated by you. Changes will be made where necessary; for example, if there are any misunderstandings between what the interviewee said and what the researcher noted.

1. What is your position in the company? What are your work responsibilities?
2. Can you describe your way of working (process) after a customer contacts you for a job? What does the process or activities flow look like? Who performs the activities and who is responsible for them?
3. Is the process documented somewhere/somewhere? (Process Map, Manual, Routines, etc.)
4. What input (information / resources) do you need to perform your work?
5. What is the output (result) of your work?
6. Who is/are your customers (internal and external)? What are their needs or requirements?
7. How do you measure and follow up what you do? Do you have performance metrics?
8. When you want to improve something, for example a service or process or a way of working, how do you do it?
9. Do you use any improvement tools for your processes? For example: Lean, Six sigma, KPI, VSM.
10. Do you consider that process maps help, in any way, to achieve more sustainable freight transport?
11. Do you have any suggestions for how your processes or process maps could be improved and developed? What would you like your processes to look like in one year’s time?
b. Green Logistics interview guide (translated from Swedish)

Purpose: To gather information for the development of a case study in which we can compare the findings in the existing literature with the reality at the case company. This case study is part of a research project based at Linköping University. The case company is a partner in the project. This interview guide was developed based on a previously conducted literature review. Therefore, the purpose of the interviews is to compare the results found in the literature with the reality of the company.

The information provided during this interview will be handled with anonymity. We will analyse all the data gathered from the interviews and presented during the workshop for the company and the joint workshop.

After the interview, you will receive a summary of the information you have provided to be evaluated by you. Changes will be made where necessary; for example, if there are any misunderstandings between what the interviewee said and what the researcher noted.

1. What is your position in the company? What are your work responsibilities?
2. Can you describe what environmental efforts mean for your work?
3. What demands or requirements do you get from the company and its customers, related to the environment?
4. What do you consider to be the most important aspect for the customer? Is there a relationship between this requirement and the environment?
5. Do you have norms or instructions related to the environment that must be followed?
6. Are there any controls to review environmental impact within the company?
7. Do you have any system for providing services according to the level of environmental impact? (e.g. prices, different vehicles, intermodal transport, etc.)
8. Does the company cooperate with other companies to offer services to customers and/or to reduce its environmental impact?
9. Does the customer receive any kind of information about how much the service could affect the environment?
10. How can the company take advantage of involving environmental aspects in its operations?
11. What effects for the company do you think would stem from having greater standardisation? Could standardisation help to achieve sustainable transport from an environmental point of view?
12. Please fill in the following table, which refers to different environmental practices common in transport companies. (The interviewer explains each environmental practice.)

<table>
<thead>
<tr>
<th>Environmental practice</th>
<th>Does the company use it?</th>
<th>Reason (environmental/other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermodal transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logistics system design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural/eco-driving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative fuel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental management system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choice of supplier/customer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emissions data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Interview guide 2 (translated from Swedish)

This interview concerns the first phase of the research project, regarding improvement processes. At the beginning of the interview, the interviewer gives a reminder of what the project is about and the purpose of it. The analysis and improvement of processes are parts of process management. The following questions concern these issues.

1. How do you usually get information about what the customers think of the company?
2. Does the company do surveys, interviews, focus groups or other activities to collect information about what the customers think about the company?
3. How do you handle customer complaints? What do you do when/if you get a customer complaint? Do you document them and what you do?
4. How fast do customers get a response to their complaints?
5. Is it clear who is responsible for handling the complaints?
6. How fast do you solve problems?
7. Is it clear who is responsible for solving the problems?
8. Are the solutions to the problems connected in some way to the processes that concern them? Do you include the solutions in the processes?
9. When there are problems, complaints, suggestions, etc, who is involved in handling them?
10. When the company has faced a problem and solved it, is it communicated to the employees? If so, how?
11. Have you given suggestions for improving the company?
   - Yes: How did you give the suggestion and what happened? Did the company(management) listen to your suggestion? Were there any changes as a product of the suggestion? If you got a response, how fast was it?
   - No: Do you know how to give an improvement suggestion?
12. Do you have a procedure for handling problems and improvements? Are they described somewhere?
13. Do you have information/data registered on what the processes/results look like? For example, in:
   - Invoicing: how many invoices are paid on time?
   - Transport management: how many deliveries are made on time?
   - Services: how satisfied are your customers?
14. Does the company use diagrams, pictures, comparisons, targets, goals, measurements to monitor the results of the company? For example, something that helps the company notice when there is a problem or something that does not go as expected. Which?
15. If there are any improvements to be made, how does the company prioritise which should be fixed first?
16. Does the company conduct surveys, interviews, workshops or other options to gather information about what employees think?
17. Have you carried out improvement projects with root cause analysis at the company (find the problem not the symptoms)? Who? Internal/external help? How has it been documented?
18. Are environmental improvement proposals handled in the same way as other improvement proposals or are they handled in their own way?
19. Where can you see the improvements that have been made? Are they documented in any way?
3. Interview guide 3 (translated from Swedish)

Purpose: To gather information for the development of a case study in which we can compare the findings in the existing literature with the reality at the case company. This case study is part of a research project based at Linköping University. The case company is a partner in the project. This interview guide was developed based on a previously conducted literature review as well as previous knowledge of the case companies. Therefore, the purpose of the interviews is to compare the results found in the literature with the reality of the company. This is an interview guide, which means that not all the questions are stated, and the choice of the questions relies on the interviewer. The interviewer chooses the questions according to the data gathered throughout the interview and according to previous experiences with the interviewee.

The information provided during this interview will be handled with anonymity. We will analyse all the data gathered from the interviews and presented at meetings and at the workshop for the respective company.

After the interview, you will receive a summary of the information provided by you to be evaluated by you. Changes will be made where necessary; for example, if there are any misunderstandings between what the interviewee said and what the researcher noted.

<table>
<thead>
<tr>
<th>Briefly describe the company’s history</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>About the company's development</strong></td>
</tr>
<tr>
<td>How has the company grown/developed over the years?</td>
</tr>
<tr>
<td>How often do you discuss the company’s strategy/goals with others?</td>
</tr>
<tr>
<td>Is there a stated strategy for the company?</td>
</tr>
<tr>
<td>How do you decide on the company’s future?</td>
</tr>
<tr>
<td>Who is involved in strategic matters? How?</td>
</tr>
<tr>
<td>What do you think are the prerequisites for a successful way of managing innovation?</td>
</tr>
<tr>
<td>What do you think are the prerequisites for a successful way of defining the strategy and goals?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>About the company's operation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you communicate to the employees the path that the company will be taking?</td>
</tr>
<tr>
<td>Do you connect parts of the business to the strategy/goals? For example, in the form of metrics/goals?</td>
</tr>
<tr>
<td>Do you have/use routines for managing the business?</td>
</tr>
<tr>
<td>Do you have/use routines for defining the strategy?</td>
</tr>
<tr>
<td>Do you have/use routines for defining goals?</td>
</tr>
<tr>
<td>Do you have/use routines for diagnosing the business?</td>
</tr>
<tr>
<td>What do you think are the prerequisites for a successful collaboration within the company?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>About the company's cooperation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the company collaborate with suppliers, customers and/or other actors? How?</td>
</tr>
<tr>
<td>Who decides that a collaboration is needed? Who initiates the collaboration?</td>
</tr>
<tr>
<td>How do you decide who will be included?</td>
</tr>
<tr>
<td>Who drives collaborations?</td>
</tr>
<tr>
<td>Do you usually work in projects with each partner? How?</td>
</tr>
<tr>
<td>Do you have a stated goal/strategy for the collaboration?</td>
</tr>
<tr>
<td>How has previous experience of collaboration affected the way you work today?</td>
</tr>
<tr>
<td>Do you somehow register how the collaboration takes place? Lessons learned from it?</td>
</tr>
<tr>
<td>How often do you meet? How do you keep in touch?</td>
</tr>
<tr>
<td>What challenges are there in working with different partners?</td>
</tr>
</tbody>
</table>
How do you handle the challenges?
How could you improve the way the collaboration takes place?
Is there a way to have routines or a way of working to manage collaboration that could work for all partners?
Have you found that some partners are easier to work with? What makes it so?

**About the company’s improvement work**

How do you handle improvement suggestions and customer feedback?
How do you introduce improvements in the company?
How do you identify the areas that need improvement?
Who is involved in the improvement work?
Do you usually have projects for improvements? When? How?
What challenges do you perceive with the improvement work?
What do you think are the prerequisites for a successful collaboration with customers?
What do you think are the prerequisites for a successful collaboration with suppliers?
What do you think are the prerequisites for a successful collaboration with other actors?
What do you think are the prerequisites for a successful way of managing collaboration?
4. Interview guide 4 (translated from Swedish)

Purpose: To gather information for the development of a case study in which we can compare the findings in the existing literature with the reality at the case company. This case study is part of a research project based at Linköping University. The case company is a partner in the project. This interview guide was developed based on a previously conducted literature review as well as previous knowledge of the case companies and the previous interview performed on dynamic capabilities. Therefore, the purpose of the interviews is to compare the results found in the literature with the reality of the company. This is an interview guide, which means that not all the questions are stated, and the choice of the questions relies on the interviewer. The interviewer chooses the questions according to the data gathered throughout the interview and according to previous experiences with the interviewee.

The information provided during this interview will be handled with anonymity. We will analyse all the data gathered from the interviews and presented at meetings and at the workshop for the respective company.

<table>
<thead>
<tr>
<th>About the company's environmental initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>How has management identified the need to work with environmental issues?</td>
</tr>
<tr>
<td>How have you worked on/developed environmental initiatives?</td>
</tr>
<tr>
<td>Who are usually involved in the environmental initiative’s work?</td>
</tr>
<tr>
<td>Who initiates the work on environmental initiatives?</td>
</tr>
<tr>
<td>What kinds of challenges have you had when working on environmental initiatives?</td>
</tr>
<tr>
<td>How have you handled the challenges?</td>
</tr>
<tr>
<td>What advantages have you had when you have worked with the environment?</td>
</tr>
<tr>
<td>Have you had the need to involve partners?</td>
</tr>
<tr>
<td>Have you benefited from cooperating on environmental issues?</td>
</tr>
<tr>
<td>How do you handle environmental initiative work?</td>
</tr>
<tr>
<td>Do you have routines for environmental initiatives? Develop? Identify? Improve?</td>
</tr>
<tr>
<td>How does the company work with marketing and exposure? Do you include environmental aspects in these activities?</td>
</tr>
<tr>
<td>How is GreenKarma used inside the company?</td>
</tr>
<tr>
<td>How is GreenKarma used with external actors from company?</td>
</tr>
<tr>
<td>Has the working method for GreenKarma been discussed and/or documented? (How) Is it followed up? What could be further developed?</td>
</tr>
<tr>
<td>How does the company work to link work practices to strategic competitive capabilities? Are environmental aspects included?</td>
</tr>
</tbody>
</table>
Papers

The papers associated with this thesis have been removed for copyright reasons. For more details about these see:

https://doi.org/10.3384/9789179294960