

Pursuing sustained competitive advantage through the use of process management

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Abstract

Purpose – The purpose of this paper is to explore how process management (PM) can support small- and medium-sized enterprises (SMEs) in pursuing sustained competitive advantage. For this purpose, a dynamic capabilities (DC) lens was used.

Design/methodology/approach – A narrative literature review and a multiple case study with an action research approach at two road freight transport companies were used.

Findings – PM provides structure and system thinking to support the development of competitive advantage. Concerning PM, management of knowledge, management style and process orientation are key factors for the generation of competitive advantage for SMEs.

Research limitations/implications – This study contributes to PM literature by studying its support for and implementation at SMEs. Furthermore, the study contributes to the literature on DC by providing concrete examples of activities linked to such capabilities.

Practical implications – This study contributes to practitioners by providing examples of implementing PM and identifying competitive advantage, connected with PM elements.

Social implications – This study has social and environmental implications for the quality of life of the Swedish people.

Originality/value – This paper contributes to clarifying the connection between the research fields of quality management and DC to explore how PM can support SMEs in pursuing sustained competitive advantage.

Keywords Process management, Dynamic capabilities, Competitive advantage, SME, Road freight transport, Societal satisfaction

Paper type Case study

1. Introduction

Organisations are constantly urged to react to challenges from their fast-changing business environments (Usman *et al.*, 2020; Magd and Karyamsetty, 2021; Lepistö *et al.*, 2023). Several researchers advocate for adaptations in process management (PM) to enable organisations to react in a faster and more flexible way to their surroundings, thereby enhancing customer satisfaction

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(Rosemann, 2014; Van Looy and Van den Bergh, 2017). Badakhshan *et al.* (2019) characterize PM as a “key for successful organisational management” (p. 1) which has demonstrated benefits for companies by providing a structured approach to continuous improvement and a more efficient use of resources (Palmberg, 2009). Yet, it has faced criticism for potentially constraining flexibility and creating a trade-off between efficiency and innovation (Antunes and Tate, 2022).

Small- and medium-sized enterprises (SMEs) are organisations that experience this need for flexibility and fast reaction to the market and the customers’ requirements (WEF, 2022). Those adept at reacting swiftly and adapting to market shifts are more likely to not only survive but also maintain long-term competitiveness. Several SMEs have implemented PM to provide structure and increase efficiency in their use of resources (Usman *et al.*, 2020; Lepistö *et al.*, 2023). Still, a prevalent concern among SMEs is that the structure from PM might impede their agility and responsiveness, potentially compromising customer satisfaction (Weitlaner and Kohlbacher, 2014).

Researchers have highlighted a paradox between flexibility and the structured nature inherent in PM (Rosemann, 2014; Antunes and Tate, 2022). Taking a positive stance on process structure and control’s impact on flexibility, scholars (e.g. Bergman, 2016; Trkman, 2010; Anand *et al.*, 2009) suggest that managing organizational routines through PM facilitates innovation and adaptation to changes, drawing from dynamic capability theory. Dynamic capabilities (DC) denote specific abilities that enable companies to systematically modify their resource base to effectively navigate changes in the business environment and achieve sustainable competitive advantages (Teece, 2007). Trkman (2010) suggests a connection between PM and DC through continuous improvement.

We propose that the compatibility of PM with innovation and flexibility can be clarified by studying this managerial approach using a dynamic capability lens and focusing on sustained competitive advantage. Hence, the purpose of this paper is to explore how PM can support SMEs in pursuing sustained competitive advantage. We use the term *sustained competitive advantage* to refer to advantages that differentiate companies from their competitors, that are difficult to imitate or replicate and that companies purposefully and actively sustain over time (i.e. Teece, 2007). For achieving this purpose, we use a DC lens for the identification of sustained competitive advantage.

To address our research purpose, we designed two research questions. The first question is based on the identification of activities and practices that lead SMEs to generate competitive advantage. Van Looy and Van den Bergh (2017) explain that the main purpose of using PM is to work for continuous improvement. The level of maturity of business processes within organizations may vary significantly. Specifically for SMEs, higher degrees of trust are included in their management approaches (Curado and Vieira, 2019). *RQ1* was intended to identify activities and practices that contribute to sustainable competitive advantage and was designed as follows:

RQ1. How can activities and practices within SMEs contribute to generating competitive advantage?

Van Looy and Van den Bergh (2017) mention that continuous improvement within PM aims to generate long-term competitive advantage. Research calls for a stronger alignment between PM and DC to understand how PM can support organizations to be more flexible and better answer to changing customer requirements (Trkman, 2010; Rosemann, 2014; Badakhshan *et al.*, 2019). Hence, *RQ2* was designed as follows:

RQ2. How can process management support those identified activities for achieving sustained competitive advantage?

For this specific paper, we studied companies in the road freight transport (RFT) business sector. This business sector is mainly constituted by SMEs, which face challenges for the availability of resources, and the pressuring demands from both customers and society. These companies have limited resources in financial aspects, human resources, knowledge accessibility and time (Pöllänen *et al.*, 2021). These characteristics are reflected on the case companies and the market in which they compete. We focused on internal aspects of these organisations as well as external interactions that enable them to generate competitive advantage.

2. Process management and dynamic capabilities

2.1 Process management

PM is a methodology in quality management (QM) that emerged from a need to focus on the processes required to produce goods instead of limiting to the goods only (Rentzhog, 1998; Hellström and Eriksson, 2008). According to Bawden and Zuber-Skerritt (2002), the management of the processes allows higher flexibility and adaptability to changes through innovation, creativity and higher effectiveness of the use of resources.

There are several perspectives for studying PM. PM has been explained by some researchers as a structured and systematic approach to analysing processes while continuously improving them (e.g. Biazzo and Bernardi, 2003). Others consider PM as a holistic management approach valuable for resource effectiveness (McAdam and McCormack, 2001; Bawden and Zuber-Skerritt, 2002) and other researchers consider PM to include both perspectives (Hellström and Eriksson, 2008; Iden, 2012; Cronemyr and Danielsson, 2013). Regardless of the view, this managerial approach deals with managing, controlling and improving companies, based on their ways of working and with a focus on their customers.

Several of the QM principles (Hellsten and Klefsjö, 2000) can be found in PM. Cronemyr (2007) explains that PM contributes to *customer focus* by identifying requirements and needs. Hellström and Eriksson (2008) explain that PM allows companies to avoid focusing on its hierarchical structure and focus on a *process orientation*. Moreover, the authors identify that a process view allows the individual functions to be seen as a link in a larger sequence of activities that generate value for the customer. Several researchers highlight the importance of having *top management commitment* (Balzarova *et al.*, 2004; Kohlbacher, 2013). Iden (2012) states that organisations might not be specifically interested in developing more structured and organised practices like in PM. Instead, their concern is towards satisfying their customer needs and requirements. Iden (2012) suggests that organisations need PM to measure and determine whether their processes are in line with the desired outcomes to satisfy those customers.

PM has also been linked to quality management systems (QMSs), such as the standard ISO 9001 (Poksinska *et al.*, 2003; Cassells *et al.*, 2012) and to the use of IT-solutions for enhancing operational performance and customer satisfaction (Kerpedzhiev *et al.*, 2020). The link between PM and the ISO standard is highlighted by the process orientation and the level of *structurisation and standardisation* ISO 9001 requires (Poksinska *et al.*, 2003). Structure and standardisation, together with management commitment, support the links of the supply chain by identifying the effects of and factors that affect suppliers and customers (Anderson *et al.*, 1994). Sfreddo *et al.* (2021) suggest that there is a relationship between the implementation of ISO 9001 and the dimensions of organisational performance. Moreover, the authors propose that there is a relation to PM maturity. Sfreddo *et al.* (2021) suggested that ISO 9001 might motivate companies to make improvements to their processes through the seek for organisational performance.

Cronemyr and Danielsson (2013) identify the importance of proper implementation of PM, considering the maturity level of the processes. Similarly, Iden (2012) divides PM into four dimensions: process awareness, process ownership, process measurement and process improvement. Balzarova *et al.* (2004) and Cronemyr and Danielsson (2013) state that process awareness and understanding of the methodology are critical for a successful implementation. According to Balzarova *et al.* (2004), awareness and communication, which is another critical factor, are facilitated through teamwork.

Teamwork requires the designation of teams and delegation of ownership for each process (Balzarova *et al.*, 2004; Iden, 2012; Cronemyr and Danielsson, 2013). Iden (2012) mentions that process ownership can be considered an unessential management role when strictly associated with the organisational hierarchy, and that, in such cases, the work required for the continuous improvement of the processes can be overrun by daily tasks. Another important element of PM is the design and development of processes (Palmberg, 2009; Cronemyr and Danielsson, 2013). Hammer and Champy (1993) present process mapping as an important visualisation tool by showing connections between different processes and the flow of the entire organisation (Hammer and Champy, 1993). Once processes are developed, PM highlights the need for continuous improvement. For process improvement, measurements and goals are used to analyse the performance of each process and evaluate potential changes required (Cronemyr and Danielsson, 2013). Then, the processes should be constantly monitored to identify gaps between their performance and the desired results.

PM has been criticized for a lack of flexibility and adaptability. However, Benner and Tushman (2003) mentioned that the management of organisational routines provided by PM could support innovation and adaptation to changes which suggests a connection to DC. Bergman (2016) highlighted an opportunity for PM to increase its flexibility by using DC theory.

2.2 *Dynamic capabilities*

The DC theory aims to explain how organisations can modify their existing resource base to achieve long-term competitive advantage (Teece, 2007). Many business environments are characterised by a high degree of risks and uncertainties in terms of customers, competitors and new technology developments, which creates a need for appropriate DCs to sustain competitive advantage (Teece, 2016). DCs are embedded in organisational and managerial processes and are often described as abilities of organisations to modify their existing resource base to adapt to new business conditions (Teece, 2007). To make changes to the resource base, Teece (2007) suggests that DCs can be categorized into three critical DCs, including sensing, seizing and transforming. These are further described below.

Sensing business opportunities and threats includes processes for identifying and analysing new business opportunities (Teece, 2007; Teece, 2016). These processes involve effectively scanning the environment in terms of trends outside the organization as well as information about business opportunities within the organization and include both formal and informal search (Hambrick, 1982; Teece, 2007). Sensing creates an important basis for seizing and reconfiguring, which are essential for creating competitive advantages (Lee and Yoo, 2019). From a logistics and supply chain management (SCM) context, sensing processes can include the use of key performance indicators (Mentzer *et al.*, 2001) and routines for collecting customer feedback to identify and analyse logistics-related solutions that can ensure customer satisfaction.

Seizing business opportunities includes processes for seizing identified business opportunities (Teece, 2007). This typically concerns the “development and commercialisation of

new processes, products and services” (Sandberg, 2021, p. 707). This includes processes for selecting or developing new business models and managerial decision-making to launch a new process, product or service. In the realm of logistics and SCM, seizing can include the implementation of new logistics solutions and the creation of external partnerships to better serve customers in a cost and time-efficient manner (Liao, 2020).

Managing threats and transforming includes the orchestration of tangible and intangible resources, both internally as well as externally to the organisation (Teece, 2007). These processes aim to adapt the resource base of the organisation to new customer needs and technology developments, as well as to shape its existing business environment. This DC includes the management’s ability to identify and combine internal and external resources as well as to integrate learnings and know-how in the organisation (Teece, 2007). From a logistics and SCM perspective, transforming processes can increase the logistics flexibility of the physical flow of goods to create a flow that is more responsive to logistics uncertainties, such as changes in customer demands (Liao, 2020)

In addition to these DCs, there are important factors called *micro-foundations*, which can enhance or inhibit the development of DCs (Teece, 2007). Such micro-foundations can be “distinct skills, processes, procedures, organizational structures, decision rules, and disciplines [...]” (p. 1319). For instance, Wilden *et al.* (2013) argued that the appropriate organisational structure for DCs needs to be organic and responsive. According to Teece (2000, p. 41), such a structure should build on a set of attributes that include “non-bureaucratic decision making, decentralised or possibly autocratic, self-managed where possible; [and] shallow hierarchies to facilitate both quick decision-making and rapid information flow from the market to the decision makers”. Wilden *et al.* (2013) support this claim by suggesting that decentralized organisations with more organic structures and non-bureaucratic decision-making can lead to more effective, efficient and adaptive strategy-making, supporting DCs. Furthermore, previous scholars (Zollo and Winter, 2002; Anand *et al.*, 2009; Eriksson, 2014) mentioned a learning orientation, or organisational learning, as an important micro-foundation of DCs. Learning orientation depends on the learning mechanisms that enable organisations to accumulate experiences and articulate and codify new knowledge (Zollo and Winter, 2002). Interorganisational relationships are also essential for learning with/or from partners outside the organisation (Kale and Singh, 2007; Defee and Fugate, 2010). Furthermore, several researchers mention relations between the human factor and the development of DC (Wang *et al.*, 2012; Singh and Rao, 2016). Singh and Rao (2016), for example, explain that DCs related to organisational learning, integration, transforming and alliance management are heavily contingent on employees who are experienced and knowledgeable and who have the capabilities required for identifying changes in the business environment and renewing the resource base of the organisation.

2.3 Link between process management and dynamic capabilities

Several links can be established between PM and DCs. First, the importance of processes is highlighted in both research areas. In DC literature, several researchers have mentioned that processes and routines are needed for the development of DCs (Eisenhardt and Martin, 2000; Zollo and Winter, 2002; Teece, 2018). Eisenhardt and Martin (2000) suggest the strategic importance of processes is found through the use of organisational and strategic processes to create value and to develop new value-creation strategies. Furthermore, Teece (2018) highlights that DCs are supported by managerial skills, routines and processes. Finally, Kohlbacher (2013), a researcher within PM literature, mentions that processes related to innovation, development, scanning and change have a close relation to DCs. Furthermore,

the author considers that both continuous improvement and organisational process alignment are DC, as they both involve a systematic and planned change in the resources of the organisations.

In PM, understanding the interconnectedness among and between processes is important (Balzarova *et al.*, 2004). Bititci *et al.* (2010) and Bititci *et al.* (2011) suggest that DCs are dependent on the interconnectedness of the processes of the organisations. Several researchers in PM literature mention that the interconnectedness of processes is clearer when the processes of the organisation reach higher levels of maturity (Rosemann and De Bruin, 2005; Röglinger *et al.*, 2012; Cronemyr and Danielsson, 2013).

Similar studies for the connection between strategy and QM through the DC lens methods have been undertaken by other researchers. Gutierrez-Gutierrez *et al.* (2020) and Gutierrez-Gutierrez and Antony (2020), for example, suggest that the alignment between the strategic goals and the goals for the processes of the organisation is the basis for the connection between processes and DC. The monitoring of processes from PM is no stranger to DCs. Researchers from DCs consider that DCs have a connection to continuous improvement (Anand *et al.*, 2009; Bititci *et al.*, 2010). Bititci *et al.* (2011) propose that a balance between the activities related to short-term performance management and activities related to long-term performance may support the pursuit of sustained organisational performance. Anand *et al.* (2009) propose that continuous improvement can be a dynamic capability when connected to a comprehensive organisational context and that it is enabled by the organisational infrastructure – processes, organisational structure and management style. The authors define continuous improvement based on DC theory as “actively and repeatedly making process improvements” (p.444).

3. Methodology

This study is based on a narrative literature review as well as a multiple case study, which are further explained in this section.

3.1 Narrative literature review

Due to the explorative nature of this study, a narrative literature review was used to establish a basic understanding of the research fields of PM and DCs. This literature review was done iteratively including a snowball approach (Wohlin, 2014) and a complementary narrative review. For the literature review with the snowball approach, a starter set was first designed. This set included a small selection of articles that were relevant concerning PM and DCs. These articles were considered well-known in the field. These references were used to design search strings for the completing narrative review, as well as for identifying additional references. For the narrative review, the databases Scopus, Google Scholar and UniSearch were used.

3.2 Case study

In addition, due to the nature of the research questions, a multiple case study was used (Yin, 2018), involving two Swedish RFTs. This study was performed using an action research approach in which the researchers worked closely with the case companies and were agents of change (Herr and Andersson, 2015). This type of study was suitable for working with the case companies and supporting them in their PM work (Argiyantari *et al.*, 2021). To keep the anonymity of the companies, we refer to Company A and Company B in this paper.

3.2.1 Case selection. The selection of case companies was based on several selection criteria, including the availability from top management, the interest in research of their leaders and their proactiveness to modify their resource base to achieve sustainable

competitive advantage. Both companies have been part of a research project since 2016 for greening RTFs, where their proactiveness towards environmental sustainability was an important criterion. One of the researchers of this study was an active member of the project and researched these companies for over five years, including interviews, observations, meetings and workshops. The participation in the research project allowed for a closer involvement of the researcher with the companies, which enabled a deeper understanding of the companies and higher trust from the interviewees.

The data collection techniques facilitated an action research approach for the study, by designing change, educating and assisting the practitioners in analysis for implementing changes in the companies (Herr and Andersson, 2015; Hüge-Brodin and Cronemyr, 2019). In addition, the proactiveness of the companies towards environmental sustainability and the long-term relationship of the researcher to the companies was deemed appropriate to explore how PM can support sustained competitive advantage. Furthermore, both companies are considered good practice examples in the Swedish market and operate mostly on regional levels, with few transports outside of Sweden. However, they operate in different regions and are not competitors to one another. Their size and profit margin make them representative of other companies within this business sector. The case companies, Company A and Company B, are further presented below.

Company A is a medium-sized company, founded and owned by a family, with an owner acting as CEO. Company A has an approximate turnover of SEK 110m and over 100 employees, from which approximately 8 have administrative positions.

Company B is a cooperative association, owned by over 120 members. Company B employs over 250 people, including approximately 20 administrative personnel. Company B is overseen by a board of directors and led by a CEO. The company is divided into three business areas, namely, logistics solutions, construction and installation and a terminal service. The members of the board include members of the association, the managers of the business areas and the CEO.

3.2.2 Data collection. The data collection was conducted as semi-structured interviews, document studies, observations and one workshop at each company. The interviews were performed in October and November 2021. The workshops were performed in April and May 2022 [1].

The questions in the semi-structured interviews were designed considering the experiences of the companies and the findings from the literature reviews. The experiences of the companies were findings from the research project, dating from 2016 to 2021, and contributed to the design of the interviews and the interpretation of the answers (Westlander, 2006). The interviews were performed by the researcher participating in the research project in two sets at each company with a duration of 25–70 min per interview. The first set aimed to explore activities, capabilities, routines and processes relevant to the purpose of this paper. The second set aimed to understand the role of PM and had an in-depth focus with questions designed specifically for each interviewee depending on their specific role in the company. The selection of the interviewees was based on their involvement in quality work, customer relations management and strategic development and involved mostly members of the management teams at the companies. For Company A, three interviews were conducted for each set with the same personnel. For Company B, three interviews were conducted for the first set and six interviews for the second set, including the interviewees from the first set. All interviews were recorded and transcribed, and the transcriptions were imported into the NVivo software program, which facilitated the storage, organisation, coding and analysis of the collected data. The findings from the interviews were reviewed

by the interviewees and follow-up questions and discussion were held to ensure the quality of the interpretations.

The document studies included official internal and external documents from the companies. Further observations were done during meetings and interactions with the companies. The document studies and observations were a useful complement when interpreting the interviews.

The workshop was designed and conducted by both researchers, one for each company. In the workshops, the identified activities and practices that lead to competitive advantage were presented to the companies. The participants, two in Company A and four in Company B, linked each of them to processes within the company. The links supported the prioritisation of processes based on the strategic importance of generating or sustaining competitive advantages, supporting the choices of top management at each company to implement PM.

3.3 Analysis

The analysis followed a five-step strategy, using NVivo. As a first step of the analysis, the transcribed interviews were read and coded by both researchers individually to identify the proper coding. For instance, in the literature, it is mentioned that one of the micro-foundations of DC refers to the capabilities to transform the resources of organisations through knowledge management (Teece, 2007). Thus, one of the codes involved practices in which knowledge is shared and transferred. The analysis was performed by both researchers to avoid bias in the interpretation of the empirical data. Few discrepancies were found between the researchers, and in those cases, follow-up questions with the companies were done to ensure a correct interpretation of the data. The second step was a comparison of the coding of the two researchers to select the final codes. The third step involved the analysis of the data by using sets to classify the nodes. The sets were inspired by the literature on PM and DC. A fourth step involved an analysis of the sets to develop a comparison table for the two companies, which enabled both within-case analyses and cross-case analyses. The final step was the analysis of the empirical findings towards the findings from the literature reviews.

4. Activities and practices for competitive advantage in SMEs

This section presents the findings for activities and practices that lead to competitive advantage in SMEs, which responds to *RQ1*. The section is divided according to different sources of competitive advantage identified in the companies. For each of them, examples are provided and the connection to the micro-foundations of sensing, seizing and transforming is explained to understand why they have the potential to lead to sustained competitive advantage. For the case companies, sustained competitive advantage is considered to be present when they acquire new customers, when customers are interested in long-term relations, and when they can offer services to their customers that other competitors are not able to. The examples are presented and explained in [Table A1](#).

4.1 Activities and practices related to management

The interviewees at both companies described their organisations as flat in terms of hierarchy (see [Appendix Table A1](#), Rows 1 to 6). They mention that management is always available for the employees, motivational and communicative. Such a flat organisational structure with management close at hand typically increase the adaptiveness of the company, which is argued to support DCs (Wilden *et al.*, 2013). Moreover, the interviewees described their CEOs as visionary, ambitious, informed, encouraging and improvement-

oriented. They expressed that these characteristics have contributed to enhancing trust within the company, creating a culture where everyone tries to constantly improve their tasks, is willing to help each other and trusts one another in performing their tasks. Furthermore, they consider these qualities to encourage decision-making, the discussion of ideas and problem-solving with high management. They also mentioned that management encourages risk-taking, decision-making and learning from their mistakes, which makes them feel more comfortable in making improvements. This is in line with previous researchers that highlight the importance of having these management characteristics to generate competitive advantage (Usman *et al.*, 2020).

4.2 Activities and practices related to human capital

The findings at both case companies revealed a focus by management on their human capital (see Table A1, Rows 4, 5, 6, 7 to 10, 12). The CEO and management teams of both companies mentioned the importance of having effective recruiting processes and personnel that are knowledgeable, effective, motivated and empowered. Company B, for example, identified the potential of human capital for increasing customer satisfaction and revenue and changed its strategy to include this factor. The changes in their strategy to include human capital can be related to *seizing* capabilities, as explained by Wang *et al.* (2012), as they reflect capabilities for accurate prioritisation and for selecting relevant strategies (Teece, 2007; Teece, 2010; Teece, 2018).

The examples related to human resources from the case companies are in line with the findings from researchers in DC (Wang *et al.*, 2012; Singh and Rao, 2016). Our findings reflect the importance of human capital for SMEs in the generation and sustainment of competitive advantages. Through human capital, the case companies generated capabilities for sensing business opportunities, and identifying potential employees that are valuable for the organisations. Moreover, the case companies developed capabilities for seizing through the development of their human resources and outsourcing of key recruiting processes. Furthermore, capabilities for the transformation of their resources could also be identified in their human capital. The personalities of the management team and CEO reflected a drive for innovation and “being the best” which supports the constant improvement and transformation of resources. Also, the close and prompt communication among the employees enabled knowledge to be shared and for discussions to be held involving several areas of the company, for example during problem-solving.

4.3 Activities and practices related to the management of knowledge

The empirical findings related to these activities can be seen in Table A1, rows 1, 2, 3, 4, 6, 11, 12. Both case companies had a prominent learning orientation, where they lay great importance on learning both internally and with partners, customers and other actors. This orientation is characterised by a strong learning culture among management, which encourages their employees to seek new knowledge and learning-by-doing. Previous scholars (Defee and Fugate, 2010; Zollo and Winter, 2002), state that a learning orientation is one of the most essential micro-foundations for developing DC. Zollo and Winter (2002) highlight the importance of awareness of previous experiences and the ability to learn from them, which enables the companies to modify current processes intentionally. A challenge for them is, however, to elevate intellectual and social capital from the individuals to the organisation, which is explained by Singh and Rao (2016) as one of the reasons why these capabilities are difficult to replicate. In Company A, we found that most of the strategic, innovative and creative thinking lies with the CEO. The employees focus on their tasks and can be innovative in problem-solving for their functions. However, when it comes to future

thinking and the development of new services, the capabilities rely on the CEO alone. Having these capabilities relying entirely on one individual increases the vulnerability of the company, which reflects the importance of knowledge sharing and organisational learning.

Furthermore, the case companies intend to create partnerships and long-lasting relationships with external actors, where they can more openly share experiential knowledge (e.g. learnings), and jointly develop new logistics solutions, which is in line with a learning orientation described by [Deffe and Fugate \(2010\)](#).

4.4 Activities and practices related to external interactions

The empirical findings related to these activities can be seen in [Table A1](#), rows 13 to 17. As explained by [Teece \(2007\)](#), capabilities should be both at an internal and external level. Externally, the case companies were involved in several inter-organisational relationships, including different networks and projects with external actors involving practitioners, governmental institutions and universities. These partnerships and collaborations enable the identification of future customer needs, societal needs and interests, as well as the development of innovative solutions. Moreover, these relationships allow them to have updated information about their surroundings, including new technologies, requirements and legislation ([Teece, 2007](#)), which allows them to anticipate changes and make informed decisions faster than their competitors. As mentioned above, the companies also see partnerships and long-term relationships as opportunities for sensing needs and learning. Moreover, the interviewees mentioned that partnerships are valuable for these companies, as they can lead to longer contracts with key customers, which in turn facilitates making investments in the company. Furthermore, the development of long-term relationships facilitates learning between companies which allows cospecialization and makes it difficult for their customers to change them for their competitors. This cospecialization and sharing of knowledge is described by [Teece \(2007\)](#) as a source for transforming capabilities.

The transport sector has for a long time been quite static; however, this is changing due to new requirements (e.g. increase the environmental sustainability) and new customer needs. Both companies have proactively reacted to the environmental requirements, being pioneers among Swedish RFTs. Furthermore, both companies highlighted the importance of participating in networks and research projects, as it supports their development by generating custom-designed solutions based on their resources and needs and that are at the edge of innovation ([Teece, 2007](#); [McKinnon, 2018](#)). Company A, for example, participated in a research project for designing and implementing a modified bodywork for trucks with enhanced aerodynamic features. Thus, making it difficult for others to imitate their innovation efforts and work as marketing tools. This participation also has an important contribution to the detection of societal needs to help them increase their societal satisfaction.

Both companies appreciate the availability of marketing tools and see a big potential in being acknowledged by their customers and the community due to their high-quality transports, good customer service and environmental sustainability initiatives. This has been shown to have an effect in attracting new employees with closer values to the company. Company B, for example, has scanned their business environment and identified the opportunities of social media for attracting employees and customers. They hired a consultant company for publishing on their social media channels and to train Company B's personnel in social media communications. By doing so, they transform their resources by acquiring new knowledge and having the competencies in-house for the future ([Teece, 2007](#)).

4.5 Activities and practices related to innovation

The empirical findings related to these activities can be seen in [Table A1](#), Rows 18 to 21. The companies expressed their interest in innovation as a source of differentiation from others in their business sector. They mentioned that initiatives for environmental sustainability are especially valued by their customers and society, which was not the case previously ([McKinnon, 2018](#)). The interviewees mentioned that customers are prepared for solutions with lower environmental impact to have a higher price than traditional solutions. The companies explained that innovation has become a priority for them, as they anticipate that new customer requirements and legislation will affect them in the future. Furthermore, they see value in being the first to try these innovations. Company B, for example, explained that through being first in implementing innovations, such as new technologies and alternative fuels, they generate skills and knowledge that competitors lack. Moreover, they enhance the value of their service by providing consulting on environmental aspects to their customers. Furthermore, it is easier for them to anticipate and identify future needs, changes and investments required to keep their competitive advantages in the future. For example, these companies own their fuel tanks (biomethane and HVO), which has allowed both companies to have more control over their fuel prices which leads to a more competitive advantage in terms of the prices of their environmental solutions ([Martinsen and Hüge-Brodin, 2014](#)). The anticipation of the need for alternative fuels and the decision to invest in these tanks before their competitors can be related to micro-foundations of seizing ([Teece, 2007](#)) for making smart investments that differentiate them from competitors and are difficult to replicate.

4.6 Activities and practices related to customer satisfaction

Both companies pride themselves on having high-quality, lower environmental impact and high customer service. Company A, for example, prioritises quick responses to their customers and “never saying no”, which is the reason why their flexibility is important, as is keeping good communication and having control over their operations. They consider that the customer appreciates this quality, and it is an advantage over bigger companies such as logistics service providers. The interviewees consider that flexibility to customer requirements is needed to have competitive advantages. This strong focus on customer satisfaction for frequently scanning for new business opportunities and drive to constantly adapt to their business environment allow them to incorporate sensing capabilities into their organisations ([Teece, 2007](#)). Moreover, sensing these needs from the customers enables them to determine which opportunities to seize. Hence, in line with [Lee and Yoo \(2019\)](#), the sensing capabilities act as a platform for the seizing capabilities of the company.

Company A faces challenges in terms of investment for being flexible, specifically for societal needs, such as environmental sustainability. Albeit they are willing to make investments in equipment if the customer facilitates longer contracts, allowing them to recover from their investments. Company A considers that these investments should be sporadic to avoid negative effects on the profitability of their services, but they are important for generating new business opportunities. This is an example of how their culture of “never say no” can be seen as an important prerequisite to being able to develop and commercialise new services, which is important for seizing new business opportunities ([Sandberg, 2021](#)).

The capabilities of the case companies for identifying latent needs were enabled through close relationships with their customers, and their involvement in different projects and networks. These sensing capabilities and their willingness to invest, taking risks and prioritising flexibility allowed them to develop services with lower environmental impact.

These services represented higher costs, which the customers were not yet prepared to pay. Being pioneers differentiated them from competitors and generated valuable knowledge. This knowledge is now seen as value-added to their services and allows them to serve as consultants for environmental initiatives for their key customers, enhancing their value as suppliers and making it difficult for their customers to exchange them for other competitors (Teecce, 2007).

The interviewees at Company B highlighted IT solutions as a strength of their services and an advantage over their competitors. Their IT department works together with the key account managers, sometimes also customer representatives, to custom-design IT solutions for the customers. For this, they use Microsoft Power BI, as a communication tool where the customer can see relevant information, such as the ratio of on-time deliveries. The CEO explains that this tool has increased the transparency in their services, leading to higher value for their customers and becoming a differentiation tool for them. Furthermore, having close customer contact and involving them in the process of designing their reports makes this competitive advantage hard to imitate by others. In line with Kerpedzhiev *et al.* (2020), the use of IT solutions can generate significant value for the company and their customers. Then, it is through established processes that the IT solutions generate value, by translating information into data for decision-making and the achievement of the organisational goals.

5. Process management support for achieving sustained competitive advantage

This section presents the findings of *RQ2*, which focuses on the support of PM for achieving sustained competitive advantage. In this section, several elements related to PM are presented connected to the activities mentioned above.

5.1 Customer focus and process orientation

The companies presented a customer orientation by successfully identifying customers' latent and existent needs (Cronemyr, 2007). Consistent with Iden (2012), Company A is more interested in achieving customer satisfaction than working with processes. Both companies strive to create long-term relationships with customers to simplify and increase the knowledge exchange. Furthermore, the companies' effort for value creation for their customers can be related to DC (Martelo Landroquez *et al.*, 2011). Value creation is characterised by offering logistics solutions that are carefully designed for specific customers, such as the customised logistics solutions combined with IT solutions at Company B. The management of both companies constantly scans for new business opportunities for value creation. The customer focus from PM is then embedded in their drive for continuous improvement and their operations.

The deployment of the companies in processes made the flow clearer for the administrative employees and provided a holistic view of the organisations, which is in line with Hammer and Champy (1993). Furthermore, understanding the flow enabled the employees to understand the interconnectedness between their processes and the rest of the processes of the company, while keeping focus on the end result and how it satisfies the customer (Cronemyr, 2007; Hellström and Eriksson, 2008). As explained by Kohlbacher (2013), a process orientation, coupled with management commitment has the potential to support innovation improvements, leading to sustained competitive advantage. Also, Hammer (2007) explains that the process orientation requires a culture that values teamwork and an attitude from the employees that is customer-oriented. This connection between process and customer orientation argues for suggesting that PM contributes to customer satisfaction by considering customer needs on a process base.

[Kohlbacher \(2013\)](#) mentions that the deployment of the organisations in processes enables a structured and systematic means to work, monitor, plan and reconfigure the resources of the organisations. Hence, PM can contribute to sustained competitive advantage through process orientation and customer focus. The former provides the structures and flow required to manage change, while the latter supports value creation and constant sensing for the business environment to identify opportunities for improvement and needs from customers and society.

5.2 Management commitment and organisational structure

[Kohlbacher \(2013\)](#) found that while process orientation and customer focus are needed to generate competitive advantage, they require management commitment. The authors explain that management needs to motivate and encourage the rest of the organisation to adopt a process-oriented approach. In the case of companies, it was seen that before implementing PM properly, the functional and hierarchical structures of the companies were prioritised over the flow of processes. After the implementation, a shift was seen towards more focus on the process. This process awareness enabled focusing on the results and the customer requirements, increasing customer focus. This shift was facilitated by management commitment.

In terms of organisational structure, both companies evidenced a flat organisation. The interviewees at Company A mentioned that there are hierarchical levels in the organisation but in practice, management is closely positioned to the employees. Flat organisational structures typically result in shorter lines of communication, simplifying information exchange between management and employees. As explained by [Wilden et al. \(2013\)](#), a decentralized organisation with more organic structures and non-bureaucratic decision-making can lead to more adaptive strategy-making, which in turn can support more flexible processes among companies.

Company B has also a documented and established organisational structure. However, contrary to Company A, the distribution of responsibilities and roles is clearly defined and documented. Company B has a clear designation of process teams and owners for their processes ([Balzarova et al., 2004](#)). However, the process teams coincide with the hierarchical structure of the company which can result in a prioritisation of the daily work over process improvements ([Iden, 2012](#)). The delegation of process owners and teams contributed to clearer roles and responsibilities among the employees, thus contributing to establishing roles that were responsible for managing and improving the processes.

Hence, PM can support the pursuit of sustained competitive advantage by having flat organisations with low bureaucracy and clear governance to manage the capabilities of the organisations and ensure continuous improvement.

5.3 Management of knowledge

From a DC perspective, the way knowledge is articulated and managed has a role in elevating it from an individual to an organisational level ([Zollo and Winter, 2002](#)). Processes make knowledge explicit, available and traceable to everyone in the organisation. In processes, the knowledge of what is expected as the results and descriptions of how to reach those results are included in the processes and the process development in the implementation ([Cronemyr and Danielsson, 2013](#)).

According to [Cepeda and Vera \(2007\)](#), DCs and the generation of competitive advantage are closely related to the management of knowledge. The authors explain that DCs represent constant changes and transformations in the resources, which lead to a constant sharing and generation of knowledge. Processes are seen by the authors as structures in which knowledge can be made available for everyone and be included as organisational learning.

SMEs have the peculiarity to have prompt and effective knowledge sharing – trust among employees, informal communication and proximity to management are some of the enablers for this peculiarity (Curado and Vieira, 2019). This peculiarity can have the potential to support PM by sharing knowledge promptly and effectively. Furthermore, PM can support the knowledge of management by accumulating knowledge in the processes and making it available to the entire organisation.

The previous considerations were observed in Companies A and B, where close communication among the employees and with management facilitated the sharing of experiences and lessons. The sharing of such knowledge during meetings and social gatherings (see Table A1, row X) contributed to making the knowledge explicit but it was only when the knowledge was included in the processes that it could be made available for all employees. The management at Company A mentioned that a weakness in their company was that every person knew what to do but if that person was not available it was difficult for other to contribute to the tasks of that person. The manager further explained that by having routines and processes in place, the knowledge is elevated to an organisational level and the vulnerability is reduced since they are not dependent on one individual.

5.4 System thinking

Both companies show a holistic view internally and over the supply chain (Hammer and Champy, 1993; Iden, 2012). They have a system thinking, as they both work alongside different supply chain members (e.g. customers, and logistics service providers), allowing them to avoid suboptimizations and to better understand opportunities and challenges of their supply chain. A stronger process orientation was found at Company B; this can be attained by the size of the company (Feldbacher *et al.*, 2011) and the ISO 9001 certifications that the company has (Poksinska *et al.*, 2003). Their process development has enabled a better view of the company and the relation between the different functions and their contribution to value for the customer (Hellström and Eriksson, 2008). This holistic view is typically recognised as a supply chain orientation (Defee and Fugate, 2010), and it is essential for accessing external access and adapting routines and processes to benefit the entire supply chain. Moreover, system thinking and PM were found to support the generation and sustainment of long-term relationships in the companies. The employees mentioned that having structure and a way to show external actors how they monitor and perform their operations, supports them to enhance trust from existing and potential partners.

5.5 Continuous improvement

Continuous improvement is encouraged at both companies. Employees are encouraged to contribute with improvement suggestions and take the initiative to make improvements. The companies strive to gather customer feedback and employee improvement suggestions to develop incremental and radical changes and innovations for their services. Examples of incremental initiatives are the inclusion of IT solutions such as Power BI and a mobile application to facilitate communication within the company and with key customers. An example of radical initiatives is the development of a warehouse terminal for the distribution of goods based on the needs of their customers.

These initiatives are connections between the companies' pursuit for competitive advantage and their awareness of their business environment. The initiatives allow the companies to scan their business environment to identify current and potential needs of their customers and seize those opportunities by developing new services or improving their existing services. This is in line with Anand *et al.* (2009) who suggest that continuous improvement can be considered a dynamic capability when the context of the organisation

is accounted for. The authors further explain that continuous improvement requires an infrastructure in place to be purposely developed and organised. They further suggest that a defined purpose, linked to the strategic goals, together with engaged and capable people and standardized processes for improvement enable continuous improvement to be a dynamic capability.

In PM literature, the main focuses are customer satisfaction and continuous improvement, with consideration of the effective use and development of resources (Palmberg, 2009). However, some researchers have a perspective that focuses more on the importance of continuous improvement which more compatible with a view of DC (Kohlbacher, 2013; Gutierrez-Gutierrez and Antony, 2020). In these cases, processes are seen as living entities that need to be constantly monitored and improved over time.

Furthermore, as explained by Sanchez-Ruiz *et al.* (2022), continuous improvement requires a holistic view of the company and a systematic, incremental, planned, organised and sustained pursuit towards changes, innovation and improvement. The authors further explain that it is through organised and structured processes that these characteristics are achieved. Then, it can be anticipated that the structured and organised ways of working resulting from the implementation of PM provide the required structure for incrementally improving organisations.

6. Concluding discussion

This study explored how PM can support SMEs in their pursuit of sustained competitive advantage, by using a DC lens. For this purpose, we formulated two questions which are answered below.

Based on the activities found to be important for the generation of competitive advantages, we suggest that management style, human capital, management of knowledge, innovation, customer focus and external interactions are of special importance for SMEs. The inherent characteristics of SMEs, such as close proximity to management, management style emphasizing prompt communication, limited resources and heightened pressure from customers and competitors, magnify the importance of these source of activities.

Our findings reveal that initiatives aimed at enhancing employee motivation, satisfaction and empowerment indirectly contribute to competitive advantage generation. Empowered and motivated employees exhibit heightened performance and engagement in improvement initiatives, fostering a culture of decision-making and initiative-taking. Moreover, the capability to sense and seize opportunities is augmented when employees are empowered to act autonomously, fostering close communication and cooperation. In addition, knowledge sharing among employees further enhances transformative capabilities, contributing to competitive advantage.

The sustainment of the competitive advantages found can be supported by PM. The structural and process-oriented approach of PM facilitates planned and systematic improvement, which is in line with DC literature. Furthermore, the system thinking and the holistic view from seeing the organisations deployed as processes and understanding their interconnectedness facilitates decision-making and problem-solving. This is done by providing more robust improvements and solutions that are related to several areas of the organization instead of relying on the functions. Continuous improvement, inherent to PM, ensures ongoing adaptation to internal and external needs, fostering the detection and fulfilment of societal demands, thereby enhancing societal satisfaction and long-term competitive advantage generation.

This paper contributes to existing literature by analysing PM-linked practices through a DC lens, shedding light on the strategic and operational roles of PM in fostering competitive advantage. In addition, it provides concrete examples of activities linked to DCs, offering

practical insights for PM implementation in SMEs. The study's practical contribution lies in its ability to guide practitioners in identifying PM-related activities important for competitive advantage, thereby aiding strategic decision-making.

While our findings predominantly focus on internal activities, future research could explore competitive advantage from a supply chain management perspective (Chowdhury *et al.*, 2019), particularly in other business sectors. Furthermore, the study comprehends SMEs in the RFT business sector, which represents opportunities to investigate the topic in other business sectors. The resource limitations of these organisations and their fast-changing business environment made these SMEs a particularly interesting case for this study. SMEs in other business sectors can share similarities in terms of the challenges that a fast-changing business environment represents. Still, further studies within other business sectors are required to contribute to the generalizability of this current study. The human factor was found to be important for the generation of competitive advantage of the companies, which leads to opportunities to research the strategic role of PM and the generation of sustained competitive advantage from the perspective of people (Wang *et al.*, 2012).

Finally, this paper contributes with aspects related to the well-being of employees and the support to innovation, which can lead to improvements in the social and environmental aspects of sustainability.

Note

1. A detailed timeline of the data collection can be found in Navarro (2023). *The strategic role of process management in SMEs*. PhD Compilation, Linköping University.

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Source	Case	Row	Example	Connection to sensing	Connection to seizing	Connection to transform
Management and organisational structure	A	1	The CEO of the company is described as visionary, risk-taking, knowledgeable, accessible, motivational, inspirational and encouraging	The CEO is visionary and has capabilities that enable him to anticipate changes and opportunities in the business environment**	The CEO is willing to take risks in investments for being "first"*	
		2	The company has a flat organisational structure and an "open door" policy where employees feel comfortable talking to each other to discuss decisions and tasks regardless of the position they occupy in the company. Employees are encouraged to make decisions, inform management and learn from their experiences and mistakes	The flat organisation encourages communication among the employees and with management, which enables them to view situations from different perspectives and sense issues and opportunities**	The close communication and availability from management lead to low bureaucracy and capabilities to make prompt decisions and investments**	
	B	3	A project from a technical high school was performed to do a gap analysis according to ISO 26000. This led to the employment of the student, due to her performance and knowledge and to preparations for a future certification of the company	The project was a way to identify opportunities for improvement from an external perspective. Management was able to identify the potential of the student as a key employee due to her knowledge of the company's quality system and her expertise in the standard for future implementation*	The project worked as a base for developing their current Corporate Social Responsibility policy*	The employment of the student-led to keeping the knowledge on ISO 26000 in-house to do future analysis and educate other personnel*
Management and organisational structure	B	4	The CEO of the company is described as visionary, knowledgeable, accessible, motivational, inspirational and encouraging	The CEO is able to anticipate changes and opportunities in the business environment*	The CEO is willing to take risks in investments for being "first". He also ensures that each business area works towards the same strategic goals**	The CEO supports innovation and long-term relations with other actors on the supply chain to have firsthand information and co-specialise with the partners*
		5	The company owns a terminal which serves as a warehouse for certain key customers. The manager responsible for that business area identified a business	The empowerment that the manager had to take their own initiative and make decisions motivated him to search for solutions and be proactive. His	Management encouraged this empowerment and supported the manager with the resources and analyses needed to make the right	This empowerment leads to the development and expansion of the business area of the company. Empowerment also becomes embedded in the organisational

(continued)

Table A1. Empirical findings

Table A1.

Source	Case	Row	Example	Connection to sensing	Connection to seizing	Connection to transform
		6	<p>opportunity and was empowered to make his own decisions. This led to new services and customers</p> <p>There is an organisational structure, but in practice, their culture reflects a flat organisation. Employees and management have close communication and share the administrative building and common areas. They interact during breaks and lunches socially and for work aspects. The employees are encouraged and empowered by management to make decisions, and improvements and learn from their mistakes</p>	<p>close relationship with customers enables him to identify the opportunity to offer this service**</p> <p>The flat organisation encourages communication among the employees and with management, which enables them to view situations from different perspectives and sense issues and opportunities**</p>	<p>decision for the business promptly**</p> <p>The close communication and availability from management lead to low bureaucracy and capabilities to make prompt decisions and investments**</p>	<p>culture, which motivates and inspires other employees to take their own initiatives**</p>
Human capital	A	7	<p>A challenge within the Swedish RFT business sector is the recruitment of personnel, especially drivers for the vehicles that are proactive, responsible and capable and match the values of the company</p>	<p>The CEO of the company was made aware of this issue through his own experience and through meetings with the board of the Swedish Association of Road Transport Companies, where he is a board member. The management of this company identified the recruitment process to be a key activity for the company*</p>	<p>Company A has established criteria for recruitment and a program for recruiting personnel at technical high schools.</p> <p>Company A is profiled as an RFT company with high quality, high innovation, good customer service and interest in the environment which differentiates them from others and makes them attractive for customers and employees*</p>	<p>New human resources manager position and routines. The recruited person has wide experience in the industry and a wide source of contacts. He is a good communicator and an asset for increasing the attractiveness of the company as an employer. He is a key person to recruit personnel that matches the values of the company**</p>
	A	8	<p>The well-being of their employees is a priority for the management of the company. They provide good working conditions for their administrative and operative employees</p>	<p>Employee empowerment has led to innovation and improvement initiatives from employees instead of being the sole responsibility of the CEO***</p>	<p>The employees have a sense of ownership in their responsibilities and make decisions on improvements. The CEO is available and supports problem-solving and</p>	

(continued)

Source	Case	Row	Example	Connection to sensing	Connection to seizing	Connection to transform
	B	9	<p>The employees are empowered to make decisions and inspired by the CEO to bring improvement suggestions to the company.</p> <p>Recruitment is given importance. They provide good working conditions for their administrative and operative employees</p>	<p>The management of the company identified social media to attract personnel and customers to their company. They have identified certain characteristics they are interested in their personnel**</p>	<p>decision-making processes. The company generated policies related to wellbeing**</p> <p>The recruitment of key roles is done through outsourcing, considering compatibility with the company. Social media is used for exposure and is done by outsourcing. This exposure gives them higher attractiveness for potential customers and employees*</p>	<p>The outsourcing company for the social media exposure was also hired to teach personnel from the company to handle social media. The outsourcing company meets with the personnel once a week to teach and decide what items will be posted. The education enables the capability of using social media to be available within the company and for the personnel to gather the required knowledge to continue their own in the future***</p>
Human capital	B	10	<p>Employee well-being and satisfaction are facilitators for customer satisfaction. The company implemented a program for evaluating employee satisfaction, using a digital tool for assessment and analysis. The platform provides the possibility to send follow-up questions to the employees while maintaining anonymity, to make sure the employees are comfortable describing their well-being</p> <p>After initiating the implementation of PM, Company A realised the need for sharing information and knowledge. They established a weekly meeting for all</p>	<p>The application is used periodically to scan the well-being of their employees and determine needs for improvement, such as new recruitment, issues in workloads and needs for education*</p>	<p>The analysis performed by the application and the further analysis performed by the administrative manager allows the company to take the required actions to ensure that the levels of employee satisfaction are the desired ones***</p>	<p>This program gives them the ability to determine the well-being of the employees in-house and identify needs for resource development in terms of education*</p>
Knowledge	A	11	<p>The discussions enable scanning for opportunities and potential issues related to solutions and analysis of the effect of solutions</p>	<p>Communications, discussions and a holistic understanding of the company allow for generating more robust solutions***</p>	<p>Routines can be updated with new knowledge and improvements. This facilitates communication within the company. Moreover, the meeting enables the</p>	

(continued)

Table A1.

Table A1.

Source	Case	Row	Example	Connection to sensing	Connection to seizing	Connection to transform
External interactions	B	12	administrative personnel, where updates are given and current and potential issues are discussed Weekly meetings per business area for giving updates and discussing relevant issues and situations. Management meetings to discuss the most relevant issues to find solutions from different perspectives. Once a year business plans for each area are generated according to the company's strategic goals	and threats to different processes of the company*** The meetings, discussions and business plans enable for communication and knowledge sharing among the employees of each business area. The plans include SWOT analyses, which allow for a formal scanning of the business areas and their surroundings***	Developing the business plan with a clear definition of the strategy for each business area and the objectives for the upcoming year support the employees in feeling more comfortable to make suggestions and make decisions that are in line with the organisational goals***	transformation of tacit knowledge into organisational knowledge and allows the employees to learn from each other on a regular basis*** The knowledge sharing enables organisational learning. The documentation increases traceability and availability of the information for other employees. They also provide a basis to understand the company and each business area for external parties that want to support the company, such as the analysis performed by researchers on the company***
	A	13	The company made an alliance with a producer of liquified biogas. A liquified natural gas (LNG) tank was located in the facilities of Company A, making the fuel available for customers of the producer that travel across the country on one of the largest European motorways in Sweden. This benefits Company A by having a station in their facilities and having priority on the supply. Additionally, they are the supplier in charge of the transport of the LBG between the two regions. The warm fumes expelled from the tank are used for heating in their facilities	Company A not only became the key location for the tank but also became the transport provider**	Company A developed the alliance with the producer, built the tank and concretized the service opportunity for the transport*	Having the tank in their facilities locks potential customers, exposes them to other markets and enhances their good environmental reputation*
		14	Involvement in research and development projects with academia and vehicle producers	Through their participation they collect first-hand information that is valuable for the future*	Researchers study the company and make deep analyses of their needs and opportunities. As a result, they have had improvement	Testing new approaches and technologies gives them access to knowledge for transforming their resources according to future needs

(continued)

Source	Case	Row	Example	Connection to sensing	Connection to seizing	Connection to transform
		15	Students from technical high schools and universities perform projects in the company. In 2019, for example, university students developed a Six Sigma project to improve the billing process of the company	The collaboration with educational entities, in the form of student projects, provides them with analysis and knowledge that facilitate decision-making and obtain custom-made recommendations for their operations and strategic work** The collaboration with educational entities, in the form of student projects, provides them with analysis and knowledge that facilitate decision-making and obtain custom-made recommendations for their operations and strategic work***	The suggestions from the students were implemented leading to improvements in billing times and payment times from their customers, increasing customer satisfaction**	Working with the students provided them with insights on root cause analysis and improvement work**
External interactions	B	16	Students from colleges and technical high schools perform projects in their company. For example, projects on ISO 26000 and on human resources analysis	The collaboration with educational entities, in the form of student projects, provides them with analysis and knowledge that facilitate decision-making and obtain custom-made recommendations for their operations and strategic work*** The CEO saw a need for a supplier which was aligned with their values*	They obtain analyses and recommendations for improvement. These kind of projects are difficult to develop by their employees due to the amount of time and effort they require***	Identification of needs for competencies and acquisition of new knowledge***
		17	The company required to build a new warehouse. They became partners to the construction company which led to Company B being hired for the transportation of the construction material in the new industrial park			The organisations coespecialised in the construction of the industrial park*
Innovation	A	18	Investments in their own biometane tank, newer technologies for their vehicles and electric vehicles	The company can anticipate changes and opportunities in the industry*	The company is willing to take risks and make investments before their competitors*	The new resources are used as marketing tools for attracting new personnel and customers. They gain exposure in the media by being innovative. Moreover, their interest in innovations makes them an interesting partner for research and development projects*

(continued)

Table A1.

Table A1.

Source	Case	Row	Example	Connection to sensing	Connection to seizing	Connection to transform
		19	The company participated in a procurement process for a governmental regional institution, in which the ISO 9001 certification was a requirement. They educated one of their employees on how to develop process maps using a digital tool. The process was developed and they gained the procurement process	The CEO had received education in PM which provided insights that contributed to identifying an opportunity to show their ways of working through process mapping and overcome the lack of the certification***	The employee was educated and the processes were developed. The knowledge of PM from the employee was insufficient and the process was not usable, the activities and flow were followed but the maps are not used.***	The company invested in education and license to use the digital tool which can be seen as a transformation since it allows to develop and map other processes****
Innovation	B	20	Based on results from a research project, top management developed a new business model for the company, which is used to clarify the purpose of the company and used as a guide for decision-making and prioritisation	The research projects provided insights into the surroundings of the company and the knowledge required for guiding the operation and strategy of the company****	The business model was incorporated as part of the strategic work for the company and communicated to personnel*****	The business model is periodically used to have a basis for achieving an alignment between the operations of the company and its strategy*****
		21	Investments in their own hydrotrated vegetable oil (HVO) tank, newer technologies for their vehicles and electric vehicles	The company can anticipate changes and opportunities in the industry*	The company is willing to take risks and make investments before their competitors. However, it is limited to the decisions of their associates*	The new resources are used as marketing tools for attracting new personnel and customers. Obtaining experiential knowledge from the use of newer vehicles supports future investments of other members of the cooperative*

Notes: *Initiatives initiated by the case companies alone; **initiatives initiated by the case companies but enhanced by the research project; ***initiatives initiated by the case companies with involvement of the researchers or resulting from the research project

Source: Authors' creation

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