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Critical success factors for Lean implementation in service SMEs

A case study of Lean implementation and organizational learning in a small logistics company

Master's thesis in Supply Chain Management and Management and Economics of Innovation

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Abstract

Lean is a set of management practices that has historically mostly been applied in large manufacturing companies. There has been little previous research on Lean implementation in small service companies, especially on success factors. The purpose of this study was to identify and assess success factors for Lean implementation and organizational learning within small service companies, in this case Express Delivery Sweden, as well as propose a recommendation for how these factors can be improved.

An identification of the current state of success factors for Lean implementation and organizational learning within the case company was done to identify gaps and possible areas of improvement. Data collected through semi-structured interviews with employees, observations of meetings and company documents, constituted the empirical data used for analysis. Models of success factors for Lean implementation and organizational learning in small service companies were formulated based on previous research.

The results show that while the case company had sufficient knowledge and training about Lean management, the lack of a learning culture and routines for continuous improvement hindered successful Lean implementation and organizational learning. The analysis specifically shows a connection between the lack of shared improvement vision within the organization and the deficiencies in communication and learning.

The study concludes that the formulated models are useful for assessing and understanding the factors influencing the success chances of Lean implementation and the state of organizational learning within small service companies. Specifically, regarding Express Delivery Sweden, it concludes that the company needs to focus on ensuring a shared improvement vision in the organization as well as on accelerating the hiring of new employees with special care to hire people who may ultimately have the interest and ability to take on leadership positions in the company.

Keywords: Lean implementation, Lean Service, Lean SME, Lean CSF, Organizational learning

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1. Introduction

This chapter presents the background that forms the basis of the study, including a theoretical background and introduction to the case company, followed by the aim, limitations to the study and lastly the research questions.

1.1 Background

Today's companies are facing an increasingly competitive environment. The competitive environment in which Small- and Medium-sized Enterprises (SMEs) operate affects their chance of survival (Storey and Cressy, 1995). The market uncertainty for most SMEs is high, as they tend to have a smaller share of the market, and only have one or two major customers, reducing their ability to influence price (Levy & Powell, 2005). The increasingly competitive environment has led to more companies recognizing the importance of continuous improvement and organizational learning. One way in which companies have responded to the increasing competitive environment is by adopting Lean (Alkhoraif et al., 2019).

Lean is a set of management practices which are inspired by the Toyota Production System used at the Toyota Motor Corporation (Liker, 2004). This includes customer focus, waste reduction, continuous improvement, and integration with upstream and downstream activities (Liker and Morgan, 2006). These practices have spread across the world since Lean was described by Womack et al. (1990) in *The machine that changed the world* and has been implemented and studied in many different types of organizations, but primarily in companies in a manufacturing context (Gupta et al., 2016).

The service sector currently encompasses more than 50% of the GDP of many of the world's largest economies (CIA, 2021). If productivity improvements can be achieved by implementing Lean in more service companies, then there is potential for increased economic growth. Research about Lean within the service sector has been conducted, but to a much lesser extent than in the manufacturing sector (Gupta et al., 2016). Gupta et al. (2016) have reviewed the status of the research on Lean in services and concluded that Lean implementation in service companies has strong potential for generating positive economic and financial results. They also found that it is important that the Lean implementation is adapted to the specific characteristics of the service sector, while still adhering to the same underlying principles as when used in manufacturing. There is therefore a need for further research on how to implement Lean in the service industry to support further Lean implementation.

Most Lean studies have been conducted on large companies, while there is a lack of studies on Lean in the context of SMEs (Alkhoraif et al., 2019), even though SMEs account for 99% of all businesses and 50-60% of all added value in the OECD

(OECD, 2019). In their review of existing research on Lean implementation in SMEs, Alkhoraif et al. (2019) conclude that the implementation of Lean in SMEs carries with it different opportunities and challenges than in larger companies. This suggests that it would be of value to conduct more research on Lean implementation specifically in an SME context, where competition is increasing, and customer focus and waste reduction becomes more important.

Since there is a need for further research on Lean implementation in both service companies and in SMEs, studies on Lean implementation in small service companies are especially warranted. There is currently little research that has been done, specifically focusing on the implementation of Lean in these types of companies. Case studies of the application of Lean principles in the context of small service companies can help guide small service companies who may have had little previous Lean experience and insufficient guidelines to follow, as well as help further studies on the topic. However, according to Knol et al. (2018) many Lean implementation efforts result in failure. Even if small organizations tend to have simple systems that promote flexibility to change and dissemination of knowledge, the expanded systems and higher staff numbers in large firms bring in knowledge that can be deployed to drive and sustain implementation (Pearce et al. 2018). There are a variety of factors within a small service company to consider, which will influence the chances of a successful Lean implementation. It is therefore crucial to examine and make sure that a company has the right prerequisites to adapting Lean principles and develop the organizational learning before a successful implementation can be initiated.

A key principle of Lean is that the organization should strive to continuously improve and learn (Liker, 2004). In the long run, superior performance is dependent on superior learning, according to Senge (1990). Furthermore, the need for understanding how organizations learn and the need of accelerating learning is growing, as the world is becoming increasingly dynamic, interdependent, and unpredictable (Senge, 1990). Since there is a lack of research about Lean in small service companies, it is therefore also important to study the learning process in these types of companies to identify how Lean-based improvement processes can be implemented. Senge (1990) argues that old traditional models of top management doing all the thinking, need to be set aside and give way to integrated thinking and acting at all levels. Achieving this is a great challenge, however, so is the potential payoff (Senge, 1990).

There is a clear need to study how small service companies can become better prepared for future Lean implementation and improve their organizational learning. The focus of this study has therefore been to examine factors influencing the success of Lean implementation and organizational learning in small service companies, and how these factors can be improved.

The case company: Express Delivery Sweden

Express Delivery Sweden is a small company which offers customized logistics services. The company is focused on offering fast deliveries of time-critical goods as well as handling special transports of dangerous or otherwise hard-to-transport goods. Their current competitive advantage is that they solve problems that many competitors are not able to, together with the fact that they are very customer-service-oriented with low levels of automation and good communication with the customer. Today, they have a team of 8 people who work with express transportation, including receiving orders, planning, and booking transportation, as well as following and troubleshooting the transport until it reaches the customer. The team members work mostly independently apart from short daily morning meetings as well as improvement meetings and deviation meetings about once a month. All orders that enter the joint mailbox are assigned to whoever picks the order the fastest. Whenever an operator has the time, they are expected to also work with other activities, such as sales, business development and improvement processes. The amount of time spent on these other activities, which are not part of the operative work, varies between employees from 10 to 40 percent of their working time.

Several issues have been identified which negatively affect the improvement processes and organizational learning in the company. Although the company consists of a team of highly motivated logistics specialists, their current way handling orders results in an overall unstructured way of working, which makes it difficult to learn the working process for new employees. This is one of the biggest identified challenges for the company, as they are striving grow over the years to come. Furthermore, the operative work is always prioritized over other activities, as their competitive advantage lies in meeting the urgent needs of their customers. This has led to a lack of engagement and commitment to improvement processes and to cancelled improvement meetings, due no ideas having been brought up for discussion and ongoing projects are delayed. Another issue is that information on customers and suppliers rarely diffuses within the team, and new information and insights are therefore restricted to specific individuals. In the current way of working, there is also a lack of standardized routines, which makes it difficult to both measure performance and to improve specific routines. All these issues risk leading to lost opportunities for improvement and therefore decreased competitiveness in the long run.

To solve the presented issues, the company has identified a need to establish more effective processes for continuous improvement and develop into a learning organization. To achieve this and keep their high level of service quality and customer satisfaction, while at the same time developing and growing as a company, Express Delivery could benefit from implementing Lean principles. A key part of Lean is to become a learning organization which focuses on continuous improvement. To have a scalable business model and support future growth, the company needs to move from strictly individual to collective organizational learning and to more structured and

formal learning processes. Express Deliveries main customers are manufacturing companies such as Scania and Tesla, many of whom have already worked with Lean for a long time. The company can therefore also benefit from Lean implementation by becoming more aligned with their customers.

However, there are some uncertainties in the organization about the factors needed for the company to be ready for a Lean implementation. As mentioned before, many established Lean principles have mostly been evaluated for larger manufacturing companies. Previous efforts of planned Lean implementation within the organization have met internal resistance and slow progress and have therefore been postponed indefinitely. There is therefore a need to investigate and improve the needed conditions at the company to develop into a learning organization and enable a future successful Lean implementation.

1.2 Aim

The aim of this study is to identify and assess success factors for Lean implementation and organizational learning within small service companies, in this case Express Delivery Sweden, as well as recommend how these can be improved to increase the chances of successful organizational learning and Lean implementation in the future.

1.3 Delimitations

This thesis is delimited to only study one small service company, Express Delivery Sweden. Furthermore, the thesis is delimited to study the current state of the case company and evaluate possible improvement areas, to deliver recommendations for increasing the chances of a future successful Lean implementation. No implementation plan of the presented recommendations has been included in this thesis.

1.4 Research questions

1. Which factors influence the organizational learning in small service companies?
2. Which success factors are important for enabling Lean implementation in small service companies?
3. How can these factors be improved in the case company to enable future Lean implementation and organizational learning?

2. Methodology

In this chapter the methodology used to conduct the thesis is presented. The chapter includes a presentation of the research approach, the method for reviewing literature, the data collection and analysis method, and lastly a discussion about the reliability and validity of the study.

2.1 Research approach

To answer the research questions of the study, a qualitative research strategy was used. A qualitative research method is focused on understanding people's perspectives, which can for example be done by conducting interviews where the researchers are involved and words rather than numbers are emphasized in the collection and analysis of data (Bell et al., 2018). The study is based on a single studied case company, Express Delivery Sweden, to enable in-depth analysis which considers as many variables related to the research questions as possible. The research method used in this study is inductive, which means that specific observations from the case company have been used to make general conclusions (Bell et al., 2018). Although the analysis of the study is based on already existing theory, an inductive research approach was chosen as Saunders et al. (2016) explain that in an inductive approach, collected data is used to develop the theory, and not the other way around as in a deductive approach. In this study, collected data was used to better understand the factors which influence organizational learning and Lean implementation in service SMEs as well as how these factors can be improved. Furthermore, a deductive study would require general rules to already exist which they don't, due to the lack of previous research on this particular type of company.

An illustration of the structure and different steps of the research approach is shown in *Figure 1*. A combination of primary and secondary data from the case company was used to understand the current state of improvement processes and organizational learning at the company. The secondary data was used to provide information about the goals and visions of the case company and what their current state was intended to be like, while the primary data was used to provide information about what the current state is. The combination therefore resulted in a more complete overview, than either could by itself. A literature study was used both to identify gaps in existing research, as well as finding relevant theory for the purpose of the study. A draft recommendation for how the improvement processes and organizational learning could be improved in the case company was based on both existing research and the data collected from the case company. The identified gaps and the draft recommendation were validated through discussions with the CEO to ensure that the study had identified relevant gaps and improvement areas. The final recommendation was based on the additional data obtained from this validation (see *Figure 1*). This recommendation constitutes the findings from the study regarding the appropriate

solutions for Lean-based improvement processes and organizational learning for the case company.

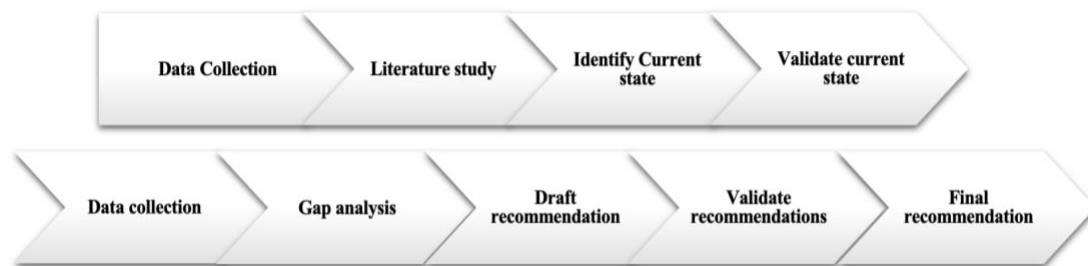


Figure 1: Structure of research approach

2.2 Literature review

A literature review was conducted after formulating the research questions of the thesis, to create a basis for the empirical study and deepen the knowledge within Lean management and organizational learning. Bell et al. (2018) explain that a literature review helps answer what is already known about an area and what concepts and theories are relevant for a study. The literature has been retrieved from Chalmers Library and Google Scholar by using relevant keywords such as: *Lean Implementation, Lean Service Companies, Lean SME, Service excellence, Organizational learning*.

The focus of the literature review was finding models to assess organizational learning as well as success factors for Lean implementation. The relevant literature that was found, has been used in connection to the collected data as a foundation for analysis as well as for formulating recommendations for the case company.

2.3 Collection of data

The primary and secondary data collected to perform the study is illustrated in Figure 2. The collection of primary data was conducted through semi-structured interviews and observations of several meetings, to understand context as well as obstacles and opportunities for continuous improvement and organizational learning. Since the interviews give a biased view of how the company works on improvements, observations were done to complement the data by obtaining an impartial view of the company's improvement processes. Secondary data in the form of different company documents such as SOP (standard operating procedure) documents and notes from internal workshops and presentations, were used to understand the structure of the company as well as goals and visions for their future. This secondary data was studied and compared to the data from the interviews and observations to identify differences between the intended and actual processes at the company.

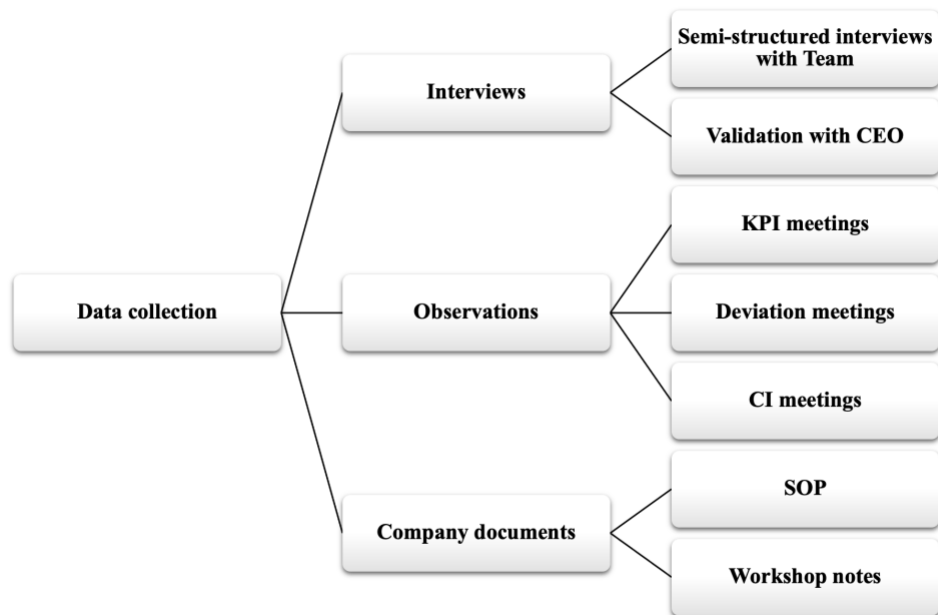


Figure 2: Structure of data collection

Interviews

The interviews took place in the form of semi-structured interviews to leave room for follow-up questions, based on the answers from the interviewee, while the overall structure of the interview was still similar between interview subjects. The interviews were conducted in 3 stages to enable adjustment of the emphasis of the research, depending on results of issues that emerged during interviews. Stage 1 focused on the current state of improvement processes and overall work structure in the company. During this stage, four different senior logistics agents were interviewed, with a summary of issues brought up during these conversations validated through an interview with the CEO. Stage 2 focused on understanding the current state of the organizational learning and success factors for Lean implementation which had been identified through the literature review. During this stage the same four logistics agents and the CEO were interviewed as well as a newly employed logistics agent. Stage 3 was used to validate the result and recommendations and consisted of an interview with the CEO. The data from all interviews was saved in the form of interview notes taken during the interviews by both researchers, to ensure that no important points were left out. The guiding questions used during interviews can be found in the appendix.

Interview stage 1		
Interview subject	Role	Focus area
A	Sr Logistics Agent	Current state of improvement work
B	Sr Logistics Agent	Current state of improvement work
C	Sr Logistics Agent	Current state of improvement work
D	Sr Logistics Agent	Current state of improvement work
E	CEO	Validate Current state of improvement work
Interview stage 2		
Interview subject	Role	Focus area
A	Sr Logistics Agent	Current state of organizational learning
B	Sr Logistics Agent	Current state of organizational learning
C	Sr Logistics Agent	Current state of organizational learning
D	Sr Logistics Agent	Current state of organizational learning
E	CEO	Current state of organizational learning
F	New Logistics Agent	Current state of organizational learning
Interview stage 3		
Interview subject	Role	Focus area
E	CEO	Validate Current state of organizational learning
E	CEO	Validate identified gaps and recommendations

Table 1: Interview subjects per interview stage

Observations

During the study, 3 different types of meetings were observed to understand the case company's current processes better, as a complement and verification to data collected from the interviews. Observations is a method which refers to an observer involving oneself in a group for a longer period of time to observe different types of behavior (Bell et al., 2018) The observations were made with unstructured character, by being a quiet participant in meetings and listening in through digital media software. The purpose of the observations was to increase understanding of the current level of learning and improvement processes, rather than the issues discussed during

meetings, as well as well as understanding the obstacles that currently exist which might hinder different learning processes. Notes were taken during the observations to compile the observed processes and obstacles. The following types of improvement meetings were observed:

- *KPI meetings*: During these meetings the CEO decides on new KPI's for the following quarters together with the team. The observations focused on understanding the current process of setting targets within the company.
- *Deviation meetings*: The purpose of the deviation meetings is to implement routines and standards for handling different types of deviation in the daily operational work. The focus of the observations was to understand how the company handles deviations today and to identify their current procedures of improving different processes.
- *Continuous improvement meetings*: The observations during the continuous improvement meetings focused on what improvement projects should be prioritized, how the projects have been conducted and how well implemented the projects were.

2.4 Data analysis

As the data derived from interviews, observations and documents comprise a large collection of unstructured material, they are not straightforward to analyze and there are no clear rules about how qualitative data analysis should be carried out (Bell et al., 2018). The analysis of the data collected in this study was mostly done through thematic analysis, where recurring topics, similarities and differences from company documents, interviews and observations were compiled and related to the theoretical framework.

The model of Critical Success Factors (CSFs) presented in Chapter 5.2 has been evaluated through a three-level scale (fulfilled, partially fulfilled or not fulfilled), as this was considered to be the most efficient way of judging the current state and creating an overall assessment of these factors. As all the factors are of qualitative character, using a wider and more detailed scale was not considered appropriate.

2.5 Reliability and validity

The study was conducted during the spring of 2021, during a global pandemic with restrictions and social-distancing requirements. Most of the data collection was therefore done digitally, limiting the possibility of in-person interaction and physical observations that could have broadened the data collection. The study is based on a single case company, which could limit a general application of the findings of the study to other companies. However, using more case companies was considered to

have spread the available resources thinner and less detailed data collection and analysis would have been possible, which could have led to missing important insights regarding the specific situation of small service companies.

A big part of the primary data is based on results from semi-structured interviews, which can both be affected by which questions are asked and how they are asked. Furthermore, depending on the different answers from respondents, unscripted follow-up questions can vary between interviewers. This can lead to results varying depending on several factors (Bell et al., 2018). This was mitigated by reviewing the interview questions before the interviews to make sure the questions are open and don't bias the interviewee and by validating the overall findings of the interviews with the CEO of the case company.

Observations of meetings can be unreliable since the sample of meetings will be limited due to time constraints which leads to a limited number of meetings during the project. Furthermore, the content of the meetings could possibly vary a lot and not be completely comparable, especially during the period of the study, when the company recently changed several of its improvement processes. This was mitigated partially by attending several meetings of each type as far as possible during the research process. Since the results of the interviews and observations were combined to answer the research questions, the total primary data is expected to be more reliable than if only one data source would have been used.

Bell et al. (2018) define the internal validity as the extent to which the observed results represent the whole studied population. As the study was conducted within a small company where most team members are included in the primary data collection, the issue of having an unrepresentative sample was mitigated but not completely avoided. By complementing the interviews with observations and secondary data, the studied sample was supported by additional data. The external validity is defined by the ability to apply the studied results to other contexts (Bell et al. 2018). Since the study is specifically focused on small service companies, the external validity can be viewed as low if not applied in the same context. Since the study uses existing theories based on previous research on both small companies and service companies, some of the findings may still be valid to companies in a similar context.

2.6 Ethical concerns

By being informed and aware about ethical principles involved in business research, and how to engage with these, it is possible to make informed decisions about the ethics of research (Bell et al., 2018). Before formulating the purpose and research approach for conducting this thesis, different ethical aspects were evaluated.

The primary data collection for the study is based on interviews with a group of

participants from a company with very few employees. The invasion of privacy was thereby one of the main ethical concerns of this study. To avoid this, no specific statements or transcripts from interviews have been presented in the report, to protect the integrity of the participants. Therefore, only the interview guidelines are presented in the report, with the overall answers being compiled in the empirical data chapter. Furthermore, the thesis is based on a single case company, which brought up another important ethical aspect that was considered before conducting the thesis, the consent of the case company. The CEO of the company was therefore informed and involved in formulating the purpose of the study and the chosen research approach, to ensure that the study had permission and consent from the case company.

3. Theoretical framework

In this chapter the theoretical framework that has been used for this thesis is presented. The chapter includes theory regarding organizational learning followed by theory on Lean management in both SMEs and service companies. The chapter is ended with a compiled list of 14 Critical success factors (CSFs) for Lean implementation in service SMEs.

3.1 Organizational learning

Bratianu (2015) describes organizational learning as a process that occurs across individual, group, and organizational levels through intuiting, interpreting, integrating, and institutionalizing. Murray & Donegan (2003) argue that organizational learning lets organization respond to its environment more effectively through improving the behavior and capabilities of its individuals. Locke & Jain (1995) argue that although there are numerous views and approaches on how an organization adopts learning, there is an agreement that learning will always occur at the level of the organization's individual members. Furthermore, Marsick & Watkins (2003) argue that continuous learning at the individual level is something necessary, yet not a sufficient level of learning to influence perceived changes in financial performance and knowledge.

To translate the learning from individuals to the organizational level, there must be enough knowledgeable people and an organizational culture, fostered by value- and vision-driven leadership, which encourages and rewards the application of new learning (Locke & Jain, 1995). Senge (1990) explains that leadership in learning organizations requires the skills to build a shared vision, bring mental models to the surface and challenge these, and to foster more systematic patterns of thinking. To benefit from its knowledge, an organization must use it routinely and apply the new knowledge in its everyday actions (Locke & Jain, 1995).

Learning barriers

According to Locke and Jain (1995), organizations face several both subtle and obvious barriers to learning and to identify the tools of organizational learning that encourage continuous improvement, it is useful to first identify possible barriers to organizational learning, so that organizations can avoid these barriers. Locke & Jain (1995) explain that any limitations the members of an organization have with respect to learning will effectively limit organizational learning. Schwartz & Rist (2017) argue that learning barriers at the organizational level include features such as corporate culture and organizational consensus, which can possibly lead to groupthink and inactivity. Furthermore, organizations sometimes fail in translating newly acquired knowledge into policies, procedures, and routines and instead tend to focus

on the exploitation of existing capabilities and opportunities (Locke & Jain, 1995).

Leadership

According to Schwartz & Rist (2017), something that most models of learning organizations identify as fundamental, is the importance of leadership. In learning organizations, leaders and managers are the providers of critical support that can enable a successful learning environment for both teams and for individuals (Schwartz & Rist, 2017). Leaders and managers who value and practice learning themselves, are regarded as better suited to nurture learning in the rest of the organization (Schwartz & Rist, 2017). Senge (1990) argues that leaders in learning organizations have the responsibility for learning, by building organizations where people are continually expanding their capabilities to shape their future.

Schwartz & Rist (2017) explain that the role of a leader is crucial as they set the tone, establish the vision, and develop structures and systems that support learning. The top management in the organization should be able to motivate the necessary change and overcome the possible resistance from other members of the organization (Schwartz & Rist, 2017). A leadership that lacks a learning orientation is one of the most important barriers to overcome to become a learning organization (Locke & Jain, 1995). This learning barrier emerges because it is management that holds the key to encourage any change in the organization, including a cultural change towards a more favorable attitude with respect to learning (Schwartz & Rist, 2017). Locke & Jain (1995) argue that one of the key tasks of a leader of a continuously improving organization is to instill a clear, shared sense of purpose within the organization. If management fails in providing the incentive for learning and informed change, suitable structures will not develop, and practices will not change (Schwartz & Rist, 2017).

Creating a learning organization

Marsick & Watkins (2003) argue that learning must be captured and embedded in ongoing systems, practices, and structures, to be shared and regularly used to intentionally improve changes in knowledge performance. Furthermore, they argue that some of the most important characteristics emphasized for achieving valuable continuous learning process within the organization include; creating continuous learning opportunities, promoting inquiry and dialogue, encouraging collaboration and team learning, creating systems to capture and share learning, empowering people toward a collective vision, connecting the organization to its environment and providing strategic leadership for learning (Marsick & Watkins, 2003).

Senge (1994) explains the learning organization as being a social invention composed of intangible elements called disciplines. He explains that discipline is a developmental path for acquiring certain skills or competencies and the result of

practicing a discipline is to be a lifelong learner. Disciplines will not necessarily create the learning organization, but they will create the convergence of all the efforts the company will need to develop into a learning organization. Senge (1994) describes the following five disciplines as contributions to the creation of the learning organization:

1. *Personal mastery*

Personal mastery is the encouragement for personal motivation to continuously learn and improve the professional competences. This discipline is an essential cornerstone of the learning organization, as an organization's capacity for learning cannot be greater than that of its members. Personal mastery means continually deepening our personal vision and deepening our patience and of seeing reality objectively (Senge, 1994).

2. *Mental models*

Senge (1994) describes that mental model focus on seeing the world in a more complex and adequate way. The discipline includes the ability to have conversations leading to learning, where people can expose their own thinking effectively and make that thinking open to the influence of others. Mental models of people are deeply ingrained assumptions that influence ones understanding of the world and how we take actions and people are very often not aware of their mental models or the effects they have on our behavior (Senge, 1994).

3. *Shared vision*

The meaning of shared vision is to focus on the team and organization future and to combine personal interests with that of the organization. Creating a shared vision means to have a commitment for the common future. When there is a genuine shared vision, people learn and excel because they want to, as opposed to being told to through a vision statement. Many leaders have personal visions that never get translated into shared visions. Shared vision involves the skills of sharing pictures of the future that can foster genuine commitment rather than compliance (Senge, 1994).

4. *Team learning*

The meaning of team learning is to look beyond the individual perspective of learning and to share the acquired knowledge with others. The discipline starts with dialogue, meaning the capacity of team members to suspend assumptions and enter a genuine thinking together. Team learning is vital since it is the teams, not the individuals, that are the fundamental learning unit in modern organizations. Unless the teams can learn, the organization cannot learn (Senge, 1994).

5. *Systems thinking*

Systemic thinking is the conceptual cornerstone of Senge's (1994) approach and encourages organizations to shift to an interconnected way of thinking (Schwartz & Rist, 2017). The systems thinking integrates all the other four disciplines and stimulates the synergy of learning integration (Senge, 1990). Senge argues that seeing the whole by appreciating the system instead of focusing on the parts, will result in more appropriate and purposeful action within the organization (Schwartz & Rist, 2017). It is important to develop the five disciplines as an ensemble, which is challenging since it is much harder to integrate new tools than simply applying them separately. Systems thinking needs the disciplines of building shared vision, mental models, team learning and personal mastery to realize its potential. Building a shared vision fosters long-term commitment, mental models open the mindset, team learning develops the skills of groups beyond individual perspectives and personal mastery fosters personal motivation for continuous learning (Senge, 1990)

Furthermore, Senge (1994) emphasizes that the core of the learning organization is a mind shift for all employees, especially for all managers. The essence of becoming a learning organization is to be able to expand the organization's capacity to create its future. For a learning organization, Senge (1994) argues that it is not enough to survive, rather adaptive learning needs to be combined with generative learning to enhance the organization's capacity to create. The Japanese continuous improvement managerial philosophy validates that 'adaptive learning' implies designing and implementing small changes that improve the quality of products and services and adapt the level of knowledge and performance of the organization to the level of the external business environment. (Senge, 1994).

3.2 Overview of Lean

Lean has been defined in many different ways. Krafcik (1988) first defined Lean as "using less of organizational resources as compared to resources deployed in mass production" and Womack et al. (1990) later defined it as "fusion of mass and craft production consisting of a set of principles and best practices aiming at continuous improvement". Shah and Ward (2007) instead defined Lean as a "socio-technical system with focus on elimination of waste throughout the organization as well as its supply chain network". Sinha and Matharu (2019) list several themes which often occur in these different definitions:

- Lean is a management philosophy
- Lean is a socio-technical system
- Lean means striving to eliminate waste
- Lean means striving to deliver value to customers

Liker (2004) also describes the elimination of waste as the heart of Lean and Shah and Ward (2007) consider waste elimination to be the “primary goal” of Lean. From a Lean perspective, anything which does not add value to the final product and thereby to the customer (either an internal customer, for example the next step in a process, or an end customer) is waste (Jasti and Kodali, 2015). Monden (1998) lists 7 types of waste to which Liker (2004) adds “unused employee creativity”, resulting in a total of 8 different types of waste:

1. Overproduction
2. Waiting
3. Unnecessary transport (of materials, components or products)
4. Unnecessary or incorrect processing
5. Excess inventory
6. Unnecessary movement (of people)
7. Defects
8. Unused employee creativity

The process of eliminating waste is essentially an improvement process where the ultimate, but often unachievable, goal is a process with no waste (Shah and Ward, 2007). Any work or time which does not add value to the customer is defined as non-value-adding, while the contrary is defined as value-adding (Liker, 2004). Shah and Ward (2007) list three sub-goals to the primary goal of waste elimination: quantity control, quality assurance and respect for humanity.

Liker (2004) has identified 14 core principles in Lean:

1. Basing decisions on long-term philosophy rather than short-term goals
2. Creating continuous process flows to make problems more noticeable
3. Using a pull system to avoid overproduction
4. Leveling the workload
5. Stopping and fix a problem right away when it is detected
6. Standardizing processes in order to enable continuous improvement
7. Using visual control methods to make problems more noticeable
8. Using reliable, tested technology which suit the people and processes
9. Growing leaders who understand the processes, live the philosophy and can teach it to others
10. Developing great people and teams who follow the philosophy
11. Expecting and supporting partners and suppliers to improve
12. Seeing situations yourself so that you understand them
13. Making decisions slowly through consensus and implementing quickly
14. Being a learning organization through reflection and continuous improvement

Although many of these principles have a connection to continuous improvement and organizational learning, Liker (2004) lists principles 12-14 as directly connected to these.

Principle 12 is at Toyota called *genchi genbutsu*, which essentially means to go to where the work is done, the source, and see the situation for yourself so that you can truly understand it (Chiarini et al, 2018). In Lean, it is considered essential to fully understand a problem before trying to solve it. Additionally, this means being able to identify the root causes of a problem through information-gathering and analysis. This is related to 5 Why, which is a tool to repeatedly ask why a problem is occurring to find the root causes. (Liker, 2004)

Principle 13 means to emphasize doing a decision process carefully and correctly, to then enable a rapid implementation of that decision with relatively few problems (Liker, 2004). This process is referred to as *nemawashi* at Toyota. Liker (2004) describes the decision process in 5 steps:

1. Understanding the situation and problem properly (connected to Principle 12)
2. Understanding the root cause(s) of the problem (5 Why)
3. Analyzing alternatives broadly and having a strong motivation for the chosen solution
4. Building consensus between all parties involved
5. Clearly communicating steps 1-4 to make the process easy to understand

One way to achieve step 5 is to use the A3 approach, which means that all information about a problem and the proposed solution should fit on an A3 piece of paper.

Principle 14 is focused on the organization's capacity for learning through reflection (*hansei*) and continuous improvement (*kaizen*). This principle is closely tied to many of the other principles. For example, in Lean, standardization is considered a prerequisite for continuous improvement (Liker, 2004). Without standardization you can't tell how the process is done today and whether a new way of doing it would be better. You also would have no reliable way of spreading a better way of doing things throughout the organization. A learning organization, according to Lean, also needs to be stable with low employee turnover, slow promotions, and carefully managed successions to preserve implicit knowledge in the organization. It also requires a culture where it is possible to admit to mistakes so that they can be analyzed and learned from. (Liker, 2004)

Lean in service companies (Lean service)

Bowen and Youngdahl (1998) proposed to apply Lean philosophy from the manufacturing industry on service companies and defined this as Lean service. Lisiecka and Burka (2016) also state that the same Lean principles which have been used in the manufacturing sector can also be applied to services. Additionally, according to Gupta et. al (2016), the same tools applied in manufacturing can also be applied in services, however some differences are significant because of the inherent characteristics of services. Furthermore, Liker & Ross (2016) argue that all manufacturing organizations include services, and that all service organizations

handle physical goods in a way that is similar to manufacturing. The philosophy behind Lean principles remains unchanged, but the Lean tools and practices need to be tailored, when applied to the service industry. The fact that a form of adaptation is needed has been highlighted by many authors, the kinds of adaptations needed, have however not been specified (Gupta et al., 2016).

Andrés-López et al. (2015) argue that service industries can benefit from the application of Lean philosophy through increasing organizational competitiveness and customer satisfaction along with reducing process variability and wastes. They argue that the introduction of Lean principles, in any service activity, must begin with a deep understanding of service inherent aspects and close knowledge of customer value. According to Gupta et al. (2016), one of the key challenges for services is to manage the intangibility of waste arising because of the difficulty to identify waste, together with the presence of the customer as a co-producer of the service. Andrés-López et al. (2015) also argue that waste determination in service is complex, considering that the operations are intangible and therefore, organizations need to develop the ability to recognize waste through analyzing the customer experience.

Another challenge for implementing Lean in services identified by Gupta et al. (2016) is the lack of awareness about the benefits of Lean in service organizations, although studies have shown that application of Lean in services has produced positive results. By using Lean tools such as value-stream mapping, standardization and visual management, service companies can identify and eliminate barriers and improve their service quality and customer experience in an efficient manner. Andrés-López et al (2015) also propose using these tools as part of Lean implementations in service companies. The application of Lean tools should be accompanied with a change in culture to ensure the sustainability of Lean. To achieve a successful Lean transformation, a willingness to change and adopt new ways of doing things is needed (Gupta et al., 2016).

There is little research on Critical Success Factors (CSFs) for Lean implementation in the service industry (Lins et al, 2021). Lins et al. (2021) examine the most critical factors for Lean in services and define that the most commonly identified are: top management support, leadership involvement, employee commitment, organizational culture, communication and employee involvement. Furthermore, they argue that these factors can be influenced by organizational culture and leadership.

Service excellence

Liker and Ross (2016) describe Service excellence as understanding questions about the service offered to the customer, such as: What does the customer experience? How satisfied is the customer? And to what degree are we enhancing the life of each customer? According to Liker and Ross (2016), to achieve service excellence, it is important to understand what the customers expect and then going beyond that, giving

the customers the unexpected, as customers themselves cannot be expected to know what would address their needs, since they are generally limited by their own experiences. Offering a personalized experience for the customer is very challenging and the Toyota way of thinking about it is how whole systems can continuously improve the way they add value to customers. When speaking of “Lean” it refers to service excellence including the following characteristics: (Liker & Ross, 2016).

- Specific countermeasures to problems will be different for different types of service processes and service organizations (Liker & Ross, 2016).
- Service organizations always include both routine processes that can be standardized as well as nonroutine processes that require different approaches to improvement (Liker & Ross, 2016).
- There are no Lean solutions, but rather ways of leading that engage everyone in continuous improvement toward a vision of excellence (Liker & Ross, 2016).

Lean in SMEs

Companies can be categorized according to their size, in that they are either Large Enterprises (LEs) or Small- and Medium-sized Enterprises (SMEs) (Alkhoraif et al., 2019). According to the EU definition, an SME is a company with less than 250 employees and less than €50m in turnover or €43m in balance sheet total (European Commission, 2003). Alkhoraif et al (2019) conclude that research on Lean in SMEs is greatly lagging behind similar research in LEs. They also found that levels of integration of Lean in SMEs are lower and knowledge of Lean is poorer in SMEs than in LEs. Pearce et al (2018) also state that the uptake of Lean implementation in SMEs tends to be slower than in larger firms, at least partly due to having less resources available.

Akhoraif et al (2019) found, when reviewing the existing literature on Lean in SMEs, that there are noticeable differences between both how Lean tends to be implemented in SMEs and how it should be to increase chances of success. SMEs tend to be more focused on implementing specific Lean tools rather than more holistic implementations (Pearce et al, 2018). This may be because many SMEs may lack resources for a more comprehensive Lean implementation but at the same time research suggests that holistic implementations tend to have higher chances of success (Alkhoraif et al, 2019). Lean implementations in SMEs also tend to be more strictly focused on increasing just internal operational efficiency and implementations in other internal processes or externally in the supply chain are rare (Pearce et al, 2018). Alkhoraif et al (2019) also found that Critical Success Factors (CSFs) for the implementation of Lean in SMEs include employee involvement and participation, senior management assistance and dedication, teaching and learning as well as the ability to manage organizational change. Good communication between management and workers as well as managers having previous personal experience with Lean were

also found to be CSFs. Belhadi et al (2018) list partially similar success factors, with leadership and managerial involvement, ability to change the company's culture, long-term vision, allocation of time and financial resources as well as training and empowerment for workers being the most common CSFs. Pearce et al (2018) particularly emphasize the importance of management knowledge and support for Lean implementation in SMEs.

Alkhoraif et al (2019) found that a company being an SME does impact its ability to implement Lean. The lesser negotiating power of SMEs compared to LEs (due to being smaller) makes it harder to implement Lean completely since they have a limited ability to influence their suppliers and customers. This is probably also a reason for why, as stated above, SMEs tend to have a stricter focus on just implementing Lean in their own operations than LEs. Pearce et al (2018) also found that most Lean implementations in SMEs are focused internally. This leads to principles for how to implement Lean in procurement and distribution having to be adapted to SMEs. Other inhibiting factors to Lean implementation in SMEs include a lack of management time and competence regarding Lean, lack of sufficient budget for the implementation and lack of needed infrastructure, such as IT systems (Alkhoraif et al, 2019). Pearce et al (2018) found that SMEs are particularly dependent on management knowledge and support in their Lean implementations. They found that SMEs are not only dependent on their manager's for spreading knowledge about Lean but also for formulating and spreading a clear vision for why the implementation should be done, since SMEs lack the organizational support systems which are usually present in larger organizations.

Enablers for Lean implementation in SMEs include easier communication due to less employees and fewer hierarchical levels in the company, greater adaptability in operations due to the smaller size and being less reliant on economies of scale and greater impact of the individual leader which can be beneficial if the leader is dedicated to the implementation (Alkhoraif et al, 2019). However, Alkhoraif et al (2019) found that overall, SMEs are still at a disadvantage when it comes to implementing Lean.

Alkhoraif et al (2019) arrive at some general guidelines for Lean implementation in SMEs:

- Organizational culture needs to be supportive and dedicated to Lean implementation.
- The budget and infrastructure needed for the implementation have to be planned and secured in advance
- Management needs to decide on which version of Lean to implement
- Customer value needs to be defined
- Employees have to be given necessary training in Lean
- The Lean implementation needs to have a long-term perspective rather than focusing on short-term results

Regarding Lean tools, Belhadi et al (2018) conclude, based on their review of available research, that it is often not possible nor desirable for SMEs to utilize all Lean tools and that focus should instead be on just using the most feasible and easy-to-use, like 5S (a system for organizing workspaces), TQC (total quality control), SMED (single-minute exchange of dies), JIT (just-in-time) and VSM (value-stream mapping). They also emphasize that management needs to have a long-term view of Lean implementation rather than focusing on short-term results.

Knol et al. (2018) found 12 CSFs for Lean implementation in SMEs:

1. Top management support - top management takes responsibility for and is involved in Lean implementation
2. Shared improvement vision - a shared improvement vision in the company in line with the company strategy
3. Good communication - Exchange of ideas, information, and knowledge throughout the company
4. Leadership - team leaders take responsibility for and are involved in improvement
5. People focus - where organizational systems which help rather than constrain employees
6. Learning focus - where both positive and negative experiences are shared and learned from
7. Sufficient resources - sufficient time and budget available for Lean implementation
8. Management and workers receive sufficient training in Lean
9. Process data from all levels is available
10. Few suppliers are selected for long-term relationships with two-way feedback
11. Long-term relationships with customers with two-way feedback
12. Targets, assessments, and rewards for employees are aligned with improvement vision

Knol et al. (2018) also argue that which CSFs are most important vary depending on the stage of Lean implementation the company is currently at. They also state that CSFs for SMEs are largely similar to LEs but that there are some areas that differ.

Lean implementation in service SMEs

The literature recommends starting the Lean implementation with the easier-to-use tools, especially for SMEs. This would include for example 5S, VSM, TQC and JIT, which could all be applicable in service companies. At the same time, it is recommended to have a holistic approach to the Lean implementation which involves the entire company.

Based on CSFs identified for Lean implementation in service companies and SMEs, the following list of 14 CSFs for service SMEs (Table 2) has been compiled. The list is strongly based on the list by Knol et al (2018) with additions made where other authors have identified other factors or aspects of factors which Knol et al (2018) had not included. These additions include adding top management experience to CSF 1, customer focus as CSF 7, sufficient infrastructure to CSF 8 as well as capability of organizational change as CSF 14. The reasoning behind adding CSFs for both service companies and SMEs together is that this the list should then have a good chance of containing all CSFs important for small service companies. If these CSFs are present, then there is therefore a greater likelihood that the company will be able to implement Lean and achieve strong organizational learning and continuous improvement.

1	Top management experience and support - top management has previous experience with Lean and takes responsibility for and is involved in Lean implementation
2	Shared improvement vision - a shared improvement vision in the company in line with the company strategy
3	Good communication - Exchange of ideas, information, and knowledge throughout the company
4	Leadership - team leaders take responsibility for and are involved in improvement
5	People focus - where organizational systems which help rather than constrain employees
6	Learning focus - where both positive and negative experiences are shared and learned from
7	Customer focus - customer value is clearly defined, and the organization strives toward creating customer value with minimal waste
8	Sufficient resources and infrastructure - sufficient time, budget, and infrastructure available for Lean implementation
9	Management and workers receive sufficient training in Lean
10	Process data from all levels is available
11	Few suppliers are selected for long-term relationships with two-way feedback
12	Long-term relationships with customers with two-way feedback
13	Targets, assessments, and rewards for employees are aligned with improvement vision
14	Capability of organizational change - the organization's ability to change culture, structure, and processes

Table 2: Critical Success factors for Lean implementation

4. Empirical data

The empirical data presented in this chapter has been collected through employee interviews, observations of meetings as well as from company documents, as described in Chapter 2. The chapter includes a description of the company's learning and improvement processes, including relevant meetings and training of new employees, followed by descriptions of the conditions of the Critical Success Factors (CSFs) from Chapter 3 in Table 2 at the company.

4.1 Learning and improvement processes at Express Delivery AB

The learning and improvement processes at the company have historically been largely informal, where new ideas and insights have mostly spread through casual discussions around the office or on the chat app the company uses. Improvement initiatives have previously been on a purely voluntary basis, which has left improvement processes regarded as side tasks without high priority.

The new CEO has introduced several formal meetings, the improvement meetings, and the deviation meetings (presented in detail below), to create more structured and predictable organizational learning and continuous improvement at the company. All employees are expected to dedicate at least 5% of their working-time on improvement processes. This goal is not being prioritized today, as all the interviewees (except for the CEO) claim that they lack the time required to focus on improvement processes.

Apart from the improvement meetings, the CEO has arranged workshops for different developing purposes, such as KPI-setting workshops and workshops to establish core values and strategic focus. Daily morning briefings are used to update and discuss the team members state of mind regarding operational work. The CEO uses the morning meetings to spread general information to all employees participating in the meetings. The morning meetings are of informal character where the CEO asks the whole team how they are doing and if anyone has anything they want to announce or discuss. The main purpose is to check the "pulse" of the team and have a timeslot where anyone can bring any topic up to the team. There is no clear agenda for the meeting and no notes being taken during these meetings.

Improvement meetings

The company utilizes a digital improvement board, through a web-application that focuses on helping teams organize and track their work, on which employees can post improvement suggestions. Through the digital platform, the different suggestions are categorized under *New tasks*, *Upcoming tasks* and *Completed tasks*, with each ongoing task being assigned to a specific person in the team. Improvement meetings are scheduled to be held once monthly, chaired by the CEO, to discuss and approve

any new improvement suggestions as well as follow up on the implementation of previously approved improvements. The meetings are scheduled to take 45 minutes. When a new improvement suggestion is brought up, the employees discuss whether to implement the suggestion and, if so, who should be responsible for the implementation project as well as when it should be completed. The employee responsible should then present the progress of this implementation on subsequent improvement meetings.

However, the improvement meetings that were observed during the course of the study, did not fulfill their intended outcome as several struggles were observed. First of all, several improvement meetings were postponed or canceled due to a lack of improvement suggestions. The improvement meetings which were held often were not attended by all employees. Communication problems were observed during the meetings, where there were misunderstandings about who was responsible for improvement projects and when these problems should be completed. There also seemed to be a pattern where most improvement projects were given to the same person.

Deviation meetings

The deviation meetings were introduced by the new CEO and are scheduled to be held every two weeks. The purpose of these meetings is to discuss all deviations that have been registered in a joint Excel sheet, and evaluate the probability, impact, severity, and response of each deviation. The CEO leads the discussions by going through all new registered deviations, letting the team member that has documented each deviation elaborate on the issue. The meetings were scheduled to take 45 minutes.

During the first deviation meetings observed in the study, there were a lot of misunderstandings regarding the expected preparations for the meetings. The team members had not registered their deviations in the same documents or in the same way. The standard operating procedure (SOP) that the team members were expected to follow when registering a deviation was written in English with instructions that were not interpreted in the same way by the whole team. The last meetings have been more productive according to the CEO, who argues that everyone in the team has a pretty good idea of the purpose of the meetings and sees a growing interest for handling the deviations, following the new process.

Not all team members are present during the deviation meetings to follow new agreements made within the team. One interviewee also expressed that because of lack of time, it is difficult to follow the meetings and what is being said, as the operational work continues in parallel with the meetings. Most of the interviewees agree that the first deviation meetings observed during the study were faced with

some challenges, such as communication misunderstandings, but agree that the introduction of deviation meetings is important.

Training of new employees

The previous way of training new employees has not been successful according to the CEO, as the routines for introducing new employees have varied depending on who runs the introduction. There is currently no standardized introduction process for new employees, which makes the training progress difficult to follow. Each new employee has previously been given a mentor from the team to shadow and work beside. All the employees work in very different ways and their decision making is currently based on experience and personal preference.

The company is now evaluating the introduction process for new employees by letting a new employee answer questions about the learning progress and evaluate differences between different employees' ways of working. Based on this evaluation process, the new employee and the assigned mentor will present a new introduction process.

Training of current employees

All the employees have been given access to a digital learning platform *with* different courses, some optional and some mandatory, assigned by the CEO. The Express team is expected to take a *Lean introduction* course, a *Root-cause analysis* course, an *Excel* course and a *Risk management* course during the first two quarters of this year. All the interviewees within the express team argue that there is a lack of time to prioritize the courses, since their daily operational work occupies most of their time.

The CEO has expressed that there is a general lack of learning motivation within the team. The aim of the assigned courses is getting the team to understand that a more structured way of working will result in becoming more confident as an individual. The purpose is to engage the individual in the reorganization of the company and increase the competence level within the team. The CEO wants to encourage decision making based on facts and on the strategic direction of the company. One of the main goals of the courses is to increase the level of self-awareness within the team. The CEO finds it challenging to understand in what way the team members are able to embrace the information from the courses.

4.2 CSF conditions

Below the collected data regarding each of the CSFs studied is summarized.

Top management experience and support

The CEO has previous experience with working in organizations which have already implemented Lean and has previously been responsible for implementing Lean in a new team within an organization. However, the CEO has no previous experience with Lean implementation in a whole organization. The CEO also has experience of taking several Lean courses in different career stages. The CEO chaired all improvement-related meetings and all interview subjects agreed that the CEO was very involved in leading, supporting and encouraging the improvement processes.

Shared improvement vision

No improvement vision has been stated during interviews, apart from the fact that the CEO has established new routines to encourage improvements. The overall vision for the company stated in the company documents is: “We invent quick and seamless supply chain setups for literally anything”. The company has a long-term goal of developing from an individual dependent actor of express transport to a learning supply chain organization. Some of the subgoals to reach this include education and training of employees and establishing a Lean way of working.

When asked what the vision and goals for the company was during the interviews, all the interview subjects had different answers. The most common theme mentioned was growth, which was mentioned by 5 out of 6 interview subjects. Other than growth, there was little commonality between interview answers. When it comes to the strategy to realize the vision, no employee other than the CEO could state what this strategy was and most of the interviewees mentioned that this was something the CEO was working on.

Good communication

The company uses a chat app and email in combination with in-person talks and telephone calls, to communicate internally on a daily basis. Additionally, there are the daily morning meetings where new information is often discussed. During the different meetings there are no notes being taken and shared. Not all the team members are present during all meetings, due to their different work-schedules, which limits the diffusion of information. Overall, the formal communication is currently limited, and information is generally not saved in a structured way.

The interview subjects agree that there is good informal communication throughout the company using in-person conversations, telephone calls and the chat app. New information is spread quickly and openly to the entire team. However, one subject described the communication as unstructured while another believed there were too many communication channels, which made it difficult to keep track on where to find specific information.

Leadership

The company had previously planned to have two team leaders in place to lead the two separate teams the company recently split the employees into. However, the only chosen team leader chose to not take the position and there seems to be an overall lack of interest to take the positions among the employees. Therefore, there are currently no team leaders. The only other leader within the organization is the CEO who, as mentioned previously, is deeply involved in the improvement processes.

People focus

The organization has few hard rules for how the employees should do their jobs and does not have a formal corporate culture. None of the interview subjects has in any way expressed that they consider rules and structures of the organization to be a limiting factor if suggesting new ideas or improvements.

Learning focus

Positive and negative experiences are not shared in any structured or formal way throughout the company. However, during the interviews all the employees claimed that there is a lot of informal communication of experiences, through telephone calls, the chat app and during the morning briefings. These experiences are not documented in any structured or accessible way and there are no formal processes for learning from these experiences.

There is currently no established routine for receiving or giving feedback from customers or suppliers. Some of the team members expressed that they do document specific comments from customers, so that information is shared with the rest of the team. However there seems to be different routines for sharing information among the team. Most of the team members expressed that they learn a lot from experience, and they continuously develop their own way of working. However, little of the information from their individual learning experiences is shared with the rest of the team.

Customer focus

The definition of customer value varies between employees. The most common theme brought up when asked about their value proposition is being fast, which most employees mentioned as part of the customer value. Other than being fast, there were few common themes between employees, with answers varying between good control of the transport, dedication, proactivity, high delivery precision, flexibility, high service, trust, accessibility, and low price. The CEO has identified a struggle of measuring quality for their type of service and argues that a clear definition and measurements are needed and wanted in the future.

The employees describe the company as very customer focused by delivering tailor-made solutions to the customer's problems. This includes comparing different options and finding the lowest-cost solutions meeting the needs of the customer.

Sufficient resources and infrastructure

All employees considered there to be sufficient budget and infrastructure available for the improvement processes. However, a major difference within the team is that the CEO also considered there to be enough time for these processes, while most of the employees argued that there was insufficient time for the improvement processes.

The CEO expects the employees to dedicate 5% of their working time on improvement processes and claims that this has been communicated clearly. However, all other employees said that they did not dedicate time to improvement processes and either worked on improvements whenever there was time available, which could be outside of work hours, or not at all.

Management and workers receive sufficient training in Lean

As stated previously, the CEO has received training in Lean. The rest of the employees were required to take a basic course in Lean during the first or second quarter 2021. Other than this, most employees stated that they had some previous training or experience with Lean, either from their formal education or previous employers, but to a limited extent.

Process data

Very little process data is currently available within the company. A few KPIs are used as a strategic measurement but most are not directly process-related. Some examples of currently used KPI:s are, "Hit rate for transport requests" and "Delivery precision". The CEO claims that the company is not interested in measuring individual performance by their efficiency of working, since they focused on "freedom with responsibility". Furthermore, both the team and the CEO have

expressed that it is difficult to measure their operational work, since some orders are more complicated and time-consuming than others.

Suppliers

The company has more than 200 suppliers of various types. They are mainly transport companies but vary from single-person transport firms to larger transport providers. About half of the suppliers are based in Sweden.

For Sweden-based suppliers, the selection process is informal and individual employees can simply call up any firm and hire them. This is stated to be because Sweden-based firms tend to be serious and follow the laws and rules that apply. If there are any trouble with them the employee can either choose to try to teach them what to do instead or decide to not use them again.

For foreign suppliers the selection process is a bit more formal. It is harder to find information about them and to know if they will follow laws and rules. Therefore, there is a supplier contract which they must sign, including the terms and conditions they must follow when working for the company.

There is no formal evaluation of suppliers and no formal feedback processes. This is instead for the individual employee to do on an ad hoc basis if there are any issues. The employees therefore have their own favorite suppliers which they prefer to work with, and the individual employees are free to choose whatever available supplier they want for every order. There are no formal long-term contracts with suppliers but there are informal long-term relationships with many suppliers which individual employees have worked with for several years.

Customers

The company has a mix between long-term customer relationships and single-order arrangements. Most of the orders come from recurring customers which put in orders every day or at least several times every week. However, the company currently has few long-term contracts with these customers. The CEO stated that this is something that they are working on changing and that they want to sign more long-term contracts with the largest customers in the future.

Feedback is generally done on an order-by-order basis when problems arise, and the company doesn't have any structured or formal feedback processes with customers outside of this. Some individual employees state that they sometimes have informal telephone discussions with the customers about the relationship and what can be expected from the future on an ad-hoc basis.

Targets, assessments and rewards for employees are aligned with improvement vision

The employees can earn a bonus based on several criteria. The fulfilment of these criteria is assessed by the CEO. These criteria are:

- Required courses completed
- Sales to new customers
- Work effort and performance

Other than this, there are no targets or measurements of individual employees. The CEO stated that contribution to improvement processes is considered as a part of the work effort and performance.

Capability of organizational change

The CEO states that the company is struggling to change its organization. Several interview subjects have stated that there is resistance to changing the organization and culture which has historically existed. Some possible reasons for this brought up during interviews is that the work is based on great individual freedom and everyone working as generalists, handling any type of order.

The CEO has wanted to change the organization to have employees be more specialized and work more according to standardized routines, which has not been popular with most employees. The motivation for this is to increase efficiency, enable faster training of new employees and enable the creation of teams with different responsibilities within the company as the company grows, since currently this training takes a long time due to the need of learning to handle all types of orders. The employees have instead stated that it would be less enjoyable to be more specialized and it would make them feel less like true logistics experts who can handle any kind of order. The employees have also said that one of the main reasons for why they work at this company is precisely because they want to work as generalists. This resistance has led to the CEO postponing several changes that were initially planned to be implemented earlier.

5. Analysis

In this chapter, the organizational learning in the case company is analyzed related to the theory presented in the theoretical framework. Additionally, an analysis of the current state of the presented Critical Success Factors (CSFs) for the case company is conducted.

5.1 Which factors influence the organizational learning in small service companies?

This section analyses the findings about Express Delivery Sweden's current level of organizational learning, to answer the first research question of the study. The data presented in section 4.1 is analyzed related to the theoretical framework presented in section 3.1, to identify important factors influencing organizational learning within the case company. Senge's (1994) 5 disciplines are used as a guideline to assess different factors influencing the organizational learning at Express delivery Sweden, followed by a summary answering the research question.

Personal mastery

Senge (1994) argues that personal mastery is one of the contributions needed to create a learning organization and according to the CEO there is a general lack of learning motivation within the team, which can hinder the creation of a learning organization. The employees argue that they have not been able to prioritize the assigned educational courses to a full extent, which aim at increasing the competence level within the team. As Murray & Donegan (2003) explain, improving the behavior and capabilities of and organizations individuals is what creates a learning organization, which further stresses the importance of personal mastery. The team members have not expressed a resistance or a negative view of the educational courses, nor a very enthusiastic view of them.

The fact that a clear vision is not shared within the company can contribute to not fully understanding the purpose and importance of personal mastery (Schwartz and Rist, 2017). The introduction of the educational courses shows initiatives being made to encourage personal mastery, however the motivation and reason to continuously learn and improve the professional competences is not clear within the team. Schwartz & Rist (2017) argue that if management fails in providing incentives for learning and informed change, suitable structures will not develop, and practices will not change. The current learning efforts within the company do not provide enough learning incentives for changing the current structure of learning. The lack of learning motivation and unclear vision, limits the level of personal mastery within the company.

Mental models

Some communication problems have been observed during meetings that have led to several misunderstandings within the team. The way that the team shares experiences and feedback from customers is not organized following a specific structure, which makes it difficult to learn from experiences within the team.

Senge (1994) explains that the discipline of mental models includes the ability to expose one's own thinking effectively and make that thinking open to the influence of others. The organization has made efforts and scheduled time for employees to reflect on current processes and possible improvements, through both meetings and several platforms, however the level of influencing others has not been reached. A lot of the learning within the operational work is based on individual experience, which makes each employer's mental model different. Furthermore, not all the team members are present in all meetings and have partaken in different online courses. This also affects the team members' different mental models, which can hinder their level of understanding each other. No efforts to reach a common mental model have been made within the organization, which becomes a barrier for both learning and mutual understanding.

Shared vision

All the team members have different ways of expressing the vision of the company. As the CEO is still working out the strategy to realize the vision, no other employee has been able to state what this strategy is. Senge (1994) argues that one of the contributions to the creation of the learning organization is creating a shared vision, meaning having a commitment for the common future within the team. The vision of the company and the strategy to reach it is under construction, however a discussion about a shared improvement vision is currently not present at all. Although the CEO has taken the initiative to introduce an improvement board, there seems to be no shared vision about how to practically use this tool. This becomes clear since the improvement board is seldom updated, and the improvement processes are not described as a high priority by the team. Senge (1994) explains that when there is a genuine shared vision, people learn and excel, because they want to, as opposed to being told to through a vision statement. The current lack of engagement in improvement processes shows that the shared vision has not become clear, which can hinder the will to learn and follow any stated vision.

Furthermore, Marsick & Watkins (2003) argue that one of the most important characteristics for achieving a valuable continuous learning process within the organization is to empower people toward a collective vision. It is thereby not enough for management to state an improvement vision for the organization, without it being a part of every employee's way of working and having everyone in the team commit to the vision. The interviews with employees confirmed a lack of collective vision

which is also connected to having different mental models within the organization. The lack of a shared vision within the company is considered a barrier for learning that needs to be overcome, to make room for continuous learning.

Team learning

Senge (1994) explains the need of Team learning as looking beyond the individual perspective of learning and to share the acquired knowledge with others. The way that Express Delivery handles new insights from their daily work today is limited to an individual level, where experiences are not documented in any structured or accessible way and there are no formal processes for learning from these experiences as a team. As Locke & Jain (1995) argue, an organization needs to routinely apply new knowledge in everyday actions, to benefit from it. As the employees rarely share new knowledge in a structured and formal way, it is difficult to translate the knowledge into policies and routines, which Locke & Jain (1995) argue leads to a focus on existing capabilities instead of exploration and experimentation of new capabilities. The learning that is done on an individual level is thereby limited by the fact that there are no established routines to translate the knowledge into action.

The CEO has focused on new learning goals for the individuals of the team, by the introduction of mandatory courses that team members are expected to partake in individually. According to Schwartz and Rist (2017), leaders who value and practice learning themselves are better suited to nurture learning in the rest of the organization and should be able to motivate the possible resistance from other members of the organization. The leader has in this case only assigned courses for everyone in the team to do on their own without leading by example, which explains the lack of learning motivation the CEO is experiencing within the team. The fact that every individual in the team partakes in different courses without sharing new knowledge with the rest of the team, hinders the Team learning.

Systems thinking

Senge (1990) explains that the systems thinking integrates all the other four disciplines and stimulates the synergy of learning integration. As the analysis of different disciplines shows, there are several gaps in the organizations learning, which weaken the synergies between different factors. Without everyone in the team focusing on personal mastery, individual learning will not be translated to the organizational level. Furthermore, team learning is needed to develop individual learning into motivated continuous learning. This all requires a mind shift for all employees and management. The shared vision is vital to expand the organization's capability to create the common future that is shared with everyone in the company. All factors mentioned in the previous four disciplines therefore need to be improved to enable a stimulation of positive synergies between disciplines.

Summary

The analysis shows several factors that hinder and negatively influence the organizational learning at Express Delivery Sweden. The online courses aiming at acquiring more knowledge, together with the newly established improvement and deviation meetings presented in Chapter 4, shows that the case company has made efforts and has intentions of developing into becoming a learning organization. However, as argued by Locke & Jain (1995), there are several learning barriers within an organization that need to be identified and avoided, to foster continuous improvement. Furthermore, Locke & Jain (1995) argue that organizations sometimes fail in translating newly acquired knowledge into policies, procedures, and routines, which has been the case for the Express Delivery Sweden.

The analysis shows that the level of organizational learning within the case company is affected by the lack of shared improvement vision. Without a clear improvement vision shared by the whole organization, creating a collective vision and common way of thinking will be difficult to accomplish, which will hinder the incentives and motivation of continuous improvements and learning. The learning efforts that have been established need to develop from individual learning to team learning by including the whole organization in these efforts and by applying new knowledge into routines in the daily work. Developing shared mental models would also make it easier to communicate new knowledge and insights throughout the organization. Prioritizing and routinely applying new knowledge in the work, requires incentives and motivation for learning, which cannot be reached without a shared improvement vision. As the learning barriers within the organizations do not seem to lie in a resistance to change, rather in not fully understanding the importance of a collective vision to achieve needed developments, creating a shared vision is regarded as the most important factor influencing the organizational learning.

5.2 Which success factors are important for enabling Lean implementation in small service companies?

Below is an analysis of how well the case company currently fulfills the CSFs identified in the theoretical framework. For each CSF, the analysis uses a three-level scale to conclude whether the company fulfills the definition of the CSF, partially fulfills it or does not fulfill it.

Top management experience and support - top management has previous experience with Lean and takes responsibility for and is involved in Lean implementation

Alkhoraf et al (2019) and Knol et al (2018) found top management experience and support of Lean implementation to be a CSF for SMEs and Lins et al. (2021) found management support to be a CSF for service companies. Pearce et al (2018) state that management knowledge about and dedication to Lean is particularly important in

small companies due to the lack of support structures in the organization. In this case, the CEO has extensive experience with Lean and is deeply involved in the improvement processes, which shows that leadership would be likely to also support future Lean implementation.

One principle of Lean is *genchi genbutsu*, which means that management should go and see the situation themselves to fully understand it (Liker, 2004). Therefore, it is important that the management is involved in the improvement processes themselves so that they can understand them. While the CEO lacks experience of implementing Lean in a whole company, the previous experience of implementing Lean within a team at a larger company may bear some similarity, at least in the number of people involved, to implementing it at the case company. Because of the presence of management experience of Lean and involvement in the improvement processes, the company is found to fulfil this CSF.

Shared improvement vision - a shared improvement vision in the company in line with the company strategy

Knol et al (2018) defines a shared improvement vision as “a company-wide long-term direction, objectives and goals for improvement, aligned with the company’s vision and strategy, are developed, shared and followed”. Pearce et al (2018) write that small companies are especially dependent on top management formulating and spreading a vision for why improvement processes and Lean implementation is necessary. There was no mention of a vision regarding how to work with improvements in the interviews with the team, which indicates that the top management has failed to spread their improvement vision to the rest of the organization.

Furthermore, the employees had different ideas about what the overall vision for the company was, except for expressing growth as a goal, and nobody except the CEO had a clear view of what the strategy to fulfil that vision was. The importance for building support in the organization before implementing changes can be tied to the Lean concept of *nemawashi* (Liker, 2004). This involves having a strong motivation for changes and building consensus in the organization before starting implementation. Because of the above, the company cannot be said to currently have a shared improvement vision and the CSF must be considered to not be fulfilled

Good communication - exchange of ideas, information, and knowledge throughout the company

Knol et al (2018) defines good communication as when “ideas, information and knowledge are exchanged honestly, clearly and transparently, both orally and in writing, in all organizational directions”. Knol et al (2018) and Alkhoraif et al (2019) found good communication to be a CSF for SMEs and Lins et al (2021) found it to be a CSF for service companies.

The company has a lot of informal communication throughout the company with regular information sharing and discussion in person, over telephone, on the chat app and through email. There is frequent communication both in writing and orally between the CEO to the rest of the employees, both upstream and downstream, as well as between employees. However, the communication is done through several communication channels which can make it hard to know which information is communicated where. The information is also unstructured and often not saved in an accessible way, for example it can be difficult to find information which has been posted somewhere in one long discussion in one channel in a chat app. This could make it difficult to find information later when it is needed and makes it easy for employees to miss information.

As argued by Marsick & Watkins (2003) learning must be captured and embedded in ongoing structures, to be shared and regularly used to intentionally improve changes in knowledge performance. There doesn't seem to be a system to make sure that information reaches everyone who needs it, and communication is done on an ad-hoc basis. A core Lean principle, according to Liker (2004), is standardization since this in turn enables improvement. In this case, the communication within the organization is clearly not standardized and is therefore difficult to improve reliably. Due to these issues, the company cannot be said to fully fulfil the CSF about good communication but can be said to partially fulfil it.

Leadership - team leaders take responsibility for and are involved in improvement

Knol et al (2018) defines the leadership CSF for SMEs as when “team leaders facilitate, coordinate and balance improvements from shop-floor employees”. Lins et al (2021) also found leadership to be a CSF for service companies. The CEO is, as previously concluded, deeply involved in the improvement processes and is responsible for the facilitating, coordinating, and balancing of improvement projects within the organization. Since the company is so small, the CEO can be considered to act as a “team leader” in a sense, even though there are currently two teams. However, the company currently lacks any real team leaders which means that the CEO must lead all improvement processes. Since the CEO has many other responsibilities, this risk leading to improvements being postponed, failing or simply not being initiated due to lack of time.

Schwartz & Rist (2017) emphasize that in learning organizations, leaders and managers are the providers of critical support that can enable a successful learning environment for both teams and for individuals. There is a risk that the support needed for continuous improvements is limited by only having the CEO as a provider of this support, who is responsible for many other areas within the organization. The organization is also growing and has the goal of growing even more, which gradually

is going to make it more difficult for the CEO to manage all improvement processes. Due to this, the CSF is only considered to be partially fulfilled.

People focus - where organizational systems help rather than constrain employees

Respect for people is a core principle of Lean (Liker, 2004). Knol et al (2018) defines people focus as when “organizational systems help employees to do their work versus employees being bound to organizational systems”. There are no signs of employees being constrained by the organizational systems in any way but instead the systems are designed to give a lot of personal freedom and responsibility. Therefore, the company is considered to fulfil this CSF.

Learning focus - where both positive and negative experiences are shared and learned from

Knot et al (2018) defines learning focus as when “both positive and negative experiences are shared, and mistakes are considered opportunities for improvement rather than punishment”. This can be connected to the core Lean principle of reflection and continuous improvement (Liker, 2004). As with the communication, there is currently a lot of informal sharing of experiences within the company but there is a lack of standardization in the learning processes.

Liker (2004) argues that continuous improvement requires a culture where mistakes are admitted enabling learning. Since most of the communication is spontaneous and unstructured, there is no way of telling that all important experiences are shared. There is a risk that negative experiences are not shared as much as positive experiences for psychological reasons, which limits the learning from experiences.

Furthermore Liker (2004) argues that without standardization you can't tell how the process is done today and whether a new way of doing it would be better and you have no reliable way of spreading a better way of doing things throughout the organization. There are currently no established routines for formally analyzing and learning from experiences, except for the improvement and deviation meetings. The improvement meetings are dependent on improvement ideas from the employees and are often cancelled while the deviation meetings are limited to instances where a customer was negatively affected. The current way of working therefore limits many positive and negative experiences that could be shared and learned from in a more structured matter. Therefore, it cannot be said that there is much of a learning focus at the company and the CSF is not fulfilled.

Customer focus - customer value is clearly defined, and the organization strives toward creating customer value with minimal waste

Alkhoraif et al (2019) argues that it is essential for companies to define what is of value to the customers, before starting a Lean implementation. The employees at the case company currently have no shared definition of customer value and this is not clearly defined at the company. Andrés-López et al. (2015) define the lack of customer focus as a waste, where failing to conform to customer's expectations or needs can result in miscommunication and/or lost opportunity. In the current way of working, evaluation of customer experience and value is limited to the KPI meetings or to individual learning. Liker and Ross (2016) argue that to achieve service excellence, it is important to understand what the customers expect and then going beyond that, giving the customers the unexpected. Routines for gaining knowledge about customer expectations is something that has not been developed or shared within the organization yet.

Even though customer value has not been clearly defined, the employees do work in a highly customer-oriented way with custom-made solutions for every customer, and customer focus does therefore seem to be highly integrated into the company's way of working. The employees state that they attempt to find the cheapest solution which fits the customers' demands for the order but since the company mostly competes on the quality of their service and is more focused on growth than profitability there is little focus on minimizing waste in the operations. Even though they have a customer-oriented way of working because the customer value is not clearly defined and there is limited focus on minimizing waste, the CSF can only be said to be partially fulfilled.

Sufficient resources and infrastructure - sufficient time, budget and infrastructure available for Lean implementation

Knot et al (2018) defines sufficient resources as when "sufficient time and money are available for training and improvement activities". Alkhoraif et al (2019) found the presence of sufficient infrastructure, such as IT systems, to also be a prerequisite for successful Lean implementation. Pearce et al (2018) found that small companies often struggle with Lean implementation due to lack of resources.

There is consensus in the company that there is sufficient budget and infrastructure for improvements. There are contrasting views on the sufficiency of time between the CEO and the rest of the employees where the CEO believes there is enough time while the rest say that they have too much operational work to do. This also leads to them not dedicating the 5% of time to improvement processes which the CEO says they are supposed to. If the employees do not have sufficient time to work on improvement processes it would naturally be difficult to implement Lean. Since there is sufficient budget and infrastructure but so many of the employees say there is not enough time, it can only be concluded that the CSF is only partially fulfilled.

Management and workers receive sufficient training in Lean

Knol et al (2018) write that one CSF for SMEs is that “managers and shop-floor employees get training in improvement concepts, tools, techniques and team building” and Alkhoraif et al (2019) also found employee training to be essential for Lean implementation to be successful in small companies. All employees have basic training in Lean or will have it by the end of Q2 2021. Many of the employees also have some previous experience with Lean. Whether this training and experience is sufficient or not for Lean implementation is of course difficult to know in advance but since everyone will soon have undergone basic training the CSF will be considered fulfilled for the purposes of this analysis.

Process data from all levels is available

Knol et al (2018) consider one CSF for Lean implementation to be that process data is both measured and displayed so that they can be used to identify opportunities for improvement. Very little process data is available at the company and measuring the processes has not been a priority at the company. On the contrary, there has been reluctance to measure processes due to a fear for individual employees being singled out as working less hard than others. The company has started to introduce some KPIs on processes, but they are still rather limited. Since there is so little process data available, the CSF cannot be considered fulfilled.

Few suppliers are selected for long-term relationships with two-way feedback

Knol et al (2018) argue that a CSF for Lean implementation is that the number of suppliers is limited, that supplier relationships are long-term and that these suppliers both provide and get feedback. Integration with upstream activities is a core part of Lean (Liker and Morgan, 2006). The company has over 200 suppliers, which cannot be considered few, and most of them deliver similar types of transport services albeit with different geographic coverage. The company considers the access to these many suppliers to be part of their value proposition since it enables them to solve a wider range of orders than their competitors. However, this also makes it difficult to have an overview of which suppliers the company has, how they perform and work on long-term relationships with these suppliers to improve operational efficiency, such as communication between the company and suppliers and service quality, such as deliveries arriving in time.

The subjective nature of supplier selection for each order, where each employee has their own favorites, risks leading to not using the best suppliers as much as possible and the lack of long-term contracts may lead to not being able to utilize negotiating power (by purchasing large volumes at the same time) in order to achieve lower prices and higher quality service. This again shows a lack of standardization in supplier selection within the company. This lack of standardization makes it hard to work with improvements (Liker, 2004).

There are no structured feedback processes and there is no formal evaluation of the suppliers, which again shows a lack of standardization. This would make it difficult to work with long-term improvements together with the suppliers and knowing which suppliers should be chosen. Expecting suppliers to work on continuous improvement and supporting them in this is a core principle of Lean (Liker, 2004).

Altogether, the company has many suppliers and highly limited feedback processes with these suppliers. Although some relationships are long-term, this is more due to relationships with individual employees rather than the company as a whole and is also not formalized in any way (for example in contracts). Therefore, this CSF is considered to not be fulfilled. While this is the case, it is important to consider that small companies have a harder time influencing their supply chain than larger companies (Alkhoraif et al, 2019). Alkhoraif et al (2019) therefore recommend that small companies first focus on implementing Lean internally. Based on this, the lack of this CSF may be more difficult to avoid than most others.

Long-term relationships with customers with two-way feedback

As with suppliers, Knol et al (2018) write that long-term relationships with customers and that these customers both provide and get feedback is important for successful Lean implementation. Integration with downstream activities is a core part of Lean (Liker and Morgan, 2006). The company currently has few long-term contracts with customers. The company is working on changing this and is expecting to sign at least one long-term contract with a major customer in the near future. A small number of customers are however responsible for a large share of the orders and revenue and have been customers for a long time. Therefore, there are several informal long-term relationships with customers. The feedback processes are also similar to suppliers in that they are informal, ad hoc and done on an order-by-order basis.

Due to the informal nature of the long-term relationships, with all current formal relationships and feedback being short-term, the CSF cannot be considered to be fulfilled. However, as with suppliers, smaller companies may have more difficulty changing their customer relationships than larger companies have (Alkhoraif et al, 2019) and the lack of this CSF may be difficult to avoid.

Targets, assessments and rewards for employees are aligned with improvement vision

Knol et al (2018) consider “support congruence” to be a CSF for Lean implementation. By this they mean that targets, assessments and rewards are aligned with the improvement vision. The bonus criteria for the employees are tied to taking required courses, new sales as well as work effort and performance. Participation in improvement processes is, according to the CEO, considered as a part of work effort and performance. The criteria about taking required courses is clearly aligned with the

improvement vision by stimulating further training for employees, for example in Lean. If the employees are aware that participation in improvement processes is considered as a part of work effort and performance, then this criteria can also be considered to be aligned with the improvement vision. It is however unclear to what extent employees are aware of this since it is not stated in any company documents.

Since work on new sales and improvement processes compete for time for all employees, there is a risk that the employees will prioritize new sales in whatever time they aren't busy with fulfilling orders. The interviews also support that this is the case.

Due to this conflict and the fact that inclusion of improvement processes in work effort and performance is not necessarily clear to the employees, the CSF is only considered to be partially fulfilled.

Capability of organizational change - the organization's ability to change culture, structure, and processes

Alkhoraif et al (2019) consider the change of organizational culture, structures and processes to better suit Lean to be a primary concern in preparing for Lean implementation and Gupta et al (2016) found organizational change to perhaps be the most difficult challenge with Lean implementation. The case company has seen strong resistance to organizational change, reported from the CEO and several other employees, where planned changes have had to be postponed. The primary conflict seems to be between the CEO, who wants more specialization in order to achieve higher efficiency, faster training of new hires and being able to divide the employees into teams as the company grows, and the other employees, who want to continue working as generalists since they find this more stimulating and enjoyable.

A major reason for why the CEO wants these changes is to enable rapid growth of the company. It would be difficult to achieve this growth with the current speed of training new employees and not being able to divide the employees into teams with different responsibilities. While some of the employees are aware of the company's ambition to grow, they do not seem to buy into the need to make changes in the organization to achieve this. Because the employees do not understand or accept the reasons to make changes, they do not have the motivation to change the organization. They simply do not have the same vision of how the organization should function in the future as the top management. Pearce et al (2018) state that top management is especially important in small companies to formulate and spread a vision for why change is necessary. A root cause for the lacking capability to make organizational changes can therefore be said to be the lack of a shared vision and strategy, both for the company as a whole and for improvement processes. Due to this lacking capability of organizational change, this CSF is considered to not be fulfilled.

Critical Success Factor	Current state
Top management experience and support - top management has previous experience with Lean and takes responsibility for and is involved in Lean implementation	Fulfilled
Shared improvement vision - a shared improvement vision in the company in line with the company strategy	Not fulfilled
Good communication - Exchange of ideas, information, and knowledge throughout the company	Partially fulfilled
Leadership - team leaders take responsibility for and are involved in improvement	Partially fulfilled
People focus - where organizational systems which help rather than constrain employees	Fulfilled
Learning focus - where both positive and negative experiences are shared and learned from	Not fulfilled
Customer focus - customer value is clearly defined, and the organization strives toward creating customer value with minimal waste	Partially fulfilled
Sufficient resources and infrastructure - sufficient time, budget, and infrastructure available for Lean implementation	Partially fulfilled
Management and workers receive sufficient training in Lean	Fulfilled
Process data from all levels is available	Not fulfilled
Few suppliers are selected for long-term relationships with two-way feedback	Not fulfilled
Long-term relationships with customers with two-way feedback	Not fulfilled
Targets, assessments, and rewards for employees are aligned with improvement vision	Partially fulfilled
Capability of organizational change - the organization's ability to change culture, structure, and processes	Not fulfilled

Table 3: The current state of the Critical Success Factors at Express Delivery Sweden AB

6. Recommendations

This chapter includes recommendations for improving the Critical Success Factors (CSFs) at Express Delivery Sweden, which were found to be either not fulfilled or partially fulfilled in Chapter 5. The CSFs that have been identified as in need of improvements are compiled in table 4 below.

Not fulfilled	Partially fulfilled
Shared improvement vision	Good communication
Learning focus	Leadership
Process data from all levels is available	Customer focus
Few suppliers are selected for long-term relationships with two-way feedback	Sufficient resources and infrastructure
Long-term relationships with customers with two-way feedback	Targets, assessments, and rewards for employees are aligned with improvement vision
Capability of organizational change	

Table 4: CSFs included in the recommendation

Create a shared improvement vision

A shared improvement vision is important for the creation of a learning organization, meaning having a commitment for the common future within the team in terms of how the organization should improve. Since both the overall company vision and the improvement vision, as well as the strategy to achieve the vision, is currently limited to the CEO and not commonly agreed upon within the team, the vision and strategy have become unclear for the organization. To create a shared vision and improvement vision, each team member needs to understand and want to follow an agreed strategy to reach visions that are clear and motivating for everyone in the team. The company is therefore advised to involve all team members in defining both the company vision and more specifically their improvement vision, so that everyone shares a clear definition of improvements needed.

With a whole team focusing on improvement and increasing learning capacities, the potential positive synergies increase and facilitate future improvements. To ensure that improvement initiatives are aligned with the company strategy, it is important to state a clear purpose for all improvements and changes made as well as the improvement processes so that the employees understand why they are done.

By making top management lead by example and set a standard for the level of personal mastery and learning commitment in the company, team members are more likely to feel motivated to focus on their personal growth. Therefore, it is important that the top management is involved in all improvement processes, including the courses taken.

Recommendation:

- Include all team members in defining the company vision and improvement vision and strategies to reach them and make sure everyone understands and accepts them
- Clarify how the improvements and improvements processes are related to the improvement vision and strategy
- Include the whole team, including top management, in the joint training courses

Good communication

To enable the exchange of ideas, information and knowledge throughout the company, the team needs to look beyond the individual perspective of learning and share acquired knowledge with others. The team needs the capacity to enter a common way of thinking. By clarifying the improvement vision for the company and making sure that everyone understands why and how the vision can be fulfilled, it will be easier to ensure more effective communication. This starts with dialogue, meaning the capacity of team members to suspend assumptions and enter a genuine thinking together. Team learning is vital, since it is the teams, not the individuals, that are the fundamental learning unit in modern organizations. Unless the team can learn, the organization cannot learn.

The company is advised to restructure the current way of communicating new ideas and new knowledge, so that the information spreads in the whole team. The knowledge gained through participating in different courses needs to be discussed with the whole team to ensure the implementation of new knowledge and a common way of thinking. Furthermore, it is important to be clear about what communication channels are used for every specific purpose and ensure that communication of all information is done in a structured way. This also means that information needs to be communicated and stored in a fashion which makes it possible to access in the long term.

Recommendation:

- Let employees partake in educational courses in the same time periods and introduce structured meetings/workshops to discuss and decide how to implement new knowledge acquired from courses.
- Establish routines and specific standards for what channels are used for different types of communication and that important information is stored in an accessible way.

Assign team leaders responsible for improvement

Having the CEO as the only person encouraging the improvement processes is neither a scalable nor sustainable situation, as the CEO has many other responsibilities to focus on. It is therefore important to transfer this responsibility to the team, to ensure that the team members engage in improvement processes and change the current state where improvement initiatives are a side priority. By assigning team leaders responsible for improvement, the team will become more involved and focused on these types of initiatives and it will be easier to encourage improvements from the people directly involved in the processes.

Recommendation:

- Assign or possibly hire new team leaders responsible for improvement processes

Define customer value

The analysis in Chapter 5 concluded that even though the company has a very customer-oriented way of working, there is no clear common customer value defined or communicated in the organization, which makes the focus on limiting waste more difficult. By focusing on evaluating their recurring customers and identifying their specific needs and requests it will be easier to fulfill the work in a way that satisfies each customer.

Recommendation:

- Clearly define and communicate customer value in the organization and use KPI:s to limit waste
- Evaluate the specific needs and the customer experience of recurring customers

Sufficient resources and infrastructure

In Chapter 5 it was concluded that the employees considered there to be insufficient time to work with improvements while there was enough budget and infrastructure. Therefore, the way to fulfil this CSF would be to free up more time for the employees for working with improvements. There are two ways to free up time for the

employees without increasing productivity: hire more employees or take on fewer orders. Achieving higher productivity may require there to be time for working on improvement processes which is why it isn't considered as a remedy for this problem. Since the company aims to grow, taking on fewer orders is not an option. Therefore, hiring more employees would be the recommended solution to this issue, especially since they have an ambition to grow.

The company is currently in the process of hiring more employees. Two new employees were hired recently but one was let go during the trial period. As described in Chapter 4, there have also been issues with the training of new employees which led to it taking a long time before new hires can be productive. This is something which the company has attempted to improve by reforming the training process for new hires.

Recommendation:

- Prioritize the recruitment of new employees to free up sufficient time for working with improvement
- Create a standardized training process for new hires to make new employees more productive in a shorter amount of time

Process data from all levels is available

The company currently has very little process data available overall. Since it is a service company with few standardized processes and employees often work on several orders in parallel, measuring the processes can also be difficult. The CEO also stated that the company doesn't want to measure the processes that much since they want there to be great individual freedom and responsibility with how to do the work. However, it would be possible to increase the number of process measurements available for the company as a whole, without measuring individual employees. It is therefore suggested that the company identifies and implements additional measurements which could be useful to inform the improvement processes.

Recommendation:

- Identify and implement additional process measurements to aid the improvement processes

Few suppliers are selected for long-term relationships with two-way feedback

The company currently has many suppliers with mostly short-term relationships and without regular feedback. At the same time, the company considers their broad access to suppliers to be a competitive advantage since it allows them to solve a broader range of problems more reliably than their competitors. However, it would not be feasible to have long-term relationships and regular feedback processes with hundreds of suppliers. However, there are some suppliers which are used more often than others

and which therefore may be more important to have long-term relationships with while still having the broader range of suppliers available when needed. The company could identify suppliers which can be used more often and who provide competitive prices and service quality and identify these as key suppliers. The company could then negotiate long-term contracts with these key suppliers, enabling regular feedback processes as well as potentially lower prices and other benefits.

Recommendation:

- Identify key suppliers and form long-term relationships with them with structured two-way feedback processes

Long-term relationships with customers with two-way feedback

The company has a small number of customers who account for a large majority of the orders and revenue. At the same time the company has no formal long-term relationship with these customers and no regular feedback processes. The CEO has stated that the company is in the process of signing a long-term contract with one of the largest customers already. To fulfil this CSF, the recommendation is therefore to identify the most important customers (key customers) and secure formal long-term relationships with them, including regular, structured two-way feedback processes.

Recommendation:

- Identify key customers and form formal long-term relationships with them with structured two-way feedback processes

Targets, assessments, and rewards for employees are aligned with improvement vision

Participation in training and improvement processes is already a part of the bonus criteria at the company. However, how participation in improvement processes is evaluated is unclear in the company documents. Also, the criteria about doing new sales may compete with the other criteria, leading to especially participation in improvement processes being prioritized lower, especially since that is only part of a broader criteria about “work effort and performance”. To avoid participation in improvement processes being down prioritized, the recommendation is therefore that the bonus criteria related to that should be clarified and that it potentially should get its own criteria.

Recommendation:

- Clarify that participation in improvement processes is part of the “work effort and performance” bonus criteria in related documents OR add a bonus criteria specifically for participation in improvement processes

Capability of organizational change - the organization's ability to change culture, structure, and processes

As discussed in Chapter 5, a root cause for the company's lacking capability of organizational change is the lack of a shared vision, both for the company overall as well as specifically for improvement. These recommendations therefore overlap with the recommendation regarding the shared improvement vision.

Recommendation:

- Make sure that all employees know and understand the company vision and strategy
- Make sure that all employees know and understand the company improvement vision

7. Discussion

The purpose of this thesis was to identify and assess success factors for Lean implementation and organizational learning within small service companies, in this case Express Delivery Sweden, as well as recommend how these can be improved to increase the chances of successful Lean implementation and organizational learning in the future. To achieve this, we have presented a model of Critical Success Factors (CSFs) for Lean implementation for small service companies, which was constructed as a combination of models from previous research. We applied this model together with the theoretical framework presented on organizational learning, in the case of Express Delivery Sweden, to understand the company's context and situation in terms of likelihood of a successful Lean implementation. Through data collection from the case company and the application of these models we have arrived at findings regarding the state of the company's success factors for Lean implementation and its organizational learning. Finally, we have used the findings from this assessment to create recommendations for how the company can increase its chances for implementing Lean successfully and improve its organizational learning.

7.1 CSF model for Lean implementation

The CSF model for Lean implementation in small service companies includes 14 factors which influence the likelihood of a Lean implementation being successful (see Table 1). More specifically if these CSFs are absent then successful Lean implementation becomes less likely. The CSFs in the model cover a wide range of aspects of the studied company, from up- and downstream processes by assessing supplier and customer relationships to internal processes such as leadership, communication, training, incentive programs and process measurements. Using this model therefore helps understand how the company's improvement processes work and how they can be improved. Since well-functioning improvement processes are a central part of Lean, it is also logical that the presence of these CSFs would increase the likelihood of successful Lean implementation.

Overall, it was simple to apply these CSFs to the case company and analyze the current state of the factors. However, analyzing the current state of the 14th factor, "Capability of organizational change", was found to be more difficult, especially without observing actual attempts to change the organization over longer periods of time than was available for this study.

There is also a matter of which scale to use to assess the state of the CSFs. In this case, we chose to use a three-level scale with one end being when the definition was fulfilled and the other when it was not, with one level in between for when the definition was partially fulfilled. This made assessing which level the company was at straightforward, but it may have the effect of making the assessment less accurate.

Companies with widely different current states for a given factor may still both end up as “partially fulfilled”, for example. The scale to use for assessing these CSFs is therefore something which may require further research.

7.2 Senge’s model for organizational learning

Senge’s model covering 5 aspects of organizational learning was used as a complement to assess the state of organizational learning at the company. This model was not used in isolation to make any final assessment of the learning level, primarily due to having less clear and partially overlapping definitions for the different factors described in the CSF model. The model is also more descriptive than prescriptive and is therefore less suitable for making clear assessments of whether a company is at a sufficient level or not. However, the model was still considered useful for giving a broader and more holistic understanding of the organizational learning at the company than the CSF model for Lean implementation, which is focused on a larger number of, and more specific, factors. This broader understanding was then used to inform the formulation of the recommendations for the company.

7.3 Findings and recommendations regarding Express Delivery Sweden

When the CSF model for Lean implementation was applied on the case company, the company fulfilled the definitions for 3 CSFs, partially fulfilled 5 CSFs and did not fulfill 6 CSFs. One of the factors not fulfilled was having a shared improvement vision, which the study showed that the company does not have. The lack of this CSF can also be seen as a root cause for why the other 5 are missing as well. The analysis using Senge’s model for organizational learning also showed the lack of a shared vision as the major factor impeding organizational learning at the company.

As stated in Chapter 5, one of the reasons for why the company has struggled to change its organization is because the employees don’t share the same vision as top management, both for the company as a whole and for improvement specifically. The employees therefore lack motivation for changing the organization. The other missing CSFs are related to measurement and learning, within the company as well as together with suppliers and customers. Here it is clear that the lack of a shared improvement vision negatively affects the willingness of the employees to measure processes, as well as spend time and effort on learning together with colleagues, suppliers, and customers. The employees consider their job to simply be to execute customer orders and, to a lesser degree, attract new sales and therefore do not prioritize working on improvement processes. If there was a shared improvement vision which included that all employees should contribute to organizational learning, the employees would be more motivated to do this. Therefore, it is likely that if the company had a shared improvement vision, all CSFs would at least be partially fulfilled. This would then

lead to a marked improvement for the company in terms of being prepared for a Lean implementation.

A common cause for some of the partially fulfilled CSFs appears to be lack of sufficient human resources, both in terms of not having enough employees and not having employees willing to take on necessary roles within the company. All employees, except for the CEO, stated that there isn't enough time to work on improvement processes due to the workload of orders being too heavy. The company has also failed to appoint leaders to their two teams due to lack of interest for the roles from the employees. The current employees are mostly focused on and enjoy the operational work with fulfilling customer orders and aren't as interested in sales or improvement processes, which means it may be necessary to recruit new employees who are more interested in the latter. The company has recruited new employees recently and is in the process of recruiting more but this shows that these efforts may need to be accelerated, especially since the company is growing rapidly, and that care needs to be taken to hire people who sooner or later may be capable and interested in taking on leadership positions within the company and in general are not only interested in working with customer orders.

The recommendations presented in the thesis are based on the identified gaps between the theoretical framework and the current state of the case company. The feasibility of the recommendations has been validated by the CEO and can be used as a guideline by the case company to improve the organizational learning and enable Lean implementation in the future. The purpose of the recommendations was to provide the case company with ideas for how they can become better prepared for their planned Lean implementation. The recommendations were also phrased broadly, to leave room for the managers and employees to arrive at more specific actions which fit the conditions at the company. No specific implementation plan or prioritization of the different recommendations have been evaluated in this study. To enable a successful Lean transformation, the case company is advised to further evaluate the different improvement areas and CSFs presented in this study and define a prioritization and time-plan for accomplishing these.

7.4 Broader implications and further research

Knol et al (2018) propose the absence of identified CSFs to be one reason for why many companies struggle to implement Lean. Lean research has also historically been focused on large manufacturing companies, with small companies (Alkhoraif et al, 2019) and service companies (Gupta et al, 2015) being less studied. Little Lean research has been done specifically on small service companies. The CSFs identified in this study can therefore contribute to increased diffusion of Lean within small service companies. This has the potential to result in productivity gains, leading to these companies becoming more competitive. This, in turn, can lead to higher

economic growth and more employment in this sector. For specific cases, using Lean tools to create a learning organization that brings out each employee's full potential also has psychosocial benefits. The team focus and mutual visions that many of the tools include are not limited to economic efficiency gains, but also to employee motivation, which increases social sustainability within organizations.

As the recommendations in this study are not focused on specific actions or measurable goals limited to the case company, these recommendations can be transferred as guidelines for most small service companies. Creating a learning organization and enabling continuous improvement is relevant for almost any company and the general findings of the study can be applied to other sectors and industries. The study has shown that the Lean tools presented in already existing research, which are mostly focused on larger manufacturing companies, can be challenging to apply without sufficient preparation. The findings of the study can help other service companies evaluate and determine if a Lean implementation is currently possible, by identifying the company's current state of learning. As the study has shown, without overcoming learning barriers and achieving a shared vision, most of the Lean tools will be difficult to apply. The structure of small service companies differs a lot from larger manufacturing firms, which makes further research on the topic of Lean implementation in small service companies important to study.

Since this list of CSFs was arrived at through the combination of research on small companies and service companies separately, rather than small service companies specifically, a logical place to build on this study would be to verify these results by following several small service companies through Lean implementation. This would enable the addition of factors which may be specific to small service companies or elimination of factors which are less relevant to this particular type of company. For practitioners, this list of Critical Success Factors enables companies to better prepare for future Lean implementations. Making sure that all these factors are present may result in the implementation being faster and less costly than it otherwise would be and would reduce the risk of the company being yet another victim of a failed Lean implementation. Achieving organizational learning is a central part of Lean. Identifying the factors which influence organizational learning is therefore important for any Lean implementation. By describing the current state of these factors and identifying weaknesses in the company's organizational learning, practitioners can take suitable actions to remedy these issues and improve the organizational learning of the company.

Ultimately, however, this thesis has only studied the state of these factors in one case company. It is therefore not possible to make generalized conclusions about challenges for Lean implementation and organizational learning for small service companies in general, based solely on this study. An interesting area for future research would be to study the state of these factors in several small service companies and attempt to identify trends in terms of which factors most influence

Lean implementation and organizational learning. As the case company studied in this thesis may not be representative for all different types of service SMEs, the significance of different factors may vary between companies. Studying the relative importance of different CSFs was also not within the scope of this study. Evaluating the importance of different factors in different types of small SMEs, and segmenting these factors based on type of company, could therefore be an interesting area for future research. Further research could possibly also lead to identifying new CSFs, which are specific and unique for the context of service SMEs.

8. Conclusion

Achieving successful organizational learning and Lean Implementation within a small service company requires various prerequisites, for example organizational and cultural factors, which may not be present in many cases. It is therefore important to evaluate and improve these factors within the company, to improve the organizational learning and improve the chances of a successful Lean implementation.

This thesis has utilized Senge's (1990) model of organizational learning to analyze and understand the organizational learning at the case company. The study has found that the lack of a shared vision is the most important factor which impedes organizational learning at the case company, which leads to a lack of motivation for learning and continuous improvement.

This thesis has also proposed a model of 14 Critical Success Factors (CSFs), based on a combination of already existing Lean research, for implementing Lean in a small service company. The absence of these CSFs increases the risk of unsuccessful Lean implementation, and it can therefore be valuable for companies to assess the state of these factors in their organization as well as working to improve them before attempting to implement Lean. By applying this model to the case of Express Delivery Sweden, this study has shown that the model is a useful tool for assessing and understanding how prepared a company is for Lean implementation and formulating recommendations for increasing this preparedness.

Specifically for the case company, this study has found that a common cause for the company currently lacking many CSFs is the absence of a shared company vision and improvement vision, leading to a lack of motivation for working with measurements and improvements as well as hindering organizational changes. The lack of shared improvement vision affects the organizational learning which is an important part of developing into a lean organization. The company is therefore advised to include all employees in establishing and developing a shared improvement vision. Additionally, the company is advised to accelerate the hiring of new employees with special care to hire people who may ultimately have the interest and ability to take on leadership positions in the company.

The findings of this thesis can contribute to complement existing research on Lean in service SMEs. The presented recommendations can be used as guidelines for other small service companies, to help them develop into a learning organization and enabling continuous improvement. As this thesis was based on a single case company, future research areas of interest would be to conduct a similar study including several small service companies.

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Appendix: Guiding Interview questions

(all questions have been translated from the original Swedish)

Interview stage 1

- Describe what Express Delivery Sweden does
 - What kind of services do you offer?
- What is your role in the company?
 - What are your daily work tasks?
- Describe the work process from receiving an order until the job is finalized!
 - What kind of work-tasks do you need to perform during this process?
 - Are there any variations in how this process looks like between different orders?
 - If yes, what are the reasons for these variations?
- Do you use any kind of written checklists or guidelines when carrying through a work-process?
- Can you describe the average timeline for an order?
 - How many orders do you usually handle simultaneously?

Show the SOP work-process received from the CEO

- How does this process compare with reality?
 - Are there any differences?
- How do you divide incoming orders within the team?
 - Is there any kind of coordination between the employees?
- How much time do you spend on orders compared to other work tasks?
- Does the workload vary between different days?
 - Do your work-tasks differ between different days
 - How do you prioritize between different work-tasks?
- Do you cooperate with your colleagues in any part of your work?
- How do you handle/divide work-tasks if anyone is home from work?
- In what way do you work with improvements at the company?
- In what way do you personally work with improvements?
- Looking at your personal work-situation, is there anything you would like to change or something you wish was different?

Interview stage 2a: employee questions (not CEO)

Shared vision

- How would you describe the vision for the company?
 - What is your strategy to reach this vision?

Leadership

- How would you describe the CEO's role in the improvement processes?
- How would you describe the CEO's engagement in operational work?

Communication

- In what way do you communicate new ideas or new knowledge within the company?

Organization

- How would you describe how rules and structure within the organization affect your work?
 - Have you ever felt limited to conduct your daily work by any rules or structures?
 - Have you ever felt limited to implement improvement by rules or structures?

Learning

- What is your experience of the online courses?
 - How do they contribute to your personal growth?
- Do you share learning experiences from the online courses within the team?
- How do you plan and prioritize your time to carry out the courses?
- Do you have any previous experience of any kind of Lean education?
- What is your experience of the Continuous improvement meetings?
 - What do you take with you from the meetings?

Customer focus

- What is your value proposition for your customers?

Resources

- Do you have the right resources (time and budget) to implement improvements?
- Do you set aside time specifically for improvements?

Quality:

- What part of your work determines the level of quality/service?
 - How do you measure level of quality/service?
- If you receive specific feedback from your customers, what do you do with that information?
- How do you experience the deviation-meetings?
 - What do you take with you from the meetings?

Suppliers

- How many suppliers do you use?
- How do you decide whether or not a company can be used as a supplier?

- What kind of relationship do you have with your suppliers?
 - Do you have a long-term relationship with any suppliers?
 - Do you give/receive any feedback from your suppliers?

Customers

- What kind of relationship do you have with your customers?
 - Do you have any long-term relationships with your customers?
 - Do you give/receive any feedback from your customers?

Interview stage 2b: CEO questions

Leadership

- What is your goal/vision for the company?
- How do you express the goals for the team?
- Do you have any previous experience of working with Lean?
 - If yes, what kind of experience?
- How involved are you in the operational work?
 - In what way are you involved?
- What has been the biggest challenge from a leadership point of view?
- What is the purpose of having team-leaders?
 - What is their role in the improvement processes?
 - Are they getting any specific training?

Learning

- What kind of education are the employees receiving?
 - Is management part of the learning process?
- What is the purpose of the online-courses?
 - Are there any requirements for participating in the courses?
- What is the content and purpose of the different workshops you have?
- Describe the training process of new employees!
- Have you focused on any specific Lean education within the company?

Strategy

- What is your overall strategy for the company?
 - How is the Lean implementation connected to this strategy?
- Can you elaborate on the incentive structures for the employees?

Resources:

- Do you think there is enough time to work on improvement processes (for you and the employees)?
- To what extent is budget a limiting factor for implementing improvements?

Customer focus

- What is your value proposition to customers?

Quality

- What part of the work determines the level of quality/service in your opinion?
- How do you measure the level of quality/service?
- What is the process for handling specific feedback from customers?
- What is your impression about the deviation meetings? What are your takeaways from the meetings?

Suppliers

- How many suppliers are you currently working with?
- Can you explain the process of choosing new suppliers to work with?
- What type of relationship do you have with suppliers? (Long-term/ short-term)
- Do you give and/or receive feedback from suppliers?

Customers

- What type of relationship do you have with customers? (Long-term/ short-term)
- Do you give and/or receive feedback from suppliers?

Process data

- What type of operations data is available today?
 - What additional data would you need to evaluate the improvement processes?

Communication

- How does the communication of new ideas and lessons work within the company?

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