Lean Implementations
Continuous improvement culture

The influence of communication strategies during lean implementation trajectories on the constructing and embedding of a continuous improvement lean culture

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Preface

Dear Reader,

The thesis in front of you is the result of six months of great effort. It is my final piece of work at the Radboud University Nijmegen in the master Organizational Design and Development. I would like to make some acknowledgments to the people that supported me throughout the whole research process during these months.

First of all, I would like to thank Dr. Armand Smits for the critical and detailed feedback during the writing of this thesis. He challenged me during the whole process to achieve the optimal results.

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Thirdly, I would like to thank Organization X for providing me the opportunity to conduct research at their client organizations. Especially, I would like to thank Dirk de Jong for helping me with finding relevant cases, planning the interviews, and giving feedback on my thesis.

Lastly, I would like to thank my family and friends for the support I received during this period.

Finally, I hope you will enjoy reading this master thesis.

Kinds Regards,

Sterre Smeets

Abstract

Purpose – research on lean management has been criticised, because of the lack of behaviour related soft aspects and culture and its limited focus on communication during implementation. The purpose of this research is to fill in the gap about the soft/cultural side of lean implementations by providing knowledge about a continuous improvement lean culture and to investigate to what extent the communication strategies during lean implementation trajectories can contribute to such a culture.

Design/methodology/approach – the paper presents an empirical analysis based on an review of the literature and based on in depth-interviews with lean consultants and client organizations. The continuous improvement culture was operationalized on the basis of Bessant's et al. (2001) model of continuous improvement behaviour. The communication was operationalized on the basis of five dimensions; the message, the medium, framing of change, communication top-down vs. bottom-up, role of the consultant. With the empirical analysis, the author examined the relationship between certain ways of communication and the continuous improvement culture.

Findings – the results from this research suggest that certain ways of communication contribute to continuous improvement. For example, communication via visual management makes the continuous improvement process visible. Next to this, bottom-up communication supports continuous improvement, because the improvement ideas must come from the work-floor. Another finding is the consistent translating and communicating of a clear vision which is in accordance with continuous improvement. Furthermore, the message is important for communicating "why" continuous improvement is required.

Research limitations/implications – more understanding is created regarding the soft and cultural side of lean implementations, while most of research in this field was focused on the implementation of hard tools. Another contribution of this research is that is explains how the relevant dimensions of communication influence the constructing and embedding of a continuous improvement culture, while existing literature did not succeed in adequately describing this relationship. More in-depth research could be done that focuses on only one or two communication dimensions.

Practical implications – This research led to a communication strategy with 11 different statements. Every statement describes a relationship between how to communicate so that the implementation of a continuous improvement culture becomes easier to sustain and thereby more successful. This strategy and the results will be of value for consultancy organizations and client organizations and therefore a recommendation for practice.

Originality/value – this research is original as it described a relationship which had not explicitly been investigated in depth before.

Keywords – continuous improvement culture, soft aspects lean, behavioural change, cultural change, communication, strategies, implementation, internalization, consultancy.

Paper type – research paper

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1. Introduction

Organizations operate in a world with increasing pressure for continuous improvement of. Continuous improvement is a never-ending philosophy of change for the better (Irani & Sharp, 1997). Continuous improvement is used as a mean of achieving and sustaining change and competitive advantages and must form part of the overall organizational culture (Irani & Sharp, 1997). In this improvement process, the implementation step is very important, because effective implementation is crucial to organizational change (Meyer & Goes, 1988). As Real and Poole (2005) discussed, it is in the implementation phase that organizations perfect the promise of improvements. In today's complex and turbulent environment, the need for organizations to improve their processes to become more effective and efficient is highly recognized (Bessant et al., 2001). An organization that has a strategy for improving therefore needs employees that show the right behaviour. In order to make this happen, organizations are hiring for example external consultants that are specialized in implementing different organizational change programs. Within these change programs, previous research has shown that there is a distinction between information technology innovations and quality management change initiatives (Real & Poole, 2005). This research focuses on the quality management side of implementation. Quality is seen as one of the keys to an organization's success and survival and Total Quality Management is the most widely used approach to quality (Irani & Sharp, 1997). Total Quality Management gave birth to methodologies like Lean Management, Six Sigma, Business Process Mapping, Theory of Constraints, and ISO 9000. Lean management is one specific improvement process that can contribute to Total Quality Management and is used to create as much value as possible for the customer. Implementing a lean trajectory is a process improvement that can support building effective and efficient organizations, because lean practices, such as a continuous flow and pull production, can contribute to increasing the operational performance of an organization (Knol et al., 2017). However, such practices are only one side of the aspects of lean management.

In almost all definitions of lean management, two substantial aspects can be identified, which include the hard aspects (tools of lean management) and soft aspects. During lean trajectories organizations worldwide use hard lean practices, while omission of soft lean practices may moderate the expected results of lean management implementation (Larteb et al., 2015). In the study of lean management implementation, the interesting views are those who classify lean management as a multidimensional concept that takes both hard and soft aspects into account (Zu et al., 2010). For this reason, in today's practice there is a growing attention towards the combination of soft and hard aspects of successful implementation of change. Soft aspects include the behaviour side and culture of the organization. Hard aspects can be specified in terms of lean tools, e.g. Kanban, cellular manufacturing, just-in-time production, pull production, and continuous flow production (Womack & Jones, 1996).

It is valuable to study lean implementation trajectories, because it is often the case to study the impacts without assessing the degree to which the new ways of working are actually used or actually

implemented with success (Real & Poole, 2005). Also Paro and Gerolamo (2017) stressed that various studies in the last two decades concluded that few organizations presented sustained results of lean management. The difficulty of continuous improvement lean trajectories comes not in the concept but in its implementation (Bessant et al., 2001). The lean trajectories that are implemented with help of the external consultants don't last in the future and therefore many organizations were unable to fully implement and sustain lean (Asnan et al., 2015). It is often the case that people fall back into their old behaviour, because nothing has changed in the behaviour and culture of the organization. Organizations are social systems that are shaped by human behaviour (Achterbergh & Vriens, 2010). The organization will only change when human behaviour has been changed and secured (Paro & Gerolamo, 2017).

As organizations are struggling to remain profitable during periods of economic slowdown, many have embraced lean management implementation as a tool to improve competitiveness or to lower their costs. The success of the lean implementation is often measured on the basis of the number of implemented tools and techniques. Experience shows that this is not a guaranteed change, because many lean implementations fall short of expectations in the long term (Holtskog, 2013; Paro & Gerolamo, 2017). The implementation of tools and techniques do not lead to behavioural and cultural change, but can only facilitate this. The question is whether a continuous improvement culture is actually realized when the tools are seen as the implementation. Therefore, it is fundamental that organizations also take into account the culture side of lean implementations, instead of only following the rather abstract lean techniques and tools, because these tools only address 20% of a lean trajectory (EBA, 2016). However, organizations often found it difficult to introduce the changing of the organizational culture, mind-set and behaviour (Hines et al., 2004), while culture has a strong impact on the performance of the organization and on the success rate of the implementation of new improvements (Paro & Gerolamo, 2017). Therefore, one way to improve the implementation of lean trajectories is associated with this behavioural change and organizational culture. Nevertheless, the culture and soft side of lean management implementation is under-investigated in previous literature (e.g Bortolotti et al., 2015; Hines et al., 2004). For this reason, the purpose of this research is to focus on the implementation of a continuous improvement culture, during lean trajectories. This means constructing and embedding a lean culture of participatory management in which the organization involves employees in decision-making processes and were all the members in the organization work together on an ongoing basis to improve the overall performance for the customer (Fryer et al., 2007; Hines et al., 2004; Womack & Jones, 1996). A lean continuous improvement culture can help engage everyone in the organization in during change (Toivonen, 2015). The changed culture can be derived from the internalization process, which occurs when change is accepted because the initiated attitudes and behaviours are in accordance with one's own values; that is, the values of the individual and the group or organization are the same (O'Reilly III & Chatman, 1986).

Another way to enhance the implementation of lean is by studying and practicing critical success factors (Knol et al., 2018, Dora et al., 2013 & Achanga et al., 2006). These are key organizational issues

that managers need to address to be able to implement a lean trajectory (Knol et al., 2018). One critical success factor, that is often overlooked or under-investigated in lean trajectories, is communication (Worley & Doolen, 2006, Puvanasvaran et al., 2009). Good communication is, for example, the honestly, clearly and transparently exchange of ideas, information and knowledge, both orally and in writing, in all organizational directions (Knol et al., 2018). It is highly recommended to have some degree of communication skills while intending to implement a lean trajectory (Achanga et al., 2006). Furthermore, communication can support the transformation to a lean organization (Worley & Doolen, 2006). In this research, communication is regarded as an antecedent for the success of the implementation of a continuous improvement culture. The effect of this antecedent will be examined during this research.

1.1 Research objective

Soft aspects of lean are crucial for sustaining the implementation in the long term, but previous research showed that organizations do not focus equally on both hard and soft aspects (Bortolotti et al., 2015). There is often a lack of behaviour-related soft aspects (Hines et al., 2004). Thus there is an important need to gain a deeper insight into these aspects. This research aims to address this gap in the literature by providing more insight into the soft, culture side of lean management and the critical success factor communication during the implementation of lean trajectories. Therefore, this research aims at making a contribution to the existing field of theory of continuous improvement and organizational change. The missing link between the success rate of lean implementations and the continuous improvement lean culture could be communication. Therefore, there will be a focus on lean implementations and continuous improvement culture with a communication lens.

The following research objective is formulated:

> Providing knowledge to construct and embed a continuous improvement lean culture and focusing on the communication strategies during lean trajectories, and their relationship, in order to make the implementation of lean trajectories more successful.

In order to meet the research objective, the following research question is formulated:

> *To what extent can communication strategies during lean implementation trajectories contribute to the implementation of a continuous improvement lean culture?*

1.2 Research framework

In order to accomplish the research objective, a research framework is set up to guide this study. The framework is made up of four phases. The first phase consists of the theoretical part, concerning the operationalization of the theoretical concepts. In this phase, existing literature is studied, to set up the conceptual model. This conceptual model is displayed in chapter two. The second phase is the empirical part, concerning the collection of data necessary to investigate the continuous improvement lean culture

and the communication during lean implementation. The third phase is the analytical part, concerning the actual data analysis. This data-analysis is based on a combined data-collection with consultants at Organization X and employees on projects, substantiated with the theory described chapter two. In the last phase, a conclusion and recommendations will be given about this research.
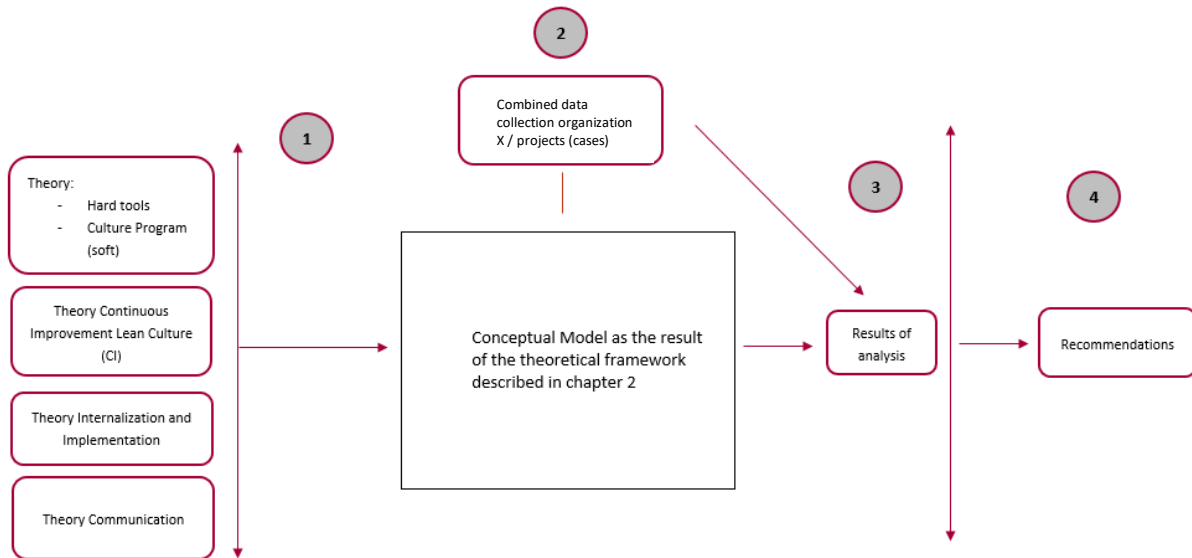
Figure 1.1: Research Framework

1.3 Theoretical relevance

As discussed above, previous studies concluded that several organizations failed to achieve the successful implementation of lean management, because they lack the attention paid on the soft side and culture of the organization (Bortolotti et al., 2015). Following Bessant's et al. reasoning 'what makes the organization competitive, is not so much the equipment, location and buildings which it possesses, but what it knows about and how it behaves '(2000, p.1). Also Rijnders & Boer (2004) concerned that during lean trajectories too little attention is paid to the process of designing and implementing the concepts of continuous improvement in practice. These two authors argue that more attention should be paid to empirical research about this phenomena, because a scan of the literature shows that there is few research addressing the implementation of continuous improvement. This research tries contributes to this finding because of its empirical nature and because of the focus on a continuous improvement culture.

The importance of communication during change is often cited in the practitioner literature as a critical success factor in lean implementation success, while the specific details of how and why communication is important during change are not well described and empirically validated (Worley & Doolen, 2006; Husain, 2013; Elving, 2005). In previous research, there is few scientific knowledge founded on the relationship between communication during lean implementation and the constructing of a continuous improvement culture. For example, communication makes process improvements

visible, but why this visualization is so important is not so clear (Linders, 2011). Therefore, it is interesting to investigate the relationship between communication and organization's effort to improve organizational performance through the implementation of lean management.

Because of the reasons mentioned above, this research is relevant to the existing field of organizational change, lean management, and continuous improvement, because it develops a more deeply understanding of a continuous improvement lean culture and the relationship between the communication strategies and the success of the lean implementation. Previous research indicated that culture has become the great fall-back for why lean is not working as it should because culture is an evolutionary change instead of a revolutionary change (Bicheno & Holweg, 2016). It is important to focus on the day-to-day changing of the culture, because the external consultant will leave the assignment and hereby future managers need to be coached on their attitudes to implement a continuous improvement lean culture with all their subordinates. Thereby this research contributes to the understanding of lean management as a sustainable organizational change.

1.4 Practical relevance

This research will be executed in association with Organization X, a consultancy organization in the field of Legal, Finance and Process. The research within the process side of Organization X, will be executed on separate projects. The lean trajectories of Organization X always consist of a process and soft, behavioural side. Organization X helps organizations with realizing improvements, substantiated with the lean mind-set. Everything they do is focused on continuous learning and improving. Within this research, most of the focus will be on the soft side of lean trajectories. Data will be conducted in three separates cases coupled to different lean consultants.

This research is also of practical relevance as it provides findings for lean consultants, both independent as well as internal lean consultants within organizations, about embedding a continuous improvement culture and about the communication process during the lean implementation. The focus is on the culture side of leam implementations in order to understand what is meant by a continuous improvement lean culture and to give practical recommendations how organizations can construct and embed a continuous improvement culture. These recommendations are linked to certain ways of communication. With this knowledge, consultants at Organization X and other similar organizations can enhance the implementation of lean trajectories at the client's organization. It is interesting to examine how consultants at Organization X try to give and learn managers at client organizations' the tools and mind-set to change the ongoing culture, because this knowledge can be embedded or taken over by other organizations or for other change issues than lean management.

Gained insights from this research can directly be used by other organizations that are facing a lean implementation or those who are considering the implementation. Since the literature concerned that it is not straightforward that a lean implementation will lead to a success, it is important for organizations to find out what they can attempt to do, to enhance the success of the implementation

(Paro and Gerolamo, 2017). Based on the explanations of this research, recommendations can be given on how to deal with communication during lean trajectories, in order to reduce unsuccessful lean implementations.

1.5 Structure

This research is structured as follows; in the first chapter, the introduction of the research topic was addressed. Also, the research objective and relevance for this research were outlined. The second chapter will discuss the relevant theory behind this research. In this chapter all concepts of the research framework will be further elaborated. This chapter is mainly focused on studying the two main concepts Continuous Improvement Culture and Communication during lean implementation. Reviewing the existing literature results in a conceptual model. This conceptual model will be used to carry out the empirical research. In chapter three the methodology will be discussed. The conceptual model that is designed in the second chapter will be operationalized in this chapter. Also attention is paid to research methods, research ethics and the reliability and validity of the research. In chapter four the results of the empirical research will be presented. The end result will be answering the research question. Chapter five offers a conclusion and discusses the limitations, implications and recommendations of this research.

2. Theoretical Framework

Chapter two presents an overview of the theoretical framework of lean implementations. In this chapter all core concepts of the research framework will be elaborated. At first, the chapter describes a clear and concise introduction about lean management in general, in order to determine a definition of lean management. Furthermore, the distinction between hard and soft aspects of lean management will be discussed in detail, in order to explain why this research focused more on the soft and culture side of lean implementations. After that, this chapter describes the implementation and internalization processes of lean trajectories. Finally, the communication strategies during lean implementation will be discussed. The communication strategies are discussed for the purpose of this research, namely examining the contribution of these strategies to the implementation of a continuous improvement lean culture. Therefore, the objective of this theoretical framework is to further elaborate the relationship of the conceptual model, as shown in the last paragraph of this chapter.

2.1 Lean Management

Lean manufacturing has its roots in the early automobile manufacturing (Womack et al., 1990). The origin of lean manufacturing can be found on the shop-floors of Japanese manufacturers (Hines et al., 2004). Lean manufacturing was largely developed by Toyota's founder. Toyota succeeded in reducing costs by applying lean manufacturing and to become the top 10 of the largest companies in the world (Womack et al., 1990). Later on, lean manufacturing is changed in lean management or lean thinking, because the manufacturing industry is not the only possible application. For example, lean management is simultaneously spread and implemented in healthcare- and other public and service industries. Lean management is a multi-dimensional approach that encloses a wide variety of management practices (Shah & Ward, 2003). As defined by Shah and Ward (2003), lean practices are a set of methods, procedures, techniques and tools aimed to continuously create customer value and reduce product lead time, in order to increase the performance of the organization. Examples of lean practices are Kanban, cellular manufacturing, just-in-time production, pull production, and continuous flow production (Womack & Jones, 1996).

2.1.1 Introduction

According to Womack and Jones (1996), the basic point of lean management is specifying value for the customer. This value creation leads to five principles of lean management: Value, Value Stream, Flow, Pull and Perfection. Lean management starts with specifying value as defined by the customer in terms of a specific products, through dialogue with specific customers. The next step is identifying the value stream for each offering or each product and identify waste. The value stream is the set of specific actions required to bring a specific product through three critical activities of any business, namely product definition tasks, information management tasks, and the physical transformation from raw materials to finished product (Womack & Jones, 1996). In this step, also the different types of wastes

are exposed and if possible, these wastes need to be reduced or better, to be eliminated. After identifying the value stream, the remaining activities have to be designed into a flow. A flow is the lining of the essential steps needed to get a job done into a steady, continuous flow, with no wasted motions, no interruptions, no batches, and no queues (Womack & Jones, 1996). Making activities flow means (re)designing production activities according to value streams and eliminating waste. The next principle of lean management is pull production, meaning that an organization designs and provides what the customer wants only when the customer wants it. No upstream activity should produce a good or service until the customer downstream asks for it (Womack & Jones, 1996). The final step of lean management is aiming for perfection, through relentless reflection, regular on the job maintenance and (continuous) improvement. These five steps are rather abstract and mainly focused on the hard tools of lean management. For example, when designing flows, organizations are using lean practices as, single-piece flow, cellular manufacturing, and production tempo based on takt-time. For this reason, a six principle can be added to the ideas of lean management, which strives for a continuous improvement culture, with involvement of employees during the lean trajectories and decision-making processes (Hines et al., 2004; Womack & Jones, 1996). This research will be further elaborated on this sixth principle. The next section will focus in more detail on the distinction between hard and soft aspects of lean management.

2.1.2 Hard vs. Soft lean aspects

The literature about lean management made a distinction between the implementation of hard and soft aspects of lean management. For this reason, lean management is defined as a multidimensional concept with different practices (Shah & Ward, 2003; Larteb et al., 2015). Often lean management is thoughts of as a set of tools that can be implemented anywhere at any time, while a lean trajectory is a dynamic process and unique to each organization (Worley & Doolen, 2006, Alavi, 2003). Therefore, in today's practice, there is a growing attention towards the combination of both soft and hard aspects of successful implementation of change, because previous research indicated that hard lean tools are more extensively used than soft practices (Larteb et al., 2015). This means that consultants and client organizations need to integrate both soft and hard aspects of organizational change, in order to maintain the change.

As mentioned before, hard aspects concern more the tool and technical side of lean management. Shah & Ward (2003) described in their study of lean manufacturing a lot of individual hard lean practices to represent the multi-dimensional concept of lean management. Other examples of lean practices, as defined by them, are: bottleneck removal, preventive maintenance, cycle time reductions etc. Also Pavnaskar et al. (2003) studied the many different hard aspects and they concluded that with an infinity of tools, it is helpful to organize them into a systematic way. They developed a classification scheme for lean manufacturing tools, because the systematic way of organizing the tools will help with the effective implementation of lean management (Pavnaskar et al., 2003). The classification scheme consists of seven levels (from system level, to resource level, to application level), but keeps the soft and behavioural side of implementation out of consideration. Both Shah & Ward (2003) and Pavnaskar

et al. (2003) and many other researchers focus on the hard tools of lean management, while, as discussed above, lean management is a multi-dimensional concept. Principles regarding the behaviour and culture side of the organization can be classified as soft aspects of lean management. Soft aspects of lean management are under-investigated in the literature, while these aspects are crucial for achieving a successful lean implementation. For example, Bessant et al. (2001) concerned that much of the literature about continuous improvement implementation does not treat the behavioural aspects of the process well. Also Liker & Rother (2011) concluded that organizations sometimes do not give equal importance to soft and hard tools, because they focusing their efforts on lean tools only. Besides this, Hines et al. (2004) criticized the lean approach, because of the lack of human integration. According to them, next to the hard tools and techniques, the human dimensions of empowerment, motivation and respect for people are very important. In order to implement lean management successfully, it is fundamental to go beyond lean management hard aspects by applying soft aspects and promoting the development of an appropriate lean culture (Bortolotti, 2015). The lean culture will be explained in further detail in the next two paragraphs.

2.1.3 Focus on soft aspects (Continuous Improvement culture)

There is a distinction between the tool Kaizen (meaning continuous improvement) and continuous improvement behaviour, in other words a distinction between methodology and mind-set. Kaizen is dedicated to continuous improvement in small incremental steps at all levels of the organization (Bicheno & Holweg, 2016). Continuous improvement behaviour is more a long term, often management driven effort, that has deep cultural implications in the workplace (Holtskog, 2013, p.575). To strive for a continuous improvement culture, it is essential that there is a strong local adaptation in order to succeed. Only imposing standardized hard tools copied directly from the research about lean are no guarantee for successful implementation (Holtskog, 2013).

In the context of this research, continuous improvement is defined in the perspective of a continuous improvement mind-set, instead of the continuous improvement methodology (like Kaizen). Of course, tools are necessary for successful implementation, but no guarantee. The following definition is used: 'continuous improvement is a mind-set in which the organization will be organised around people and it will be a human system. It involves all employees to conduct bottom-up improvement activities' (Knol et al., 2018; Béndek, 2016). All the members in the organization work together on an ongoing basis to improve the overall performance for the customer (Fryer et al., 2007, p. 498). In other words, all the employees in the organization are in support of continuous improvement. They carry out improvement initiatives in a way consistent with core values and goals held within the organization (Irani & Sharp, 1997). As discussed earlier, the basic point of lean management is specifying value for the customer. Employees in a continuous improvement lean culture constantly seek to deliver maximum value to the customer and constantly eliminating waste (Paro & Gerolamo, 2017). Therefore, Anchaga

et al. (2006) described high-performing companies as organizations with a culture of sustainable, proactive, and continuous improvement.

The primary reason most companies fail in their lean implementation is because they fail to successfully change the culture (Liker & 2011; Rother, 2013; Bessant et al., 2001). Bessant et al. (2001) have developed an evolutionary model of continuous improvement behaviour. They argued that when organizations introducing a continuous improvement culture, they often assume a correlation between tools and continuous improvement, and forgetting the other elements of behaviour. Bessant et al. (2001) explained that much of the literature of continuous improvement does not treat the behavioural and cultural aspects of the process well. Thereby, their model offers a mechanism whereby such a continuous stream of improvements can be achieved. In the context of this research, the lean culture of an organization is based and measured on the model of continuous improvement behaviour of Bessant et al. (2001). They examined different continuous improvement abilities, described in routines and their constituent behaviours.

2.1.3.1 Abilities Continuous Improvement

Continuous improvement (CI) is more than working with tools and techniques, because it requires an organizational culture that encourages and supports improvements (Bessant et al., 2001). In this research, continuous improvement is the consequence of behaviours which evolve over time. These behaviours cluster around several core abilities. Continuous improvement abilities include problem-solving skills, active participation, how improvement activities are linked to strategic goals and mechanisms for transforming learning across the entire organization (Bessant et al., 2001). The development of continuous improvement is a learning process which takes place over time. Learning and continuous improvement are simultaneously linked. Becoming a learning and continuously improving organization requires an organizational culture that constantly guides organizational members to strive for continuous improvement and an environment that is favourable to learning (Ahmed et al., 1999). The various continuous improvement abilities are shown below (Bessant et al., 2001). These abilities facilitate the transformation to an improvement culture. With awareness of these abilities, the routines for a continuous improvement culture could be internalized easier. The internalization process will be described in further detail in the next paragraph 2.3.

- Understanding CI – the ability to articulate the basic values of continuous improvement. Members of the organization must know or agree on what continuous improvement is. This understanding means that employees from all levels demonstrate a shared belief in the value of incremental employee contribution. When something goes wrong, the natural response is to look for reasons why rather than to blame each other. Understanding continuous improvement enabled employees to initiate and continue their own improvement activities.
- Getting the CI habit – the ability to generate sustained improvement in continuous improvement. Getting the continuous improvement habit by using tools, but also participate in the process.

Employees initiate and carry through improvement activities using measurement, tools and techniques.

- Focusing CI – the ability to link continuous improvement activities to the strategic goals of the organization. Employees use the organization's strategic goals and objectives to assess and prioritise improvements. They can monitor the impact of improvement on these goals and objectives.

- Leading the way – the ability to lead, direct and support the creation and sustaining of continuous improvement behaviours. Commitment of management during the change process. The managers recognise the contribution of employees to improvement and they support employee experiments. These managers really have to promote lean management in order to construct the lean culture which is to continuously improve over the time.

- Aligning CI – the ability to create consistency between continuous improvement values and behaviour and the organizational context. The improvement system is aligned, designed and continuously improved to fit with the current organizational context and structure. The improvement system is necessary, because it is difficult to make improvements without the presence of such a system.

- Shared problem-solving – the ability to move continuous improvement activity across organizational boundaries. Employees demonstrate a holistic view in improvement and cooperate with various hierarchical levels and across internal divisions. Also with outside agencies, for example suppliers, customers and consumers.

- Continuous improvement of continuous improvement – the ability to strategically manage the development of continuous improvement and facilitating the improvement culture. It refers to continuously monitoring, reviewing and evaluating of the continuous improvement system, in relation to the organization as a whole. This can lead to a modifying or renewing of the continuous improvement system. This gives also room for feedback.

- The learning organization – generating the ability to enable learning to take place and be captured at all levels. In the context of this research, this is the ultimate situation that organizations can reach. In this situation the continuous improvement culture is actually implemented. Employees share their learning in all the levels of the organizations. This means also the opportunity for training skills about continuous improvement.

The routines and constituent behaviours that belong to the different abilities can be found in Appendix 1. For example, the ability 'getting the continuous improvement habit' has related routines and behaviour such as 'using appropriate tools and techniques that support continuous improvement' and 'initiating and participating of continuous improvement activities'.

2.2 Implementation and Internalization

The process of change consists of different steps, that goes from problem diagnosing and analysing, to designing the change, to the actual change and resulting in evaluating the change (Christis & Fruytier, 2013). This cycle of change is derived from the teleological model of change. Proponents of this theory view change as a repetitive sequence of goal formulation, implementation, evaluation, and modification of action (Van de Ven & Poole, 1995). The actual change is accomplished during the implementation of the solution, in this case lean management as a continuous improvement solution. According to previous research, there is often a potential for improvement during implementation (Klein & Sorra, 1996; Real & Poole, 2005). As indicated by Klein & Sorra (1996), organizational analysts identify implementation failure, as the cause of many organizations' inability to achieve the intended benefits of the innovations they adopt (p. 1055, 1996). This is also claimed by Siegal et al. (1996), who concluded that in many organizations, change programs fail because of misalignment at some points in the implementation. As explained earlier, with regard to lean trajectories, many organizations fail to achieve a superior performance, because they do not focus equally on hard and soft aspects during the implementation (Bortolotti, 2015). Over reliance on lean tools without focusing on the development and mind-set of lean management from the beginning of the implementation will not establish the real success of lean implementations (Asnan et al., 2015). Lean management is not only a set of tools for eliminating waste, but also a process by which managers are coaching their people so that the desired results can be achieved and sustained (Liker & Rother, 2011). For these reasons, this research focuses on the implementation part of change.

Concerning lean implementations, the change is sustained through the internalization process. As explained in the introduction, in today's competitive and turbulent environment, the need for continuous improvement in processes is widely known. Organizations can improve their processes by implementing lean trajectories. Client organizations hire different external consultants and they bring in different tools for the implementation of lean. They bring a lot of codified knowledge in the form of patents, processes, fixed tools, while much of the knowledge is tacit knowledge, held in the experiences of the employees (Bessant et al., 2001). Tacit knowledge means a shared understanding about behaviour and underlying values which exist and evolve over time (Bessant et al., 2001). For successful lean trajectories, it is important that employees internalise the knowledge into their own routines and behaviour, instead of only working with the hard tools or getting the tools imposed. Otherwise, when consultants leave the assignment, the recipients could fall back into their old habits or they are not compatible with the implementation of lean. This is what often happens after the implementation of lean trajectories as previous literature indicated, while internalised behavioural patterns can provide competitive advantage through for example involvement in the lean process (Bessant et al., 2001).

In previous literature, these behaviour patterns are often called routines (Bessant et al., 2001; Feldman, 2000). Cohen et al. (1996, p.684) define routines as "an executable capability for repeated performance in some context that has been learned by an organization in response to selective

pressures". Such repeated performance has become embedded in the organization, and belongs to the organizational culture. Following Schein's (1984) reasoning, organizational culture can be described as the pattern of basic assumptions, beliefs and values that become enacted in particular behaviours and that worked well enough to be considered valid, and therefore, are thought to new members as the correct way to perceive and act and over time become the 'way we do things around here'. Because of 'the way we do things around here', the problem of cultural change becomes clearer (Bessant et al., 2001). Introducing new behaviour or changing routines needs a process of repeating and reinforcing the behaviour. This cycle must be repeated often and long enough to embed the new behaviour patterns. It is a learning process. This process becomes even more complicated, because it is not only about adding new routines, but also about losing old ones (Bessant et al., 2001).

The process of adopting new behaviour and attitudes into own habits is described as the internalization process. This process occurs when influence is accepted because the induced attitudes and behaviours are congruent with one's own values; that is, the values of the individual and the group or organization are the same (O'Reilly & Chatman, 1986). This means that during lean trajectories, employees are consciously working and practising with the lean tools and techniques and for example breaking with their old behaviour and habits. The lean techniques have to be 'worked at' continually by those who sustain it in their day-to-day activities, in order to build a continuous improvement culture. As a result, it is integrated into the own behaviour and attitude of the employees. Organizations are social systems that are shaped by human behaviour (Achterbergh & Vriens, 2010). Only when human behaviour has change, the organization can really change the culture. The concept of internalization is the process by which the organizational change is sustained. What an organization would like to achieve is that employees or managers are aware of the fact that they have to work constantly with the new techniques, even if the consultants are gone.

This internalization process is similar to routinization; fitting the implementation into the day-to-day work of the organization (Real & Poole, 2005). Therefore, important in the internalization process of change is the continuous repetitive routine. The challenge for organizations is the achieving of systematic, continuous and organization-wide evolution and improvement through the development of repetitive and consistently applied behavioural routines (Rother, 2013). The routine is the process for making improvements. Lean management is a process that need to be learned and developed by people in the organization, so that the results can be achieved, again and again (Liker & Rother, 2011). This means coaching people so that continuous improvement becomes their habit.

2.3 Communication

Previous literature concerned that communication is a critical success factor for lean implementations (Achanga et al., 2006; Knol et al., 2018; Fryer et al., 2007). While implementing change, one approach to successful change could be through the construction of good communication. On the other hand, authors such as Worley & Doolen (2006) and Puvanasvaran et al., (2006) all agree that communication

is often under-investigated in lean trajectories. The aim of this paragraph is therefore to develop a measure of organizational communication related to the continuous improvement culture. Goldhaber (1999) describes communication based on 3 aspects: (1) communication is influenced by the environment and influences it as well, (2) communication involves all features of a message (e.g. purpose, media, flow), and (3) communication involves people, including their attitudes, feelings and skills. Given these aspects, Goldhaber (1999, p.36) suggests the following definition: organizational communication is "the flow of messages within a network of interdependent relationships". Communication comes in many forms, including face-to-face communication, e-mails, and non-verbal communication. In this research, communication is regarded as an approach and antecedent to achieve the continuous improvement culture. It is about how managers try to create the continuous improvement culture and how communication is an external factor in this process. This communication is related to the implementation phase of change, because communication is vital to the effective implementation of organizational change (Elving, 2005). Therefore, it is interesting to examine how managers can communicate and give their employees the tools to constantly work with the continuous improvement culture. Good communication could help of a better understanding of the process of change and reduces resistance to change (Husain, 2013).

As many organizations fail to provide their employees with adequate and good information during change, while communication forms a vital component of successful implementation, it is fundamental to operationalize a good communication strategy (Allen et al., 2007). After extending comparing the literature about communication, five dimensions come forward that will be further discussed in the following paragraphs; the message, the medium, framing of change, communication top-down vs. bottom-up, and role of the consultant.

2.3.1 The message

The change message and its communication can serve to coordinate the lean implementation. Armenakis et al. (1993) describe the message for change as the primary mechanism for creating readiness to change. The message incorporates the nature of the change. The initiation of a continuous improvement culture must be included in the message and therefore the message must be strongly linked to continuous improvement. Armenakis & Harris (2002) identified five message domains within change communication. These five message domains are focused on the strategies used by managers in communicating and implementing organizational change; discrepancy, efficacy, appropriateness, principal support and personal valence. The resulted feelings created by the content of the message shape an individuals' motivation for the change (Armenakis & Harris, 2002). The need for change is the discrepancy between the desired situation and the current situation. Efficacy refers to the individual and collective perceived ability to change, for example the feeling 'yes we can!'. It is the confidence on one's ability to succeed. When the organization announces that a new process or change is needed, change recipients may ask "is the specific change being introduced an appropriate reaction to the need

of the change?" Therefore, the appropriateness of the change is important, because if the message is not convincing the appropriates of the change and employees disagree the change, then managers needs to consider whether the change is really appropriate (Armenakis & Harris, 2002). The next message component is the principal support, which is management support in the sense of resources and commitment to internalize the change. The management support is almost similar to the ability 'leading the way' of Bessant et al. (2001). The last message component is personal valence, which means the direct and indirect impact of the change on the individuals.

The content of the message is directly communicated in persuasive communication (Armenakis, 2002). The message redundancy is related to the message retention (Klein, 1996). Repetition of the message increases employees' memory of the content of the message. The content of the communication is based on relevance, clearness, comprehensibility, amount of information and timing of information (Christensen, 2014). Information that directly affects one's job position is better retained than abstract, unfamiliar or general information (Klein, 1996). It is better to communicate personal relevant information. To conclude, effective communication means that everyone in the organization, at all levels, understands the need for change and how the change will affect the business and each individual's work (Husain, 2013).

2.3.2 The medium

While the five message domains relate to the content of the change message, the means by which a change message is delivered to employees is also important (Hammond et al., 2011). This is related to the medium for change. The medium is one of the channels of communication, which refers to the means of delivering and receiving information (Armenakis & Harris, 2002). Communication can take many forms, including face-to-face communication (e.g. speeches, kick-offs, daily stand-up meeting, storytelling, training and coaching), written communication (e.g. formal reporting, newsletters, annual reports, website), and visual communication (e.g. posters, strategy plate) (Armenakis & Harris, 2002). With these forms of communication media, organizations and consultants can directly translate the content of the information to their recipients. According to Klein (1996) the use of several media is more effective than the use of just one and face-to-face communication is more preferred then written communication. It is better that the direct supervisor communicates the message to their employees, instead of top management, because supervisors are in direct contact with their employees, and therefore can incorporate the principles of message redundancy and face-to-face communication (Klein, 1996). During implementing change, an intensive multimedia approach designed to communicate the change seems appropriate (Klein, 1996).

2.3.3 Framing of change

Framing is a technique derived from the communication literature. The issue of framing and its implications are important in communication and persuasion (Chreim, 2006). Changes are most

effective when change efforts are framed and focused. As explained by Nesse; "Framing of the issues begins by carefully limiting the scope of the effort, considering the essential goals and objectives, and communicating these broadly to the organization" (2010, p.27). According to Hogg (2013) it is a leader's ability to frame organizational change in a positive way that will lead to successful internalization. One of the major issues that organizations are facing is how they approach implementing new processes and managing change (Hogg, 2013). Framing of strategic change can be a helpful manner during implementation. Frames are generally seen as templates that guide understanding of events, and reframing is typically viewed as a managerial activity aimed at changing the meanings associated with organizational situations in an attempt to influence organizational members' interpretations (Chreim, 2006). With framing of strategic change, change agents or managers try to influence the view of their employees and constructing their reality. Successful framing strategies emerge when frame alignment is achieved. Frame alignment is the linking of individual and organizational interpretive orientations (Chreim, 2006); a process described by Benford & Snow (2000) as 'frame alignment processes'. These framing strategies are successful if the proposed frame makes sense to the change recipients and they are ready to invest in the related organizational change efforts; a process described by Chreim (2006) as 'frame appropriation' (Smits & Heusinkveld). Frame appropriation can for example be achieved when the vision of the change is framed in a way that is in accordance with change recipients sensemaking and frames (Seyranian, 2014). Linked to the concept of framing, there are a set of communication tactics that may be used by change agents or managers to influence and mobilize their change recipients for the change. One way is the creation of a mutual understanding about the change with storytelling, because this limit the amount of misinterpretations and communication failures (Vuuren et al., 2008). Also translating a clear vision within the whole organization leads to frame alignment (Hamilton, 2016). Another way is through two-way communication. In the next paragraph, there will be further elaborated on the distinction between top-down and bottom-up communication, because communication is often mainly about downward dissemination of information from senior management to change recipients, while it is effective to involve people in the decision-making and information process (Fryer et al., 2013; Balogun, 2006).

2.3.4 Communication top-down vs. bottom-up

A lack of transparent, clear communication causes many problems. Since lean implementation involved employees at all levels of the organization, there is a need for a good communication process to enable a smooth flow of the process (Puvanasvaran et al., 2009). For this reason, lean implementation requires clear communication and involvement between all value streams (Worley & Doolen, 2006).

Balogun (2006) did research focussed on how strategic activity is initiated and championed at multiple levels within organizations. For organizational change to succeed, change recipients need to change the shared taken-for-granted assumptions and beliefs about the way things are happen in the organization. They need to change their mind-set and frames. More two-way communication is useful

in this process. As also discussed by Chreim (2006), change is about aligning interpretations, where there is a two-way process of sharing and negotiating interpretations through many different communication channels (Balogun, 2006, p.43). During organizational change, lateral and informal communication between change recipients is the key instead of top-down, vertical, formal communication from managers to change recipients (Balogun, 2006). It is in the lateral communication where change recipients are talking informal about the change, while most of the change initiatives are top-down structured, with formal interventions. Also Piderit (2000) concerned that the focus on top-down organizational change needs to switch to more two-way processes, because nowadays change programs are managed in more democratic ways. The two-way communication encourages involvement in the change process. One solution is to create communication channels for new ideas or opinions and to involve lower-level organizational members in the decision-making process (Kim et al., 2014). This is useful to establish the approach of two-way or multidirectional communication. According to Klein (1996) the communication flow should be multidirectional and continuous so that change recipients have a concrete and full understanding of the process and implications of change.

2.3.5 The role of the consultant
The revised interpretation of lean management into a soft direction also led to a revised form of lean consultancy (Holmemo et al., 2018). The soft-oriented lean implementation does not fit with the approach that lean is something that can be brought in and installed by an outside expert (Holmemo et al., 2018). Thereby, the soft lean approach also requires consultants that take a more facilitator role, instead of expert role that is more technical and tool-based. Schein (1999) has had a big influence on what consultancy should be look like. The process consultant approach, as introduced by Schein (1999), suggest an organizational learning perspective. This approach is the opposite of the 'doctor' or the 'expert role'. Thinking of lean in terms of tools and techniques means that the consultant is hired as a diagnosing and prescribing 'doctor' or as a selling and telling 'expert' (Schein, 1999). On the other hand, the process consultant is based on a helping and facilitating relationship in which the client reflects and learns. This approach is not oriented at telling what a client should be done, but aimed at supporting the process with which the client can come to a solution themselves. According to Schein (1999), the general assumption of the process consultant approach is that someone (client, organization, manager, unit) wants to improve the situation and is willing to seek help. The communication process with the consultant and the client is therefore a joined partnership, instead of the consultant that is only telling what the client needs to do.

2.3.6 Summary dimensions of communication
The previous paragraphs have described five dimensions of communication. To support these different dimensions, the following table summarizes the way which is best to communicate in accordance with

continuous improvement. This is based on the literature review and together form the communication strategies for organizations. This table will be the basis for the empirical analysis in chapter four.

Communication Dimension	The communication in the case of continuous improvement:
The message	Continuous improvement focus included in the message Keeping attention to the five message domains of Armenakis & Harris (2002).
The medium	Multi-media approach Face-to-face communication
Framing of change	Mutual understanding with storytelling The communication of a clear vision
Communication top-down vs. bottom-up	Bottom-up communication Two-way communication
Role of the consultant	Joined process

Table 2.1: summary communication strategies.

2.4 Conceptual Model

As can be subtracted from the previous paragraphs, current literature indicates that the dimensions of communication influence successful change in general. However, the specific details of how and why communication is important during implementation are not well described and empirically validated (Worley & Doolen, 2006; Husain, 2013; Elving, 2005). Also existing literature did not succeed in adequately describing how certain ways of communication during lean implementation trajectories influences the constructing and embedding of a continuous improvement culture. In order to visualize the possible relation between the relevant variables for this research, a conceptual model has been developed. The schematic representation is supported below by a short explanation.

Communication strategies during lean implementation
- The message, the medium, framing of change, top-down/bottom-up, role of consultant

Construction of a Continuous Improvement Lean Culture (CI)
- Internalization of CI routines/behaviour

Optimal situation = learning organization (Bessant et al., 2001).
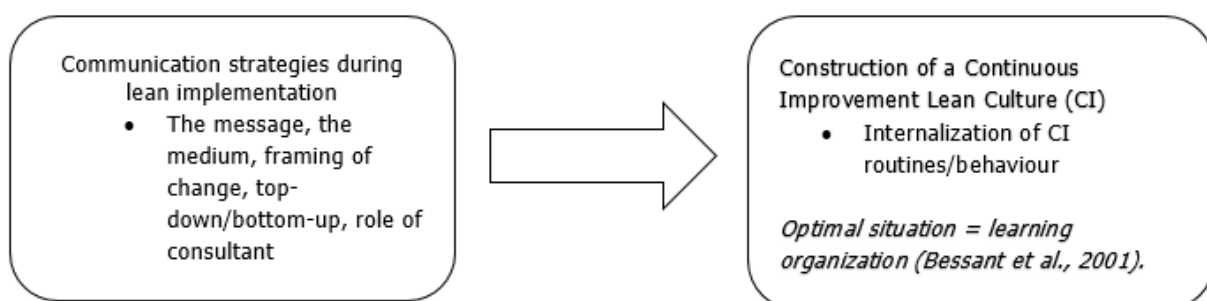
Figure 2.1: Conceptual Model

The conceptual model consists of one independent variable 'communication strategies' and one dependent variable, 'construction of a continuous improvement culture'. In this model, the continuous improvement lean culture is further operationalized in different dimensions in terms of Bessant's et al. (2001) abilities and routines for CI behaviour. The communication strategies during lean implementation trajectories are operationalized on the basis of the message, the medium, the framing of strategic change, top-down/bottom-op communication and the role of the consultant. The optimal situation in this research is the constructing and embedding of a continuous improvement lean culture, which is indicated by Bessant et al. (2001) as the learning organization. In this situation, the continuous improvement lean culture is actually implemented. Continuous improvement is the dominant way of life.

The arrow between the independent variable and the dependent variable means that there is the expectation that 'communication strategies' influences the constructing of a continuous improvement culture. This expectation is based on the literature review described in this chapter. The purpose of this research is to further explain the relationship between the variables.

3. Methodology

This chapter elaborates on the methodological choices that have been made during the research process. All choices have been made to contribute to formulate an answer to the main question from this research: *To what extent can communication strategies during lean implementation trajectories contribute to the implementation of a continuous improvement lean culture?* The first section addresses the research strategy that has been used. After this, a detailed account is given about how the research was conducted, including the research design. This research will not focus on one organization but research will be conducted within several organizations, therefore a case description of the different companies and the lean trajectory they implemented will be given in the second section. Followed by research methods, data operationalization, and data analysis. Final remarks will be given with regard to the research's ethics, reliability, and validity.

3.1 Research strategy

The purpose of this research is to provide knowledge about a continuous improvement lean culture and to investigate to what extent the communication strategies during the implementation of lean trajectories can contribute to the implementation of a continuous improvement lean culture. To answer the central question of this research, an appropriate research strategy must be chosen. This research is of qualitative nature, namely empirically fundamental-oriented research. Empirical research is research aimed at direct or indirect observations (Vennix, 2011). Qualitative research is described by Bleijenbergh (2013) as research aimed at collecting and interpreting linguistic material to make statements about a social phenomenon in reality. On the opposite of qualitative research, quantitative research can be distinguished. With quantitative research, it is possible to investigate correlations and/or causalities between different concepts. This research is descriptive, interpretive and subjective and therefore cannot be represented in figures and facts, like quantitative research does. In this research, a qualitative approach has been chosen, because it provides answers to the 'how-question' of this research. This qualitative research gives the opportunity to examine the phenomenon more in depth and in an open manner (Boeije, 2014). In doing so, the qualitative researcher wants to get as close as possible to the world of experience of the research object and do this as much as possible in the natural context (Vennix, 2011). For this reason, one strength of qualitative research is its ability to enlighten the particulars of human experience in the context of a social phenomenon (Ayres et al., 2003). The main research approach is of a deductive nature, which implies the use of existing knowledge as a starting point to study a social phenomenon in-depth in the natural context (Bryman, 2012).

This research is theoretically grounded, because it mainly focuses on filling the theoretical gap as formulated in chapter one. This fundamental research starts with the knowledge problem founded in the science and aimed at generating new knowledge about lean implementations. The explanatory statements made in the theoretical framework of chapter two are examined with fundamental research.

Nevertheless, fundamental research and applied research are linked to each other, because almost everyone ultimately recognizes that most knowledge must be accompanied by a form of application (Christis & Fruytier, 2013). Therefore, the recommendations of this research are also of practical relevance, because consultants and employees can apply the acquired knowledge to improve lean trajectories or the continuous improvement culture. As discussed in chapter two, lean implementations are often too much focused on the hard lean tools, instead of the soft, culture aspects (e.g Hines et al., 2004). For organizations, there is a potential for improvement during a lean implementation.

3.2 Research design

Ragin (1994) describes the research design as a plan for collecting and analysing evidence that will make it possible for the researcher to answer the central question. In general, three basic design are distinguished: the experiment, the survey study and the case study (Vennix, 2011). The experiment and the survey research are mainly related to the quantitative research. This research is of a qualitative nature, which will use the case study as the research design. A case study is the study of one or several carriers of a social phenomenon in the natural environment, during a certain period, using various data sources, in order to be able to make pronouncements about the patterns and processes underlying the phenomenon (Swanborn, 2013). The case-study investigates a social phenomenon in depth and within its real-life context (Symon & Cassell, 2012). The phenomenon covers a range of possibilities, for example a person, situation, organizations or change process (Symon & Cassell, 2012). The phenomenon that is studied in this research is the continuous improvement culture. In this research a multiple case study design is used, because more than one single case is studied. With a multiple case study, the differences and similarities between cases are examined. The researcher is able to analyse the data both within and across each situation (Yin, 2014). The benefit of multiple cases is that it enables comparisons that clarify whether a finding is simply a characteristic of a single case or consistently replicated by several cases (Eisenhardt & Graebner, 2007). Thus, multiple cases allow a wider exploration of the research question and enable the gaining of versatile, complementing insight into the phenomenon (Yin, 2014). The use of the multiple case study can contribute to theory building (Yin, 2014). As this is an intention of this research, because it mainly focuses on filling the theoretical gap, the multiple case study is suitable.

3.2.1 Case selection

This research is executed in association with Organization X, within the expertise team 'Samen Duurzaam Verbeteren'. The foundation for all change and improvement projects that Organization X does is their vision; 'together sustainable improvement'. Organization X believes that improvement is only successful if they work with this vision. Together sustainable improvement means that Organization X works together with the customer for the results. It also means that Organization X permanently secures and embeds results in the client organizations. Moreover, everything that

Organization X does is aimed at continuous learning and improvement. Organization X uses various strategies and tools that helps to improve sustainability together. Always driven by talent and founded by data.

In order to find appropriate cases, two criteria are developed that stem from the research objective and the research question:
- The cases should deal with the implementation of a lean trajectory
- The cases should contribute to the understanding of the continuous improvement culture and the influence of communication during lean implementation.

In association with Organization X, three cases (A, B, C) are analyzed and compared. The next section elaborates on each case.

Case A – Technical Service provider
Case A is a Dutch energy supplier of gas and green electricity. The objective of this lean trajectory is an sustainable margin improvement of 1% on an annual basis. This requires a structural adjustment of the business processes. Points of interest include: reducing rework, shortening lead times, increase quality, improve collaboration. During this trajectory, there are three phases: analysis, implementation and assurance. In the analyse phase, Organization X investigates the improvement potential of the client. In the implementation phase, the employees become more actively involved in the lean process and become the owner of the change. In the assurance phase, Organization X coached the management to continue independently of the consultants with Lean and to continuously learn and improve. The lean training also takes place at this stage. The project lasted 1 year from March 2016 to February 2017.

Case B – Muncipality
The Case B is a public company which is established under the 'Wet Gemeenschappelijke Regelingen'. This law regulates partnerships between municipalities. Case B organized the lean trajectory around one whole process, namely tax assessment. The objective is a process optimisation. This process is divided in 10 teams/departments. The project is about how the customer moves through the Case B. Every department consist of one step of the whole process. The result of this process is the customer who receives the tax assessment. Some examples of the departments are: 'eerstelijns, vakdeling heffingen, invordering'. The aim of the project is optimizing the 'customer journey' through the Case B. The project started last year in May and is still continuing. The consultants and employees are busy with making current states of all 10 the departments, in order to optimize the service for their customers. They all do this with the mind-set of lean management. The final goal of this project is to connect the current states with the future state and to implement the future state.

Case C – Public care organization

Case C offers specialized psychiatric care, to young people, adults and the elderly. Case C organized the lean project 'registration' in the entire organization. The objective of the project was to optimize the registration process (in terms of care activities). Another purpose was to realize an optimal organizational imbedding of the administrations to facilitate the quality of the registration process (by means of optimal processes, organization registrations, training, daily auditing and digitization). A diagnose of the current state of the whole organization was made. After this the future state is diagnosed with the process involvers and this future state is actually implemented. This future state is the implementing of a uniform registration process. The project lasted 1 year from May 2016 to April 2017.

3.3 Research-methods

There are three basic data collection methods within the case study, namely: the interview, the observation and the document analysis (Bleijenbergh, 2013). Interviews are a popular method of data collection in the case-study. Increasing the reliability and validity of a research can be achieved with triangulation of data. This means applying different data collection method next to each other (Swanborn, 2013). The major data source of this research are 13 interviews conducted between April and May with consultants of Organization X connected to a project and managers/change recipients on these projects. This research also involved the use of other sources of data to establish the continuous improvement culture. Different documents about communication strategies will be analyzed.

Vennix (2011) recommended an iterative process of data collection and data analysis. An iterative character is about systematic repetition of the process and continual movements back and forwards between the various stages of the process. The researcher is strongly focused on critical thinking and reflection on what he is doing.

3.3.1 Semi-structured interviews

The content of the interview questions was designed based on both a review of the literature and a pre-test interview with a lean consultant of Organization X. The review of the literature helped to clarify the concepts of continuous improvement and communication and guided the selection of interview questions. The pre-test interview helped to describe the experiences and opinions about the interview guideline, so that the interview can be improved. DdJ is chosen for this pilot, because of his recent experiences with lean trajectories on different projects and because of his work experiences at Case A. After this pre-test, some questions about the start position and position now of the organizations with regard to continuous improvement, training, education and evaluation are added.

Boeije (2014) divides in-depth open interview into two categories: the semi-structured and the unstructured interview. To ensure consistency between the different interviews, the formulating of the interview questions has been pre-defined, which is in line with the semi-structured interview. Semi-structured interviews are also used as the primary method for data collection, because a certain degree

of openness in the data is preferable to create understanding of the concepts. The pre-structured interview uses an interview guide that is based on existing literature, which fits with the deductive research approach. This research is theory-driven, because the abstract concepts in the existing scientific literature have been translated into concepts and questions that are empirically observable. In deductive qualitative research, a list of topics is used in the data collection that is based on the conceptual model formulated with the aid of the theoretical framework and preliminary research (van de Ven, 2013). It is important to make a questionnaire that provides sufficient guidance and sufficient space for an in-depth interview. This ensures that in deductive qualitative research, the data collection is structured and a lot of information can be collected (van de Ven, 2013).

The data-collection process in deductive qualitative research consists of five phases (van de Ven, 2013). First the relevant dimensions of the conceptual model have been distinguished (e.g. abilities CI, communication strategies). These aspects should be discussed in the interviews and must be converted into questions or topics of the interview guide. Secondly, the relationship between the relevant dimensions can be defined. The following phase is the actual formulating and structuring of the interview guide. The theoretical concepts of continuous improvement and communication strategies are prepared for measurement by means of an operationalization. This results in the semi-structured interview guide. The way in which the interview topics are derived from the literature is shown in the operationalization scheme in Appendix 2. The topics form the basis of the interviews that are conducted. These topics are translated into questions. There are different questionnaires developed for the different target groups. There is one specific interview guide for the consultants and one specific interview guide for the managers/change recipients of the projects. The interview guides are reported in Appendix 3 and Appendix 4. The interview guide is structured as follows: there are several dimensions that need to be discussed (e.g. understanding CI, learning organization, internalization, the message, the medium) during the interviews and every dimension has a number of topics (questions) as a guideline, and these are based on the literature.

Selection of the interview participants

Phase four is about selecting the suitable interview candidates. Table 3.1 on the next page provides an overview of the different participants. Further details regarding their extensive job description during the lean trajectory and the interview can be found in Appendix 6.

The interviewees are selected on the following two criteria:
- The consultants of Organization X must have implemented a lean trajectory in one of the following three cases; Case A, B or C.
- The employees of the projects (organizations) must have been involved during the lean trajectories, in a management or change recipient role. In these different organizations, the managers all initiate the project and therefore are the internal change agents.

CASE	Target group: Consultants Organization X External change agents	Target group: Cases
Case A	• Lean, Process and Change consultants (**pre-test**) • Lean Consultant & Trainer • Lean Consultant	• Continuous improvement manager (internal change agent) • Opeational employee (change recipient)
Case B	• Senior Business Consultant • Lean Professional	• Project manager (internal change agent) • Operational employee (change recipient)
Case C	• Lean Professional Healthcare • Lean Consultant & Change manager	• Project manager (internal change agent) • Three operational employees (change recipients)

Table 3.1: overview interviewees

The last phase is conducting the interviews. First there is conducted a pre-test interview, followed by conducting interviews with different lean consultants at Organization X. The goal of the interviews with the lean consultants is to provide knowledge derived from practice about the continuous improvement culture and communication during implementation based on their experience. These consultants have implemented a lean trajectory in one of the three cases. After this, managers and change recipients of the projects were interviewed. The goal of the interviews with employees of different projects is to obtain more situation specific in-depth experiences and feelings about the lean implementation, continuous improvement and communication. Each interview lasted between 45 and 60 minutes, and all were audio-recorded with the permission of the interviewee and thereafter transcribed and analyzed. Each interview starts with the introduction of the interviewer, the goal of the interview and the explanation of the reason why he or she is chosen for the research. Thereafter, the interviewees are asked to introduce themselves. Subsequently, the interview is conducted and ends with summarizing the conversation and the question if they are interested in receiving the results of the research.

Because of the fact that the consultants explained a lot about what should happened, another appointment was made with some of the interviewees to gather more in-depth case specific information. This information is gathered via a telephonic call. During this call some focused questions were asked about aspects that were missing. This resulted in another interview transcript with three consultants, each connected to one of the three cases. The extra information that was gathered is included in the analysis in chapter four.

3.3.2 Document Analysis

Different documents will be analyzed that are relevant for the communication strategies. These documents are for example about how Organization X communicated the lean trajectories to their client organizations or other reports. In the context of this research, it is interesting if the documents are in line with the interviews. While analyzing the documents there will be a focus on how the consultants of Organization X really promote the lean trajectory in order to construct the lean culture which is to continuously improve over the time. There will be analyzed if Organization X mentioned the continuous improvement culture and how they communicate this to their client organizations. These documents can be found in appendix 5. The continuous improvement culture is for example marked with a red circle.

3.4 Data-analysis

After conducting the interviews, data analysis is executed on the transcribed versions of the interviews. The communication serves as a 'lens' through which the data were coded and analyzed. In qualitative content analysis, the researcher investigates if patterns between interviews occur and how these patterns relate to each other. When labelling the interview transcripts, various codes have been assigned to the fragments. The codes of these fragments serves to select the relevant fragments from the large amount of text material (Bleijenbergh, 2013). The interviews can be interpreted by subsequently combining the different fragments with the same and comparable codes. As described before, this research has a deductive qualitative nature, and therefore the researcher is guided by clear theoretical expectations that precede the data analysis (Bleijenbergh, 2013). The data analysis of this research is therefore theoretical, which means that existing scientific knowledge is taken as the starting point for analysis. The coding scheme is designed on the basis of existing scientific literature or previous research, which is also called deductive coding (Bleijenbergh, 2013). This deductive coding is of an open nature, meaning that the theoretical concepts that are operationalized will be used as themes in the coding process. Moreover, the interviews will be analyzed with a critical inductive view, to investigate if there are other relevant concepts mentioned in the interviews. This is in line with the abductive approach, where the researcher wants to discover new things – other variables and other relationships (Dubois & Gadde, 2002).

The variables mentioned in the conceptual model are operationalized to conduct the research. The operationalization of the concept continuous improvement culture is based upon Bessant's et al. (2001) evolutionary model of continuous improvement behaviour. The operationalization of the concept communication strategies is based upon e.g. Armenakis & Harris (2002), Chreim (2006), Klein (1996), Balogun (2006), Schein (1999). These dimensions form the basis for the open coding process and result in a code tree. This code tree is displayed on the next page. During the coding process, the researcher stays close to the texts and adopts the terminology of the interviewee. In this process, the researcher will generally first code on the basis of the dimensions and then start to theme. By comparing the fragments that fall under the same dimension, the researcher can recognize patterns about the social phenomenon and there will be coherence in the research (Bleijenbergh, 2013). The transcripts will be screened a

number of times to make sure all dimensions are revised. By gathering all the statements with the same dimensions together the researcher will be able to make an overview of key concepts and the relevant quotes. This overview will be used to analyze the concepts and formulate results that will answer the research question. During the analysis the following names are assigned to the fragments:

- Consultant Organization X = external change agent → *ECA*
- Project manager = internal change agent → *ICA*
- Operational employee = change recipient → CR

The data-analysis of this research consists of both within-case analysis and cross-case analysis. Within-case analysis is the in-depth investigation of a single case as a stand-alone existence (Ayres et al., 2003). Cross-case analysis refers to analysis and findings that relate the elements and aspects found in specific cases to those found in other cases (Ayres et al., 2003). Cross-case analysis makes the comparison possible of commonalities and differences within cases.

Figure 3.1 operationalization code tree

3.5 Research ethics

Research ethics is about understanding how research affects and effects the research field that the researcher is interested in (Symon & Cassell, 2012). It is about the treatment of participants during the research and the conduct of the researcher in the field. The conduct of the researcher is integrity as an academic, with retaining the whole research in mind for whom the research is being done (own research versus organizational needs).

This research was conducted in an ethical way by the following steps. Firstly, attention is paid to transparency and confidentiality. The participants are informed on the wider nature and the objectives of the research, before authorization is given by the participant. The researcher is transparent about the research goals and how the data is processed and represented. Confidentially relates to the protection of
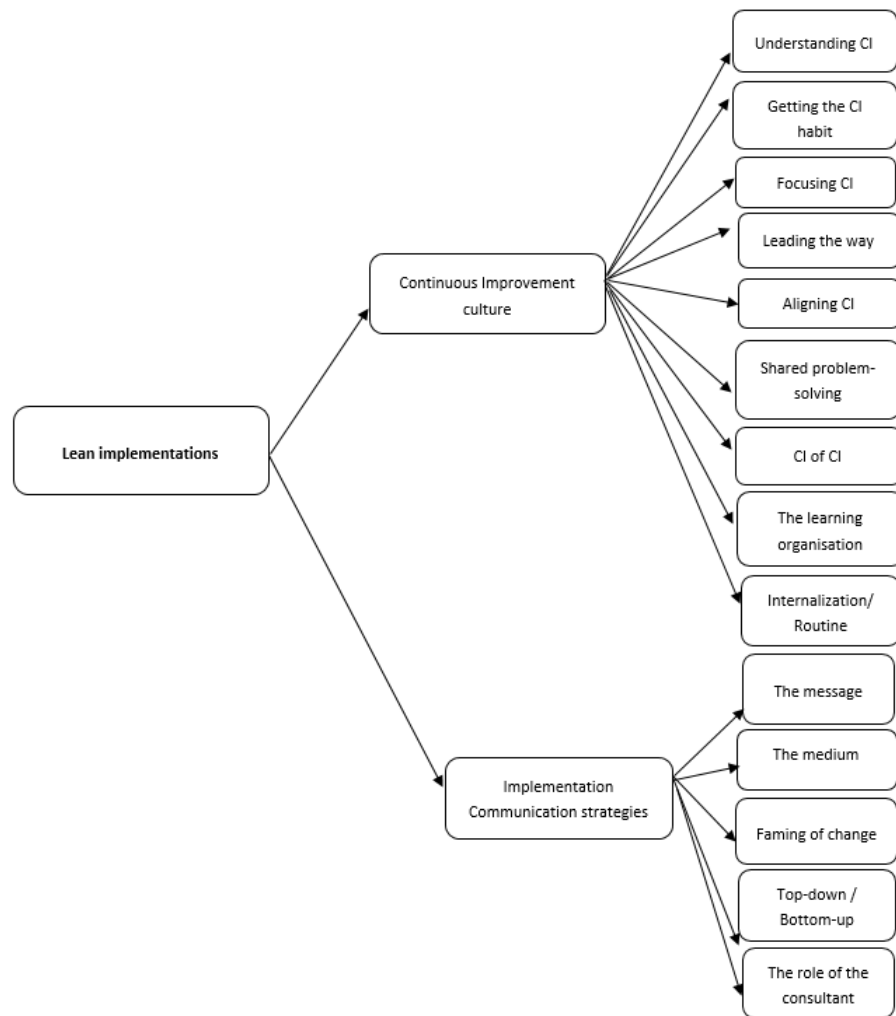
the data collected (Symon & Cassel, 2012). The researcher needs to be clear about how the confidentially of data will be respected and needs to create a confidence in others to talk freely (Symon & Cassell, 2012). Moreover, the participants have the freedom to withdrawn from the research at any time. Furthermore, at the beginning of the interview, the participants were asked for permission to record the interview. The participants have seen and approved the transcript of their interview, before it is analyzed. Also the reports will be sent to the participants, so that they can withdraw any statements. During the research, all participants are informed about the results and the possible implications of how the findings may be applied in the organization. With respect to anonymity, the interviewees identities are protected and replaced with other names. Besides this, attention is paid to how the information will be used and how it will be stored. It is important to guarantee confidentially and anonymity in data storage and use. Finally, as far as this research is concerned, APA standards and the guidelines of the Radboud University in Nijmegen are met.

3.6 Reliability and validity

A final discussion concerning the methodology of this research is about the assessment criteria for qualitative research. The criteria of internal validity, external validity, and reliability fit within qualitative deductive research (Bleijenbergh, 2013).

Internal validity is the most important criterion in assessing qualitative research. This criterion is about the question 'do you measure, what you want to measure?' (Bleijenbergh, 2013). The face-to-face interview increases the validity of this research, because the interviewee can give many different answers, while a survey questionnaire often has only one answer option. Attention is paid to prevent the interviewee from giving 'social accepted' answers, because by emphasizing anonymity and confidentiality at the beginning of the interviews. Also the in-depth character of the interviews increases the internal validity of this research, because the information was gathered within the natural environment of the respondent. Triangulation of respondents (consultants vs. employees) and data (interviews vs. documents) increases the validity of this research, because it is assumed that different methods can also show different elements of a research subjects. Therefore, a more complete picture of the research subject can arise (Boeije, 2014). Furthermore, the data-analysis is based on existing literature as well. Lastly, information feedback to interviewees can increase the internal validity of this research. With these 'member checks', the transcribed interviewees are presented to the interviewees with the question whether the information is correctly noted (Boeije, 2014). In addition, the preliminary analysis results are also presented to the interviewees.

External validity is about the question: 'are the results generalizable in the academic field?' (Bleijenbergh, 2013). In qualitative research, there are limitations with regard to the generalizability. For example, the results of a case study cannot be generalized, only the patterns can be generalized (Bleijenergh, 2013). For this reason, the external validity of this research is limited, as only three cases were studied, which means that there is no fundamental basis for generalizing the findings to a broader

population. However, the focus of this research was not so much on the external validity, as this is mainly related to quantitative research and statistical generalization. A better criterion is transferability of the results. With transferability, the researcher provides enough detail about the specific research case (e.g. through extensive description) that the reader can estimate if other (similar) contexts might be informed by the findings (Symon & Cassell, 2012). Transferability is related to analytical generalization, which means that the findings are not there to generalize from sample to population, but from observation to theory. The researcher strives to generalize a particular set of results to a broader theory or it compares the empirical results of the case study to a previously developed theory (Yin, 2014). Due to the fact that the soft, culture aspects of lean implementations and communication during lean implementation are under-investigated in previous research, makes that the results can help to create a better understanding of the theory of lean implementations. Besides this, the results of this research can be used as a base for further research.

Reliability is about the influence of coincidental or unsystematic errors of the data (Vennix, 2011). A measurement is reliable if it is stable, which means that the same results are determined for repeated measurements. In qualitative research, reliability means that the choices made in the research are consistent (Bleijenbergh, 2013). During this research, there are taken precautions in order to improve the reliability. The use of semi-structured interviews benefits the reliability, because it ensures that all interviewees receive to some extent the same questions. The pre-test interview was conducted in order to check if the interview question were interpreted correctly. On the basis of this test interview, questions were adjusted or formulated differently. This pre-test interview has tried to increase the reliability of this research. Moreover, the methods used in the data collection and data analysis process are described clearly and the interviews are transcribed. By making clear and consistent choices during the selection of respondents and by carefully recording the data in the interviews transcripts, this process can be followed by others (Bleijenbergh, 2013). This makes it possible to replicate this research in other client organization's in order to improve the reliability of the research.

4. Analysis and results

This research tries to explain the influence of communication during lean implementations on the constructing of a continuous improvement culture. This is accomplished by operationalizing the concepts of Continuous Improvement Culture and Communication Strategies in different dimensions and topics. In this chapter, the analysis and results of the research will be presented, based on the findings of the interviews, supported by some documents. The structure of the chapter is based on the sub-paragraphs discussed in chapter two. There are two main concepts key in the analysis: Continuous Improvement Culture and Communication strategies during implementation. Paragraph 4.1 deals with the results that are related to the constructing and embedding of a continuous improvement culture, and the corresponding abilities and routines. Paragraph 4.2 describes the results that are linked to the communication strategies during implementation and how this contributes to the constructing of a continuous improvement culture. In these two paragraphs, first the single cases will be discussed. After this, the cases are compared by means of a cross-case analysis. As mentioned in the former chapter the different cases are comparable as all three organizations have dealt with a lean implementation.

According to the participants and because of the inductive critical eye with which the interviews were analyzed, a number of new topics are discovered. These topics are discussed during the analysis and are related to the concepts Continuous Improvement Culture and Communication Strategies. These topics and how often they have been mentioned are illustrated in the last table of Appendix 2.

The quotes used in this chapter stem from the interviews. After every quote, the name *(ECA, ICA, CR)* of the participant is noted. Further details regarding the interviews and participants can be found in Appendix 6. The data from the interviews were analyzed by allocating codes to relevant parts of the interview transcripts. The reason of thought regarding this coding process, can be found within the coding structure in Appendix 7. Here important quotes from the coded interviews are categorized in different tables. To support the results within this chapter several of the quotes from these appendixes are used.

4.1 Constructing and Embedding of a Continuous improvement lean culture

This paragraph deals with the results related to the concept continuous improvement culture. First a short description about the lean implementation will be given. By summarizing the dimensions within each case, is becomes clear what the position of the client organization's is with regard to this continuous improvement culture and if this culture is actually implemented. The dimensions are the abilities and routines of continuous improvement: *understanding CI, getting the CI habit, focusing CI, leading the way, aligning CI, shared problem-solving, learning organization.* The internationalization process is also addressed in this paragraph. Appendix 7 illustrates a schematic comparison about the three different cases. In this table of appendix more extensive quotes can be found.

4.1.1 Case A

With more than 1700 employees, Case A has a top position as a technical service provider in North Holland, South Holland and Utrecht. Because of the economic crisis, many customers have become more cost-conscious. Due to increasing price and margin pressure, the results of Case A were under average. The market asks them to add more value and that at lower costs. This requires a structural adjustment of the business processes.

The objective and the period

The objective of this project was to realize a sustainable profit improvement of 1% on an annual basis, with the mind-set of continuous improvement. The lean trajectory Case A was initiated by a team of around 10 consultants from Organization X at 8 different locations throughout the West of the Netherlands. The approach to achieve the results was aimed at involving the operational layer in improvement activities. Besides this, the intention of Organization X was to support the organization with the embedding of a continuous improvement culture. The success of the project branched into a second program for the North of the Netherlands. The project lasted between March 2016 and February 2017.

Outcome project

Before Organization X started the lean trajectory, there was no attention for reflection or continuous improvement. The external change agents described the cultural as hierarchical, with a great distance between top management and the operational workforce. There were no tools and techniques present at Case A for continuous improvement and there was a blame culture. After the project, no culture of continuous improvement was actually implemented, however the first steps for a cultural change were made. The next quote explains the position of Case A right now: *"we are now working with another party, so we're creating a kind of second wave, we have had the first wave with* Organization X *and we have learned from that, the first wave was more financially focused and we are now starting to move on, we now tackling it in a different way, more in the direction of that improvement culture" (CR)*. Case A is now in the middle of such a cultural change within the organization. This is also presented in the business plan of Appendix 5. Therefore, Organization X was the stimulus in this case for the further constructing and embedding of the continuous improvement culture. One of the reasons that was mentioned why the continuous improvement culture was not actually implemented, was because of the employees who felt back into their old behavior and habits. Case A nowadays tries to solve this by directly coaching employees on the goal of continuous improvement and through this, they start to notice the behavioral and cultural change within the organization.

The results of the lean trajectory were achieved, but not everyone was completely satisfied, because of the conflict of interest between financial results and continuous improvement. During the project Case A, there was lack of consensus about the initial persuasion of the trajectory. According to

the consultants of Organization X, the trigger was a profit margin improvement. They also communicate this in the objective of the project in the case description (Appendix 5). According to the internal change agent of Case A the trigger was to increase the capacity of the team to have more strength for continuous improvement: *"it has always started as a culture program and it has become a cost-driven program, while it does not start that way"* (ICA). This resulted in the following situation: *"there was a continuous tension between Case A and Organization X, because the trigger for improvements was not intrinsic, but based on financial results"* (ECA). Therefore, during the project there where a lot of discussions about on the on hand the intended financial results and on the other hand the time for improvement activities for the operational employees. As was discussed in an interview, implementations become more successful if there is conformity in advance about the goal. The implementation can then be better organized.

To support the statement about the actual embedding of the continuous improvement culture, the following table shows the continuous improvement dimensions with a supporting quote. After every dimensions a value is given to illustrate if the dimension is achieved or not.

Dimensions	Participant	Quote examples
Understanding CI √	P2 = External change agent	"During the project we actually **showed** the individual contribution, it is good that employees and the teams of Case A **constantly** think about how to **improve**, with for example the daily starts and week starts. That all has to do with **understanding** and showing the results and what the impact is if your team or an individual make a certain mistake or do not pick up something according to how it should be, what the effect is on the end chain and the performance."
Getting the CI habit +/-	P5 = External change agent	"We started right away in the beginning with a sort of **modern suggestion box**, we simply hung a number of A3s on the wall and in the beginning we said okay put your name and **ideas** on it and then we **discuss** it and then we will do something with it, but it is very **difficult** in such an organization where that has never been done."
Focusing CI +/-	P8 = Internal change agent	"There must be a good **alignment** between strategic goals and CI. The strategic goal is to improve the performance of the organization, but in the balance: customer, employees and euro. Where in in the past we really talk about the euro axis and now we are looking for a balance in that."
Leading the way ✗	P8 = Internal change agent	"During the trajectory of Organization X **commitment of management was to limited,** now we work with more commitment with a second program."
Aligning CI +/-	P11 = Change recipient	"We have a **continuous improvement** team with 5 employees. The continuous improvement team then operated mainly as a isolated island. Now that is more part of the operation."

Shared problem solving ✗	P8 = Internal change agent	"There was **no** good collaboration between departments, because they operated mainly from their own **interests**, they don't think from the whole chain, but from their own department. It is now about **open dialogue** and a **uniform way of working**."
CI of CI ✗	P11 = Change recipient	"I **cannot** remember that there was time for a lot of **feedback** or **evaluation,** we only had the weekly discussions."
Learning organization +/-	P8 = Internal change agent	"No it was **not** a learning organization, let's do this second trajectory first and then we look further. With the shared interest, which creates transparency, the learning organization will also **come**."
Internalization ✗	P11 = Change recipient	"After the Organization X trajectory, there was **no** responsible **process owner** appointed and people felt back into their old behaviour."

Table 4.1: dimensions continuous improvement culture Case A

4.1.2 Case B

The Case B is the municipal tax office located in Twente. Due to the different needs of the customer, the organization wanted to map out the added value of each of the tax products that they delivered to the customer. This is the result of a customer satisfaction survey with residents. With this information in mind, the Case B positions itself with 3 new core values; expert, reliable and transparent. This was the start for the lean trajectory. The lean trajectory is focussed on optimizing the customer journey.

The objective and the period

This lean trajectory at Case B is focused on the process and the customer journey on different teams in the organization. The Case B consists of 8 teams, which are all part of the larger process chain. There is one main process and that is the tax assessment. The objective of the project is the optimization of the customer journey. The project has started in the last team of the value chain. The processes are mapped through value stream analysis, together with the members of the team. The information about the processes is gained through interviews with the employees, data collection, and by participating into their daily work. On the basis of this, the current state of the teams was analyzed. The Organization X project team consisted of two lean consultants, one Black belt and one Green belt. The project is still continuing, because the consultants have not yet analyzed all the teams. As explained by an external change agent: *"the implementation of really implementing improvements on the larger process, that still has to happen, because we have not yet mapped the entire chain, but we already see behavioural change" (ECA)*. After this, the future state will be implemented. The initial persuasion of this project was not financial related, but it was really focused on the customer: *"the reason was the customer journey, so who is our customer, where is that customer, where are they in the process, how much contact moments do we have and are they all necessary, in the context of lean?"* (ICA). Besides this, the external change agent has emphasized the following: *"for the management it was really a continuous*

improvement trajectory, because they got insight to make better choices, so we really tried to continuous improve people and to start with the people on the work floor" (ECA).

Outcome project

An improvement that the organization has achieved so far is the mapping of customer profiles. With these profiles, the organization can zoom in on different neighbourhoods and thereby analyzing the payment behaviour. Also the Deming circle (Plan-Do-Check-Act) is, according to the internal change agent of the Case B, an integral part of the individual or groups work. Lastly, it has become clearer for the employees what value they adds to the entire chain. The employees are involving colleagues of other teams in their processes and thereby trying to think more in the context of the whole value chain. Both employees of the Case B mentioned that they are implementing and embedding a culture of continuous improvement in the whole organization, but that it is still a long way. They are nowadays working on this within the entire organization. For example, as noticed by an external change agent of Organization X, the change recipients of the Case B are in a certain improvement and change mode: *"we get the employees in an improvement mode by focusing on awareness and involving them into the process" (ECA).* This is a different mode than when the project started.

To support the statement about the actual embedding of the continuous improvement culture, the following table shows the continuous improvement dimensions with a supporting quote. After every dimensions a value is given to illustrate if the dimension is achieved or not.

Dimensions	Participant	Quote examples
Understanding CI √	P3 = External change agent	"Yes the **management** is actively working with continuous improvement, however the **employees** are less engaged and busy with this, but the **ambition** is certainly there. The management is **very** much for improvements and really want that people **participate**."
Getting the CI habit +/-	P3 = External change agent	"They often thought on their **own** level, at the Case B process thinking and really thinking in the whole chain and that there are **part** of the whole, not everyone was **aware** of that, but now they want to learn it and we are busy with that."
Focusing CI √	P15 = Change recipient	"The vision of the Case B is **clear**: making taxes more personal and understandable."
Leading the way √	P15 = Change recipient	"They are very much in favor of **improvements** and really want that very much. That people think along and **participate**, so that is very much **appreciated**. I think that some people are **modest** and shy to walk to the manager, so the management can **improve** this by involve them more in the process because they really appreciate ideas."
Aligning CI √	P9 = Internal change agent	"We are busy with **self-regulation**, we try to stimulate the improvement activities from the

		employees **themselves**. Then Organization X came to help us with this process."
Shared problem solving √	P15 = Change recipient	"There is a **progression** in the collaboration, we are now trying to set up processes from we have to do it all together, so we try **to bundle things together**, that's actually going really well."
CI of CI √	P9 = Internal change agent	"With the daily starts we analyze the process, and then we also make analyzes of weeks and months and start working from **trends**, we try to **evaluate** continuously, you have to be busy with that."
Learning organization +/-	P9 = Internal change agent	"That is actually what we **really want**, but people have to be motivated for it and some people have already done it and for one it is more a **technical skill** of I can apply lean while I do think it is a lot more, make sure you get a **passionate person** who is also empathically to the other and understand what happens."
Internalization √	P3 = External change agent	"It is important that it is **adopted** by the people who also have support within the organization. With every team I've been so far, I have made sure that an internal employee picks it up anyway, with his or her team."

Table 4.2: dimensions continuous improvement culture Case B

4.1.3 Case C

Case C offers specialized psychiatric care to young people, adults and the elderly. The quality of the care registration is crucial for the continuity of the organizations and therefore requires more and more attention. For this reason, there was need for continuous improvement in the registration process.

The objective and the period

The lean registration program aims at a better registration of the provided care. The project was focused on improving the quality of the registration of care activities, by implementing a uniform registration process and with a reorganization of the care administration. The project has had an impact throughout the organization. The main objectives of the project were the following: process optimization of the primary processes of the organization, implementation of this process at 1500 healthcare professionals and the embedding of a culture of continuous improvement within the organization. The Organization X project team consisted of 8 lean consultants. The result of this project was a strong increase in the quality of the registration and thus greater compliance. The project lasted between May 2016 and April 2017. Organization X has implemented the project at 10 different locations. Every implementation consists of three parts; a kick-off, a real implementation and a completion, embedding phase. The main objectives of the project have largely been achieved. The quality of the registration has improved, the healthcare administrations are better positioned and the processes have been optimized.

However, no culture of continuous improvement is actually implemented. As shown in the documents of appendix 5, Organization X also does not outline the project as an implemented continuous improvement culture. They only give suggestions on how a culture of continuous improvement can arise.

One reason for this is because of the two projects (optimizing registration process and a reorganization), which were carried out side by side. The external change agent of the project explained that the reorganization was part of the project and therefore the project has been experienced very negatively by the employees. It was difficult for the change recipients to focus on improvement activities, because they felt threatened to lose their job. According to all the participants of this project, it would be much better to have two separate projects, which were not executed at the same time. Then the optimizing project might have worked out much better and there was more time for continuous improvement. Now there was too much focus on the reorganization and too little on the improvement process. This is also substantiated with the following experience of a change recipient: *"we are still working to give everyone a workplace after the reorganization, it has taken a while for everyone to be over the mourning period of losing colleagues and we are now a year further and now we are actually starting to work on those improvement activities" (CR).*

Besides this, the goal of the project was adjusted a few times: *"it was also very confusing at the beginning, because a goal was set and that was adjusted every time, so that was not convenient" (CR).* This was also noted by the external change agent: *"there was a bit of reorganization, so because it had to be better, faster and more efficient, a saving of 25% in FTE would have to be realized. That should be the result, but that was later adjusted to 10% in the first year and 15% in the second year. But that 15% is still not achieved" (ECA).* As explained by a change recipient of the project Case C, a lot of issues have been left out of the scope during the lean trajectory. Because of this, these change recipients experienced a lot of problems after the trajectory. Just as was the case at Case A, in this case the goals of the project also should have been better discussed in advance.

Another experienced problem on the project was the tension between the administrative staff and the care providers. As was explained by the internal change agent: *"there is always tension between them, care providers do not want to administer and the administration staff feels that the care providers themselves are responsible for it, so that often gives tension" (ICA).* At the time the project was implemented, only the administration staff had support for it and the care providers didn't. A successful implementation needs sufficient collaboration and interaction between different departments of the organization (Bessant et al., 2001). This was not the case at Case C. For this reason, consultation with both groups has taken place at the various locations. In this way insight has been gained into the working methods and the problems encountered in practice.

Because of the reasons above, no culture of continuous improvement is implemented. As was emphasized by an external change agent: *"during the implementation we presented a whole transfer*

document, but we left the assignment almost with pain in my heart, because there was no owner of the process, resulting in that there was no time for anyone to be busy with improvements". The appointing of owners of the change will be explained in further detail in paragraph 4.2.5.

To support the statement about the actual embedding of the continuous improvement culture, the following table shows the continuous improvement dimensions with a supporting quote. After every dimensions a value is given to illustrate if the dimension is achieved or not.

Dimensions	Participants	Quote example
Understanding CI ✗	P6 = External change agent	"There was a lot of thinking in **problem** instead of **solutions**."
Getting the CI habit ✗	P13 = Change recipient	"Preferably you would like to say every week which **improvement point** we have and we want to improve, but we must be reasonable, this is **not** the case here."
Focusing CI +/-	P10 = Internal change agent	"I do think most people knows the **vision**, but I think that is very important that you clearly **communicate** where you want to **go** as an organization and this tells in the **reason** for change."
Leading the way +/-	P4 = External change agent	"We had **good** support from the team managers of the care administration and from the administration itself, but we **did not** have any cooperation from the **care providers**, because they felt it like a treatment because they now have to register a lot more."
Aligning CI +/-	P10 = Internal change agent	"It is **not** that we have a sort of **organization-wide system**, not like you see with other organizations that they really have such a program, but this is a **conscious** choice."
Shared problem solving ✗	P12 = Change recipient	"Less **collaboration** between the care providers and the administrators."
CI of CI ✗	P14 = Change recipient	"Too many things run **side by side**, it's crazy that you have a **training** or **evaluatio**n, while the organization is **reorganizing**, that's not right for anyone."
Learning organization ✗	P13 = Change recipient	"I think it is a step too **early** for a cultural change or learning organization, we are now a year further after the reorganization and we have not yet **put together** all the teams, we have to create a **base** again."
Internalization ✗	P12 = Change recipient	"When the consultants were gone we really fell into a **gap**, facts are just that a lot of things have not yet been realized, partly because we have some outdated systems but that we also have to make a **cultural change**."

Table 4.3: dimensions continuous improvement culture Case C

4.1.4 Cross-case analysis

This section deals with the differences between the three different cases. The most prominent differences are illustrated below in the schedule. The yes/no change of the culture is the starting point to discuss the communication and to investigate how the communication strategies during the lean implementation influenced whether or not the continuous improvement culture is implemented. As shown in the table, the Case B is the organization that during the Organization X trajectory was most busy with implementing a continuous improvement culture within the whole organization. This was hardly not the case at Case A and at the Case C, even though it was mentioned that the goal in these two cases was to realize a cultural change. However, Case A is nowadays implementing a culture of continuous improvement in the whole organization and explained that Organization X got Case A on the move towards this cultural change.

Cultural Change	Case Case A	Case Case B	Case Case C
Continuous improvement culture?	+/-	√	✕
Understanding CI	Too much focus on financial results	Started at the core in the workplace with continuous improvement	Too busy with reorganization
Getting the CI habit	Often no response on the initiating of ideas	Training Daily stand-ups	Anxious for reorganization
Leading the way	Commitment too limited	Management support	Only commitment of care administration, no commitment of care providers
Aligning CI	CI team → but they didn't involve the workforce. The team operated as an isolated part	No CI team/department	No CI team/department
Shared problem solving	Little collaboration	Increasing collaboration between the different teams	Little collaboration
Internalization	Not internalized during the lean implementation, but now there is a behavioral and cultural change. They are still in the start-up phase	Internalized → every team has a process owner that works together with the team on continuous improvement	Not internalized → process owners were not appointed. Still busy with the reorganization

Table 4.4: overview whether or not CI culture is implemented

4.2 Influence of communication on implementation continuous improvement lean culture

This paragraph discusses the results regarding the influence of each dimension of communication on the constructing and embedding of the continuous improvement culture as explained in the previous paragraph. There are five dimensions of communication strategies operationalized and analyzed: *the message, the medium, framing of change, top-down versus bottom-up communication and the role of the consultant.* Within each case, the relevant dimensions will be discussed. Appendix 7 illustrates a schematic comparison about the three different cases. In this table of appendix more extensive quotes can be found.

During the analysis, some consultants explained their experiences and findings about how the lean implementation and continuous improvement culture can be improved. These are not statements about what actually happened, but statements about what should happen in the future to optimize the communication so that is stimulates continuous improvement. When these findings are present in one of the dimensions of communication, these are described in a last paragraph of each case.

4.2.1 The message Case A

The message for change was described as especially important in the beginning of the lean implementation: *"that is why that message is important in the beginning because it simply explains what we are going to do" (ECA).* The external change agents all agree that they include the need for continuous improvement in the message for change. For example, as was explained: *"I am really talking about continuous improvement, we have to make sure that we are doing better today than yesterday, repeat, explain and talking about it" (ECA).* However, the internal change agent explained that it had never been communicated that the goal of continuous improvement had turned to financial results. As was emphasized: *"this bad communication leads to challenges in the project" (ICA).*

Within this case, the change recipient experienced that the message was communicated very adhoc: *"the consultants came in quite quickly, I think you were there earlier than the message had landed that we were going to change, so that went pretty short" (CR).* This recipient described that there was resistance in the organization and that communication is crucial, because good communication can contribute to less resistance.

Another factor mentioned about the change message in the interviews is the concept consistency. As explained by an external change agent, the management of Case A found it difficult to communicate a consistent story. For example; when an operational employee explained to the manager that he was very busy, the manager answered okay the improvement lean trajectory can wait until next week. Therefore, the management was not always consistent in the propagation of continuous improvement: *"during the week-start that the managers are absent, so that the importance of it goes away, so the lack being an example for the employees" (ECA).*

In this case, Organization X provided an awareness training to explain the appropriates of the lean trajectory. During this lean awareness training, the change recipients have learned what lean means for them and for the organization. The change recipients become acquainted with the basic lean principles, are practicing with some important tools and learn which behaviour is consistent with continuous improvement. In this training there is communicated that the specific change was determined through careful diagnosing and planning. This minimizes the likelihood that the improvement process will be perceived as random. As was explained by a change recipient: *"the awareness training that was given at the time, that did have a positive impact on people's knowledge, so that opens people's eyes. Also in a playful way, you know, with a game there, that was just a first good move from Organization X" (CR).*

4.2.2 The medium Case A

At Case A the need for change and the start of the lean trajectory is communicated via a kick-off. Organization X let the manager bring the need for the change. The external change agents have supported the manager at the beginning, by discussing how to convey the need for the change. However, the change recipient of Case A forgot the kick-off: *"it may have been communicated, but I often notice that communication not arrive at people, so perhaps I was informed at that time, but I forgot it so I experienced that the message was not clearly communicated, there was no clear purpose in it" (CR).* The kick-off is described as actually the most important communication medium for the organization. As was emphasized by an external change agent: *"a kick-off is the ultimate communication tool, because with a kick-off you can reach everyone within the organization" (ECA).* The change recipient forgot it while he mentioned communication as crucial in an improvement trajectory: *"I think you cannot do without communication, you have to communicate until the people can eventually tell the continuous improvement story themselves, and that is very difficult, but just by continuing to repeat it in all sessions and constantly explaining the content" (CR).* Also the internal change agent emphasized the power of repetition during the implementation.

After the kick-off, Organization X has sent a newsletter every two weeks with improvement activities: *"we tried to bring continuous improvement under attention in the organization, however with all respects, an e-mail with a newsletter is really the most boring mails that exists" (ECA).* The change recipient also mentioned that the newsletter is often not read. As was emphasized in the interview, when Case A decided anyway to use the newsletter or intranet as the medium of change, on solution mentioned by both the change recipient and internal change agent is to measure and control if and how often the message is read. As was explained by a change recipient: *"just qualitatively measure if the message has arrived, we are now going to set up a KPI to just check that, also the embedding of a pull trigger in push communication will influence people to read the message" (CR).*

With the medium for change, it is mentioned that it is important to think about the frequency of communication. In this case there were daily- and week starts and monthly meetings. The goal of these

communication moments was to inform employees about the result of the organization in general, but also the developments in specific teams. According to the interviews, the daily stand-up is a method for communicating in a structured way and at a fixed time. It is about information provision through the whole organization. As was explained by an external change agent: *"I constantly hook up the goal of continuous improvement in these meetings, so that the change recipients understand why this is important, they can ask questions about continuous improvement and this created trust" (ECA)*. As was described by another external change agent: *"in the week starts change recipients get the opportunity to initiate ideas and improvements" (ECA)*. These meetings also provided opportunities for reflection on what the lean implementation meant for different parts of the organization and thereby created more understanding and support. The change recipient agreed that in these meetings continuous improvement was indeed addressed: *"yes in the sessions themselves, there were regularly things about continuous improvement treated because we gave feedback or received feedback, however the tension about financial results was also noticeable" (CR)*.

The last striking communication medium mentioned in this case is the use of visual management. As described in previous literature, communication makes process improvements visible, but why this visualization is so important is not so clear. The following quote emphasized how visual management contributes to continuous improvement: *"with visualization you can improve much more deeply, because if everything is masked by the fact that it is not discussed, then you cannot constantly improve because you do not know where it goes wrong, and that is what I think continuous improvement, just to make things visible"* (*ECA*). Visual management was used in this case at the work floor: "*in this project it was especially important that communication was about the visible results, so real visual management was implemented on the work floor on the screens that were available there*" (*ECA*).

4.2.3 Framing of change Case A

Communication can also be a motivator for inspiratory, because of the good story or the speaking example where change recipients want to mirror themselves to. As mentioned in one of the interviews, an organization can stimulate people through a guest speaker or a futurist. At Case A, storytelling is used as a technique to inspire people, because few things are as compelling as a great story. As was explained by an external change agent: *"the manager and we should look at storytelling as a key skill of communication, so that it will also live practically on all layers in the organization, with interesting stories" (ECA)*. Therefore, Case A shared stories with their teams about for example decisions or challenges faced in the past. They used comic and cartoons, because this helps to make it visual and because it is a low-threshold way of communicating. As was emphasized by an internal change agent: *"stories inspire us, teach us, and encourage us to question our actions, I give an example about my own experiences as a continuous improvement manager and this enables my employees to reflect" (ICA)*.

Another technique in framing of change is making a connection between individual and organizational interpretive orientations. This is about making connections between for example different

locations. As was explained by an internal change agent: "*if you communicate about what has been successful and you can make bridges, then you can make an organization much better, but also initiate new improvements and contribute to continuous improvement, and then it is all about connecting*" *(ECA)*.

4.2.4 Communication top-down vs. bottom-up Case A

There are several ways in which Case A communicated top-down versus bottom-up.

Firstly, within this case, the change was initiated and communicated top-down: "*there were about 7-8 layers and that was really gigantic, that is all initiated and introduced top-down*" *(ECA)*. As was explained by this external change agent, the top and the management were in the beginning not involved in the change and didn't facilitate the improvement initiatives. This was also mentioned by the change recipient, because the communication was in the beginning described as mostly top-down instead of the possibility for two-way communication: "*that was the case, it was so hierarchical, therefore it was not embedded in the nature of people to communicate with management, people didn't feel welcome to visit the management with some improvement ideas, while I think the management is now more open for it, but maybe the distance is still too big*" *(CR)*. During the trajectory, the communication has been switched to more two-way communication. As was explained by an external change agent: "*yes, if you look at the way how communication was done in the beginning at Case A, you see that there really has emerged a culture of improvement in this, and that was because we came from a very hierarchical organization and during the project they really say we no longer want top-down, but also more bottom-up*" *(ECA)*. This switch was also noticed by an internal change agent: "*there was a lot of sending of information, we have improved this by communicating more bottom-up*" *(ICA)*.

Secondly, one of the most important principles within lean management is the pull principle. This means that no upstream activity should produce a good or service until the customer downstream asks for it (Womack & Jones, 1996). This is the opposite of the push principle. With push there is only production on the basis of the expected demand. A specific aspect mentioned in this case regarding the top-down / bottom-up communication was the example of pull communication. According to the change recipient, the pull principle can also be translated into the communication strategies. As was explained: "*only sending a newsletter about the message of the continuous improvement trajectory is a push technique. A pull technique is to create more urgency where people want to improve things themselves*" *(CR)*. This means that you are more on the seduction side, where the intrinsic motivation can be triggered. According to this change recipient, more pull communication inevitably leads to more bottom-up and two-way communication.

Thirdly, as was explained by a change recipient, when people are working together on an improvement project, they want to know what's going on and they want to feel involved in the process. They also want that other employees see what they are doing. As was emphasized by an external change agent: "*we have communicated that well, that is sharing successes and on the other hand they also want*

to know what is coming to them" (ECA). Almost all interviewees in this case mentioned that the sharing of successes can contribute to feeling of involvement in the process or the feeling of knowing what's going on. Therefore, sharing successes is one communication manner that contributes to more involvement in the continuous improvement process, because it discusses what goes well. As was described by an internal change agent, everyone is part of the process and when sharing it together, people feel more connected to the change. As was explained by an internal change agent: *"the communication of successes is an effective manner for motivating the change recipients, it does not matter who it is, but that is very important in continuous improvement" (ICA).*

Lastly, the change recipient has mentioned the relationship between communication and continuous improvement: *"yes, I felt really involved in the change and also got energy from it. And you really need ownership and you have to create support and communication is so important in such a continuous improvement process" (CR).*

4.2.5 Role of the consultant Case A

As described in the interviews, the consultant has the role of facilitator during the process, and also being the expert with the knowledge about lean management implementation. They are supporting the client with the goal of continuous improvement. A role of the consultants was preparing a communication plan: *"we didn't have a communication expert, but not giving attention to a communication strategy leads to I think less success" (ECA).*

Another role of the consultants that is mentioned in the interview is the communicating of an environment that stimulates continuous improvement. As explained by an external change agent: *"everyone who does their work knows how they can do it differently or better of easier, only the question is, does the organization create an environment that stimulates that and then also does something with it, we did that" (ECA)*. All the external change agents in this case tried to create such an environment.

After the implementation phase, the consultants will leave the assignment or go to another project. In this process the question is: how do you ensure that if the consultant disappears, not all knowledge disappears? One answer to this question is related to the role of the consultant. They can accomplish the difficult task of appointing and especially communicating owners of the change*: "you try to position certain people within an organization as your followers or ambassadors or owners of the change" (ECA)*. As was explained by one of the external change agent, when they leave the assignment it is of great importance that the new ways of working are adopted by the people who also have support within the organization. Otherwise, people can fall back into their old behaviour and habits. Communication contributes to this process because, as noticed by a change recipient, it is necessary to have clear communication about who is left behind as a process owner. This person is responsible for monitoring and facilitating the improvement process. For example, in every group, team or department one person is appointed as an owner or ambassador of the change. This guarantees the progress of the improvement process and increases support in the organization. However, in this case the following

thing happened: *"yes, an embedding plan has been passed on by Organization X, but my experience with this is that in the end there has been little dissemination within the organization; in fact, people have slowly fallen back into the old situation. And there are a number of old enthusiasts who were busy with embedding, but there has never really been a real change in culture, we are now really in it"* (CR).

4.2.6 What should be done

The following sub-section described what the management at Case A should have done when communicating the message for change. When introducing a lean trajectory, the external change agents described the manager as an important factor in communicating the message: *"I think it is especially important if their trusted managers themselves tell the message and need for change, why it is important and why they have asked help from a consultancy, this can be organization blindness or lack of expertise, but be very keen on that, that at least the message is being propagated by the management"* (ECA). They emphasized that a more participate way of management is recommended, where the management communicates in a participative way and ask their employees if they have trouble with something or if they want to discuss something.

This distance between management and employees as mentioned before was also recognized by the external change agents. They emphasized that Case A needs to bridge the gap between management and operational employees, to make two-way communication more successful so that employees can also initiate more ideas. As was explained: *"in the end the improvement activities must come from the bottom"* (ECA).

4.2.7 The message Case B

In this case, the external change agent explained why continuous improvement was not explicitly included in the message for change:

> *"we explain it, of course, but I explain it in other words than in terms lean, continuous improvement. You must not forget that half of the people have never heard of it because they have never worked with it, so I start with the bottom and tell them that by mapping the processes with value stream mapping, we can perhaps make work better and easier, and that is why it is so important that you start with continuous improvement at the bottom and that you involve them in the change, because then the employees see at least what they do and why they do it, and if a decision is made or communication takes place from a different higher level, then they at least know why"* (ECA).

Within this case, the change recipient experienced that the message was communicated very ad hoc by the organization. The Case B did not scheduled a kick-off: *"I had just spoken to the consultant once in the hallway, and eventually very spontaneously and very suddenly the consultant came here in our team"* (CR).

According to the internal change agent, people are very good in creating their own world on the basis of a number of terms, and then causal connections are made, which are often not right. As explained: *"when the message is poor, employees think about the worst case scenario in their minds, I think we prevent that very quickly, by just bringing a clear and consistent message"* (ICA). Also an external change agent emphasized that a consistent message and story reduces ambiguities within the organization, and that it is important to communicate what the content of the change is: *"for example, communicate "why" continuous improvement is required, but do not communicate this in difficult lean terms, so we kept it very close to people, to the problems that they encountered on a daily basis and that we were looking for solutions to them" (ECA)*. As was noticed by the change recipient, the reason and need for change were clear: *"we have become a new team because things have to change, and because the quality has to be high, so we just know when the consultant comes in that we have to change and she comes to help us so that is very logical" (CR)*. In this case, Organization X provides an awareness training to explain the appropriates of the lean trajectory. The content of the awareness training is discussed earlier.

The last striking finding was related to the creation of more understanding and support for the change when communicating the message for change. The internal change agent mentioned that he tried to increase support by finding the 'early adopters'. With the identification of the early adopters of the change, the internal change agent tried to minimize the critical mass that is less supportive for the change. Also the external change agent described that communication was used to create support: *"we communicate to make people willing to take improvement steps themselves" (ECA)*.

4.2.8 The medium Case B
The most important communication medium mentioned in this case is the use of visual management. The Case B used visual management a lot. By communication it and making it visual, the performance of a process is visualized, and then people have insight into each other's work and can have open conversations about it: *"this contributes enormously to continuous improvement" (ECA)*. Visual management helps the organization to tell the story, that experience is a very powerful way of communicating. It forces the organization to make things concrete and understandable. As was explained, by making it visual, the change recipients have a deeper understanding and as a result, communication takes place at a different level. With visual management, the organization can communicate with all the levels of the organization: *"and in that respect, communication is really the lubricant and binder about the change, communication is important on every level and at every moment" (ICA)*. Furthermore, by making it visual, employees can indicate that what they have done today has contributed to a higher goal of continuous improvement. At the moment that it is visualized, employees also have a grip on it and it becomes tangible. It becomes so tangible that employees get an experience with it and then the movement for the actual change is trigged. In this case for continuous improvement. As was emphasized by an external change agent: *"visual management reduces the*

opportunity for miscommunication" (*ECA*). Next to visual management, the change recipient described the use of daily stand up meetings as an important communication medium. Lastly, the internal change agent noticed that they use an intranet, but that they can improve that because this agent think it is not a very strong communication medium. Concluding, the Case B used a multi-media approach when disseminating information.

A new concept founded in the interviews is the 'Gemba' leadership style, which means 'management by walking around'. This implies that a leader or the management sees, hears and understands the process in the work floor, rather than working as an isolated part. The internal change agent used this leadership style to communicate with the employees: *"and they can tell me something, experience it with the people, so I make the Gemba method every day, which is really important, that you sit down and experience it and that sort of things" (ICA)*. As was mentioned by an internal change agent this leadership style describes the cooperation of employees and a leader in their mutual striving for continuous improvement. For example, this makes failure a possibility to improve instead of blaming each other.

4.2.9 Framing of change Case B

The most striking thing mentioned in this case about the framing of change is related to the vision of the organization. One way to create mutual understanding during this lean trajectory was by translating and communicating an understandable vision through all the layers of the organization. The Case B communicated this with a balanced score card. As was explained by an external change agent *"organizations need an explainable and understandable vision and this needs to be communicated to everyone, then you really can improve because you know where you contribute to, the Case B is doing a lot with this" (ECA)*. Also the change recipient argued that the vision of the Case B is clear; making taxes more personal and understandable. However, this employee also noticed that she is not sure if the vision is clear to everyone in the organization. According to the interviews, employees in the organization need to be able to mirror themselves to the vision of the organization. If the management of the organization is not able to express the vision of the organization well, then it is for a change recipient even more difficult to understand the vision. As noticed by an external change agent: *"a very important piece in embracing the vision is the communication of it" (ECA)*. This external change agent emphasized that when the gap between what the management wants to achieve and where the employees stand is as small as possible, then: *"the better and faster you can improve, absolutely, the management tried to bridge that gap" (ECA)*.

An external change agent described the role of the management in framing the change. This agent emphasized that the management was not consistent in the stimulating of continuous improvement: *"communication must be consistent and predictable, what I saw, we had made arrangements that the change recipients came up with two improvement proposal next week and the next week the manager did not ask for it, so people thought the manager did not think it was important,*

but appointment is appointment, keep your focus and be predictable on what we have agreed, the management did not do that enough" (ECA).

Next to the communication of a clear vision, storytelling is also mentioned in this case. The internal change agent used storytelling to convince and influence the employees.

4.2.10 Communication top-down vs. bottom-up Case B

With regard to top-down and bottom-up communication, the internal change agent of the Case B explained why bottom-up communication is more in line with continuous improvement: *"that is one of most important things, if you do continuous improvement, then it is important to reach the goal of management, but start with the people. We started with the people who have to do the work, really on the work floor. Because if you do no join and communicate with these people, then the vision or the goal of higher management can never be achieved" (ICA).* Both the change recipient and external change agents noticed that the communication at the Case B is mostly face-to-face with for example management updates, organization meetings and personal conversations. They described the communication as informal, bottom-up and employees were often approached individually. However, the change recipient argued that the communication is sometimes not uniform and that the manager communicates with everyone in a different way: *"there is a lack of consistency and uniformity in communication, there is definitely still potential for improvement"* (CR).

Almost all interviewees in this case mentioned that the sharing of successes or improvements can contribute to feeling of involvement in the process or the feeling of knowing what's going on. For this reason, sharing successes is one communication manner that contributes to more involvement in the continuous improvement process, because it motivates the employees.

4.2.11 Role of the consultant Case B

The external change agents within this case both tried to find a balance between being a member of the team and being the external consultant.

There was consensus on the topic creation and communication of a 'safe' environment for the change recipients. As was explained by an internal change agent: *"during this change process some people may feel afraid of their job, so we have tried to communicate clearly and create safety. Safety is clarity" (ICA).* Also the external change agent described the following: *"because we still have to come from far, then it is really important that they feel safe in their feelings with me, so that they dare to communicate sensitive points with me" (ECA).* As noticed by different interviewees, this means not communicating about everything that can faster or better, but communicating in a positive manner so the change recipients can see the causes themselves. In this way, a situation was created where employees are able to improve and the first resistance can be reduced.

4.2.12 What should be done

The external change agents explained how the management should have been consistent with respect to continuous improvement. As was described, top management must be long-term oriented and must communicate this to their employees. At the same this, this refers to the change recipient's belief that the continuous improvement process has the long-term support of top management. Top management needs to help the employees, so that they are able to reconcile themselves with the vision. As was explained by a change recipient, good communication contributes to employees that are thinking in the same direction: *"there is still a potential for improvement in this"(CR)*.

4.2.13 The message Case C

In this case, continuous improvement was not included in the message for change. As was explained by an internal change agent: *"it was more about how we would like to change, not about how we then embed a culture, but maybe I missed it, but I did not notice that, the message didn't reach everyone, and the project was not initiated as continuous improvement in my opinion, but especially to get things done in the project, good results, but continuous improvement is another interesting angle, that makes me think about it again" (ICA)*. Moreover, the internal change agent emphasized also the following about the message: *"I think that there is still an improvement in it, we have tried a lot, but still it reached not everyone and that is essential in such a big change" (ICA)*. Also in this case, the change recipients experienced that the message was communicated very adhoc by the organization: *"yes the message was really headlong and surprising, so to speak, Tuesday it was said that Wednesday the consultants came, so without really discussing the real purpose of the project, communication is very difficult, that is not going well here" (CR)*.

All three of the change recipients of Case C experienced that the project was communicated as the last chance to safe the organization. Therefore, and because of the reorganization at Case C, the change recipients explained that many employees felt threatened when the consultants arrive. These recipients emphasized that clear lines of communication are critical to reducing fear. The change recipients recommended to be as transparent as possible in the message, while: *"the initial persuasion why Organization X came to us is not shared, that is not told in the message" (CR)*. The change recipients were not informed on the impact of the change on them as individuals and they had to experience this themselves. They suggest that an organization should think better about how to communicate the message, for example by talking more personal with them.

In this case, Organization X also provided an awareness training to explain the appropriates of the lean trajectory. The content of the awareness training is discussed earlier. As was explained by an internal change agent: *"the purpose of this meeting was to get everyone on the same page" (ICA)*. Also the future state of the project was mapped out, but the external change agents admitted that this has not been communicated to the right people. This is confirmed with the next quote: *"it had been a helpful manner if the organization had demonstrated how the current performance differs from some desired*

future state. Now it was not so clear what the change means for different parts of the organization" (CR).

The last striking finding was related to the creation of more understanding and support for the change when communicating the message for change. One of the external change agents mentioned that he tried to increase support by finding the 'early adopters'.

4.2.14 The medium Case C

The interviewees of this case noticed that the message was communicated via intranet, while they argued this medium is often not read: *"the employees got the message from intranet, and that is just communicated, there has not been a very extensive meeting, and without discussing the real purpose of the project, while I think it is better when the communication is in various ways, then it only arrives at people"* (CR). The change recipients of the Case C all forgot the kick-off, while as mentioned earlier, the kick-off is very important for the organization. The Case C project was a project implemented at different locations, so this required a lot of attention to communication. As was explained by the internal change agent: *"It was a very big project, and we wanted a lot of people to change, so choosing the right communication channels is of course essential. So firstly it is important that you also communicate why people have to change and what the reason is"* (ICA).

The internal change agent explained that they used different medium during the lean implementation, for example intranet, newsletter, informing employees via the e-mail and visiting different teams: *"I really think that we put a lot of time and energy into it, but when we arrived three months later at a location, people say that they have never heard of the project, and then I think how is this possible? Yes, because they say I never read the intranet, I got so many mails, so I found communication very difficult"* (ICA). Also Organization X explained that they used different media to communicate with employees, for example with appointments, face-to-face meetings and the intranet, but the Case C was arranged so hierarchically that the communication often did not arrive at the right people.

Lastly, one success story in the medium of communication was the use of visual management. During the implementation at the locations, the external change agents designed a placemat of the whole improved process, with clear new tasks: *"this was very important because they knew at that moment that they have to do it differently because then they will do it better"* (ECA).

4.2.15 Framing of change Case C

In this case, framing of change is a technique that is not really used by the change agents. The only noticeable remark is that things were brought positive and clear to get the change recipients in a certain change mode. Also an external change agent gave the statement that if organizations have a clear and good vision that is explainable, and people understand this vision: *"then you can really improve"* (ECA).

However, in this case people didn't share a holistic view, because of the split between care providers and care administrators.

4.2.16 Communication top-down vs. bottom-up Case C

At Case C the communication process was especially inserted top-down, with a lot of sending of information. The communication was mainly hierarchical. As was explained, in big organizations like these it is mostly about sending of information, instead of two-way communication. This was experienced as a problem during the lean trajectory: *"It does not make sense, is does not work and you better not do it, people don't read and don't like only sending of information via for example Intranet"* *(ECA).* As was also emphasized by the internal change agent: *"there has been a lot of top-down communication and yes that is not always the good way" (ECA).*

An external change agent explained that the sharing of successes contributes to more support and involvement in the process. However, the change recipients noticed that: *"there were success moments in the project, but they were not shared and not everyone experienced it as a real success, at least visible successes have not really been achieved yet" (CR).*

4.2.17 Role of the consultant Case C

With regard to responsibility for communication, a striking finding in this case was that communication needs to be an independent team, and not part of the team consultants. According to an external change agent this implies that communication is a separate discipline during the lean trajectory. This means the embedding of communication expertise during the lean implementation. This is also supported with a document of Appendix 5, because of the statement: *"communication is a profession in its own right".* During the lean trajectory within this case, the external change agents hired an external communication agent. This communication agent for example investigated whether the communication reached the right people at the right place or not: *"communication is really for me, at least such a communication specialist and a communication strategy, indispensable in successful continuous improvement trajectories" (ECA).* An even better suggestion emphasized in this case is the appointment of a specific team within each project to focus on the communication. This team has to be 100% focused on the project, on continuous improvement and on the question how the different people in the organization are reached.

As noticed by one of the external change agents, it is up to the consultants to make the connection with the change recipients as soon as possible, because the people heard the change for the first time and felt anxious. Then communication can contribute to less resistance. At Case C some teams were completely in the resistance mode and other teams less. The external change agents tried to overcome this resistance by engaging and communicating with the change recipients effectively throughout, from the beginning of the process through the results.

There was also consensus on the topic owners of change or ambassadors of the change and especially about the communicating of these owners. This increases the support for continuous improvement. As was emphasized by an external change agent: "*if you have support, then you have to pick out a number of people who are also a very good connection factor within the organization, and you have to make sure that they continue with it and coach the people, and once that flow is there, the cultural change will also happen, because they will adopt it themselves*" (*ECA*). Unfortunately, in this case no process owner was actually appointed.

4.2.18 What should be done

One suggestion that was described was related to a multimedia approach. It was mentioned in the interviews that in the case of major changes affecting the work of care providers and care administrators, it is essential to use multiple communication channels and ensure personal face-to-face contact. This implies for example the realizing of personal contact by visiting the different locations or workspaces. During the projects it became clear that employees cannot be reached easily via the intranet and the mail. By bringing information to the locations the desired target group can be reached. This ensures that the locations can give feedback or that they feel taken seriously: *"and that still works the best, the face-to-face sessions, meetings are an essential component of the project" (ICA).* However, the communication at Case C was mostly via mail and intranet: *"so everything is really not directly communicated" (ECA).*

Within this case, the Gemba leadership style was also mentioned. With the Gemba walk, the management visits the work floor for the identification of problems or opportunities for improvement: *"when a leader makes himself visible on the workplace, he/she promotes the open dialogue with their employees, which implies more two-way communication" (ECA).* Therefore, if the management wants to communicate successfully with their workforce, the participative Gemba leadership style was described as a good leadership style. As described in the interviews with the external change agents, it is the role of the leader to create an environment that fosters continuous improvement by asking guiding questions and celebrating improvements, in both performance and process. The leader must practice behaviours that support continuous improvement. However, in this case the leadership style and the corresponding communication is not described as a Gemba style, while: *"communication is an important success factor, communicating at the right level with the right people and how a leader has a big role in this process, the management was here sometimes weak while you need them, that is difficult, when people want to go further but that someone is a bit hampering that" (ECA).*

A last suggestion was the translating of a clear vision with strategy deployment of Hoshin Kanri. An external change agent explained that with the process of Hoshin Kanri, the strategic goals and vision are communicated throughout the organization. This agent nowadays used this technique in his current assignment.

4.2.19 Cross-case analysis

This section deals with the differences between the three different cases. The most prominent differences are illustrated below in the schedule. Communication is regarded in all three the cases as very essential, but also as a difficult process. As was described: *"I see communication as either to make or to break the lean implementation" (ECA).* A lot of interviewees emphasized that they see a positive relationship between communication and continuous improvement. For example, as was emphasized by an internal change agent: *"the improvement trajectory fails when engagement and communication start too late" (ICA).*

Both the change recipients of Case C and Case A mentioned that communication is important during the change, but that it is something that the organization scores bad on. The change recipient of the Case B noticed that there is some potential for improvement in the communication, but overall this change recipient is positive about the communication.

The external change agents used several communication channels to frame the intended change and foster understanding and support. They used the daily, or week starts, personal and face-to-face communication and meetings with the management. They aimed at mobilizing change recipients to start with continuous improvement and change them in the proposed direction. An important medium was the use of visual management. Visual management is described in all three the cases as a contributor for continuous improvement.

With regard to top-down and bottom-up communication, bottom-up communication supports continuous improvement. It is about how the organization involves people in initiating ideas and improvements and the continuous seeing of change. This means that the top is involved in the change and showed the right example, nevertheless those improvement initiatives need to come from the bottom.

	CASE		
Cultural Change	Case A	Case B	Case C
Continuous improvement culture?	+/-	√	×
Communication			
The message	Ad hoc External change agents included the goal of continuous improvement in the message.	Ad hoc, but the need for change was clear External change agent not explicitly talked about continuous improvement, but constantly explained this in other words.	Ad hoc Continuous improvement not included in the message
The medium	Kick-off Daily/week starts Newsletters	Face-to-face Daily starts Individual conversations	Intranet E-mail

	Visual management	Visual management	Visual management with placemats
Framing of change	Storytelling	Balanced score card (vision) Storytelling	Not much used
Communication top-down vs bottom-up	Formal, hierarchical, top-down but later on switched to more bottom-up communication. Suggestion for pull-communication	Informal communication Bottom-up communication	Hierarchical, top-down
Role of the consultant	Process owners were appointed, but not sustained	Process owner were appointed	Process owners were not appointed

Table 4.5: cross-case analysis communication

Some important findings can be derived from this table and from the previous analysis:

According to the analysis, the communication at the Case B was experienced as most in accordance with the communication strategies described in chapter two. For example, the internal change agent described the Case B not as an organization with a lot of formal and top-down communication. The external change agent also emphasized the following about two-way communication: *"I think that communicating in this way, so a real interaction, that this is a condition for continuous improvement" (ECA).* Next to this it was explained that visual management as a medium is much used at the Case B and that this contributed to continuous improvement: *"visual management in communication is really powerful for continuous improvement, it forces you to make the improvement process concrete and visible" (ECA).* Finally, the communication was described as face-to-face with a multi-media approach: *"there is communicated in many different ways, and especially with personal communication on the work floor, so that they are willing to took continuous improvement steps themselves" (ECA).* In this organization, the constructing and embedding of a continuous improvement culture comes closest to a successful implementation. Nevertheless, there are still working on this. From these results, it can be suggested that certain ways of communication can contribute to the implementation of a continuous improvement culture.

On the other hand, the communication at Case C was experienced as top-down, mostly via intranet or e-mail. For example, as was explained by an external change agent: *"communication contributes enormously to continuous improvement, I do not know hay many percent, but I think it is 70% of the results. If you do that in a good way and you also involve the right people and you first investigate how you can reach people and not simply communicating without knowing if it arrives, so yes that is definitely one of the most important things. It is also about how you communicate; do you send or are you going to involve the employees? And I think at the Case C, it was only sending and very poor communication" (ECA).* Next to this, continuous improvement was not included in the message

for change. As was explained by a change recipient: *"I now actually hear for the first time that it is was inserted as a lean trajectory"* (CR). In this case, the continuous improvement culture was not successfully implemented. From these results, it can be suggested that certain ways of communication can deteriorate the successful implementation of a continuous improvement culture.

In Case A, the communication has been switched from hierarchical and top-down to more bottom-up communication. In the interviews this switch was explained as an example of continuous improvement. Also continuous improvement was concluded in the message for change. As was explained: *"as a consultant I communicate in the message that I was here to help the employees in their goal of implementing continuous improvement and making work easier and better"* (ECA). Unfortunately, the pressure on financial results was at a given moment so high that no continuous improvement culture is actually implemented. Therefore, in this case there is not so explicit a suggestion between communication and continuous improvement as in the two cases Case B and Case C.

Lastly, it appeared that not all the dimensions of communication are of equally importance during the lean implementation. According to the interviews, the message for change is described as especially important in the beginning of the lean implementation. In this message for change the content of continuous improvement needs to be described. After the start of the project, the repetition of the message keeps the message under attention. The medium is related to this message and is important during the whole lean trajectory. Organizations have to think about which medium they use when communication the message; e.g. intranet or a kick-off? This research has concluded that the intranet and mail is often not read and that a kick-off must have a clear and understandable message in it, otherwise the change recipients forgot the message. During the whole lean implementation it is mentioned that multiple media must be used. Some forms of the medium are related to top-down or bottom-up communication. For example, intranet or a newsletter, are more in line with the sending of top-down information. On the other hand, a daily stand-up meeting provides room for bottom-up communication. Lastly, the role of the consultant starts immediately when the lean implementation starts and is important during the whole trajectory. However, the consultant has a really important role at the end of the lean implementation, because to handing over the knowledge and mind-set to process owners.

5. Discussion & Conclusion

The final chapter of this research contains the conclusion and discussion. First of all, a short summary of the research will be given, together with the answer on the research question. Next, the theoretical and managerial implications will be discussed. The last paragraph includes the reflection, limitations and suggestions for further research.

5.1 Conclusion

The increasing pressure for continuous improvement has led many organizations to start a lean implementation to improve performance for the organization and for the customer. However, different studies concluded without realizing these expected results (Liker & Rother, 2011). Sticking to the results of lean management and a culture of continuous improvement is a big challenge, because it requires more than just applying and managing a set of tools. For a sustainable organizational change, the organization really needs the people, the mind-set of the people and the behavioral change of them.

A change of the mindset of all involved is required, and this applies to all levels within the organization, from management to operating or supporting staff. In lean management this is known as the necessary cultural change within the organization. Therefore, the real value of lean management lies in constructing and implementing a continuous improvement culture in the whole organization. As a result, the achieve benefits and the continuous improvement behavior are resistant and do not ebb away over time.

The main purpose of this research was to create understanding in how communication during a lean implementation trajectory contributes to the constructing and embedding of a continuous improvement culture.. Organizations often struggle about how to communicate with their employees and how to sustain the improvements. For example, in one of the interviews it was explained that the results of the employee satisfaction survey concluded that there was insufficient communication and information about the change and the process.

Within this research, communication was regarded as an antecedent for the actual implementing of a continuous improvement culture. In the first chapter the research question was formulated to create insight into the implementation of a continuous improvement culture and to develop understanding on the influence of communication strategies on this. The theoretical framework of chapter two gave support to the explanation of the theoretical concepts related to the continuous improvement culture, the communication strategies and their relationships. The evolutionary model of continuous improvement behavior by Bessant et al. (2001) was chosen to investigate the constructing and embedding of a continuous improvement culture. Five dimensions of communication strategies were used to study the influence of communication on the implementation of a continuous improvement culture.

This research took place through a case study wherein different cases were analyzed. First the cases were analyzed as single cases. After this, cross-case analysis was used as a research method that

facilitates the comparison of commonalities and differences in the cases (Khan & VanWynsberghe, 2008). The research was carried out by means of interviews, supported with a few documents. The case study provided a rich explanation on how the constructing and embedding of a continuous improvement culture takes place in client organizations and how communication strategies influences this process. Thereby, the results contribute to the initial purpose of this research. Within the time frame of this research, three cases were investigated and compared with each other to create understanding of the process.

5.1.2 Summary of main findings
This conclusion deals with answering the research question:

> *To what extent can communication strategies during lean implementation trajectories contribute to the implementation of a continuous improvement lean culture?*

According to the analysis, communication was stated to be of main importance during the lean implementation. In all the three cases it is mentioned that communication is difficult, but essential during the lean implementation. As discussed before, communication is regarded to either make or break the lean implementation. Another statement was that the continuous improvement trajectory fails when communication starts to late. Besides this, two-way communication and visual management are explained as contributors for continuous improvement. Moreover, personal communication in the workplace supports continuous improvement, because the improvement ideas must come from the bottom. For these reasons, good communication is regarded as essential and indispensable for the success of the continuous improvement process. Therefore, the results suggests that there is a positive relationship between certain ways of communication and the constructing and embedding of a continuous improvement lean culture. This means that communication strategies can contribute to the implementation of a continuous improvement lean culture, and therefore the implementation of lean management can be improved by focusing more on a successful communication strategy. As was explained in chapter one, the missing link between the success rate of lean implementations and the continuous improvement lean culture could be communication. This research investigated that the lack of a communication strategy can indeed be a missing link. The purpose of this research is achieved because the research objective was met. However, more in depth research is necessary to assume if communication is the real success factor, or if there are other success factors that are fundamental in the implementation of a continuous improvement culture.

5.2 Discussion

5.2.1 Theoretical contributions
This research has important implications for theory in a number of areas.

The first theoretical contribution of this research is that more understanding is created regarding the soft (behavioral) and cultural side of lean implementations. While most research in the field of organizational change and lean implementation is focused on the implementation of hard tools (Shah & Ward, 2003; Pavnaskar, 2003; Liker & Rother, 2011), lean management is a multi-dimensional concept (Bessant et al., 2001; Hines et al., 2004; Bortolotti, 2015). This research focused on the behavioral change and the continuous improvement culture, which is regarded as difficult to investigate (Hines et al., 2004). Organizations often found it difficult to introduce the changing of the organizational culture and mind-set. As discussed in chapter two, Womack & Jones (1996) described five principles of lean management: Value, Value stream, Flow, Pull and Perfection. These principles are mainly focused on the hard tools of lean management. In this research a sixth principle was added to these five steps, namely the focus on a continuous improvement culture. As described in the interviews, the hard tools of lean management can only facilitate a lean implementation, but do not lead to a behavioral, cultural and sustained change. The adding of a sixth principle to the theory of Womack & Jomes (1996) contribute to the theory of those two founders. For this reason, this research extends existing studies of lean management implementation and contributes to the understanding of lean management as a sustainable organizational change.

Secondly, this research extends the model of continuous improvement behavior of Bessant et al. (2001) by investigating and adding the internalization process as a part of continuous improvement. The model of Bessant et al. (2001) described the routines for continuous improvement behavior, but does not discuss how the process of internalizing these routines into own behavior and habits works. The results of this research suggest that the internalization process is very important to sustain continuous improvement. Therefore, this is a contribution to the theory about continuous improvement.

Thirdly, another contribution of this research is that is explains how the relevant dimensions of communication influence the constructing and embedding of a continuous improvement culture, while existing literature did not succeed in adequately describing this relationship (Worley & Doolen, 2006; Husain, 2013; Elving, 2005). This research explained this relationship by unravelling the continuous improvement culture using the evolutionary model of continuous improvement behavior by Bessant et al. (2001) and describing how this culture is influenced by particular dimensions of communication. This means that several concepts were investigated integrally. The findings suggest the value of paying particular attention to communication during a lean implementation. These results contribute to the literature because of the communication strategy formulated in the following section 5.2.2. This strategy

suggests 11 relationships between continuous improvement and communication. These relations providing conditions under which communication can influence continuous improvement.

Fourthly, this research leads to new research question that stimulate further research. This research was broad, as a lot of different communication dimensions (e.g. the message, the medium) were examined within one research. In order to understand the complexity behind the relationship between the communication strategies and the implementation of a continuous improvement culture, more in-depth research can be performed that focuses on one or two of the communication dimensions in specific.

Lastly, this research suggests that not all the dimensions of communication are of equally importance during the lean implementation and that some dimensions are related to each other. For example, the message for change is mostly important during the beginning of the implementation, and the repetition of the message keeps the message under attention. Framing of strategic change, such as storytelling or the creation of a mutual understanding, is not used in every case and the implementing of a continuous improvement culture was not in every case successful. To investigate whether this is an explanation for the failure of the case, this concept can be further tightened. The dimensions the medium and communication top-down vs. bottom-up are related to each other. For example, the medium 'intranet' or 'e-mail' are most in line with the top-down sending of information. On the other hand, the medium 'visual management' or 'face-to-face meetings' are most in line with bottom-up or two-way communication. In further research these two dimensions can for example be investigated together. The role of the consultants is important during the whole implementation and especially in the end, during the assurance phase when process owners are appointed and knowledge is handing over to them.

5.2.2 Managerial implications

Although the goal of this research was to fill in the theoretical gap as formulated in chapter one, the research also contributes to practice. According to the analysis of the interviews, there are some general implications about continuous improvement and certain ways of communication for on the one hand Organization X, but these are also interesting for similar consultancy organizations and client organizations that consider to implement a continuous improvement culture. Therefore, practical recommendations can be given about the two main concepts and their relationship in order to make a lean implementation more successful. To give these practical recommendations, the following communication strategy is developed as a result of the analysis of chapter four. Every point of this strategy tries to emphasize a relationship between continuous improvement and communication.

1) Communicate in the message "why" continuous improvement is required and pay attention to the content and the bringing of the message of change. The trusted managers must clearly and consistently communicate why continuous improvement is needed. Explain what a continuous improvement culture is and explain that this takes time, because a behavioral and cultural change often takes years. Also keep in mind that some people have never heard of 'lean

management' or 'continuous improvement'. This can't be communicated effectively via the intranet or mail. Change recipients must be able to express their concerns and be able to ask questions. With regard to the message, the power of repetition helps to keep the message under attention. Also take care of how the changes will impact the change recipients. Lastly, look for early adopters to create more support for the message for change. Concluding, the message for change needs to be communicated in a way that moves the change recipients towards the desired vision of continuous improvement.

2) Think in advance about the kick-off, because it is the first meeting with the consultancy team and the involved employees of the project. Meetings are an essential component of every project and none is more important than the kick-off, because with a kick-off everyone can be reached within the organization. In this kick-off the goal of continuous improvement must be cited. Another goal of the kick-off is to inform all those involved about the outcomes of the diagnosis and preparation of the project, so that everyone has the same information in mind.

3) Use visual management as a communication medium, this makes process improvements visible. It also reduces the opportunity for miscommunication and forces the organization to make things concrete, understandable and tangible. It gives the employees guidance.

4) Use daily-stand ups or week starts as a communication medium. Improvement ideas can be monitored in these meetings and this leads for example to discussions. This creates an environment for the initiating of ideas.

5) Keep communication flowing in both directions. Adopt a Gemba leadership style (management by walking around) instead of formal, hierarchical or top-down communication. The Gemba leadership style requires more two-way communication and personal communication, which creates an environment for initiating ideas and improvements.

6) Communication must be uniform. It must fit with the goals of continuous improvement and strategy and vision of the organization. An important communication manner is the drafting and good sharing of a continuous improvement vision, that is accepted within the organization. A method that helps to translate a vision via strategic goals into department goals and project goals is the strategy deployment, also known under the Japanese term Hoshin Kanri.

7) Embed communication expertise during the lean implementation, for example with the appointment of a specific communication team or a communication expert. Then communication is a separate discipline, and not part of the team consultants. According to the interviews, employees are not receiving enough communication throughout the lean implementation. To overcome this, the communication team is busy with examining the right information through the right medium. They investigate what needs to be communicated, when, to who and through what communication medium. This communication team is also responsible for measuring whether communication arrives.

8) When the consultants leave the project, communicate and drive ownership of continuous improvement. These process owners are valuable in embedding the continuous improvement culture once the consultancy team is disappeared. This process owner is for example a key point of contact about questions on continuous improvement. Use this process owner as means to increase support within the organization. If the employees don't feel involved in the trajectory, they will contribute less to the goal of continuous improvement, will take no ownership and the idea of a continuous improvement culture will not be implemented or sustained. A culture of continuous improvement requires a behavioral change. If employees are not involved in the process, they will probably return to their old habits.

9) Use storytelling as a reference manner. The external change agents typically have challenged similar situations or problems and solved these. They can use this as convincing stories. To be effective toward a culture of continuous improvement, this requires impactful and interesting stories combined with an expert in storytelling.

10) Communicate successes, also the little successes. This leads to more positive feelings and motivation. For example when the organization had set milestones, communicate frequently and celebrate the achievement of an improvement milestones with the involved employees. On the other hand, communicate also honest about challenges that are encountered.

11) As a result, the communication must be done in a way that will make employee want to jump on board. It requires constant attention to frequent, clear, honest and transparent communication and a different way of looking, thinking and doing. For example, don't rely on written communication only, because if you send an email out explaining the goal of the project in a long way, employees who constantly ignore long emails won't be affected. Leading a continuous improvement trajectory requires the use of diverse set of communication medium and techniques to deliver appropriate messages and information, also known as a multi-media approach. The improvement abilities and behavior need to be included and communicated in all layers of the organization. It requires that the employees need to experiences it themselves, and communication is part of that. And if they experience it, it becomes intrinsic of them and the behavioral change will follow.

Next to this communication strategy, this research provides other insights and arguments, relevant for the consultants in the area of change and lean management. Firstly, several interviewees described to think better in advance about the actual reasons and initial persuasion for the lean implementation. Therefore, it is for organizations firstly interesting to investigate the importance of initiating a lean implementation, what is the deeper ground? Is this persuasion only an aim to reduce costs and thereby the implementation of tools, or is the objective to change behaviour and the mind-set and thereby to embed a culture of continuous improvement in the whole organization? An example of a customer who wanted to implement lean, but where the focus was mainly on realizing cost savings and financial results

is described in this research. Therefore, this research provides arguments to discussion the objective of the project extensive in advance and not later or during the project. Implementations become more successful if the goal in advance is clear and transparent communicated between the different parties. The implementation can then be better organized. According to all lean consultants of Organization X, a lean trajectory that is inserted as a financially oriented project does not fit with the ambition of a continuous improvement culture. For this reason, Organization X will not adopt a trajectory like Case A in the future, because it was mainly focused on financial results, while Organization X stands for the implementation of a sustainable improvement. Therefore, an implication for consultancy organizations is to discuss the real objective of the project in advance and to determine a feasible scope. In addition, financial results are diametrically opposed to the idea that continuous improvement must be done primarily from intrinsic motivation.

Secondly, as previous literature indicated, the soft and culture side of lean management implementation is less investigated then the hard tools (e.g. Bortolotti et al., 2015; Hines et al., 2004). During the interviews it became clear that the tools are part of continuous improvement, but they do not lead to behavioral and cultural change. They can only facilitate it. This is line with the literature. Therefore, to strive for a continuous improvement culture and to become a learning organization, organizations have to do more than just a week-start or mapping a value stream. The consultant can help to increase awareness and importance about continuous improvement and the management can also trigger or stimulate this, but in the end it is all about the mind-set of the employees. This mind-set ultimately has to do with the attitude and behavior of the employees. The organization and consultants need to support this behavioral change, so that it is thereafter internalized in the own behavior of employees. During this process, the awareness and behavioral is stimulated though good communication, by repeating and talking about it. An implication for consultancy organizations is to investigate how to stimulate behavioral change and to not rely on lean tools only.

Thirdly, another implication is related to the time to embed and implemented a continuous improvement culture. There was consensus on the topic 'time' mentioned by the consultants of Organization X. They described time as an important critical success factor in the construction of a continuous improvement culture. It is up to the management or leaders of the organization to support the continuous improvement process, through allocation of time, money and other resources Therefore an implication for organizations that are wondering to start a lean implementation is that changing the ongoing culture cannot easily be realised in a lean trajectory that lasted only one year. For example, a consultants suggested that lean trajectories should be les intensive but spread over a longer period, so that after the implementation phase, a consultant can one day a week be busy with guarantying and embedding continuous improvement. This is also indicated in the literature, because previous research indicated that culture is an evolutionary change instead of a revolutionary change. An implication for Organization X and consultancy organizations is to think about the time frame of the projects. Is a lean

implementation that is scheduled as a year project enough to implement a continuous improvement culture or do both the consultancy organization and the client organizations need more than a year?

Furthermore the following implication is related the role of the consultant during lean implementation. The consultants need to implemented a structure that ensures continuous improvement when they leave the assignment. With this structure a constant flow of improvements can be realized. This process consists of three steps: show it → do it together → let it do themselves. The consultant has the responsibility that the employees can initiate ideas or improvements. For the management this is not enough, they also must ensure that the ideas are followed up. The consultant has to create the environment that allow the employees to continuously improvement. A manager has to embrace that environment so that it continues to exist after the consultants leave the assignment. This implies a safe situation in which the employees provide the input to improve. Another implication is that the consultant and the organization also need to communicate process owners of the change.

Besides this, in one of the cases, a Continuous Improvement team is established to promote the interaction between managerial and supporting/operational employees. According to the consultants of Organization X this is risky, because you take the improvement activities out of the line of the organization. Other managers are no longer responsible for it, and that almost certainly leads to the fact that these managers will not have any focus or responsibility for it. As explained by a consultant, if an organization wants to organize this well, they do not have to appoint a continuous improvement manager, but they have to include continuous improvement in the dashboards and in the management of the whole organization. It should for example be one of the KPIs of the managers. An implication for organizations is that they need to consider whether they embed a CI team in the organization or not.

Lastly, a general problem that is mentioned in the various cases is the disappearance of knowledge and expertise when the consultants disappears. Addressing this problem is important during the internalization process. One solution is the appointing of process owners. Otherwise, a culture of continuous improved will not be completely embedded and implemented within the organization. An implication for organizations is to give specific attention to the appointing of process owners and to handing over knowledge and expertise to these process owners.

5.2.3 Reflection, limitations and suggestions for further research

This paragraph discusses the reflection, limitations and suggestions for further research according to the assessment criteria for research quality discussed in the methodology.

The first criterion is validity, which can be divided into internal validity and external validity. External validity is concerned with defining the domain to which a study's findings can be generalized (Yin, 2014). Within this research the external validity is limited, as only three cases were studied, which means that there is almost no basis for generalizing the findings outside the scope of these organizations. Moreover, the characteristics of the sector in which this research has taken place, were not taken into account in the research, which makes it difficult to generalize the findings of this research to another

sector. By testing the theoretical concepts in other cases outside the scope of the current organizations, the generalizability can be increase and the theory can be extended. Therefore, a suggestion for further research is to conduct this research within more organizations in different sectors in order to see if there are any differences between a sector and the actual implementation of a continuous improvement culture. This also allows to explore whether the communication differs between sectors.

However, the focus of this research was not so much on achieving external validity, as this is mainly related to quantitative research, but more on reaching transferability and analytical generalizability (Yin, 2014). Transferability refers to a situation where the researches provides evidence that the results can be applied to other contexts or situations (Yin, 2014). The researcher cannot prove that the results will be applicable, but in this research attempts are made to provide the evidence that it could be applicable to other situations (Yin, 2014). By making clear choices during this research, the research process can be followed by others. Besides this, the research context is thorough described. Readers of this research who wishes to transfer the results to a different context can make the judgements of how wise the transfer is (Symon & Cassell, 2012). With analytic generalization, the researcher strives to generalize a particular set of results to a broader theory instead of drawing inferences from data to population (Yin, 2014). As described in paragraph 5.2.1, this research contributes to the theory of continuous improvement and communication. Therefore, the criterion of analytical generalizability was strengthened.

The internal validity of this research has been increased by formulating interview questions on the basis of an existing questionnaire model of Bessant et al. (2001) of the measured concept continuous improvement culture. Next to this, the questions regarding the communication strategies are based on existing literature, for example on Armenakis & Harris (2002) and Balogun (2006). In addition, during the interviews focused questions have been asked to investigate mutual relationships between dimensions. Another point with regard to the internal validity is the triangulation of research methods. Interviews were the most important data source in this research. The findings that derived from documents supported some statements from the interviews. However, a limitation to the triangulation is that the Case B unfortunately doesn't has sent documents like Case C and Case A did. This means that the quality of the document analysis was not as high as desired. Also the documents of the Case C and Case A are only supporting documents and cannot be seen in this research as a research method an sich. Therefore, a suggestion for further research is to conduct this research while combining research methods, like complete documents, interviews and observations. The internal validity can then be further strengthened by using more triangulation of data. Besides this, the internal validity can be increased by conducting more interviews within the cases, mostly with the change recipients. These change recipients can give the most in depth experiences about continuous improvement and certain ways of communication because they are actually working on the operational workplace. Continuous improvement starts namely with involvement of the employees in the workplace, with support of the management. By including more change recipients throughout the organization, a distinction can be

made between different views from different departments of the organizations. For each department it would be possible to examine how successful the lean implementation was and what the change recipients think about the communication and continuous improvement and what could have been done better. This is a suggestion for further research. In this research, six interviews with lean consultants were conducted and they often explained what 'should be done' instead of 'what is actually done'. This is limitation of this research. An attempt was made to reduce this limitation, by conducting another interview with three consultants via a telephonic call. In this interview focused questions were asked about some communication dimensions in relationship with continuous improvement. Lastly, the internal validity was further strengthened by means of members checking, as explained within paragraph 3.6. For example, the transcripts were sent back towards the participants in order to check if the given information was correctly interpreted.

The reliability of this research has been increased by presenting the same questions to the interviewees, through the semi-structured interview. In addition, a strong side of this research is that a test interview has been conducted with a lean consultant working at Organization X. As a result, it has been investigated whether the questions are interpreted correctly and with this an attempt has been made to increase the reliability. Lastly, the choices made in this research were consistent and clear. Therefore, the process can be followed by other researcher. This makes it possible to replicate this research in other client organization's in order to further strengthen the reliability.

There are also limitations and suggestions for further research which are not related to the assessment criteria for research quality.

One limitation is that there is the possibility that not all important dimensions of communication were investigated. In this research, five dimensions were selected and operationalized based on the literature: the message, the medium, framing of change, communication top-down vs. bottom-up and role of the consultant. Next to these dimensions, there might be other dimensions of communication that influence the continuous improvement culture. However, based on the theoretical framework, the selected dimensions were argued to be the most important ones in influencing the continuous improvement culture. Thereby, this research tried to present a complete overview of communication as an influencer on the implementation of a continuous improvement culture. A suggestion for further research is to investigate if there are other dimensions of communication that influence continuous improvement.

As continuous improvement aims for a change for the better, the way how the message is communicated also asks for improvement. From the research and focusing on the conceptual model, more research needs to be done on the message for change because this is experienced as an important aspect and there is often too little attention on this. As explained in previous literature, a persuasive message raises accepting of the change (Ford et al., 2008). Also Bernerth (2004) did research on the message for change and claimed that communicating the message for change would have helped

organizations prepare employees to change, but the explained results are only used in a descriptive fashion. Therefore, research on the message for change needs to be tightened and this requires further theoretical investigation on this concept.

There is also the possibility that other concepts than communication were influencing the continuous improvement culture under study. For example, another concept mentioned in the interviews that contribute to a continuous improvement culture is the leadership style. From the research and focusing on the conceptual model, the concept of Bessant et al. (2001) 'leading the way' must be further investigated. Of course, communication is related to leadership, because a good lean leader also communicates on the basis of continuous improvement with their employees. For example; they support improvements initiatives and two-way communication. Also the Gemba leadership style is recommended in the interviews. However, more research could be done on the question: "what is a good lean leader?" Some aspects that were mentioned in the interviews needs to be further investigated, for example the note that: "*a lean leader must develop themselves over years and needs to know the organization very well*" or "*a lean leader has to work their way up through all organizational levels*".

As was emphasized in the interviews, continuous improvement must be done primarily from intrinsic motivation. This is also described in the literature. Ahmed et al. (1999) concluded that intrinsic motivation is a key driver for continuous improvement and learning. Therefore, more research could also be done on unlocking and triggering intrinsic motivation

List of references

Achanga, Pius, Esam Shehab, Rajkumar Roy, and Geoff Nelder. (2006). Critical Success Factors for an lean Implementation within SMEs. *Journal of Manufacturing Technology Management 17*(4)*, 460–471.

Achterbergh, J., D. Vriens (2010). Social systems conducting experiments. Berlin: Springer. *2th edition.*

Ahmed, P,K., Loh, A.Y.E., & Zairi, M. (1999). Cultures for continuous improvement and learning. *Total Quality Management*, *10(*4-5*)*, 426-434,

Alavi, S. (2003). Leaning the right way. *Manufacturing Engineer*, *82*(3), 32-35.

Allen, J., Jimmieson, L. N., Bordia, P., & Irmer, E, B. (2007). Uncertainty during Organizational Change: Managing Perceptions through Communication. *Journal of Change Management*, 7(2), 187-210

Armenakis, A.A., Harris, S.G. & Mossholder, K.W. (1993). Creating Readiness for Organizational Change. *Human Relations*, *46*(6), 681-703.

Armenakis, A.A., & Harris, S.G. (2002). Crafting a change message to create transformational readiness. *Journal of Organizational Change Management*, *15*(2), 169-183.

Asnan, R., Nordin, N., & Othman, S.N. (2015). Managing Change on Lean Implementation in Service Sector. *Procedia – Social and Behavioral Sciences,* 313-319.

Ayres, L., Kavanaugh, K., & Knafl, K.A. (2003). Within-Case and Across-Case Approaches to Qualitative Data Analysis. *Qualitative Health Research, 13*(6), 871-883.

Balogun, J. (2006). Managing Change: Steering a Course between Intended Strategies and Unanticipated Outcomes. *Long Range Planning, 39*, 29-49.

Béndek, P. (2016). *Beyond Lean; A Revised Framework of Leadership and Continuous Improvement.* Springer.

Benford, R. D., & Snow, D. A. (2000). Framing processes and social movements: An overview and assessment. *Annual Review of Sociology, 26*, 611-639.

Bessant, J., Caffyn, S., & Gallagher, M. (2001). An evolutionary model of Continuous Improvement behaviour. *Technovation 21*(2), 67-77.

Bernerth, J. (2004). Expanding Our Understanding of the Change Message. *Human Resource Development Review, 3*(1), 36-52.

Bicheno., J & Holweg. (2016). The Lean Toolbox: a handbook for lean transformation. *Production and Inventory Control, Systems and Industrial Engineering*. Fifth edition.

Bleijenbergh, I. (2013). *Kwalitatief onderzoek in organisaties.* Den Haag: Boom Lemma.

Boeije, H. (2014). *Analyseren in kwalitatief onderzoek: denken en doen*. Meppel: Boom.

Bortolotti, T., Boscari, S., & Danese., P. (2015) Successful lean implementation, Organizational Culture and Soft lean practice. *Journal of Production Economics,* 182-201.

Bryman, A. (2012). Social Research Methods. Oxford: Oxford University Press.

Chreim, S. (2006). Managerial frames and institutional discourses of change: Employee appropriation and resistance. *Organization Studies*, 27(9), 1261-1287.

Christis, J., & Fruytier, B. (2013). Onderzoeksmethodologie in de Bedrijfskunde. *Op zoek naar het andere*. Een liber amicorum voor Hans Doorewaard. 221-230.

Christensen, M. (2014). Communication as a Strategic Tool in Change Processes. *International Journal of Business Communication, 51*(4), 359–385.

Cohen, M.D., Burkhart, R., Dosi, G., Egidi, M., Marengo, L., Warglien, M., & Winter, S. (1996). Routines and other recurring actions patterns of organizations: Contemporary research issues. *Industry Corporate Change, 5*(3), 653–698.

Dora, M., Kumar, M., Goubergen, D.V., Molnar, A., & Gellnyck, X. (2013). Operational Performance and Critical Success Factors of Lean Manufacturing in European Food Processing SMEs. *Trends in Food Science & Technology 31*, 156-164.

Dubois, A., & Gadde, L.E. (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research,* 553-560.

EBA. (2016). *Creating a Lean Culture*. Retrieved from http://www.educational-business-articles.com/creating-a-lean-culture/ on 9 February 2018.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *The Academy of Management Journal*, *50*(1)*,* 25-32.

Elving, W.J.L. (2005). The role of communication in organizational change. *Corporate Communications: An International Journal*, *10*(2)*,* 129-138.

Feldman, S.M. (2000). Organizational Routines as a Source of Continuous Change. Organization Science, 11*(6)*, 611-629.

Fryer, K.J., Antony, J., & Douglas, A. (2007). Critical success factors of continuous improvement in the public sector: A literature review and some key findings. *The TQM Magazine*, *19*(5), 497-517.

Fryer, K.J., Ogden, S., & Antony, J. (2013). Bessant's continuous improvement model: revisiting and revising. *International Journal of Public Sector Management, 26(*6), 481-494.

Ford, J. D., Ford, L. W., & D'Amelio, A. (2008). Resistance to change: the rest of the story. *Academy of Management Review, 33*(2), 362-377.

Goldhaber, G. M. (1999). Organizational communication in 1976: Present domain and future directions. In P. Salem (Ed.). *Organizational communication and change*, (pp. 4-30). Cresskill, NJ: Hampton Press.

Hamilton, W. (2016). Framing Vision: An Examination of Framing, Sensegiving, and Sensemaking During a Change Initiative. *Community College Journal of Research and Practice*, *40*(7), 625-63.

Hammond, G.D., Gresch, E.B., & Vitale, D.C. (2011). Homegrown process improvement employing a change message model. *Journal of Organizational Change Management*, *24*(4).

Hines, P., Holweg, M., & Rich, N. (2004). Learning to evolve: A review of contemporary lean Thinking. *International Journal of Operations & Production Management*, *24*(10), 94-1011.

Hogg, B. (2013). Essential elements when Framing Organizational Change. *Bill Hogg & Associates.*

Holmemo, M.D.Q., Rolfsen, M., & Ingvaldsen, J.A. (2018). Lean thinking: outside-in, bottom-up? The paradox of contemporary soft lean and consultant-driven lean implementation, *Total Quality Management & Business Excellence*, *29*(1-2)*,* 148-160

Holtskog, H. (2013). Continuous Improvement beyond the Lean Understanding. *Forty Sixth CIRP Conference on Manufacturing Systems,* 575-579.

Husain, Z. (2013). Effective communication brings successful organizational change. *The Business & Management Review, 3*(2), 43-50.

Irani, Z., Sharp, J.M. (1997). Integrating continuous improvement and innovation into a corporate culture: A case study. *The International Journal of Technological Innovation, Entrepreneurship and Technology Management (Technovation)*, *17*(4), 199-206.

Khan, S., & VanWynsberghe, R. (2008). Cultivating the Under-Mined: Cross-Case Analysis as Knowledge Mobilization. *Qualitative Social Research, 9*(1).

Kim, Y.H., Sting, F.J., & Loch, C.H. (2014). Top-down, bottom-up, or both? Toward an integrative perspective on operations strategy formation. *Journal of Operations Management, 32*, 462-474.

Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. Academy of Management Review, *21*, 1055–1080.

Klein, S.M. (1996). A management communication strategy for change. *Journal of Organizational Change Management*, *9*(2), 32-46.

Knol, H.W., Slomp, J., Schouteten R.L.J & Lauche, K. (2018). Implementing lean practices in manufacturing SMEs: testing 'critical success factors' using Necessary Condition Analysis. *International Journal of Production Research*

Knol, H.W., Slomp, J., Schouteten R.L.J & Lauche, K. (2018). The relative importance of improvement routines for implementing lean practices. *International Journal of Production Research.*

Larteb, Y., Haddout, A., & Benhadou, M. (2015). Successful lean implementation: the systematic and simultaneous considerations of soft and hard lean practices. *International Journal of Engineering Research and General Science*, *3(*2), 1258-1270.

Liker, J.K., & Rother, M. (2011). Why Lean Programs Fail. Lean Enterprise Institute.

Linders, B. (2011). Communication: Making Quality & Process Improvement Visible. Retrieved from: https://www.benlinders.com/2011/communication-making-quality-process-improvement-visible/ on 2 May 2018.

Meyer, A. D., & Goes, J. B. (1988). Organizational assimilation of innovations: A multilevel contextual analysis. *Academy of Management Journal*, *31*, 897–923.

Paro, P.E.P., & Gerolamo, M. C. (2017). Organizational culture for lean programs. *Journal of*

Organizational Change Management, *30*(4), 584-598.

Pavnaskar, S.J., Gershenson, J.K., & Jambekar, A.B. (2003). Classification scheme for lean manufacturing tools. *International Journal of Production Research*, *41*(13), 3075-3090

Piderit, S.K. (2000). Rethinking Resistance and Recognizing Ambivalence: A Multidimensional View of Attitudes toward an Organizational Change. *Academy of Management Review*, *25*(4), 783-794.

Puvanasvaran, P., Megat, H., Hong, T.S., & Razali, M.M. (2009). The roles of communication process for an effective lean manufacturing implementation. *Journal of Industrial Engineering and Management*, *2*(1), 128-152.

O'Reilly III, C., & Chatman, J. (1986). Organizational Commitment and Psychological Attachment: The Effects of Compliance, Identification, and Internalization on Prosocial Behaviour. *Journal of Applied Psychology*, *71*(3), 492–499.

Ragin, C.C. (1994). *Constructing social research: the unity and diversity of methodology*. Thousand Oaks (CA): Pine Forge Press.

Real, K., & Poole, M.S. (2005). Innovation Implementation: Conceptualization and Measurement in Organizational Research. *Research in Organizational Change and Development*, *15*, 63–134.

Rijnders, S., & Boer, H. (2004). A Typology of Continuous Improvement Implementation Processes. *Knowledge and Processmanagement,11*(4), 283-296.

Rother, M. (2013). Toyota Kata, managen naar verbetering, aanpassingensvermogen en superireure resultaten. *Lean Management Teachers.*

Schein, E.H. (1984). Coming to a new awareness of organizational culture. *Sloan Management Review*, *25*(2), 3-16.

Schein, E.H. (1999). *Process consultation revisited: Building the helping relationship*. Reading, MA: Addison-Wesley.

Seyranian, V. (2014). Social identity framing communication strategies for mobilizing social change. *The Leadership Quarterly, 25*(3), 468-486.

Shah, R., & Ward, P.T. (2003). Lean manufacturing: context, practice bundles and performance. *Journal of Operations Management, 21*, 129-149.

Smits, A., & Heusinkveld, S. (2015). Gripping or losing the audience - or both? Change leaders' framing dynamics and the popular management concept implementation trajectory.

Symon, G. & Cassell, C. (2012). *Qualitative Organizational Research: core methods and current challenge*. Sage publications.

Swanborn, P.G. (2013). *Case-study's: wat, wanneer en hoe?* Meppel: Boom.

Toivonen, T. (2015). Continuous innovation – combining Toyota Kata and TRIZ for sustained innovation. Procedia Engineering, *131,* 963-974.

Tsoukas, H. & Chia, R. (2002). On Organizational Becoming: Rethinking Organizational Change. *Organization Science*, *13*(5), 567-582.

Vennix, J.A.M. (2011). *Theorie en praktijk van empirisch onderzoek*. Vijfde editie. Harlow: Pearson Education Limited.

Ven, D.V., A., & Poole, M.S. (1995). Explaining development and change in organizations. *The Academy of Management Review, 20*(3), 510-540.

Ven, D.V. (2013). Organisatiediagnose: richtlijnen voor deductief kwalitatief onderzoek. *Op zoek naar het andere*. Een liber amicorum voor Hans Doorewaard, 249-262.

Vuuren, V.M. & Elving, W.J.L. (2008). Communication, sensemaking and change as a chord of three strands: Practical implications and a research agenda for communicating organizational change. *Corporate Communications: An International Journal*, *13*(3), 349-359.

Womack, J. P., & Jones, D. T. (1996). Beyond Toyota: how to root out waste and pursue perfection. *Harvard Business Review*, *74*(5), 140-158

Womack J.P., Jones D.T., & Roos D. (1990). *The machine that changed the world*. New York: Rawson Macmillan.

Worley, J. M., & Doolen, T. L. (2006). The role of communication and management support in a lean manufacturing implementation. *Management Decision*, *44*, 228-245.

Yin, R.K. (2014). *Case Study Research Design and Methods* (5th ed.). Thousand Oaks, CA: Sage.

Zu.X., Robbins, L.T., & Fredendall, D.L. (2010). Mapping the critical links between organizational culture and TQM/Six Sigma practices. *Int. Journal Production Economics*. *123*, 86-106.

Appendixes

Appendix 1 – Table routines associated with CI and their behaviour

Bessant et al. (2001)

Abilities	Constituent behaviours (routines)
Understanding CI	• people at all levels demonstrate a shared belief in the value of small steps and that everyone can contribute, by themselves being actively involved in making and recognising incremental improvements. • when something goes wrong the natural reaction of people at all levels is to look for reasons why etc. rather than to blame individual(s). • people make use of some formal problem-finding and solving cycle
Getting the CI habit	• people use appropriate tools and techniques to support CI • people use measurement to shape the improvement process • people (as individuals and/or groups) initiate and carry through CI activities - they participate in the process • closing the loop - ideas are responded to in a clearly defined and timely fashion - either implemented or otherwise dealt with
Focusing CI	• individuals and groups use the organization's strategic goals and objectives to focus and prioritise improvements everyone understands (i.e. is able to explain) what the company's or department's strategy, goals and objectives are. • individuals and groups (e.g. departments, CI teams) assess their proposed changes (before embarking on initial investigation and before implementing a solution) against departmental or company objectives to ensure they are consistent with them. • individuals and groups monitor/measure the results of their improvement activity and the impact it has on strategic or departmental objectives. • CI activities are an integral part of the individual or groups work, not a parallel activity
Leading the way	•managers support the CI process through allocation of time, money, space and other resources • managers recognise in formal (but not necessarily financial) ways the contribution of

	employees to CI • managers lead by example, becoming actively involved in design and implementation of CI • managers support experiment by not punishing mistakes but by encouraging learning from them
Aligning CI	• ongoing assessment ensures that the organization's structure and infrastructure and the CI system consistently support and reinforce each other • the individual/group responsible for designing the CI system design it to fit within the current structure and infrastructure • individuals with responsibility for particular company processes/systems hold ongoing reviews to assess whether these processes/systems and the CI system remain compatible •people with responsibility for the CI system ensure that when a major organizational change is planned its potential impact on the CI system is assessed and adjustments are made as necessary.
Shared problem solving	• people co-operate across internal divisions (e.g. cross-functional groups) in CI as well as working in their own areas • people understand and share an holistic view • people are oriented towards internal and external customers in their CI activity • specific CI projects with outside agencies - customers, suppliers, etc. - are taking place • relevant CI activities involve representatives from different organizational levels
Continuous improvement of continuous improvement	• the CI system is continually monitored and developed; a designated individual or group monitors the CI system and measures the incidence (i.e. frequency and location) of CI activity and the results of CI activity. • there is a cyclical planning process whereby (a) the CI system is regularly reviewed and, if necessary, amended (single-loop learning) • there is periodic review of the CI system in relation to the organization as a whole which may lead to a major regeneration (double-loop learning). • senior management make available sufficient resources (time, money, personnel) to support the ongoing development of the CI system.
The learning organization	• people learn from their experiences, both positive and negative

all levels	• individuals seek out opportunities for learning / personal development (e.g. actively experiment, set their own learning objectives). • individuals and groups at all levels share (make available) their learning from all work experiences • the organization articulates and consolidates (captures and shares) the learning of individuals and groups • managers accept and, where necessary, act on all the learning that takes place • people and teams ensure that their learning is captured by making use of the mechanisms provided for doing so • designated individual(s) use organizational mechanisms to deploy the learning that is captured across the organization

Appendix 2 – Operationalization scheme's

Operationalization scheme of the concept Continuous Improvement Culture

Continuous improvement culture = Concept	Continuous Improvement Abilities = Dimensions	Topics = behaviour + routines *(in appendix 3&4 translated into questions)*
Literature *Bessant et al. (2001)*	**Understanding CI** *The ability of articulating the basic values of CI*	- Startposition - Position now - Initial persuasion - Trigger - Attention CI - Opinion CI - Contribution - Involvement in the process - Making mistakes - Blame culture - Finding solutions - Mindset
Bessant et al. (2001)	**Getting the CI habit** *The ability to generate sustained involvement in CI*	- Tools and techniques - Initiate ideas/improvements/CI activities - Involvement process - Reaction/answer ideas - Learning CI
Bessant et al. (2001)	**Focusing CI**	- Strategic goals - Strategy organization - Impact improvement activities

	The ability to link CI activities to strategic goals of the company	- Integral party - Daily activity
Bessant et al. (2001)	**Leading the way** *The ability of lead, direct and support the creation and sustaining of CI behaviours*	- Supporting management - Assigning resources (money, time, place) - Recognize contribution - Giving good example - Actively involved in the process/change - Stimulating learning - Improving leadership
Bessant et al. (2001)	**Aligning CI** *The ability to create consistency between CI values and behaviour and the organizational context (structures, procedures, etc.)*	- CI system (team/department) - Responsible CI - Organizational context
Bessant et al. (2001)	**Shared problem solving** *The ability to move CI activity across organizational boundaries*	- Collaboration between.. - Clear vision - External customers (translating lean) - Represented by organizational levels - Projects with externals
Bessant et al. (2001)	**Continuous improvement of continuous improvement** *The ability of strategically manage the development of CI*	- Facilitating CI - Monitoring CI - Renewing CI - Making resources available for development CI - Training & education - Evaluating - Feedback - Reflection

Bessant et al. (2001)	**The learning organization** *Generating the ability to enable learning to take place and be captured at all levels*	- Continuous learning - Accepting learning - Sharing knowledge - Capturing knowledge - Learning organization - Horizon

Internalization and implementation = Sub-concepts	Dimensions	Topics *(in appendix 3&4 translated into questions)*
Bessant et al. (2001) *Rother (2013)*	**Internalization of change** *The process of adopting new behaviour and attitudes into own habits.*	- Routine - Habit - Behavioural change - Internalization process - Breaking with old habits - Constant working with CI/lean (repeated process) - Embedding culture
	General information implementation *The phase where the actual change is accomplished*	- Success of implementation - General opinion/view implementation - Sufficient attention CI - Soft aspects/hard tools

Operationalization scheme of the concept Communication during implementation

Communication = Concept	Dimensions	Topics *(in appendix 3&4 translated into questions)*
Literature *Allen et al. (2007)* *Klein(1996)* *Armenakis & Harris (2002)*	**The message** *The message incorporates the nature of the change. There are five message domains within implementing change: discrepancy, efficacy, appropriateness, principal support and personal valence.*	- Discrepancy - Need of the change - Efficacy - Appropriateness - Principal support - Personal valence (direct/indirect) - Heard about change - Received message - Talking about CI - Repetition - Transparency - Information provision - Frequency - Resistance
Armenakis & Harris (2002) *Klein (1996)*	**The medium** *The medium is one of the channels of communication, which refers to the means of delivering and receiving information.*	- Different sources - Channels - Face-to-face - Formal - How informed

Chreim (2006) *Vuuren et al. (2008)*	**Framing of change** *Change agents or managers try to influence the view of their employees and constructing their reality.*	- Sharing vision - Mutual understanding - Storytelling - Influence vision - Influence change recipients - Positively telling
Balogun (2006) *Kim et al. (2014)*	**Top-down / bottom-up** *Formal, vertical communication vs. more informal, lateral communication and involvement in the change process.*	- Top-down communication - Bottom-up communication - Two-way communication - Involvement in the communication process - Clear communication - Visual communication
Schein (1999)	**Role of the consultant** *The role the consultant takes in the change anad commumication process (process-consultant, expert, facilitator etc.)*	- Facilitator - Expert - Supporting customer - Supporting consultant - Imposed change
	General information	- Communication process - Communication in general - Improvement communication process - Relation CI(change) and communication (influence) - Communication documents

Operationalization scheme of new inductive topics mentioned in the interviews

Continuous improvement culture = Concept	New Inductive Topics	Mentioned by
Getting the CI habit	Intrinsic motivation	P2, P4
Understanding CI Internalization	Time	P1, P4, P5, P8, P11
Leading the way	Bridging the gap, reduce distance	P2, P9, P11
Leading the way	Go Gemba Leadershipstyle	P1, P6, P11
Internalization	Early adopters	P6, P9
Internalizaiton	Ownership/ambassador	P1, P3, P4, P6, P8, P11

Communication = Concept	New Inductive Topics	Mentioned by

The medium	Sharing successes	P1, P2, P3, P5, P8, P9, P11
The message	Consistent message/story	P2, P7, P15,
The message	Trust (in the message/partner)	P1, P2, P9, P5
The medium	Pull communication	P11
Framing of change	Safe environment	P1, P3, P5, P9
Role of the consultant	Communication plan	P5
Role of the consultant	External communication specialist	P6
Role of the consultant	Measurement	P11

Title:	Name interviewee:
Date & Time:	Name interviewer:
Length:	
Location:	Approved signature:

● **Introduction**

[The interviewer explains the research subject towards the interviewee.]

Allereerst hartelijk dank voor het deelnemen aan dit interview. Het onderzoek gaat over Lean management implementaties. De focus ligt op de continue verbetercultuur en hoe de communicatiestrategieën hieraan bijdragen. Voorafgaand zullen een aantal algemene vragen gesteld worden, deze vragen dienen ter achtergrondinformatie. De resultaten van dit interview blijven anoniem en worden alleen voor dit onderzoek gebruikt. Wanneer u vragen of onduidelijkheden heeft tijdens het interview, hoor ik dit graag.

● **Recording**

[Before the interview starts, the interviewer asks the interviewee for permission to turn on the recording device, so that the interview can be recorded.]

Tenslotte zou ik u willen vragen of u akkoord gaat met het opnemen van het interview.

● **Algemene vraag**

Wat voor een functie vervult u bij Organization X? Kunt u voorbeelden geven van een aantal lean trajecten die u heeft uitgevoerd? Hoeveel jaar werkt u al bij Organization X?

Wat denkt dat u de initiële overtuiging was om een lean traject te implementeren, bij het project/projecten (culture vs. kost)?

Wat denkt u dat over het algemeen de initiële overtuiging is?

Is er al veel aandacht voor CI binnen het bedrijf/bedrijven? Is CI aanwezig?

● **Understanding CI**

[Introduction into the topic of continuous improvement by the interviewer)

Wat is continuous improvement voor u?

Begrijpt u wat continuous improvement is?

Ziet u de meerwaarde van incrementele werknemers bijdrage?

Is iedereen betrokken in het CI proces?

Wat voor een CI activiteiten voert u zelf uit in uw werkzaamheden?

Denkt u dat er op het project sprake was van een blame cultuur of wordt er juist gezocht naar een oplossing?

● **Getting the CI habit**

Waren er op het project tools and techniques om verbeteringsactiviteiten uit te voeren?

Vindt u dat er veel verbeteractiviteiten werden geïnitieerd door de werknemers?

Hoe was het volgens u voor de werknemers om de CI gewoonte aan te nemen?

Hoe worden ideeën vanuit de werknemers beantwoordt (door het management) met betrekking tot CI?

Worden er proactief verbeteringen aangedragen/opgepakt door de werknemers?

Hoe kan CI worden aangeleerd?

Hoe leren werknemers om te verbeteren?

● **Focusing CI**

Begrijpen werknemers vaak wat de strategie en doelen van de organisatie (department) zijn)? Worden die strategische doelen gebruikt om verbeteringen te bewerkstelligen die iedereen begrijpt?

Vergelijken werknemers de CI activiteiten met de huidige doelen en strategie, zodat deze consistent zijn?

Wordt er gekeken wat de CI activiteiten voor een impact hebben op de doelen?

Zijn de CI activiteiten integraal onderdeel van het werk? Zijn de mensen elke dag met CI bezig?

● **Leading the way**

Wordt u door het management gesupport bij CI/wordt er door het management gesupport bij CI?

Hoe support u als consultant de medewerkers met CI?

Wordt het CI proces ondersteund door het management (toewijzen van geld, tijd, ruimte, andere middelen)

Erkent het management de bijdrage van de individuele medewerkers aan CI?

Geven de managers het goede voorbeeld en zijn ze actief betrokken bij het ontwerp en de implementatie van CI?

Is er veel commitment van management tijdens de verandering?

Ondersteunen managers het personeel bij het experimenteren met CI? Dus bijvoorbeeld fouten niet bestraffen, maar juist het leren stimuleren?

Hoe kan management zijn/haar leiderschap verbeteren met betrekking tot het CI proces?

● **Aligning CI**

Is er een duidelijk CI systeem aanwezig in de organisatie?

Is het CI systeem (waarde en gedrag) consistent met de organisatorische context?

Is er duidelijk aan te tonen wie verantwoordelijk is voor CI?

Hoe wordt CI opgenomen in de organisatie? (een team vs. een department?)

● **Shared problem solving**

Wordt er na uw mening veel samengewerkt tussen verschillende afdelingen?

Begrijpt de organisatie/u het CI proces en wordt er een eenduidige visie gedeeld?

Richt de organisatie zich ook op intern en externe klanten met betrekkingen tot CI-activiteiten?/ Wordt Lean doorvertaald naar externe klanten?

Worden de CI-activiteiten vertegenwoordigd door verschillende organisatieniveaus?

Worden er specifieke CI projecten met outside agencies gedaan (customers, suppliers etc.?)

● **Continuous improvement of continous improvement**

Hoe wordt continue verbeteren gefaciliteerd?

Hoe wordt er volgens u continue verbeterd?

Wordt het CI systeem continue gemonitord en vernieuwd?

Stelt het management voldoende middelen beschikbaar ter ondersteuning van de voortdurende ontwikkeling van het CI systeem?

Is er veel ruimte voor opleiding & training?

Is er sprake van/tijd voor evaluatiemomenten/feedback/reflectie?

● **Learning organization**

Is er sprake van continue leren in de organisatie?

Wordt de kennis in de organisatie op alle niveaus met elkaar gedeeld? (mensen leren van elkaars ervaringen)?

Accepteert management dat leren plaats vindt?

Wordt de kennis over het leren vastgelegd en wordt deze dan ook weer ingezet?

Vindt u de organisatie een lerende organisatie?

● **Implementation**

Hoe vindt u dat (over het algemeen) de lean implementatie is verlopen?

Vindt u dat er bij lean implementaties verbeterpotentieel is?

Vindt u dat er teveel focus is op harde tools in plaats van softe aspecten?

Is continue verbeteren in bepaalde implementatiefases belangrijker dan in andere?

● **Internalization**

[Introduction into the topic of internalization by the interviewer)

Denkt u dat de lean methode en mind-set is geïnternaliseerd in het gedrag en routines van de werknemers?

Is lean voor hen een gewoonte/routine geworden?

Wordt er constant gewerkt met de lean practices (technieken?)

Is lean nu een continue herhalend process in de organisatie?

Is er met oude gewoontes gebroken om lean te internaliseren?

Hoe coacht u werknemers zodat de CI activiteiten de gewoonte worden?

● **Communicatie**

[Introduction into the topic of communication by the interviewer]

De boodschap → wie vertelde de boodschap? Hoe praat u als consultant over CI, hoe brengt u als consultant de noodzaak van CI/lean en continue leren? Hoe praat u over 'de zachte kant' van lean? Hoe praat u over de noodzaak van lean vs CI? Herhaalt u de boodschap vaak? Begrijpt iedereen de behoefte van lean? Hoe werd de boodschap ontvangen?

Discrepancy → heeft u geprobeerd duidelijk te maken waarom er behoefte is aan lean? (huidige vs. Gewenste situatie) Hoe maak je als consultant de behoeften aan CI duidelijk?

Efficacy → probeert u als consultant de werknemers een gevoel te geven dat ze gaan slagen in de lean transitie/CI?

Appropriateness → was lean echt geschikt voor de organisatie?

Personal valence → Is de impact van CI duidelijk gecommuniceerd? was de directe en indirecte impact van lean voor de werknemers duidelijk?

Medium → hoe communiceert u als consultant met de werknemers? (face-to-face vs. other types)? Hoe wordt er op het project gecommuniceerd volgens jou? Gebruikt u verschillende kanalen? Frequentie communicatie?

Framing → hoe probeer je als change consultant de werknemers mee te krijgen? Hoe probeer je de visie van hen te beïnvloeden (bijv. de verandering positief brengen)? Gebruikt u hier technieken voor (bijv. story telling?)

Topdown/bottom up → neemt u de werknemers mee in het besluitvormingsproces? Vindt u dat werknemers in deze organisatie worden meegenomen in het besluitvormingsproces? Vindt u dat er veel top-down communicatie is, of ook veel two-way? Heeft de manier van communicatie geleidt tot meer/minder weerstand? Maakt u veel zichtbaar?

Consultant → Bent u als consultant een facilitator in het proces? Heeft u een ondersteunende rol in dit proces? Legt u de werknemers op wat zij moeten doen? Faciliteert u als consultant het leer proces? Ziet u zichzelf als een outside expert die lean kan implementeren en dan weer weg kan gaan?

Hoe is de communicatie over het algemeen verlopen?

● **Relatie communicatiestrategieën en CI?**

Hoe ziet u de relatie tussen communicatiestrategien en CI/lean?

Hoe is de communicatie volgens u van invloed/bijdrage op CI?

Hoe kan de communicatie verbeterd worden? (zodat er meer sprake is van CI?)

Hoe communiceren de managers met de werknemers zodat de werknemers continue met CI kunnen werken?

Communiceert u op een bepaalde manier zodat CI wordt bewerkstelligd?

Heeft u communicatie documenten die ik mag inzien?

Interview guide managers/change recipients different organizations

Title:	Name interviewee:
Date & Time: Length:	Name interviewer:
Location:	Approved signature:

● **Introduction**

[The interviewer explains the research subject towards the interviewee.]

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[Before the interview starts, the interviewer asks the interviewee for permission to turn on the recording device, so that the interview can be recorded.]

Tenslotte zou ik u willen vragen of u akkoord gaat met het opnemen van het interview.

● **Algemene vragen**

Wat voor een functie vervulde/vervult u in het lean traject?

Wat was volgens u initiële overtuiging om een lean traject te implementeren (culture vs. kost)?

Wat is de startpositie van u met betrekking tot CI (geeft u hier al aandacht aan/wordt hier veel aandacht aan besteedt?)

Wat is volgens u de startpositie van de organisatie met betrekking tot CI ? (Krijgt dit tot op zekere hoogte al aandacht of niet?)

● **Understanding CI**

[Introduction into the topic of continuous improvement by the interviewer)

Wat is continuous improvement voor u?

Begrijpt u wat continuous improvement is?

Wat voor een CI activiteiten voert u zelf uit in uw werkzaamheden?

Ziet u de meerwaarde van incrementele bijdrage van uw werknemers/wordt dit gezien?

Is iedereen betrokken in het CI process / bent u betrokken in het CI process?

Is er sprake van een blame cultuur of wordt er juist gezocht naar een oplossing?

● **Getting the CI habit**

Gebruikt u tools and techniques om verbeteringsactiviteiten uit te voeren?

Initieert u verbeteringsactiviteiten?

Neemt u deel aan het CI process?

Hoe worden ideeën vanuit de werknemers beantwoordt met betrekking tot CI, door het management/hoe beantwoordt u ideeën?

Worden er proactief verbeteringen aangedragen/opgepakt?

● **Focusing CI**

Kunt u uitleggen wat de strategie en doelen van de organisatie (department) zijn? Gebruikt u die strategische doelen om verbeteringen te bewerkstelligen die iedereen begrijpt?

Vergelijkt u CI activiteiten met de huidige doelen en strategie, zodat deze consistent zijn? Bekijkt u wat de CI activiteiten voor een impact op de doelen heeft?

Zijn de CI activiteiten integraal onderdeel van uw werk? Bent u er elke dag mee bezig?

● **Leading the way**

Wordt u door het management gesupport bij CI / support u de werknemers bij CI?

Wordt het CI process ondersteund door het management (toewijzen van geld, tijd, ruimte, andere middelen).

Hoe reageert management op uw ideeën?

Erkent het management de bijdrage van de individuele medewerkers aan CI?

Geven de managers het goede voorbeeld en zijn ze actief betrokken bij het ontwerp en de implementatie van CI?

Is er veel commitment van management tijdens de verandering? Ervaart u genoeg commitment tijdens verandering?

Hoe vindt u dat de consultant het project heeft geleidt?

● **Aligning CI**

Is er een duidelijk CI systeem aanwezig?

Is het CI systeem (waarde en gedrag) consistent met de organisatorische context?

Is er duidelijk aan te tonen wie verantwoordelijk is voor CI?

Hoe wordt CI opgenomen in de organisatie? (een team vs. een department?) Hoe kan dat beter?

- **Shared problem solving**

Wordt er veel samengewerkt tussen verschillende afdelingen/werkt u veel samen met andere afdelingen?

Begrijpt de organisatie/u het CI proces en wordt er een eenduidige visie gedeeld?

Richt de organisatie zich ook op intern en externe klanten met betrekkingen tot CI-activiteiten?

Worden de CI-activiteiten vertegenwoordigd door verschillende organisatieniveaus?

Worden er specifieke CI projecten met outside agencies gedaan (customers, suppliers etc.?)

- **Continuous improvement of continous improvement**

Hoe wordt continue verbeteren gefaciliteerd?

Hoe wordt er volgens u continue verbeterd?

Wordt het CI systeem continue gemonitord en vernieuwd?

Stelt het management voldoende middelen beschikbaar ter ondersteuning van de voortdurende ontwikkeling van het CI systeem/van CI?/Stelt u als manager middelen beschikbaar voor de ontwikkeling van CI?

Is er veel ruimte voor opleiding & training?

Is er sprake van/tijd voor evaluatiemomenten/feedback/reflectie?

- **Learning organization**

Leren er mensen van hun ervaringen, zowel positief als negatief?

Kunt u continue leren en verbeteren in uw organisatie? Gaat u hier zelf naar opzoek?

Wordt de kennis in de organisatie op alle niveaus met elkaar gedeeld (mensen leren van elkaars ervaringen)?

Accepteert het management dat leren plaats vindt?

Wordt de kennis over het leren vastgelegd en wordt deze dan ook weer ingezet?

- **Internalization**

[Introduction into the topic of internalization by the interviewer)

Heeft u de lean methode en mind-set geïnternaliseerd in het eigen gedrag/routine?

Is lean voor u een 'gewoonte'/'routine' geworden? Is continu verbeteren een gewoonte geworden?

Heeft u daarmee met oude gewoontes gebroken?

Werkt u 'constant' met de lean practices (technieken)

Is lean een continue herhalend proces/routine?

Hoe kijk je er tegen aan als de consultant nog een langere periode zou blijven voor embedden cultuur?

Had je liever meer continue verbetercultuur dan zo'n incentive traject (CASE A?)

Willen jullie de future state implementeren (Case B?)

● Implementation

Hoe vindt u dat (over het algemeen) de lean implementatie is verlopen?

Hoe wordt een implementatie succesvol?

Was er voldoende aandacht voor CI?

● Communicatie

[Introduction into the topic of communication by the interviewer)

De boodschap → (hoe heb je voor het eerst van de verandering gehoord, hoe is de boodschap ontvangen, was de informatie effectief, boodschap herhaalt, hoe is er over CI gepraat door de change leader/consultant? Hoe praat het management over continue verbeteren?

Discrepancy → was de behoefte voor een lean transitie duidelijk (huidige vs. Gewenste situatie)

Efficacy → heeft u vertrouwen dat de verandering gaat slagen/is geslaagd?

Appropriateness → is er in de boodschap gecommuniceerd dat de leantransitie geschikt is voor de organisatie?

Personal valence → Was de directe en indirecte impact voor u van de verandering naar lean duidelijk?

Medium → hoe ben je geïnformeerd over de verandering, zijn er verschillende medium gebruikt bij verandering en zo ja welke? (sources: face-to-face vs. mail). Wat vind je van de transparantie en frequentie?

Framing → heeft u een gemeenschappelijke visie / begrip in de organisatie? Is de verandering positief gebracht? Worden er successen gedeeld? Worden er/gebruik u technieken als storytelling?

Topdown/bottom up → worden de werknemers/wordt u meegenomen in het besluitvormingsproces, was de communicatie helder, was er top-down communicatie (kanalen?), heb je veel te zeggen, two-way communicatie, minder weerstand?

Consultant → Heeft de consultant de verandering opgelegd of was hij meer in een facilitator in het proces? Had de consultant een ondersteunende rol? Kon u zelf tot de oplossingen komen? Wat is de rol geweest van de consultant bij de communicatie?

Hoe is de communicatie over het algemeen verlopen? Vanuit Organization X en vanuit de organisatie?

● Relatie communicatiestrategieën en CI?

Hoe ziet u de relatie tussen communicatiestrategien en CI/lean?

Hoe is de communicatie volgens u van invloed/bijdrage op CI?

Hoe kan de communicatie verbeterd worden? (zodat er meer sprake is van CI?)

Hoe communiceren de managers met de werknemers zodat de werknemers continue met CI kunnen werken?

Communiceert u op een bepaalde manier zodat CI wordt bewerkstelligd?

Heeft u communicatie documenten die ik mag inzien?

Slotvraag: wat zou er in uw optiek anders gegaan moeten worden?

1. KLANTVRAAG

EIFFEL is gevraagd de rol als challenger op te pakken en de opdrachtgever mee te nemen in het realiseren van de doelstelling. Omgang met weerstand is een thema dat in alle gesprekken bij de opdrachtgever naar voren is gekomen en dus van groot belang is. Energie, pragmatisme, laagdrempeligheid en ondernemerschap zijn genoemd als DNA-factoren van EIFFEL, die noodzakelijk zijn om de opdracht tot een succes te maken.

DOELSTELLING

De doelstelling is om een duurzame winstverbetering te realiseren van 1% op jaarbasis. EIFFEL stelt voor dit met een Lean programma in te vullen. Aandachtspunten zijn o.a.:

- Verminderen van rework
- Verkorten van doorlooptijden
- Verhogen kwaliteit
- Verbeteren samenwerking

AANPAK

EIFFEL is met een team van 6 Lean consultants het programma gestart waarbij er drie fases zijn onderscheiden.

ANALYSEFASE

In deze fase onderzoekt EIFFEL het verbeterpotentieel van de opdrachtgever. Dit doen we door mee te lopen op de werkvloer, het houden van interviews, het analyseren van data en het faciliteren van cross-functionele Lean overleggen. EIFFEL levert op basis van de analyse een te behalen resultaat incl. benodigde investering voor de volgende fases op en geeft daarop een resultaatgarantie. De fase wordt afgesloten met een go/ no go moment voor de implementatie.

IMPLEMENTATIEFASE

In deze fase worden de medewerkers actiever betrokken bij het Lean traject en worden ze eigenaar van de verandering. Het zijn immers hun eigen ideeën die gebruikt worden voor de gewenste verbetering. Dit gebeurt door het organiseren van zgn. Kaizen- (verbeter)sessies waarin we vanuit de wensen van de klant op zoek gaan naar verbeteringen, zowel intern als in de keten. EIFFEL helpt met het inzichtelijk maken van de mogelijke verbeteringen en de implementatie in de processen.

BORGINGSFASE

In deze fase coachen we het management om volledig zelfstandig door te gaan met Lean en continu leren en verbeteren. Ook de Lean opleiding vindt plaats in deze fase. EIFFEL is gecertificeerd opleider voor de IIBLC Lean opleidingen. In deze fase brengen we de gerealiseerde resultaten in kaart en wordt afgerekend conform de afspraken in de resultaatgarantie.

2. RESULTAAT

Na een project van ruim 10 maanden kunnen EIFFEL en de opdrachtgever terugkijken op mooie resultaten:

- Realisatie van de gevraagde duurzame winstverbetering

- Doorlooptijd verkorting van 30-50%

- Een forse daling in het aantal gemaakte fouten in diverse processen

- Hierdoor ook een forse daling in het aantal benodigde rework activiteiten

- Meer toegevoegde waarde binnen processen en functies voor zowel interne als externe klanten

- Een verbeterde samenwerking binnen en tussen klantteams en afdelingen

- De kloof tussen operatie en kantoor gedicht

- Een duurzame verbetercultuur waarbij medewerkers eigenaarschap nemen over problemen, maar ook zeker de verbeteracties en oplossingen
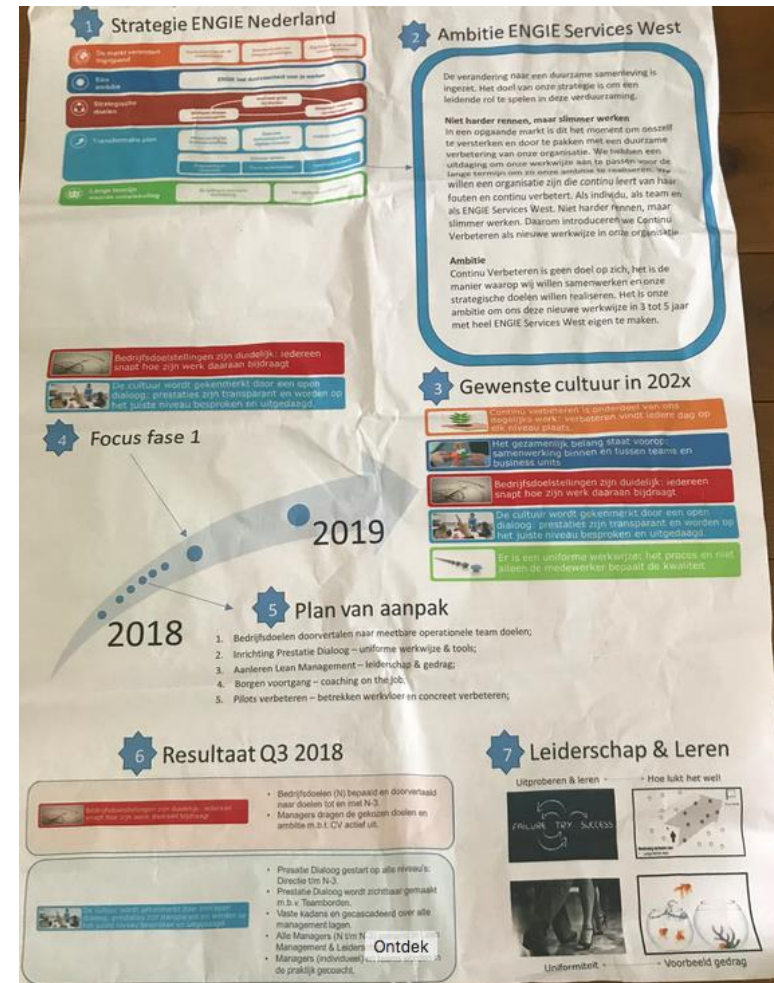
Zooming in on the business plan:

3 Gewenste cultuur in 202x

Continu verbeteren is onderdeel van ons dagelijks werk: verbeteren vindt iedere dag op elk niveau plaats.

Het gezamenlijk belang staat voorop: samenwerking binnen én tussen teams en business units

Bedrijfsdoelstellingen zijn duidelijk: iedereen snapt hoe zijn werk daaraan bijdraagt

De cultuur wordt gekenmerkt door een open dialoog: prestaties zijn transparant en worden op het juiste niveau besproken en uitgedaagd.

Er is een uniforme werkwijze: het proces en niet alleen de medewerker bepaalt de kwaliteit

Case C:

▶ **Richt een structuur in waar gebruikers verbeteringen kunnen aanleveren, zodat hierin een constante stroom ontstaat.**
Het is raadzaam om een openbare lijst met verbeteringen en de status hiervan op intranet te zetten, zodat transparantie en een cultuur van constant verbeteren ontstaat voor gebruikers.

We hebben geleerd dat focus belangrijk is en aan den lijve ondervonden hoe heftig het soms was om tijdens de verbouwing van een organisatie te reizen. Communicatie is toch echt een vak apart net als procesdenken. En een persoonlijke en individuele benadering is cruciaal bij avontuurlijke reizen.

CULTUUR

▶ **Laat de managers in een veranderende organisatie beter de (disfunctionerende) behandelaren aanspreken. Managers moeten hierbij altijd kunnen leunen op directie en RvB.**
Alleen dan is het doorbreken van ongewenst gedrag binnen de organisatie mogelijk. Verbindt tevens consequenties aan ongewenst gedrag, het structureel niet halen van productienormen en een stelselmatig hoog risicobedrag. Dit is noodzakelijk als je een duurzame verandering in je organisatie wilt bewerkstelligen. Het geven van constante feedback over de registratie is belangrijk voor het ontstaan van een cultuur van continue verbetering.

Appendix 6 – Information interview participants

Name	Job Description	Relevant Case	Interview Date	Interview Duration	Interview-method
Participant 1 Pre-test	Process/Lean/change consultant Certified Lean Six Sigma Black Belt Organization X	Case A	05-04-2018	45:27	Face-to-face
Participant 2	Lean Consultant & Trainer Certified Lean Six Sigma Black Belt Organization X	Case A	12-04-2018	1:03:38	Face-to-Face
Participant 3	Lean Professional Organization X	Case B	13-04-2018	55:46	Face-to-Face
Participant 4	Lean Professional Healthcare Green belt Organization X	Case C	17-04-2018	56:41	Face-to-Face
Participant 5	Process/Lean consultant Certified Lean Six Sigma Black Belt Organization X	Case A	20-04-2018	45:50	Face-to-Face
Participant 6	Change manager and process manager Certified Lean Six Sigma Black Belt Organization X	Case C	20-04-2018	53:53	Face-to-Face
Participant 7	Senior Business Consultant Certified Lean Six Sigma Black Belt Organization X	Case B	24-04-2018	30:05	Face-to-Face
Participant 8	Continuous Improvement manager	Case A	09-05-2018	49:16	Face-to-Face
Participant 9	Project Manager	Case B	15-05-2018	53:50	Face-to-Face
Participant 10	Financial director and project initiator	Case C	16-05-2018	39:06	Face-to-Face
Participant 11	Project employee = change recipient	Case A	17-05-2018	105:46	Face-to-Face
Participants 12/13/14	Operational employees = change recpients	Case C	17-05-2018	40:42	Face-to-Face
Participant 15	Operational employee = change recipient	Case B	22-05-2018	44:32	Face-to-Face
Participant 2, 6, 7	Lean consultants	Case A,B,C	27-06-2018	28:14	Telephonic call

Appendix 7 – Coding structure Cross-Case analysis

<table>
<tr><td colspan="5" align="center"><u>Quote Examples Continuous
Improvement Culture</u></td></tr>
<tr><td>Main themes</td><td>Dimensions</td><td>Case A + participant</td><td>Case B + participant</td><td>Case C + participant</td></tr>
<tr>
<td>General information</td>
<td>Start position</td>
<td>No attention for CI

All day busy putting out fires

"Before we got there, if you looked at continuous improvement, then that was obviously not present. Because it is a technical executive organization that is very busy with getting results, so there was nothing in it a moment of reflection, improvement, and certainly not of continuous improvement."
P5 = Lean consultant Organization X

"Case A had a continuous improvement department, but it operated more as an isolated component, so ideas were worked out, but it was not that the team at that time was training the business to solve problems themselves, and yes that team did not work properly enough."
P11 = Change recipient Case A</td>
<td>No attention for CI

"No the trigger for this project was really about the customer journey, not cost related. Before the consultants came the organization was not so busy with continuous improvement"
P9 = Project manager Case B</td>
<td>No Attention for CI

All day busy putting out fires

"I Think at all within the care, it is very hierarchical, because my girlfriend is a GZ psychologist herself, they are working with patients in their own room and the feedback is barely there so that culture of constant improvement is completely lacking"
P6 = Lean consultant Organization X</td>
</tr>
<tr>
<td></td>
<td>Position now</td>
<td>Organization X was the stimulus

"Yes, we are in the start-up phase, we are laying the foundation to embed</td>
<td>Organization X was the stimulus

"But they are, they are certainly in a different mode than when I got</td>
<td>NO CI Culture

"I think it is still a step too early what you are on, we are now a year further</td>
</tr>
</table>

		totally different behavior and culture in the organization and yes that starts with, first good translation of the goals, to create alignment, and to actually raise awareness and skills." P8 = Continuous improvement manager Case A	*there, there are in a change and improvement mode and the organizations aspires a continuous improvement culture"* P3 = Lean consultant Organization X *"Do we want a continuous improvement culture? Yes 100%, we just have to do it."* P9 = Project manager Case B	*to the reorganization and we have not all the teams put together, now there are relocations, there are care lines, so I do not think that a cultural change is already the chase"* P12 = Change recipient Case C
Continuous Improvement Culture	Understanding CI	*"people think yes I am only a small radar, people say that very often literally, in the big picture, but that little radar has an important input and effect on the result of such a chain, we try to involve everyone in the chain and show the individual contribution"* P2 = Lean consultant Organization X	*"Because if you want to map an entire customer journey and you actually have 1 product, then it is important that you also have the current states of all teams, otherwise optimization or improvement does not make sense if you do it for one team, because it is all connected, it is a chain, so if you are working on a customer, it is also influenced by other teams."* P3 = Lean consultant Organization X	*"Look at lean and the whole method is not so difficult, you can work that out, but it's about the people who really have to change and that's just very difficult."* P4 = Lean consultant Organization X *It starts with the operational workforce, because that makes you successful or not. It should not be top-down, but the top must be well connected and needs a vision where to go, but the ultimately success is on the work floor.* P6 = Lean consultant Organization X

	Getting the CI habit	*"What we often see is that during the project Case A when it is often insufficiently stimulated and that people do bring ideas, but if they then see no result or action, they become less involved in the process".* P5 = Lean consultant Organization X	*"and I found it very nice to see that there were a few employees who said yes then we should also involve the colleagues of the other team and that is what you want to create. That they themselves are indeed going to see this piece, goes far beyond our own piece and team."* P3 = Lean consultant Organization X	*"Yes, we always have some signs where you can put things, but also a day start and a week start, these are also tools, they are tools that are useful, but we mainly use them for the vision you have, for that too. To convey so that people understand it and that they also do something with it."* P6 = Lean consultant Organization X *"Well with certain teams it is true that people really do that with day starts or discuss things, but not everywhere."* P10 = Project manager *"Yes, I think those Brown paper sessions, also teaches people to look at things in a different way and to look at their work, I think that has helped, well at least I did, and I think that is also the case with other people."* P13 = Change recipient Case C
	Focusing CI	*"There must be a good alignment between strategic goals and CI. The strategic goal is to improve the performance of the organization, but in the balance: customer, employees and euro. Where in in the past we really talk about the euro axis and now we are looking for a balance in that."* P8 = Continuous improvement manager Case A	*"Yes we have the mission and ultimately the vision is that we make taxes more personal and understandable, sounds very easy"* P9 = project manager Case B	*"I do not know if there is an unambiguous picture or vision, there are always contradictions, I think it is very important, that you also clearly communicate where we are going and tell this in the reason or the message."* P10 = project manager Case C

	Leading the way	During the Organization X trajectoy, management not commited, better: *"The management must be more present in the workplace, they have to show themselves, they have to get more out of their meeting rooms and make time for the employees and actually do something with it."* P8 = Continuous improvement manager Case A	*"Look, of course, it must be sensible what you say and you should not come and complain every week that you want to change and in the end it does not make any sense, but yes, if you come up with a good story, yes they will support you, but There are a few people that walks to the manager, but I think most people are modest and shy and they do not just go inside of him, the manager needs to involve them more in the improvement process, because they really appreciate ideas"* P15 = Change recipient Case B *"Yes there are very much for improvements and really want very much. That people think along and participate, so that is very much appreciated, they are continuously working on this".* P3 = Lean consultant Organization X	*"My experience is always a bit hesitant at first, what are they doing right now? They walk again with a brown paper and stickers, but once they see that it yields something, they quickly become very positive. But the management often just looks at the money, what does something yield? And I think a very good manager also look at the experience of the personnel"* P6 = Lean consultant Organization X
	Aligning CI	*"They should be responsible for CI, which is immediately very strange, because then you put it out of the line of the organization"* P1 = Lean consultant Organization X	*"Yes as I say, I think the management would be open for that, but this organization is still changing that first the employees have to go"* P3 = Lean consultant Organization X *No, no one is responsible for the continuous improvement system. They do have two strategic advisers and they also put a lot of effort on the process side and are working on*	*"Yes, the company and I personally also think you know you must always be careful, if we have a quality department that is responsible for the quality because then the rest will lean back. We deliberately do not organize that, what we do have are professionals or coaches like, so at the moment you say I want to change something but I do not succeed because I do not have the technology or the expertise, we do have people*

			it, but do not really pull that whole improvement process. P3 = Lean consultant Organization X	*you can hire, change coaches is called that, and we have even more coaches, people who understand this and can help you with certain cases"* P10 = Project manager Case C
	Shared Problem Solving	*"Yes not good enough, because people were operating even more out of their own interests, and that is an important pillar now, that we are moving away from that"* P11 = Change recipient Case A	*"Show people the results and let them experience this themselves, then everyone also see that vision, and let that never be a management success, but of the people themselves, we can only facilitate it as a manager"* P9 = project manager *"And I found it very nice to see that there were a few employees who said yes then we should also involve the colleagues of the other team and that is what you want to create. That they themselves are indeed going to see this piece, goes far beyond our own piece and team."* P3 = Lean consultant Organization X	*"Between the two large departments, so administration and care providers, working together did not go that well. But then they need each other, or in the case the care providers need the administration staff. Nevertheless, the care providers preferred the care administration as before, more like secretaries and they just have to do what they say."* P4 = Lean consultant Organization X *"There is always a tension between them"* P10 = Project manager Case C
	CI of CI	*"There was no open culture for feedback or evaluation"* P2 = Lean consultant Organization X	*"Yes, for example, with a week-start or a week-end, but also feedback"* P3 = Lean consultant Organization X	*"There was really little time for training and feedback"* P4 = Lean consultant Organization X *"Maybe we should have had more time for it. It is too big a process and too many things run side by side."* P12 = Change recipient Case C
	The learning organization	Want to be a learning organization	Want to be a learning organization	No learning organization

		"Yes, I think CASE A wants it in the meantime, so I think the management layer can put that dot on the horizon, but I think you have to look at where the company comes from and how everyone is in it and where everyone believes in" P2 = Lean consultant Organization X	*''Yes 100%, we just have to do it".* P9 = Project manager Case B	*"At Case C, I really have my doubts about that"* P6 = Lean consultant Organization X *"There was too little focus on improving the registration process, due to the reorganization"* P14 = Change recipient Case C
	Internalization	*"We certainly contributed, only is 7 months is enough to let it go? And then the answer is no, that's not enough, that's just too short. Because that kind of trajectories, that's what you see when you pick up success stories, that it's just years. That you just need 2-3 years before you can really create such a continuous culture of improvement"* P5 = Lean consultant Organization X	*"I think it is very important that you give whole clear frames and directions, from the psychology, a person does not move without frames, if it feels as a must, then you don't get all the energy to change"* P9 = Project manager Case B *Because that is very important, look when we are away, it is indeed important that it is adopted by the people who also have support within the organization. You would actually like that, because otherwise the consultants leave and you do not want it all to fall back into the old behaviour. So with every team I've been to, I have made sure that an internal employee picks it up anyway, with his or her team.* P3 = Lean consultant Organization X	*"Plus, such a continuous improvement culture is difficult, because you also have to deal with old habits and also an old and a young generation, which is also very difficult in healthcare. A very simple example, the old generation wants to work with their paper agendas and write down everything and preferably put their entire agenda in the care administration, and that young people say yes we work nowadays with systems, in which we have to record everything, so also within those treatment teams you have a lot of differences there. "* P4 = Lean consultant Organization X *"I think we are making a very small step in this continuous improvement, but we take small steps."* P13 = Change recipient Case C *"But you notice that when those consultants are gone, there is also a huge chunk of knowledge and expertise disappearing."*

				P10 = Project manager Case C
	Implementation	"The implementation? there have been changes in the organization, also here. And from there, a transfer protocol was finally filed with a number of action points that must be completed as responsibility for the business. And at that moment, it stops there, because the business is very busy with fire extinguishing and that is one of the things that the conclusion we have found, we have made a number of evaluations on the basis of post-change and there comes forward that the return effect was huge. Returning to the old behaviour or even stronger, that the solution is put here, fine that you have invented it, but the management determined so we go that way anyway." P8 = Continuous improvement manager Case A	"The implementation of really implementing improvement on the larger process, then still has to happen, because we do not have mapped the entire chain yet" P3 = Lean consultant Organization X	"I think that three quarters of the project really was the implementation, that is a lot, I would never have dealt with it before, because we also have a huge history of unsuccessful projects, because there was not enough attention to implementation, so we have really done differently now." P10 = Project manager Case C

Quote Examples Communication strategies			
Dimensions	**Case A + participant**	**Case Case B + participant**	**Case C + participant**
The message	AD HOC CI included in the message "The awareness training that was given that did have a positive impact on people's	AD HOC CI included in the message in other words "There was no real communication, the communication was: Bart came in with the	AD HOC CI not included in the message "To take a longer time, not that they suddenly stand here. Well for me it was quite

	knowledge, so that opens people's eyes. Also in a playful way, you know, with a game there, that was just a first good move from Organization X." P11 = change recipient Case A	*consultant and says she is with you from Monday. That is the only communication actually that she came."* P15 = Change recipient Case B *"That training is really good for the awareness of the employees, for example, why lean? Then you see if people are working on autopilot or that they want to continuously improve because it adds some value"* P9 = Project manager GNT *"That message must be consistent".* P7 = Lean consultant Organization X	*a surprise, it was really a surprise. And because I have been completely involved in it, it has become more obvious to me, but there are also people who came into contact with Organization X and the project after a year, so yes not a quite good message"* P13 = Change recipient Case C *"the project has not been communicated at all as continuous improvement, but especially to get things done in the project, so this is a different angle of view, that makes me think again" (ICA).* P10 = Project manager Case C
The medium	*"Yes the message, and the medium, is it an e-mail from an ivory tower, then it does not make sense, or is it a presentation at an occasional moment, a presentation that is just planned once in one go, that is also a lot too formal. So you have to really think about the quality of communication there."* P2 = lean consultant Organization X *"Visual management helps you to tell the story".* P8 = Continuous improvement manager Case A	*"We communicate in different manners, like e-mail, intranet, sometimes we have meetings, what happened a lot here, I think is that we communicate face-to-face and that the manager does that differently with everyone, this is not consistent or uniform".* P15 = Change recipient Case B *"At a certain moment the consultant comes and we have an intranet, but I think we can improve and must improve, but we do notice that ourselves."* P9 = Project manager Case B *"Visual management is a very powerful and understandable way of communicating"* P7 = Lean consultant Organization X	*"Yes the good communication medium is very complicated, but very important. It was a very big project, and we wanted a lot of people to change, so the communication is of course essential. So firstly it is important that you also communicate why people have to change and what the reason is. So we put a lot of energy into that, we have posted messages on the intranet, newsletters, informed people via the mail with the request to draw attention to things within their team, we have visited teams, that I really think what we have put a lot of time and energy into it. It was really an avalanche of information and even when you arrive somewhere three months later people think is there a project? I have never heard of that and then you really think how? So I think so, people say intranet that I never read, my mail*

			I get so many mails so I'm not going to read all that, so I find that really difficult, but well we just had the employee satisfaction survey and in every research people who say they are not communicated sufficiently and I am insufficiently informed or insufficiently informed about certain things. And if you ask of how do you want to be informed, then they do not know it too" P10 = Project manager Case C
Framing of change	*"We are now working on the change with a new strategy, which is sometimes still difficult, which is now working in process to put a number of story-telling steps in it, so that it will also practically live on all layers in the organization."* P8 = Continuous improvement manager	*"People need to be able to mirror themselves to the vision of the organization in relation to the customer's service. At the moment that collides, you are wrong."* P7 = Lean consultant Organization X	*"I think that we felt very much that negative vibe and tried very hard to be positive, also to show that it will get better and that the work gets better and you try just keep up positive as long as possible."* P4 = Lean consultant Organization X
Top-down/Bottom-up	*"Ehm I think more personal communication, such as face-to-face, more simply the conversation and convince from conversation, so convincing top-down by the conversation, that had given so much more inspiration and so much higher result."* P1 = Lean consultant Organization X *"Yes they gave a presentation and try to do it directly, so I think so, just the basis of communication was not there, so this is also a very formal moment where everyone is as a result of not expecting or thinking god this is really something majors and the managers were communicating so infrequently, so the distance was just there."* P2 = Lean consultant Organization X	*"I think the communication is not super hierarchical or top-down, but the communication is not uniform in the teams."* P15 = Change recipients Case B *"It start looking at it from the lean ideas, then it is very strong bottom-up. So how do you involve people in supplying ideas and seeing change continuously?"* P7 = Lean consultant Organization X	*"No, it is basically the top-down sending of information and communication. They do have an input in certain things, of course, because they also have a lot of knowledge of such registration or something, they were always allowed to say things about it, but the final decision making comes from above. And that is sometimes also difficult because when they have called from the bottom position of no this is not possible or we do it like that, and then the ones who make decisions say that we do not listen to it and later comes back that they were right, that is not motivating either."* P4 = Lean consultant Organization X

	"The communication was mostly inserted top-down, often via the mail at that time it was mostly hierarchical" P11 = Change recipient Case A		*"Mail and intranet. So everything is really not directly communicated."* P6 = Lean consultant Organization X *"There has been a lot of top-down communication and yes that is not always convenient, and bottom-up not so much."* P10 = Project manager Case C
Role of the consultant	*"Yes, the difference I see is that as a consultant I have to create the environment that is capable of continuously improving. So by giving confidence, creating the safe environment to also just do things wrong. And a manager has to embrace that environment and has to put a kind of energy into that environment"* P1 = Lean consultant Organization X	*"I also think that for an organization it is also very nice to have an external view, also to absorb the resistance, of course, but also to look at the process very differently."* P9 = Project manager Case B *In my case it is just because we still have to come from far, that it is really very important that they feel safe in every feeling with me"* P3 = Lean consultant Organization X	*"Well I always try, resistance always comes from somewhere, so I try to listen very well because resistance often has a lot of useful information"* P6 = Lean consultant Organization X *We then decided to hire a communication expert, well that has really yielded a lot because the person in question, who has been constantly looking, what communicates you, how do you communicate, why do you communicate and that has brought that back to a big story why we were doing this. When we turned it on, it ensured that it became understandable to many people, why this was, what the consequences were if the project failed, but also what was beneficial when it went well.* P6 = Lean consultant Organization X