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## **1. Introduction**

### **1.1 Background**

The change in business dynamics caused by globalization has increased the importance of certain issues, such as the constant fight for market share, optimization of companies' processes, and the achievement of sustainability. "Lean's dual focus on increasing business value and eliminating waste, made it one of the most popular business performance improvement approaches of the last decade" (R. Jadhav, S. Mantha .& B. Rane, 2014). The definition of lean has evolved, and lean can now be described as a "total system approach to create an efficient operation and pull together best practices and concepts. This includes concepts such as just in time (JIT), total quality management (TQM), continuous improvement, resource planning and supply chain management (SCM)" (R. Jadhav, S. Mantha & B. Rane, 2014). Many companies nowadays apply lean to their corporate operations with the aim of achieving the aforementioned objectives.

Implementing lean into an organization is a strategic decision that influences many, if not all, corporate levels of an organization (Velaction, 2018). Literature regarding lean implementation mainly focuses on perspectives such as, success factors, and the managers' role, which often complement each other. Lean implementation is considered to be a strategic business decision (Baker and Rolfes, 2015) and is a strategy that helps companies redetermine their core objectives, and to identify what it is exactly that they need to do. In essence, the process of implementing lean involves the integration of lean elements into the managerial decisions and the overall corporate strategy. This reflects the strong interdependence between the manager's role, business strategy, and the success of lean implementation.

### **1.2 Problem formulation**

Most of the research currently available focuses on lean strategies, lean implementation, and lean benefits, whilst studies regarding the motives for lean adoption and lean pre-implementation phases remains scarce (Vilkas, Koreckaja, Katiliūtė & Bagdonienė, 2015). Nevertheless, extensive research has been made regarding the factors affecting strategic decision-making in general. Given that there is a direct link between strategic decision making, lean implementation, and the manager's role, the factors that influence a manager's decision to carry out lean are very

limited within the literature (Vilkas et al., 2015). Since the factors affecting strategic decision making, and lean implementation, have not been studied in a simultaneous way, there is a gap in the literature that directly links both these topics. Therefore, exploring these factors would create a direct connection between strategic lean implementation, the managers' role, and factors affecting strategic decision making.

Based on the above, it is evident that lean implementation is in fact a strategic decision implemented by managers. Therefore, the literature regarding factors affecting SDM is considered to be relevant and connected to lean implementation. Hence, the basis for the problem formulation of this thesis is the combination of scarce literature about the lean pre-implementation phase, and the evident literature gap concerning the connection between factors that influence SDM and the strategic decision to implement lean.

The objective of this research is to gain a better understanding of the factors influencing managers' decisions to implement lean, as well as to further determine the applicability of the strategic decision making literature to lean implementation. By exploring these factors, this study aims to fill the literature gap and create a better understanding as to why companies make the strategic choice of implementing lean.

### **1.3 Purpose**

The purpose of this thesis is to determine whether the factors affecting strategic decision making are applicable to lean implementation, and to build on the existing body of research regarding lean implementation driving factors.

### **1.4 Research questions**

- What are the factors that influence managers to make the decision of implementing lean in their organizations?
- Do these factors coincide with the ones determined by previous literature?

## 1.5 Delimitations

- Probe to bias: The empirical findings gathered, are based on one single interview per company, which can limit the accuracy of the data provided and may only reflect one perspective on the issue. Therefore, the answers from all individuals were regarded as only applicable to their organizations' case.
- This study has valued all answer equally regardless of interviewees' position, company, and the channel used for the interview. All three consultants and all six manufacturing firms interviewed were considered as equally important and no distinction was made in the importance and relevance of the different interviewees' answers.
- This study only focuses on the decision to implement lean, rather than the whole subsequent implementation process.
- Not generalizable: Generalizing the findings gathered through the semi-structured interviews conducted cannot be considered as fully valid. This is due to the fact that the samples have been hand-picked rather than having used a random sampling method. However, the semi structured interviews can still provide valuable information, especially when served as an add-on to other data collection.
- Due to the limited time frame of this study, the findings and results may not provide an in-depth understanding of the issues at hand. Hence, this may affect the generalizability and applicability of the results but still may serve as a framework for future research within the topic.



that lean strategy is somewhat superior to traditional strategy due to the constant delivery of significant advantages (Ballé et al., 2017).

Lean strategy involves the combination of lean elements with the overall corporate strategy, with the objectives of continuously improving the company, boosting profitability by cost reduction, or becoming the best competitor in the market. Although some strategies may be easier to achieve than others, lean strategy is only achievable when the lean principles are at their highest potential and are focused on throughout every aspect of the organization. Therefore, in order for an effective lean strategy to develop, the company needs to have lean systems operating at every level of the organization. Hence the importance of all employees having a full understanding of the lean strategy is evident (Velaction, 2018).

Ballé et al., (2017) argue that lean strategy has the objective of using the company to create changes in the industry as a whole. The strategic decision of implementing lean aims to constantly learn, correct issues, and avoid careless solutions. Thus, lean strategy gives a better understanding of strategy in terms of determining the most suitable problems to solve, finding the least wasteful solutions, and determining the key organizational capabilities to develop.

According to Baker and Rolfes (2015), lean implementation is not as simple as a collection of perceived suitable tools which companies can choose from. Instead, they argue that lean implementation is considered to be a business strategic decision. With this in mind, it is arguable that strategic decisions are the key factor when it comes to the success of lean implementation. In his research, Bhasin (2012), further suggests a link between strategy and lean implementation by recommending a viable and appropriate change strategy which would improve the potential likelihood of securing successful lean implementations. He states that if an organization adopts the strategy of change when implementing lean, the chances of a successful implementation are higher, reflecting the direct link between lean implementation and strategy. Applying the appropriate lean strategy is of great importance since it will determine the increase or decrease in the inefficiencies of organizational operations.



However Beer et al., (2005) state that strategy is only accountable for 10 percent of the success when implementing lean, meaning that the most important aspects are within the implementation phase. According to Karim and Arif-Uz-Zaman (2013), incorrect application of lean strategies results in inefficiencies of an organization's resources and reduced employee confidence in lean strategies. Therefore, applying the appropriate strategy at the appropriate time for the right purposes is of great importance. The success of any particular management strategy normally depends upon organizational characteristics, which implies that all organizations should not or cannot implement a similar set of strategies in their particular case (Shah and Ward, 2003). From the perspective of Ballé et al., (2017), the act of implementing lean as a strategy enhances the stream of better quality products and services by determining the organizational value that matters to customers. Additionally, implementing lean involves all departments of the organization finding ways to work in a more efficient way and discovering innovative answers. In essence, lean strategy helps companies re-determine their core objectives, and understand exactly what needs to be done (Ballé et al., 2017).

### **2.3 Lean implementation**

The term lean has become more and more common among researchers as well as companies, who are consequently getting more involved within lean (AlManei, Salonitis and Xu, 2017). Moreover, the literature regarding implementation of lean with respect to principles, practices, and rules has the goal of understanding the success of lean, and most of it recognizes two main streams of the lean concept:

- The lean “toolbox,” which consists of the guidelines and systems designed for direct operations.
- The lean “thinking,” a business philosophy that blends into leadership, culture, and organizational thinking (Halling and Renström, 2011).

According to Yadav et al., (2017) a large amount of research has been done regarding the fundamental principles and practices of lean manufacturing, its success, and the expected outcomes of lean. Lean implementation, when seen as a part of corporate strategy, extends its effects throughout the entire organization and affects all the aspects of it to such an extent that sometimes it can be considered as a new management philosophy (AlManei, Salonitis & Xu,

2017; Liker & Ross, 2017). It may be noted that the lean implementation process can vary slightly based on the nature of an organization. As a matter of fact, the existing body of knowledge on lean implementation is diverse with respect to the application and implementation of lean tools and practices.

Previous research on lean implementation has made it evident that managers play a crucial role in the lean adoption and implementation process. According to AlManei, Salonitis & Xu (2017), the role of management and leadership are vital to a successful implementation of lean, which is why many companies assume that using the correct tools and methods will ensure a successful implementation. However, AlManei, Salonitis & Xu (2017), show that unless the top management are fully on-board and trained within lean, the implementation will not be successful.

Strategic decisions, such as implementing lean, are a big commitment for an organization. This commitment can be represented in the amount of resources dedicated; which may be either financial or employees and their capabilities. This kind of commitment brings a long change, which later on needs to be managed. Management of change involves leadership and this is one of the main reasons why the commitment of top management is vital for a successful lean implementation (Pearce, Pons & Neitzert, 2018). If top management is committed to lean, it can be transferred into leadership. Taking lean as a leadership style creates a sustainable way of managing change and implementing lean within an organization in contrast to mere implementation of methods and tools. However, “the real key to achieving lean success might not be management commitment, but rather understanding to what management should commit.” (Pearce, Pons & Neitzert, 2018)

This highlights another important aspect of the role management plays in lean implementation. As the definition of lean constantly changes, “new and unforeseen deviations or needs may be identified [such as] an increased need for leadership, coaching and dialogue. This in turn affects managers’ views on the implementation process” (Halling & Renström, 2011). Managers’ perspectives influence the whole scope of lean, which is why knowledge is another critical success factor in lean implementation. Pearce, Pons and Neitzert (2018) explain that successful

lean implementation requires a manager who appreciates the system, knows the theory, is open to change, and understands variations. “Managers’ knowledge is defined here as the knowledge based on which a manager makes decisions regarding the strategic direction and development of a business. Knowledge became the wisdom needed to handle the many challenges of leading an implementation of lean” (Pearce et al., 2018).

Understanding the system and variations allows companies to tailor their own lean philosophies. AlManei, Salonitis and Xu (2017) infer that there is no single method or strategy for lean. The key for success, is for each organization to design their own lean concept and strategy. Moreover, Dombrowski and Mielke (2014) add that the importance lies within managers’ abilities to adapt the strategy to the specific needs of lean. Additionally, AlManei et al., (2017) also approach the lean implementation topic by addressing the pre-implementation phase and indicating the key drivers and main barriers for a company to introduce lean manufacturing. In their research, the main drivers for lean implementation identified are the following:

- Firstly, the financial benefits are one of the main factors influencing lean implementation. Within this driver factor, the objectives of increasing the firm’s market share, improving the marketing strategy, and decreasing production costs are determined.
- Secondly, customer focus is also said to be a main driver, arguing that firms’ desire to further listen the voice of customers and better respond to demand is reflected on the implementation of lean.
- The third driver for lean implementation according to their research, is the act of seeking a change in the business culture. With lean implementation, the managers’ goal is to further empower the people in the organization, improve teamwork, and create a multi-skilled personnel within the firm.
- The final driver identified is the will to create a knowledge-based production; which in brief involves the integration of all employees by empowerment in order to decrease waste and increase the firm’s overall value throughout the value chain.

In general, the drivers identified involve the will of managers to improve the internal performance of the company and to implement the best business practices (AlManei et al., 2017).

Further, Mwacharo (2013) also touches upon the subject of lean pre-implementation in her research. The findings support the idea that the reason why companies choose to go lean are internal. It is suggested that companies choose lean implementation based on the objective of improving productivity and enhancing the overall processes in the company. Halling and Renström (2011), reinforce this idea and argue that the reasons for lean implementation are the seeking of a higher level of competitiveness and the will to run the organization in a decentralized way whilst ensuring continuous improvements.

## **2.4 Factors affecting SDM**

Research regarding factors affecting strategic decision making is extensive (Geletkanycz & Hambrick, 1997; Haider & Mariotti, 2016; Kauer, Prinzessin zu Waldeck & Schäffer, 2007; Matzler, Uzelac & Bauer, 2014; Papadakis et al., 1998; Phipps, 2012; Cray et al., 1988; Schneider & De Meyer, 1991; Simons & Thompson, 1998; Steptoe-Warren, Howat & Hume, 2011) Although the approaches to the topic may vary, it is notable that all factors affecting strategic decision making that have been previously studied can be classified into three main categories: (1) individual factors, (2) organizational factors, and (3) external factors.

### **2.4.1 Individual factors**

#### **2.4.1.1 Managerial cognition**

Steptoe-Warren, Howat and Hume (2011) refer to managerial cognition as the ability of a manager to take care of analytic detail by using intuitive processing strategies. In essence, it is the capability of a manager to treat complicated and elaborate information, think in an analytical way, and to simultaneously combine “habits of the mind” and “active thinking”. Managerial cognition relies heavily on the way in which information is collected, sorted, processed, and evaluated. Due to the fact that individuals use different ways to manage available information, strategic choices are said to be dependent on the circumstances, objectives, and personal preferences. Managers therefore think through problems and determine possible solutions based on both the preconscious process, and a deeper detailed analysis. Managerial decision making is therefore influenced by the cognitive theory in which decision makers create meaning, and make sense of presented information, by developing mental illustrations that guide the decision. However, by visualizing the situation, the decision to be made, and the potential outcome,

decision makers tend to become overloaded with information that exceeds the amount they can process, and therefore create a limited amount of strategic options (Steptoe-Warren, Howat and Hume, 2011).

Shepherd and Rudd (2013), approach the individual cognition factor from a cognitive style aspect. They argue that cognitive style has an impact on the overall decision quality, on the number of problems addressed, and on the perceived effectiveness. This further strengthens the idea that decision makers who make use of both intuition and objective information tend to make higher quality decisions.

#### **2.4.1.2 Individual experience and age**

Steptoe-Warren, Howat and Hume (2011), and Schneider and De Meyer (1991), argue that although decision makers can have significant information at their disposal to guide them through their strategic decisions, their choices usually reflect their personal views of strategy and its formulation, based on prior experience. This “reasoning by analogy” concept means that decision makers recall similar conditions and apply what they learned in that past experience to the present situation and decision. According to the authors, the fact that decision making is influenced by an individual’s past experience, can result in biased decisions in which some factors are ignored since they are not seen as important (with reference to the past situation experienced, and the decisions made then). As Simons and Thompson (1998) argue, managers will consider fewer options the more a current situation resembles one encountered previously. What Steptoe-Warren, Howat and Hume (2011) add to the influence of experience, is that it does not only involve situations that decision makers have previously faced, but also the overall industrial experience and the experience gathered through training and development. For instance, the managers’ ability to adapt and meet the specific demands of the marketplace. Schneider and De Mayer’s (1991) contribute to this, by creating a link between managerial experience and education, arguing that managers with better education pursue strategic decisions that are more innovative, and are more risk-taking in comparison to managers that lack formal education. Further Shepherd and Rudd (2013) state that educational level affects the SDM process since highly educated managers seem to perform better at generating and evaluating alternatives, as well as at integrating the decisions taken into the firm’s overall strategy. Simons

and Thompson (1998), reinforce this argument by stating that a manager's age is a variable that affects managerial decisions when it comes to risk-taking and tolerance for ambiguity.

With reference to the individual experience factor, it is evident that age is considered as an important aspect when looking at how managers make decisions. It is argued that an elderly managers have the tendency to engage in more risk-taking behavior (Schneider & De Meyer, 1991). However, Hambrick and Mason (1984) imply that managerial age is negatively correlated with the capacity to integrate information when making a strategic decision and suggest that young managers have a higher tendency to embrace uncertainty, seek the unprecedented, and take more risks; whilst elderly managers have more of a conservative approach to decision making. Their findings support the statements that younger managers tend to be more open to change and risky strategies, and experience greater growth and variability.

#### **2.4.1.3 Managers' social network**

Geletkanycz and Hambrick (1997) find that the influence of the decision makers' social ties is reflected in the way a decision makers' choices align or deviate from the central tendencies of its industry. They argue that when the executives' social network is aligned with the firm's strategy, it will be beneficial to firm performance. The findings suggest that executives' intra-industry ties are closely related to strategic conformity, and extra-industry ties are associated with deviant strategies. Therefore, the alignment of executives' external ties with the requirements of the firm's strategy results in an enhancement of the organizational performance, and a more suitable influence on the strategic decisions. Social interaction not only helps to shape executives' frames of reference, but also brings their views into alignment with those of their contacts.

Consequently, there is a tendency for decision makers to look at other firms to learn about policies and practices that appear effective since external referents can expand the range of strategic options available. Geletkanycz and Hambrick (1997) determine a way to conceptualize a firm's strategy based on the extent to which it complies with, or deviates from, the central tendencies of their contacts. In essence, executives' social ties constitute important channels for the transfer of informational and social influences that help to shape decision makers' frame of reference and strategic choices. Simons and Thompson (1998) also found in their research that managers considered knowledge of their competitors as a factor influencing their strategic

decisions and choices. Moreover, Geletkanycz and Hambrick (1997) approach this factor from the perspective of executive's intra industry ties (from indirect and direct competitor firms) arguing that social ties of the decision makers within the same industry have a tendency to shape and characterize their perceptions and definitions of operations and strategy.

#### **2.4.1.4 Search for information**

With regards to the executives' social ties, Cray et al. (1988) argue that another factor influencing strategic decision making is the number of sources consulted in the search for information. In other words, strategic decisions are shaped by the amount of expertise called upon. The authors argue that when information comes from multiple sources, decision makers' confidence in the reliability of the information will vary. Consequently, disproportion in the decision makers' confidence regarding the information sources will determine the complexity of the decision making process. Additionally, the position of these sources relevant to the organization also plays a role. Whether the information sources are internal or external regarding the organization will shape how the decision makers interpret and prioritize the information gathered. Moreover, it also takes into consideration the effort devoted by decision makers into gathering the information needed to come up with strategic decisions. Differences in the strategic decisions are seen depending on whether the decision makers simply recall other actions, check files, or undertake more in depth effort to gather information relevant to their decision.

### **2.4.2 Organizational factors**

#### **2.4.2.1 Interaction**

Cray et al. (1988) argue that another important factor that has an effect on the decision making process is the interaction between decision makers. They state that the interaction between decision makers usually shifts from being mainly informal, and slowly turns into being more formal and structured; arguing that this shift in the nature of the interaction largely depends on the scale and importance of the decision to be made. They add the fact that the scope of negotiation within an organization, is also considered as a powerful factor in decision making. The decision making process and the strategic choices will vary significantly depending on whether the scope of negotiation is restricted (single person is responsible for decision making), or if more openness for discussion is present before strategic choices are made.

### **2.4.2.2 Centrality, structure and size**

According to Schneider and De Meyer (1991), how an organization responds to specific strategic decisions is influenced by the organizational structure and the degree of centralization the company is operating within. By having a less centralized structure, companies are more likely to move towards the common strategic decision of going ahead with the managers' choice. Cray et al., (1988) define centrality as the level at which the authorization for the decision is given, arguing that this factor has mainly been discussed in literature regarding organizational structure and has been ignored to some extent when discussing strategic decision making. Their findings suggest that the strategic decision making process, as well as the strategic choices made, may differ greatly depending on the level at which organizations authorize their decisions: that is, outcomes approved by divisional managers can look very different from those which have to be approved by superiors in the organization.

Simons and Thompson (1998) also found that managers and those involved in organizational decision making considered the administrative procedures of decision making to have a significant impact on the overall process and strategic choices made, consequently supporting the findings from Cray et al. (1988) and Schneider and De Meyer (1991). In line with the effects of organizational structure, Papadakis et al. (1998) approach this from a company's size perspective, arguing that a firm's size tends to be considered as a factor in the context of strategic decision making. It is argued that larger size is associated with more comprehensiveness in the strategic decision making process, and also suggests that size affects the framework of organizational decision making.

### **2.4.3 External factors**

#### **2.4.3.1 Duration and pressure to make decision**

Depending on the complexity, the amount of time it takes to make a specific decision is considered to affect the outcome of the chosen strategy (Cray et al, 1988). Simons and Thompson (1998) argue that depending on the time frame that is required to develop a decision, the higher or lower amount of options managers will consider before making a decision. Thus, stating that, the pressure to make a quick decision could influence the strategic decision negatively.





uncertainty can be analyzed in an objective way, it is still understood and anticipated differently by managers. It is therefore the perception of the external stability and uncertainty that will shape the managers' strategic choices. Unstable industries are characterized by rapid changes in demand, competitors, technology, and regulations, often leading to inaccurate or unavailable information (Shepherd & Rudd, 2013). It is further argued that the instability of the industry can lead to highly unpredictable and unstable rate of change, as well as high levels of uncertainty about the context and the potential outcomes of specific actions. When the decision has to be made in a hostile environment, the decision makers are less likely to collect and consider new information (Shepherd & Rudd, 2013). They further argue that these results are unexpected to some extent due to the fact that careless decision making in a hostile environment can have significant negative results.

#### **2.4.3.4 Government Regulations and sustainability**

When it comes to the influence of government policy and regulations on strategic decision making, Simons and Thompson (1998) and Schneider and De Meyer (1991) suggested that this factor also plays a vital role in shaping managers' strategic decisions. Their findings suggest that the strong hand of the government will shape company policies and their strategic behavior. Tseng and Hung (2014) also address these factors hand in hand, by arguing that incorporating sustainability into business has become an important issue, mainly driven by pressures from governments and stakeholders. This is due to the fact that there is an increased awareness of the need for environmental protection and sustainability; which consequently forces companies to incorporate sustainability issues into their business operations.

### 3. Theoretical framework

The theoretical framework below is a representation of this thesis' author's' understanding of the literature, which has the objective of mapping the current state of knowledge, and represents the starting point of the research. The fact that the decision to implement lean is a strategic decision, has led the incorporation of the literature about factors influencing strategic decision making with the previously established factor-drivers for lean implementation in the framework itself.

The framework of SDM and its division into three main factor-categories has been kept, namely: individual, organizational and external. Each of these categories consists of factors that are relevant within SDM. As this research treats the decision to implement lean as a strategic decision, the theoretical framework is aimed to adapt the factors influencing SDM on the specific decision of implementing lean within an organization. The theoretical framework therefore serves as the backbone for the research.

SDM factors:

- Individual
  - managerial cognition
  - individual experience and age
  - Managers' social network
  - search for information
- Organizational
  - interaction;
  - centrality, structure and size
- External
  - duration and pressure to make decision
  - stakeholders
  - stability of industry and competition
  - government regulations and sustainability

Driver factors for lean implementation identified by previous literature:

- Financial benefits

- Improvement of processes
- Increase in productivity
- Creation of knowledge based production
- Better response to demand
- Change of business culture
- Decentralization

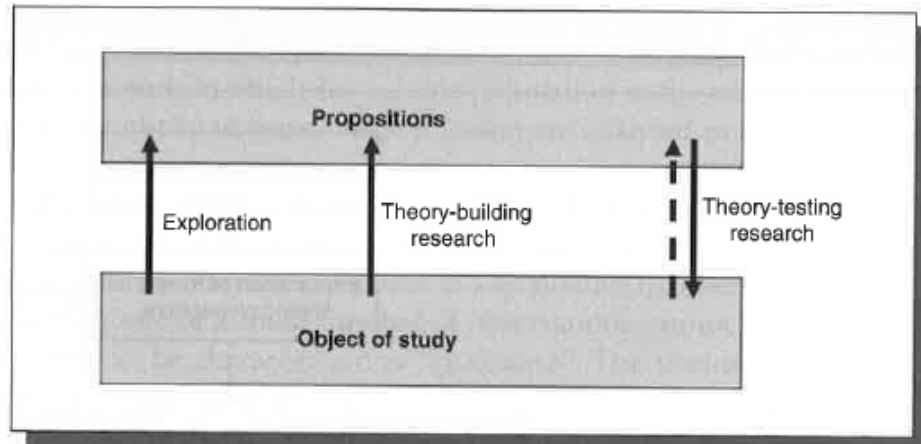
## **4. Methodology**

### **4.1. Research method**

Considering the research topic, the focus of this study will be managerial decision making and the implications of different factors on this process. Qualitative research methods produce descriptive data - “people’s own written or spoken words and observable behavior.” (Taylor, DeVault & Bogdan, 2015). This method to gather the set of data has been chosen mainly because the topic studied is the motives of managers to implement lean, which is directly related to behavioral sciences. Qualitative research is mainly focused on studying people from their own frames of reference, which provides in-depth information directly from experienced professionals and allows for extensive understanding of the topic in question (Taylor, DeVault & Bogdan, 2015; Jamshed, 2014). Qualitative research is also suitable for studying new fields, since it provides flexibility and in-depth understanding of the topic at the same time. Given that this thesis focuses on an aspect of this field that has not extensively been researched yet, conducting qualitative research is appropriate (Jamshed, 2014).

Specifically, this study focused on theory-building research as it is an explorative thesis. This type of research has the “objective of formulating new propositions based on the evidence drawn from observation of instances of the object of study” (Dul & Hak, 2008). The aim of this research is therefore to gather empirical data through analysis, compile a set of conclusions, and create propositions for further research.

**Figure 3.2**  
The empirical cycle  
for developing  
theory by  
formulating and  
testing propositions  
about an object of  
study



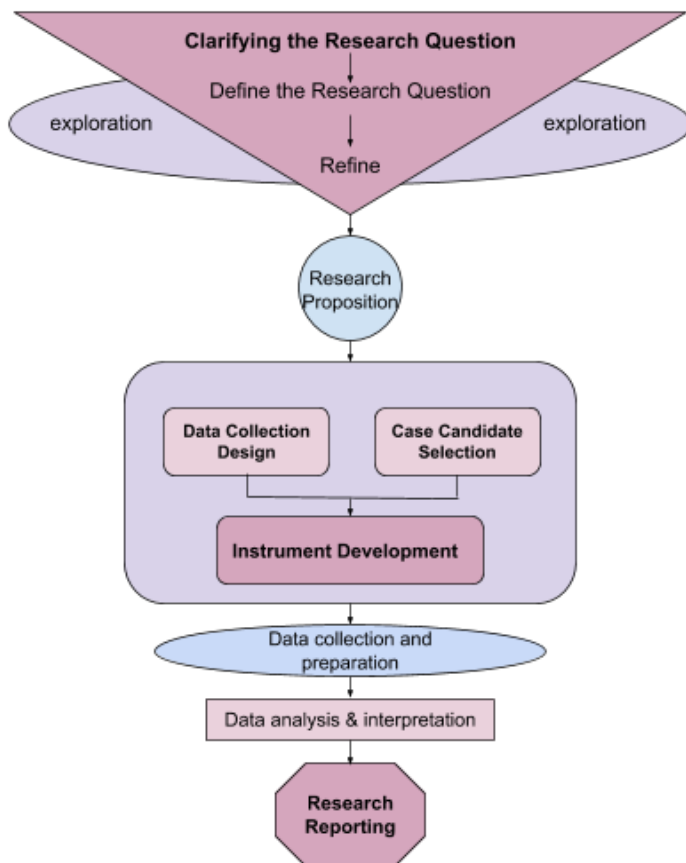
*Research Method Model by Dul & Hak (2008)*

## 4.2 Research Design

Research design of a study is guided by the degree to which the theory is known from the beginning (Saunders, Lewis & Thornhill 2012). The research approach determines how the data is collected, the generalizability of the results, and how theory is used. As relatively limited information exist on the topic of lean implementation driver factors, the research purpose is exploratory in nature and the aim is to elaborate and enrich existing theory, rather than to test or confirm. The authors began with collecting and analyzing the data looking for themes and patterns first and then examined existing literature. In other words, the data collection and data analysis will guide the theory instead of the other way around. This is often referred to as a “bottom-up” or inductive approach (Saunders et al., 2012). In addition, the authors were guided by existing research in order to identify an existing research gap. It could thus be argued that the overall approach is abductive, which signifies a combination of inductive and deductive where theory and data collection mutually is influenced by one another (Saunders et al., 2012)

A specific type of case study has been identified as the method to collect the desired data for this research. Multiple-case study method has been chosen to gather data since many Methodists argue that it is very suitable for exploratory and theory-building research (Dul & Hak, 2008). “Case study research is useful for some topics, questions or objectives; it can meet general quality criteria (such as validity and reliability) and illustrate this by giving guidelines and use such guidelines in evaluations of published research” (Dul & Hak, 2008). Cross-sectional studies

“represent a snapshot of one point in time” and are many times carried out in place of longitudinal study due to its shorter time scope and smaller resource dedication necessity (Cooper & Schindler, 2014). The research has been conducted in actual environmental conditions or ‘field conditions.’



Model of Research Process Design adapted from: Cooper, D., & Schindler, P. (2014). *Business research methods*. New York, NY: McGraw-Hill Education.

### 4.3 Multiple-Case study

A multiple case study is a case study with more than one case (Dul & Hak, 2008). Dul & Hak (2008) distinguish three different types of multiple-case studies: a comparative case study, a parallel single case study and a serial single case study. This research uses the comparative case study where “a small number of cases in their real life context were selected and scores obtained from these cases were analyzed in a qualitative manner.” Since the study consists of a set of nine

interviews and the nature of the research is exploratory, multiple case study has been selected as the most appropriate for the purpose of this research.

#### **4.4 Systematic literature review and literature search**

A systematic literature review aims to deliver an analysis of the problems, by determining, critically analyzing, and combining the findings of all applicable research done within the subject. The key stages conducting this systematic literature review are the following: (1) scoping (2) planning (3) searching (4) screening and (5) eligibility.

The process of research started by an exploration of existing theory, which enabled the identification of specific factors influencing strategic-decision making. When conducting the literature search mainly university resources were used: University library, Google Scholar, and the Primo search database, with a focus on the most peer-reviewed articles to guarantee significant data reliability. PsycInfo database was also used to include the behavioral and psychological perspective to the literature review. Keywords such as strategy, lean, lean strategy, lean implementation, and factors affecting SDM have been used. Originally, more than 60 articles were selected to gain relevant knowledge about the field from which only less than half proved to be highly relevant and have been selected for the theoretical framework.

For each particular research area, focused groups of literature have been selected in order to enhance the quality and confidence for found conclusions. An analysis and determination of each articles' eligibility was conducted to reassure the suitability of the chosen articles and their inclusion in the literature review. All the key information gathered from each individual article has been put together in an Excel sheet to gather all the relevant data collected in a single organized file.

#### **4.5 Interviews**

Within the qualitative research methods, interviews have been chosen as the tool to gather the data. Qualitative interviews provide data which can be recorded, archived and further challenged, which has allowed to conduct a thorough analysis without missing anything (Jamshed, 2014). For this research, 30-60 minute semi-structured interviews have been conducted, since it allows

more flexibility and give the responders the chance to elaborate on their answers about the topic in question (Wilson, 2016).

<b>Company</b>	<b>Interview Date</b>	<b>Interview Duration</b>	<b>Interview Language</b>	<b>Interview type</b>	<b>Location</b>
<i>PT Lean</i>	3/4/2018	37:41	English	Skype	Sweden
<i>Lean Nordic</i>	4/4/2018	37:26	Swedish	Phone	Sweden
<i>Revere AB</i>	7/4/2018	66:50	English	In person	Sweden
<i>Company X</i>	17/4/2018	37:39	English	Skype	Sweden
<i>Scania</i>	20/4/2018	52:04	Swedish	Skype	Sweden
<i>SAAB</i>	24/4/2018	33:07	English	In Person	Sweden
<i>Kiviks Musteri</i>	24/4/2018	21:13	English	Phone	Sweden
<i>Söderlunds Metal</i>	20/4/2018	28:23	English	Phone	Sweden
<i>Nyströms Gjuteri AB</i>	24/4/2018	25:01	English	Phone	Sweden

#### **4.6 Participants**

To gain an initial insight on the relevance of the chosen topic, a set of three pilot interviews have been conducted with lean consultancy firms. The first one has been conducted with Gustaf Wikström from PT Lean consulting, who has great experience working with companies who are considering implementation of lean. It's a small sized firm with six employees that offers workshops, coaching, and education within lean to their clients. Dag Lotsander, from Lean Nordic was the second interviewee who also works as a consultant, helping different companies to implement lean. Joakim Hillberg from Revere AB was the third and final interviewee; who



works at a lean consultancy firm. He also offers training, coaching, and runs transformation projects by using thinking tools and methods. They also support, coach, and implement the change management structure. Before starting his own consultancy firm, Joakim Hillberg was the Head of Swedish Lean forum.

To ensure richness of data, Swedish manufacturing companies that have implemented lean and are still working with it have been interviewed. The selection criteria for the companies was the following:

On the one hand, firms were chosen from a report developed by LMJ (2012) that addresses Scandinavian firms that have managed to transform by adopting lean and have since, had it embedded in their organization. The three interviewees from this category are the following. Firstly, participant Y from company X, who started as an operator, and then became production leader for 10 years. From 2008 until now he has worked as an improvement coordinator in the firm. Secondly, Robert Vetander, in charge of the SPS-office within the chassis-plant at Scania where everything is put together before delivering to the customer. His role is to train, coach, and work with ways to improve the SPS system in this chassis-plant. And thirdly, Tommy Ivarsson, responsible for production at SAAB. He has been working with the company since 1983, and built his way up from the workshop, to electronic production, to the planning and project management.

On the other hand, three more companies that have implemented lean with the help of “Produktions Lyftet” have been selected. It is a national program with the aim is to increase productivity, competitiveness and development capacity in Swedish industry, thereby strengthening the prerequisites for profitable production in Sweden. The interviewees in this category were the following: Christian Rosengren, factory manager at Kiviks Musteri, a company that has been working with lean for 3-4 years as of now. He takes responsibility of the development for the technology of the company and also for the production duties (such as developing working ways). Gunnar Oldegren, from Söderlunds Metal, a company established in 1943, and that sells to customers in the heavy automotive industry. Gunnar is the production manager, as well as working with technical sales and supervision. The company has been lean since 2008, and implemented it in two major periods (2008-2011) and (2013-ongoing). Lastly,

Per Mellert from Nyströms Gjuteri AB, who has been working with aluminum die casting for 34 years, and has been production manager since 2008. Before that, he was shift leader and die casting manager. The company started the lean journey in 2012.

<b>INTERVIEW PARTICIPANTS</b>		
<b>LEAN CONSULTANTS</b>		
<i>PT Lean</i>	<i>Lean Nordic</i>	<i>Revere AB</i>
Gustaf Wikström	Dag Lotsander	Joakim Hillberg
Lean consultant	Lean consultant	Lean consultant
<b>PRODUKTIONSLYFTET COMPANIES</b>		
<i>Kiviks Musteri</i>	<i>Söderlunds Metal</i>	<i>Nyströms Gjuteri AB</i>
Christian Rosengren	Gunnar Oldegren	Per Mellert
Factory manager	Production manager	Production manager
<b>INDUSTRY LEADERS</b>		
<i>Company X</i>	<i>Scania</i>	<i>SAAB</i>
Participant Y	Robert Vetander	Tommy Ivarsson
Improvement coordinator	Group manager	Production manager

Table 1: Summary of interview participants



Using this framework has allowed the analysis of the links and contradictions between different factors influencing decision making when managers are deciding to implement lean within their organizations. The grounded theory generates concepts (Goodrick, D. J., & Rogers, P., 2015), which have been used to explain why managers choose to implement lean.

#### **4.9 Representativeness, validity and generalizability**

The validity of qualitative data needs to be remarked highly in the qualitative research study since the process of analyzing data may often times obscure some of the findings. According to Goodrick, D. J., & Rogers, P., (2015) “two trends are particularly important (i) the emphasis on transparency (ii) the emphasis on criteria of validity.”

The transparency in the processes of data collection and analysis directly implies the text’s validity and trustworthiness. Before conducting the research; the criteria of validity has been stated and a system to deliver trustworthy information has been developed (Goodrick, D. J., & Rogers, P., 2015).

To provide reliable data, representative candidates from domain population have been chosen. Dul & Hak (2008), state that “the most efficient way of finding sets of “similar” instances is by identifying small population in the theoretical domain and selecting cases from such a population.” The choice of candidate cases for this study have been limited by several factors, being: geographical region, type of firm (manufacturing), and lean knowledge. This has allowed the sourcing of candidate cases that show similarities in the data provided.

Another important part of a research is the generalizability of the outcomes of the study. It is arguable that case study methodology or qualitative research lacks generalizability. However, generalizability of propositions in qualitative research is more of an aim than a claim. “It is something a research community aims to be able to do on the basis of an assumed degree of representativeness of the instances in which a test was conducted.” (Dul & Hak, 2008)

#### **4.10 Trustworthiness and ethical considerations**

Research ethics is a set of norms and principles that “guide moral choices about the behavior and relationships with others. The goal of ethics in research is to ensure that no one is harmed or suffers adverse consequences from research activities” (Cooper & Schindler, 2014).

Trustworthiness of the collected data and the ethical considerations towards the interviewees was a priority to consider in the process of collecting data for this study.

For the participants interviewed, the aim was to provide an open option of identity protection and anonymity if desired by the informant. This is due to the fact that the data collected will then be available to the public, and protecting the firm and informants’ privacy is essential. The option of receiving the results of the study has also been provided in order to guarantee a certain level of accuracy, trustworthiness and relevance regarding the information and data the interviewees have provided. This all revolves around the importance of respecting the companies who have agreed to contribute to the research. Throughout this research, the aim has been to maximize the integration of justice and legality, confidentiality, and integrity with the informants.

## 5. Empirical Findings

### 5.1. Perspectives on the already determined lean implementation *driver-factors*

#### 5.1.1. Consultants' perspective

As the literature mentions, one of the key drivers for a company to implement lean is to improve financial results and cut costs. Even though all three lean consultants agreed, they were all slightly negative about this; arguing that despite it being a very common driving factor, the implementation of lean would not be effective due to the short term focus.

*“It is definitely not the way it should be done. If you start working with lean, the results will eventually show the financial increase. But you should not start with that perspective because then you may miss out on the philosophy which is the core objective. Financial results should be the end product of lean implementation, not the driver factor”.* (Hillberg, Revere AB).

Consultants' responses upheld the notion that decentralization and change in business culture were driving forces to implement lean. Their answers were in line with the fact that empowerment of employees and change in business culture is key: in order to drive change in the business culture, the values within the organization have to, in most cases, be adjusted.

*“When changing the business culture, it is important to understand that some employees are not suitable for these kinds of working conditions. Some employees do not like to gain more insights of the company and have more responsibilities. It is important to acknowledge this so the organization can develop a business culture that employees support. But, these working conditions might not be for everyone, so it is vital to see which employees are suitable for this kind of responsibility”.* (Lotsander, Lean Nordic).

This is also in line with the fact that they all considered improving processes to increase productivity as a significant driving force for lean implementation since empowering employees' leads to more efficient work, as mentioned by Lotsander (Lean Nordic).

### **5.1.2 Lean through Produktionslyftet companies' perspectives**

When asked about the main factor influencing these three firms to make decision to implement lean, Rosengren (Kiviks Musteri) mentioned that financial benefits, alongside the process and production improvement were crucial. He then further stated that the bigger the financial benefits lean implementation brings, the more beneficial side-effects this lean change brings to the company. Similarly, Söderlunds Metal considered production, process, and workflow improvement as main drivers for implementing lean. Oldegren (Söderlunds Metal) mentioned that the main factor was improvement of the workflow in order to make it easy for the people to work in the company and benefit from that in many different ways.

Moreover, Nyströms Gjuteri AB also agreed on the improvement of workflow being a main factor influencing them to adopt lean. As Mellert (Nyströms Gjuteri AB) mentioned, the main reason to adopt lean was to bring order to their working ways and have everyone in the company know specifically what was needed to be done.

### **5.1.3 Established lean companies' perspective**

With regards to the manufacturing companies, the main driver for implementing lean in company X was the possibility of improving financial results since according to Participant Y (Company X), something had to be changed since they were obtaining negative results.

The change of business culture was also stressed as key factor:

*“Before implementing lean, we had a quite centralized culture, so once the new CEO started to implement lean we understood that we had to change this to obtain better results. Empowering employees to work in groups with more responsibility was necessary for our company’s survival”.* (Participant Y, Company X)

Regarding the financial aspect of lean implementation, the perspective from Vetander (Scania) was also similar:

*“At Scania everything is about performing so you have good profit margin. We believe that if you are working with efficient processes, then you can meet market demand in the best way possible, so there is a connection between lean implementation and improving financial results”.*

(Vetander, Scania)

In Scania’s case, changing the business culture was not a driving force for lean implementation, but from Vetanders’ (Scania) perspective, they believed it would positively affect their business culture. Additionally, creating a knowledge based production was also seen as important since the company recognized employee empowerment as key for success and organizational development. The two major topics of discussion in this matter were overproduction and not taking the employees’ competencies into consideration. As Vetander (Scania) mentioned, it was essential to give everyone the opportunity to improve the processes which also led to the employees’ career development. Moreover, improving productivity and processes was also seen as an essential part of the lean implementation in Scania:

*“Every department, every function area has one extra employee with no specific tasks, but rather helping everyone. Every week we stop the production one hour, and during that time, each group gets the chance to work with their abnormalities and their processes to improve them. We trust this, and all employees will constantly have the chance to improve their processes”.* (Vetander,

Scania)

Cost cutting and decentralization were also a goal of lean in Scania since they work in a decentralized way where: the employees are in charge of their processes, work with freedom, responsibilities, and constantly overlook the processes to find ways to improve them.

As Ivarsson (SAAB) mentioned, improving the financial benefits and creating a better response to demand was a driving force for lean implementation since their customers were constantly looking at their work efficiency to avoid paying for waste. Moreover, seeking change in business culture was, to some extent, a driving factor for SAAB's implementation of lean, as the company was willing to achieve employee empowerment and saw lean as a tool to do so. Additionally, the improvement of productivity and processes, as well as the decentralization of the company, were



also driving forces for lean implementation in their case, since they were forced to have employees close to management to positively affect the flow and efficiency of production. Ivarsson (SAAB) also agreed when asked about cost reduction as a driving force:

*“To be more competitive in the market as a result, we made calculations to determine the costs of lean implementation, and the estimated money that would be saved. It was some sort of pay-off calculation to determine the amount of costs that would be saved in the long run thanks to the lean implementation”.* (Ivarsson, SAAB)

## **5.2 Individual factors response**

### **5.2.1 Consultants’ perspective**

From the lean consultants’ perspective, one of the main drivers to implement lean was considered to be the previous managerial experience. All three consultants agreed upon the fact that this was a strong determinant, as they had encountered clients that had previously worked and had good experiences with lean in other organizations, which influenced their willingness and drive to implement lean. The fact that managers who have experience with lean tend to see the potential of improvement in their organizations was clearly reflected in all three consultants’ answers. From their own experience with clients, they identified that managers with previous experience in lean were more committed to it, had a stronger vision for its potential, and were more determined to work with lean aggressively.

The managers’ social network was also seen as a very important and significantly influential driver factor for lean implementation. Several of their clients had seen other firms work with lean and achieve good results, which motivated them to consider its implementation. All three lean consultants agreed upon the fact that word of mouth also plays a critical role, stating that it is essential because firm managers get inspired by what they hear regarding lean, consequently making it a positive trend.

In essence, from the perspective of all three lean consultants, the two most influential individual factor drivers for lean implementation was previous experience and the social network of the managers. Nevertheless, some comments were also made regarding the influence of other

individual factors. The interviewees correlated managerial education and their efforts devoted to the gathering information regarding lean:

*“In an early stage, organizations know that lean might be good, and they have the influence of others, but it's when they get the information from us (lean consultants) that they see the strong value and potential of it”.* (Hillberg, Revere AB)

The interviewees agreed upon the fact that firms seek information about lean and its implementation from third parties to further educate themselves on the topic and identify the potential it has on their company.

*“The more managers understand lean, the deeper the value is for the company, and the more managers know about lean, their willingness to implement it tends to be higher, as well as its potential for success”.* (Hillberg, Revere AB)

The lean consultants argued that managers considering lean implementation, gave great importance to the information search to further understand the potential benefits of its implementation, which consequently motivates them to implement it.

### **5.2.2 Lean through Produktionslyftet companies' perspective**

Rosengren (Kiviks Musteri) stated that people within the organization were interested in lean and some had previous experience with it, which might have influenced the decision to some extent. When asked about the previous knowledge as a driver:

*“I think many of us already had general knowledge, but not about the way to implement it; we took help from some consultants, and as I mentioned, we also got the opportunity to go into the ‘produktionslyftet’ [project], which helped us manage how to implement it”.* (Rosengren, Kiviks Musteri)

On the other hand, from Oldegren's (Söderlunds Metal) perspective, they didn't have any previous experience whatsoever with lean when they decided to implement it, and they just “threw themselves” in for the opportunity. Moreover, Mellert (Nyströms Gjuteri AB) also

mentioned that previous experience and knowledge about lean did not play a big role in the decision making whether to implement lean or not. He mentioned that they had people in the organization with previous experience with lean; however it did not necessarily served as a driving factor:

*“It was good to have them, because then [they] could implement the lean thinking more easily and [they] could make some adjustment in order to make the lean thinking work”.* (Mellert, Nyströms Gjuteri AB)

### **5.2.3 Established firm’s perspective**

For company X, the main factor driver to implement lean was previous individual experience:

*“The new CEO came and changed everything for us by developing lean into the organization. None of the other employees had ever heard about the concept of lean, but the new CEO had worked at a big multinational company before, so he started to implement what he had previously worked with, and developed a new way of doing business into the organization. When we hired him it was nothing to do with our desire to implement lean at all. He just got the chance to change the company by developing what he had previously learnt. When he came here he knew what to do to get the company in the right direction and the fact that he had already worked with lean, enabled him to see the potential and vision of its implementation”.* (Participant Y, Company X)

The network from the managers of the company had therefore no influence for Company X since lean was implemented by the single initiative of the newly acquired CEO, hence there was no influence from external contacts informing them about its benefits.

In terms of the efforts put into the search for information regarding lean and lean implementation, it was minimum in this company’s case. The CEO was the main source of reliable information for the whole organization. He was responsible for educating managers of the company about lean and how it worked. Nevertheless:

*“Since we needed to implement lean into the entire production, we approached our biggest customer, and asked them what it was they exactly needed from us in order to improve. And we*

*asked them how to do lean in a better way, so we also got further information and input from our main customer". (Participant Y, Company X)*

In Scania's case, their previous CEO had a long career with the company:

*"Within the industry, it is no secret that Toyota is very good, and our CEO had some connections with them before deciding to implement lean. He surely had knowledge about lean but he hadn't worked with it before". (Vetander, Scania)*

This is in line with the influence of the manager's network. Further, when it comes to the search for information with lean implementation, Scania mainly educated themselves from Toyota and their processes due to the connecting the former CEO had with the company. For them, Toyota was the main source of information to understand how to improve their processes.

When asked about previous experience, Ivarsson (SAAB) stated that they had employees that had previously worked with lean, but did not serve as the main driver for its implementation. Moreover, in terms of the influence of the managers' network, he further stated that although there was a lot of talking about lean at that time, the influence from external contacts was not the driving factor for lean implementation. On the other hand, regarding the search for information that SAAB undertook in their lean implementation phase:

*"We took help from Industriforum, and also went to Jönköping University with my management team and some production engineers to get educated in the topic. We also studied it by ourselves, and all employees got education from planners, production engineers, and managers. The help from consultants was good because we were sure this would have an effect on our operations. They gave us the tools and we worked with them". (Ivarsson, SAAB).*

### **5.3 Organizational factors response**

#### **5.3.1 Consultants' perspective**

Regarding the influence of organizational structure and centralization, the companies that the lean consultants had worked with, were both centralized and decentralized organizations.



### 5.3.2 Lean through Produktionslyftet companies' perspective

In Kiviks Musteri's case, they were striving for more comprehensive results and reliability, which lean would provide them. Therefore, 'going lean' was a strategic decision. Moreover, for Söderlunds Metal the age of the company played a big role in the lean implementation decision.

*"Lots of people have worked [in Söderlunds Metal] for a long time and it was hard to turn around some people, but was something that had to be done to achieve our objective".*

(Oldegren, Söderlunds Metal)

Mellert (Nyströms Gjuteri) had a very similar view regarding the age of the company. The old age of the company influenced the decision to implement lean since it led to the more established working ways which were hard to change amongst the employees. It was the age of the company that had led to more established processes which consequently made the decision harder to implement, but very essential at the same time.

### 5.3.3 Established companies' perspective

From the perspective of participant Y (Company X), organizational structure and centralization also influenced the lean implementation decision. They needed a decentralized organizational structure to avoid big steps between the roles in the company, which led them to change the organizational chart. The fact that they were not fully decentralized yet, played a role in motivating the CEO to implement lean. Their goal with lean implementation was to make the decision process in the organization a "bottom-to-top" process. Moreover, the age of the company was also said to have influenced the decision since:

*"All the processes were already established for a long time and this had to be changed in order to improve. We had a long history with employees that had been working here for a long time and they had their own way to work. The hard part is to change people, to change the philosophy".* (Participant Y, Company X)

For Scania, the interaction between decision makers in the decision making process also had an influence:

*“The CEO and his managers developed lean together. He and his management had made the guidelines and determined what should be done, and they were very involved with the plants during the process. Because of the fact that top management was very involved and synced on the lean implementation, everyone got the same information. It came as a vision from the top management, and it has been ever since. It was a top down process when implemented, so the start of lean implementation came from the highest within the company”.* (Vetander, Scania)

This comes in line with the effect of organizational structure and centralization. Hence, the implementation of lean was a central decision from top management, but was made with the objective and purpose of decentralization.

Ivarsson (SAAB) stated that the implementation of lean had an objective of downsizing the company in a way that would remove the staff that didn't add value to the processes, and consequently focused on the employees who had the right knowledge and expertise. According to Ivarsson (SAAB), the size and the age of the company also had an influence to a certain extent. The fact that the company had extensive resources available positively affected the decision, whilst their long established processes led to some resistance to change.

## **5.4 External factors response**

### **5.4.1 Consultants' perspective**

When it comes to time pressure to make the decision, all three consultants agreed upon the importance of this factor. Hillberg (Revere AB) mentioned that companies that decide to implement lean sometimes need quick results, but emphasized on the importance of giving it time to avoid a short term result focus, since it is in the long run that lean makes a real difference. According to our respondents, this comes in line with the fact that lean is becoming a trend in business and that in many cases, the motivation to implement lean comes from seeing other companies implement it and succeeding.

*“When other companies are doing lean, firms also want to do it in order to follow the trend. If the competitors are improving, they also need to improve. There are cases in which companies go to see other firms and take them as role models”.* (Hillberg, Revere AB)

The pressure from the external environment and the competition comes in line with the stability of the industry. The consultants agreed upon the fact that whether the industry is stable or not will incentivize companies in different ways to work with lean. Implementing lean depends on the industry, since the pressure from competition always tends to have an effect on a company’s decision:

*“If the industry is stable, companies tend to visualize this as a great opportunity to make it better in an easier way. But in unstable industries it can also be easier to see why companies should implement lean, although it might be a tougher journey”.* (Wikström, PT Lean)

*“I was working with a company that was in a stable industry and had a solid and healthy financial performance. Although their management and processes were not so developed and had much to be fixed, their organizational and industrial stability created doubts whether it was worthwhile to implement lean in the organization or not”.* (Hillberg, Revere AB)

On the other hand, with regards to the influence of government regulations and sustainability, this was seen to have a small and pretty insignificant influence on the decision to implement lean.

*“Some are inspired by that, and there are some initiatives out there, but government regulations is not what motivates companies to go lean, but there are some discussions about that”.*

(Hillberg, Revere AB)

*“This factor comes in line to some extent with the influence of the environmental sustainability. It’s a byproduct of lean implementation. Lean does reduce waste and of course it’s good for the environment but it is not the driving force for its implementation”.* (Wikström, PT Lean)



#### **5.4.2 Lean through Produktionslyftet companies' perspective**

In terms of government regulations and sustainability, none of the three interviewees identified it as an influential driving factor for lean implementation, but rather considered it as an indirect factor:

*“[Financial benefits] are the base line, but if [the business] is doing well financially and you have a competitive edge, then it can be reflected in all the other parts [such as environmental precautions] of the business as well”.* (Rosengren, Kiviks Musteri)

Rosengren (Kiviks Musteri) further mentioned that the industry they operate in is volatile, and if they are not able to meet the industry's demand, the chances of going out of business are high.

*“Because other stable and large firms have big contracts [which we don't have], we can only deliver as long as they find us competitive, and if not, they close the door and go to someone else”.* (Rosengren, Kiviks Musteri)

According to Oldegren (Söderlunds Metal), the decision to implement lean came mainly from the stakeholder pressure. Their biggest client played a role in the decision to implement lean, since their customer deemed it as very important and essential for partnership progression. Therefore, the client's pressure to implement lean and adapt to their needs was a crucial part of the decision. Further, Mellert (Nyströms Gjuteri AB) mentioned that the industry competition is fierce, leading to competitors always challenging the prices. This clearly reflects that the pressure to compete in the market influenced the decision to implement lean.

#### **5.4.3 Established company's perspective**

For company X, there was a clear pressure coming from the fact that they had to survive in the competitive environment of the industry:

*“The only time pressure came from the fact that there was a financially critical situation; so change had to be made quickly. It was essential for our survival. Since there were two main*

*companies dominating the industry, we had to compete the best way and therefore improve in every way possible". (Participant Y, Company X)*

The fact that lean is an increasing trend did not directly motivate company X to implement it, but there was an evident awareness of it:

*"Nowadays of course there is a trend with lean, it has been for several years. But in 2005 there were not many companies who knew what it was. But today I think that every company is working with lean. We're talking about lean in the whole of Scandinavia and there is a lot of forums where you can talk with people and see how it has influenced businesses".*

(Participant Y, Company X)

Environmental sustainability, was also seen as a result of lean implementation, but was emphasized as not being the driving force, since their new way of doing business involved using less resources by producing in a more efficient way.

In Scania's case there was no external pressure or time pressure to implement lean, but the implementation process was heavily involved with Toyota.

*"We helped Toyota with modularization, which we were very good at, and in return, we got help from them in the production systems. With a visit to Toyota, the former CEO and his management team noticed that their plant looked very similar to the one in Scania". (Vetander, Scania)*

Nevertheless, Scania still wanted to understand why the quality of the products coming out of Toyota were much better than theirs at the time, even though the production systems were almost the same. This made the former CEO understand that there was something more than just the right equipment, consequently motivating the lean implementation. On the other hand, sustainability and government regulations were not seen as a driver factor for lean implementation in any way:

*“We have a culture of working with waste. It is something that is a benefit for us, that we have that mindset already from the beginning. It helps us to help our environmental goals. But it is not because of that we have our lean processes”.* (Vetander, Scania)

In SAAB’s case, the pressure from the customers came from the fact that the company needed a flawless flow in their tracking systems for every unit in order to satisfy their customer needs.

*“The lean implementation was at the same time as our first order from AIRBUS came. They had a picture that graphically represented the ideal lean workshop, and that was a driving factor for us to adapt to a lean workshop. In our industry, if you can’t tell the customer the specific materials of the unit, who we have bought it from, when it was delivered, and who made it, it is useless. So in our operations there is a lot of tracking involved per product which derives from the specific customer needs”.* (Ivarsson, SAAB)

This comes in line with the influence of industry’s stability:

*“It is a very tough industry, and nothing will not be costly. Our price has to be very efficient and precise, and improving our production and processes helps us to sell to new customers and satisfy our current ones. Customers always look at the workshops, and if they see the efficiency in the processes, they know the price of the product will be competitive. None of our customers want to pay for waste”.* (Ivarsson, SAAB)

In terms of the influence of regulations and sustainability, Ivarsson (SAAB) argued that it is not a driving force to implement lean, since in the defense and air industry there have always been regulations that all companies need to follow in terms of maintenance and repairs which are set at a European and USA level. Once again, this was not the driving force for lean implementation since according to Ivarsson (SAAB), his company had already been working under these regulations and laws.

## **6. Analysis and Interpretation**

### **6.1 Driver factors**

This first section of the analysis examines the applicability of the six driver factors for lean implementation deemed as influential by previous literature.

#### **6.1.1 Improvement of financial results (cost cutting)**

The main purpose of companies is to generate profit, thus the strategic decision making within organizations is inseparable from the financial aspects of the decision (Shepherd and Rudd 2013; Wilson 2014). As lean implementation is proven to bare financial benefits, many companies' decision to implement lean is influenced by this. All of the three consultant interviewees agreed upon the role financial benefits played within the lean implementation decision, and identified it as a strong driver factor. However, they believed that companies that choose lean implementation for its financial benefits are not choosing it for the right reasons since financial benefits should come as an end product of lean implementation. For the three companies with long established lean processes, financial benefits came as a driver factor as well. Improving the figures and cutting costs were objectives that our interviewees identified as one of the goals of lean implementation. On the other hand, only one out of three companies from the Produktionslyftet project identified financial benefits as the main driver factor for their decision to implement lean. The remaining two identified the financial benefits as a 'side effect'. Nonetheless, the financial benefits incurred by lean implementation is a strong factor influencing the decision of managers when considering lean implementation. Although company X was the clearest reflection of this, it is evident that all companies in this study consider it as a driving factor. However, the influence of financial benefits and cost cutting may be reinforced by other factors.

#### **6.1.2 Improve productivity and process**

The main purpose of lean is its effect on companies' processes. Lean provides companies with better 'flow' for their operations and thus creates more efficient processes (Mwacharo, 2013). When asked about this as a factor influencing the managerial decision, clearly correlated findings have been gathered. Nine out of nine interviewees acknowledged the importance of improvement

in productivity and processes through lean. The respondents from consulting firms stressed the importance of this factor and identified it as an essential driver factor for companies. The improvement of processes and efficiency goes hand in hand with another factor: the creation of knowledge based production. Both Participant Y (Company X) and Vetander (Scania) mentioned that creating knowledge based production is related to the improvement of processes and efficiency. When talking with the companies from Produktionslyftet, all three of them acknowledged the importance of this factor and highlighted the benefits of it. From these clearly correlated answers, it can be seen that productivity and process improvement is a significantly influential factor.

### **6.1.3 Create a knowledge based production**

As previously mentioned, improvement of processes and productivity is directly linked to creating a knowledge based production, which was seen to have a direct influence in the decision of implementing lean. When discussing this factor with lean consultants all three of them mentioned this as an influential factor. The manufacturing companies from this study also identified it as strong factor influencing their decision, due to the results all firms were seeking to achieve in terms of employee empowerment and value chain integration. As AlManei, Salonitis and Xu (2017) discuss, knowledge based production helps integrate all the value chain elements, which was reflected in the companies' objectives through lean implementation.

### **6.1.4 Better response to demand**

As companies working in the manufacturing industry constantly work under pressure from competition, another factor driving the decision to implement lean is to better respond to the market demand. All six manufacturing companies identified this as a driver factor for them to implement lean. Customer and stakeholder focus allows companies to better cater their needs and thus provides them with competitive advantage (AlManei, Salonitis and Xu, 2017). Ivarsson (SAAB) explained that having lean in their organization was used as a tool to justify their prices for their customers. Lean here works as a proof that their prices are fair since their processes eliminate waste. Similarly Vetander (Scania) and Participant Y (Company X) agreed that working with lean and its efficient processes gives companies the chance to meet their demand in

the best possible way and that served as a driver factor for them when deciding to implement lean. Similarly all three consultants confirmed the importance of this factor.

### **6.1.5 Change of business culture**

A change within a business culture may be perceived as a strategic decision as itself; however when induced by lean implementation, this factor has been identified as very influential. Lean allows for empowering the people in the organization, improving teamwork, and creating a multi-skilled personnel within the organization (AlManei, Salonitis and Xu, 2017). All three of the lean consultant brought up the importance of change in business culture as a driver to implement lean. Hillberg (Revere AB), Lotsander (Lean Nordic), and Wikström (PT Lean), all agreed that the philosophy or lean 'culture' is inseparable from the lean 'toolbox.' However they believed that if a company wants to change its culture, lean should not be the reason or tool to do so. On the other hand, using and understanding lean should bring about the change in business culture. While the companies identified this as a benefit, most of them agreed that change of business culture came as a result of the lean implementation rather than a driver to implement lean.

### **6.1.6 Decentralization**

Regarding decentralization as a driving factor for lean implementation, the findings show that it is not a factor directly influencing the managers choice to either implement lean or not.

However, it is clearly a factor managers take into account when making this decision. Five out of six firms interviewed responded that decentralization did happen within their organizations after they had implemented lean, clearly reflecting the influence of having organizational decentralization as the end goal and expected result from lean implementation. The findings further reinforce the statements made by Halling and Renström (2011), which argue that one of the reasons for lean implementation is the will to run the organization in a decentralized way whilst ensuring continuous improvements.



Furthermore, something that was deemed as an influential part of previous experience was managerial age. While the literature (Schneider & De Meyer, 1991) argues that managerial age needs to be considered alongside with previous experience, the findings contradict that managerial age is considered to have an influence within lean implementation since it was not mentioned in any of our interviews, consequently questioning the significance of this factor with regards to lean implementation.

### **6.2.2 Managers' social network & word of mouth**

A more clear correlation between the respondents' (all three consultants and four of the companies) answers is seen when talking about the importance and influence of the managers' network, when making the decision of implementing lean. This comes in line with Geletkanycz and Hambrick's (1997) argument about the tendency for decision makers to look to other firms to learn about policies and practices that appear effective since it can expand the range of strategic options available. The fact that many of the consultants' clients had been influenced by other managers and firms who had succeeded with lean and achieved good results, showed the important influence of word of mouth, and was reflected in four of the six companies of this study, Scania being the most significant one. In their case, the CEO's external ties with industry leaders in Toyota, made him look at their practices and processes which appeared to be effective, and led him to make the implementation decision. This is a clear reflection of the argument proposed by Geletkanycz and Hambrick (1997), since the executives' social capital was in fact aligned with the firm's strategy, and consequently resulted in being beneficial to the firms' performance and strategic choice. The social interaction not only helped to shape his frame of reference, but also brought his view into alignment with those of his contacts. Furthermore, for SAAB, word of mouth was very present due to the extensive talks about lean within and outside the company, which affected the implementation decision in an indirect way. Similarly, for Söderlunds Metal and Kiviks Musteri, the absence of previous experience, was compensated by the word of mouth and network of the managers, who introduced the positive aspects of lean in their minds and led to the implementation decision.



Nevertheless, contradicting findings were gathered from Company X regarding this topic. It was the only case in which the network of managers did not have an influence in the decision to implement lean due to the fact that the initiative originated from the CEO himself and their client.

### **6.2.3 Search for information**

The findings from this study come in line with the argument made by Cray et al., (1988) in terms of the influence of the number of sources consulted in the search for information before making a decision. In other words, the fact that strategic decisions are shaped by the amount of expertise called upon can be seen in the results since all six companies interviewed saw the search for information as a critical part of the lean-implementation decision. Three of the companies had chosen to educate themselves on lean through the help of Produktionslyftet, and both Scania and SAAB called upon external expertise. There is an evident pattern on how companies choose to educate themselves on lean and gather as much information as possible to determine whether the decision is right or not. It can be seen in the results, that when companies are deciding whether to implement lean or not, getting information from experts and educating themselves in order to see the strong value and potential of lean is an essential and very influential part of the decision. So there is a clear trend when it comes to the search for further information since implementing lean is a decision that requires extensive knowledge and expertise. In essence, the decision to implement lean is always influenced by someone or some organization with further knowledge and expertise about it. This is clearly reflected in the statements made by Hillberg (Revere AB) regarding the fact that when companies go to consultants to gather further information, they see the true potential and value of its implementation. As Cray et al., (1988) argued, the position of these sources relevant to the organization also plays a vital role. Which is why, the companies from this study all showed efforts to gather more in-depth information from experts in the field and gave great importance to the information search to further understand the potential benefits of lean implementation. Hence, there is a clear positive correlation between the amount of information managers gather about lean, and their willingness to implement it.

## **6.3 Organizational factors**

### **6.3.1 Interaction**

Even though the literature considers interaction as one of the most influential factors when looking at the decision making process (Cray et al., 1988), the empirical findings gathered, showed that the interaction between managers did not necessarily influence the actual decision to implement lean, but rather affected the way in which it is implemented, showing a clear difference from what is stated in the literature. The pilot interviews with the lean consultants did not add any significant findings to this factor, which might reflect the fact that consultants are not directly involved in the interactions within the company throughout the whole decision making process. The findings that most clearly reflected this, were gathered from the interview with Scania. In their case, the CEO and his managers developed lean together by creating the guidelines and determining what had to be done, and they were very involved with the plants during the entire process. Therefore, it can be argued that in Scania's case, the scope of negotiation was relatively open due to the involvement of managers and employees in the decision making process, and that influenced in a way the final decision to implement lean. Contrarily, in Company X's case, due to the extensive knowledge and previous experience of the new CEO, the scope of negotiation was seen as relatively restricted, limiting the amount of questioning and objections from other managers in the company. These two contrasting findings, could suggest that the scope of negotiation in the decision making of implementing lean does not follow a steady trend due to the fact that both these companies' cases led to the same outcome: implementing lean; consequently making it an indirectly influential factor with no single and pre-determined effect on the outcome.

### **6.3.2 Centrality and structure**

With regards to the influence of the centrality and structure of the organization, some contradictory findings were seen. As Schneider and De Meyer (1991) found, the ways in which an organization responds to strategic decisions is influenced by the organizational structure and degree of centralization the company. By having less centralized structure companies are more feasible to interpret and process opportunities within the market they operate in. Further, having

a more decentralized structure enables the manager to generate information throughout the entire company in order to make the employees to work towards a common strategic decision.

From the consultants' perspective, a centrally driven decision to implement lean may tend to fail, due to the fact that centrally driven decisions are not in line with the lean philosophy.

Nevertheless, since the goal of lean implementation is to decentralize the organization and empower employees to some extent, there is a tendency for these organizations looking to implement lean to have a centrally driven structure already established. This can be seen in Company X's case most clearly since they were looking to have a more decentralized organization. The decision to implement lean came from the new CEO, which led to a significant change in the organizational chart. Similarly for Scania, the CEO and his management team developed lean together. Lean also came as a vision from the top management for them, and was a top down decision made with a decentralized objective and purpose. Thus, reflecting what Schneider and De Meyer (1991) stated regarding the vision to have a more decentralized structure to enable the information flow as well as empowering employees to work towards a common strategic decision.

On the other hand, from Ivarsson's (SAAB) perspective, the objective of lean implementation was to downsize the company and remove staff that did not add significant value to their processes; which is in line with what Hillberg (Revere AB) stated regarding the fact that some companies believe lean is achieved through taking away layers of the organization. As it can be seen, the tendency for lean to be a top-down and centrally driven decision is clear. So the influence of the structure comes when looking at the outcome companies are seeking based on their strategic decision to implement lean: Companies want to have a less centralized structure to better interpret and process opportunities within the market and generate information flow throughout the entire company in order to make the employees work towards a common strategic decision. Essentially, the finding regarding the influence of structure, are in line with the suggestions made by AlManei, Saloniis and Xu, (2017) regarding the objective lean implementation has with respect to the organizational restructuring and decentralization.

### **6.3.3 Size, age, and stability of company**

Findings from this study are in line with the findings from Papadakis et al. (1998), where they argued that a firm's size tends to be considered as an important factor in the context of strategic decision making, by affecting the framework of organizational decision making. Nevertheless, the influence of age and stability of the company was also brought up in the findings. And although the literature does not touch upon these two additional factors, they were seen to have significant influence in the decision to implement lean.

The statements made by both Papadakis et al. (1998), and the lean consultants regarding the influence of size and age of the company, reflect the findings gathered from the companies. The influence of having long-established processes in a large organization were seen to affect the willingness to change and flexibility. This was reflected in many ways by the companies' cases. Söderlunds Metal, Nystroms Gjuteri AB, SAAB, and Company X, saw a clear effect since their long established processes challenged the lean implementation decision and the drive for change in the organization. So in essence, the size and the age of the company are correlated, and both lead to more established processes, consequently making the implementation much harder. Thus, the literature from Papadakis et al. (1998) where they argue that size affects the framework of organizational decision making is coherent with the findings from this study.

Moreover, the argument made by Wikström (PT Lean) regarding the fact that larger companies have greater resources available for implementing strategic change was reflected in SAAB's and Scania's cases, since the fact that they were long established, and large firms, they had the financial resources needed at disposal to implement lean. Essentially, although size and age can be considered as barriers to implement lean, the disposal of extensive financial resources might have compensated for it, since the companies managed to successfully implement lean.

In terms of organizational stability, the approach from the lean consultants regarding the fact that firms usually need quick results and lean implementation can be short-run oriented, is clearly reflected in Company X's case; where the pressure to implement lean came from the fact that their financial status was bad and they needed quick results to improve their numbers. In other words, the company was in an unstable position. Additionally, the fact that the decision to

implement lean could be better made when the organization is in a stable situation (Hillberg, Revere AB) contradicts what happened with Company X, due to the fact that the decision was made in a time of organizational changes (new CEO) and therefore the company was in an unstable position. Thus, the literature stating that decision makers working in a hostile environment are less likely to collect and consider new information (Shepherd and Rudd, 2013) could be seen as contradictory when looking at the results obtained from the study.

## **6.4 External factors**

### **6.4.1 Time and stakeholder pressure**

The argument made by Matzler, Uzelac, and Bauer (2014) regarding the fact that time pressure tends to lead to intuitive decision making, is mainly reflected in Company X's case. The fact that the company needed quick results to turn their numbers positive, led the CEO to intuitively deem lean implementation as the most appropriate solution that would give the firm the results needed in the shortest amount of time possible. Essentially, this reflects the statements made by the lean consultants, regarding the fact that some companies decide to implement lean because they need quick results. Nevertheless, for all remaining five companies interviewed, time pressure to implement lean was nonexistent.

In terms of the pressure from stakeholders, three of the six companies were seen to have been influenced by external stakeholders of their company. Söderlunds Metal, Company X, and SAAB faced a similar situation in which their customers incentivized them to implement lean in their organizations so as to adapt to their specific needs and requirements. To some extent, this is mirrored in the statement made by Lotsander (Lean Nordic), arguing that companies working with a bigger organization, whether it is a supplier or customer, will show a tendency to adapt to the bigger organization. Therefore, companies might decide to implement lean to further adapt and meet the expectations set by the bigger companies they work with. These findings clearly reflect the arguments made by Simons and Thompson (1998), where they state that the way in which an organization processes strategic issues, and comes up with strategic solutions, depends strongly on the importance and criticality of the problem for stakeholders.

### **6.4.2 Stability of industry and competition**

The pressure from the external environment and the competition comes in line with the stability of the industry. It can be seen that whether the industry is stable or not it will incentivize companies more or less to work with lean. From lean consultants' perspective, the pressure from competition always tends to have an effect on a company's decision to implement lean or not. These statements were backed up by our empirical findings gathered from two thirds of the companies interviewed; all of which saw an impact on their decision to implement lean from the industry and competition. Kiviks Musteri, Nyströms Gjuteri AB, Company X, and SAAB, all work in industries deemed as volatile, in which the ability to meet the competitive industry's demands determines whether they go out of business or not. All of these companies had similar responses in terms of the need to follow the industry's demands due to the fact that they deliver as long as they stay competitive in the market. In industries where competition is fierce, the lean implementation decision comes from the fact that their competitors are always challenging the price levels which leads them to constantly seek the highest quality and lowest prices to be competitive. These hostile industries lead to the decision of implementing lean to improve production and processes, and consequently be seen as a better option with respect to competitors in the industry. In a way, the findings contradict the findings from Shepherd and Rudd (2013), arguing that when the decision has to be made in a hostile environment, the decision makers are less likely to collect and consider new information. It has been seen that, in fact, the companies that operated in industries deemed as unstable, hostile, and competitive, did in fact devote time to educating themselves and gathering information on lean and how to implement it from experts.

### **6.4.3 Mirroring and trend**

The fact that lean is considered as a trend in today's business world was something that was mentioned frequently, and deemed as very influential. However, the lack of current literature addressing this topic is very evident; consequently questioning the influence and significance of this factor. The fact that lean is considered a trend nowadays was something that all three consultants agreed upon during the interviews, and was further backed up by the findings gathered from the manufacturing companies. There was a clear correlation in the answers and data gathered with regards to the importance and influence of the increasing trendiness of lean.

In many of the cases the motivation to implement lean was heavily influenced by seeing other companies implement it and succeeding. For example, in Scania's case, it has been found that Toyota's lean processes served as inspiration for managers to consider its implementation. This clearly reflect the statements made by Hillberg (Revere AB) with regards to the fact that there are cases in which companies go to see other firms working with lean, and take them as role models. Moreover, the fact that lean is a common topic in the whole Scandinavia, and the increasing amount of firms following this trend was something all interviewees were well aware of and had taken into consideration. These findings gave a clear insight into one of the gaps of strategic decision making and lean implementation literature, due to the significant influence it had on the companies interviewed and their decision to implement lean in general. Although the common trend of lean and its increased importance in today's business world is not the main driver factor, the findings suggest that it does have a significant impact on the decision to implement lean.

#### **6.4.4 Government regulations and sustainability**

The link between regulations and standards set by the government and the importance of those in strategic decisions (Simons and Thompson, 1998; Schneider and De Meyer, 1991) was somewhat non present in the empirical findings. Instead, the interviewees argued that the decision to go lean had nothing, or very little to do with government regulations and sustainability, as it was considered as a byproduct of the implementation, contradicting the literature arguing this factor as influential in shaping managers strategic decisions. As mentioned from all the consultants as well as the companies, government regulations and sustainability were not what motivated them to implement lean. The influence of government regulations is in line to some extent, with the influence of the environmental regulations and sustainability. The findings suggest that essentially both regulations and sustainability act as a byproduct of lean implementation rather than a driving factors for the decision; which correlates with statements made by the lean consultants. By looking at the findings from the companies, there is an evident awareness in terms of environmental sustainability simply being a byproduct of lean implementation. Companies were aware that lean reduces waste and is consequently good for the environment, but it is not the driving force for its implementation. As Scania and Company X

stated, lean served as an additional tool to achieve their environmental goals. But was not the main reason for their lean implementation.

## **7. Discussion**

By looking at the analysis, it can evidently be seen that the factors affecting SDM are applicable to lean implementation. Nevertheless, while some of the factors were clearly correlated and approached in the same way from all cases, others were seen to have a significantly different influence.

For the factors of individual experience, managers' social network and the search for information, a clear correlation in the answers from all cases can be seen since all companies deemed these factors to have had an influence in some way or another in their decision to implement lean. The search for information from third parties (consultants and Produktionslyftet) was the factor that most clearly correlated with the answer from the respondents due to the fact that all companies that took part in the study gave great importance to gathering further information and knowledge about lean. Interestingly, while the manager's network and previous experience play a significant role in the decision, the education seemed to be not relevant. Based on the findings, this is due to the fact that if the manager or organization does not have sufficient education within lean, which is the part where third parties such as lean consultants and Produktionslyftet step in to fill in the gap.

Moreover, the organizational factors of size, age, structure, and stability of the company were also seen to influence the lean implementation in different ways. Based on the findings, it is evident that organizational age and size served as barriers to lean implementation due to the fact that they lead to established processes and resistance to change. Nevertheless, there was a clear correlation within the cases that showed all companies' decision to implement lean was a centrally driven decision resulting in certain levels of decentralization within the organization. Hence, this might reflect that organizations that implement lean have a previously established central structure. While organizational age was a factor missing in the literature of factors affecting SDM, it was seen to be significantly influential in the decision to implement lean, consequently showing the gap in the current literature.





## 8. Conclusion

The purpose of this study was to determine whether the factors affecting strategic decision making are applicable to lean implementation, and to build on the existing body of research regarding lean implementation driving factors. The two research questions of interest were: What are the factors that influence managers to make the decision of implementing lean in their organizations? Do these factors coincide with the ones determined by previous literature?

All in all, this research has found some of the main factors that influence managers to make the decision to implement lean based on the literature on factors affecting strategic decision making, suggesting that:

From the individual factors: managerial previous experience, the managers' social network, as well as the efforts put into searching for additional information were seen as heavily influential factors even though the multiple-case results did differ to some extent. Additionally, with respect to the organizational factors: structure, size, and stability of the company were seen to have an influence on companies' lean implementation decision. And lastly, from the external factors, the main influential factors for lean implementation were seen to be: stakeholder pressure, industrial stability, and competition; which all showed correlated answers. While time pressure to make the decision was only seen to affect one of the cases, it can be argued that the decision to implement lean is not influenced by this factor to a great extent.

Moreover, the factors of organizational age and the trendiness of lean, were two factors that had not been previously covered in the literature but were still seen to have a significant influence in the decision to implement lean. This highlights the literature gap, and the contribution of this study to the previous research on factors affecting SDM and lean implementation driver factors.

Thus, it is clear that the literature on factors affecting SDM is in fact applicable to lean implementation to a great extent, and consequently serves as an extension to the previous literature on factor drivers for lean implementation. While it is clear that the previously established factor drivers for lean implementation still withhold, this study has served to expand

this knowledge based on the fact that strategic decision making factors are highly applicable to lean implementation, and serve as an insight into the strategic decision of implementing lean.

## **9. Further research**

As the research is very limited, further research within the topic is highly suggested. Studying lean pre-implementation phase in a different industry would be an interesting addition, to see whether the factors driving the decision to implement lean vary based on the industry. Moreover, studying whether these factors are equally influential in other cultures and countries would also be an option for further research.

Additionally, studying whether the nature of the decision has an effect on how the implementation process is carried out, could bring further insights and practical knowledge to the understanding of this topic.

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## 11. Appendix

### 11.1. Interview guideline

#### Ethical and legal considerations

- Do you mind being recorded?
- Do you want your personal identity and the company's identity to be protected?

#### Introduction

- Tell us a bit about yourself and your role in your company
- For how many years has your company been lean?
- How did your company come across the concept of lean?
- Where did the idea of implementing lean come from?

#### Lean implementation literature

- The current knowledge on lean implementation driver factors says that: Lean is implemented to increase financial benefits better respond to demand change in business culture, to create a knowledge-based production, to improve productivity and processes to decentralize the organization and seek higher competitiveness.
- Could you tell us your own perspective on these statements and how they apply to your firms' case?

#### SDM literature

- When implementing lean, do these three factors have an influence in your opinion/case? (Individual/external/organizational).
- Within the individual factors (experience and age, values, contacts and social relations outside the organization, number of people contacted in the search for information, intuition)
- Within the organizational factors (centrality and structure, interaction and flow)

- Within the external factors (pressure to make decision, regulations, environmental and industrial stability) and stakeholders.

#### Additional information

- How was the implementation journey for you and your company?
- What was involved in the pre-implementation months/years...?
- Did you play an important role in the implementation and development process?  
(decision making)
- What was your role in that pre implementation phase?
- Was there any kind of pressure to undergo this lean implementation?