LEADERSHIP FACTORS FOR A SUCCESSFUL LEAN IMPLEMENTATION IN MANUFACTURING SMES.

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Lean, management style that has its origins in Japan, is characterized as a high-efficiency practice that has proven to lower costs, reduce waste, improve production time, require less personnel and deliver a high-quality product. In the last few years, there has been an increasing number of businesses eager to implement a lean strategy with the hopes of remaining competitive in the market.

Manufacturing SMEs are a sector of the industry that could particularly benefit from a lean strategy since their resources are limited as there is a need to maximize their capabilities, lean could be a viable option for growth and sustainability. However, the success rates of lean initiatives tend to be low, with leadership believed to be a decisive factor for the success of a lean initiative.

This comparative desk research methodology study consists of a literature review and the analysis of 3 different publications with a case-study approach that contain the empirical data of a total of 8 different real-life manufacturing SMEs at the time when they implemented a lean strategy.

The study aimed to find leadership factors for a successful lean implementation in the manufacturing SME context. The literature review and the data obtained from the publication were analysed and compared to identify 7 different leadership success factors that had a positive impact on the lean implementation of the manufacturing SMEs. The factors are the following: leading the implementation with a transformational leadership approach; possessing enough understanding of the lean concept, the company and the practicalities that involve the implementation; outsourcing the lean implementation in the early stages; avoidance of delegating the leadership responsibility to others that are not managers; knowing how to lead the change initiative; understanding the employee as an individual and lastly, persistence and consistency in the practising of the lean work culture.

<table>
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<th>Keywords</th>
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<td>Lean, leadership, management, lean implementation, human resources, management strategy, personnel, medium size business, small business, SME, HR.</td>
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ABREVIATIONS

REFERENCES AND SELF-PRODUCED MATERIALS
The lean approach began in the 1950s in Japan; as an effort to boost the Japanese economy by gaining presence in the international market; however, after World War II, Japan had limited resources to build large factories, and these circumstances seemed to have caused a significant impact to large industries. Particularly, to the automobile industry, which had to find a different approach to the manufacturing process. The literature seems to agree that the knowledge of this practices originated from Toyota Motor Company; undoubtedly, the pioneer of the lean practices, which in the late 1980’s, started to draw the attention from the researchers at the MIT (Massachusetts Institute of Technology), since the results of their research on the international automobile industry showed Toyota’s exceptional levels of efficiency in their production line. The results of a lean management strategy have received considerable attention over the years because research has shown that lean businesses tend to perform with higher quality standards. Furthermore, they appear to have a lower expenditure rate of resources like money; time, and raw materials in comparison to companies that are mass production oriented. (Sayer et al. 2007, 9-12; Womack, Jones & Roos 2007, 66-69.)

There is much evidence to support the fact that in the following years; after the general aspects of lean were established; many companies attempted to implement the principles that were observed in Toyota; with the hopes of achieving the benefits of lean. As a result, numerous companies succeeded in their lean implementation; for instance, in a case study carried out in a production industry located in Patiala, Punjab (India); showed positive results after the implementation of lean. According to the data, it was possible to reduce lead time by 83 per cent; production time by 13 per cent, and manpower by 30 per cent. Additionally, productivity by operator increased by 43 per cent. (Singh, Garg, Sharma & Grewal 2010, 157; Sayer et al. 2007, 11.)

On the other hand, according to Pearce, Pons, and Neitzert (2008, 94); it has been widely documented that even though lean has been successful in a wide range of industries; lean implementation failure is still a reality. Statistics seem to show rates from sixty to ninety per cent of failure among improvement programs. Adequate personnel management is critical; since according to Sayer & Williams (2007, 238), the human element of a business is preventing eight out of every ten companies from succeeding in any change initiative; this means that the level of acceptance that the personnel has towards the new management style will determine if the lean implementation is successful or not. Despite the statistics, it is possible to consider the possibility that lean could arguably bring great benefits to sectors of the industry with limited resources; such as SMEs (small to medium enterprises) since they operate with a small budget; have fewer members of staff and need to perform efficiently to remain competitive in the market. Therefore, the implementation of a lean initiative could be worth exploring as a viable option for growth and sustainability of a small business. (Pearce et al. 2008, 95.)
Additionally, it is important to mention that this research focuses on the implementation process in small to medium-size enterprises (SMEs); which are, according to the European Commission (2019), companies that range from 10 to 250 members of staff, and that have turnover from two to fifty million euros. Pearce et al. (2018, 95) discussed in their research that even though SMEs have the advantage of being smaller structures, and that the initiative could permeate faster throughout it; the implementation strategies for SMEs are not abundant, and research on lean implementation in SMEs is limited. Ulewicz & Kucęba (2016, 19) have deepened the knowledge about problems related to the implementation of lean in SMEs through their research; where 65 different SMEs in Poland were involved, and their findings seem to indicate that one of the main reasons of problems encountered during the implementation of lean is related to a gap in communication between management and employees.

Some authors have recognized that leadership plays a key role in the lean implementation process; Achanga, Shehab, Rajkumar, and Nelder (2006, 466) analysed 10 manufacturing SMEs in the eastern parts of the UK, and found leadership among one of the most critical success factors for a lean implementation; to which they theorized that “leadership and management commitment are the most critical ones in determining the success of a lean project within the SMEs”. Additionally, Ballé, Jones & Orzen (2015, 26) have suggested that leadership is “one of the secrets to lean success”. Furthermore, it is mentioned that Toyota realized that having a good leader in each team within their company was essential to profit from their personnel’s output and expertise since a good leader was brave to face problems; creative to solve them, and had the skill to bring other team members along. Although a considerable amount of research has been conducted towards documenting lean implementation initiatives and their results in the industry; less attention has been paid to analysing the outcomes of a lean implementation in SMEs and how the implementation process affects their personnel. Therefore, the research for the appropriate leadership skills and guidance from management would be worth exploring; as well as the critical factors that condition the course of the implementation. Furthermore, to fill the literature gap; this paper will try to identify what are the leadership techniques that management have used to guide their personnel towards a successful lean implementation process.
2 PURPOSE OF THE STUDY, METHODOLOGY OF THE RESEARCH AND THESIS STRUCTURE

In this chapter, the acquisition of the information is disclosed and the explanation of the methods utilized in the development of this research are justified.

2.1 Purpose of the research

This paper was written to describe leadership factors that influence the success of a lean implementation strategy. Therefore, it is intended to reflect what are the most important aspects that a manager needs to consider to provide adequate guidance to the personnel during a lean implementation process. In other words, this paper tries to identify what are the leadership elements that influence positively the manager’s skills to be able to guide the personnel of a small manufacturing company towards a successful lean transformation.

2.2 Methodology

This secondary data study consisted on the systematic gathering of information from different sources containing theoretical and empirical data; the first part of this study consisted on the description and establishment of the definitions and concepts related to leadership; lean management and SMEs; the second part of the study contains a description of the empirical information obtained from observations made from real-life case studies. Followed by the third part of this study; where a comparative analysis of the theoretical and the empirical data takes place to ultimately establish the grounds for the results and findings described at the end of this research.

It is important to mention that the case studies analysed in this paper were obtained from published journals, they all had a case-study approach in their research methodology, and the data corresponded to that obtained from real-life manufacturing SMEs that implemented lean.

2.3 Thesis structure

To give a general idea to the reader about the composition of this thesis; a summary of each chapter is provided to illustrate the concepts that are discussed throughout this paper. This thesis consists of 9 chapters in total; the first two chapters are introductory to this thesis; establishing the background of this thesis, methodology and purpose of the research. From chapters three to five the theoretical grounds of this research are established. Followed by chapters six to eight; where information about the case studies analysed; furthermore, correlations with the literature review are discussed. Lastly, chapter nine discusses the conclusions reached by the author after the elaboration of this paper.

In the first chapter, the background of this thesis topic is described; a brief summary of how lean emerged in the industry is provided. The benefits of a lean implementation in a business are explained; along with the possible applicability of lean in the manufacturing SMEs context. Additionally, the critical connection between a successful lean implementation and the role that leadership plays in it is established.
The second chapter explains in detail aspects concerning the purpose of the elaboration of this research; the methodology that was followed in this study; and a summary of the structure of this thesis is provided.

In the third chapter, the definition of lean is established after the analysis of various definitions; where different elements of each author’s ideas are compared through the use of a table. Finally, a general definition of lean is provided by compiling relevant elements from the different sources discussed in the chapter. The fourth chapter discusses the lean theory; such as the origins of lean and the foundation of a lean business is disclosed by the explanation of the five lean principles.

In the fifth chapter, the theoretical aspects of leadership in relation to lean are portrayed. The concept of leadership is defined through the analysis of various experts’ opinions. The link between leadership and lean management is explained; previous research on leadership as a lean implementation factor is discussed; concepts such as transformational leadership, Kotter’s transformation model, and lean leadership are described. Also, critical leadership elements that influence the implementation of lean are specified.

The sixth chapter offers detailed information about the three case studies that were analysed in this paper. The characteristics of the companies that took part in the different studies are mentioned; the events that took place during the lean implementation of each company are described; focusing primarily on the leadership factors that influenced the success of each company case. Followed by the results obtained by researchers in each company.

In the seventh chapter, the elements of the literature review that emerged during the analysis of the case studies are mentioned. This correlation had the intent to cross-reference factors that emerged in both, the theory and in the case studies, and ultimately help establish the leadership factors that influence a successful lean implementation in a manufacturing SME.

In the eighth chapter, the results and outcomes that were obtained through the application of the methodology of this paper are discussed. Where seven leadership success factors in the lean implementation of SMEs are identified and described.

Finally, in the ninth chapter, a conclusion based on the findings of this research is provided; where the author of this paper elaborates about their findings, research limitations are stated, and future research ideas are suggested.
DEFINITION OF LEAN

In the business environment, the lean terminology is usually referred to a management style. Various authors seem to refer to this concept differently; therefore, five definitions were taken into account to reflect a broad range of concepts to analyse before a definition for the purposes of this paper is provided.

According to Plenert (2007, 146) lean is a continuous approach that systematically improves aspects such as quality; cost, delivery and safety standards in the production line. While at the same time, it focuses on the elimination of waste and improves product flow; thus, reducing the time that it takes for a product to reach the customer’s hands. Similarly, Sayer and Williams (2007, 12) define lean as a business strategy that focuses in customer satisfaction; by providing a product that the customer needs; delivered when is needed and in the necessary amount; at the right price while spending the minimum of time; materials, labour and equipment. Lean has allowed companies to be more efficient by reducing production time; lowering costs and increasing quality. King (2019, 7) on the other hand, sees it as a way of thinking that is characterized by a single approach; imbedded throughout a company; that focuses on adding value to the customer and eliminating waste. Byfuglien, Torstensen & Trolle (2012, 2), define lean as the idea to maximize customer value while minimizing waste, achieved through the active involvement of all employees. Lastly, Wright (2017, 17) simply defines lean as “Improving processes to ensure maximum customer value whilst minimizing waste through continuous improvement.” While elaborating that any lean definition focuses on the same key elements: customer value, minimizing waste and continuous improvement.

More than a few definitions have been proposed to express the extent of the lean concept. Some focusing on the means of achieving its purpose and others are limited to the essential elements that encapsulate the lean concept; furthermore, in an effort to evaluate the definitions and to cross-reference the elements that each author presented. A comparative table was made; as it can be seen from Table 1; which was used as a tool to ultimately establish the definition of lean for this paper.
TABLE 1. Comparative table of lean elements that compose the lean concept according to each author.

<table>
<thead>
<tr>
<th>Author</th>
<th>Improvement process</th>
<th>Value to the customer</th>
<th>Continuous process</th>
<th>Waste elimination</th>
<th>Better Quality &amp; Cost</th>
<th>Safe production</th>
<th>Speedy production</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byfuglien et al.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Employee involvement.</td>
</tr>
<tr>
<td>King</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Plenert</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Product flow</td>
</tr>
<tr>
<td>Sayer et al.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>Minimum time, materials, labour and equipment.</td>
</tr>
<tr>
<td>Wright</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

As Table 1 shows, is possible to observe that Plenert and Wright have a broad view of the lean concept in comparison to the other authors. After evaluating and cross referencing the components of each definition, there is a definite tendency to the observations of Wright, since the 2 most mentioned aspects of lean are “value to the customer” and “waste elimination”.

Finally, it was determined that for the purpose of this paper; the definition of lean will be understood as a firm’s ideology that is able to improve their processes in a systematic manner to eliminate inefficiency; lower cost, reduce waste and production time through the active involvement of all their personnel, while delivering a high quality product to the customer.
This chapter provides a description of the first time that lean was first observed as a production method; some details of this production style in the manufacturing context are discussed. Finally, this chapter ends with the description the principles that characterize a lean company.

4.1 Origins of Lean

The origins of this concept can be tracked down to the manufacturing firms; were generally speaking, the personnel are constantly seeking for ways to be more efficient and cost-effective by reducing waste along the production line and eliminating variation of the product; which consequently will result in the optimization of resources such as time; raw materials and workforce. The lean management model was first observed in 1988; when researchers of the Massachusetts Institute of Technology (MIT) analysed the international automobile industry and noticed that Toyota Motor Company showed exceptional scores compared to other companies in the industry. They appeared to produce fewer defects; had fewer employee accidents and needed less investment to fabricate their products. Furthermore, after closer evaluation, it seemed that Toyota Motor Company had an exceedingly methodical way to operate their production line; they had implemented protocols to optimize their processes and they have reached such a degree of refinement in their production line that they have managed to decrease their demand for resources significantly. Therefore, making Toyota especially cost-effective. Not to mention that their protocols prevented time-consuming occurrences such as accidents or errors in the production chain. Which eventually would increase production costs. (Sayer et al. 2007, 9-12.)

Furthermore, Toyota Motor Company seemed to be generating a smaller amount of waste; required less time to manufacture their product and had a high-quality yield of production. Possibly related to the implementation of protocols to ensure less variance in their product chain; therefore, generating less waste and consuming less raw materials. Consequently, the MIT researchers concluded that this company required "less of everything"; which led them to refer to Toyota Motors Company as a “lean company”; arguably giving a name to a series of practices based on the idea that is possible for a company to improve from within to adapt towards generating less waste, utilize fewer supplies and increase the production value. Nowadays lean management has become a relatively popular movement in big and small enterprises around the globe and the word “lean” has conceivably become a synonym of a high level of business proficiency. However, it is fair to mention that and even though high-efficiency practices have been implemented by numerous firms in the past; the concept of lean became the point of convergence to these practices. (Womack et al. 2007, 22-24; Sayer et al. 2007, 9-32.)
4.2 Lean principles

Lean companies have five core principles, which are the foundation of this ideology, and are described in the following points below, followed by a visual representation of this principles at the end of the chapter in figure 1.

4.2.1 Focus on providing value to the customer

In the lean terminology, value to the customer is generally referred to the qualities that a product or service possesses that makes it more desirable for the customer to purchase it. This concept of value relates directly with a deeper understanding of who the customer is; what do they value in a product or service and why do they value it. Consequently, these notions will help the business visualize their production line as a series of steps that prioritize what the customer desires in the product. According to the lean methodology, most of the times there are 3 types of processes that take place while generating a product; the essential processes, that contribute directly to the development of the product; the inessential ones, that can be eliminated from the production line and finally the processes that have to be done to abide by the laws and regulations, but that doesn't affect the product's development directly. Once this processes are categorized; the evaluation team will be in a position where they can direct their efforts towards eliminating the unnecessary steps; improve the essential steps of the production line to enhance those qualities within the product that the customer seeks and finally, reduce to the minimum the necessary steps that need to be performed for legal or bookkeeping purposes. Furthermore, the literature suggests that this principle is not only confined to the production line of physical objects; this principle also can be applied to the delivery of services to the customers as well, and most importantly, it can be implemented to the way the personnel functions within the organization. (Rich, Bateman, Esain, Massey & Samuel 2006, 14-15; Black, Miller & Sensel, 2016, 10-12.)

4.2.2 Analysing the Value stream

A value stream in the lean context refers to the visual representation of the life cycle of a product or service; from the delivering of the raw materials until it reaches the hands of the customer. Usually drawn with one direction and with most certainty placing the customer at the end of that stream; this can be as simple as a drawing or as complex as a flow diagram.

The literature reviewed frequently compares the value stream to a stream of water, hence the name, where the water, that is, the product, flows through a series of processes that can cause obstacles and deviations to it until it reaches the customer's hands; In time, with the careful evaluation of the value stream, it will be theoretically possible for management to identify obstructions and deviations in the production line and eventually find means to eliminate or minimize them; this process of deliberation from behalf of the management team is referred as the “how” element in Lean, which will consequently allow the product to flow through the production line with efficacy. This lean principle is particularly useful for repetitive processes that occur in a firm, and it can be applied to not only to
firms focused in delivering a physical product but also to service-oriented companies, such as healthcare. (Sayer et al. 2007, 29-30; Rich et al. 2006, 15).

4.2.3 Maintaining flow

Generally speaking, flow is a term used by lean management to describe the constant and smooth completion of the activities that take place in a business; furthermore, it has previously been established that firms perform tasks that are essentially composed by a series of steps that are completed in sequential order to deliver a result; where step one is followed by step two and step three is followed by step four, and so on. Moreover, maintaining flow refers to finding ways to ensure that those processes occur immediately one after the other or within a short period of time; which in turn will allow efficiency to increase by shortening the waiting time in between steps and thus reducing the time that it takes to complete the task altogether (Sayer et al. 2007, 30-32; The lean workshop 29-02-2016).

4.2.4 Pulling through the system

It focuses on matching the production volume to the level of demand of the customer. This applies to a greater degree to businesses that manufacture products; for example, in the automobile industry it has been proven to be beneficial to have fewer products ready to be sold and manufacturing more of them according to the customer’s demand; as opposed to producing vast amounts of product that will require for the firm to store large amounts of materials in costly warehouses; as well as investing in large storage spaces to house the finished product that is stationary waiting to be sold. Given the points mentioned above; the advantages of managing a smaller and more cost-effective volume of materials and products outweigh the risk of depleting materials or emptying the product’s stock. Additionally, it appears to be that it is a common practice among lean companies to have a certain reserve of materials and products to buffer their supply in the event of a delay in the delivery of materials or a spike in demand of the product. (Sayer et al. 2007, 34; Wright 2017, 79-95.)

4.2.5 Perfection and continuous improvement

The starting point of this principle consists of maintaining the level of quality in the product or service that the customer appreciates. However, Wright (2017, 33-34) has indicated that the search of perfection in a product needs to be assessed and modified constantly; which occurs possibly as a consequence of the constant change that manifests naturally in the market. Over time, the customer’s expectations of the product will most likely change; therefore, actions such as product improvement; experimentation, innovation and customer’s feedback are most likely to be reliant measures to remain competitive in the market and engage to the customer in long-term basis.
4.3 Summary

In short, lean's five principles are arguably the foundation of the lean ideology. They most likely emerged as a result of the efforts of the Japanese car manufacturing industry to remain competitive in the international market. The lean principles essentially help increase the productivity of the company while focusing on the customer; additionally, they aim to simplify processes; find the right balance between production and product demand. While at the same time, they emphasize a policy of continuous improvement, which means that over time, the firm needs to adjust to the market changes and the customer's needs. Besides, these principles are not only applicable to the car manufacturing industry, thus, many different types of industries can also benefit from the application of this principles. Figure 1 shows a visual representation of the five lean principles discussed in this subchapter.

![Figure 1. The five lean principles.](image-url)
This chapter aims to define the concept of leadership by describing the views of various authors. The link between leadership and lean is addressed and in addition to this, the concept of transformational leadership is examined. Furthermore, a description of the leadership factors that influence a successful implementation of lean are enumerated; all of the factors mentioned are based on information found from sources like literature and studies regarding about leadership and lean implementation. Some of these factors discussed in particular include notions; such as understanding the employee as an individual; as well as bringing insightful information about the employee's cognitive functioning to be able to increase leadership efficacy. Kotter's change model and its role in the leadership of a lean initiative is explained in detail. Lastly, a summary of the points discussed in this chapter is provided with the closing arguments of the writer of this paper.

5.1 Leadership

Leadership has many definitions and styles but one conceptualization provided by a GLOBE study (2016) seems to be widely accepted by many authors: “the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and success of the organizations of which they are members”; which was the result of a statistical survey of approximately seventeen thousand managers in sixty-two cultures. Paine (2016, 9-10), defines leadership as “a process of influencing the attitudes and the behaviour of individuals and groups/teams, to get things done and reach organizational goals”. Tracey (1994) on the other hand, explains that Leadership in the business context branches out as one of the functions of human resources. That has the intent of approaching the human element of the organization to make the most of it; characterized by the role of authority and decision making but also by flexibility; focus on the people and goal-orientation. It is important to mention that this branch of human resources cares for the personnel; plays a role of motivation, influence, and persuasion; while at the same time, it communicates the mission of the company.

According to Szczepańska-Woszczyńska, & Kurowska-Pysz (2016, 66) leadership plays an essential part in implementing and maintaining long term strategies in SMEs. In their study, where they collected data from 300 SMEs; it was found that leadership scored to be more important than employee approval and personal believes in the workplace. Additionally, it is specified that managers with adequate leadership skills are an important catalyst to promote changes in the personnel’s way of thinking; they also reached the conclusion that managers play an important role in leadership; by identifying the company’s values and shape the work culture; while at the same time, identifying problems along the process to ultimately reach the company’s goals. Szczepańska-Woszczyńska, & Kurowska-Pysz also mentioned that for an adequate leadership; managers must be competent and sincere; inspire the personnel through personal and professional aspects; be authentic, reliable and have problem-solving skills.
Furthermore, Burawat (2019, 1015) fills the gap between lean and leadership with the discussion that even though there is not much literature about the influence of different leadership styles in lean practices; their findings seem to suggest that a transformational leadership approach is the most suitable for success in lean implementations. Similarly, Bass and Riggio (2006, 5-12) specify that transformational leaders do more than exchanging agreements with colleagues since their behaviour is fuelled by the desire to achieve superior results; furthermore, the transformational leader is characterized by four main core components, which are:

1. Influence and charisma: Where the leader becomes a role model to the followers and they admire their behaviour and attributes such as capabilities and persistence.

2. Inspirational Motivation: Enthusiasm and optimism are displayed and the leader gives meaning and challenges the follower’s work.

3. Intellectual simulation: Challenges the followers to think differently, encourages the use of creativity to solve problems.

4. Individualized consideration: The leader is aware of the individuality of their followers and addresses it by supporting them, listening to their concerns and helping them grow.

Additionally, it is the view of Ballé, Jones & Orzen (2015, 27) that decades ago; leadership most likely meant achieving change by fear and force. However, in the present day; lean leadership approaches the challenge of delivering results by letting the personnel choose to follow the initiative by their own will; mostly by listening to their concerns and making the workers realize that lean will work to their benefit. Similarly, lean leadership aims to strengthen the relationship between the employer and the employee. Where the manager listens to the worker’s point of view since workers are the ones that are familiar with their everyday tasks and they will be the ones working towards the improvement of those processes; therefore, is critical for the employees to speak their mind for the benefit of the company. Furthermore, Pullin (2005, 31) elaborates that lean leadership is about mentoring and coaching. Where the people are guided through the steps that they need to accomplish by giving feedback and without confrontation. Additionally, Cook & Grassè (2001, 111-114) mentioned that the lean leader requires to have a deep understanding of the tasks that take place in the business and also a deep understanding of the lean transformation.
5.2 Outsourcing the lean initiative

The lean implementation is a process that will affect all the company; therefore, many authors seem to agree that the best course of action is to find professional help to increase the chances of success of the implementation initiative. The terminology for a lean professional is undetermined but lean sensei, lean facilitator and lean master seem to be terms used by different authors to refer to the lean professional. Additionally, it is important to bring to the reader’s attention that there are no official lean credentials for a lean professional; therefore, it is important to consider aspects of potential prospects such as background, previous training, experience and so forth. (Sayer et al. 2007, 246-248; Rich 2006, 155; Plenert 2007, 152-153.)

According to Sayer and Williams (2007, 247-248), the active involvement of the company’s managers and supervisors are required; with the purpose to learn the leadership skills to guide their employees through the implementation process. The general tasks of the lean facilitator are first, to kick-off the lean initiative in the organization; teach the lean principles; to be an impartial presence in the company; guide the lean implementation and finally to tailor a course of action for the organization; based on their specific situation and needs. Eventually, after the initial phase of the implementation process; the responsibility to continue the lean implementation; leading and motivating the personnel to maintain the change will fall on the shoulders of the personnel in managerial positions. Finally, the encouragement form behalf of management will certainly play an important role in the lean implementation; for instance, apart from leading by example; sometimes management will need to remind the employees the way things are done under the new lean-approach. Since essentially, from a behavioural point of view, humans need reinforcement of certain behaviours for them to become habits. (Mann 2009,15-17.)

5.3 Leading change, Kotter’s change model

The Relevance of the mention of this model is because it fills the gap between the concept of leadership and the know-how of leading an initiative. Additionally, Kotter’s change model has been widely discussed in lean literature. For instance, Plenert (2007, 148-151) recommends this model in his book: “Reinventing Lean: Introducing Lean Management into the Supply Chain”; where he mentions that “you can either manage the changes or you can let them manage you”. According to Kotter (2007), the success of the efforts to transform a company is affected by the leadership skills of management, since it is the viewpoint of Kotter that basically all leaders can be managers, but not all managers are leaders; therefore, the personnel in charge of managing people must acquire the leadership skills to ensure that the transformation initiative becomes effective in their business.
Based on his observations; he identified 8 steps that helped the managers lead a company’s transformation, and inspired on the 8 steps; he was able to design a transformation model. Also known as “Kotter's change model”; as can be seen from Figure 2; which has had significant success among the companies that followed it. Though the application of his model; Kotter himself have worked and helped companies like Ford, General Motors (based in the US) and British Airways become better competitors. Additionally, as it was mentioned earlier, his work has been cited in numerous academic papers and books; including lean literature.

His transformation model consists of the following points:

1. Establish a sense of urgency: It refers to communicating to the company’s personnel the need to change and improve by giving concrete facts about the company; like competitive status, the constant evolution of the market; innovation strategies of the competitors; revenue opportunities and so forth. Consequently, making the employees grasp the sense that improvement is needed.

2. Create a guiding coalition: Ideally, the managerial positions of the workplace would be a unanimous force; convinced and committed to the practice of the change initiative; leading by example and influencing change among the employees. However, in reality, it is mentioned by Kotter; that sometimes not all senior members of staff will be convinced by the initiative and most likely will not follow it, but it is a positive thing if the majority of the managerial positions within the company find the initiative useful and practice it.

3. Creating a vision: Consists of the task of the leading party of the implementation to communicate a comprehensible portrait of the company’s future situation after the transformation takes place; which will unify the efforts of the firm and also help all of the members of the company to focus on the big picture of what is intended to be accomplished as a whole. Kotter also mentions that the vision can be revisited in the near future, and by then, become a more concrete set of goals that have been achieved.

4. Communicate the change vision: To portray a vision in a weekly meeting is not enough to inspire and influence the personnel. As it has been mentioned earlier in this paper; managers must lead the change by example; also by communicating the vision of the company through many channels. For instance, through casual conversation with the employees; giving practical examples and by essentially representing the vision of the company as they go throughout their day.

5. Empower broad-based action: Part of leading the change initiative involves overcoming the obstacles that block the progress of the initiative itself. In some cases, it could be beneficial to approach members of personnel that are still not convinced
with the strategy and try to show the benefits of it. In contrast, in other cases, the business structure needs to be modified over time to align it with the company’s new vision; additionally, encouraging creativity and innovation to overcome obstacles along the transformation process is important. The execution of these actions aim to show consistency throughout the firm, and also to reinforce the initiative's validity.

6. Generate short term wins: Avoid to plan the implementation strategy to reflect the long term goals only; establishing concrete short term achievable goals is highly recommended to ultimately encourage and motivate the personnel; thus, creating the ideal conditions for them to reach the target. Another point mentioned to further motivate the employees is to reward their efforts through the use of reward systems.

7. Consolidate gains and produce more change: Improvement is a constant process and after an extended time; it is important for the leading party to use the credibility of the initiative from past successful projects to motivate bigger changes within the firm and create new goals and strategies. It is important to remember that even though the implementation has been successful; improvements need to take place to adjust for the changes in the industry; which are aspects that go beyond the control of the firm but that need to be considered.

8. Anchor new approach: Since the change strategies take a long time, it is important to revise it over the years; make sure that the new work culture has been embedded in the firm consistently; similarly, measures towards recruiting and training the new generation of managers that will be leading in the future becomes an essential element to maintain consistent improvements in the future.

A dynamic perspective of Kotter’s change model can be seen below in figure 2; which reflects the main points that were discussed in this subchapter.

FIGURE 2. Diagram of Kotter's Change Model (Kotter 1995.)
5.4 Understanding the dynamics of change in the individual

The general understanding of how an individual reacts to change in their environment could shed some light on how the employees will react when they are made aware that a lean initiative will take place; and that this initiative will most likely translate to changes in their work environment. Additionally, the awareness of the implications of change in the personnel will help the managers know what to expect and how to use their leadership skills to ensure a smooth lean transition.

Change can be a positive or negative experience, depending on either if the individual had control over the change or not. Change is more likely to be a positive experience when it is a course of action decided by the individual, for instance, purchasing a new house; whereas it can have a negative connotation when it is imposed on the person, for example, being asked by the doctor to eat healthily. In most cases, when the logic that led to the change doesn’t belong to the individual; the motivation to make the change is very little to none; therefore, a person that is asked to make a significant change at work; will most likely have a difficult time executing and maintaining long term changes in the work environment. Another relevant aspect that influences the perception of change is undoubtedly the personality trait of the individual; therefore, it would be safe to assume that in the work environment; the change into a lean policy will inevitably trigger a different reaction in each member of staff, and just like some people could be excited; others could experience doubt; fear, uncertainty or even anger. To embrace change is important to give some time to the personnel to process the new information. Also, is important to encourage the inner dialogue with themselves and ask some questions; for example, how are they personally with this change? what could potentially prevent them from fully participating in the lean implementation? how ready are they to invest time and energy to immerse themselves into this new practice? (Sayer et al. 2007, 227-234; Mann 2009, 17.)

Most people feel uncomfortable with the uncertainty of change and they will take a pessimistic approach to it; however, is important to remember that pessimism to a new situation is a form of protection to ambiguity; and to overcome this obstacle; they have to try to feel comfortable with this change and make an effort to let go of the past. On the other hand, from the employee point of view, a change of management style might generate some confusion; and to shed some light in the situation is important for the employee to be interactive with the implementation team and/or with management; by asking questions; clarifying what is expected from them; hold themselves accountable for their emotions and actions and, to remain positive during this process. Finally, closure is very important for every person and the lean approach encourages certain practices that can help the personnel to find closure from the old management style in the workplace. For instance, taking before and after pictures of the office space, or having some informal reunion to mark the beginning of something new; these are only a few examples of a ceremonial retirement of the old practices. (Sayer et al. 2007, 231-249; Näswall, Hellgren & Sverke 2008, 3-5.)
5.5 Understanding the employee’s Perception

An important factor to take into account is the individual’s perception; which relates to the employee’s internal dialogue and their ability to familiarize themselves with the Lean concept. First of all when disclosing the lean implementation strategy for the first time; it is important to remember that the employees main concern is related to how this strategy is going to affect their work; and if they are going to continue to have a job or not; so, by following the employee’s reasoning it would be most adequate to address the employees’ concerns and appeal to their worries before initiating any attempts to describe the technicalities of the lean management strategy (Sayer et al. 2007, 229-230).

According to Dewar & Keller (2009), research in social sciences demonstrated that eighty per cent of the manager’s message doesn’t tap into eighty per cent of the employee’s motivation to follow through the change initiatives. Therefore, is crucial for a successful leadership strategy to explain thoroughly the implementation process; avoid overwhelming the personnel with too many technicalities at first and to motivate their change capabilities. Additionally, is important that the employees are aware that they are going to be directly involved in the betterment of the company and that changes will be made based on their suggestions; which consequently will make them more likely to follow through the lean process.

5.6 Understanding learning styles

Before immersing the employees into the lean concepts; is important for management to understand their audience. For instance, the literature denotes that it would be useful to try to understand and identify individual learning styles among the personnel; to know whether they learn by seeing, hearing, conceptualizing information or by practice. In other words, either if they are visual, verbal, logical or kinesthetic learners, respectively. Once each member of personnel is aware of their learning style; learning material in all the different learning formats will need to be produced. To essentially, send the same message through the different learning style channels with the hopes that the lean message will be assimilated. Personnel with visual and logical learning style could benefit from informative videos; verbal learners could take part in a discussion group; in contrast, kinesthetic learners could benefit from a practical demonstration of the tasks they are expected to do and so forth. Additionally, the literature mentions that the learning process will happen formally and informally; formally, by the presentation of concepts or workshops, and informally by actions performed in the workplace; such as mistakes and interactions among the personnel. (Sayer et al. 2007,234.)

5.7 Anticipating resistance to the implementation and negative reactions

During the start of the implementation initiative; the leadership skills of management will most likely be tested. Some people will be ready to welcome a fresh approach to the work activities; but in contrast, there will also be some other members of staff that would want to continue working the same way they have been working before the implementation. When a change occurs in a person’s life; inevitably, they will suffer from a certain level of stress; which in all likelihood will bring a certain
level of resistance within the business and it will be possible to identify a lack of faith or perhaps sarcasm among some of the employees. Furthermore, some of the indicators that show that the personnel are having a negative reaction to the change initiative; include emotions like anxiety, tension, frustration, anger or tiredness. Nevertheless, it is important to mention that certain level of resistance to change is a part of the process; and it is the task of the leader of the initiative to guide and inspire the personnel to overcome these obstacles. Some approaches to cope with stress in the workplace; mentioned by the literature, included aspects such as ensuring that the personnel feels valued and make sure that their concerns are heard; organize recreational activities in the workplace, and finally, make sure that the employees can walk away and distance themselves from the situation if they start to feel overwhelmed at any point in the implementation process. In contrast, some of the members of personnel will remain positive and will welcome the change. (Mann 2013, 17-18; Näswall et al. 2008, 11-12, 235-242; Sayer et al. 2007, 228-230)

5.8 Reinforcing leader-follower communication

Gemba walks are a lean leadership tool that can be used by management to narrow the gap that exists between manager and employee; which consist of daily visits to the area where the business operations take place; by taking a walk and by observing the tasks and processes being carried by the personnel; a great opportunity is provided to interact with them; providing a suitable situation to ask questions and listen to their point of view. Consequently, the employer-employee relationship strengthens, the communication gap disappears and the possibility for employees to report on existing challenges and possible solutions to tackle in the near future (King 2019, 156-157).

5.9 Summary

The literature has described that the personnel plays a great part in the success of the lean implementation in a firm; therefore, is important that the company ensures that enough resources are invested towards teaching the personnel the lean ideology and applying adequate leadership skills to guide them. Similarly, the lean implementation process is complex and apart from involving theoretical and technical skills; it also requires social and leadership skills to guide the personnel in the right direction. It is the suggestion of the literature to consider getting external help from lean experts; since their expertise and skills could potentially facilitate the lean transition process. On the other hand, a manager of the company can undertake the lean implementation initiative; however, the lack of practical experience could hinder the success of the lean strategy.

Leadership in the work environment refers to the process of influencing the personnel to achieve the company’s goals; where the leader is perceived as an authority with flexibility; personal and professional competence. Functioning as a link between a firm and the employees; by helping the personnel grow and the company achieve their goals. Additionally, to influence change among the personnel; the leader needs to have adequate leadership traits. For instance, the lean leadership approach seems to exhibit traits corresponding to that of the transformational leadership; similarly,
some authors have found that the use of transformational leadership has proved to be the most suitable approach to execute during the lean initiative.

Another relevant leadership factor to consider in a lean implementation is to understand the employee as an individual; particularly the cognitive process that the individual experiences when facing a new situation, since the personnel of a company that is undergoing a lean transformation are in essence; individuals facing a change in their environment. Therefore, to be able to provide the guidance that they need; is important to approach them in a way that they will be inspired to listen; ultimately influencing their behaviour in a way that will help the firm achieve the lean goals. It is the opinion of the writer of this paper that lean leadership is ultimately trying telling the personnel how to think, as opposed to telling them what to do. Consequently, allowing the personnel to adjust their behaviour in their workplace based on the lean way of thinking. Additionally, Kotter’s change model could be a useful leadership tool to apply because it has the potential to make a positive impact to the lean implementation strategy; since this model consists of a process that begins with creating the awareness of the need for change in a firm; explains in detail all the steps that need to be put to action to ensure a profitable leadership strategy in long term basis, and ends with the eventual need to recruit a member of management that will continue the change legacy; which resonates consistently with the constant improvement in long term basis that characterizes lean. Kotter’s model also offers tools to keep the work morale high by reminding the personnel about past achievements and future success; and lastly, it helps members of the company to keep their eyes on the target by allowing them to visualize where the company stands in a given time and where the company is going in the foreseeable future.

Finally, is rather important for the people that is leading the initiative to be prepared to face some obstacles along the lean implementation; aspects like resistance to change negativity towards the initiative from behalf of the personnel and possibly the need to modify the company’s structure will eventually manifest; even during the most thoroughly planned strategy. Therefore, the leader of the lean initiative must be aware of possible obstacles that could emerge during the initiative; as well as the expertise to be able to help the personnel cope with stress in any of the case scenarios. Some examples of the possible solutions to some problems mentioned by the literature; include approaching individually members of personnel that are struggling with the lean initiative and hear their concerns; to be somewhat persistent to the employees to reinforce their new work culture; organize recreational events for the personnel and reminding to every member of the firm that they always have the option to walk away from situations related to the lean implementation that might be overwhelming to them.
6 CASE STUDIES

For the elaboration of this paper; apart from the literature review; it was decided to include the information of empirical case-study based research from real-life SMEs that implemented lean; to describe the events that took place in each case company; while focusing on the leadership context throughout the development of each study.

6.1 Case study 1 Comparative study of two small manufacturing companies in New Zealand

According to Pearce, Pons & Neitzert (2018, 95), this study has a multiple longitudinal case-study methodology. Where 2 different lean initiatives were applied to 2 different SMEs; additionally, the researcher was embedded in the SME as a lean implementer for a fixed amount of time; working 30 plus hours per week; the research was looking to answer the causes of lean success and failure. The focus of the study consisted of two small manufacturing companies in New Zealand; both were eager to implement lean management principles and they would also allow the researcher to take an active role along the implementation process. The study took a situational approach, hence the different time frames and implementation strategies among these two firms.

6.1.1 Company A

Consisted of a precision engineering jobbing firm struggling to thrive in the industry. With highly specialized workers; amounting for a total of 18 members on personnel. The main goal was to increase productivity by implementing a lean management strategy. The problems identified by the research team included poor operational planning; over expedition of invoices for cash flow; great efforts on marketing for sales and low efforts to make the production more efficient. The company has also faced an increase of personnel from 5 to 18 members in 5 years; which had created distance between workers and management. (Pearce et al. 2018, 96.)

The implementation process started with management delegating the responsibility of the lean implementation to the workers. Two members of staff were trained in a two-day lean course and the rest of the staff members were educated about lean practices through videos. The implementation process was followed by the presentation of the company goals verbalized by management. Despite the efforts from management; the observations from the research team detailed that the workers’ opinion on the initiative was poor; consequently, an insufficient amount of progress was achieved. (Pearce et al. 2018, 96-97.)

Monthly meetings were held but they lacked structure and practical applications for the development of the initiative. Additionally, personnel’s resistance increased; they began to feel indifferent towards the initiative and as a consequence; some members of staff resigned partly due to the difficulties encountered during the implementation strategy. On the other hand, the remainder of the personnel began to appreciate the benefits that the initiative offered. It was mentioned by the researchers that some members of staff opposed to the lean implementation changed their minds about it and learned
to see the advantages of the lean strategy since it helped improve their workflow. Lastly, they began to see the applications and the possibilities that a lean culture could offer in their work environment if implemented adequately. The outcome of this particular case study was regarded as a failure from behalf of the investigation team; which concluded that the cause of the failure of this strategy could be traced back to the lack of expertise from the management team; which in spite of their good intentions; were lacking, not only understanding of the lean concept; but also, the persistence to encourage the personnel to be consistent in their lean practices to cross the resistance phase generally encountered during the beginning of the implementation. (Pearce et al. 2018, 96-97.)

6.1.2 Company B

This company case consisted of a manufacturer of customized products for the construction industry. With 20 members of staff; the company had standardized production process, a stable cash flow, as well as a frugal work culture. Company case B integrated Pearce (the researcher) as a “change manager” to implement the lean initiative for the extent of the investigation. The implementation plan was divided into two stages; the implementation stage, lasting 11 months and a follow-up stage lasting 13 months. Based on the situational approach in this study it was a detrimental factor for the change manager to have ample knowledge of the lean implementation strategy as well as a good understanding of the company and its operations. (Pearce et al. 2018,96.)

First, the change manager familiarized in-depth with the lean implementation process before thoroughly evaluating the firm's operations; to elaborate an action plan adequate to the situation. Only after the mapping of the basic processes and the assessment of points of improvement; the change manager was able to find gaps in processes; as well as beginning to devise solutions for them. Such was the case of the branch of purchases and logistics. Generally speaking, the implementation plan roughly consisted of the standardization of practices and information flow. Additionally, is important to mention that the steps towards the implementation process were carefully planned. Senior team members were educated about lean thinking; they were taught to build positive habits through standard work and how to keep staff engagement during the implementation of the initiative.

Once senior members owned enough knowledge on the concepts mentioned above; the training process began for the employees. Through 15 to 20 minutes long weekly staff meetings; they were able to learn about the lean concept; a culture of continuous improvement and their crucial role in finding solutions to the firm’s challenges along the implementation process; they were also encouraged to express concerns to the managers and they were appointed by the firm as “improvement engineers”. Only after all the personnel throughout the firm had studied the lean principles; the implementation process continued to the next step; which involved working with members of staff to find solutions to the problems that they observed in their respective workplaces. Which consequently allowed to this implementation strategy to profit from personnel's engagement and employee initiatives. At the beginning of the initiative, management was hesitant to discuss improvements with the personnel at the workshop; since they struggled to understand that they had a level of expertise worth exploring and therefore; discussing improvements with them would prove
beneficial. On the other hand, it is important to mention that management was able to monitor the improvements that were carried on through Gemba walks; which narrowed the distance between employees and managers and allowed communication to take place during the initiative. After a few meetings, employees were formally registered as “improvement engineers”. A formality that required the signature of a contract specifying the job title’s description; consequently, the official nature of the contract, and the official recognition of the training that the employees received strengthened the seriousness of the initiative; gave a sense of identity to the personnel; which implicated certain level of responsibility, and lastly, they obtained a qualification that they could add to their resume. Throughout the implementation process; resistance to some lean initiatives was found; besides, a flaw on the training on the management team was exposed. This flaw took place after the basic training process; where they were trusted on extending their knowledge in the lean field by reading a book about lean management to deepen their managerial capabilities; which had the consequence that not all management members read the book and not all of the ones that red it were inspired by it. (Pearce et al. 2018, 96-98.)

Pierce (2018, 95-98) concluded that emphasis on a certain level of persistence from management team is required to counteract the resistance to change. In the case of company B, they encountered what they described as “compartmentalization opposition”; specifically, in the accounts department, which had a difficult time understanding that the improvements that take place will arguably benefit the firm as a whole; as opposed to making changes towards the benefit of a single department. This situation was aggravated by a sense of seniority based on age and perceived work experience from behalf of the personnel of that department. Finally, is important to indicate that according to Pearce, the time spent in the company totalled eleven months; where six months were dedicated for process analysis and initiative design. During the five remaining months the implementation strategy took place; and after that time, it was agreed that the office manager would fill the position of the change manager. However, the nature of the research raised two additional concerns: whether if the time frame that the change manager was present was enough; since some sources seem to indicate 3 years to achieve a sustainable lean culture; and the second point of concern was the level of expertise from the change agent; which lacked confidence and clarity during the implementation initiative because of the lack of experience in lean implementation strategies.
According to Majava & Ojanperä (2017, 43-45), they based their research in the case-study methodology; where data was collected through observation; access to the company’s data system and conducting semi-structured interviews with the personnel. The case company was located in Oulu, Finland, focused in importing and manufacturing paint and surface finish products. It employs around 20 people and deals with a seasonal demand of 50% of its sales taking place between May and September. The study documented the development of the lean implementation plan and the beginning stages of a lean implementation; concluding with the steps to take in order to achieve their goals. These goals consisted of creating a plan to achieve more productive and efficient production; where improvements are executed systematically; as opposed to solving short term issues and surviving. Additionally, as secondary goals they were looking to remain competitive in the local industry; create a feasible product portfolio; achieve continuous flow in their production line and improve their work force’s proficiency. The company seemed to have a production volume that didn’t match the demand level; which consequently elevated its costs and decreased its competitive advantage in the paint industry. Whereas their competition was innovating continuously; thus, threatening the survivability of the company.

The lean implementation was conducted by an external party; since the company didn’t have the expertise to carry on the project. Additionally, the firm was made aware of the possibility of resistance from behalf of the personnel since the early stages of the project; management recognized the importance of taking action by educating their employees in the lean concept; making efforts to communicate its benefits; while motivating the personnel throughout the process. (Majava et al. 2017, 43-45.)

Some of the waste found in this company was a long lead time, transport, overproduction, waste of employees’ competences and defects. The waste of employees’ competencies referred to the consequences of having highly specialized personnel; where the production flow would be compromised if an employee is absent. Consequently, it was decided to train the personnel in all areas of expertise and device a rotation schedule to avoid this thread. Finally, the development proposals were planned to be implemented; which consisted in product range changes; production layout modifications to benefit product flow; further training of the employees on the lean methods and the new work policy; and adopting a continuous improvement policy where every employee looks for ways to improve productivity and their well-being in the workplace (Majava et al. 2017, 43-45).

Majava & Ojanperä (2017, 47) indicate that during the implementation process; management understood the lean principles and followed the lean philosophy; specifying that the company’s management has a key role in the lean implementation. Additionally, it is mentioned in their findings that good leadership and management skills influenced directly the success of the planning and early stages of the lean implementation in the firm. It was further discussed that for adequate leadership and management of a lean implementation in a firm; the managers needed to demonstrate concrete results from the beginning of the implementation. The orientation process of the personnel should be
simple and with practical examples, as well as mentioning the importance of using the company’s strengths to their advantage. Throughout their investigation, Majava & Ojanperä seem to emphasize in certain aspects related to their research that they believe could benefit the implementation process in SMEs; such as the outsourcing of their lean initiative to professionals; the need for management to have enough knowledge not only form lean and the implementation process; but also a deep understanding of the processes that occur in the firm and finally; to account for a considerable amount of time to analyse the firm.

6.3 Case study 3 Empirical study on the impact of lean practices in Scottish SMEs

According to Antony (2012, 3), this research has a multi-level case study approach. Focused on studying 5 Scottish SMEs; where the data was collected through semi-structured interviews by taking 3 people to interview per company; while making sure that each of those 3 interviewees belonged to a different management level; thus, being able to gather information from top, middle and floor level management from each company. The study observed 5 companies that have already implemented a lean initiative; among them, 3 have succeeded in the implementation and 2 have failed in it. In total 15 people were interviewed, and each interview had a duration of 90 minutes to obtain detailed information about the lean practices that took place. The topics covered in the interview included quality initiatives and work culture issues related to lean implementation.

Antony acknowledged that even though not all of the 5 companies succeeded in their lean implementation projects; they all made significant improvements; reflected with higher efficiency in their production line and better product quality. Moreover, Antony indicates that a combination of quality control and employee’s satisfaction seem to have the most yielding effects concerning productivity and profitability. Lack of visionary leadership was the first reason appointed by the interviewees when they were asked about the reasons for the failure of the lean implementation. Similarly, Antony also considers the lack of visionary leadership a main reason for the lean implementation failure, since it seems that is a common denominator for small companies to lack the necessary leadership to envision long term sustained lean change. Additionally, each company seemed to have developed their interpersonal relationships as an added benefit of the lean implementation. Communication skills among members of the different companies improved; additionally, their capabilities in cross-functional teams also increased to different extents. It was found in this study, that almost all the SMEs in this study seemed to agree that external consultants helped to assimilate the lean knowledge, and also improved the company’s strengths. (Antony 2012, 5-8.)
6.3.1 Company A

Established in 1994, and specializing in the design and manufacturing of micro-electronics in the semiconductor sector with a focus on the European market. From 2008 to 2010 the number of employees working in this company reduced from 44 to only 10. The company was mainly struggling with pricing since they were trying to remain competitive with competitors from countries like China, Philippines, and Taiwan. The managing director was well informed about lean practices; still, they never implemented lean before. The company was looking to reduce waste and increase profitability through the lean implementation; the theoretical implications of a lean implementation well understood but, it seemed that the manager lacked the complete understanding of lean and the know-how of the lean implementation since is later mentioned that they didn’t have an implementation strategy and that quality systems are in need of being established. Company A was essentially lacking the understanding and the expertise to implement a lean strategy, therefore they failed the implementation process. (Antony 2012, 3-6.)

6.3.2 Company B

Specializing in manufacturing high-quality copper hot water systems; they were the only Scottish manufacturers of this product at the time of the study. Employing around 35 people. The company have tried to implement lean 5 years previous to the study and failed due to poor time management; lack of communication and conflicts in the floor level. However, the interview showed that they were ready to initiate a second attempt of a lean implementation but the different management levels didn’t share the same goals since they wanted to focus on improving different aspects. The management director wanted to focus on profitability and work environment; while production personnel wanted to focus efforts on reducing defects and increase quality. (Antony 2012, 4.)

6.3.3 Company C

This company is a recycled paper manufacturer. It has 154 employees and their activities focus on the recycling and manufacturing of paper and packaging. This company have implemented lean in their production line and in some broad level business operations; they had a new management director that considered important to implement lean throughout the company. They were struggling to maintain the lean improvements due to poor employee engagement. Additionally, it was revealed that other lean initiatives throughout the company have failed because the company did not exercise improvements continuously. They failed their efforts to maintain the changes that were made, and the new work dynamic wasn’t practiced long enough to become embedded in the work culture. (Antony 2012, 4-5.)
6.3.4 Company D

Company D, is a manufacturer of high-performance colorants that create new printing possibilities for digital printing, and it employs 130 members of staff. They have implemented and maintained lean practices for a few years, with success in 12 lean management projects in their past. It was appointed that some projects failed due to lack of resources and employee motivation. Also, other long term projects failed because the market changes occurred faster than the time it took them to adapt or change their lean strategies. Currently the company relies on a team that is accountable for monitoring the company’s projects which coordinates lean projects by undertaking one lean project at a time; they are responsible for the leading the projects; long term goal setting, and additionally, they look after an employee award system, and an employee suggestions system. They were very eager to improve mainly their efficiency, quality control and reduce their waste generation by implementing lean. Company D was able to reduce defects and their customer’s perception of the company improved. (Antony 2012, 4-5).

6.3.5 Company E

Specialized in manufacturing and engineering refrigeration products; it employs 75 people. This company started implementing constant improvement policies for 3 years before they started lean initiatives five years before the study took place; which makes them users of constant improvement practices for 8 years, and users of lean practices for 5 years. It was found that according to the production director; constant improvement practices were imbedded in the work culture, and also that they used external help to implement lean projects; where 4 or 5 people from a consultancy practice implemented the lean project with varying results; mainly attributed to a lack of understanding of the lean concept, and poor leadership skills to establish a strategy and a vision for the company from behalf of the senior managers’. (Antony 2012, 5-8.)
7 CORRELATION WITH THE LITERATURE REVIEW

The elements of the literature review that emerged during the analysis of the case studies are mentioned in this chapter, this correlation was done to further analyse the data obtained and as a way to cross-reference factors that emerged in both, the theory and in the case studies.

7.1 Case Study 1 Comparative study of two small manufacturing companies in New Zealand

Case A

The literature review of this paper seems to suggest that there was a lack of leadership in this company. Particularly a lack of transformational leadership discussed by Bass & Riggio (2006, 5-12), where the low morale and resistance to change seems indicative of the failure from management to inspire and influence the work culture. The delegation of the teaching of the lean concept to the personnel and the failure from management to provide practical information suggests management's unawareness of aspects such as personnel's learning styles mentioned in this paper by Sayer & Williams (2007, 234). The low morale of in the company during the initiative, the misbelief and the resignation of some of the members of staff aligns with the literature's mention of resistance to the implementation and negative reactions detailed by Sayer & Williams (2007, 228-230).

Case B

Through the implementer's initiative to self-educate in lean; Pearce showed competence in his work and by taking the time to deepen his knowledge of the processes involved in the company and by planning the lean implementation. Pearce was able to boost his problem-solving capabilities within the company; competence and problem-solving capabilities are 2 leadership traits that szczepańska-woszczyna & Kurowska-pysz (2016, 66) consider essential in implementing and maintaining long term strategies in SMEs. Additionally, the evidence seems to suggest that there were elements of transformational leadership in this implementation; described by Bass and Riggio (2006, 5-12) in the literature review; since Pearce made efforts to ensure that all levels of the company knew the lean concept and encouraged the personnel to air concerns to management. He was able to exhibit professionalism, but also a personal approach to encourage multilevel communication that resulted in a successful lean implementation. Another aspect of this case study that also was pointed out in the literature review is the fact that a certain level of resistance to change was encountered. A view that was reflected by two different authors: Mann (2013, 17-18) and Näaswall, Hellgren & Sverke (2008, 235-242); where is expressed that a certain level of resistance to change is a part of the implementation process.

This case study makes mention of the use of Gemba walks; which is one of the lean leadership tools to reinforce the employer-employee communications; mentioned by King (2019, 156-157) in the literature review; Pearce mentioned in his study that the Gemba walks have narrowed the communication gap between employees and managers; in addition to encouraging communication
during the implementation. The negative attitudes from some members of personnel resonate with the negative reactions acknowledged in this paper by Sayer & Williams (2007, 228-230); furthermore, it was possible to confirm Mann’s (2009, 17) behavioural theory in this case study, since it was mentioned that a certain level of persistence was required towards the personnel to reinforce certain conducts before they become a habit, therefore overcoming the resistance to change.

7.2 Case study 2 Development study in a Finnish manufacturing SME

Although this study only focused on covering the planning stages and the beginning of the lean implementation; it is possible to observe adequate leadership decisions from behalf of management, since it was decided to outsource the implementation initiative to experts in the field, but management had an active role in the leading of the lean initiative, which remains very consistent with Sayer’s & William’s (2007, 247-248) views regarding about outsourcing the lean implementation initiative; as well as Mann’s (2009, 15-16) thoughts on management and the active involvement that needs to occur to support, guide and motivate the company’s personnel. Another success factor observed in this case study was the awareness that management had about the possible resistance to change from behalf of the employees. Mentioned by Mann (2013, 17-18), Naäswall, Hellgren & Sverke (2008, 235-242), and Sayer & Williams (2007, 228-230).

Furthermore, the prioritization of educating the employees about lean practices and its implementation; apart from securing their well-being; could be interpreted as a great sense of responsibility from behalf of management and suggests a transformational leadership approach in this particular lean implementation; which reflects the views of Burawat (2019, 1015), when they proposed that a transformational leadership approach is the most suitable leadership style for implementing lean. Finally, in the lean implementation plan is possible to observe a good understanding of the lean principles, mentioned by Rich (2006), Black (2016) and Sayer & Williams (2007) in this paper, similarly, this company seems to have a good notion on how to integrate these principles to the work culture in the future, and even though there is no information about the change model that they utilized, is possible to consider the possibility that Kotter’s change model would have been one likely option to lead the implementation process further.

7.3 Case study 3 Empirical study on the impact of lean practices in Scottish SMEs

Company A

Despite showing awareness of the lean concept, the data provided by the study seem to indicate that a combination of the lack of knowledge of the lean concepts and strategies, as well as inadequate leadership approach, impeded this company to move forward in the implementation stages.
Company B

Company B showed evidence that there was an awareness of the lean ideology, but they lacked a deep understanding of it, and the know-how for implementing it successfully. It was mentioned that there has been a previous attempt to implement lean; where the cause of failure was attributed to poor time management; lack of communication and conflicts in the floor level. Upon further analysis of the causes of failure, it is quite likely that this firm was lacking the adequate change model and the vision to generate a concrete implementation plan, as it is mentioned by Kotter (2007) in the literature review. Secondly, the lack of communication seems to be associated with failure to implement lean tools such as Gemba walks; which according to King (2019, 156-157) are known to reinforce the communication channels among employees and employers. Lastly, conflicts in the floor level express a clear manifestation of resistance to change and negative reactions to the implementation; described by Mann (2013, 17), Sayer & Williams (2007, 228-230) and Näswall, Hellgren & Sverke (2008, 11-12) earlier in this paper.

In their current efforts to implement lean, the different opinions from management and floor level suggests that either the floor level is still resisting change; by ignoring management’s priorities and focusing on their own perception of what needs to be done; as it is appointed by Mann (2013, 17), Näswall Hellgren & Sverke (2008, 11-12) and Sayer & Williams (2007, 228-230) in the literature review. On the other hand, there is the possibility that management lacks the transformational leadership skills mentioned by Bass & Riggio (2006, 5-12); as well as the change strategy discussed by Kotter (2007) in the literature review; to communicate the general status of the company and make the employees see that management’s suggestion is a more viable option to prioritize.

Company C

This company was struggling to achieve the success obtained in the production line; where the lack of transformational leadership was failing to inspire the employee’s engagement needed to make the implementation succeed (Bas & Riggio 2006, 5-12). Based on the information provided in the study, is possible that they were lacking a change model; like the one suggested by Kotter (2007) from the literature review since the employees didn’t have a long term vision of the implementation. Additionally, is possible that management was failing to exercise persistence with the employees; as it is mentioned by Mann (2009, 17) in this paper, where it is emphasized that in the role of management persistence is key during the implementation process, since consistent reinforcement of the new work culture will result in the adoption of it.
Case D and E

Case D and E had implemented and maintained a lean approach in their operations for a few years at the time of the study; which suggests excellent leadership skills; even though is not specified the leadership approach. Another aspect to denote about these companies; is that they must have a well-planned and implemented change model; similar to Kotter’s (2007), where they can establish short and long term goals to continue to maintain the lean initiative in long term basis. Case D in particular; had a lean team exclusively focused towards the lean efforts; which add another layer of leadership skills to be able to guide management towards the adequate leadership of personnel; a situation that resembles the one discussed by Sayer & Williams (2007, 247-248), Rich et al. (2006) and Plennert (2007, 152-153) in the literature review; which suggests outsourcing of the lean implementation initiative. However, company D managed to dedicate an additional branch to a lean team; which is a fresh view of the lean approach, and suggest a very good understanding of the lean methodology from high management; justifying the resource allocation towards a full-time lean team in the workplace. Case E, on the other hand, stated that their practices were now embedded in their work culture; they were also outsourcing their lean implementation initiative by using an external lean consultancy firm to implement lean projects, as it has been discussed by Sayer & Williams (2007, 247-248), Rich et al. (2006) and Plennert (2007, 152-153) in the literature review. Even though is mentioned that they didn’t succeed every time; there is enough evidence to assume that they have the right guidance.

Is relevant to discuss that despite the success that company E has achieved over the years; it was expressed that some members of senior management weren’t entirely convinced of the lean initiatives. There is mention in the literature review of occasions when the management members don’t share the same vision; the implementation of the change model can encounter difficulties. Which resembles a point described by Kotter (2007), where he shows that theory and reality don’t always match and that in practicality, some of the leading positions of management will not adopt the new approach, and in those cases, there is nothing left to do apart from trying to ensure that the majority of managerial positions are in agreement. With the information previously mentioned taken into account, company E is a living example that despite the presence of different ideas from the leaders of a firm, it is still possible to achieve a lean implementation in long term basis.
8 RESULTS AND OUTCOMES

Based on the literature review and the analysis of the case studies; it has been established that the adequate use of Leadership in a business plays a quintessential role in the results of a lean implementation initiative. Furthermore, it is the opinion of the writer of this paper that for the most part; the leadership responsibility falls on the shoulders of management; in other words, the managerial positions that oversee the work of the employees are responsible for their leadership. Throughout the elaboration of this paper 7 leadership success factors in manufacturing SMEs were identified, which will be discussed below:

8.1 Transformational leadership approach

The company managers could benefit from the use of the transformational leadership model; to be able to lead their followers by inspiring them. Additionally, they should be able to deliver positive results by letting the personnel choose to follow the lean initiative; help them understand that the lean implementation will be beneficial for all members of the firm; make them aware that their opinion about their work matters; motivate them to achieve superior results and to be resourceful and creative in their work and problem-solving situations.

8.2 Knowledge

Managers need to have an ample understanding of the lean concept; the benefits of it and the practical know-how to implement it. Additionally, they must be very familiar with the processes that occur within the company from many perspectives, including the employee’s point of view.

8.3 Professional consultation

The lean implementation in a company is a complex process; where the best outcome would arguably require a certain level of expertise. The literature seems to recommend that professional help would facilitate the beginning stages of the implementation process; similarly, based on the case studies; the professional lean consultation was a common denominator in the company cases that have been to certain extend successful in their lean implementation; additionally, companies that failed the implementation have no mention of a professional consultation. Based on the points discussed earlier in this paragraph, and considering all the information found from the literature review and the data obtained from the case studies; there is no other option apart from concluding that outsourcing the lean initiative is a success factor that will affect positively the leadership capabilities of the managers in a firm.

However, is important to mention that professional help from an external firm does not imply that management can afford to step down from their leadership role; or to consider that the lean initiative is in “auto-pilot”. The short term presence of the consultation firm could bring serious consequences if management is not learning how to lead the implementation initiative on their own. This situation
could potentially backfire after the lean consultation firm is gone; more regarding this topic will be discussed in the following point below.

8.4 Avoid delegating the leadership responsibilities

Management has the responsibility to be involved throughout the implementation process. Actively learning the leadership skills from the lean experts, or from specialized sources to guarantee that the sufficient leading capabilities have been learned to guide the rest of the implementation process successfully. Additionally, management has also the responsibility to ensure that the lean ideology and lean practices are well understood and adequately practised by the employees in the workplace; the managers are directly responsible to guide and inspire the employees that are under their direct supervision. Through the case studies, it has been possible to observe that if an external firm is implementing the lean initiative; the company is tricked into a false sense of security since the proper leadership skills are provided by the experts; not by the managers. Positive results are observed for a short period of time, but, when the lean consulting company steps out, and the unexperienced managers step in; most likely lacking the leadership skills to encourage the personnel, and to work towards a long term maintenance of the lean practices; problems in the lean initiative might emerge, and as consequence; damage of the work morale could occur; making the employees doubt the effectiveness of the lean implementation and finally; failing to implement the lean initiative.

Another example of the delegation of leadership responsibilities occurred in one of the case studies. Management trusted the employees to grasp the concepts of lean and its implementation mostly through video learning material; which most likely resulted in incomplete learning of the lean process, and possibly the misunderstanding of the lean initiative; needless to say, the lean implementation didn’t succeed.

8.5 Know-how of leading the change initiative

The leading of lean implementation is very extensive, and the people that are in charge of making that change happen must have some leadership expertise in their skillset in order to succeed. Similarly, the person leading the Lean initiative must have the awareness that changing the work culture of a business is a long term process that requires constant efforts to reach goals and maintain the changes; Kotter’s change leadership model is one of the several leadership models that can be used to give structure to the leadership stages that will be carried on during the lean transformation. The literature and the case studies seem to suggest that the leading of a lean initiative can benefit from a long-term transformational leadership approach, which also describes Kotter’s model.
8.6 Understanding of the individual and their logic when facing change

It is important to approach the implementation from a human point of view too. The understanding of the employee's perception; as well as the insight on the ramifications that the individual experiences when they face change; should not be ignored, since it could help shed some light on how every member of the company is feeling, and the kind of opinions that they might have about the implementation strategy when they first hear about it.

Another important aspect to comprehend about the individual are recognizing the different ways people assimilate information and also the negative reactions to the implementation that are most likely to be found during the initiative; which will help the managers to be prepared in the event of facing a complication of the lean implementation, and also focus their leadership skills towards the personnel in a way that they will be more likely to respond positively to it; ultimately employee’s support and satisfaction is a priority in this approach.

8.7 Persistence and Consistency

In order to influence long term change in the employees and deal with resistance to change; a certain level of persistence and encouragement from behalf of management it is required. The literature mentions that some behaviours need a certain level of reinforcement before they become a habit, and the case studies seem to confirm that behavioural theory since in a few of the case studies there was evidence that leads to believe that some lean implementation projects failed due to a lack of reinforcement of the changes from behalf of the management team.
It has been established that the market in any industry is always changing, and a business regardless of its size ultimately needs to evolve to remain competitive in it.

Larger companies are perhaps more forgiving to changes in the market and definitely could benefit from implementing lean initiatives to benefit from their capabilities, but on the other hand, there are enough reasons to believe that a high-efficiency business strategy such as lean could help and maybe save a business from failure.

Additionally, based on the analysis of the findings during the elaboration of this paper, it is very likely that the leadership of the human side of a company is the most important aspect in the lean implementation process, which has been the centre point of focus in the writing of this paper, it is relevant to denote that for instance, machinery can be adjusted, budgets can be cut, processes can be tailored, but what does it take for the employees be successfully influenced toward changing the way they have been doing things in their workplace for the last few years?

With all likelihood, one of the main decisive factors for the success of a lean strategy is the leadership capabilities of the managerial positions in the workplace, furthermore, the leadership approach with which the manager coordinates the lean implementation efforts will affect the level of change in the work culture.

Transformational leadership has proven to be most effective for the implementation of lean, possibly because the role of the leader has little to do with giving orders and more to do with looking after their employees and inspiring them to follow the initiatives, it is the opinion of the writer of this paper that lean is a way of thinking, where the employers teach their employees how to think, as opposed to what to do, and in return, as a result of this cognitive process, the employees will tell their employers what to do to better the firm.

The positive outcomes coming from the employees that will lead to the improvement of a business is a result of various efforts and active involvement of the management team with the employees, aspects like teaching of the lean concept, understanding the employees in a personal level, and having the diligence to chart a clear path to success are just a few elements that will help direct the development of a firm towards a more efficient existence.

Another point to highlight about this paper is the limitation that it didn’t take into account the cultural environment as a leadership success factor because it is a possibility that the cultural context could influence the way personnel responds to different leadership styles since there is a connection between the Japanese work culture and the positive results that have been observed and documented since the lean concept emerged.
Another point that might have added more value to this research would be the development of an investigation with a case-study approach where different SMEs implement a lean initiative with different leadership styles approaches.

Among one of the good aspects of the development of this research was the fact that it was possible to analyse the results of a variety of company cases, from different manufacturing backgrounds and different locations in the world.

Finally, is important to mention that a firm working at peak efficiency is the holy grail of the business industry, and it is possible that by sharing knowledge of the practices that have been effective in the past and by adopting different tools from different approaches could prove to be useful and ultimately help optimize not only the leadership aspect of lean implementation but all the aspects that involve the successful implementation of lean.

Future research suggestions:

As it was mentioned earlier, a multi-case study that implements lean with different leadership styles could shed some light on what are the best leadership tools to implement lean in businesses in general.

Similarly, studies that increase the success rate of improvement initiatives should be addressed because it has a rather low success rate: 10-40% (Pearce 2008, 94), and it appears to be a key factor to be able to change the work culture and truly adapt it to the market’s needs.

Finally, the literature and the case studies analysed reflected that a large amount of time and effort need to be invested in the studying, planning, teaching and implementing of the strategy, but ultimately, these lean initiatives take place in workplaces, with people possibly working full time, and on top of their obligations as functioning members of a company, they are expected to take some extra time from their work hours to learn and apply the lean initiative, therefore, perhaps, future research could focus on the time that needs to be invested by the personnel to be able to grasp the lean concept and apply it proficiently to their workplace, and also it would be useful to have some perspective on efficient time management practices to help the busy employees administer their time at work competently since perhaps another leadership success factor could be to help personnel find the time to focus on the lean initiative.
ABREVIATIONS

SME: Small to medium size enterprises.

MIT: Massachusetts Institute of technology
REFERENCES AND SELF-PRODUCED MATERIALS


