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MBA

[Identify the Contributing Factors for a Sustainable Lean Apparel Culture in MAS Linea Clothing]

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By

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ABSTRACT

The main objectives of this research was to identify and discuss the critical success factors for sustaining the lean concept in the MAS Holdings and to analyze the gap between the existing cultures of apparel manufacturing organizations and the acceptable lean culture.

When identifying the contribution factors for a successful lean apparel culture, first of all, it has identified that the human resources play a vital role. Understanding how complex human beings are and understanding the contribution of them to sustain such a system is not easy. For that, first of all, the culture of the society in which the human beings are gathered had been taken into consideration. Hence, lots of literatures were reviewed base on cultural aspects. Then, since the research was based on the apparel Industry, some literatures also being reviewed and the perception towards the Sri Lankan Apparel Industry also taken to be consideration. Then again, as a main part of this research, Lean Manufacturing Concept was highlighted and required theory and the practical aspects were taken into the consideration while the literature review was going on and finally a background for the research was formulated.

Base on that platform, the research methodology was designed. MAS Linea Clothing has taken as the framework for this research. The approach would be exploring the secondary data which is related to Linea Clothing with the platform of Lean. Under that two areas were explored as interns' interview with Lean Advocate and results of the Lean Leadership Assessment Tool. And if there any contradictions with theories or the practical scenario, those discrepancies get cleared through the use of primary research where the Questionnaires and Self-evaluation surveys functioned.

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List of Abbreviations

M & S – Marks & Spencer

VS – Victoria's Secret

BOI – Board OF Investment

SQ.FT – Squire Feet

MOS – MAS Operation System

JIT – Just In Time

JIDOKA – Built in Quality

TPS – Toyota Production System

Gemba – Go & see to the actual place to make decision

STW – Standardized Work Sheet

SOP – Standard Operating Procedures

JITs – Job Instructions Sheets

Kaizen – Continuous Improvement

Chapter 01 – Introduction

1.1 Firms' Outline & Background

Apparel industry in Sri Lanka is the largest contributor to the national economy as well as it is the largest foreign exchange earner for the country. It is the single largest employer within the manufacturing sector with an annual output of 600 million garments whilst U.S & UK accounts for more than 70% of total apparel exports. (JAAF)

1.1.1 MAS Holdings

MAS Holdings was established in Sri Lanka in 1986 as a manufacturer in intimate apparel. The current product portfolio includes intimates, sportswear and leisurewear with a customer portfolio including some of the world's leading brands and retailers such as Victoria's Secret, Marks and Spencer, Nike & Speedo. Several joint venture partners providing marketing and technical know-how were established during the last 25 years. Being the single largest vendor to Victoria's Secret, with a global talent of 51,000 professionals and skilled workers, MAS boasts a turnover of USD 900 million as of 2010.

1.1.2 MAS Intimates Cluster

MAS Intimates, which was the founding sector of MAS in 1986 is being focused for this research. MAS Intimates currently is the largest supplier of lingerie to Victoria's Secret and one of the largest lingerie suppliers to Marks and Spencer with the turnover of USD 300 million as of 2010. The VS market is currently at a growth in the US and contributes a major portion to the MAS Intimates profits although of late this market is maturing and margins are getting tighter. In the UK M&S holds 25% of the UK lingerie market which is a

matured market and little room for growth. In order for MAS to maintain their existing market share and remain competitive with M&S and VS MAS needed to offer design to delivery at the right time and price, in other words MAS to be a "one stop shop" for all lingerie vendors. Up to that point design packs were handed over to MAS to produce the bulk order but with China coming in with a far cheaper manufacturing base MAS needed to do things differently to maintain its market share.

1.1.3 MAS Intimates – Linea Clothing Division

Located in Pallekelle within the Kandy Industrial Park, a BOI Free Trade Zone, the Linea Clothing Division manufactures ladies briefs for Limited Brands under the labels Pink, Signature Cotton and Pout with 50% of the products being enhanced with embellishments.

The history of the Linea Clothing goes back to 1996. The factory commenced operations as Linea Clothing (Maldives) Pvt. Ltd, MAS Holdings first off-shore venture, on November 5th.

In January 2000 a parallel operation was started in a small way within a small premise in Rathmalana. In 2002 the operation in Rathmalana moves to a permanent home in Kandy while the Maldives operation continued and in 2005 entire operation was moved to the Kandy. Built on a 5 acre land surrounded by the scenic beauty of the kandyan hills with the Hunnasgiriya mountain range as the backdrop, the factory has 53,396 sq. ft. of production and office space. As at March 2012 the total employees' numbers, 1946 including management level to team member level.

All employees are urged to pursue their individual talent and dreams. The company can proudly boast sportsman & women representing the country, various clubs and MAS group in Boxing, Table Tennis, Volleyball, Cricket and Rugby in their cadre. In addition the arts, music singing and other literary pursuits are also encouraged.

1.2 The Change

In 2005 MAS took one step ahead with implementing Lean Manufacturing, one of the philosophies which is practiced by some of the world's leading organization such as TOYOTA, DELL etc.

Lean manufacturing is focused to minimize wastages by identifying non value added activities throughout the value steam.

Implementing Lean manufacturing in MAS was challenging. Prior to Lean, MAS was into 19 years of traditional way of mass production. Therefore introduction of a new philosophy as Lean was not easy. This can be considered as a total change of MAS which challenged not only existed processes and work practices but the mindset of the people as well.

The Chairman, Deshamanya Mahesh Amalean hired one of the world's leading consultation firms, Total System Development, who had hands on experience with companies like Dell, US Air force, Nike etc.

The first step was to convince the top management of the manufacturing unit. He accompanied the top management to Toyota motor manufacturing Japan to expose them. Then he selected one of his best manufacturing units, Linea Clothing which is located in Kandy to pilot it and up to date it has been adopted by almost all the factories in MAS Holdings.

1.3 Overview – LEAN Manufacturing and MOS

Lean Manufacturing is a united, comprehensive set of philosophies, rules, guidelines, tools, and techniques for improving and enhancing detached processes. MAS version of the lean manufacturing concept called MOS (MAS Operating System), defining that as a systematic approach of identifying and eliminating non value added activities and waste through the continuous improvement to make product at lowest cost, shortest lead time and with the best quality to end customer.

Through a foundation of supplier integration, robust products and processes, 6S and visual factory and total productive maintenance, Lean implementation is built upon two pillars of just in time and built in quality. Thus, final outcome will be a high quality, cost competitive and shortest lead time products. The most important part of lean is empowerment and motivates employees through various means.

1.4 Problem identification

Adapting to the Lean manufacturing concept involves significant transformation in both operational and cultural, because it might have chances to result in some operational and cultural difficulties which are associated with the conversion from previous traditional, functional based operation.

Even though some firms' state that they are doing significant changes mainly on strategic changes, structural, technological and Changing the attitudes and behaviors of personnel, it is open to argue that the how much alignment they have with the Lean culture in order to going towards achieving long term sustainability in every aspect.

Then again, it can be seen that the organizational culture is mostly influenced by practices use by the employees **(Hofstede 2005)**. Even though over the years the Lean manufacturing has certainly assisted MAS to achieve improved productivity to certain extent, by implementing lean process, techniques or tools, it can be argued that the creating part of underlying lean mind set and culture is difficult because of the involvement of human element. Though this is a case, a systematic study is yet to be done on the lean thinking or a calibration level of the members considering each level in an organization in order to enhance the productivity and the sustain part further.

1.5 Problem justification

Not only MAS, but also companies all over the world like General Motors, Dell, Bosch etc. are seeking for kind of approach to get their employees engaged in improving processes. Many different tools and techniques are used. In the case of garment manufacturing in MAS, as a company the lean tools and technique are taught throughout the bottom to top to understand the significant changes that need to be done to gain short term wins and in order to sustain long term process.

Despite the firm asks to get someone trained deeply in lean manufacturing concept and ask him to visit and rate where the lean concept is established, most probably the result will be lower rated.

If all the charts and graphs look great in the conference room's presentations, the real picture of the shop floor might get so far from ideal lean concept.
Most of leaders believed that one of the key successes is investment in its people, because it can be turned as one of their core competencies and they are the "Change agent" of relevant. But many companies even within MAS get frustrated with continuous improvement event and the calibration eyes on waste and other lean practices even though that practices produced great short term results, but the case is sustainability in long term. Perhaps there is something missing it seems even if the firms are seeking something more while we are trying to go forward, using the MOS (MAS Operating System) as a strategic weapon. Most probably that missing part is about the mismatched situation of organizational culture and the lean culture where we look for future sustainable.

1.6 Research problem

"MAS Holdings" has completed five years in lean implementation while achieving the operational stability to certain extent. This attempt is to scan the organizational culture to discover that whether MAS has actually succeeded in both operational and cultural aspects by implementing lean concept to the organization?

1.7 Research objectives

•   To analyze the gap between the existing cultures of apparel manufacturing organization and the acceptable lean culture
•   To identify and describe critical success factors for sustaining the lean concept in the apparel industry of Sri Lanka.

Chapter 02 – Literature Review

When identifying the contribution factors for a successful lean apparel culture, first of all, the human resources play an important role. As a matter of fact, it is through the human resources, any of these systems can be arranged in a possible way. However, understanding how complex human beings can contribute to sustain such system is not easy. For that, first of all, the culture of the society in which the human beings are gathered should be taken into consideration. Simply, in order to understand the drawbacks of the workers to go forward with such a management model, it is essential to identify what culture is and how it becomes relevant in identifying the contribution factors for a successful lean apparel culture.

One of the most considered definitions of culture comes from the scholar **E. B. Tylor** where he mentions **"Culture, or civilization, taken in its comprehensive, ethnographic sense, is that multifaceted whole which comprises knowledge, belief, art, morals, law, custom, and any other competences and behaviors attained by man as a member of society"**. According to the above mentioned definition, it becomes clear that when a culture of a particular society is considered, it is not possible to identify the culture simply by looking at a surface level but the habits, attitudes, morals, beliefs as well as the norms in a particular society should be thoroughly studied when attempting to understand a particular culture. In the meantime, as Taylor mentioned components of culture could be **"any other capabilities acquired by man as a member of society"**. Thus, culture therefore encompasses anything and everything acquired by the human beings being a member of a particular society.

Furthermore, according to **Kroeber A.L. and C. Kluckhohn,** "**the word culture is most generally used in three basic senses:**

- **Brilliance of taste in the fine arts and human race, also known as high culture**
- **An incorporated pattern of human knowledge, acceptance, and behavior that be contingent upon the capacity for symbolic thought and social learning**
- **The set of collective attitudes, values, goals, and practices that personifies an institution, organization, or group".**

Thus, when applying the concept of culture in understanding attitudes and perceptions of the workers in a particular organization, the third fact mentioned above becomes significant. According to that, culture is **"The set of collective attitudes, values, goals, and practices that personifies an institution, organization, or group"**. In other words, it proves that in every organization or institution or sometimes even among social groups there can be a unique culture which has its own characteristics, attitudes, values, norms as well as perceptions. In fact, that is why understanding the culture becomes so important even in the organizations as well as other social institutions. However, when it comes to this fact, it is essential to remember that there can be seen a difference between the dominant culture of a society and an organizational culture. Even though, culture in every aspect is characterized by norms, values, attitudes, etc. the term 'organizational culture' should also be understood separately.

According to **Schein**, an organizational culture is **"A pattern of shared basic assumptions invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration"** that have worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problem. Furthermore, according to **Hill, C.W.L and Jones, G.R. (2001)**, "It has also been defined **"as the definite assortment of values and norms that are communal by people / groups in an**

organization and control the way they cooperate with each other and with stakeholders." It is in this point where the concept of culture gets related to the organizational culture. As a matter of fact, just like the culture of a normal society, the organizational culture also shares some similar elements such as values and norms which control the way that the workers interact with themselves as well as the outsiders or according to this definition in particular with the stakeholders.

Thus, the organizational culture which can also be considered as a concept derived from the mainstream culture becomes a crucial factor when applying any kind of management model or simply when changing an organization in a significant way. In other words, according to **Bruce M. Tharp (2004) "The culture of an organization extremely effects its innumerable conclusions and actions. A company's dominant ideas, values, arrogances, and views direct the way in which its employees think, feel, and act – quite often automatically. Hence, understanding culture is important to the explanation and analysis of organizational sensations"**. This factor itself proves the importance of understanding the organizational culture when taking any significant decision on the whole organization.

In addition, according to **Baker (2002) "once goals / objectives are demarcated it is essential to address the form of culture that is required to advance these goals and objectives and guarantee the fruitful execution of the required changes"**. In the meantime, organizational culture could also be divided into 2 categories such as strong culture and weak culture. When understanding strong and weak cultures, Baker further mentioned,

"Primarily, a robust culture was abstracted as a intelligible set of beliefs, values, assumptions, and practices comprised by most members of the organization. The weight was on

- **The point of uniformity of beliefs, values, norms, and practice across organizational members**
- **The rifeness (number) of constant beliefs, values, expectations, and practices.**

Many premature advocates of organizational culture are likely to assume that a strong, universal culture was valuable to all organizations because it raised motivation, commitment, uniqueness, harmony, and repetitiveness, which in turn facilitated internal incorporation and synchronization". Since a strong culture consists of the above mentioned characteristics, weak organizational culture can be understood as the opposite of a strong culture.

The concept of strong and weak organizational cultures becomes significant because when there is a change taking place within an organization, it is important to consider the type of organizational culture in order to implement the change successfully. As a matter of fact, identifying the organizational norms, attitudes, motivational factors, etc. which can be considered as the components of organizational culture, becomes crucial to make the organizational change more effective and sustainable.

According to **Al – Alawi, Al – Marzooqi and Mohammed (2007)** there are several critical factors that affect organizational culture and knowledge sharing such as trust, communication between staff, information systems, reward systems, etc. Therefore, when applying change to an organization, in order to make the process of sharing knowledge among the workers successfully, the above mentioned factors should also be taken into consideration.

Another aspect that is essentially important towards implementing new strategies or policies to an organization is the concept of 'attitude'. In fact, the sustainability of the things adopted by an organization heavily depends on the attitudes and the perceptions of workers or the whole organization towards the

change. For instance, if the change is not considered by the workers or the organization with due consideration, the success of the change may not be long lasting. Therefore, when implementing new management models to an organization such as lean manufacturing model, first of all it is essential to understand the attitudes related to the new model separately and then to internalize those new attitudes, norms or may be the perceptions into the workers in a careful manner where the workers would not get the feeling that they are trained into the system not forcefully but for their own benefit.

Since the main of the thesis is identifying the contributing factors for sustainable lean apparel culture in MAS Holdings, it is essential to recognize and pay attention to the attitudes related with the lean apparel culture. On the other hand, since attitude is a major component of an organizational culture, when identifying the missing relationship between the implementation of lean manufacturing system and the sustainability, the concept of 'attitude' can play a significant role. According to **Ballé (2005) "persons are really sensitive to taming from their surroundings. Continuous fortification of oral expression or comportment does normally lead to arrogance change, predominantly when the person is mindful of which comportment is embattled. In the background of lean execution, one has to phenomenon whether the local organizational culture strengthens lean attitudes, or challenges them"**. As a matter of fact, the local organizational culture that the particular organization already has can be greatly different from the lean organizational culture. Simply, lean system, even though is really a valuable system is highly consistent with the Japanese culture in general because it was first developed by Toyota which is a leading company in Japan.

Therefore, when adopting such a managing system, it is essential to identify the gap between one's own culture and the new culture they are going to adopt. In this level, the concept of cultural change becomes important too. According to **Andersen and Taylor (2005) "people are also frequently**

hardy to cultural change since acquainted ways and traditional patterns of doing things are hard to relinquish; but, cultures do transformation. Culture is lively, not fixed, and it grows as people answer to changes in their physical and social environment". Thus, changing an organizational culture can become hard at times. Especially, when the culture that is going to be adopted is not familiar to the existing culture it becomes a real challenge. For instance, when an organization tries to adopt a new organizational culture, culture lag could be occurred.

Andersen and Taylor (2005) identified culture lag as **"the interruption in cultural alterations to shifting social circumstances. Some parts of culture may change more speedily than others. Therefore, one characteristic of culture may "pause" behind another. Quick technological change is frequently appeared by culture pause meanwhile some fundamentals of the culture do not retain bound with technological innovation"**. Thus, it becomes clear that the same process would occur within an organization when they are trying to get adapted to new management models. For instance, when MAS implemented Lean manufacturing in the year 2005, it brought a sharp change to the whole organizational system. Thus, culture lag can occur under such a situation because even though the management strategies and other factors can be changed according to the lean manufacturing, it takes a lot of time and energy to get adapted to the new sets of attitudes and other norms and practices that come along with it.

Simply, even though many organizations pay attention only to the new systems of technology and other aspects related to the management, they partly or completely ignore the aspect of converting the workers' attitudes to suit the system they adopt. Therefore, if any organization misses the importance of the aspect of organizational culture when getting adapted to any kind of new system within an organization, it would be difficult to sustain the system they adopt and then to earn profit through it. As a matter of fact, even

when adopting the lean system, identifying the existing organizational culture and then the lean culture is really important.

According to the **lean construction journal (2008), "To attain long-term benefits of a lean approach in industrialized housing production, it is here indirect that mainly there is a requirement for a cultural change towards a lean culture"**. The above mentioned extract itself proves that in order to make lean manufacturing sustainable in an organization, considering the organizational culture and then changing it accordingly becomes significant. For instance, shaping the mindset of the workers, their attitudes, beliefs and controlling the unwritten laws of the organization which can also be identified as the norms is mainly a matter of the organizational culture. Therefore, when the existing culture becomes threatened when adopting a new system, the authorities should first take precautions to change the culture within an organization to suit the new system in a very subtle way. In other words, the group of employees which can be considered as the backbone of the organization especially with relevance to its culture should not get the feeling that they are persuaded forcefully to adopt the new system. Apart from persuasion, the authorities can use some other techniques such as reinforcing and making the workers understand the value of a change in the organization which would be beneficial for both the employers as well as employees.

In fact, the change should be adopted in an evolutionary way but not in a revolutionary way. For instance, the workers should be given enough time to get adapted to the new situation rather than just making them behave in one particular way as if it is a revolution. The evolutionary aspect becomes crucial since evolution can bring long term and sustainable results rather than revolution since when the newly adopted aspects are evolved through time, the workers do not get the feeling that they are made to behave in a particular way. Thus, the workers themselves would get adapted to the lean

manufacturing process unconsciously since they do not need to get used to the system mechanically.

Whenever, trying to change the organizational culture, the most essential factor that the relevant authorities should understand is that people resist changing. May it be an organizational culture or any other sub culture or a mainstream culture, people do not like to change since they feel threatened when a change occurs. The main reason behind the fear of change is that, they may feel that they are positions would be threatened and that they will have to get adapted to a new system of doing the things which can be greatly different from what they used to do. Likewise, when it comes to any change in the organizational culture, the workers might get a wrong perception that, there is a change occurred in order to make them vulnerable. Thus, the feeling of economic threat, insecurity which may on the other hand be able to cause low self-esteem would bring negative consequences to the individual in particular and the organization in general.

As how the cultural change affects an organization is understood in the above mentioned way, it is also important to identify how all these factors get relevant in sustaining the lean apparel culture. In order to understand this, first of all, it is necessary to understand what is lean? And what are the main principles behind it that are neglected by the organizations in creating a successful lean culture. When it comes to lean, one of the main aims of lean can be considered as the elimination of waste. In fact, most of the organizations which follow the lean manufacturing system concentrate mainly on the elimination of waste and thereby on adding more value to their products. However, when making lean sustainable, increasing or developing the material side of an organization is not enough. Especially, as lean was originated in Japan which has a very rich culture closely knitted with each and every aspect of the society, changing the thinking patterns, attitudes , team work, good communication of the organization also become important.

As a matter of fact, when implementing Lean, the same emphasis should be given on managing the human resources of the organizations as the thinking, working, efficiency, and almost every factor that contributes to the organization to improve, cannot be processed without the involvement of human resources.

Thus, it proves the importance of the role played by the human resources of any particular organization towards achieving the goals and objectives of the entire organization. In the meantime, as this report is focused on sustaining the lean manufacturing in a company related to the garment industry, it is also important to find out the importance of garment industry to the economy of Sri Lanka. In fact, improving the quality of MAS holdings indirectly helps to the development of the whole country. Therefore, it becomes crucial to understand the significance of the whole garment industry as well. Here, it is important to understand that when it comes to the international market, there is a fair reputation for the garment industry in Sri Lanka. In fact, according to the **website Sri Lanka Apparel Industry, "The national development policy framework notes that the apparel and textile industry is a significant contributor to the Sri Lankan economy with the highest net foreign exchange earnings. In 2009, export incomes from the sector accounted for 46% of total export incomes of the country at US$ 3.262 billion"**. In addition, according to the **Sri Lanka Apparel Exporters Association** the export performance of the garment industry of Sri Lanka by the year 2011 is 2828.9 US$. These factors clearly prove the importance of the garment industry towards the economic development of Sri Lanka and thereby the stability of such companies is very much essential to the betterment of the whole country.

However, it is also essential to state the overall perception of the population of Sri Lanka towards the workers of the garment industries. As a matter of fact, even though garment industry is one of the main contributors towards the Sri Lankan economy, unfortunately, the workers (especially the female workers)

of the garment industries are negatively stereotyped by the majority of the Sri Lankan population. In fact, according to the perception of the majority, the female workers are degraded and looked down upon since people believe that in garment industries, labor is exploited and it often consists of employments with low value. As a result, under the Sri Lankan culture, the female workers even find difficulties which affect their personal lives such as difficulties in getting married and so on. Thus, it may also have lead towards low self-esteem levels in the workers and thereby when changing the culture, attitude change also stands as a big challenge in implementing any kind of new process.

Under such a situation, MAS holdings took one step forward by implementing Lean manufacturing to their organization in the year 2005. Here, it is important to understand how Lean can contribute towards the improvement of an organization. Therefore, it is essential to understand what Lean is. Simply, the main target of Lean is the elimination of waste and thus, it is mainly focusing on each and every aspect of an organization to fulfill its aim.   At the same time, it also focuses on assuring the value of a product or service with minimum work. Here, when looking at a customer's point of view, value simply means what the end customer is willing to pay.

Lean manufacturing can be considered as a process which was initiated from the Toyota Production System. Simply, the Toyota company, even though it was a very small company at the beginning ultimately became the world's largest automobile company through its elimination of the seven wastes identified originally by Toyota. These seven types of wastes are transportation, inventory, over production, over processing, motion, waiting and defect. Thus, it mainly aims at increasing productivity through efficiency, waste elimination and finding answers to the problems by the usage of empirical methods. At the same time, through elimination of waste, Lean expects to reduce the gap between the customer and the product in the timeline.

Furthermore, the main intention behind Lean is to decrease the cost as well as the production time through the elimination of waste. For this process, Lean uses some tools such as 5S, Poka-yoke (Error proofing), Value Stream Mapping and Kanban (pull systems) which are basically from the manufacturing industries of Japan. However, Lean and Toyota Production system are not the same. Even though those two are related with the goal of reducing the cost by eliminating the waste through some principles such as Perfect First Time quality, Flexibility, Pull Processing, Autonomation, Minimization of Waste, etc. Toyota Production System found solutions for its own problems in a practical way which is not based on any particular theoretical foundation. Therefore, it is evident that the difference between Lean Manufacturing and the Toyota Production system is not the goal but the general approach in achieving those goals. However, at present, the main process of lean has become the reducing of three types of wastes which are known as Mura (Unevenness), Muri (Overburden) and Muda (non-value adding work). Through the usage of these three types of wastes, it is expected identify the problems that a company has in a systematic way and then to use the Lean tools where the ideal could not be obtained.

Even though, many companies who implement Lean Manufacturing pay high attention to the waste elimination and increasing efficiency, most of these companies have forgotten about the Lean culture which plays a critical role in making the Lean Implementation more sustainable. When talking about the Lean culture, one of the best definitions that can be taken into consideration is that of **Schein's definition (2004)** which is also mentioned at the beginning in discussing about the culture in general.

"A pattern of collective elementary hypothesis that has been learnt while solving problem, that has worked well sufficient to be well-thought-out valid, and consequently, to be imparted to as the correct way to observe, think and feel in comparatively to those problems".

Since the concept of lean has also developed through the years and also considered to be valid in the journey of structuring and development of an organization, definition of the lean culture can also be related to the above definition. By showing the success Toyota production system has validated this argument to certain extend, though in the beginning they had put their more attention on operations' using main two pillars as JIT and JIDOKA where they talking about smoothing the process and the quality of the product **Ohno (1988).**

However, earlier only few manufactures managed to imitate Toyota successfully, whereas the company has been extremely open about its practices **(Spear, Bowen 1999)**. Therefore, it becomes clear that the lacking component in achieving success by following lean was the disability of many organizations in understanding the important role played by the Lean Culture in achieving success. Thus, it becomes visible that simply imitating the Toyota's principles is not sufficient to make any company successful.

Here, when talking about the Lean culture, the human resources of the organization become really significant. As a matter of fact, implementing Lean should be coupled up with the commitment of the entire staff to make it happen in a proper way. By criticizing the practices that were taken into consideration by Ohno on TPS, the president of an American Toyota motor manufacturing, **Gary Convis** mentioned that, **"Ohno's theory wants the way that the key to fruitful. Lean implementation / execution are the total obligation of everyone in the organization to make it success" Convis, (2001)**.

However, as a result of these comments on Lean Manufacturing, Toyota Production System (TPS) triangle model was developed in which human development became the core element.
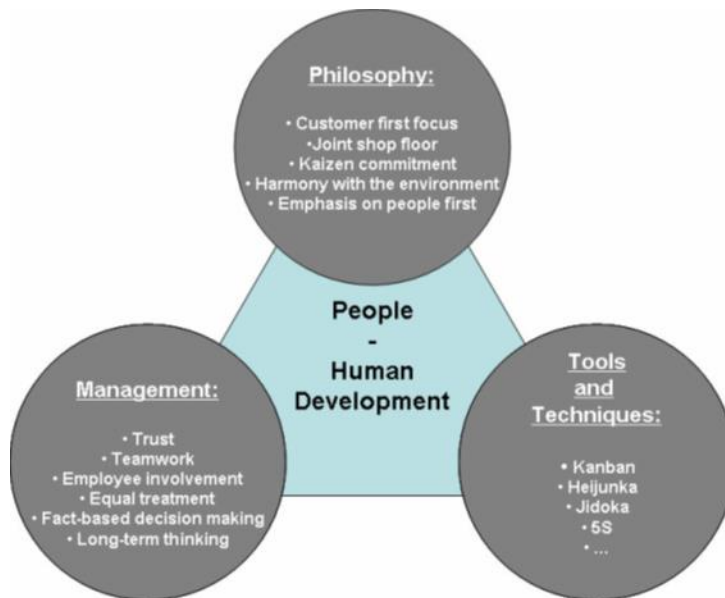
Figure 1- Toyota Production System Triangle Model Convis (2001)

Under this model, the priority is given to three main components such as the management, philosophy and tools and techniques. Here, it is essential to note that most of the manufacturing companies are trying to implement Lean concept by only using the lean tools and techniques, with very less attempt to build lean culture and the mind set on it. So it can be taken as a **conventional organization that doing lean things instead of lean organization (Veech 2004)**. In fact, this factor proves that simply following the tools and techniques of Lean Manufacturing is not sufficient for successful implementation of the whole Lean concept.

Furthermore, when dealing with an organizational culture, it is important to remember that culture is not only the things that one may see at the surface level. In other words, the book **Toyota Way (2004)** uses the model of an iceberg to show that the deeper aspects of a culture lies below the surface just like in an iceberg where the main part of the iceberg is hidden beneath the water.
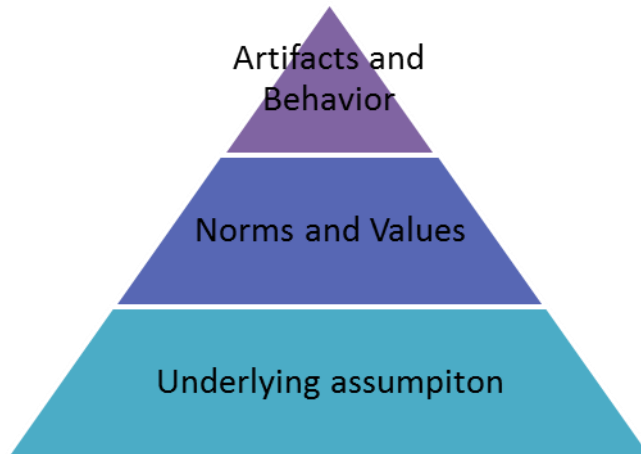
Figure 2 - Three levels of culture Schein (1984)

As mentioned by **Schein (1984)** Artifacts and behavior are the things that can be seen at the surface level of the culture. One may understood these things by just observing one particular culture and therefore artifacts and behavior also have an importance when understanding a culture. For example, the first impression of a visitor or a customer about any particular organization, the behavior and degree of familiarity of the workers, the physical structure of the organization etc. become the things that can be observed at a surface level. However, the most important and the powerful aspects of a culture lie underneath, such as the norms, values and the underlying assumptions which play a vital role in maintaining and understanding a culture.

Then when norms and values are taken into consideration, norms can be taken as the generally accepted rules of behavior. It might be written down manner or not, but everyone knows that what are the basics of behaviors like how to behave, what it appropriate to say etc**. Liker (2008)**. Then when values are considered, according to **Liker (2008) "Values are the principles we live by".**

When the deepest level of the model "the underlying assumptions" are considered, it says that what they deeply believe and act on; then again can

be taken as a core or essentials of the culture, which are difficult to recognize due to exist in at a mostly unconscious level. Eventually herewith the ultimate source of action and values and also it does directly connect with the perception, thoughts and feeling of the individuals, being with an organization or society. **(Edgard Sachien)**

Apart from the models which are mentioned above, when understanding Lean culture, another model also becomes important.

The pyramid from top to bottom:

- **Problem Solving (Continuous Improvement & Learning)**
  - Continual organizational learning through kaizen
  - Go see for yourself to thoroughly understand the situation (Genchi Genbutsu)
  - Make decisions slowly by consensus, thoroughly considering all options; implement rapidly

- **People & Partners (Respect, Challenge, & Grow Them)**
  - Grow leaders who live the philosophy
  - Respect, develop, and challenge your people and teams
  - Respect, challenge, and help your suppliers

- **Process (Eliminate Waste)**
  - Create process 'flow' to surface problems
  - Use pull systems to avoid overproduction
  - Level out the workload (Heijunka)
  - Stop when there is a quality problem (Jidoka)
  - Standardize tasks for continuous improvement
  - Use visual control so no problems are hidden
  - Use only reliable, thoroughly tested technology

- **Philosophy (Long-Term Thinking)**
  - Base management decisions on a long-term philosophy, even at the expense of short-term financial goals

Figure 3 - 4P Model of the Toyota Way Liker (2004)

Liker (2004) summarizes that the management decisions of Toyota is similar to pyramid which begins with the philosophy in the basement followed by

process and people and partners. Top level of the pyramid is dedicated for problem solving.

Toyota based their management principles on a long-term philosophy which attempts to improve all operations within the organization continuously through the elimination of waste which would ultimately improve company profits in the long run. Even at the expense of short term financial goals they tend to focus their long term achievements. Toyota has been able to achieve the next stage of improving the process, with this philosophy as its sound foundation. Over the past years as evident from the Toyota Way initiatives carried out they have been able to refine the process by making continuous changes to achieve high value-added, continuous flow. Toyota strives to develop a sustainable manufacturing environment through the development of their people, unlike most of the organizations that follows the Lean Manufacturing system, and only be satisfied through process improvement. Their work groups are based on round teams which are backed by sound training. Their human Value stream consists of attracts, engage, develop and inspire. Through the development of both the processes and the people Toyota is able to develop a culture that continuously solves root problems. Decision making and problem solving is done by those who experience them first, and for this decision making to be effective, it requires an established stable process, which is currently under establishment. However, even at this stage they practice consensus decision making where problems and potential solutions are discussed with all those who are affected. This provides a platform for developing alternative solutions for a single problem and constructs creative means of solving the problem in the course of which the process is also significantly improved and ultimately resulted in prevention of the problem.

Furthermore, in this model, a further clarification on Lean is given especially based on 14 lean principles. In fact, when understanding Lean, it is really important to pay attention to these 14 principles as they indirectly link with the

Lean culture which is a significant aspect in the whole Lean concept. The 14 principles which come under 4P model can be elaborated as follows.

1.   Base management decisions on a long term philosophy, even at the expense of short term financial goals

The main of this principle is to have a long term philosophy which could benefit the organization in a long term in a meaningful way where the significance is paid on a common objective other than just going behind make profit in short term. Such as, improving the skills, investing on innovative ideas, being responsible for your own tasks, generating value not only for the customer, but also to the society, make this principle work out.

2.   Use only reliable thoroughly tested technology

Here, the basic assumption is that technology should be used only to support the workers but not to replace them. In the meantime, according to this principle, using new technology can also be a risk for the flow of the process of an organization. Therefore, it should be assured that only tested technology is used in the process. In addition, under this principle, the technology which does not go smoothly with the culture should also be rejected. In fact, the technology should be used in a way where the workers would not be harmed.

3.   Use visual controls so no problems are hidden

Under this principle, the usage of visual control is emphasized in order to make sure that the workers are on the correct track and thereby to not to deviate from the work they do.

4.   Standardize tasks for continuous improvement

In order to continue the flow and pull, the usage of standardized tasks is needed. As a matter of fact, when it comes to punctuality, regular outputs, etc. standards play a crucial role as it can increase the efficiency. Therefore, repeating the stable methods of the company is considered as right according to this principle. However, this does not mean that there should not be room for innovative and creative ideas. As this principle conveys, there should be space for creative tasks and such tasks should be followed as new standards so that the others can also follow it.

5.   Stop when there is a quality problem

Quality is one of the key elements under this and therefore whenever there is a quality problem in the process the workers should be trained to stop and fix the problem. Therefore, it should be internalized into the organizational culture to stop whenever there is an issue with the quality as it might have a effect in the productivity later on.

6.   Level out the workload

According to this principle, for the workers, the workload should not be too much. It should be leveled in a way that is bearable so that it would not be an overburden to the worker.

7.   Use pull systems to avoid overproduction

Here, the production based on the customer's demands is emphasized. At the same time, stocking products without understanding customers' needs is considered as inappropriate. Therefore, overproduction should be eliminated.

8.   Create process 'flow' to surface problems

According to this principle, making the flow evident becomes crucial. In fact, it mainly emphasizes on linking the workers with processes as well as crating flow in moving both information and material so that time is not wasted. Through this, it is assured that the production flow is maintained in an efficient way by addressing the surface problems without any delay.

9.   Respect, challenge, and help your suppliers.

When this principle of Lean is considered, it emphasizes that by setting challenging goals the organization can respect its suppliers as well as the outside challenging organizations. In the meantime, arranging such goals for the suppliers is considered as a mean through which the organization can actually help the suppliers. Furthermore, according to this, the suppliers and the other partners of the business should also be considered as an extension of the organization.

10.   Respect, develop, and challenge your people and teams.

Under this principle, setting challenges to people and teams is perceived as a way of respecting them through which they can develop. In fact, their capacities should not be undermined and they should always get challenges that suit their capacity. Furthermore, under this, team work should also be taught and promoted and it should be perceived by the workers as a significant element of their culture.

11.   Grow leaders who live with philosophy

When it comes to this principle, organizational culture becomes crucial. As a matter of fact, the norms and values of the culture should be internalized into the workers through which exceptional individuals can rise. The culture should also be stable and the philosophy of the company should be long lasting so

that the workers are living with it and thereby adapt to the system automatically.

12. Make decisions slowly by consensus, thoroughly considering all options; implement rapidly

According to this principle, the decisions should be made with collective consensus as it is the best way to search the best solution. At the same time, it is also important to consider all the alternatives that are available before starting work on one particular direction. However, when the decision is made considering all the options available, implementing it should be done in a rapid manner.

13. Go see for yourself to thoroughly understand the situation

This simply means that practicality is important than theorizing. In other words, in order to understand the situation, it is essential to go to the field and understand it personally. Even the workers in top level positions still should visit the locations to understand the situations by themselves.

14. Continual organizational learning through Kaizen

According to this principle, the organizational learning should be continuous even though the organization is at a stable level. In addition, there should be continuous improvement through which the inefficiencies could be identified and reduced.

Chapter 03 – Research Methodology

3.1 Research Area & Research Question

As mentioned in the earlier as well, it can be found lots of example where the Companies like Toyota, Dell, and General Motors have developed their own production process in order to have continuous improvement mindset, considering the factors like, Cost, Quality and Delivery time.

As mention in the Problem identification as well, adapting to the Lean manufacturing concept involves significant transformation in both operational and cultural, because it might have chances to result in some operational and cultural difficulties which are associated with the conversion from previous traditional, functional based operation. And on the other hand, additional interpretation emphasized that concept lean is more a philosophy than a toolbox and it's a totally incorporated to the manufacturing philosophy as well as the management approach. **(2006, Lean Alliance)**

Therefore this attempt is to scan the organizational culture to discover that whether MAS Holdings has actually succeeded in both operational and cultural aspects by implementing lean concept to the organization.

3.2 Research Objectives

After the theoretical discussion done through the Literature reviews, objectives of this research are as follows,

•   To analyze the gap between the existing cultures of apparel manufacturing organization and the acceptable lean culture

•   To identify and describe critical success factors for sustaining the lean concept in the apparel industry of Sri Lanka.

3.3 Research Design & Approach

In general any research approach depends on the nature of the research and time constrains. Inductive and deductive approaches could be followed in a research, **"Induction is usually described as moving from the specific to the general, while deduction begins with the general and ends with the specific" Burney S M A**. **(2008)** Deductive reasoning generally uses the arguments based on laws, rules and accepted principles whilst observations tend to use for inductive reasoning.

This research was carried out on a top-down approach. The relevant theories and literature were reviewed first according to the nature of the research. Based on the literature review, the framework was identified and defined. Then the study was planned and the sample was selected according to the inclusion criteria. The data collection and observation was the next step which was then followed by data analysis, recommendation and conclusion. Therefore approach of this research can be identified as a deductive approach.

An overview of research design is outlined in figure 4 After identifying, the conceptual frame work, a semi structured interview with the Lean advocate was conducted with the intention of see the alignment to the 4P model. Based on the learning of the literature review and the findings of semi structured interview, criteria & the guide line were designed for the self-evaluation for the level of department heads. As the next step, another questionnaire was developed to analyze and understand the contribution and the perception of the shop floor team member's towards a lean practices and culture.
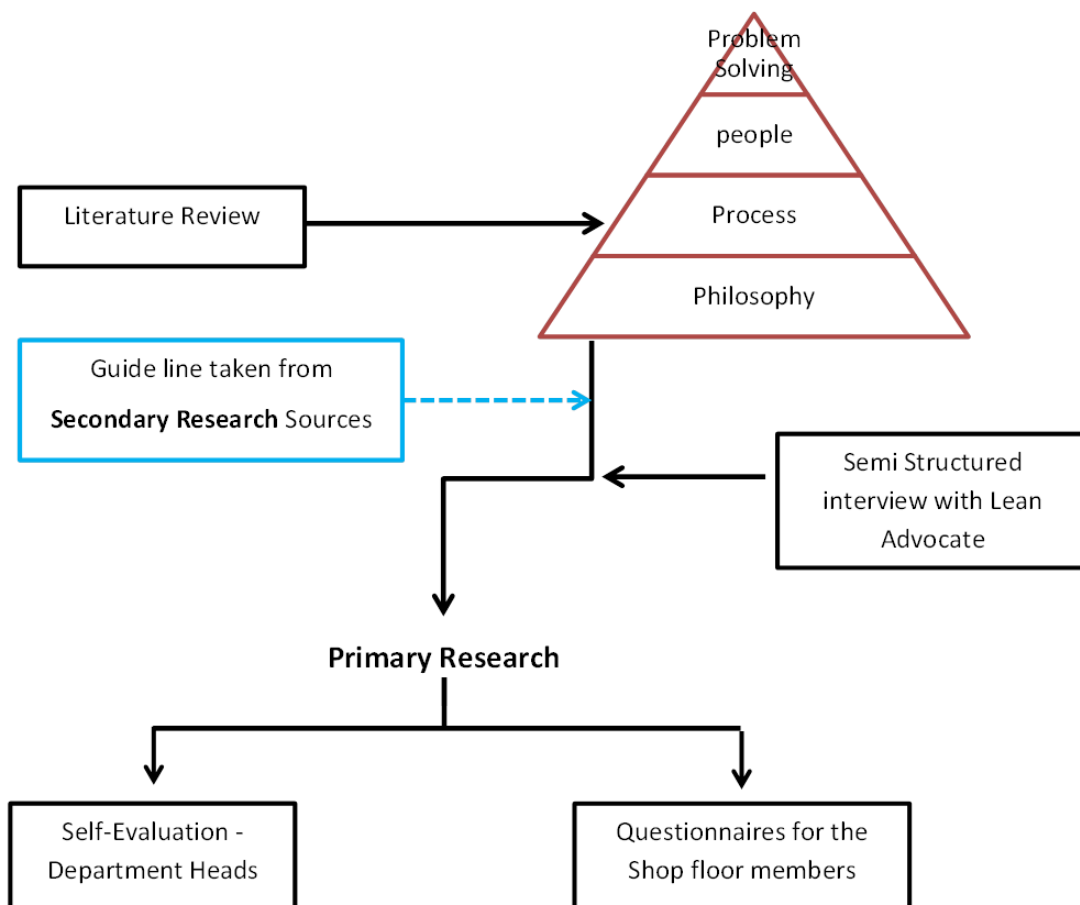
Figure 4 - Research Design

3.4 Research Framework

The research frame work for this study would be concentrated on MAS Intimates Linea Clothing. Linea Clothing is selected specifically as it was the first plant that embraced the concept of lean manufacturing at MAS Holdings.

3.5 Research types

In order to address the research question in a multi-dimensional perspective a combination of secondary and primary research is sought. As culture of an organization is a very subjective realm, the data capturing from multiple sources is considered. The qualitative data would provide depth to the research through rich insights through the inquiry of employee attitudes, opinions and beliefs. The quantitative data are gathered to frame the bigger picture which would sum up the overall perspective of lean implementation at the MAS Holdings as a single entity.

3.6 Secondary Data Sources

3.6.1 Semi Structured Interview with Lean Advocates

A semi-structured interview is a method that use for collecting qualitative inputs to the research. Semi-structured interview are more flexible and new questions can be bought up base on the situation or the things that the interviewee say. **"Grouping of topics and questions that the interviewer can ask in different ways for different participants" Lindlof and Taylor (2002).** Considering with the structured interview, due to a not having a formalized, limited structured question, through this semi structured interviews, there is a freedom for interviewers to tailor the questions for get clear understand on the situation they look for.

For this research, one semi-structured interviews' results were taken in to consideration which has done with Lean advocates, who are the persons who leading the lean implementation initiatives in the plants of MAS Holdings. Lean (Toyota) 4P model is one of the basement level requirements under the Lean implementation and it is important to understand the perspective of the advocates with the intention of seeking the alignment against with theory.

3.6.2 MAS Lean Assessment Tool

Another secondary data was collected through an extensive Lean Assessments done through the past years on the Linea Clothing, by the individual body, central team of the Lean Consultant of the MAS Holdings.

Named it as MAS Lean Assessment Tool which has design to evaluate and rate to what extent the factory has implemented and the practiced the lean concept and the cultural part of practicing tools. (Using with the Purpose). The lean Consultant has identified six main areas which related to the concept lean of an organization. The six focus areas include,

1.   Policy Deployment

2.   Kaizen Mindset

3.   Built In Quality

4.   Just-In Time

5.   Operational Stability

6.   Culture of Empowerment

Each of the above areas is further divided into controllable sub-areas which the teams can focus on improving. This is a more practical approach whereby the factory operations are dissected and individually improved allowing for sustainable improvements to be made contributing to the overall improvement of the factory. This MAS Lean assessment tool also be upgraded with the changes in requirement of the core business but within the framework of concept lean.

By going through these six areas, the central Lean consultant team has ranked Linea Clothing even in last January 2012. For this research, the results of that final assessment were being taken in to consideration as secondary data of Linea Clothing.

3.7 Primary Data Collection

3.7.1 Self-Evaluation Form (Lean Leadership Tool)

As part of the core of the personality, self-evaluation is a very significant controller of behavior. It determines his associations with others, his critical faculties, the demands he makes on himself, and his attitude toward success and failure. **Self-evaluation is connected with the level of the individual's aspirations, or the point of difficulty involved in reaching his goals. Allport, G. W (1961).**

In this research, after the getting the qualitative inputs through the semi structured interview, the results were guidance towards to have more clarity on the cultural part of this lean practices base on the lean principles. All the department heads, who need to act as a change agent for the both up and down side, were selected as the framework for this research. By going through the theories with regards to practicing lean principle that has mentioned in the literature review as well, main three areas / pillars (People , Process, Policies) were identified that has to be there as a lean practitioner and the change agent. Subsequently under each main pillar, relevant criteria were design and the likert rating scale for each criterion has set concerning 0 to 5 levels. According to that rating scale, there was guideline that has developed in order to show the expected level in every stage under every pillar's criteria.

The data collection part has occurred in two ways that Self-evaluation without guideline and with guideline. However the criteria of the self-evaluation form was named as "Lean Leadership Tool" and it was pre tested through a pilot study to make sure that the participants understand the wordings. With some small amendments on certain wordings, the final evaluation forms were distributed among all the department heads giving freedom to have individual's ranking what they really feel.

3.7.2 Questionnaires for the Shop floor Members

The questionnaire was designed focusing on the shop floor team members. The questions were structured in a simple manner where the team members were able to answer the questions without much effort. Shop floor members are the employees who usually work in the areas where the all Lean practices a tools are being applied. The questionnaire carried both structured and open ended questions, which were designed in the native language of Sinhala.

The research used the probability sampling method in order to obtain unbiased data that would provide an appropriate degree of validity. It is understood that Stratified Random Sampling design would be most appropriate for this research because the possibility of comparison of the various groups is possible using this technique (employees from different work experience), and is the most efficient among all probability designs **(Sekaran, 2003).**

3.8 Approach of the data analysis

All the collected data through Self-evaluation and the questionnaires were entered in to a Microsoft Excel worksheet and data collected through semi structured interview were recorded and compared during data analysis.

Chapter 04 – Data Analysis & Discussion of Findings

4.1 Findings through Results of the Semi-Structured Interview with Lean Advocate

As per the interview done by the intern with Lean advocated around year 2009 / 10, some of the highlighted areas has mention herewith with regard to the 4P's of Lean,

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4.1.1 Linea Clothing Philosophy

Our management decisions are based on a long-term philosophy which attempts to continuously improve all operations within the factory through elimination of waste which would ultimately in the long run improve company profits. Our philosophy also focuses on aligning all operations within the value stream to generate value for the customer. Our continuous layout changes support this by viewing all operations within the factory in a nutshell where the customer would be the beneficiary as the time between order placement and order shipment is minimized. The company would reap benefits in the form of reduced costs.

As a base for practicing lean production Linea Clothing has been successful in instilling a philosophy of long-term thinking through its MOS initiatives.

4.1.2 Linea Clothing - Improving the Process

With its philosophy as a sound foundation Linea Clothing has been able to achieve the next stage of improving the process. Over the past years as evident from the MOS projects carried out we have been able to refine our process by making continuous changes to achieve high value-added, continuous flow. Our process improvements also incorporate getting our suppliers involved, where through supplier integration projects from 2006 we were able to improve our process and reduce dock-to-dock time to 16days.

Furthermore, as a means of improving the process from 2008 onwards MOS initiatives focus on implementing the MAS Lean Assessment Tool in order to ensure that all processes are continuously monitored and improved.

4.1.3 Linea Clothing - Building People / Partners

While most organizations which follow the Toyota Production System (TPS) would be satisfied through process improvement, we at Linea Clothing strive to develop a sustainable lean production environment through the development of our people. As evident from our supplier training we have built sound relationships with our suppliers to ensure the smooth flow of the production process.

Currently we have developed an organizational structure whereby employees are given self-ownership of the operations they carryout and hence are made responsible for the entire process. As a part of this initiative Production Executives are being trained to become Process Engineers and hence not

only focus on production but also take into consideration how related processes to production can be improved and better aligned with production. This compels them to become multi-skilled. Another aspect of the initiative is getting management involved in different areas by developing project teams. For instance the team assigned for improving the Kaizen Mindset under MAS Lean Assessment Tool constitutes of personnel from MOS, Human Resource, as well as Production Executives.

Even at the worker level people development is evident as all team members go through MOS training.

4.1.4 Linea Clothing learning through Problem Solving

This is the ultimate state of lean production which we will achieve. Through the development of our processes and people we intend to develop a culture that continuously solves root problems. Decisions are made and problems are solved by those who experience them first hand. For us to be able to make such decisions it is essential to have an established stable process, which we are currently in the course of gradually establishing.

However, even at this stage we practice consensus decision making where problems and potential solutions are discussed with all those who are affected. This provides a platform for developing alternative solutions for a single problem and constructs creative means of solving the problem in the course of which the process is also significantly improved.

4.2 Finding through the Self-evaluation (Lean Leadership Tool)

4.2.1 People

	People	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	Avg
1	I know my strengths, weaknesses & opportunities	40%	60%	80%	80%	80%	60%	40%	60%	80%	80%	60%	60%	60%	80%	80%	60%	60%	11.2	66%
2	I know the strengths & weaknesses of my Team	60%	60%	60%	60%	40%	40%	60%	60%	60%	60%	80%	80%	60%	80%	60%	60%	40%	10.2	60%
3	I have identified the current skill levels of my team	40%	40%	60%	40%	40%	40%	60%	40%	40%	60%	40%	40%	40%	40%	60%	60%	40%	7.8	46%
4	I have a proper career development path for my team	40%	40%	40%	20%	40%	20%	20%	40%	40%	40%	40%	60%	60%	40%	40%	40%	20%	6.4	38%
5	I have done a training plan to bridge the skill gap of my team	0%	20%	40%	0%	0%	20%	20%	40%	20%	20%	20%	20%	0%	20%	40%	20%	20%	3.2	19%
6	I have done Post Training evaluations properly	40%	40%	20%	40%	40%	40%	40%	60%	40%	60%	60%	60%	40%	40%	40%	40%	40%	7.2	42%
7	I regularly share knowledge & information with the team	60%	40%	40%	40%	40%	40%	40%	60%	40%	60%	40%	60%	80%	60%	60%	40%	40%	8.4	49%
8	My team members openly discuss problems with me	60%	60%	80%	60%	80%	60%	80%	60%	60%	60%	80%	80%	80%	60%	40%	60%	80%	11.4	67%
9	My team has the freedom to communicate, try out & innovate things	40%	40%	40%	60%	40%	40%	40%	40%	60%	40%	40%	40%	40%	40%	40%	40%	40%	7.2	42%
10	I motivate my team for innovation & problem solving	40%	40%	40%	20%	20%	40%	20%	40%	60%	40%	40%	20%	20%	20%	60%	20%	20%	5.6	33%
11	I use a Skills Matrix in my department	40%	0%	40%	40%	20%	20%	20%	40%	40%	40%	20%	40%	40%	20%	40%	20%	20%	5.0	29%
12	I usually appreciate improvements & celebrate small victories with my team	60%	40%	60%	40%	40%	60%	60%	80%	40%	60%	40%	60%	40%	60%	80%	40%	60%	9.2	54%
	Total	43%	40%	50%	42%	40%	40%	42%	50%	50%	50%	47%	52%	47%	47%	53%	42%	40%	7.7	45%

Figure 5 - People factor, detail Sheet

The People factor is the main component in the Lean Leadership tool developed to assess the lean attributes in the plant leadership. Given above is the compilation of the results of the 'People' factor. The total average 45%, which indicates that the sample group indicates that their leadership factor on lean is below 50% on the people side.
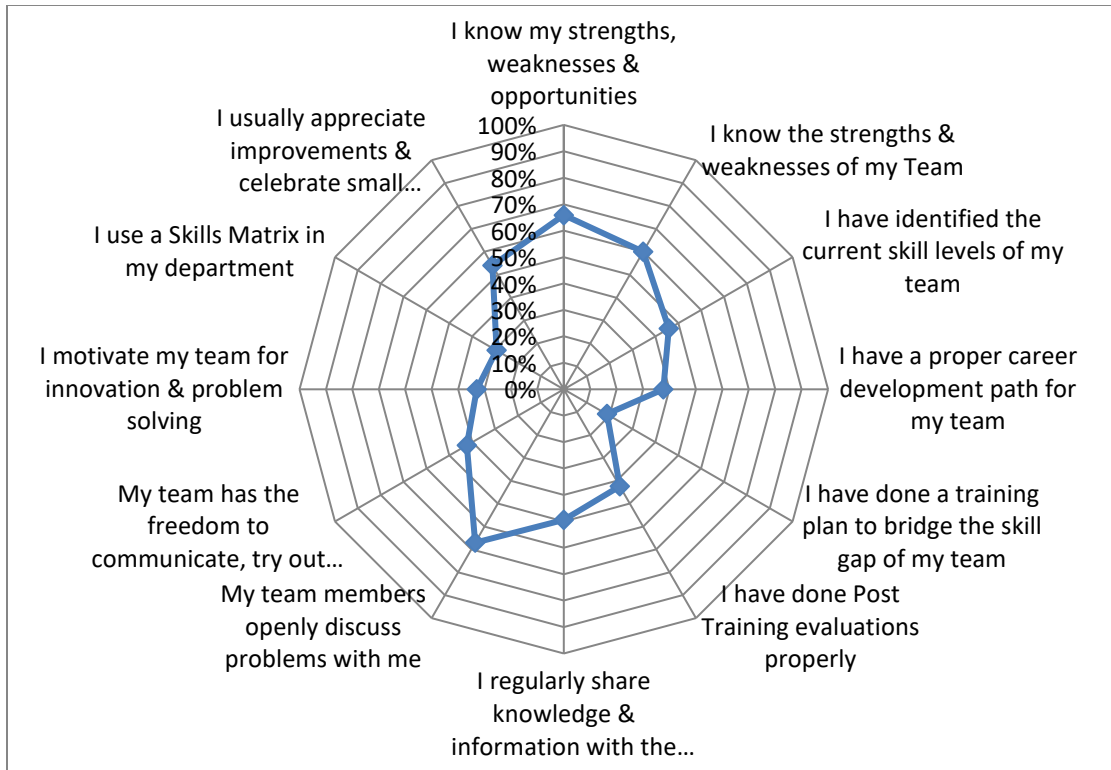
Figure 6 - People factor - Room for further improvement

The main area of strength in the people side is with a highest rating of 67% by the leadership is on the feeling that their teams openly discuss matters with them, which is indeed a positive. One of the important elements in a lean culture is mutual trust & respect, which indicates that people are free to communicate their concerns with each other, while this build a basis for problem identification, rather that problem hiding. Many organizations strive to achieve the openness among their employees as it has become a major challenge. But in this case, it is a huge positive.

The next two factors which has highest averages go hand in hand, which is the SWOT identification for self & team which the average leader has rated with scores of 66% & 60% respectively. In a lean culture, it is very important to identify the strengths & weaknesses of the Team as this will build the basis for role allocation & skill development. Identifying the strengths will allow a leader

to maximize the outcome of their team members, whereas identifying weaknesses can eliminate unwanted outcomes while building a platform for further development. But another contrasting figure is the skill level identification, which is 46%, which shows a disparity in rating.

The next factor with highest average is the appreciation of improvements & celebrating small victories within the team. A rating of 54% indicates that majority of the leaders appreciate improvements & takes time to celebrate small victories with their team members. An important aspect of a lean culture is the appreciation & motivation factor in order to facilitate improvements. Lean culture is all about making small improvements & sustaining them towards better results & people play a key role in doing so. Another important factor is to celebrate small victories, as many organizations which experiments in introducing lean fails due to not celebrating small victories. It is important to make people understand that lean journey is all about small victories or improvements & the team seems to be in a good understanding on this fact, as failure to understand this can be a fatal error.

Sharing knowledge regularly with the team, or the coaching aspect draws an average of 49%, which is another major element in a lean culture. At plant level, the leadership is expected to share their knowledge with team members while helping them to improve in their performance is an absolute necessity. The leaders are expected to be experts in their own areas, mainly in the technical aspect and it is expected for them to share their knowledge with the team regularly in order to improve performance in their respective departments.

The mid table figures such as 42% each for freedom to communicate, try outing & innovating things as well as for completion of post training evaluations indicates that there is room for improvement for these aspects. Innovation & experimentation is one of the keys towards continuous improvement & the leadership facilitates new ideas & allows team members to work on these. While with more focus given towards innovation by the top

management, a significant improvement in this aspect is expected in future. Evaluations on performance subsequent to trainings are a key component, which leaders are nowadays starting to pay more attention. The positive on both the above aspects is that with more focus given currently, an improvement of these figures will be visible in future.

Considering the bottom of the table figures, an alarming 19% is indicated for the need for a training plan to bridge the skill gap of team members against to the expected level. A related aspect to this is a proper career development plan, which is shown by a figure of 38% is the same table. Even though a 38% rating has been given by leaders to indicate that they have a proper career development plan for his/ her team, only half of them possess a proper training plan to bridge the skill gap. In the lean philosophy, is building people & Toyota expresses it by stating that 'We just don't build cars, we build people' (Toyota Talent; p3). This further enhances the need to build right leaders for the future with the right lean thinking, which is an absolute necessity to sustain lean in an organization.

Another indicator related to developing people which is the use of a skills matrix, too has a lower rating of 29%. We can see an interrelation between developing people & certain aspects related to it, which indicates that this is a key area of improvement for the organization.

As the identification of ratings on key areas are as per above, when we consider individual scores of 17 plant leaders from the selected group, the ratings are between averages of 40% to 53%, showing a close correlation among figures. The total average of the group is 45%, while there are 2 modes at 40% & 50%, whereas the median is 47%.
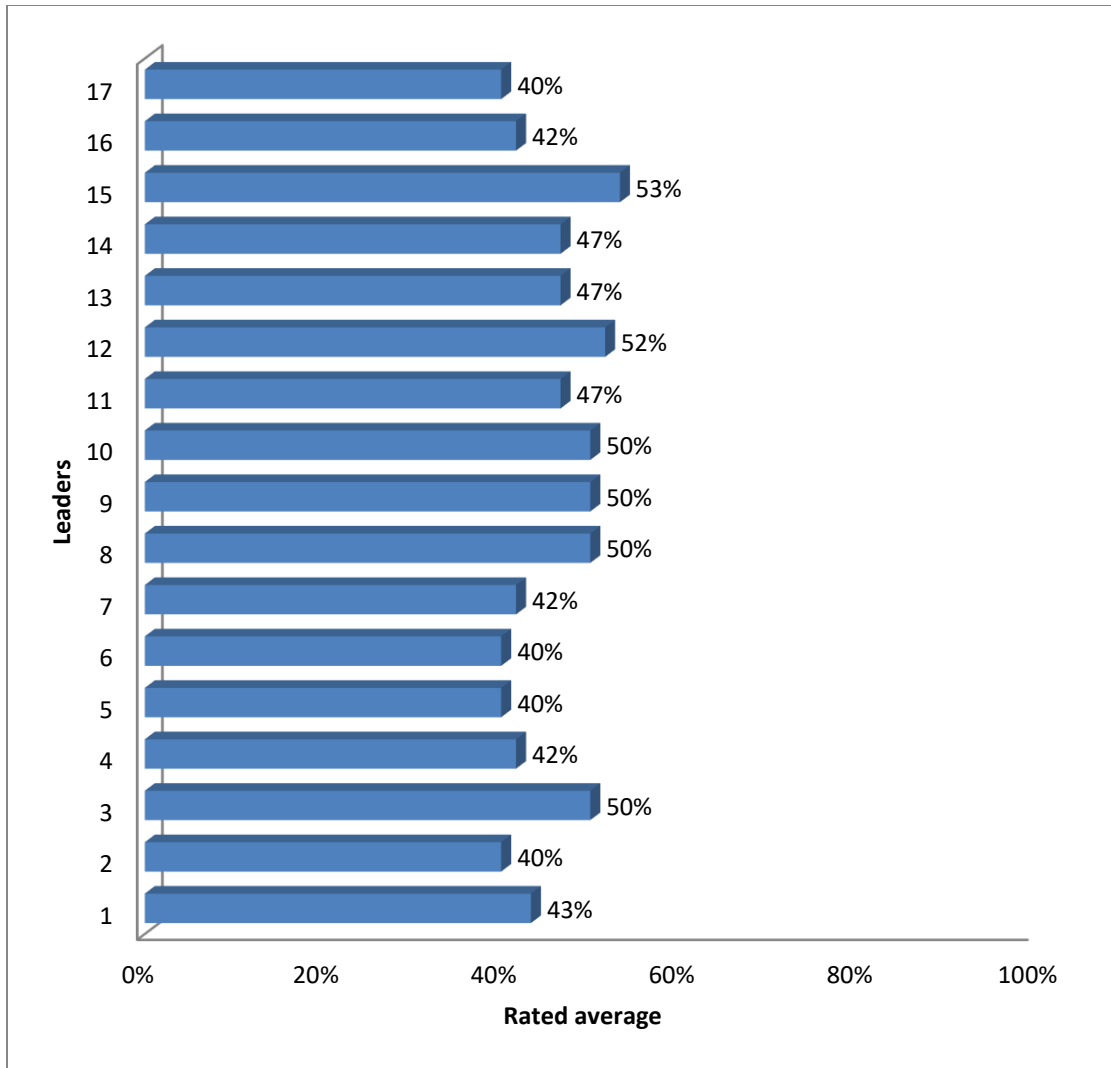
Figure 7 - Leadership commitment for People Factor

The people alignment of the plant leadership is 45%, which in a huge area of improvement. Even though the ideal level would be 100%, at least 70% should be maintained as it is important to sustain a lean culture. Mode of 50% indicates that 4 leaders are at 50%, while 6 leaders are 50% or above, which is a positive. The other mode of 40% indicates that 4 more leaders are at 40%, which happens to be the lowest rating of the sample group too. This is very alarming, as most of these leaders have a higher rating for Process & Policies aspect of lean, whereas the rating for the people aspect is low.

Overall, the rating on the people aspect of lean at Linea Clothing indicates that there is a lot of room for improvement & this should be focused in a major way as people will be the key component in building a sustaining lean culture in the organization.

4.2.2 Process

One of the main intentions of the implementing Lean to the manufacturing organization would be achieving the process excellence to get the product out with high quality, less lead time at lowest cost.

	Process	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	Avg
1	I have a good understanding about the overall process of the product	80%	60%	100%	60%	80%	80%	60%	40%	60%	80%	40%	60%	80%	80%	60%	80%	100%	12.0	70.59%
2	I have identified the current status of processes related to my team	80%	100%	100%	60%	60%	80%	80%	80%	80%	80%	60%	60%	80%	60%	80%	80%	60%	12.8	75.29%
3	I have a blue sky/ future status of the process of my area	60%	60%	60%	60%	60%	80%	40%	20%	80%	80%	40%	60%	40%	60%	80%	40%	40%	9.6	56.47%
4	I have identified areas of improvement	60%	60%	60%	60%	60%	80%	80%	60%	80%	80%	60%	60%	80%	60%	60%	60%	60%	11.2	65.88%
5	I regularly use problem solving & kaizens to improve standards	80%	40%	40%	60%	60%	60%	40%	40%	60%	60%	60%	40%	60%	60%	60%	60%	40%	9.2	54.12%
6	I maintain up to date STWs, SOPs & JITs related to my area	60%	0%	20%	0%	20%	60%	0%	40%	60%	60%	20%	20%	0%	20%	40%	40%	20%	4.8	28.24%
7	I do process audits periodically	0%	20%	40%	0%	0%	60%	40%	40%	0%	40%	20%	20%	0%	20%	20%	40%	20%	3.8	22.35%
8	I give focus to the 6S condition of my department	60%	60%	80%	60%	80%	80%	40%	80%	60%	80%	60%	60%	80%	60%	60%	40%	60%	11.0	64.71%
9	I use Ohno Circles, Gemba walks to improve the process standards	40%	40%	60%	20%	20%	40%	60%	20%	0%	0%	60%	0%	20%	20%	40%	40%	40%	5.2	30.59%
	Total	58%	49%	62%	42%	49%	69%	49%	47%	53%	62%	47%	42%	49%	49%	56%	53%	49%	79.60	52%

Figure 8 - Process factor detail sheet

Given above is the compilation of the results of the 'Process' factor of the Leadership of every department comparing with the expected level under selected criteria of the "Process" factor. The total average of 52% indicates that as an average leader, commitment / current standing level towards the "Process" factor against with the expected level through the guideline.

Figure 9 - Process factor - Room for further improvement
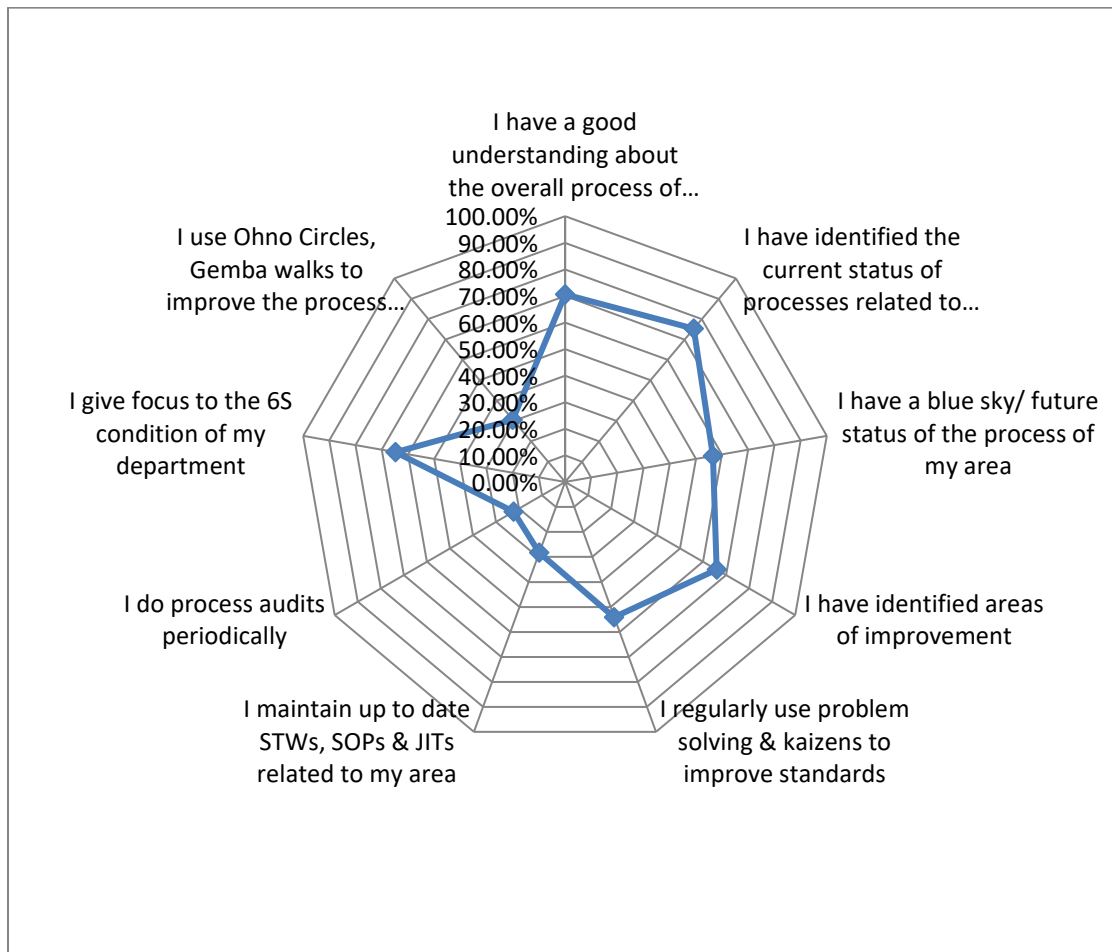
The analysis of data demonstrates that the strengths of the process are that all the department heads have a thorough knowledge on the entire value chain of producing intimate apparel. It has been rated as 70% approximately as an average leader against with the expected level. It is appreciative that this level of knowledge on the overall process is with the management.

Another key positive to illustrate is the knowledge and know-how of the management of their own process/ depart level process which is about only 25% away from the expected level. This allows the leaders to identify further process improvements. Even though out of the total number of leaders (17), eleven leaders know more than 80% of their process the remaining leaders six are aware of their processes only up to an average of 60% against the expected level.

An important point to highlight through the results is that, as mentioned above even though the results show a 75% of leader awareness on the current state of the processes, when it comes to the level of understanding of the future state of their own processes stands only at an average of 56%. This show further emphasis should be taken for the awareness building of future planning abilities, goal setting and usage lean tools in context with internal and external parties such as suppliers.

One of the areas that require attention is the requirement of periodic process audits. As exposed in the results it illustrated that the leadership commitment towards the periodic process audit is in really low level as 22% against the expected, through Lean concepts. In the path of move towards the future state of any process, understanding of the present state and the areas that need improvement is a critical success factor. Further only through this knowledge will kaizens (Continuous Improvement) or innovation to current process will be resultant. Thus the establishment of audit criteria that addresses this requirement is in need to counter this situation. It may be one of the reasons to have a considerable gap between the understanding of the current state compared to the future state (although the leaders have the depth of knowledge of their own processes, they lack their knowledge in the identification of the future state the department/ process area should focus to).

Genchi genbutsu (go and see for you) or commonly referred as Gemba, Ohono circles, STWs SOPs and JIT are lean tools and techniques that could be used to identify the improvements of processes. Even though they are used

as lean tools and techniques for continuous improvement, they should be in-built to the lean practices of day-to-day operation of every leader. 6th and the 9th elements of the process factor discuss on the practices and perception of the leaders. In consideration these aspects only account to a mere 28% and 30% of the average leader competence respectively. This area should also be considered for improvement.

Some of the basic general tools of lean concept such as 6S, Problem Solving and kaizens for continuous improvement are practiced up to a considerable standard. Even though those areas are being rated around 55% to 65% approximately, there is a room for get it improve further for these aspects.

As the identification of ratings on key areas are as per above, when we consider individual scores of 17 plant leaders, the ratings are between averages of 42% to 69%. The total average of the group is 52%, while the mode is at 49%.
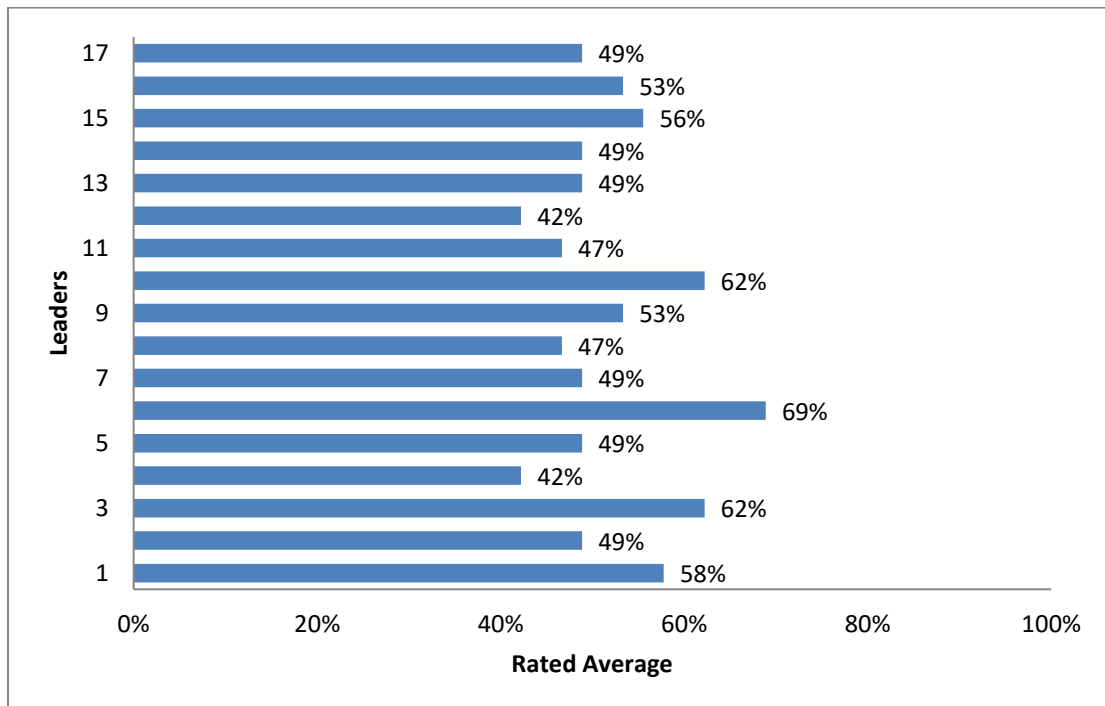
Figure 10 - Leadership commitment for Process factor

Alignment towards the Process part of the plant leadership is 52%, means that another huge area of improvement. Even though the ideal level would be 100%, at least 70% should be there as it is important to sustain a lean culture.

Overall, the rating on the Process aspect of lean at Linea Clothing, the highlighting factor is, average leadership commitment towards Process factor goes up to 64%, other than the 3 areas which are talk about the sustainable part of process improvement. Those, that 6th, 7th and 9th element average is about 27% approximately. This should be focused in a major way to make sustain part of the Process part of the organization.

4.2.3 Policies

"Policy" part of Linea Clothing, it has deployed their policies with the meaning of align the people with the vision and emphasis as the significant towards achieving any goal is to have the workforce really aligned to the purpose.

MAS use "Hoshin Kanri", that is a Japanese term for Policy Deployment. Board of MAS Holdings set their strategies for the year and it is passed onto the MAS Intimates cluster. Aligning what MAS Holdings strategies, the Top Management of MAS Intimates decides their strategies to contribute what the Board of MAS Holdings wants. Once the Intimates level (Cluster level) strategies are defined, it is communicated to the plants via a policy objective matrix. All the plant Key Performance Indicators are decided aligning to what the cluster level wants. If the plant goals are achieved at the end of the year,

the cluster requirements are satisfied which will ultimately be resulted in achieving the requirements of MAS Holdings. Through the Hoshin Kanri exercise, every level in MAS is directed towards one direction.

As per the above mentioned background, one major part was added as "Policies" in to the Lean Leadership tool and got it self-calibrated by every leader in the organization. Other than the policies, two extra elements have added under the Policies part with the intention of seeking the trustworthiness on the Lean concept of the leaders.

	Policies	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	Avg
1	I know the Vision & Mission of my organization	60%	80%	80%	60%	60%	40%	80%	20%	80%	60%	100%	60%	60%	40%	60%	80%	40%	11	62.35%
2	I know the main Objectives of the organization	60%	80%	80%	40%	40%	40%	80%	80%	80%	60%	100%	60%	40%	60%	40%	80%	60%	11	63.53%
3	I know the Blue sky/ future state of my organization	60%	40%	80%	40%	20%	40%	80%	20%	0%	60%	80%	40%	40%	60%	40%	60%	40%	8	47.06%
4	I know the meaning of Hoshin Kanri	40%	60%	60%	20%	80%	40%	100%	60%	100%	20%	60%	60%	60%	40%	40%	60%	20%	9	54.12%
5	I know the PO Matrix of my plant	40%	60%	40%	20%	40%	20%	100%	60%	80%	60%	60%	40%	40%	40%	40%	80%	60%	9	51.76%
6	I have cascaded the Plant PO Matrix to my Department	40%	60%	20%	20%	40%	0%	80%	60%	60%	20%	60%	40%	40%	20%	40%	80%	60%	7	43.53%
7	My team is aware about the PO Matrix & their contribution towards the main objectives	0%	60%	20%	20%	20%	0%	60%	60%	60%	20%	60%	20%	20%	20%	40%	60%	40%	6	34.12%
8	I lead projects & have live project charters	80%	60%	80%	60%	40%	40%	80%	40%	60%	20%	80%	100%	80%	60%	60%	100%	80%	11	65.88%
9	I use my MOS knowledge in my day to day work	60%	80%	60%	60%	60%	60%	100%	60%	80%	40%	100%	60%	60%	60%	80%	80%	80%	12	69.41%
10	I believe MOS as a strong tool to improve my organization	80%	100%	100%	100%	40%	80%	100%	100%	100%	40%	100%	100%	100%	100%	100%	100%	80%	15	89.41%
	Total	52%	68%	62%	44%	44%	36%	86%	56%	70%	40%	80%	58%	54%	50%	54%	78%	56%	88.20	58%

Figure 11 - Policy factor detail sheet

Compared with the above mentioned People part and the Process part, it is highlighted that leadership of the Linea Clothing has put more consideration on policies, rating the leadership factor on Policies as 58%
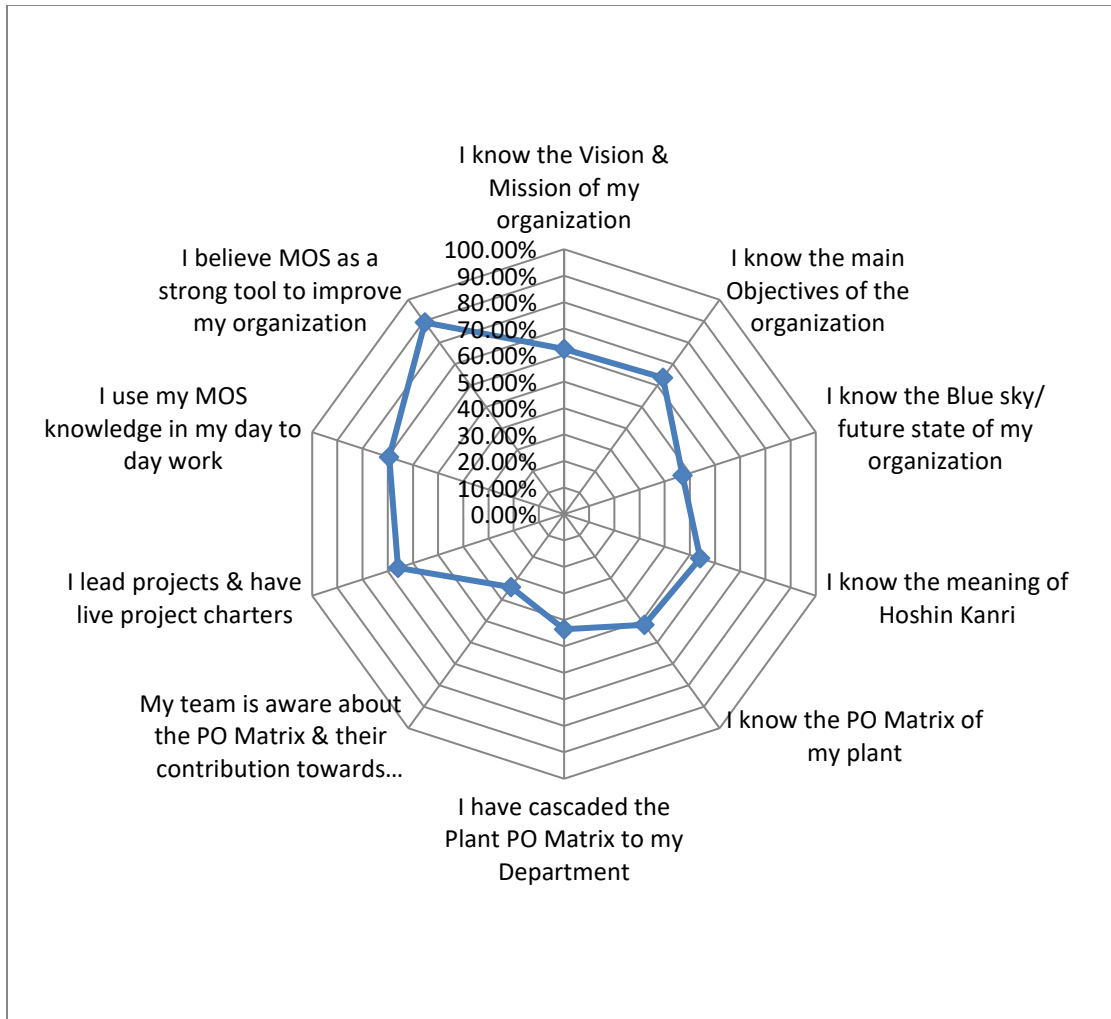
Figure 12 - Policy factor - Room for further improvement

Starting from the first element under the Policy factor, an average leader has rated as 62% understanding level on the organization vision & mission. It is somewhat there, where the leader has clear understanding on the organizational needs and wants. But the lacking part is cascading the direction to the next level of an organization, since there are the one who operates the wheels to run the business.

At the same time, same kind of situation highlighted again through the second element, that of course about the awareness on the main objectives of the

organization. It was also being ranked around 60% and the cascading down is highlighted again.

One of another strength area of the leadership is handling projects with the proper project plan & live manner. It has been rated as 66% approximately as per the average leader point of view. No doubt that lots of project going on while the organization has aligning with the top level direction. It's a good sign that over 70% of the selected leaders are working as a proper project leader averaging the leadership competence over 77% against the requirement.

The mid table figures such as 47% for the leader awareness with regards to the organization blue sky (where an organization will be standing on after next 5 years), 54% for the leader awareness of the Hoshin kanri and 51% rated as the awareness factor on the organization "Policy Objective Matrix" indicates that as a leader there is a room for improvement for these aspects. Because it's better to get more clear picture on the things that they are doing as well as the what the top level leaders wants to achieve.

When it come to the lower level of the table, there are two areas were highlighted as lower rated. In order to get align with the direction got from the top, leader should cascade it down further for their functional level. But as per the results of self-calibration, it has rated as 43% as an average leadership factor on cascaded the policy down.

It might be the reason that the leadership factor on the subordinates awareness level towards the organization policies &objectives, getting lower rated as 34% where the area need to put more attention of leaders.

Under the elements including with the intention of, seeking the usage of lean in daily practices, as an average leader has put 69% of his weight on it. That can be taken as a considerable level of using the tools while they believe on the lean that as a strong tool for improve the organization further, rating the weight as 90% which was being highlighted by the last point of the policy part.

4.3 Findings through the Questionnaires for Shop Floor Members

Survey- Lean Usage							
Question 1	<6 months	< 1year	1-2 years	2-3 years	3< years		
Time of Service	20	30	30	10	10		
Question 2	Weak	Average	Good	Very Good	Total		
Knowledge on MOS (Lean)	14	27	41	18	100		
Question 3	No. It's a myth	Do not feel	Upto a certain level	Very much	Total		
Belief on Lean as a Tool which helps to make work efficient in day to day work & the overall organizational process	0	4	29	67	100		
Question 4	No	Sometimes	Most of the Times	All the time	Total		
Do you use any Lean tools in your day to day work	6	21	62	11	100		
Analysis on Question 5	Low	Below Average	Average	High	Total		
Relationship between the Answer for Question 4 & the accuracy of tools mentioned in their day to day jobs (Data Analyzed by a Lean Specialist)	64	18	10	8	100		
Question 6	Because it makes work easy	That is a part of the job	Management Influence	Don't have an idea	Total		
Why do you use lean tools in day to day work	42	17	37	4	100		
Question 7	1	2	3	4	5	6	7
Rating on as to how your work actually emphasizes lean concepts?	0	4	11	17	33	23	12
Question 9.1	Less knowledge & less usage	Has knowledge but less usage	Tries to use without knowledge	Uses with a lot of knowledge	Total		
How do you rate your management involvement in lean?	0	42	6	52	100		
Question 9.2	Less knowledge & less usage	Has knowledge but less usage	Tries to use without knowledge	Uses with a lot of knowledge	Total		
How do you rate your use of lean when working with your teams	4	30	5	61	100		
Analysis on Question 10	No	Average	Yes	Yes & I have been given a chance	Very Clear about my career		
Are you clear about your career path in this organization	9	22	39	13	17		

Figure 13 - Summery of Shop floor members' questionnaire

Above mentioned chart illustrates the Shop floor members' responses over the usages, awareness and the perception towards the Lean concept in a day today contest. 10 questions were included covering both close ended and open ended to get more clarity of the results.

Question two was focusing the knowledge on the Lean.
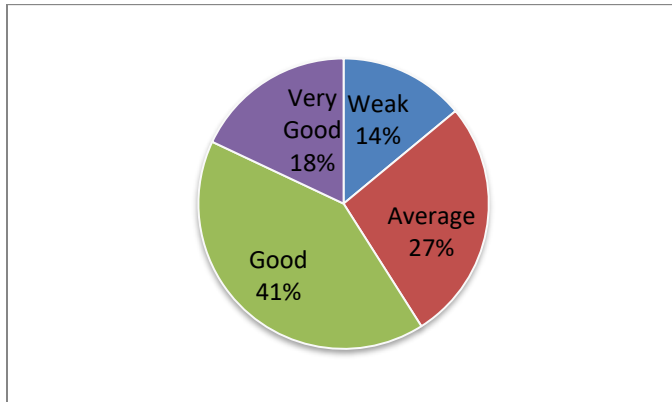
Figure 14 - Lean Knowledge

It shows that out of the sample population 18% of the shop floors members are think that they are really aware on the concept Lean, while another 41% are thinking that they have considerably good knowledge. However out of the total, 27% of the shop floors members are being rated as an average level of awareness on lean and another 14% of them are being under weak category.

Question three is talking about the believing level on Lean as a tool which helps to make work efficient in day to day contest.
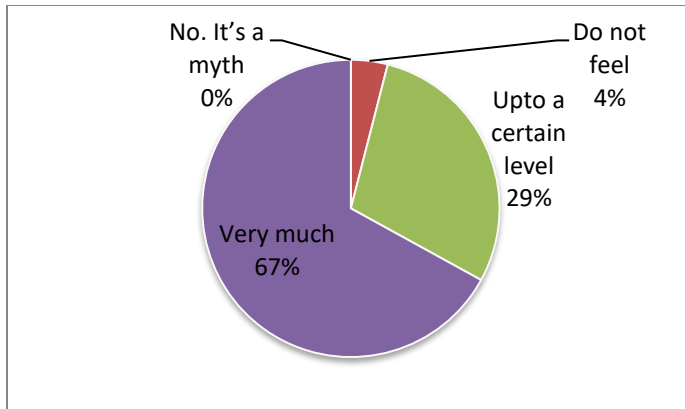
Figure 15 - Believe of Lean Tools

According to the results, 67% of the selected sample group, very much believes that the Lean as tool is really benefited to them. Another 29% are saying that they believe it up to a certain extend while the 4% of sample group is not feeling anything about the lean practices.

When it comes to the stage of usage of Lean tool,
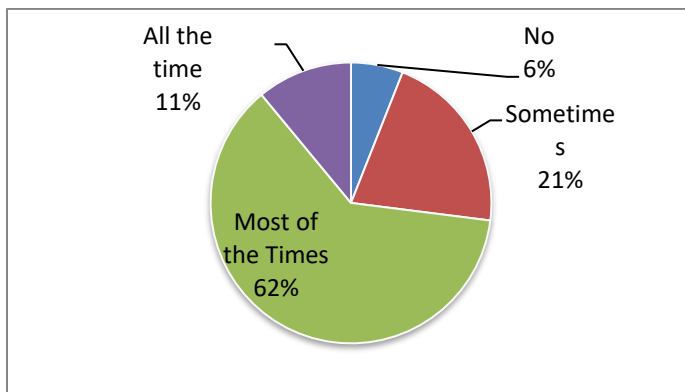
Figure 16 - Usage of Lean Tool

Results show that most of them (62%) are the using Lean tools in their day today work. And also while 21% of shop floor members are using lean tools rarely, 11% of them use the tools at all the time; however 6% from them are not using.

The next question (5th) was added with the intention of proving the answer which has taken by 4th question. 5th question is an open ended one and it

asked to write down some tools that they are use in day today. Then the results were analyzed the accuracy of the mentioned tools and the answers given in the 4th question, with the help of lean specialist of an organization.
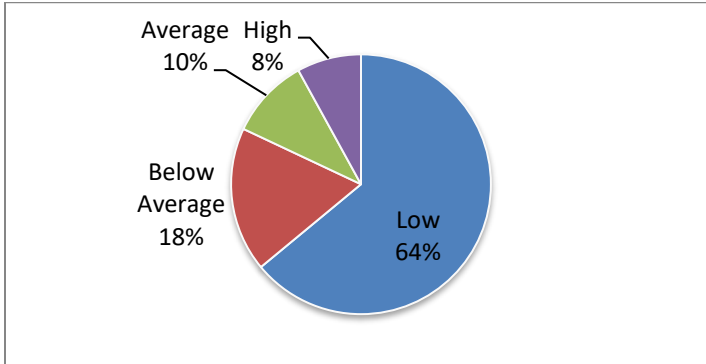
Even though most of the shop floor members (73%) have mentioned that their using lean loots in day today contest, through the 5th question it was get bit vague, because accuracy level of the mentioned tools was really low as 64% out of total. It is a point that the leaders should more focusing on that only 8% of the mentioned tools are accurate even though 50% of the sample group members are with more than one year working experience.

Next question is to get the reason out, why they using the Lean tools.
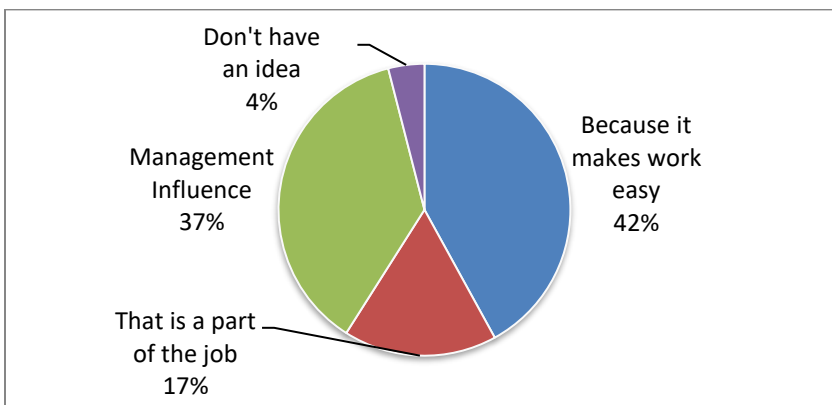
Figure 18 - Reason analysis of using Lean Tools

According to the results, it says that 42% of them are using this tools due to it helps to make work easy. Another 37% and the 17% are using tools as sake of doing and the influence of the leaders while 4% haven't any idea on using it.

Through the 7th question, it asked to rating on a scale of 0 to 7 as to how your work & your environment actually emphasize lean concepts.
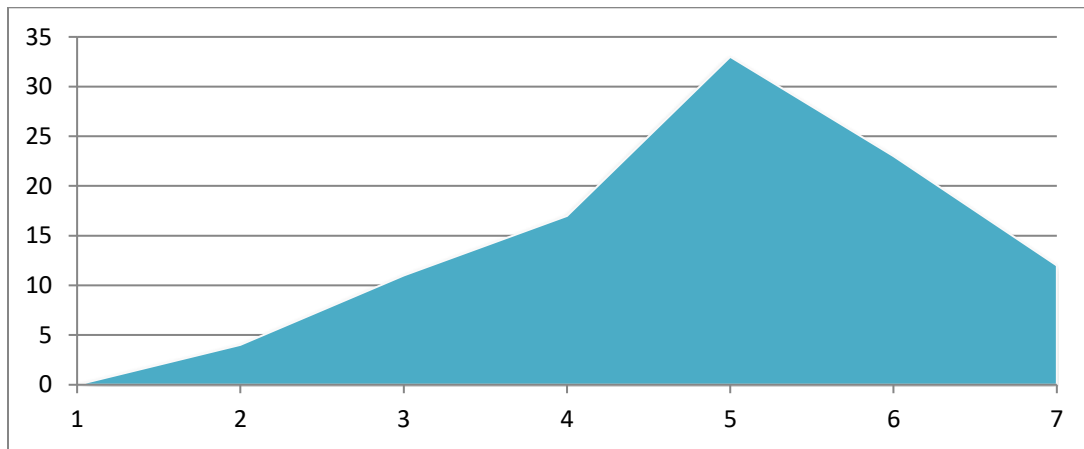
Figure 19 - Organization as Lean Organization

As per the given answers, 85% of the shop floor members have rated 4 or more, as the work and the surroundings emphasize the lean concept. Again, even though 50% 50% levels are in the both over one year and below one year, getting 85% on positive side indicates that there might be some lean initiatives are going on, as day today practices, but the most of them are not identified those belongs to Lean concept. It can be proved through the even the results of the earlier question too.

9th question has divided in to part two, as to see the management involvement to the lean as point of view of shop floor member level, and the second part is about the use of Lean of shop floor members while they are working with their team.

Managemet

- Has knowledge but less usage 42%
- Tries to use without knowledge 6%
- Uses with a lot of knowledge 52%
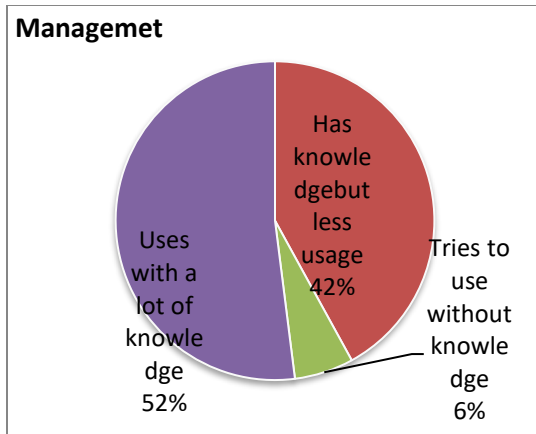
Figure 20 - Management Commitment

Shop floor member

- Less knowledge & less usage 4%
- Has knowledge but less usage 30%
- Tries to use without knowledge 5%
- Uses with a lot of knowledge 61%
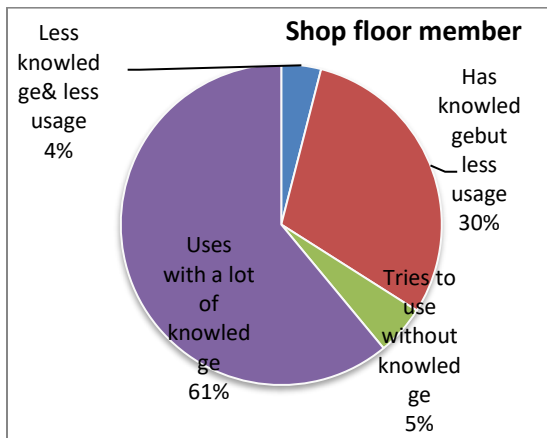
Figure 21 - Shop floor members' Commitment

The outcomes of those two questions are somewhat similar. It has mentioned that over 50% of the management and the shop floor members are using the lean concept with lots of knowledge and with the meaning, but it has to be questioned against with the results got earlier. At the same time, 42% from the management and the 30% from the member level mentioned that even though they have some knowledge on lean, the usage part was really less. That is another gray area where the more attention is required.

Last question is to generalize the questionnaire and it is about the career path of shop floor members. It shows that 70% of them are with the clear future career path, however other have not much.

Chapter 05 – Conclusion & Recommendations

5.1 Conclusion – Philosophy of the Linea Clothing

As shown in the literature review, under 4P model of Toyota Way, a Philosophy has been taken as a main principle in which highlighting the management decisions on long term philosophy that is to have long term benefits to the company in a meaningful way, even at the situation of sacrificing the short term financial benefits. It can be things such as investing on enhancing skills level, investing on innovative ideas, being responsible for your own tasks, generating value not only for the customer, but also to the society, make this principle work out.

As per the Lean Assessment done by the MAS Central Lean Consultants, the plant has been rated as the phase 3 level under the Policy Deployment which consists of the long term philosophy of the plant.

And also according to the explanation given by the Lean advocate of an organization, it has also mentioned that the company alignment, towards the long run, together with some waste identification and elimination activities in the total value stream. As per the interview, the organization was keener on the operational aspects than the people aspects, which get emphasized by talking more on the lay out changers and lead time reduction efforts. But it is the fact that, hence, people are the most valuable assets for the organization and they are the one who drive the organization towards the direction, invest on them is any time worthwhile.

Due to that the base management decisions are the crucial factor for philosophy; Considerable weight has been put in the Organizational Leadership. By analyzing the data taken from the Lean Leadership self-

evaluation survey, it has highlighted that, most of the leaders are aware where the organization will stand for in future, what is the vision / Mission of an organization, what are the key objectives towards it. And with the intention of reaching it, they have identified the some processes which need to be improved, to certain extend. But even though the leaders are aware on those, there is significant awareness and knowledge gap between the leaders and subordinates, or it can be interpreted as lack of awareness of the leaders on their subordinates, which has been proven through the leaders rating on the 7th element under Policy factor that is about the team awareness and the team contribution towards the achieving set objectives. Therefore there will be enough room for get more clarity on the business in the long term as a philosophy together with the alignment of the People factor as well.

5.2 Conclusion – Process factor of Linea Clothing

It is a fact that the right process will produce right results. According to the theory of 4P Model, there are seven elements that has mentioned, in order to have the best kind of results in the competitive trend. In the path of achieving process excellence, all mentioned elements are really essential to touch. Such as, some basis like, 5S & Visual management for arranging the work place in better manner, Problem surfacing mind set instead of hiding them, building the stopping culture to fix the problem to get quality right first time, so on so forth. Actually even it is about process, the cultural aspects of it was highlighted in the theory of 4P model.

As per the Lean advocate comments on the process part of Linea Clothing, over the past years as evident from the Lean projects carried out, they have been able to refine the process by making continuous changes to achieve high

value-added and continuous flow; and also most of the Lean tools are in every day practice which enable move forward the organization day by day.

Furthermore, as per the Lean Assessment results, the Process part and the Operational stability part has been rated as in Phase 02 instead of the rate given by the organization as phase 03. Actually that part was lower rated by the MAS Central Lean consultant, mentioning that, even though the strong foundation was in place towards the continuous improvement, it's essential to focus more on productivity based improvements & make it a self-sustain model embedding in to the culture.

Additionally, the findings through the Primary data analysis (Lean Leadership Self-evaluation tool), it is highlighted that most of the leaders are well aware on the own process; and most of them have thorough understanding with regards to the overall business. Another key point that, as an leaders of an organization, their commitment to practicing the Lean tools such as 5S, Problem Solving mind set, also somewhat there, which was rated in mid-level 50% -65% under the 5th and 8th element of Process part of a Tool. But again, the results showed that, as in contrast, some fundamental parts were lower rated. Such as, doing periodical process audits / Gemba walk to identify the further improvements, using the standards Work Sheets, Job Instructions Sheet, Standards Operating procedures, which are necessary to sustain the improvements they have done. If the sustain part is missing, there are no doubts that, even though thousands of improvements are done, the expected productivity level will remain unchanged or might go down.

When it comes to the level of shop floor members, most of them are using the tools without knowing the purpose of using such Lean tools. Since the organization has laid the strong foundation with the concept of lean, it will not be very hard to transfer for the sustaining part of the improvement that they have come up with.

5.3 Conclusion – Building People of Linea Clothing

Building People & partners is about the adding value to the organization through the developing people and partners who attached with. Under this 3rd P, 3 principles were originated, as,

Grow leaders, who lead and guide the business towards the right direction and the make decisions for long run of the organization (Philosophy) and teach it to the others

Grow exceptional people and teams who follows the organizational philosophy; there are the one who can create a strong and stable culture, and make the live of organization values, believes over the long period of time.

Respect to the partners and Supplier of the business with the intention of them taken as an extension of the business.

In relation to that, the comments of the Lean advocate of Linea Clothing, express that, while most organizations which follow Lean, would be satisfied through process improvement, but as they at Linea Clothing strive to develop a sustainable lean production environment through the development of their people.

As per the MAS Lean Assessment results, under the pillar of Culture of empowerment, it also get lower rated as in phase 02 whereas it has been rated in phase 03 by the side of organization.

Then again, according to the survey results captured from the Lean Leadership Tool, it has highlighted and calibrated leaders' eyes and mind on the real scenario of the people factor. It might be a good eye opening for every leader to make relevant adjustment in order to reach the development part of the people, work teams and partners as well. As per the results, though the most of the leaders have identified the strength and weakness of the

subordinates, in contrast says that the investment on strength, to reach opportunities, and get rid-off weakness, part has been somewhat missed by the leaders. It is very important to identify the strengths & weaknesses of the Team as this will build the basis for role allocation & skill development. Identifying the strengths will allow a leader to maximize the outcome of their team members, whereas identifying weaknesses can eliminate unwanted outcomes while building a platform for further development.

Considering the lower rated elements in People factor as per the leaders, an alarming 19% is indicated for the need for a training plan to bridge the skill gap of team members against to the expected level. A related aspect to this is a proper career development plan, which is shown by a figure of 38% is the same table. Even though a 38% rating has been given by leaders to indicate that they have a proper career development plan for his/ her team, only half of them possess a proper training plan to bridge the skill gap. In the lean philosophy, is building people & Toyota expresses it by stating that 'We just don't build cars, we build people' **(Toyota Talent; p3)**. This further enhances the need to build right leaders for the future with the right lean thinking, which is an absolute necessity to sustain lean culture in an organization.

5.5 Conclusion – Problem Solving Culture of Linea Clothing

According to **Liker (2004),** through the development of both the processes and the people Toyota is able to develop a culture that continuously solves root problems. Decision making and problem solving is done by those who experience them first, and for this decision making to be effective, it requires an established stable process, which is currently under establishment. However, even at this stage they practice consensus decision making where problems and potential solutions are discussed with all those who are affected. This provides a platform for developing alternative solutions for a single

problem and constructs creative means of solving the problem in the course of which the process is also significantly improved and ultimately resulted in prevention of the problem.

In the Lean Leadership Tool, it has discussed main three elements with regard to the culture of problem solving. Through the results, the leadership commitment on motivate team members for effective problem solving & generating the continuous improvement idea, was not in a favorable level. Even though if the leaders more or less get involve with the problem solving and improving the standards, that will not be success in long term, because the next layers members are the mostly engaging in the day to day operation and they are the one how create organizational to certain extend.

As per the Lean Assessment results, the pillar of effective problem solving has rated in phase 2 instead of phase 3 where the organization believe on. One comment from the assessment team was "Management involvement in problem solving can be further strengthened"

In the side of shop floor members, most of them were at least know that, what are the tools that can be used for Problem Solving; which is proven by the shop floor questionnaire.

Since systematic problem solving is important in 'Stop and fix culture' and it will improve productivity and will reduce costs, in the case of sustainable Lean culture, systematic problem solving is also pay a vital role, because, it is very important to identify the deviations if any, against to the set targets and objectives, while the organization in the path of seeking the long term sustainability in every aspect of the organizational culture.

5.6 Conclusion – Overall Apparel Industry in Sri Lanka

Lots of internal as well as external factors affect the industry. After the civil war there is rise in other industries such as tourism and services in the country. Therefore, industry experiences difficulties in attracting labor. On the other hand it is essential to state the overall perception of the population of Sri Lanka towards the workers of the garment industries. even though garment industry is one of the main contributors towards the Sri Lankan economy, unfortunately, the workers (especially the female workers) of the garment industries are negatively stereotyped by the majority of the Sri Lankan population.

The overheads costs are rising due to the facts like rise of fuel charges. As an industry these external factors are difficult to control. The countries like Bangladesh and Vietnam has a definite edge over Sri Lanka on overhead costs and labor. Therefore controlling cost is difficult as it varies with the country. However, there are many opportunities where the industry is able control the lead-time and improve quality by focusing on internal factors. If the lead-time and quality problems are prevented any company will have an edge over their competitors.

5.7 Recommendations

5.7.1 People – Succession Development plan

Based on the findings of the lean leadership tool and through the questionnaire of the shop Floor members, the area which was of least strength was on 'People' side. Having analyzed as to why the people aspect yield the lowest rankings, we can recommend that the sustenance of a lean culture depends on people therefore it is necessary to have a proper succession plan for all departments.

Most departments don't have a proper plan to build the 2nd, 3rd & 4th layers in a structured manner, which can be a huge mistake. The leadership is aligned with the lean thinking, but to sustain the lean culture in the organization, it is important to build the subsequent layers as well.

There are certain recommendations that could be given in order to correct this. Firstly, lean provides a great tool called skills matrix which could be used to develop the knowledge on department/ process related areas & this gives a clear indication as to where the department members stand in their knowledge on processes. Further, the leadership should use coaching as a tool to develop the next layer & should facilitate knowledge sharing & open communication. Further, if the leadership gives the freedom to their subordinates to innovate & improve things, the impact will be far greater.

Overall, it is very important to focus on people as both processes& policies are driven by people therefore developing the people factor could be taken as a major recommendation as this will make sure that the lean culture will be enhanced & sustained in the organization.

5.7.2. Process – Periodical Process Audit

After the data analysis done on the Process part of the Linea Clothing, it was highlighted that, the minimum consideration of the leadership was on the practicing periodically audit the processes.

In General, the Apparel industry in Sri Lanka, more or less human oriented and the core competency which Sri Lanka has gained is the product quality compared to the competitive countries as India & China. Thus to being competitive in the sector, Linea Clothing has already started the journey with Lean Concept to achieving excellence in every aspects.

As mention in the earlier as well, one of the main intentions of the implementing Lean to the manufacturing organization would be achieving the process excellence to get the product out with high quality, less lead time at lowest cost.

Nevertheless, before, to being able to achieving the next step of process, it is essential that, being sustained in the current condition of the process. Time that has taken to been sustained, would lay the strong foundation for further improvements as well. Then again, by doing a periodically process audits, the deviations from the expected levels or opportunities for improvements are empathized.

In fact that, Good process will produce good results, ask leadership to practice a process audits periodically, can be taken as one of the recommendation for having sustainable lean apparel culture.

5.7.3 Practicing the Lean Leadership Tool and evaluating the results at least quarterly basis.
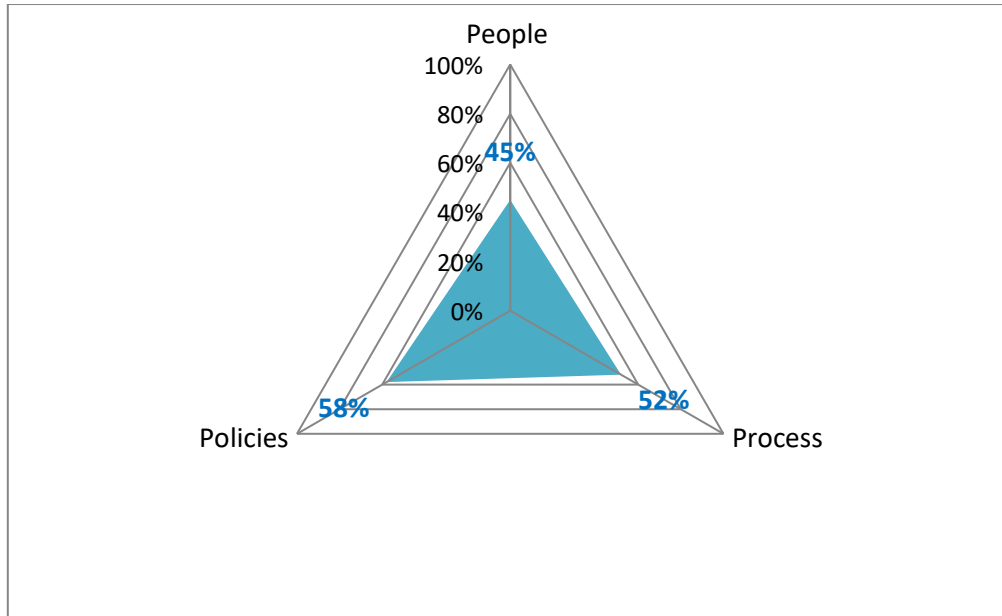
Figure 22 - Lean Leadership in 3 aspects

As per the summery of the results of self-evaluation done by Lean Leadership Tool, as an average leader, there are enough room for improve themselves as a lean leader in every aspects (People, Process and policies). Hence, in the conversion part of traditional leader to lean leader, would like to suggest to practicing this Lean leadership Tool by the Top Level Leadership at least quarterly basis to get the next lay leadership in to the relevant lean boat. Since they are the one who need to be act as a change agent, it will effect positively to the effort of Linea Clothing to being sustain in Lean Apparel Culture

Appendices

1 – Lean Leadership Tool

<table>
<tr><td colspan="8" align="center">Lean Leader Self Evaluation</td></tr>
<tr><td></td><td>People</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>1</td><td>I know my strengths, weaknesses & opportunities</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>I know the strengths & weaknesses of my Team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>I have identified the current skill levels of my team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>I have a proper career development path for my team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>I have done a training plan to bridge the skill gap of my team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>6</td><td>I have done Post Training evaluations properly</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>I regularly share knowledge & information with the team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>My team members openly discuss problems with me</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>9</td><td>My team has the freedom to communicate, try out & innovate things</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>10</td><td>I motivate my team for innovation & problem solving</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>11</td><td>I use a Skills Matrix in my department</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>12</td><td>I usually appreciate improvements & celebrate small victories with my team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Process</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>1</td><td>I have a good understanding about the overall process of the product</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>I have identified the current status of processes related to my team</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>I have a blue sky/ future status of the process of my area</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>I have identified areas of improvement</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>I regularly use problem solving & kaizens to improve standards</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>6</td><td>I maintain up to date STWs, SOPs & JITs related to my area</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>I do process audits periodically</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>I give focus to the 6S condition of my department</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>9</td><td>I use Ohno Circles, Gemba walks to improve the process standards</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Policies</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>1</td><td>I know the Vision & Mission of my organization</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>I know the main Objectives of the organization</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>I know the Blue sky/ future state of my organization</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>I know the meaning of Hoshin Kanri</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>I know the PO Matrix of my plant</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>6</td><td>I have cascaded the Plant PO Matrix to my Department</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>7</td><td>My team is aware about the PO Matrix & their contribution towards the main objectives</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>I lead projects & have live project charters</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>9</td><td>I use my MOS knowledge in my day to day work</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>10</td><td>I believe MOS as a strong tool to improve my organization</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="8" align="center">My Self as a Lean Leader</td></tr>
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