Evaluation model for organizational culture adaptations to implement Lean Manufacturing *successfully*

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Evaluation Model for Organizational Culture Adaptations to Implement Lean Manufacturing Successfully

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Abstract

Since the emergence of Lean Manufacturing, many organizations strived to implement it. Nonetheless, sustainable Lean transformation is not as easy as to be simply achieved. Several aspects need to be taken into account before Lean implementation which national and organizational culture are important. By considering influences of national culture on the organizational culture, this thesis aims at proposing an evaluation model to determine the cultural weaknesses of an organization and give some recommendations to manage people before implementing Lean. Therefore, the research question is "how to align the organizational culture to Lean culture?" and the general hypothesis is that "both national culture and organizational culture influence on successful Lean implementation".

In order to answer the question and test our hypothesis, this research has been conducted based on literature review survey and multiple-cases study. For literature review survey, research papers, conference proceedings, books, and official websites regarding Lean philosophy were reviewed to find the influence of national culture in Lean implementation. Different databases were scrutinized, from 2015 to 2017, containing Scopus and Web of Science with the period of 1996-2016. The evaluation model was developed including six dimensions and our general hypothesis was extended. The level of each dimension indicating preparedness of organizational culture for Lean implementation is provided including Low, Moderate, or High. For each dimension, a checklist is provided in order to evaluate the level that a company has before Lean implementation in order to detect misalignments and possible problems. For multiple-case studies, we used codification method to systematically collect required qualitative data on their organizational culture. Factors and related soft practices that are essential for successful Lean implementation were considered as codes and sub-codes, respectively. Soft practices are human-related-practices that emphasize on organizational culture, managerial concept, and human relations that are often neglected during adoption processes of Lean. The initial code list was prepared based on literature review. Codification process continued with conducting pilot interviews. The code list was refined after a few times of revision. To validate the model, three organizations were chosen based on inclusion criteria such as: Companies should be selected from manufacturing industry; Companies have implemented Lean production for many years; Medium to Large Companies are more preferable; Companies should be chosen from different countries. A semi-structured interview was conducted with the production manager of each organization. Depending on the access to the

participants, the interviews were conducted face to face or through Skype. To greaten the clarity, contacts were made again with the respondents whenever ambiguities arose. The checklist were used to find out the level of organizational culture for proposed dimensions. Moreover, public information were collected from their official websites.

To facilitate the analysis of cases, the sub-codes were linked to the related questions of the checklist. The weak points of the organization culture were highlighted through the checklist. To strengthen the analysis in aspect of national culture differences, scores of Hofstede national model and GLOBE studies that are accessible for public users were used. The organizational culture was analyzed as well as compared with our expectations from national culture and its influences on Lean implementation. From the case studies, we can conclude that the proposed model is helpful to detect misalignment problems between Lean culture and national culture before implementation and consider some managerial strategies to avoid possible problems. In this way, some actions are also proposed for the problems detected. Finally, specific solutions were recommended for the detected problems of the studied organizations.

To conclude, the proposed evaluation model is a guide for organizations to determine cultural misalignments between corporate culture and Lean culture before its implementation. Moreover, some general recommendations have been provided to align different dimensions. Finally, some future directions have been suggested.

Keywords: Lean manufacturing, Toyota production system, organizational culture, national culture, Lean implementation

Declaration

I hereby declare that all information in this document has been obtained following the academic rules and ethical conduct. This thesis contains my own work which is based on my own research.

Dedication

I would like to dedicate my thesis to my beloved parents,

Davood Taherimashhadi and Homa Taheri, for their

inspiration and tremendous sacrifices.

Acknowledgements

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Abbreviations

Acronym	Definition
5S	Sort, set in order, shine, standardize, and sustain
CEO	Chief Executive Officer
GLOBE	Global Leadership and Organizational Behavior Effectiveness
GM	General Motors
GMRG	Global Manufacturing Research Group
HPM	High Performance Manufacturing
IDV	Individualism
IMVP	International Motor Vehicle Program
IND	Indulgence
JIT	Just-In-Time
LP	Lean Production
MAS	Masculinity
PDI	Power Distance Index
SME	Small to Medium enterprises
SMED	Single Minute Exchange of Die
TBP	Toyota Business Practices
TQC	Total Quality Control
TPS	Toyota Production System
UAI	Uncertainty Avoidance Index
VSM	Value Stream Mapping

Chapter 1: Introduction

To be admitted to global markets, organizations are obliged to obtain an appropriate level of excellence. Industrial interactions and trading on a global level require the use of high performance work systems and practices. Indeed, not only products and services have been globally transferred in last decades but also manufacturing and management practices are being passed among countries much quicker than before (Aycan et al., 2007). Lean production has been firstly emerged as new organizational model for automotive industries. However, it is being evolved as result of adoptions by other industries and the adaptations that are being made. The philosophy of Lean production embraces creation with minimum or zero wastes and guarantee of quality so that organizations will benefit from cost reduction and productivity. Beside technological methodologies, Lean production highlights and values the role of employees in success of the organization through considering several human-related practices or soft practices that make the implementation complicated. Several reports have been published by the organizations and the academic researchers revealing the fact that they have confronted distinctive problems during the implementation (Scherrer-Rathje et al., 2009a; Sim and Chiang, 2012; Turesky and Connell, 2010; Vamsi Kishna Jasti and Kodali, 2016). Mike & Slocum (2003) assert that applying strategic realignments or structural changes will not be successful unless they are supported by values and norms of the organization. Values foster norms that influence on employees' behavior. In addition, successful transformation to Lean requires necessary adaptations of Lean values to the local context (Pheng & Shang 2011; Parkes 2014; Liker & Convis 2011). According to Berry (2005), sometimes mutual adaptations happen easily whereas they can also create cultural conflicts and acculturative stress during intercultural interactions. According to James and Jones (2014), Toyota have still experienced various cultural inconsistencies in transferring Lean principles into India after a decade such as:

- *Industrial relations*: As Lean organizations are flexible and adaptable to market demands, both temporarily and permanent workers are needed to work which is against the Indian industrial relations that assure workers of long-term and permanent employment.
- *Decision-making*: while Lean production emphasizes on decentralization of decision-making process and empowerment of teams, Indian culture highlights centralized decision-making and hierarchal relationships. In Indian culture, there is a belief that superiors are wiser and experience people who protect and nurture the subordinates. Therefore, a series of problems happened in applying continuous improvement concept and quality circles since such decisions are made by superiors in India. In addition, Indians are willing to please the superiors so that they do not report sever problems that currently exist in understanding or application.

- *Work ethics and motivation*: while lean organizations require devoted and committed employees to increase the productivity. Indian employees are oriented toward personal relationships; they are informal and emotional people with lack of discipline. Moreover, while time consciousness is important in Lean production, Indians employees complete their assigned tasks in their own time so that they attend in other social needs during work hours and they would often volunteer to work overtime with no extra pay in order to compensate.

Parkes (2016) claims that British national culture is not consistent with characteristics of Lean and transforming is not something impossible but it takes more time to adapt to Lean culture. Kidd and Kanda (2000) asserted that cultural inconsistencies affect strongly on implementing strategic plans. The authors examined the cultural differences of the production manager from Japan and Britain and the major difference appears in the communication style. Despite the Japanese, British managers tend to broader informal contacts and because of their low context culture, similar to US and Swiss, they need the explicit share of information. Fenwick et al. (2003) claims that cultural conflicts could arise even with the familiarity in language, past and culture. Despite the similar culture of Britain and Australia, the authors reveal that lack of cultural preparedness creates unanticipated problems with routine interpersonal interactions. Zimmermann and Bollbach (2015) point out China's traditional norms of management, education, and legal systems are cultural barriers to achieve continuous improvement targets. The Netherland has been severally reported as the challenging country for transfer of Kaizen (Yokozawa and Steenhuis, 2013; Yokozawa et al., 2012). According to Wangwacharakul et al. (2014), following concepts in implementation of Lean are highly dependent on local company context and national culture: Operational development, Continuous improvement, Goal oriented teams, Cross-functional work, Organizational design and Leaderships. They also understood that some cultural characteristics of Swedish organizations including low hierarchy, decentralized decision making, individuality, uncertainty acceptance, and capacity of negotiation and compromise can hinder employees' performance during the implementation of Lean.

Hofstede (1984) examined national culture effects on management and identified six dimensions to characterize basic differences among nations. In 1991, the University of Pennsylvania conducted the GLOBE Project to extend Hofstede's work and proposed three new dimensions (House et al., 2004). In 1998, a new model was developed by Trompenaars and Hampden-Turner (1997). The model includes nine dimensions that explain how national cultural differences affect doing a business.

Cagliano et al. (2011) assert that there is no cultural profile or single cultural dimension that is dominant in fostering the adoption of the overall new forms of work organizations and high performance work systems that highlight human resource practices such as team work, multi-skilling, delegation, job enrichment, job enlargement, training, and involvement. However, several studies applied national cultural models to figure

out if there is common cultural profile for successful Lean organizations. Pakdil and Leonard (2015) examined the interconnection of societal culture and lean processes by using national model of Hofstede (1984). The authors understood that collectivist cultures, low uncertainty avoidance-oriented societal cultures, and low power distance-oriented cultures are more focused on employee involvement and creativity at team level. Whereas, opposite cultures are focused on control and standardization. Bortolotti et al., (2015) in along with Kull et al., (2014) analysed the culture of Lean organizations by using GLOBE model. On the one hand, Bortolotti et al., (2015) examined soft practices and includes that all Lean organizations share common cultural characteristics including a higher institutional collectivism, future orientation, a humane orientation, and a lower level of assertiveness. On the other hand, Kull et al., (2014) analyzed hard practices and provided organizational culture for predicting effectiveness of Lean which it consists of high uncertainty avoidance, low assertiveness, low future orientation, and low performance orientation.

Literature review reveals that national culture has a great influence during Lean implementation and it seems interesting to be able to assess the lack of alignments between both cultures in order to manage and facilitate a sustainable implementation. Differences in reactions of people to get used to new way of working, how to convince and motivate them to participate in transformation to Lean are crucial issues that managers should know. We believe that it is necessary to consider both organizational and national culture, to understand the failure of Lean implementation in Japanese companies and the success in non-Japanese organizations.

1.1 Research Purposes, Question, and Hypotheses

This research aims at proposing an evaluation model to examine organizational and national culture before implementing Lean, determine cultural weaknesses of an organization, and give some recommendations to align the corporate culture to the Lean culture before its implementation. The research question is "*how to align the organizational culture to Lean culture*?" Our principal hypothesis is that "*both national culture and organizational culture influence on successful Lean implementation*". Later, as the research progress, several hypotheses were identified to follow the research more comprehensively and accurately. They are explained in chapter 4 where the evaluation model is proposed.

1.2 Methodology of the Research

The focus of the research is on developing an evaluation model to detect misalignments between the organizational and national culture with Lean culture. Literature review is conducted to create the evaluation model. Therefore, organizational culture of Toyota and cultural profiles of successful Lean organizations were scrutinized. Since, the cultural models targeted different respondents, including non-

managerial employees in Hofstede (1984); managerial employees in GLOBE (House et al., 2004); both managers and employees in Trompenaars and Hampden-Turner (1997), it seems that different aspects were observed in each model. Hence, dimensions of three models were grouped and integrated into one. The indicators of each dimension were recognized as a result of literature review. Moreover, we have provided the level of each dimension that fits with Lean culture including Low, Moderate, or High. The proposed model includes six dimensions.

Next, multiple case studies is conducted to learn how organizations aligned their culture to Lean culture. Three companies were selected which located in different countries including one large automotive manufacturing in Iran, one automotive suppliers located in Spain, and one pastry producer in Netherlands. The application of the soft practices will be analyzed in several organizational aspects such as Managerial practices, Employees' participation, Work teams, Employees' commitment, Motivation system, Employees' training, and cultural changes.

1.3 Structure of the Thesis

The rest of thesis has been organized in five chapters: Chapter 2 analyzes literature review. The concept of Toyota production systems is discussed. Critical success factors and the barriers of Lean implementation were collected. In addition, To clarify Lean culture, organizational culture of Toyota is reviewed and the importance of national culture for successful Lean transformation is argued through explaining three national models such as Hofstede (1980), Trompenaars and Hampden-Turner (1997) and House et al. (2004) .

Chapter 3 provides the research design of this study which created to address the research question and hypotheses. The research is conducted based on multiple case studies. Sources of data collection were explained. Also, the quality of the research has been justified.

Chapter 4 proposes the model to evaluate required alignments of organizational culture prior to Lean implementation. The model includes six dimension. Three levels have been introduced for each dimension. With respect to the proposed dimensions, the general hypothesis is expanded to six new hypotheses. In addition, the codification process is illustrated in details which we have created to facilitate interviews and data analysis. For each dimension, the initial code list based on literature review along with modifications after conducting pilot interviews are clarified; the final refinement of code list is presented including success factors as codes and essential soft practices as sub-codes. Soft practices are human-related-practices that emphasize on organizational culture, managerial concept, and human relations that are often neglected during adoption processes of Lean. Then, the possible problems related to soft practices are shown at the

end of the codification process. Finally, for each dimension, a checklist is provided in order to evaluate the percentage of organizational culture misalignments with Lean culture and detect problems.

Chapter 5 analyzes the role of national culture and the organizational culture in implementation of Lean based on cases studies. For each case study, a brief description of the organization is given. Next, for each dimension, it is explained what one can expect related to the implementation of soft practices if aspects of national culture are considered. Then, we analyze the information collected by checklist and conducted interviews to evaluate the alignment of the organizational culture with Lean culture in order to detect the weak points. Therefore, while the organizational culture is analyzed, it is also compared with our expectations from national culture in order to examine our hypotheses.

In chapter 6, our conclusions from analyzing the cases and some managerial recommendations related to each dimension are given to facilitate the successful transformation.

Chapter 2: Literature Review

The creation of Lean Production rooted in the production system of a Japanese automotive company called Toyota Motor Corporation and it was introduced to the world of industry as a new way of making things in the book published "the machine that change the world" by Womack, Jones, and Roos (1990). The term "Lean Production" coined by John Krafcik who was one of the writers of the book and a researcher at International Motor Vehicle Program (IMVP). Since then, Toyota Production System (TPS) is often used interchangeably with the terms "Lean Manufacturing" and "Lean Production" (Wilson, 2010). Nowadays, different organizations try to resemble the Toyota Way. Not only tools but also management practices of TPS are widely developed and employed in different industries and organizations, which successfully applied the philosophy, are called as Lean organizations.

In fact, ultimate goals of both Craft production and Mass Production are combined in Lean philosophy. First, similar to Craft Production, Lean philosophy assures that what the customer asks for is exactly provided and second, contrary to Mass production, it emphasizes on perfections instead of "good enough". In fact, Lean philosophy emphasizes on creating more values for the customer meaning that producing in high quality of what the customer exactly wants by means of eliminating all kind of wastes and using less resources. Therefore, in a Lean organization, an activity that creates costs not value for the customer is called non-value-creating activity and should be removed or improved immediately. A set of principles were recognized to go beyond automotive production and make TPS applicable to different types of organizations from any sector and any industry and this is what Lean philosophy is exactly. Figure 2.1 shows five principles of Lean philosophy. By finding the value from customer view and flowing it into all processes of the organization, the exact quantity and perfect quality will be produced.
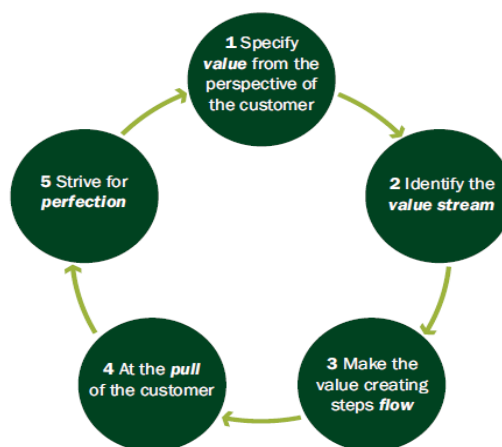
Figure 2.1 Five Lean Principles (Hines et al., 2008)

Lean philosophy perfectly conveys the concept of system and interdependence. When one part of a Lean organization changes, other parts must change in a way that the entire organization coordinate smoothly again. Otherwise, the whole organization will fail. This requires not only a conscious awareness on the state to recognize any change that appears but also the organization must be flexible enough to adjust.

To create a highly-integrated organization, Lean Philosophy greatens organizational collaborations in different directions. First, it enables the organization to facilitate internal collaboration both horizontally and vertically. According Wilson (2010), a Lean organization is not only financially and physically leaner; it is emotionally much leaner than non-Lean facilities. People work with a greater confidence, with greater ease, and with greater peace. Second, it empowers the organization to establish flawless relationship with its suppliers with the aim at developing mutual benefits.

In last decades, many researchers and authors tried to describe concisely Lean production whereas it seems there is no consensus on a definition of this term. Shah and Ward (2007) believe that the price paid for lacking a clear, agreed- upon definition is high because empirical testing of inexact imprecise concepts leads to a body of research that examines slightly different aspects of the same underlying constructs masked by different terminology. Pettersen (2009) reviewed the contemporary literature on lean production and concluded that the definition of lean production is highly elusive. Some authors have attempted to define the concept while others have raised the question of whether the concept is clearly defined. Hines et al. (2004) stated that there is significant confusion about what is Lean and also claimed that the concept of Lean has evolved over time, and will continue to do so. Dahlgaard and Mi Dahlgaard-Park (2006) believe in the same way and expressed that there is a wide spread confusion and misunderstanding of what is Lean production. Additionally, Taylor et al. (2013) numerate the aspects of Lean where knowledge is lacking: its definition and characterization where there remains confusion and imprecision, softer human issues associated with Lean implementation and finally the ability of firms to harness their Lean implementations to achieve performance improvements and to sustain these gains over time.

This chapter aims to provide more clarifications about Lean philosophy by discussing the following objectives:

Objective I) Concept of TPS

Objective II) Implementation of Lean philosophy

Objective III) Lean culture:

       Sub Objective III- I) Organizational culture of Toyota

       Sub Objective III -II) Importance of national culture

2.1 Methodology of Literature Review

In order to understand Lean philosophy, articles of journals and conferences, various books, unpublished works, as well as official websites related to both TPS and Lean philosophy were reviewed. From 2015 to 2016, different databases were scrutinized including Web of science and Scopus. For searching papers, 1996-2016 was considered as date range. References and citations of most papers were reviewed. Because Lean culture was determined as one of the objectives of this research, it was decided to select only studies that considered manufacturing industries to examine similar pattern of behaviors. For finding books, there was no limit of time. Most related and recommended books were chosen. Search items include Toyota Production system, TPS, Lean management, Lean production, Lean manufacturing, Lean transformation, Lean implementation, Lean and practices, Lean and barriers, Lean and impediments, Lean and challenges, Lean and difficulties, Lean and Human resource, as well as Lean and success factors. Moreover, reference list of related studies were scanned. Beside the chosen time period, important studies and books that were published before 1996 were also taken into consideration.

At first, a large number of studies were found but then, the search was restricted to studies in the subject area of "Business, Management and Accounting". In addition, the studies were excluded that meet any of the following criteria:

1) Not related to Lean philosophy implementation
2) Not related to soft practices
3) Not related to cultural aspects
4) Not conducted in manufacturing industries
5) Not written in English.

Finally, 112 articles were found to be eligible to target.

Moreover, rest of the chapter is structured in a way that each section and its sub sections devoted to one of aforementioned objectives.

2.2 Objective I: Concept of TPS

Since Toyota is the best example in both excellent performance and successful implementation of Lean production, truly understanding main concepts of TPS is a must. In the creation of initial concepts in TPS, US auto manufactures played an important role whereas the ingenuity of its founder and executives cannot be neglected in further developments of Toyota system during the time. According to Pheng and Shang (2011), the hidden mechanism of the Toyota Way is integrated with its philosophy, production system, human development, and problem solving mindset. A technical mindset facilitates using operational

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methods to achieve productivity and quality improvements, defects and lead-time reduction, cost savings, etc. while ignoring the importance of the ''respect for people'' principle is a normal phenomenon.

To replicate the Toyota Way successfully, instead of only focusing on tools, Spear and Bowen (1999) emphasize on understanding the whole system of Toyota itself. They clarified TPS by several rules. All the rules require that activities, connections, and flow paths have built-in tests to signal problems automatically. The continual response to problems makes this seemingly rigid system so flexible and adaptable to changing circumstances:

1. All work shall be highly specified as to content, sequence, timing, and outcome.
2. Every customer-supplier connection must be direct and there must be an unambiguous yes-or-no way to send request and receive responses.
3. The pathway for every product and service must be simple and direct.
4. Any improvement must be made in accordance with the scientific method, under the guidance of a teacher, at the lowest possible level in the organization.

Taiichi Ohno (main developer of TPS) describes it as a production system which is a quantity control system based on a foundation of quality, whose goal is cost reductions by means of the absolute elimination of wastes (Wilson, 2010). He also pictured it as a house to indicate that TPS is a structural system (Liker, 2004). Figure 2.2 shows the combination of different concepts that structure a house.
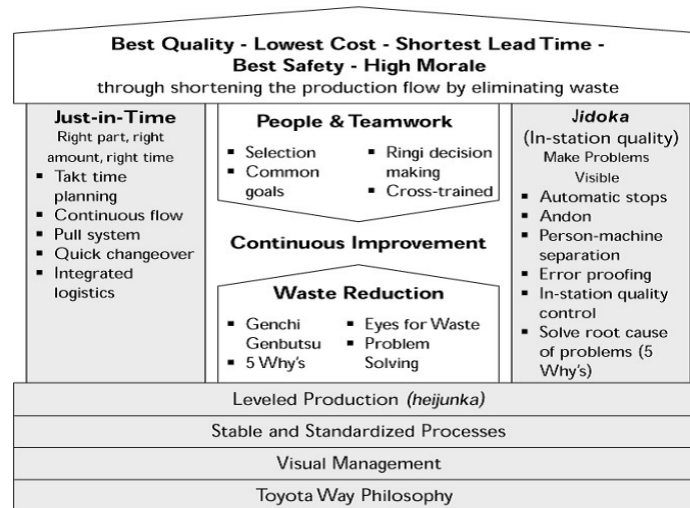
Figure 2.2 Toyota Production System (Liker, 2004)

To start explaining main concepts, the definition presented by Ohno was divided in to following sections:

- cost reductions

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- absolute elimination of wastes
- a foundation of quality
- a quantity control system

2.2.1 Cost Reduction

Shingo (1989) points out that many companies determine the price of their products by using the following basic cost formula:

Cost+ Profit= Selling Price

Since the market or consumer always determines the appropriate selling prices, in TPS following formula is used:

Selling prices – Cost = Profit

It is profitability that keeps the business growing (Pheng and Shang, 2011). Increase in profit needs cost reductions or improvement of productivity that is a primary goal of TPS. According to Monden (1993), it is essentially cash outlay to make a profit in the past, present, and future to be deduced from sales. Hence, costs in TPS include not only manufacturing costs but also sale cost, administrative costs, and even capital costs.

Back to early 1980s, Toyota confronted series of issues. As a result of two successive oil crises in Japan and the worldwide economic recession, automakers were forced to speed up decision-making and use more efficiently of economic resources (Toyota Motor corporation global, n.d.). As the standpoint of efficient utilization of economic resources, atomization in TPS results in cost reduction. According to Shingo (1989), separation of worker from machines in multi-machine handling operation lead to lower rate of utilization of machines. In TPS, lower machine operating ratios are preferred to idle time for operators. The reasons behind this are explained in the following:

1. Once machines and equipment have been depreciated, they are essentially cost free.
2. Operator cost per hour is generally much greater than machine cost.

Some factories build their production schedule based on their forecasts. According to Womack et al. (1990), the accuracy of these forecasts obviously depends on how frequently the built schedule is revised. This is typically every ten days in Japan compared with every month to six weeks in West. In agreement with Shingo (1989), in spite of Ford's anticipatory production, production is based on confirmed orders at Toyota that is adapted to a market that demands fast delivery of a wide variety of models, each produced in small

quantities. However, here is a question that comes up. How Toyota could be successful in such dynamic and uncertainty conditions?

First, in 1970, Toyota started to handle daily orders through a daily order system that enabled Toyota to create a daily assembly sequence plan, taking into consideration order priority and production leveling, and send it to the body plant. The body plant then issued production instructions to the various processes based on the Assembly Line Control System (Toyota Motor corporation global, n.d.).

Second, to shorten the time required for producing multiple models, Toyota was empowered by applying Single Minute Exchange of Die (SMED). SMED system aims at reducing changeover times to a single digit, or less than 10 minutes (The Lean Enterprise Institute, 2008).

Third, the core difficulty is how to cope with fluctuation in demands that can happen daily, monthly or even annually. Here is where lead-time needs considerable attention. Lead-time is timeline from the moment that a customer orders to the point that he pays the price to the company. Therefore, according to Wilson (2010), reducing the lead-time is a key method in improving cash flow in the company. Decrease in lead-time helps in being more responsive and flexible to any changes in customer demand.

Finally, by leveling or smoothing customer demands, not only Toyota is sure of continuous flow of production and reduction in utilizing of resources but also it enables production to meet efficiently customer demands while avoiding batching. Heijunka is Japanese word that refers to production leveling. To prevent individual processes from being burdened by excess personnel or equipment, production items and production volumes were equalized. This results in minimum inventories, capital costs, and production lead-time through the whole value stream. As a result of achieving level production from assembly lines to the retrieval of materials, the Just-in-Time system could be implemented on an even higher level (Toyota Motor corporation global, n.d. , Monden, 1993). In fact, predictability, flexibility, and stability are connected together by Heijunka. when implemented correctly, Heijunka provides predictability by leveling demand, flexibility by decreasing changeover time and stability by averaging production volume.

2.2.2 Absolute Elimination of Wastes

"Respect for people" is considered as a core value in Toyota Company. Koenigsaecker (2009) along with Liker and Convis (2011) highlight that respect for people starts with a sincere desire to contribute to society through providing the best possible products and services. This extends to respect for the community, customers, employees, and all business partners.

Putting ahead needs of customer is the specialty of TPS. Pedersen and Huniche (2010) explain that TPS is essentially about increasing customer value and reducing waste by optimizing processes within and between organizations, departments, and teams. Waste is anything that does not add value to the customer.

According to Pavnaskar et al. (2003), waste takes many forms and can be found at any time in any place. Gupta and Jain (2013) assert that there are two types of waste. The obvious wastes are defined as unnecessary transportation, excess inventory, motion waiting, overproduction, over processing, and defects. The hidden wastes are resulted from variability. Indeed, according to Hines et al. (2004), a key aspect is the ability of TPS and supply chains to cope with variability. In order to add value to the customer, TPS seeks to find ways to manage variability and to create capacity by utilizing assets more effectively than in traditional systems.

Toyota gets better understanding of value by listening to "Voice of the customer". Figure 2.3 shows the number of customer reviews received annually at Toyota in Japan. The entire company strives to ensure enhanced satisfaction by delivering "Voice of the customer" to the relevant departments and utilizing it to improve both customer support and the quality of work and products (Toyota Motor corporation global, n.d.).
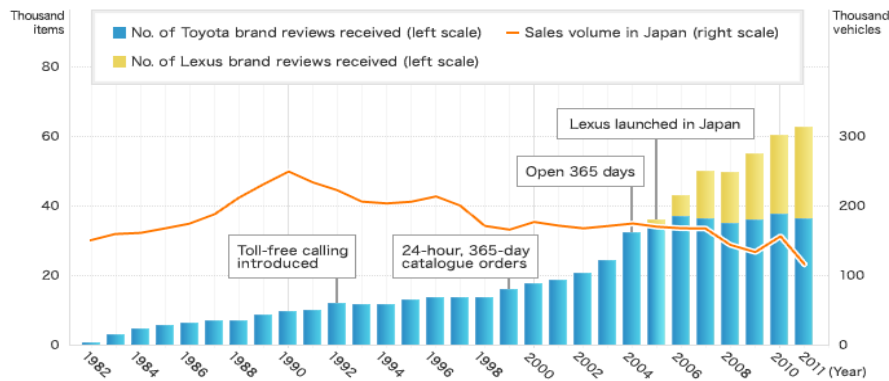
Figure 2.3 Number of Customer Reviews Received Annually in Japan (Toyota Motor Corporation, Toyota-global, 2016)

2.2.3 A Foundation of Quality

Toyota is well known to produce in high quality since it has assigned the main priority into winning the customer trust in order to receive benefits. According to Liker and Convis (2012), Toyota accepts challenges with a creative spirit and the courage to realize their own dreams without losing drive or energy. Toyota's desire in achieving the highest level of quality led to the current quality control, which includes incorporating quality within processes, controlling through statistical techniques, and quality checking on characteristic points. According to Spear and Bowen (1999), activities and processes are being constantly challenged and pushed to a higher level of performance, enabling the company to continually innovate, and improve.

It was a result of the spirit of kaizen (continuous improvement) that in 1970 after years of experimentation and strenuous team efforts, the entire system came to be known as the "Toyota Production System" (Toyota Motor Corporation, Toyota-global, 2016). Toyota is always eager to compete for perfection. According to Wilson (2010), Toyota has shown a great awareness of the world of manufacturing with their ability to be introspective and questioning. Toyota clearly understands the concept of continuous improvement and recognizes that its system is never fully optimized. The concepts such as Creative ideas suggestion system, Jidoka, Total quality management, problem solving, and standardization of work shaped the foundation of quality in TPS which are explained in the following:

Creative Idea Suggestion System
Being creative is the fundamental concept behind the slogan of "Good Thinking, Good Products" that embedded in all activities of Toyota factories around the globe. In order to highlight potential issues, in 1950, Creative Idea Suggestion System was introduced based on Ford's suggestion system. The purpose was to empower each employee to participate in improving product quality by inviting them to make informed suggestions on ways to improve the production process. Previously, it had only been the privilege of upper management to make suggestions in that respect, but it was now opened up to include employees at the sharp end of production; arguably the ones most likely (Toyota Motor corporation global, n.d., Toyota UK," n.d.)

According to Shook (2009), conventional suggestion systems in the U.S. are designed to encourage big suggestions. They give big awards; suggestions are reviewed by big committees, and expect big results. However, Toyota applied simple suggestion system with very small rewards in comparison. This enables workers to easily submit their suggestions and expect immediate feedbacks. When a worker had an idea for a to do a certain job better, in order to get the agreement to try, all he had to do was discuss it with his team leader. If it works, the worker will be awarded money. For the good one, the worker might get double. This motivates employees for suggesting further ideas. Extra motivation was incorporated into the system with the establishment of an Individual Annual Award to honor excellent suggestions, today split up into gold, silver and bronze medals like a form of internal Olympics. However, the real value of the system was that it provided motivation to employees by focusing on their skills and creativity.

The system went into operation in 1951 and has been improved and expanded since then. As the years have passed, the system has become steadily more productive. In 1955, first exhibition on Best Practices conducted. Ideas of 1,000 yen or more reviewed from December 1954 to May 1955 exhibited. In 1964, Creative Idea Suggestion System handbook distributed to all employees. Logo to illustrate the Good Idea philosophy created in 1967 (Toyota Motor corporation global, n.d.).

Ramirez (2013) who is a researcher innovation management explains the advantages of small ideas collecting in Toyota's suggestion systems as follows:

1. Encouraging employees to share small ideas can help a company build a strong innovation community and culture. Without much thought, employees can come up with small ideas as they work on their daily tasks.

2. Many small ideas in succession often lead to big ideas.

3. Implementing big ideas requires significant resources including people, money, and time. Nevertheless, small ideas can be implemented quickly. They usually do not need much time or resources. Once implemented, a useful, small idea can quickly improve a process. This leads to higher employee motivation to submit more ideas.

Jidoka

During the Second World War, Toyota had become highly inefficient and Kiichiro Toyoda's Just-in-Time system had collapsed completely (Toyota Motor corporation global, n.d.). To work effectively, Ohno realized that quality is another factor that had to be controlled (Wilson, 2010). Since Just-in-Time production is highly dependent on a production flow of parts without delay, it is important that no defective items are produced (Pegels, 1984). Jidoka (automation with a human wisdom) contains a series of cultural and technical issues related to the use of machines and manpower together which give assurance that quality is built during the manufacturing process which conveys this concept that "no bad parts are allowed to progress down the production line. For an automated line, this usually involves the installation of sensors and switches to automatically stop the line when an abnormality is detected. As a result, only products satisfying quality standards will be passed on to the following processes on the production line. Moreover, it means a machine safely stops when the normal processing is completed. Jidoka makes workers to be in charge of many machines since a machine automatically stops when processing is completed or when a problem arises. The communication is via visual management tools such as Andon which enables operators confidently continue performing work at another machine, as well as easily identify the problem's cause to prevent its recurrence (Shingo, 1989).

Total Quality Management

At the start of 1955, although Toyota grew rapidly, the improvement in the quality was not keeping pace with the increase in productivity. Along with the intensive competition with the rivals on the quality, the lack of thorough training, the lack of ability and experience of managers, as well as poor horizontal communication stood out. To resolve the shortcoming, the regular quality control activities were expanded

to a company-wide initiative. Firstly, top management has to set clearer quality targets and ensure these were thoroughly transmitted to employees, and secondly to put in place a system to improve functional cooperation between departments. In 1961, Total Quality Control (TQC) was introduced with the aim of improving business management through full employee participation under the following policies (Toyota Motor corporation global, n.d.) :

- Heighten awareness of quality and cost as well as improving management systems for each function.
- Enhance planning and ensure smooth production start-up for new products.
- Develop close cooperation with Toyota Motor Sales Co., Ltd. and suppliers.

To start, Toyota worked to deploy quality control education, led by the Quality Control Division, launching a campaign to halve product defects. Manufacturing front line study sessions were held mostly for the various workplace supervisors (the plant general manager and group managers) to address workplace problems. The concept of "building quality into the process" gradually began to take root in the manufacturing group. The company also worked to deploy quality-control management methods such as control cycles in the administrative group and engineering group. Control cycles are small groups of workers and their team leader who collectively identify problems in their work area, analyze them, and provide solutions (Toyota Motor corporation global, n.d.).

In 1965, Toyota was awarded Deming prize. The next year, Toyota established a purchasing administration division to promote Total Quality Control (TQC) activities involving all of its operations-including those of suppliers-and commenced to communicate the knowledge and experience it gained through winning the Deming prize to its affiliates and suppliers. The award was created with an aim to further promote quality control among all Toyota-related entities by adopting and expanding on the spirit of TQC in Toyota fashion. In fact, TQC Award had done much to strengthen the Toyota Group. The introduction of this award program was a major motivation for Toyota suppliers. In 1966, "All-Toyota Quality Assurance" adopted as group-wide slogan (Toyota Motor corporation global, n.d., Toyota UK, n.d.).

Problem Solving

According to Liker and Convis (2012), the problem-solving process used at Toyota is currently called Toyota Business Practices (TBP) although it has gone by other names in the course of the company's history (such as Practical Problem Solving). Toyota takes pride in the quality of both its products and processes. The ability to solve problems effectively has always been necessary to ensure this quality (Toyota Motor

corporation global, n.d.). Wilson (2010) explains the uniqueness of Lean in managing quality in the following areas that the first three of these distinctions are cultural rather than technical:

- A quality problem is not just a reject; it is a failure of the system which is owned by all.
- The quality problem is not bad news, rather it is often good news, signaling a weakness that can now be understood and corrected, thus leading to a more robust system, rather than be ignored and forgotten only to reappear again.
- Everyone participates in technical solutions to problem solving.
- The system uses a system of tools such as Poka-yoke to attain 100 percent inspection.

Ohno believed that "Having no problems is the biggest problem of all". He saw a problem not as a negative but as "a kaizen opportunity in disguise." Whenever a problem suddenly appeared, he encouraged his staff to explore problems first-hand until the root causes were found. The root cause of any problem is the key to a lasting solution (Toyota Motor corporation global, n.d.).

Liker and Convis (2012) assert that Toyota Production System is designed to make problems visible to challenge people so that they grow and become better problem solvers and better people. Spear and Bowen (1999) claim that Toyota Production System creates a community of scientists. According to Dombrowski and Mielke (2014), autonomous problem solving is among the least accomplished goals and requires long-term employee development. It is crucial that every employee internalizes the company's problem-solving procedure. This cannot be achieved through classical teacher-centered education but only through daily development by coaching. All employees, even top performers, are developed. The practices such as A3 report, Genchi Genbutsu, Gemba Walk, and 5 Whys are shaped problem solving concept in Toyota.

Standardization of Work

According to Kato and Smalley (2011), another famous tool that originated within Toyota during several decades is the combination of motion, time, and work analysis. The Toyota Production System organizes all jobs around human motion and creates an efficient production sequence without any waste. Work organized in such a way is called standardized work (Toyota Motor Manufacturing. Toyota Kentuck, n.d.).

Standardization of work is establishing precise procedures for each operator's work in a production process based on three elements: Takt time, Working Sequence, and Standard In-Process Stock. By documenting the current best practice, standardized work forms the baseline for kaizen or continuous improvement. As the standard is improved, the new standard becomes the baseline for further improvements, and so on. Improving standardized work is a never-ending process (The Lean Enterprise Institute, 2008).

- Takt time, which is the rate at which products must be made in a process to meet customer demand.
- The precise work sequence in which an operator performs tasks within Takt time.
- The standard inventory, including units in machines, required to keep the process operating smoothly.

Moreover, standardization of work facilitates the recognition of problems as well. Any difference between what have been considered as standards or criteria and what is actually happening shows that a problem exists. It also helps to prevent individuals work based on own spontaneous decisions.

2.2.4 A Quantity Control System

According to Wilson (2010), TPS had a foundation of quality, but it is not a quality system. They simply could supply high-level quality. Whereas, quality improvements were not what they needed to focus on to reach a higher level of manufacturing excellence. Their focus was on quantity.

According to Monden (1993), quantity control enables TPS to adapt to daily and monthly fluctuation in demand of quantity and variety. TPS was established steadily and took root through the introduction of Kanban to the existing supermarket style of production in order to reinforce the efficient Just-in-Time production system (Toyota Motor corporation global, n.d.). The initial concept of Just-in-Time (JIT) invented by Kiichiro Toyoda. To add value without generating any waste, Just-in-Time is the ideal system that enables machines, facilities, and people work together. JIT method is the technique of supplying exactly the right quantity at exactly the right time and at exactly the correct location, which causes the decrease in lead-time from the entry of materials to completion of product. According to Pegels (1984), the benefit of this is considerable in case of necessary design changes or modifications because of design errors or weaknesses. Checking the degree of inventory quantity and production lead-time as policy variables, this production method discloses existence of surplus equipment and workers. This is the starting point to the characteristic of Toyota Production System, that is, to make full use of the workers' capability (Sugimori et al., 1977). The low inventory level significantly lowers the cost of holding inventory, including the storage space required to store in-process inventory. Finally, Just-in-Time production requires that all parts are in process and "visible" at all time. Hence, there is no need for parts or subassembly expeditors (Toyota Motor corporation global, n.d.).

The Just-in-Time concept was not fully realized until 1954 when the "supermarket method" was proposed (Toyota Motor Manufacturing. Toyota Kentucky., n.d.). By visiting how US's supermarkets worked, Ohno

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realized that to apply JIT truly, subsequent processes should take what they need from the earlier processes like merchandise on supermarket shelves. According to Shingo (1989), the most important feature of supermarket system is that stocking is triggered and maintained by actual demand.

In fact, Toyota used this concept to create a flexible production system. This format was a pull system or fill up system, driven by the needs of the following lines. Ohno developed a number of tools for operating JIT in a systematic framework. Kanban is one of the best-known tool. As Kanban came into widespread use, problems such as standardization of work and transport management were resolved one after another and production lines operated smoothly (Toyota Motor corporation global, n.d.). Working based on the Kanban instructions, parts were delivered among the different plants only in the volumes needed. Therefore, inventories within each process eliminated.

Kanban is a signaling device that gives authorization and instructions for the production or withdrawal (conveyance) of items in a pull system. Its purpose is to facilitate flow, bring about pull, and limit inventory (The Lean Enterprise Institute, 2008). According to Achanga (2007), by using the Kanban system, the idea of waste elimination truly enhanced, since no production carried out in excess. Therefore, not only Kanban is a communication system but also it is a continuous improvement tool.

2.3 Objective II: Implementation of Lean Philosophy

According to Scherrer-Rathje et al. (2009), it is not easy being lean. For many companies, getting lean right the first time does not always happen. As a change concept, Eklund et al. (2014) also assert that Lean implementations are not reaching their goals. Melton (2005) studied the benefits of Lean manufacturing in the processing industries and concluded that the challenge, if we decide to be Lean, is whether we know enough about our ways of working, what customers of the business processes truly value, and how our businesses operate and need to operate.

Dombrowski and Mielke (2014) mention that after a few years, the Lean programs of many enterprises do not meet the expectations anymore. In fact, Mann (2009) believe that it is easy to grasp Lean production since it requires minimal capital for equipment and systems support, and is relatively straightforward to implement. Wilson (2010) also points out TPS includes some very old engineering techniques, some old techniques with new twists, and some totally new technique. Yet, the experience of many companies that have attempted to convert to Lean production has been failure and retreat.

Sundar et al. (2014) reviewed technical tools of Lean implementation and assert that majority of the surveys on Lean elements focus on only one or two elements or combination of two or three elements. However,

for successful implementation of Lean management, the incorporation of appropriate Lean elements and sequencing of implementation tasks are needed.

To have a successful transformation, Mohanraj et al. (2011) point that the biggest challenge lies in selecting the appropriate tool for eliminating wastes as each tool has its own uniqueness. After identifying the source of waste, suitable Lean tool is chosen to reduce or eliminate them and to make the system waste free. Campos et al., (2011) believe that it is essential to take an integrated view of principles, systems, and tools. Without practical tools, Lean principles remain abstractions that people quickly forget, while focusing on tools alone leads individuals to see them as nothing more than exercises in box ticking.

Proper utilization of technical tools is important for successful implementation of Lean whereas they are very effective only to achieve short-term improvements. According to Martins et al. (2015), a common mistake made by many companies is focusing Lean implementation on the deployment of tools and technology without considering human, social, and cultural aspects. This mistake can cause Lean implementation failure. Hines et al., (2008) visited a series of manufacturing firms that made discrete products from a series of components like cars or electronics equipment. They understood that besides tools, techniques and process-based management, important areas of Lean are all related to people and are not easily visible

Hines et al., (2008) consider Lean production as an iceberg. With regard to their Iceberg Model, a sustainable Lean thinker needs to learn to see and act below the waterline as well as above it. The Iceberg Model for sustainable Lean transformation is presented in Figure 2.4.

Technology, tools and techniques

Process management

Above waterline – visible

Above waterline – visible

Below waterline – enabling

Below waterline – enabling

Strategy and alignment

Leadership

Behaviour and engagement
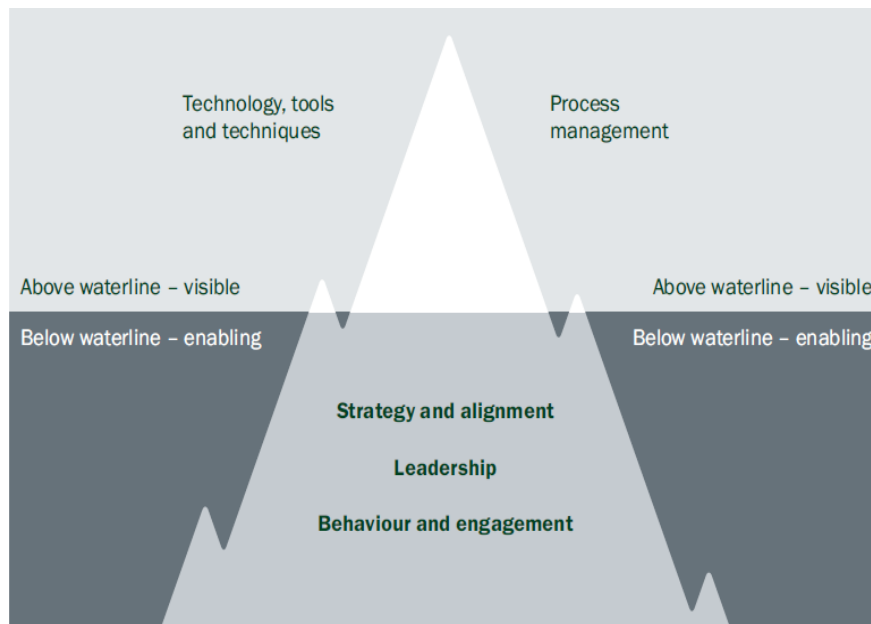
Figure 2.4 Sustainable Lean Iceberg Model (Hines et al. 2008)

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According to Hines et al., (2008), the root through the Iceberg is not always smooth and the route a company takes depends on its organizational characteristics such as the strategy, structure, culture, learning abilities and goals as well as the product mix, factory lay out and the age and condition of the plant and equipment. Moreover, by referring to 4P Model (Figure 2.5), Dombrowski and Mielke (2014) also believe that most enterprises merely focus on process while the other 3 Ps, "invisible" parts of Lean, are less easy to adopt but equally important for sustainable implementation.
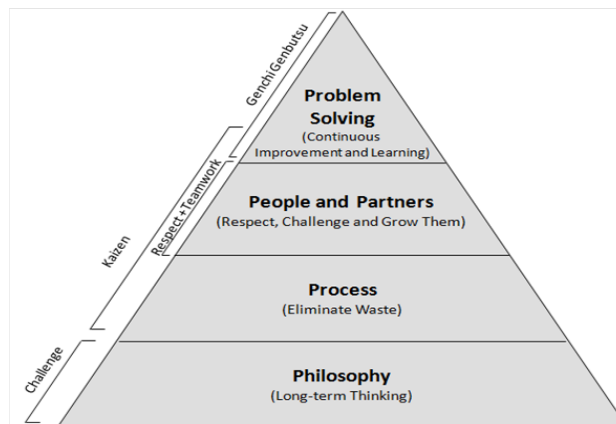
Figure 2.5 4P Model (Liker, 2004)

Liker and Convis (2011) along with Bhasin (2012) believe that every organization has distinctive problems in implementation depending on its circumstances. Every organization must identify and solve its own challenges based on variables of its process, place, people, and any other unique factors.

Geographical location also is an important aspect that needs to be taken in to consideration. Countries with different economic development encounter distinctive barriers; imagine the comparison between the countries in Middle East and Europe as well as United States. As an example, the study of Al-Najem (2014) reveals different challenges in Arab countries including language barriers because most instructions need to be translated in Arabic, and deficiencies in quality workers in terms of education and skills; technology; government attention; know-how regarding Lean Production; market competitiveness; and urgency for adopting Lean Production. Additionally, according to Salem et al. (2016), the budget issues may not be considered as impediments to Lean manufacturing implementation in wealthy countries such as Qatar. Whereas, supplying financial resources in countries facing negative growth rate in manufacturing sector is not probably an easy task to do such as Lebanon and Syria reported by El-khalil and Farah (2013). Another important aspect is the size of the plant. Small to Medium enterprises (SMEs) may confront the lack of resources availability such as time, expertise, and financial resources (Achanga, 2007; Dora et al., 2016; Gupta and Jain, 2013; Nordin et al., 2012).

Chay et al. (2015) reviewed current frameworks for Lean implementation presented by various researchers. They figured out that most of the current available Lean frameworks were prone to top-down approach not bottom-up and improvement initiatives from shop floor employees were often overlooked by researchers. In proposing their frameworks, most of researchers have neglected the importance of giving the "reason" for each of elements in the adoption of TPS or the framework itself. The targeted internal stakeholders to use or apply Lean were not emphasized by most of Lean researchers. In addition, current frameworks were prone to "one-best-way" approach with lacking of contingency sense, which is one of the common criticisms against Lean Production System.

Previous studies were reviewed regarding barriers, challenges, and factors that determine the success or failure of transformation to Lean. According Marodin and Saurin (2015), difficulties can be explained partly by the nature of Lean implementation, which is complex, context dependent, time consuming and requires a substantial amount of human resources and effort. Most of studies point out similar factors, which are influential in transformation. According to Angelis et al. (2011), characteristics of successful Lean operations make a committed workforce a necessity. Hines et al. (2008) assert that the engagement of people is also essential and it will predict their behavior and ultimate success of the organization. It seems that employees' behavior/attitude is a core key to success which managed by organizational culture. Employee's resistance or employee's commitment to Lean change is one of most common challenges or factors that managers will always confront in implementing Lean in any sector or industry. Because, other challenges or barriers reported by researchers are rooted directly or indirectly in employees' resistance and other success factors, approaches or practices that suggested directly or indirectly are related to employees' commitment. Hines et al. (2008) believe that understanding the resistance and trying to remove it is crucial for successful cultural and behavioral change. They presented four basic forms for resistance to change as follows:

1. Organizational resistance: underlying issues are lack of control and ownerships. Expressed as Not Invented Here.
2. Political resistance: when change is seen as a loss and/or a threat to the status quo.
3. Individualized resistance: Expressed as What Is In It For Me.
4. Technical resistance: That which is not understood is resisted. Expressed as becoming overwhelmed by highly specific details.

Nordin et al. (2012) presented a framework for organizational change management in Lean manufacturing (Figure 2.6). For the change to take hold and succeed, the organization and people who work in that organization must be ready for the transformation. Failure to assess organizational and individual changes

may result in spending a significant amount of time, energy, and hard work. All these factors deal with the resistance to change and it requires a lot of risk for the organization.

Figure 2.6 Framework for Organizational Change Management in Lean Manufacturing (Nordin et al., 2012)

Worley and Doolen (2006) assert that management support impact Lean manufacturing implementation both negatively and positively. The conclusion made by Angelis et al. (2011) can explain this perfectly. They explored whether Lean characteristics inherently enhance or impede worker commitment. They also provided insights into the role specific work practices play. Enhancing commitment appears to be conditional, depending on the effectiveness of management in designing and operating the Lean technical and human resource policies and practices.

According to Hines et al. (2008), engagement of people in transformation to lean contains many steps whereas effective strategy, alignment and leadership are a good start for transformation. Other key elements are partly due to the characteristics of individuals themselves, how they are communicated and how they are trained. The general social norms of the organization will also affect the transformation. As Figure 2.7 reveals, the engagement of people in Lean transformation starts with employees' acceptance. In fact, people resist to the changes when they do not have enough knowledge and the clear awareness of what Lean philosophy is. If they have correct perception of Lean benefits, they will finally decide to utilize the tools broadly. The commitment of employees will improve during institutionalization of Lean as a permanent functioning and internalizing it in the whole organization.
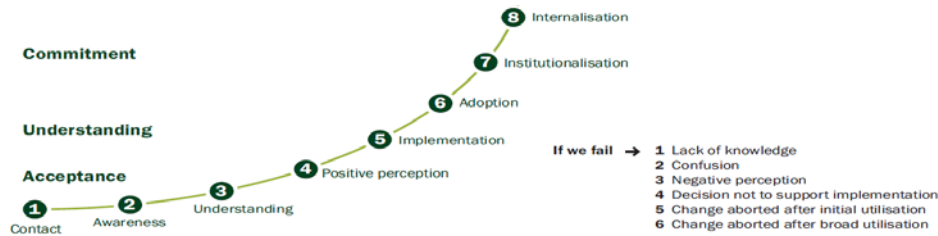
Figure 2.7 Steps to Engage People in Lean transformation (Hines et al., 2008)

Kanter (2012) presents ten common reasons why employees resist changing as follows:

- **Loss of control:** Change interferes with autonomy and can make people feel that they have lost control over their territory.

- **Excess uncertainty:** People will often prefer to remain mired in misery than to head toward an unknown.

- **Surprise, surprise:** Decisions imposed on people suddenly, with no time to get used to the idea or prepare for the consequences, are generally resisted. It is always easier to say No than to say Yes.

- **Everything seems different:** Change is meant to bring something different, but how different? We are creatures of habit. Routines become automatic, but change jolts us into consciousness, sometimes in uncomfortable ways.

- **Loss of face:** By definition, change is a departure from the past. Those people associated with the last version are likely to be defensive about it. When change involves a big shift of strategic direction, the people responsible for previous direction dread the perception that they must have been wrong.

- **Concerns about competence:** Can I do it? Change is resisted when it makes people feel stupid. They might express skepticism about whether new software version will work or whether digital journalism is really an improvement, but down deep, they are worried that their skills will be obsolete.

- **More work:** Here is a universal challenge. Change is indeed more work. Those closest to the change in terms of designing and testing it are often overloaded in part because of inevitable unanticipated glitches in the middle of change.

- **Ripple effects:** Like tossing a pebble into a pond, change creates ripples, reaching distant spots in ever-widening circles. The ripples disrupt other departments, important customers, people well outside the venture or neighborhood, and they start to push back, rebelling against changes they had nothing to do with that interfere with their own activities.

- **Past resentments:** The ghosts of the past are always lying in wait to haunt us. As long as everything is steady state, they remain out of sight. However, the minute you need cooperation for something new or different, the ghosts spring into action.
- **Sometimes the threat is real:** Now we get to true pain and politics. Change is resisted because it can hurt. When new technologies displace old ones, jobs can be lost; prices can be cut; investments can be wiped out.

Moreover, some previous studies discovered the success factors for Lean implementation while some others pointed out to lack of the same factors as barriers. The factors related to employees and management are shown respectively in Table 2.1 and Table 2.2.

Factors related to employees	Studies regarding barriers	Studies regarding success factors
Resistance to change	Henry Pentlicki (2014), Dave (2013), Taylor et al. (2013),	
Long term Commitment/ correct perception of lean as a philosophy rather than just improvement tools	Henry Pentlicki (2014), Taylor et al. (2013), Scherrer-Rathje et al. (2009),	
Development/trainings/knowledge about tools and concepts of Lean	Dora et al., (2016), Henry Pentlicki (2014), Dave (2013), L. Sim& Chiang (2012)	Sisson and Elshennawy (2015), Bortlotti et al. (2015)
Job Satisfactions/ Security	Dave (2013) L. Sim& Chiang (2012)	
Effective communication (bottom- up approach)	Dora et al. (2016), Dave (2013), L. Sim& Chiang (2012), Scherrer-Rathje et al. (2009),	Sisson and Elshennawy (2015), Poksinska et al. (2013)
Empowerment/ delegation of authority	Henry Pentlicki (2014), L. Sim& Chiang (2012)	Poksinska et al. (2013)
Participation/ involvement/engagement/ Team Works	Henry Pentlicki (2014), Taylor et al. (2013),	Poksinska et al. (2013), Angelis et al. (2011)

Table 2.1 Influential Factors Related to Employees (Own Elaboration)

Factors related to management	Studies regarding barriers	Studies regarding success factors
Correct perception /enough knowledge on Lean and Lean leadership	Henry Pentlicki (2014), Taylor et al. (2013), Emiliani and Stec (2005)	
Continual Lean progress evaluation	Scherrer-Rathje et al. (2009),	
Organizational culture and structure	Dora et al. (2016),	
Change agent/ external consultant/ outsider trainer	Dora et al. (2016), Henry Pentlicki (2014), Emiliani and Stec (2005)	Sisson and Elshennawy (2015),
Reward system for employees	L. Sim& Chiang (2012)	
Suggestion system for employees	L. Sim& Chiang (2012)	
effective communication (Top to bottom approach)	Dora et al. (2016), Dave (2013), L. Sim& Chiang (2012), Scherrer-Rathje et al. (2009),	Sisson and Elshennawy (2015), Poksinska et al. (2013)
Goal deployment and disclosure to employees	Scherrer-Rathje et al. (2009),	Poksinska et al. (2013)

Table 2.2 Influential Factors Related to Management (Own Elaboration)

From the new stand point, Martínez-Jurado et al. (2014) presented success factors that based on phases of the Lean Production adoption. The adoption process was divided in three phases: pre-adoption, adoption pilot and deployment in whole plant. The factors related to pre-adoption phase were expressed in the following:

- The association with external agents with the experience in implementing Lean Production (LP) to incorporate people with innovative ideas and prior experience in LP to lead the change and breakdown the historical inertia.
- Driving cultural change by internal managers who had been trained up and acquired related experiences.
- Change in traditional reward system which linked to production volume.

The factors for the last two phases are the same that follows:

- Training:
  (1) Focus to change the mindset of employees in the area, start with Lean awareness training;
  (2) Highlight the use of on-job-training focused on simple and easily applied tools.
- Communication:
  (1) The change in the role of top and middle managers: greater involvement in the process, greater contact to shop floor workers, greater transparency and feedback;

(2) Making the improvements in the pilot area visible to the rest of the organization is a key to recognizing team efforts, understanding the benefits of Lean Production and creating positive perception of Lean; centering communication on top-down persuasion and focusing on the need for change and benefits that come from Lean Production are important to overcoming the employee's resistance.

- Rewards: the use of intrinsic rewards linked to improvements achieved by a team.
- Job design:
  (1) Physical changes that came from easily understood tools such as VSM, 5S, and Visual management make the workplace more ergonomic;
  (2) Work standardization increase the feeling of ownership, monitoring, maintenance, and continuous improvement.
- Work organization:
  (1) Designation of a committed person taking charge of Lean initiative in the plant on full-time basis;
  (2) Creation of work teams with external support is important to develop principles of participatory management and for delegating responsibilities to the workers.

It seems that transforming to a Lean organization is not probably as hard as sustaining Lean philosophy for a long term. The matter of time is always an issue for managers while the long-term advantages of implementation will not achieve without devoting enough time and energy. The second issue is that sustainability in Lean necessitates fundamental changes in the way of organizational working and the core step is change of people's mindset. This is where the culture is highlighted.

2.4 Objective III: Lean Culture

According to Alvesson (2013), there is often lack of a deeper understanding of how people and organizations function in terms of culture. Culture is as significant and complex as it is difficult to understand and use in a thoughtful way. Langstrand and Elg (2012) viewed organizations as containing number of inter-dependent and interlocking routines all of which influence people's way of thinking as well as behavior.

A culture of an organization can be identified by focusing on the way that works are being done. Wilson (2010) defines culture as "the combined actions, thoughts, beliefs, artifacts, and language of any group of people. The people within these groups think, talk, and behave between predictable patterns of behaviors. These thoughts, language, and behaviors then identify them to be a member of the culture. According to

Reider (2014), it is basic business principles that form the culture of the organization and enable it to operate smoothly and flexibly or create bottlenecks and barriers to effective operations. It enables some employees to adapt easily to the organizational norms and others to fight against them. Even in the same organization, employees do not see everything alike.

Hofstede et al. (2010) assert that one of the reasons why so many solutions do not work is that differences in thinking among partners have been ignored. According to Wilson (2010), the odd aspect of culture is the silent rules that create a major cultural problem. It is often the reason why those within the culture, especially the rule-makers, simply do not see what is happening within their own culture. Alvesson (2013) also asserts that culture is not primarily inside people's heads, but somewhere between the heads of a group of people where symbols and meanings are expressed publicly in work group interactions, in board meetings, and also in material objects. It is meaning of aspect of what is being expressed socially and it is thus visible and invisible at the same time.

As stated by Schein (2006), culture is referred to the climate and practices that organizations develop around their handling of people or to the espoused values of an organization. In this context, managers speak of developing the "right kind of culture", a "culture of quality" or a "culture of customer service" suggesting that culture has to deal with certain values that managers are trying to inculcate in their organizations. In addition, the "right" kind of culture will influence how effective the organization is. Moreover, Reider (2014) points out that once an organization survives, grows, and prospers, the founders and top management's beliefs, values, and basic assumptions relative to company operations are transferred to all of the other employees and stakeholders. This transformation process of building corporate culture may occur in a number of ways such as:

- Employees are hired if they think and feel the same way as the prevalent culture.
- Employees are coerced into the cultural way of thinking and feeling.
- Top management becomes a role model to encourage other employees to identify with them and internalize management's beliefs, values, and assumptions.

According to Wilson (2010), for a business culture to be "healthy," it must be strong and it must be a culture that is appropriate for needs of the business. To be strong, a culture must have following characteristics:

- Its thoughts, beliefs, and actions must be widely accepted, acknowledged, and practiced across all levels and functions of the group.
- Its thoughts, beliefs, and actions must be in harmony with one another.

Despite its name, Lean production does not deal with only production process. According to Bortolotti et al. (2015), it is generally considered as an interrelated system of soft and hard practices. Soft practices concern people and relations while hard practices refer to technical and analytical tools of Lean Manufacturing. Soft practices are crucial for achieving superior performance through Lean production and sustaining the performance in the long term even though organizations sometimes do not give equal importance to soft and hard practices by focusing their efforts on only Lean technical tools.

Lean Production also contains a culture that needs to be managed. According to Mann (2009), the connection between a Lean management system and Lean culture is neglected in most descriptions of lean manufacturing. Wilson (2010) asserts that management practices for Lean and Lean culture that grows from them are like many other aspects of lean: easy to grasp but difficult to execute consistently. According to Atkinson (2010), organizational culture determines the success of Lean or any other change initiative. This is the reason why we emphasize on Lean philosophy in this study because not only it contains tools and methods (hard practices) but also it has a culture that shapes organizational behaviors and soft practices.

It seems that there is still lack of knowledge regarding Lean culture. The challenge here is to understand how a Lean culture is created and how national culture impacts on Lean culture and whether a Lean organization has a specific cultural profile.

2.4.1 Organizational Culture of Toyota

Figuring out organizational culture of Toyota is an important issue. Because, it is the main reason that maintain the company as a leader for most than seventy years while many problems were on the way to keep going as a Lean organization. Takeuchi et al. (2008) assert that TPS is a "hard" innovation that allows the company to keep improving the way it manufactures vehicles; in addition, Toyota has mastered a "soft" innovation that relates to corporate culture. According to Spear and Bowen (1999), TPS and the scientific method that underpins it were not imposed on Toyota, they were not even chosen consciously. The system grew naturally out of the workings of the company over five decades. As a result, it has never been written down, and Toyota's workers often are not able to articulate it. That is why it is so hard for outsiders to grasp.

According to Liker and Meier (2007), it is knowledge and capability of people that distinguish any company from another. For the most part, organizations have access to the same technology, machinery, raw materials, and even the same pool of potential employees (in any free market) as Toyota. Takeuchi et al. (2008) express that Toyota views employees not just as pairs of hands but also as knowledge workers who accumulate chie (the wisdom of experience) on the company's front lines. Therefore, Toyota invests heavily in people and organizational capabilities, and it garners ideas from everyone and everywhere: the

shop floor, the office, the field. It seems that in Toyota, employees are considered as an asset for the organization. Dailey (2003) asserts that the Toyota Motor company was the first to introduce the combined system of ideas which became known as Lean Manufacturing. Alves et al. (2012) also emphasize that in Lean production workers are considered in a position of thinker, continuously looking for improvement and wastes, which lead to agility of the organization.

Moreover, creating a healthy and positive workplace has been a Toyota watchword since the founding days. This was adopted as a principle of Toyota safety and health practice and has formed the basis of safety and health activities for many years. From the 1980s, key point campaigns focused on eliminating major accidents, and more recently, Toyota have rolled out safety and health management and activities to promote a safety-oriented culture so as to prevent accidents more reliably and to create a safer and more secure workplace (Toyota Motor corporation global, n.d.). According to Sugimori et al. (1977), the importance of employees in Toyota can be proven by following points:

- Elimination of waste movements by workers;
- Consideration for workers' safety; and
- Self-display of workers' capabilities by entrusting them with greater responsibility and authority.

In agreement with Wilson (2010), there is a culture of consciousness in Toyota. They are aware of what is going on. There is one cultural aspect; however, that deserves a little coverage here: continuity. The principles have been maintained through numerous management changes and through crisis after crisis, including those crises that have threatened the very existence of the company. Through all this, their principles have not changed. This type of continuity is almost unheard of industry and it is the key reason why the culture has been so strong and why it has endured so well. With respect to continuity, Liker and Convis (2012) also consider the spirit of challenge as a core value in Toyota. Both books are referring to same concept continuous improvement by using different words (the continuity and the spirit of challenge).

Moreover, in September 2016, the spirit of challenge is revived through the message of Akio Toyoda, the current president of Toyota (Toyota Motor corporation global, n.d.):

"This year, we are seeing many changes taking place. If I were to summarize my thoughts about this fiscal year, I would say this year would be a test of whether we can transform our intentions to reality. We have been working to strengthen our management foundation, knowing that there will be more uncertainties that could result in a multitude of changes. Rather than simply reacting to events as they occur, we must always be

ready to overcome any circumstances and face up to the changes ahead without wavering from our main goals".

Different views can be found about where the organizational culture of Toyota came from and how is created. According to Pheng and Shang (2011), there is certainly some evidence that the Toyota Way on the one hand has absorbed the Japanese management practices as well as being influenced by the Japanese culture. On the other hand, the creation of the Toyota Way depended on many contributing factors that were not unique to Japan's culture. Liker and Convis (2012) point out that values of Toyota Production are derived from Japanese culture and religion. The values are consistent everywhere that Toyota operates but the way those values are lived out is adapted to the local context. Sugimori et al. (1977) believe what makes Lean Production distinctive is that different concept of work exists in Japan comparing to United States and Europe. The authors point out the Japanese traits including:

- Group consciousness, sense of equality, desire to improve, and diligence born from long history of a homogeneous race.
- High degree of ability resulting from higher education brought by desire to improve;
- Centering their daily living around work.

In addition, the stories behind the establishment of Toyota reveal that factors such as religious or Japanese culture were not behind the creation of some soft practices. In fact, some cultural practices such as continuous improvement and teamwork were created in special circumstances in order to facilitate and adjust the work. The following two stories are notable to review in this aspect:

First, the initial concept of continuous improvement invented by Sakichi Toyoda who is called as father of Toyota in the early 1890. Because his mother was a worker at a textile plant, he motivated to facilitate the weaving; therefore, he designed a manually operated loom for weaving. Later, Sakichi's son continued to improve mechanism invented by his father. To avoid the producing defective cloth, a machine invented to automatically stop when a thread broke. According to Liker and Convis (2012) and Emiliani (2006), not only the automatic loom automated work but also built the capability to make judgments into the machine itself. Therefore, two fundamental principles of Toyota Production System which rooted in many years age created: stopping when there is a problem and highlighting out-of-standard conditions so that errors are not carried to the next stage of production.

Second story is about how teamwork that rooted in TPS. In fact, team work was used in Toyota from the first moment. Kichiro Toyoda started to enter to automotive industry by devoting a part of Toyoda

Automatic Loom Works, Ltd to Automotive Production as an unofficial department. In order for adpating to work in such a circumestance, a team was assigned to build prototypes of vehicle starting with studying and researching under Kiichiro.

Reider (2014) asserts that a major role of top management is to create the guidance and direction for the organization that includes all functional activities and establish the rules that promote a positive business culture congruent with the organizational goals. In addition, management must establish the guidelines as to how they view the employees' performance—technical as well as behavioral. A part of this guidance management becomes the role model for internal and external attitude toward others—including other employees, customers, and vendors. Since Toyota's foundation to the present day, the "Five Main Principles of Toyoda" has handed down and embodied the thinking of the founder of the Toyota Group, Sakichi Toyoda. They are the basis of the corporate management philosophy. The principles of Sakichi's were organized into concepts for research and discovery as well as business management and standards of conduct for individuals and were adopted as guidelines for all employees of Toyota which are explained in the following (Toyota Motor corporation global, n.d.):

- Always be faithful to your duties, thereby contributing to the company and to the overall good.
- Always be studious and creative, striving to stay ahead of the times.
- Always be practical and avoid frivolousness.
- Always strive to build a homelike atmosphere at work that is warm and friendly.
- Always have respect for God, and remember to be grateful at all times.

It indicates the objectives of contributing to the development of society and the economy through the establishment of an automotive industry and expresses the commitment to technological development as well as research and creativity for the further advancement of automobiles. These precepts went on to be revised and organized into the Guiding Principles at Toyota in 1992 in response to changes in society and business structure. The Guiding Principles clarify how Toyota is expected to be and indicate ways that it should make progress with firm conviction during times of change (Toyota Motor corporation global, n.d.):

- Honor the language and spirit of the law of every nation and undertake open and fair business activities to be a good corporate citizen of the world.
- Respect the culture and customs of every nation and contribute to economic and social development through corporate activities in their respective communities.
- Dedicate our business to providing clean and safe products and to enhancing the quality of life everywhere through all of our activities.

- Create and develop advanced technologies and provide outstanding products and services that fulfill the needs of customers worldwide.
- Foster a corporate culture that enhances both individual creativity and the value of teamwork, while honoring mutual trust and respect between labor and management.
- Pursue growth through harmony with the global community via innovative management.
- Work with business partners in research and manufacture to achieve stable, long-term growth and mutual benefits, while keeping ourselves open to new partnerships.

With the rapid growth, diversification and globalization of Toyota in the past decade, the values and business methods that had been passed on as implicit knowledge were identified and defined in 2001 which is presented in Figure 2.8. Toyota is preparing to operate as a truly global company, guided by a common corporate culture. In order to continue fulfilling its role as the backbone of all Toyota operations, the Toyota Way must evolve in an ever-changing business environment. Toyota will continue to update it in the future to reflect changes in the times. As it was previously explained, the Toyota Way is supported by two main pillars: 'Continuous Improvement' and 'Respect for People'. Toyota is never satisfied with where they are and always work to improve their business by putting forward new ideas and working to the best of their abilities. They respect all Toyota stakeholders, and believe the success of their business is created by individual effort and good teamwork (Toyota Motor corporation global, n.d.).
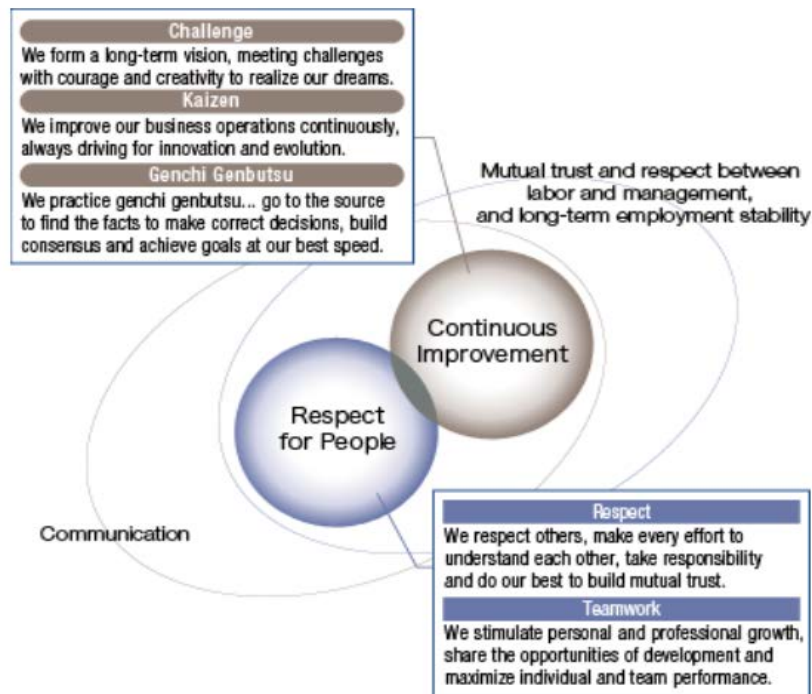
Figure 2.8 the Toyota Way (Toyota Motor Corporation, n.d.)

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Toyota's personnel and labor systems are built on comprehensive human resources development and efforts to maximize the benefits of solid teamwork, based on the principles of mutual trust and responsibility embodying respect for other people. Table 2.3 shows how Toyota improve human relations activities through specific programs since 1965 to 2002.

Year	Names and goals of human relations activities programs
1965	Workplace Recreation Activities; - Create vibrant, healthy workplaces through recreational activities
1966	Personal Touch Campaign; - Foster human interaction and development through discussion
1989	Freshness & Harmony Activities; - Create vibrant workplaces from the perspectives of encouraging quality relationships in the workplace, increasing employee motivation, and promoting physical and mental health, through autonomous and voluntary activities by employees
2002	Human Relations Activities (HUREAI Activities); - Hold events aimed at increasing opportunities for employees to interact outside work, expand management information through executive committees, and promote communication about the state of the workplace. By inviting participation from everyone, from full-time employees to fixed-term contract and temporary employees, and fostering vertical, horizontal, and diagonal communication within workplaces, between workplaces, and between people at all levels and positions, the HUREAI Activities program aims to widen the circle of human interaction and help everyone in the company lead a rewarding work life.

Table 2.3 Evolvement of Human Relation Activities During the Time (Toyota Motor corporation global, n.d.)

To promote sharing of Toyota Way, Toyota Institute was established in January 2002 as an internal human resources development organization. Since 2003, overseas affiliates in North America (U.S.), Europe (Belgium), Asia (Thailand and China), Africa (South Africa) and Oceania (Australia) have established their own human resources training organizations modeled after the Toyota Institute (Toyota Motor Corporation, Toyota-global, 2016). During the time, Toyota reviews its methods in conjunction with changes in the management environment but the underlying approaches remain the same. Figure 2.9 shows that Toyota constitute human relations activities by a range of voluntary activities aimed at improving the quality of teamwork and human relationships between employees. These activities are held both within and outside the workplace, and serve an important role in helping employees to create fulfilling lives (Toyota Motor corporation global, n.d.).

Human Relations Activities

Internal groups — Strive to build camaraderie between members, promote self-development, and contribute to company growth

HUREAI Activities — Expand human interaction (encourage communication) beyond the workplace

Hobby and alumni group activities — Create human networks through hobbies and alma maters

Toyota Clubs — Help employees create enjoyable relationships by supporting their physical and cultural development

Associations of each dormitory — Improve human relations under the theme of making happier dorms

General Manager association
Takumi-no-kai association
Miki-no-kai association
Sho-no-kai association
CX association
SX association
EX association

■Company and group events
■Workplace events
■Roundtables in each team or group, etc.

Sports clubs — Promote sports activities in and outside the company. Encourage participation and cooperation in company events

Cultural clubs — Promote deeper interaction with local communities. Encourage participation and cooperation in company events

Figure 2.9 Toyota's Human Relations Activities (Toyota Motor corporation global, n.d.)

Human relations activities (HUREAI activities) are activities at Toyota that strengthen teamwork and communication by widening the circle of human interaction (Toyota Motor corporation global, n.d.). Here, there is a need of clarification about why Toyota does intend to widen the circle of human interactions. To reinforce the participation, collaboration, and communication of employees in work teams, it is essential to prevent intergroup conflicts (Toyota Motor corporation global, n.d.). According to Hofstede et al. (2010), the intergroup conflicts are obviously destructive and they appear because we do not use the same moral rules for members of our group as we do for others. However, who is "our group"? This turns out to be a key question for any group. From childhood, people learn who members of the group are and who are not as well as what that means. People draw a mental line around those whom they consider their group. Only members of the moral circle thus delineated have full rights and full obligations.

Another important rule in Toyota which is noteworthy to be explained is that when employees carrying out the work, all should be aware that their work is linked to the whole business activities of the company. In this regard, Toyota does not tolerate illegal or criminal acts or acts in violation of the company policy and rules, regardless of whether such acts were motivated "in the interests of the company" or "in the interests of the customer". Employees should comply with the law and should always act with awareness and responsibility. They should rise to the challenge of solving the many issues that arise, as customer needs diversify and as progress is made in Toyota's globalization, such as mastering of the world's most advanced

technologies, establishing the world's most suitable procurement and supply networks, meeting environmental and safety standards, and improving customer satisfaction (Toyota Motor corporation global, n.d.).

In regard with this rule, as Figure 2.10 shows, Toyota has 35 sports clubs, including representative and non-competitive clubs. Their main objectives are to promote company unity, higher motivation among employees, and better business people. Representative clubs train hard during work hours and as a result, they have achieved high rankings at national competitions. They also help generate company unity as other employees watch and cheer for company athletes as they compete, providing excitement in the workplace. Members of non-competitive sports clubs engage in their respective sports while balancing those activities with work. They gain respect from their co-workers while the support they receive livens up the workplace. Whether at a representative or non-competitive level, sports club activities also have an important role in human resources development as they teach participants to face difficult challenges through high-level training while developing competitiveness and cooperation. Cultural clubs are also popular, as they help employees to enjoy and enrich their free time (Toyota Motor corporation global, n.d.).

Non-competitive sports clubs   **(Priority) Representative clubs**

- Promote more rounded business people
- Invigorate workplaces of which athletes are a part

- Benefit local communities
- Social contribution (through sports)

- Builds solidarity among employees
- Provides topics for discussion
- Promotes Toyota

Figure 2.10 Toyota Club Objectives (Toyota Motor corporation global, n.d.)

Moreover, Takeuchi et al. (2008) reveals some facts about Toyota that show contradictions and paradoxes in many aspects of organizational life. They believe that Toyota succeeds because of the culture of contradictions. Some key contradictions that Toyota fosters are described in the following:

- Toyota pays relatively low dividends and hoards cash, which smacks of inefficiency. From 1995 to 2006, Toyota's dividends averaged only 20% of earnings. For instance, its 2006 payout of 21.3% was on par with that of smaller rivals, such as Nissan's 22.9% and Hyundai-Kia's 17.4%, but far behind (the then) DaimlerChrysler's 47.5%. At the same time, it had accumulated $20 billion of cash, leading some analysts to call it Toyota Bank.

- Most of Toyota's senior executives are Japanese men, whereas top management in successful Western corporations is more diverse. By any standard, the company pays executives very little. In

2005, Toyota's top executives earned only one-tenth as much as Ford's. Their compensation was lower than that of their counterparts at the 10 largest automobile companies, save Honda. Toyota managers also rise through the hierarchy slowly: In 2006, the company's executive vice presidents were on average 61 years old—close to the retirement age at many non-Japanese companies.

- Although Toyoda family controls just 2% of the company's stock, they appear to have a say in most key decisions, but it is not clear why they exert power. The company's presidents came mostly from the family's ranks for decades.

2.4.2 Importance of National Culture

Growing globally, Toyota is determined to keep common organizational culture in all its branches around the world. But, the fact is members of each society brings their culture to the organization and most of the time, cultural characteristics of the society are inconsistent with what Toyota possesses. This is also an important issue for organizations to deal with when they intend to trade in global market. The differences in reaction of people to get used to new way of working, how to convince and motivate them to participate in transformation to Lean are the issues that managers should expect to know. In fact, Schneider and De Meyer (1991) also confirms this idea. They found that national culture impacts on interpretation and responses of people to the same issue and different cultures are likely to interpret and respond to the same strategic issue in different ways. According to Figure 2.11, national culture is the result of values that we acquired them early in our lives. This type of value deeply rooted in our perception of certain situation for example our conclusion of a behavior as a bad attitude or a good one. In the organizational aspect, the reaction of people to a specific situation depends on their personal perception that rooted in their national culture. In fact, they will resist to adapt to organizational values or priorities set by managers that are not compatible to their national culture. In addition, language and religion are visible parts that a national culture includes. Sharing the same language is preferable factor for the people to start communication. Religions set specific rules for people to live their life for instance a type of behavior is acceptable by religion and in opposite way, the same behavior can be prohibited by another religion.
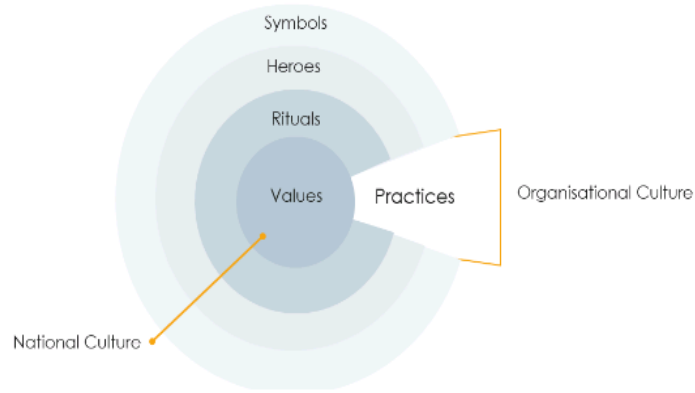
Figure 2.11 Manifestations of Culture at Different Levels of Depth (Hofstede et al., 2010)

In the aspect of transforming to Lean, the inconsistency between national culture and Lean culture can be obvious in the way that people trust to share information. In some cultures, people prioritize own interests instead of group interests and this affects in the way of their participation, for example in problem solving or working in a team. Yokozawa et al. (2009) assert that the Japanese companies are still experiencing many difficulties in transferring their management systems into host countries. This could be as a result of national culture differences which impacts on responses of people to the same issue (Schneider and De Meyer, 1991). Actually, national culture is mutually related to values that we acquired them early in our lives so that it deeply influences on our perception of certain situation for example our conclusion of a behavior as a bad attitude or a good one. In the organizational aspect, the reaction of people to a specific situation depends on their personal perception that rooted in their national culture. In fact, they will resist adapting to organizational values or priorities set by managers that are not compatible to their national culture values. Lau and Ngo (1996) also confirm that culture of organizations established in a single country setting varies according to the culture of their home countries and these differences in value-orientations affect the employee's satisfactions and organizational commitment. Moreover, Hauff et al. (2015) assert employee's satisfactions are culturally dependable to the characteristics of the job including being interesting, the security, advancement opportunity, and good relationship with managers and these job characteristics vary across countries.

Parkes (2016) claims that British national culture is not consistent with characteristics of Lean and transforming is not something impossible but it takes more time to adapt to Lean culture. Kidd and Kanda (2000) compared the production manager of Japan and Britain in implementing strategic plans and understood that the cultural inconsistency of British and Japanese people impacts strongly. Their major difference appears in their communication style. Despite the Japanese, the study reveals that British managers tend to broader informal contacts and as a result of their low context culture, similar to US and

Swiss, they need the explicit share of information. As reported by Fenwick et al. (2003), cultural conflicts could arise even with the familiarity in language, past and culture. Despite the similar culture of Britain and Australia, the authors reveal that lack of cultural preparedness creates unanticipated problems with routine interpersonal interactions. James and Jones (2014) found that examine the difficulties that Toyota experienced in process of transferring its cultural paradigm into its subsidiary established in India. The authors found that misreading the host nation's cultural and social environment as well as mishandling its people management portfolio could lead to unproductive outcomes for the parent organization.

Zimmermann and Bollbach (2015) point out China's traditional norms of management, education, and legal systems are cultural barriers to achieve continuous improvement targets. The Netherland are severally reported as the challenging country for transfer of Kaizen (Yokozawa and Steenhuis, 2013; Yokozawa et al., 2012). In the international transfer of Kaizen, Yokozawa et al. (2012) confirm that the appropriate organizational culture is clan culture despite the hierarchical culture. Yokozawa and Steenhuis (2013) also assert that the transformation is culturally dependable on the high level of discipline and eagerness of employees. The authors introduce Japan as country with high level and The Netherlands with low level in both factors. Moreover, according to Wangwacharakul et al. (2014), following concepts in implementation of Lean are highly dependent on local company context and national culture: Operational development, Continuous improvement, Goal oriented teams, Cross functional work, Organizational design and Leaderships. They also understood that some cultural characteristics of Swedish organizations including low hierarchy, decentralized decision making, individuality, uncertainty acceptance, and capacity of negotiation and compromise can hinder employees' performance during the implementation of Lean.

According to Atkinson (2010), cultural differences are interesting and enriching. However, sometimes things go wrong, for reasons that we cannot explain. This is why it is important to understand variations between cultures, so that we can work with people more effectively, and prevent confusion (MindTools.com, n.d.). In order to analyze change management and the resistance to change in particular, in the field of cultural research, different sets of cultural dimensions has been developed by researchers such as Hofstede (1980), Trompenaars and Hampden-Turner (1997) and House et al. (2004). Respectively, three famous cultural dimensions are presented in the following. The cultural profile of an organization is always presented based on one of these three sets of dimensions. According Kull et al. (2014) , the study done by House et al. (2004) is one of the most recent surveys of national culture, being more current than 2 other studies, and it extended the model of Hofstede (1980).

Hofstede (1980)
Using research data from a multinational company (IBM) with subsidiaries in more than 60 countries, Hofstede (1980) identified four largely independent dimensions: Power Distance (large versus small),

Uncertainty Avoidance (strong versus weak), Individualism versus Collectivism, and Masculinity versus Femininity. The relative positions of 40 countries on these four dimensions were expressed in a score on a 0-100 point-scale. Replications by Hofstede and other researchers have extended the number of countries covered to 76. The six dimensions of national culture based on extensive research are as follows (Hofstede et al., 2010):

1. *Power Distance Index (PDI)*

This dimension expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally. The fundamental issue here is how a society handles inequalities among people. People in societies exhibiting a large degree of Power Distance accept a hierarchical order in which everybody has a place and which needs no further justification. In societies with low Power Distance, people strive to equalize the distribution of power and demand justification for inequalities of power.

2. *Individualism versus Collectivism (IDV)*

The high side of this dimension, called *individualism*, can be defined as a preference for a loose social framework in which individuals are expected to take care of only themselves and their immediate families. Its opposite, *collectivism*, represents a preference for a tight framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty. A society's position on this dimension is reflected in whether people's self-image is defined in terms of "I" or "we."

3. *Masculinity versus Femininity (MAS)*

The *masculinity* side of this dimension represents a preference in society for achievement, heroism, assertiveness and material rewards for success. Society with high masculinity is more competitive. Its opposite, *femininity*, stands for a preference for cooperation, modesty, caring for the weak and quality of life. Society at large is more consensus-oriented. In the business context, Masculinity versus Femininity is sometimes also related to as "tough versus tender" cultures.

4. *Uncertainty Avoidance Index (UAI)*

Uncertainty Avoidance dimension expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? Countries exhibiting strong UAI maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas. Weak UAI societies maintain a more relaxed attitude in which practice counts more than principles.

5. *Long Term Orientation versus Short Term Normative Orientation*

Every society has to maintain some links with its own past while dealing with the challenges of the present and the future. Societies prioritize these two existential goals differently. Societies who score low on this dimension, for example, prefer to maintain time-honored traditions and norms while viewing societal change with suspicion. Those with a culture which scores high, on the other hand, take a more pragmatic approach: they encourage thrift and efforts in modern education as a way to prepare for the future. In the business context, this dimension is related to as "(short term) normative versus (long term) pragmatic" (PRA). In the academic environment, the terminology Monumentalize versus Flex humility is sometimes also used.

6. *Indulgence versus Restraint (IND)*

Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. *Restraint* stands for a society that suppresses gratification of needs and regulates it by means of strict social norms.

Trompenaars and Hampden-Turner (1998)

According to Mind Tools Coporation (2014), Fons Trompenaars and Charles Hampden-Turner published seven dimensions of culture in their 1998 book, "Riding The Waves of Culture: Understanding Diversity in Global Business. To develop the model, they spent 10 years researching the preferences and values of people in various cultures around the world. As part of this, they surveyed more than 46,000 managers in 40 countries. They found that people from different cultures vary in specific, even predictable, ways. This is because each culture has its own way of thinking, its own values and beliefs, and its own preferences. Trompenaars and Hampden-Turner concluded that what distinguishes people from different cultures is where these preferences fall on the seven dimensions. The model is useful to learn about people from different cultural backgrounds and prevent misunderstandings. The model encompasses following dimensions (Mind Tools Corporation, 2014):

1. *Rules Versus Relationships*

This dimension includes Universalism versus Particularism. *Universalism* refers to people that place a high importance on laws, rules, values, and obligations. They try to deal fairly with people based on these guidelines, but rules come before relationships. The example of this culture are countries such as The U.S., Canada, the U.K, the Netherlands, Germany, Scandinavia, New Zealand, Australia, and Switzerland.

Particularism addresses people who believe their circumstances and relationships dictate the rules that they live by. Their response to a situation may change, based on what is happening in the moment, and who is involved. The example of this culture are countries such as Russia, Latin America and China.

2. *The Individual Versus the Group*

This dimension includes Individualism versus Communitarianism. *Individualism* refers to people who believe in personal freedom and achievement. They believe that they must make their own decisions, and that they must take care of themselves. The example of this culture are the countries such as the U.S., Canada, the U.K, Scandinavia, New Zealand, Australia, and Switzerland.

Communitarianism addresses people who believe that the group is more important than the person, and that it provides help and safety in exchange for loyalty. The group always comes before the individual. The example of this culture are countries such as Japan and countries in Latin America and Africa.

3. *How Far People Get Involved*

This dimension includes Specific versus Diffuse. *Specific* refers to people that keep work and personal lives separate. As a result, they believe that relationships do not have much of an impact on work objectives, and, although good relationships are important, they believe that people can work together without having a good relationship. The example of this culture are the countries such as the U.S., the U.K., Switzerland, Germany, Scandinavia, and the Netherlands.

Diffuse addresses people who People see an overlap between their work and personal life. They believe that good relationships are vital to meeting business objectives, and that their relationships with others will be the same, whether they are at work or meeting socially. People spend time outside work hours with colleagues and clients. The example of this culture are countries such as Argentina, Spain, Russia, India, and China.

4. *How People Express Emotions*

This dimension includes Neutral versus Emotional. *Neutral* refers to people that make a great effort to control their emotions. Reason influences their actions far more than their feelings. People do not reveal what they are thinking or how they are feeling. The example of this culture are the countries such as the U.K., Sweden, the Netherlands, Finland, and Germany.

Emotional addresses people who want to find ways to express their emotions, even spontaneously, at work. In these cultures, it is welcome and accepted to show emotion. The example of this culture are countries such as Italy, France, Spain, and countries in Latin-America.

5. *How People View Status*

This dimension includes *A*chievement versus Ascription. *Achievement* refers to people who believe that you are what you do, and they base your worth accordingly. These cultures value performance, no matter who you are. The example of this culture are the countries such as the U.S., Canada, Australia, and Scandinavia.

Ascription addresses people who believe that you should be valued for who you are. Power, title, and position matter in these cultures, and these roles define behavior. The example of this culture are countries such as France, Italy, Japan, and Saudi Arabia.

6. *How People Manage Time*

This dimension includes Sequential Time versus Synchronous Time. *Sequential Time* refers to people who like events to happen in order. They place a high value on punctuality, planning (and sticking to your plans), and staying on schedule. In this culture, "time is money," and people do not appreciate it when their schedule is thrown off. The example of this culture are the countries such as Germany, the U.K., and the U.S.

Synchronous Time addresses People see the past, present, and future as interwoven periods. They often work on several projects at once, and view plans and commitments as flexible. The example of this culture are countries such as Japan, Argentina, and Mexico.

7. *How People Relate to Their Environment*

This dimension includes Internal Direction versus Outer Direction. *Internal Direction* refers to people who believe that they can control nature or their environment to achieve goals. This includes how they work with teams and within organizations. The example of this culture are the countries such as Israel, the U.S., Australia, New Zealand, and the U.K.

Outer Direction addresses people who believe that nature, or their environment, controls them; they must work with their environment to achieve goals. At work or in relationships, they focus their actions on others, and they avoid conflict where possible. People often need reassurance that they are doing a good job. The example of this culture are countries such as China, Russia, and Saudi Arabia.

House et al (2004)

Global Leadership and Organizational Behavior Effectiveness (GLOBE) is a cross-cultural research effort. GLOBE is a research project including at least three phases. Phase 1 involved the development of research instruments. Phase 2 assessed nine fundamental attributes, or cultural dimensions, of both societal and organizational cultures, and explored how these impact leadership in 62 societal cultures. Phase 3, currently underway, is primarily studying the effectiveness of specific leader behaviors (including that of CEOs) on subordinates' attitudes and performance (GLOBE, 2016 & N. Grove, 2005). The dimensions are presented in the following:

1. Performance Orientation

It reflects the extent to which a community encourages and rewards innovation, high standards, excellence, and performance improvement. The dimension is measured by High and Low level. Table 2.4 shows different characteristics of the organizations for two levels of this dimension

Degree	
High	**Low**
Value training and development	Value societal and family relationships
Value competitiveness and materialism.	Value harmony with the environment
View formal feedback as necessary for performance improvement	View formal feedback as judgmental and discomfiting.
Value what one does more than who one is.	Value that one is more than what one does.
Expect direct, explicit communication.	Expect indirect, subtle communication.

Table 2.4 Characteristics of Organizations: High vs. Low Performance Orientation

2. Assertiveness

The degree to which individuals are (and should be) assertive, confrontational, and aggressive in their relationship with others. The dimension is measured by High and Low level. Table 2.5 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	**Low**
Value competition, success, and progress.	Value cooperation and warm relationships
Communicate directly and unambiguously.	Communicate indirectly; try to "save face."
Try to have control over the environment.	Try to be in harmony with the environment.
Expect subordinates to take initiative.	Expect subordinates to be loyal.
Build trust on basis of calculation.	Build trust on basis of predictability

Table 2.5 Characteristics of Organizations: High vs. Low Assertiveness

3. *Future Orientation*

The extent to which individuals engage (and should engage) in future-oriented behaviors such as planning, investing in the future, and delaying gratification. The dimension is measured by High and Low level. Table 2-6 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	**Low**
Propensity to save now for the future.	Propensity to spend now, rather than save.
Emphasize working for long-term success.	Prefer gratification as soon as possible.
Organizations tend to be flexible and adaptive.	Organizations tend to be inflexible and maladaptive.
View material success and spiritual fulfillment as an integrated whole.	View material success and spiritual fulfillment as separate, requiring trade-offs.

Table 2.6 Characteristics of Organizations: High vs. Low Future Orientation

4. *Humane Orientation*

the degree to which an organization or society encourages and rewards individuals for being fair, altruistic, friendly, generous, caring, and kind to others. The dimension is measured by High and Low level. Table 2.7 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	*Low*
The interests of others are important.	One's own self-interest is important
People are motivated primarily by a need for belonging and affiliation.	People are motivated primarily by a need for power and material possessions.
Members of society are responsible for promoting the well-being of others.	The state provides social and economic support for individuals' well-being
People are urged to be sensitive to all forms of racial discrimination.	People are not sensitive to all forms of racial discrimination.

Table 2.7 Characteristics of Organizations: High vs. Low Human Orientation

5. *Institutional Collectivism*

The degree to which organizational and societal institutional practices encourage and reward (and should encourage and reward) collective distribution of resources and collective action. The dimension is measured by High and Low level. Table 2.8 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	*Low*
Members assume that they are highly interdependent with the organization.	Members assume that they are largely independent of the organization.
Group loyalty is encouraged, even if this undermines the pursuit of individual goals	Pursuit of individual goals is encouraged, even at the expense of group loyalty.
The society's economic system tends to maximize the interests of collectives.	The society's economic system tends to maximize the interests of individuals.
Rewards are driven by seniority, personal needs, and/or within-group equity.	Rewards are driven very largely by an individual's contribution to task success.
Critical decisions are made by groups.	Critical decisions are made by individuals.

Table 2.8 Characteristics of Organizations: High vs. Low Institutional Collectivism

6. *In-Group Collectivism*

The degree to which individuals express (and should express) pride, loyalty, and cohesiveness in their organizations or families. Table 2.9 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	*Low*
Duties and obligations are important determinants of social behavior.	Personal needs and attitudes are important determinants of social behavior.
A strong distinction is made between in-groups and out-groups.	Little distinction is made between in-groups and out-groups
People emphasize relatedness with groups.	People emphasize rationality in behavior.

Table 2.9 Characteristics of Organizations: High vs. Low In-Group Collectivism

7. *Gender Egalitarianism*

The degree to which the organization minimizes (and should minimize) gender inequality. Table 2.10shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	*Low*
More women in positions of authority.	Fewer women in positions of authority.
Less occupational sex segregation.	More occupational sex segregation.
Similar levels of educational attainment for males and females.	A lower level of female educational attainment, compared to that of males.
Afford women a greater decision-making role in community affairs.	Afford women little or no decision-making role in community affairs

Table 2.10 Characteristics of Organizations: High vs. Low Gender Egalitarianism

8. *Power Distance*

The extent to which the community accepts and endorses authority, power differences, and status privileges. Table 2-11 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	*Low*
Society is differentiated into classes.	Society has a large middle class.
Power seen as providing social order.	Power linked to corruption and coercion.
Upward social mobility is limited.	Upward social mobility is common.
Resources available to only a few.	Resources are available to almost all.
Information is localized and hoarded.	Information is widely shared.

Table 2.11 Characteristics of Organizations: Low vs. High Power Distance

9. *Uncertainty Avoidance*

The extent to which a society, organization, or group relies (and should rely) on social norms, rules, and procedures to alleviate unpredictability of future events. Table 2.12 shows different characteristics of the organizations for two levels of the dimensions.

Degree	
High	*Low*
Use formality in interactions with others	Use informality in interactions with others.
Are orderly and keep meticulous records.	Are less orderly and keep fewer records.
Rely on formalized policies and procedures.	Rely on informal norms for most matters.
Take moderate, carefully calculated risks.	Are less calculating when taking risks.
Show strong resistance to change.	Show only moderate resistance to change.

Table 2.12 Characteristics of Organizations: Low vs. High uncertainty avoidance

Literature review revealed that national culture differences influence on Kaizen programs adoption and Lean transfer (Wong, 2007; Yokozawa, et al., 2010; Yokozawa and Steenhuis, 2013; James and Jones, 2014; Wangwacharakul, et al., 2014; Pakdil and Leonard, 2015; Tsao, Rau and Ma, 2015; Zimmermann and Bollbach, 2015). By reviewing previous studies considering national culture and implementation of Lean, comparing their conclusions is impossible especially in the studies that examined cultural profile of successful companies in implementation of Lean philosophy since different countries were examined. Table 2.13 shows the summary of articles on role of national culture on successful Lean implementation that used GLOBE model.

Authors	Purpose	Country	Applied Data Base	Findings
Bortolotti et al. (2015)	Presenting cultural profile of Lean organizations	Austria, China, Finland, Germany, Italy, Japan, South Korea, Spain, Sweden, and the US	High Performance Manufacturing (HPM) database from international research project	a higher institutional collectivism, future orientation, a humane orientation, and a lower level of assertiveness
Kull et al. (2014)	Presenting cultural profile of Lean organizations	More than 20 countries around the world	the fourth round of Global Manufacturing Research Group's (GMRG) world-wide survey	high uncertainty avoidance, low assertiveness, future orientation, and performance orientation
Gelei et al. (2015)	Identifying effective types of production managers 'behaviors on implementation of Lean	Hungary	the database of the Hungarian Competitiveness Research Center	Communication and micro-managing leadership behavior of production managers contribute to leanness. In addition, performance-oriented and formal leadership attributes, had no impact on leanness.

Table 2.13 Articles about Role of National culture On Successful Lean Implementation (GLOBE Model)

Bortolotti, et al., (2015) in along with Kull, et al., (2014) analysed the culture of Lean organizations by using GLOBE model. On the one hand, Bortolotti, et al., (2015) examined soft practices and includes that all Lean organizations share common cultural characteristics including a higher institutional collectivism, future orientation, a humane orientation, and a lower level of assertiveness. On the other hand, Kull, et al., (2014) analyzed hard practices and provided organizational culture for predicting effectiveness of Lean which it consists of high uncertainty avoidance, low assertiveness, low future orientation, and low performance orientation. If we assume that the conclusions of Bortolotti et al. (2015) and Kull et al. (2014) are comparable then the inconsistency is found. Moreover, Martins et al. (2015) reviewed the literature review in the aspect of cultural characteristics and most studies that the authors considered were related to Total Quality Management. Whereas, Lean implementation proposes new ways for doing the work and requires fundamental changes in the way of thinking and acting. Therefore, it is needed to be examined deeply with the perspective of change management theory. Table 2.14 shows papers investigated the impact of national culture on implementation of Lean based on *Hofstede's* model. According to their conclusion, adaptation and localization of culture could not be possible when there is inconsistency. Whereas, this conclusion is a little difficult to accept, if even one successful Lean organization exists in such countries.

Authors	Purpose	Country	Applied Data Base	Findings
Zimmermann and Bollbach (2014)	Finding cultural barriers in implementation of Lean	China	Case study	China's traditional norms of management, education, legal systems, and manufacturing are considered as barriers institutional context that made it impossible for the firm to achieve continuous improvement targets.
Wiengarten et al. (2014)	examined new proposition about effects of national culture on implementation of Lean	Australia, Belgium, Italy, Republic of Ireland, UK, and USA.	The database of the plants to be contacted was provided by governmental SME agencies in each country.	Not only cultural collectivism at the national and organizational level has a significant impact on the efficacy of lean practices. But also, disadvantages situated geographically in an individualistic culture cannot be compensated by practicing a collectivistic culture at the organizational level when practicing lean manufacturing.
Abrahamsson and Isaksson (2012)	examining SMES to figure out whether Lean needs to be implemented in standardized way or some changes have to be considered	Sweden	Case Study	High value of the Power Distance has a negative impact on Lean. The reason is that it will be difficult to empower people to point out errors and difficult to work in teams where roles should be equal. Uncertainty Avoidance (UAI) seems to have a positive correlation with Lean where the greatest impact is expected from standardization and the use of well-proven technology. Sweden's low value for UAI can manifest itself in an unwillingness to fit in an overly standardized and controlled system.
Cagliano et al. (2009)	Examining the relationship between the adoption of New Forms of Work Organizations and measures of national culture and economic development.	-	the fourth edition of the International Manufacturing Strategy Survey	National culture plays an important role in adoption. There is no cultural profile or single cultural dimension that is dominant in fostering the adoption of the overall New Forms of Work Organizations model. Rather, each type of cultural profile determines different ways of adopting the model.
Pakdil and Leonard (2016)	examining the interconnection of societal culture and lean processes	-		Collectivist cultures, low uncertainty avoidance-oriented societal cultures, and low power distance-oriented cultures are more focused on employee involvement and creativity at team level, long-term philosophy. Whereas, the opposite cultures are focused on control and standardization.

Table 2.14 Articles about Role of National Culture On Successful Lean Implementation (Hofstede Model)

Cagliano et al. (2011) assert that there is no cultural profile or single cultural dimension that is dominant in fostering the adoption of the overall new forms of work organizations and high performance work systems that highlight human resource practices such as team work, multi-skilling, delegation, job enrichment, job enlargement, training, and involvement. However, several studies applied national cultural models to figure out if there is common cultural profile for successful Lean organizations. Pakdil & Leonard (2015) examined the interconnection of societal culture and lean processes by using national model of Hofstede (1980). The authors understood that collectivist cultures, low uncertainty avoidance-oriented societal cultures, and low power distance-oriented cultures are more focused on employee involvement and creativity at team level. Whereas, opposite cultures are focused on control and standardization. Moreover, no studies could be found on how to adapt organizational culture with Lean culture in the condition that national culture is not compatible to Lean culture. In the aspect of conflicting, to prevent or decrease resistance to change, it seems there is still lack of academic research to provide strategies or guidelines.

2.5 Summary

The creation of Lean Production rooted in Japanese automotive company called Toyota Motor Corporation. The term "Lean Production" coined by John Krafcik who was a researcher at International Motor Vehicle Program (IMVP). Since then, Toyota Production System (TPS) is often used interchangeably with the terms "Lean Manufacturing" and "Lean Production". The combination of several concepts lead to such complexity that many researchers still argue about its elements and new factors are continuously discovered to make successful implementation possible. In this chapter, the articles of journals and conferences, various books, unpublished works, as well as official websites related to Lean Production were reviewed. In order to clarify Lean Production concept, a comprehensive description was presented through identifying the unclear aspects such as Lean culture, expressing why Lean Production is complicated, explaining the components that cause this complexity, and determining the factors which influence the success and sustainability of transformation to Lean with new perspective. Therefore, the following objectives were determined:

Objective I) concept of TPS

Objective II) implementation of Lean philosophy

Objective III) Lean culture:

Sub Objective III-I) Organizational culture of Toyota

Sub Objective IIII-II) the importance of national culture

Apart from financial issues that some organization especially SMEs may confront, we consider that employee's behavior is the first and key factor. Most factors that identified by previous researchers are related in the way of employee's thinking, behavior, and reactions to organizational change. Several strategies should be considered prior to implementation of Lean to control and manage employees' reactions. As pointed in most studies organizational culture requires to be changed and this is most important step that determines the success or failure of the implementation. However, the problem is that organizational culture change to which culture. Several studies have been done regarding Lean culture but a clear definition cannot easily be found that indicates what Lean culture really is. While some studies highlight the success factors, the lack of the same success factor has been considered as a barrier. Literature review revealed that national culture differences influence on Kaizen programs adoption and Lean transfer. Moreover, some studies examined cultural profile of Lean organization through GLOBE model which the results are in contradictions. However, no studies could be found on how to adapt organizational culture with Lean culture when national culture is not compatible.

Chapter 3: Methodology Approach

A research is always conducted to get deeper insights through either exploring realities, describing sequence of incidents over time or explaining the course of events. To confirm the model for Lean culture proposed in this thesis, human interactions in Lean organizations have to be investigated. This will help to get deeper understanding of Lean culture and the predominant atmosphere of the organization. Therefore, to provide fair conclusions, a well-defined and proper strategy should be adopted.

Creswell et al. (2007) believe that researchers should begin their inquiry process with philosophical assumptions about the nature of reality (ontology), how they know what is known (epistemology), the inclusion of their values (axiology), the nature in which their research emerges (methodology), and their writing structures. In order to conduct a research, a general plan is required to guide researchers in planning, executing, and monitoring the study (Johannesson and Perjons, 2014). Although, various strategies have been provided to conduct a research, Yin (2003) classified them into *Experiment*, *survey*, *Archival analysis, History,* and *Case study*. As Table 3.15 shows, several conditions should be considered to opt for an appropriate research strategy while Yin (2003) asserts the primer determinant is the style of research questions.

Strategy	Form of Research Question	Requires Control of Behavioral Events?	Focuses on Contemporary Events?
Experiment	How, Why?	Yes	Yes
Survey	Who, What, Where, How many, How much?	No	Yes
Archival Analysis	Who, What, Where, How many, How much?	No	Yes/No
History	How, Why?	No	No
Case Study	How, Why?	No	Yes

Table 3.15 Relevant Situations for Different strategies (Yin, 2003)

Experiment is an empirical study used to test whether one single factor cause a certain effect on another factor. Such factors are respectively considered as independent and dependent variable. The form of research question is "How" or "Why". Johannesson and Perjons (2014) assert that testing the hypothesis is conducted by manipulating the values of independent variable to check out the effects on dependent variable. This strategy necessitates the researcher to eliminate some factors, hold a factor constant, or randomly select the subjects in an experiment in order to decrease the risk of interfering the effects of other factors with the results.

Survey research is a strategy to learn something from a population. This strategy studies a fraction of the population mainly through a set of questions. The research questions can be created based on all forms of

questions. It generally produces quantitative description about some aspects of the population under strategy including their activities, beliefs, and attitudes (Fowler Jr, 2013; Johannesson and Perjons, 2014).

Similar to survey research, *Archival analysis* is a strategy used to find the answers for all types of questions. Both strategies can be considered when the purpose of research is to describe the incidence or prevalence of a phenomenon or when is to predict some certain outcomes (Yin, 2003). Archival analysis facilitates the investigation of the historical or non-historical documents and textual materials produced by or about the organization (Ventresca and Mohr, 2017).

Similar to experiment and case study, *Historical analysis* is proper for "How" and "Why" research questions. Contrary to archival analysis, this strategy traces documentary information over time (Yin, 2003).

Similar to experiment and Historical analysis, *case study* is applied to find out "How" or "Why" an action happens. Contrary to experiment, there is no need to control the events. Opposite to historical analysis and similar to experiment, the event occurring in the present time is investigated. Multiple case study investigates more than of one action. It seems that multiple case studies are a more suitable for this research since it investigates the actions of people in Lean organizations.

Case study is an analytic induction strategy in doing qualitative research that mainly used when a researcher intend to understand what is going on, how things proceed and why things occur as they do in a phenomenon within a specified time frame without affecting the study subject at all by using a combination of appropriate data collection devices. Case studies typically combine data collection methods in order to accomplish following aims:

- to provide description about phenomenon under study
- to explore a phenomenon in order to gain understanding about its nature and the problems
- to confirm/ generate a theory: when there are one or more hypotheses to investigate and it is applicable in the context of the phenomenon.

Case study begins with formulating propositions and hypotheses and then, it examines a case in depth to determine whether the fact of the case supports the hypothesis. If it fits, another case is studied (and so forth) for generalization. If the case does not support the hypothesis, it is a negative case and the hypothesis should be revised (Gupta and Awasthy, 2015; Patton, 2002; Miles and Huberman, 1994).

Therefore, the case studies are useful in following aspects (Cassell and Symon, 2004):

- Illuminating behavior which may only be fully understandable in the context of the wider forces operating within or on the organization, whether these are contemporary or historical.

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- Exploring new or emerging processes or behaviors: In this sense, case studies have an important function in generating hypotheses and building theory.

- Where the intention is to explore not typicality but unusualness or extremity with the intention of illuminating processes.

- Where exploration is being made of organizational behavior which is informal, unusual, secret or even illicit. While exploration of such issues is not confined to case study method, the trust which develops over a period of time between researcher and organization members means that gradually information may be provided which would not be given to the researcher in a one-off interview.

- To understand everyday practices and their meanings to those involved, which would not be revealed in brief contact.

- Detailed case studies may be essential in cross-national comparative research, where an intimate understanding of what concepts mean to people, the meanings attached to particular behaviors and how behaviors are linked is essential.

Studying strategic changes in organizations through multiple case studies can be complex and confusing (Fox-wolfgramm, 1997). Normally, when a researcher is new to a case study and looking to get a better understanding of a phenomenon, a pre-structured plan is needed to guide a researcher while doing the observations. When more than one researcher investigate or when multiple cases are studied, a research design is used to keep clarity and focus through investigation. An appropriate case research design is a guideline which should be logic, systematic, and easy to replicate (Fox-wolfgramm, 1997). Complete research design indicates not only which data should be collected but also what should be done after the data have been collected (Yin, 2003). It includes instruments, procedures, and general rules which helps the researcher/ researchers to follow the same steps while studying case/cases and prevents wasting the time. According to Yin (2011), there is no fixed design for qualitative research and every qualitative research varies in its design. Therefore, the best choice is a customized design which is well-suited.

Hence, this chapter aims to explain the research design of this study which created to address the research question and hypotheses. The chapter contains following sections:

- Research questions and hypotheses
- Case study approach
- Data collection
- Data analysis

3.1 Research Questions and Hypothesis

Research questions clarify the facts that a researcher is motivated to explore which can be general or particular, descriptive or explanatory and they can be reformulated the course of fieldwork. The research questions are guidelines to determine the type of data and the methods of collecting the data. Thus, they are very handful to avoid data overload. Although the substance of research questions will vary, Yin (2003) suggested that the form of the question in terms of "who", "what", "where", "how", and "why" provides an important clue regarding the most relevant research strategy to be used. As it previously explained, the case study is normally used to find the answer of "how" and "why" questions. Once a set of potential questions has been generated, it is necessary to begin the process of prioritizing those questions in order to decide which of them ought to be pursued (Patton, 2002).

Moreover, the research questions will lead to the initial theoretical assumptions. This will direct the attention to something that should be examined within the scope of study. Whereas, some studies, in which a topic is the subject of exploration, may have a legitimate reason for not having any propositions. Instead, the design should state the purpose of research and the criteria by which an exploration will be judged successful (Yin, 2003).

The research plan for this thesis begins with defining the research question and hypothesis. The research question is *"how to align the organizational culture to Lean culture?"*. The research begins with the general hypothesis as "both national culture and organizational culture influence on successful Lean implementation". Later, as the research progress, several hypotheses were identified to follow the research in more comprehensively and accurately. They are explained in chapter 4 where the evaluation model is proposed.

3.2 Case Study Approach

A case as a unit of analysis is a phenomenon in a bounded context. The phenomenon can be an individual, a role, a small group, an organization, a community or a nation. Defining the cases means that choosing the territory where is going to be studied. The appropriate selection on the types of cases depends on how accurately the initial questions of research are defined. However, it is normal that the parameters of study are being refocused during fieldwork. A common mistake that may occur during data collection is a confusion between the unit of analysis and the sources of evidences the researcher seeks especially when the data collection sources are people and the unit of analysis of the case study is the organization or vice versa (Yin, 2003). According to Patton (2002), the key issue in selecting and making decisions about the

appropriate unit of analysis is to see whether the research is done to learn something about individuals, families, groups, or some other units at the end of the study.

Table 3.16 helps to prevent this confusion. As this thesis intends to figure out how is Lean culture, it is needed to collect data from employees on how the organization works in their habitual way through Lean philosophy, inspect personnel policies, and the organization out comes to acquire comprehensive information. Thus, the cases of this study are organizations that implemented Lean. Only manufacturing companies were considered as cases in this thesis for two reasons: first, Lean philosophy originated from production lines. Second, to consider similar working environment.

		Data Collection Source		Study conclusion
		From an individual	From an organization	
Research Design is	About an individual	Individual behavior Individual attitudes Individual perceptions	Archival records Other reported behaviors, attitudes, and perceptions	Case study is an individual.
	About an organization	How organization works Why organization works	Personnel policies Organization out comes	Case study is an organization.

Table 3.16 Unit of Analysis vs. Data Collection Source (Yin, 2003)

3.2.1 Sampling Procedure

Unlike quantitative sampling that includes large number of participants; qualitative sampling is normally a purposive approach dealing with smaller number of people embedded in a defined context. The selection of cases is determined by the initial research question. However, according to Miles and Huberman (1994), samples in qualitative studies are usually not wholly pre-specified and can evolve once the fieldwork begins. Voss et al. (2002) claim that 3 to 30 cases can be involved in multiple case studies. Although the number of cases that can be selected is not something that can be determined by statistical grounds, the complexity and conceptually richness of each cases should be considered as factors to decide how many cases assure for generalization. According to Miles and Huberman (1994), multiple-case sampling adds confidence to findings. By looking at a range of similar and contrasting cases, it can be understood that a single-case finding, grounding it by specifying how and where and, if possible, why it carries on as it does. The precision, the validity and the stability of findings can be strengthened. The choice of cases usually is made on conceptual grounds not on representative grounds. Therefore, generalization is made from one case to the next on the basis of a match to the underlying theory. In order to select cases prior to or during the data collection, following sampling strategies were presented which are most useable either in within a complex case or across cases (Patton, 2002):

- *Extreme or deviant case sampling:* this strategy involves selecting cases that are information-rich because they are unusual or special in some way, such as outstanding success or notable failure.

- *Intensity sampling:* this involves the same logic as extreme case sampling but with less emphasis on the extremes. An intensity sample consists of information-rich cases that manifest the phenomenon of interest intensely but not extremely. Extreme or deviant cases may be so unusual as to distort the manifestation of the phenomenon of interest. Using the logic of intensity sampling, one seeks excellent or rich examples of the phenomenon of interest but not highly unusual cases.

- *Maximum variation (heterogeneity) sampling:* this strategy for purposeful sampling aims at capturing and describing the central themes that cut across a great deal of variations. For small samples, a great deal of heterogeneity can be a problem because individual cases are so different from each other. The maximum variation sampling strategy turns that apparent weakness into a strength by applying the following logic: any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared dimensions of a setting or phenomenon.

- *Homogeneous samples:* in direct contrast to maximum variation sampling is the strategy of picking a small, homogeneous sample, the purpose of which is to describe some particular subgroup in depth. Focus group interviews are based typically on homogeneous groups. Focus groups involve open-ended interviews with groups of five to eight people on specially targeted or focused issues.

- *Typical case sampling:* in describing a culture or program to people not familiar with the setting studied, it can be helpful to provide a qualitative profile of one or more typical cases. These cases are selected with the cooperation of key informants, such as knowledgeable participants who can help identify who and what are typical. Typical cases can also be selected using survey data, a demographic analysis of averages, or other statistical data that provide a normal distribution of characteristics from which to identify "average-like" cases.

- *Critical case sampling:* critical cases are those that can make a point quite dramatically or are, for some reason, particularly important in the scheme of these things. A clue to the existence of a critical case is a statement to the effect that "if it happens there, it will happen anywhere" or, vice versa, "if it does not happen there, it will not happen anywhere". Another clue to the existence of critical case is a key informant observation to the effect that "if that group is having problems, then it can be assured all the groups are having problems".

- *Snowball or chain sampling:* This is an approach for locating information- rich key informants or critical cases. The process begins by asking well-situated people: "who knows a lot about…? Whom should I talk to?" by asking a number of people who else to talk with, the snowball gets bigger and bigger as the researcher accumulates new information- rich cases.

- *Criterion sampling:* the logic of criterion sampling is to review and study all cases that meet some predetermined criterion of importance, a strategy common in quality assurance efforts. The point of criterion sampling is to be sure to understand cases that are likely to be information rich.

- *Theoretical sampling*: a more conceptually oriented version of criterion sampling is theory-based sampling. The researcher samples incidents, slices of life, time periods, or people on the basis of their potential manifestation or representation of important theoretical constructs. Theoretical sampling is what grounded theorists define as "sampling on the basis of the emerging concepts, with the aim being to explore the dimensional range or varied conditions along which the properties if concepts vary.

- *Confirming and disconfirming cases:* in the early part of the fieldwork, the investigator is exploring – gathering data and watching for patterns to emerge. Overtime, the exploratory process gives way to confirmatory fieldwork. This involves testing ideas, confirming the importance and meaning and meaning of possible patterns, and checking out the viability of emergent findings with new data and additional cases. This stage of fieldwork requires considerable rigor and integrity on the part of the investigator in looking for and sampling confirming as well as disconfirming cases. Confirmatory cases are additional examples that fit already emergent patterns. These cases confirm and elaborate the findings, adding richness, depth, and credibility. Disconfirming cases are no less important at this point.

- *Stratified purposeful sampling:* stratified samples are samples within samples. A stratified random sample, for example, might stratify by socioeconomic status within a larger population so as to make generalizations and statistically valid comparisons by social class as well as to generalize to the total population. Purposeful samples can also be stratified and nested by combing types of purposeful sampling. So, for example, one might combine typical case sampling with maximum heterogeneity sampling by taking a stratified purposeful sample of average, average, and below average cases. This represents less than a full maximum variation sample, but more than simple typical case sampling. The purpose of a stratified purposeful sample is to capture major variations rather than to identify a common core, although the latter may also emerge in the analysis.

- *Opportunistic or emergent sampling:* fieldwork often involves on-the-spot decisions about sampling to take the advantage of new opportunities during actual data collection. Unlike experimental designs, emergent qualitative designs can include the option of adding to a sample to take advantage of unforeseen opportunities after fieldwork has begun. Being open to following wherever the data lead is a primary strength of qualitative fieldwork strategies. This permits the sample to emerge during field work. As it is impossible to observe everything, decisions must be made about what activities to observe, which people to observe and interview, and when to collect

data. These decisions cannot all be made in advance. The purposeful sampling strategies discuss above provide directions for sampling but often depend on some knowledge of the setting being studied. Opportunistic, emergent sampling takes advantage of whatever unfolds as it unfolds.

- *Purposeful random sampling:* this strategy does not automatically eliminate any possibility for random selection of cases. For many researchers, random sampling, even of small samples, will substantially increase the credibility of the results. The purpose of small random sample is credibility not representativeness. A small, purposeful random sample aims to reduce suspicion about why certain cases were selected for study, but such a sample still does not permit statistical generalizations.

- *Sampling politically important cases:* a variation on the critical case strategy involves selecting (or sometimes avoiding) a politically sensitive unit of analysis.

- *Convenience sampling:* there is a strategy of sampling by convenience: doing what is fast and convenient. This probably the most common sampling strategy- and the least desirable. Too often researchers using qualitative methods think that because the sample size they can study will be too small to permit generalizations, it does not matter how cases are picked, so they might as well pick ones that are easy to access and inexpensive to study. While convenience and cost are real considerations, they should be the last factors to be taken into account. Convenience sampling is neither purposeful nor strategic.

In this research, theoretical sampling is applied. Based on the purpose of this research, some criteria were established for sampling procedure as follows:

- Companies should be selected from manufacturing industry.
- Companies have implemented Lean production for many years.
- Medium to Large Companies are more preferable.
- Companies should be chosen from different countries.

As the main purpose for this study is to analyze whether the cultural differences affect the success of Lean implementation. Several companies were contacted which included the defined criteria. Fortunately, some of them were interested to collaborate for this study. One company is located in Spain, one in Iran, and the other one in the Netherlands. The companies have been described separately in chapter 5 where the cases are analyzed.

3.3 Data Collection

The data collection is an interactive process since the researcher communicates with participants in the case under study to understand the phenomenon from their perspective. Contrary to other research strategies, case study is more preferred as it requires an inquiring mind during data collections not just before or after the activity (Yin, 2003). According to Bengtsson (1999), the important thing is to remember that the observer and the process of observation do not influence the phenomenon being observed. Although case study does follow a formal plan (which is usually called "protocol"), the specific information that may become relevant to a case study is not predictable and there is no control over data collection environment as other strategies do.

A common belief is that the case study is a qualitative in nature whereas the observation could be analyzed either in qualitative, quantitative, or both. While quantitative evidences are commonly used to explain the reality, and measure the intensity, qualitative data helps in understanding the complexity of the real world and recognizing the existence of ambiguities. Quantitative studies concentrate on investigating minor variations of already established theoretical models such as adding a variable here or there, trying the model out in a different context or with a different sample (Cassell and Symon, 2004).

Both types of data can be used concurrently during conducting the research. According to Miles and Huberman (1994), the qualitative-quantitative linkage contains three levels. First, quantizing level where qualitative information can be either counted directly (such as the number or times a doctor interrupts a patient during an interview) or converted into ranks or scales. The second level is that of linkage between distinct data types where qualitative information (for example from an open-ended interview) is compared to numerical data (for example from the questionnaire the same person filled out). The third level is that of overall study design such as multi-method approaches. Based on research purpose and hypotheses of this thesis, it was decided to focus only on qualitative data as they can demonstrate the complexity of events more effectively.

 In the data collection, a researcher must be logical and curious to capture the essential data from various sources because each of the sources does not have complete advantages over the others. Although it is usually recommended to acquire data from as many sources as possible about the same phenomenon to increase the reliability of data, Berg (2004) points out that how the data are collected is essentially a matter of the investigator's choice and largely depends on the limitations set by the stakeholders or the nature of the problem and setting. The six major sources, their strengths and weaknesses are indicated in Table 3.3.

Source of evidence	Strength	Weaknesses
Documentation	• Stable- can be reviewed repeatedly. • Unobtrusive- not created as a result of the case study. • Exact- contains exact names, references, and details of an event. • Broad coverage- long span of time, many events, and many settings.	• Irretrievability -can be low. • Biased selectivity, if collection is incomplete. • Reporting bias-reflects (unknown) bias of author. • Access- may be deliberately blocked.
Archival Records	• (Same as above for documentation) • Precise and quantitative	• (Same as above for documentation) • Accessibility due to privacy reasons
Interviews	• Targeted- focuses directly on case study topic • Insightful- provides perceived casual inferences	• Bias due to poorly constructed questions • Response bias • Inaccuracies due to poor recall • Reflexivity- interviewee gives what interviewer wants to hear
Direct Observations	• Reality- covers events in real time • Contextual- covers context of event	• Time-consuming • Selectivity- unless broad coverage • Reflexivity- event may proceed differently because it is being observed • Cost- hours needed by human observers
Participant-Observation	• (Same as above for direct observations) • Insightful into interpersonal behavior and motives	• (Same as above for direct observations) • Bias due to investigator's manipulation of events
Physical Artifacts	• Insightful into cultural features • Insightful into technical operations	• Selectivity • Availability

Table 3.17 Sources of Evidences: Strengths and Weaknesses (Yin, 2003)

Since interviews are a highly efficient way to gather rich, empirical data, especially when the phenomenon of interest is highly episodic and infrequent (Eisenhardt and Graebner, 2007), the main source of collecting data is chosen to be the *interviews* in this thesis. The methods that an interview can be conducted vary according to styles of questioning (open-ended and close-ended) and number of participants (focus group or individual).

- *Styles of questioning*

The interview methods can be used in both qualitative and quantitative studies. The closed-ended questions are more appropriated for quantitative studies since they can be answered with "Yes" or "No," or they propose set of multiple alternatives to answer. This can constraint the answers only to what the interviewer believe is true. On the other hand, the open-ended questions are normally asked in qualitative as they allow

the informants to give a free-form answer and also, they give the researchers an opportunity to follow up more than they anticipate. The questions start with "how" or with words that begin with "w," such as "what," "when," "where," "which," and "who. This type of questions is normally asked to gather information regarding different subjects including:

- behaviors (what a person has done or is doing)
- opinions/values (what a person thinks about the topic)
- feelings (what a person feels rather than what a person thinks)
- knowledge (to get facts about the subject)
- sensory (what people have seen, touched, heard, tasted or smelled)
- background/demographics (standard background questions, such as age, education, and …)

The common methods used for asking the open-ended questions are classified into the following approaches:

1. *Structured/standardized interview:* the same set of questions in a predetermined order will be asked from each informant during the interview and the answers are shorter and number of participants are larger than the other two approach. Data collections are done through mail, face-to-face, and telephone.

2. *Semi-structured interview:* Although, the outline/guide is set by the researcher for the topics that should be covered, the informant's responses determine the way in which the interview is directed. This is the most commonly used type of interview in qualitative research. The outline provides a clear set of instructions for interviewers and can provide reliable and comparable qualitative data. It is generally best to tape-record interviews and later transcript these tapes for analysis. Semi-structured interviews are often preceded by observation, informal and unstructured interviewing in order to allow researchers to develop a keen understanding the topic of interest necessary for developing relevant and meaningful semi-structured questions.

3. *Unstructured interviews:* This type of interview is non-directed and is a flexible method. Although, no outline is followed, the interviewer has a clear plan in mind regarding the focus and goal of the interview. Since discussions may develop in unanticipated directions, each interview is different. The method to keep the data is the same with semi-structured interview.

- *Number of participants*

Another effective factor that determines in the way that an interview should be conducted is that how many informants should participate in one interview. The methods considering this factor are classified in the following:

1. *The in-depth interview :* This is a technique designed to elicit a vivid picture of the participant's perspective on the research topic (Milena et al., 2008). Normally, this interview is conducted with one informant and the approach is semi-structure.
2. *The focus group:* Contrary to the in-depth interview, the focus group interview is a discussion group held with aim of getting different perceptions and thoughts. The participation of different informant in discussion helps to generate collective perspectives on the particular subject at once which is guided by the researcher. Therefore, less structured approach is the best fit for this type of interview (Gill et al., 2008).

Since it is needed that the informant feels comfortable and free to express his/her experiences in Lean atmosphere, it seems that the *semi-structured in-depth interview* is the best approach for this study to take. The informants are the production manager of the selected companies. Depending of the access to the informants, the interviews are conducted through both face-to-face and online video chat tools such as Skype. All interviews recorded by voice recorder and the voices have been transcribed in order to conduct stronger analysis.

Moreover, beside the interview technique, *physical artefacts* of selected cases would be very important source to get information on the culture of the organizations. As a visible part of the culture, *physical artefacts* of organizations include symbols, slogans, language, stories of the organization's founder or other dominant leader, as well as rituals and the ceremonies.

3.3.1 Coding Procedure

As soon as the researcher starts compiling information, challenges appears. All information is amassed and if the researcher does not know what matters more, everything matters (Miles and Huberman, 1994). In order to compile the information in systematic and consistent structure, a provisional list of codes and sub codes was created prior to field work. This method has also been recommended by Miles and Huberman (1994). Complying means ordering collected data in a specific style which can be considered as a data base in the form of text. This also means separating the data into some sort of records. The purpose is organizing the data systematically in order to facilitate stronger analysis (Yin, 2011). Coding helps to determine directly which information matters the most for this study and should be looked up as well as be questioned.

According to Miles and Huberman (1994), the list comes from the conceptual framework, list of research questions, hypotheses, problem areas, and/ or key variables that the researcher brings to the study. Hence, in this research, the codes and sub-codes were respectively identified based on the successful factors for Lean implementation and related practices. The questions related to each code and sub code were created. In fact, during the interview, sub-codes helped to prevent wasting the time and simplify the interview process. When the questions related to specific codes are being asked, having the list of sub-codes facilitate questioning process by avoiding asking a question that has been already replied non-intentionally during the conversation.

3.3.2 Pilot Interviews

According to Miles and Huberman (1994), codes will change and develop as field experience continues. Some codes do not work and some decay. Therefore, a set of pilot interviews were conducted before the main interviews. In this thesis, they help not only to complete and extend the model for Lean culture that was initially proposed based on literature review but also to revise and finalize the coding process along with the plan for data collection. They were also constructive to practice interviewing and getting prepared for the main interviews. The interviews conducted with professional expert who is working as Lean implementation consultant in various countries including France, UK, US, Spain, and South America for many years. The details of pilot interviews along with the proposed model are presented in chapter 4.

3.4 Data Analysis

While the purpose of quantitative data analysis is statistical generalization, the ultimate goal of multiple case study is analytical generalization. Quantitative data analysis means that the observations coded on to a quantitative scale. Different kinds of numerical methods used to draw conclusions on coded data, parametric and non-parametric statistics are such examples. Conclusions based on such methods can be very general over a certain population (Bengtsson, 1999). Whereas, a wide variety of interpretive practices are employed in qualitative studies to get a better understanding of the phenomenon under study since each practice makes the reality visible in a different way (Gupta and Awasthy, 2015). The issue is not quantitative-qualitative at all (Miles and Huberman, 1994). In fact, the purpose of the research and the phenomenon under study are the determinants of which analysis approach should be taken.

Qualitative analysis means that the observations are analyzed without the support of numerical methods and coding the observations to quantitative scales. Instead it is based on the context of the observations, the experiences of the observer and rational argumentation (Bengtsson, 1999). Therefore, the findings from

qualitative sources are undeniable. Contrary to quantitative data, analyzing qualitative data is an iterative process which is often concurrent with data collection rather than subsequent to it (Cassell and Symon, 2004). Once analysis is under way, fieldwork may not be over. On occasion, gaps or ambiguities found during analysis necessitate more data collection. So, where possible, interviewees may be contacted to clarify or deepen response (Patton, 2002). Miles and Huberman (1994) explain analysis is reviewing a set of field notes or transcripts and dissecting them meaningfully while keeping the relations between the parts intact. This part of analysis involves how to differentiate and combine the retrieved data and the reflections that researchers make about this information. According to Yin (2011), qualitative analysis does not have any universally accepted routine. However, it is not undisciplined. In fact, ideas for making sense of the data that emerge during field work is the beginning of analysis (Patton, 2002).

Moreover, using computer software can facilitate the analysis process. Yin (2011) asserts that since the added attention is required to follow the software procedures and terminology, there is a risk of distraction from the desired analytic thinking, energy, and decisions that required for strong analysis. According to Patton (2002), software does not analyses qualitative data. It eases data storage, coding, retrieval, comparing, and linking but human beings do the analysis. Therefore, it was decided to conduct the procedures manually. A database was created to retain collected information through Microsoft office Excel which help to gather all the conducted procedures and related data in the same order that happens. Each sheet contains each procedure and it made easier for to track the information.

According to Patton (2002), qualitative study will often include case analysis and cross-case analysis. Case analysis means writing a case study for each person interviewed or each unit studied. Cross-case analysis means grouping together answers from different people to common questions or analyzing different perspective on central issues. (Yin, 2011) recommends playing with data, which means considering the data under different arrangements and then altering and re-altering them until something emerges that seams satisfactory. Displaying data in the organized format such as matrices, graphs, hierarchical arrays facilitate looking for the potential patterns (Miles and Huberman, 1994; Yin, 2011). Each case has been analyzed firstly through the checklist; Secondly, through the sub-code or soft practices that all are explained in chapter 4 where the theoretical model is proposed and codification process is illustrated. The details of analysis process of the cases are presented completely in chapter 5.

3.5 Standards for the Quality of Qualitative Research

Various criteria have generally designed in order to judge the quality of final conclusions of a qualitative research. Yin (2003) along with Miles and Huberman (1994) disucuss several overlapping issues which are explained next.

- *Credibility/Internal Validity/ Authenticity*

This concept mainly deals with whether the conclusions are reasonable and meaningful and it is refered as "truth value" by Miles and Huberman (1994). According to Norris (1997), the reasons that we have for believing truth claims are described as validity. Validity is associated with the congruence of research explanations and the fundamental meanings with which people construct their realities and accomplish their everyday activities (Cassell and Symon, 2004). Yin (2003) explains making correct inferences within case study is the concern that necessiates the internal validity test. Inferences happen every time that an event cannot be directly observed and are resulted from some earlier occurrence based on interview and documentary evidence collected as part of the case study. Yin (2003) also claims that internal validity is only applicable for expalanatory case. In such case studies, a researcher seeks for causal relationship between two variables. If the researcher incorrectly concludes that there is a causal relationship without knowing that some third factor moderates this relationship, the research design has failed to deal with some threat to internal validity. According to Miles and Huberman (1994) checklist, this research is internally validated since the descriptions are context-rich, the presented data are linked well to the prior theories, the findings are internally coherent, the concepts are systematically related, and areas of unceratinty are identfied.

- *Confirmability/Objectivity/Construct Validity*

Confirmability/Objectivity has been proposed by Miles and Huberman (1994) and addresses reasonable freedom from unacknowledged researcher biases. This has been labled as "external reliability" with the emphasis on the repilicability of a study by others (Miles and Huberman, 1994). Yin (2003) refers to similar concept, as Construct Validity, which it deals with whether sufficient operational measures are established for collecting data and data collection is not conducted only based on impressions of the researcher.

The confirmability/objectivity/construct validity of this study is justifiable through considering the following strategies:

1. The general methods and procedures of this study are described explicitly and in details (Miles and Huberman, 1994).

2. A reader can see that a complete picture of study is given in this thesis, including "backstage" information and the thesis has been written in details enough that the study's methods and procedures can be audited by an outsider (Miles and Huberman, 1994; Yin, 2003).

3. Multiple sources of evidence are used in this research such as literature review, semi-structured in-depth interview, and physical artefacts which allowed to address a broader range of historical, attitudinal as well as behavioral issues and develop converging lines of inquiry (Yin, 2003).

4. A chain of evidence was maintained because the actual evidence kept in the data base and the circumstances of each interview such as the time and place are clear in the data base (Miles and Huberman, 1994; Yin, 2003).

5. The conclusions are explicitly linked with exhibits of condensed/displayed data (Miles and Huberman, 1994; Yin, 2003).

6. The data are retained and available for reanalysis by others(Miles and Huberman, 1994).

7. And, finally, personal assumptions, values, biases, and affective state as well as how they may have come into play during the study were acknowledged prior to conduct this thesis (Miles and Huberman, 1994).

- *Reliability/Dependability/Auditability*

This concept deals with whether the process of the study is consistent, reasonably stable overtime, and across researchers (Miles and Huberman, 1994). This means that if the later researcher follow the same procedures as described by earlier researcher, the same finding and conclusions should be acheieved again (Yin, 2003). Several strategies have been proposed to avoid problems that all of them were considered in the design of this research such as:

1. The use of case study protocol in order to document the procedures (Yin, 2003)

2. Defining clear research questions and congruent research design with them (Miles and Huberman, 1994)

3. Development of a data base (Yin, 2003) and collecting data across the full range of appropriate settings, times, respondents as suggested by the research questions (Miles and Huberman, 1994).

4. Clear specification of basic paradigms and analytic constructs (Miles and Huberman, 1994).

5. And finally, conducting research as if someone looking over the procedures (Miles and Huberman, 1994; Yin, 2003).

- *External validity/Transferability/Fittingness*

This concept addresses whether the conclusions are transferable to other context or beyond the studied cases (Miles and Huberman, 1994; Yin, 2003). Yin (2003) refers to single cases as poor basis for generalizing.

To which degree the findings of one study are applicable to another depends on the similarity of the context to the original study (Bollbach, 2012). As Duff (2008) along with Fox-wolfgramm (1997) recommend, the external validity can be enhanced by conducting multiple case studies. External validity is achieved in this study through repeating the same procedures and obtaining similar results for all of the cases. Moreover, with regard to the strategies proposed by Miles and Huberman (1994), this issue was considered perfectly:

1. The characteristics of the original sample of persons, settings, processes, and so on, are sufficiently fully described to permit adequate comparisons with other samples.
2. The report specifies any limits on sample selection and critically examines its ability to generalize to other settings and contexts.
3. The sampling is theoretically diverse enough to encourage broader applicability when relevant.
4. The findings include enough "thick description" for readers to assess the potential transferability and appropriateness for their own settings.
5. A range of readers report that the findings are consistent with their own experiences.
6. The findings are congruent with, connected to, or confirmatory of prior theory.
7. The processes and outcomes described in the conclusions are applicable in comparable settings.
8. The report suggests settings where the findings could fruitfully be tested further.

- *Utilization/Application/Action*

This concept proposed by Miles and Huberman (1994) and considers the issue that who the consumers of conducted study are and how they can benefit from the findings. This concept has been thoroughly considered in this research. As the findings are intellectually and physically accessible to potential users (Miles and Huberman, 1994), the utilization of this study is apprehensible through the chapters.

3.6 Summary

This chapter explains the design of this research and the procedures applied to address the research question and hypotheses. Multiple case studies has been justified to select and the research question and hypotheses were clarified. Sample organizations were chosen theoretically including the following criteria:

- Companies should be selected from manufacturing industry.
- Companies have implemented Lean production successfully for a few years.
- Medium to Large Companies are more preferable.
- Companies should be chosen from different countries.

Based on the inclusion criteria, three orgnizations have been chosen including one company is located in Spain, one in Iran, and the one other in the Netherlands. For data collection, several sources were chosen such as literature review, interview, and physical artefacts. A set of codes were prepared based on the literature review. Then, a set of pilot interviews conducted to finalize coding process and improve the questions. The codes are *success factors* for Lean implementation and sub-codes were *related soft practices*. The pilot interviews conducted with professional expert who is working as Lean implementation consultant in various countries including France, UK, US, Spain, and South America for many years. The pilot interviews were helpful to extend the model for Lean culture that was initially proposed based on literature review. The details of pilot interviews and the proposed model along with the codification process are explained in chapter 4. The main interviews conducted by asking open-ended questions and the chosen informants were production managers. As this research empirically started, the database was created through Microsoft Excel. This allowed to retain and trace data and conducted procedures as the research proceeded. Each case has been analyzed firstly through the checklist; Secondly, through the sub-code or soft practices that all are explained in chapter 4 where the theoretical model is proposed and codification process is illustrated. The details of analysis process of the cases are presented completely in chapter 5. Finally, the quality of this study was justified through last section (3.5 Standards for the Quality of Qualitative Research).

Chapter 4: Evaluation Model for Aligning Organizational Culture to Lean Culture

Reviewing the literature shed light on influence of national culture on the organizational culture. Successful transformation forces us to understand how to adapt organizational culture to Lean culture, specially, when the national culture is inconsistent. Precise planning for preparation of organization is necessary since Lean implementation requires devoting a lot of time, energy and resources.

It seems beneficial to be able to assess the lack of alignments between both cultures in order to manage and facilitate a sustainable implementation. However, no study was found proposing a method to measure preparedness of organizational culture for sustainable implementation of Lean. Thus, this study proposes an evaluation model that includes six dimensions with aim of considering influences of national and organizational culture in order to enable managers to determine the cultural weaknesses before implementation. In this study, it is assumed that organizations with different level of national culture will have some difficulties when implementing Lean. Therefore, if organizations can measure the level of proposed dimensions before implementing Lean, they can find the right strategy to diminish these difficulties.

To follow the research systematically and consistently, factors and related practices that are essential for successful Lean implementation were considered as codes and sub-codes, respectively. The initial code list was prepared based on literature review. Codification process continued with conducting pilot interviews which are useful practices to revise the code list. As a result, areas that needed reconsiderations were highlighted. Finally, the code list was refined after a few times of revision.

This chapter aims to explain several concepts. Initially, the evaluation model is presented in order to evaluate required alignments of organizational culture prior to Lean implementation which includes six dimensions. The level of each dimension that indicates preparedness of organizational culture for Lean implementation is provided including Low, Moderate, or High.

Next, the codification process is illustrated in details. For each dimension, the initial code list based on literature review along with modifications after conducting pilot interviews are clarified; the final refinement of code list is presented including success factors as codes and essential soft practices as sub-codes. Soft practices are human-related-practices that emphasize on organizational culture, managerial concept, and human relations that are often neglected during adoption processes of Lean. Then, the possible problems related to soft practices are shown at the end of the codification process. Finally, for each

dimension, a checklist is provided in order to evaluate the level that a company has before Lean implementation in order to detect misalignments and possible problems during Lean implementation.

4.1 Evaluation Model

To create the evaluation model, organizational culture of Toyota and cultural profiles of successful Lean organizations were scrutinized. Since, the cultural models targeted different respondents, including non-managerial employees in Hofstede (1980); managerial employees in GLOBE (House et al., 2004); both managers and employees in Trompenaars & Hampden-Turner (1997), it seems that different aspects were observed in each model. Therefore, dimensions of three models were grouped and integrated into one. The theoretical model includes six dimensions.

Each sub-section is assigned to each dimension. Thus, each section commences with a brief description of the dimension and a table presenting combined dimensions from different national models. The right level of combined dimensions is noted according to literature review. Therefore, for the dimension of GLOBE model (House et al., 2004), we refer to the conclusions of Kull et al., (2014) and Bortolotti, et al., (2015). For the dimension of Hofstede (1980) model, the study of Pakdil and Leonard (2016) is considered. For Trompenaars & Hampden-Turner (1997), the level of each dimension is provided based on the recognition of the researcher, as no study was found examining cultural profile of organizations that implemented Lean considering this national model. The justifications are discussed in case of using a level contrary to aforementioned studies. The characteristics of organizational culture are described respecting three levels: *Low, Moderate,* and *High.* The best level that indicates the prepared organizational culture for Lean implementation is argued.

4.1.1 Authority Distribution

Authority Distribution shows how much employees accept a person in higher position has larger power. With regard to Table 4.18, we grouped *Power distance* dimension from both Hofstede (1980) and GLOBE (House et al., 2004) models and *Achievement* is considered from Achievement /Ascription dimension of Trompenaars & Hampden-Turner (1997) model.

National Models		
Hofstede (1980)	**GLOBE (House et al., 2004)**	**Trompenaars & Hampden-Turner (1997)**
Power distance	Power distance	Achievement

Table 4.18 Combination of National Dimensions with Their Related Level for Dimension 1

Authority Distribution can be Low, High, or Moderate levels. The characteristics of the organization for each level are explained as follows:

In the lowest level, employees expect to be consulted (Hofstede, 1980). However, this makes it difficult to establish a clear strategic direction (Bortolotti, et al., 2015). Employees are expected to develop and suggest ideas (Pakdil and Leonard, 2016), participate in decision-making (Bortolotti et al., 2015; Pakdil and Leonard, 2016), and involve in process improvement/ problems solving (Bortolotti et al., 2015; Kull et al., 2014; Pakdil and Leonard, 2015). Employees are empowered to make incremental changes (Kull et al., 2014). Whereas, important decisions should be consulted with the supervisors (Pakdil and Leonard, 2016). Since the information is shared in multilevel (Kull et al., 2014; Pakdil and Leonard, 2016), face to face communication is not needed with the manager whenever a problem happens (Bortolotti et al., 2015).

In the high level, there is an order of authority among employees and independent behavior is not encouraged. Upward mobility is limited; Information is localized and hoarded; Formality is used highly in interactions with others (House et al., 2004). In such organizations, it is accepted that everybody has a place. Therefore, interactions and attitudes are defined by the status. For example, the appropriate person in business's meetings must be the person with equivalent status. Otherwise, the meetings would be delayed or cancelled (Fenwick, et al., 2003). As a result of tight control, employees are kept satisfied by offering more job security (Hauff, et al., 2015).

The moderate level of this dimension does not indicate a strong preference to either end of the scale.

According to previous studies, the right level of *Power Distance* is *low* for Lean organizations (Bortolotti et al., 2015; Pakdil and Leonard, 2016). Therefore, we also assume that organizational culture with *low* level of *Authority Distribution* are more prepared to implement Lean. Such organizational culture empowers employees enough to make decisions, participate in process improvement, and propose their suggestions. Therefore, we hypothesized that:

> "If the culture of an organization has *High/Moderate* level of *Authority Distribution*, then specific organizational practices must be applied to avoid potential problems".

4.1.2 Sense of Belonging to the Organization

This dimension shows how much employees perceive they are dependent to the organization and the success of organization is dependent on them. According to Recht and Wilderom (1998), creating a shared fate nurtures the commitment of employees and thus, they are more willing to share or apply their knowledge and experiences. With regard to Table 4.19, we grouped *Collectivism* dimension from Hofstede (1980), *Institutional* and *In-Group Collectivism*, *Human Orientation*, *Gender Egalitarianism* and

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Assertiveness from GLOBE (House et al., 2004) model. For Trompenaars & Hampden-Turner (1997) model, *Communitarianism* from Communitarianism/Individualism and *Outer direction* from Outer direction/Inner direction are considered.

National Models		
Hofstede (1980)	**GLOBE (House et al., 2004)**	**Trompenaars & Hampden-Turner (1997)**
Collectivism	Institutional Collectivism	Communitarianism
	In-Group Collectivism	
	Human Orientation	
	Gender Egalitarianism	Outer direction
	Assertiveness	

Table 4.19 Combination of National Dimensions with Their Related Level for Dimension 2

Sense of Belonging to the Organization includes Low, High, and Moderate levels. The characteristics of the organization for each level are explained as follows:

In the lowest level, employees suppose that their interests are independent to the organization (Bortolotti, et al., 2015). Their self-interest is important. Therefore, higher turnover is expected. They are mostly motivated by a need for power and material possessions (House et al., 2004). In such organizations, people believe that they can control their environment to achieve goals (Trompenaars & Hampden-Turner, 1997). Personal judgments and conflictions happen among employees especially those from different departments (Bortolotti, et al., 2015; Kull et al., 2014). Moreover, hiring and promotion decisions are based on who has done and critical decisions are made by individuals (Hofstede, 1980).

In the high level, collaborative behavior and cross-functional cooperation is valued (Parkes, 2014; Bortolotti, et al., 2015; Martins et al., 2015; Kull et al., 2014). Fairness, interpersonal care, mutual trust, and respect are easily visible in the organization (Kull et al., 2014). People are loyal to their organization (Bortolotti, et al., 2015). They are willing to maximize interests of the organization (Kull et al., 2014). According to Kull et al. (2014) and Bortolotti et al. (2015), employees are highly committed and involved themselves to improve the organization in all aspect. People work based on facts not on personal preferences. Lean practices do not differentiate on gender (Kull et al., 2014).

The moderate level of this dimension does not indicate a strong preference to either end of the scale.

According to literature review, the right level of *Institutional Collectivism*, *In-Group Collectivism,* and *Human Orientation* is *high* and the ideal level of *assertiveness* is *low* for Lean. Because, implementation of Lean requires high interdependency among people whom value fairness and interpersonal care. High interdependency firstly accelerates teamwork, cross-functional collaboration, and information flow; secondly results in having highly committed employees; and finally fosters mutual trust and respect (Bortolotti, et al., 2015; Pakdil and Leonard, 2016). No studies were examined Gender Egalitarianism. However, Toyota currently emphasizes women participation as key driver to support a work-life balance in its organizational culture. Therefore, we consider *high* level of Gender Egalitarianism in the combination in order to propose a comprehensive model.

In conclusion, we assume that organizational culture with *high* level of *Sense of Belonging to the Organization* are more prepared to implement Lean. Since such organizations emphasize on tight coordination and sense of relatedness between employees through teamwork and encourage collectivist behaviour between departments. Regardless of gender, all employees have the same opportunity to promote to higher position. Therefore, we hypothesized that:

> "If the culture of an organization has *Low/Moderate* level of S*ense of Belonging to the Organization*, then specific organizational practices must be applied to avoid potential problems".

4.1.3 Courage to Accept Changes

This dimension demonstrates how much employees are ready and motivated to accept changes and challenge themselves. Creating any change in the way of daily working increases workloads for employees. Learning to perform multi-tasks and cross-functional jobs are huge for employees to resist the implementation. In fact, literature review reveals that "employee resistance to change" hinders successful Lean implementation (Scherrer-Rathje, et al., 2009; Sim and Chiang, 2012). According to Schein (2010), resistance to change happens because employees must unlearn something then learn something new and the difficulty is when the employees must give up some behaviors that have become part of personal and group identity. Literature review reveals that successful Lean implementation begins with listening to people and acknowledging their concerns (Sim and Chiang, 2012; Taylor, et al., 2013). Leadership support and a disclosure of what is going on will prevent confusions that cause employees' resistance (Marksberry, 2012; Poksinska et al., 2013; Scherrer-Rathje et al., 2009b; Sisson and Elshennawy, 2015). Therefore, similar to unfreezing stage of Lewin (1947) change management model, *Courage to Accept Changes* refers to preparedness and motivation of

employees prior to embrace the changes completely. The unfreezing stage proposes that employees must be given the opportunities to explore and practice the new way of working in psychologically safety environment (Marksberry, 2012). Due to such opportunities, employees feel that application of the changes is possible and the learning process is not too fear provoking (Schein, 2010). Lean management provides psychologically safety environment through Kaizen concept or problem solving encouraging employees to apply small changes. Small changes require small risks to take which make the environment easier for employees to participate in the change (Marksberry, 2012).

With regard to Table 4.20, we grouped *Uncertainty Avoidance* dimension from Hofstede (1980) and GLOBE (House et al., 2004) models and *Particularism* is considered from Particularism/Universalism dimension of Trompenaars & HampdenTurner (1997) model.

National Models		
Hofstede (1980)	**GLOBE (House et al., 2004)**	**Trompenaars & Hampden-Turner (1997)**
Uncertainty Avoidance	Uncertainty Avoidance	Particularism

Table 4.20 Combination of National Dimensions with Their Related Level for Dimension 3

Courage to Accept Changes can be Low, High, and Moderate levels. The characteristics of the organization for each level are explained as follows:

In the lowest level, employees rely on formalized policies and procedures. Employees take carefully calculated risks. Employees use formality in interactions with others. Employees show strong resistance to change (House et al., 2004). They are unwilling to accept failure and punishment will be considered if any deviation from norms occurs (Pakdil and Leonard, 2016).

In the high level, employees are informal in interactions with others. They rely on informal norms for most matters. They are less calculating when taking risks (House et al., 2004). People believe that each circumstance and each relationship dictate the rules that they live by. The rigid rules and deadlines negatively affect the evolvement of good working relationships due to creating the feelings that they are not trusted (Trompenaars & Hampden-Turner, 1997).

The Moderate level of this dimension shows that employees do not have any preferences in dealing with new work methods (Hofstede, 1980).

Previous studies characterized Lean organization as high uncertainty avoidant such as Bortolotti, et al., (2015) and Pakdil & Leonard (2016). However, *Courage to accept changes* emphasizes the characteristics of people whom are not very dependent to the rules and procedures prior to implementation and as a result;

they will accept changes much easier. According to Hofstede, et al. (2010), weak uncertainty avoidant culture includes several advantages. First, although rules are less respected in such organizational culture they are often better followed. Second, top managers are occupied more with strategic problems and less with daily operations. Strategic problems are unstructured and demand a greater tolerance for ambiguity than do operational problems. Finally, they are better at basic innovations. According to House et al. (2004), *uncertainty avoidance* may occur within various level of the organization. Senior managers could be reluctant to implementation of new technology when its outcomes are uncertain. However, middle managers could be reluctant because application of new technologies leads to new way of working on which they may be evaluated. Bandura (1995) asserts that weak uncertainty avoidant culture is curious about new experiences, willing to challenge new problems, and they respond reflectively rather than emotionally to ambiguities.

Therefore, we consider *low* level of *Uncertainty Avoidance* contrary to previous studies. After implementation, hard practices of Lean such as controlling process and standardizations force people to stick structures and make them disciplined. Therefore, *Uncertainty Avoidance* naturally reinforces over time due to repetition of the practices. This could be the reason that previous studies found High level of uncertainty avoidance in Lean organizations.

In conclusion, we assume that organizational culture with *high* level of *Courage to Accept Changes* of employees are more prepared to implement Lean since successful implementation of any change strategy depends on positive attitudes of employees. In such organizations, employees challenge themselves for learning new multilevel skills without resistance in order to take new responsibilities. Therefore, we hypothesized that:

> "If the culture of an organization has *Low/Moderate* level of *Courage to Accept Changes*, then specific organizational practices must be applied to avoid potential problems".

4.1.4 Performance Orientation

This dimension indicates general tendency in organization on success; how much employees are being encouraged for innovations, excellence, and performance improvement. With regard to Table 4.21, dimension 4 is the outcome of integrating *Masculinity* from Masculinity/Femininity of Hofstede (1980) and *Performance Orientation* from GLOBE (House et al., 2004). Again, *Achievement* is also chosen from Ascription/Achievement of Trompenaars & HampdenTurner (1997). This dimension implies the concept that the performance of individual determines his status instead of whom he is or who he knows him.

National Models		
Hofstede (1980)	**GLOBE (House et al., 2004)**	**Trompenaars & Hampden-Turner (1997)**
Masculinity	Performance Orientation	Achievement

Table 4.21 Combination of National Dimensions with Their Related Level for Dimension 4

Performance Orientation can be Low, High, and Moderate levels. The characteristics of the organization for each level are explained as follows:

In low-level organizations, all decisions are made through consensus. Personal relationships are valued. Formal feedback is viewed as judgmental and discomfiting. Manager values who does more than what one does. Incentives such as free time and flexible work hours and place are favored (House et al., 2004).

In organizations with high level, goal-directed behaviors are favored (Bortolotti et al., 2015). High standards are set by managers (Gelei et al., 2015). Team performance and the achievement are valued rather than who has done the work. Daily meeting and formal feedback for performance improvement is necessary. Competitiveness and materialism are valued. Training and development are highly valued (House et al., 2004).

The moderate level of this dimension does not indicate a strong preference to either end of the scale.

Previous studies analyzed the culture of organizations that implemented Lean. In the opposition to their assumption, they found that higher *Performance Orientation* is not a distinguishing feature of Lean organizations. In justifying their results, Kull *et al.* (2014) suggests that when a culture values individual responsibility for success, it is harder to use hard practices to fix systemic problems. According to Bortolotti *et al.*, (2015), high performance orientation could be replaced by the presence of mechanism such as takt time, production synchronization, Kanban and standard work. These hard practices automatically drive workers towards performance improvements, even in absence of incentive system. However, how it is possible that their results characterize Lean culture as low level of *Performance Orientation* when such hard practices are applied in the organization. Contrary to aforementioned studies, Pakdil and Leonard (2016) assert that while *Masculinity* refers to technologically oriented initiative in terms of control, standardization, and efficiency. *Femininity* refers to changes in organization and management required by lean process adoption in terms of employees' involvement, creativity, and long-term philosophy. Therefore, both are associated with a high level of Lean process.

In conclusion, we assume that organizational culture with *high* level of *Performance Orientation* are more prepared to implement Lean. Such organizational culture emphasizes strictly on achieving results toward identified goals. Therefore, we hypothesized that:

"If the culture of an organization has *Low/Moderate* level of *Performance Orientation*, then specific organizational practices must be applied to avoid potential problems".

4.1.5 Time Perspective Orientation

This dimension shows how much employees are willing to delay short-term success or emotional gratification in order to prepare for the future. With regard to Table 4.22, the dimension is the result of grouping *Long Term Orientation* from Long/Short Time Orientation of Hofstede (1980), *Future Orientation* from GLOBE (House et al., 2004), and *Synchronic time* from Sequential/Synchronic Time of Trompenaars & Hamp-denTurner (1997).

National Models		
Hofstede (1980)	**GLOBE (House et al., 2004)**	**Trompenaars & Hampden-Turner (1997)**
Long Time Orientation	Future Orientation	Synchronic Time

Table 4.22 Combination of National Dimensions with Their Related Level for Dimension 5

Time Perspective Orientation can be Low, High, and Moderate levels. The characteristics of the organization for each level are explained as follow:

In lower level, organizations focus on the present or past. Feedback cycles are short as well. Employees stick to traditions and view changes with scepticism (House et al., 2004).

In high level, organizations search for persistence rather than immediate results, face perseverance (not showing emotions) and adaptability are valued (House et al., 2004).

In moderate level, the preference cannot be totally determined. Time is not linear, and thus is not as important as to low on this dimension.

There is a contradiction in the conclusion of previous studies. Bortolotti *et al.*, (2015) assert that high Future Orientation is the basis for continuous improvement and the results showed that Future Orientation is high on Lean organizations. However, Kull *et al.* (2014) results showed that Higher level of Future Orientation would struggle with making Lean practices effectives since individuals with coming from high level perceive the world beyond its present state and are less responsive to immediate issues. With the agreement to the first study, we consider *Long Term Orientation*/ *high* level of *Future orientation* for combining the dimensions.

In conclusion, we assume that organizational culture with *high* level of *Time Perspective Orientation* are more prepared to implement Lean. In such organizational culture, managers are already aware that results

from implementing changes will be achieved in long term. Therefore, long-term orientation of them facilitates decisions in order to invest in practices such as training and development of employees. Short-term orientation naturally will reinforce organizational culture after implementation of Lean through hard practices such as daily kaizen events and customer oriented plans. Therefore, we hypothesized that:

> "If the culture of an organization has Low/Moderate level of *Time Perspective Orientation*, then specific organizational practices must be applied to avoid potential problems".

4.1.6 Lively Spirit Orientation

This dimension shows how much organizational culture facilitates human interaction within or outside of workplace and strives to generate company unity. With regard to Table 4.23, we grouped Indulgence/Restraint dimension of Hofstede (1980) and Diffuse/Specific as well as Neutral/Emotional dimension from Trompenaars & Hampden-Turner (1997) model. No dimension of GLOBE (House et al., 2004) is distinguished to imply similar concept.

National Models		
Hofstede (1980)	**GLOBE (House et al., 2004)**	**Trompenaars & Hampden-Turner (1997)**
Indulgence/Restraint	-	Neutral/Emotional
		Diffuse/Specific

Table 4.23 Combination of National Dimensions with Their Related Level for Dimension 6

Lively Spirit Orientation can be Low, High, and Moderate levels. The characteristics of the organization for each level are explained as follow:

In the lowest level, employees have a tendency to cynicism and pessimism. They do not put much emphasis on leisure time and control the gratification of their desires. People with this orientation have the perception that their actions are restrained by organizational norms and feel that indulging themselves is somewhat wrong (Hofstede, 1980). People keep work and personal lives separate. As a result, they believe that relationships do not have much of an impact on work objectives. People make a great effort to control their emotions. Reason influences their actions far more than their feelings. People do not reveal what they're thinking or how they're feeling (MindTools.com, n.d.).

In higher level, the overlap between employees' work and personal life is conspicuous. Vibrant and happy work place is highly valued in such organization. People spend time outside work hours with colleagues and clients (Mind Tools Corporation, 2014). They possess a positive attitude and have a tendency towards optimism. In addition, they place a higher degree of importance on leisure time, act as they please (Hofstede,

1980). People want to find ways to express their emotions, even spontaneously, at work. In these cultures, it is welcome and accepted to show emotion (MindTools.com, n.d.).

The moderate level shows adequate emphasis on leisure time and control the gratification of desires (Hofstede, 1980).

Moreover, none of the previous studies considered this dimension in their examination. However, we assume that *moderate* level of this dimension to be crucial in order for proposing a comprehensive model. Since organizational culture of Toyota emphasizes on creating happy workplace and a friendly relationship between employees. However, some boundaries are set in the organization to avoid the conflicts.

In conclusion, we assume that organizational culture with *moderate* level of *Lively Spirit Orientation* are more prepared to implement Lean. Such culture creates inter-personal relationships and trust within individuals through formal and informal inter-organizational socialization activities. Therefore, we hypothesized that:

> "If the culture of an organization has *Low/High* level of *Time Perspective Orientation*, then specific organizational practices must be applied to avoid potential problems".

4.2 Coding Process

As it has been explained in chapter 3, codification is an iterative process that facilitates systematic data collection and data analysis. First, based on literature review, some success factors were considered as *Codes* and related soft practices as *Sub-codes*. Such provisional list was created to collect all the essential information systematically and in a consistent structure. Later, the initial code list was completed and revised by conducting pilot interviews.

Pilot interviews conducted with professional expert who is working as Lean implementation consultant in various countries including France, UK, US, Spain, and South America for many years. The semi-structured interviews were conducted twice with the same person. Different sets of open-ended questions were prepared for each interview based on successful factors, practices, and challenges that were defined from our research purpose and review of previous studies. The first interview focused mainly on success factors and related practices influencing Lean. The second one, with aim at considering the national context, focused in getting more knowledge on employee's behavior and reactions in different countries during the process of transferring to Lean. For identifying questions, work organization practices classified by Olivella et al. (2008) were used.

Pilot interviews helped to practice the questions and revise the initial codifications. The revision procedure was followed due to two main purposes. First, to prevent looking for information already available from the pilot interviews. Second, to highlight factors and soft practices that could be correlated with culture differences and treated as main variables in analysis. As a result, some codes/sub-codes were combined, deleted or recreated. The revising procedure repeated until the code list was finalized. Questions related to each code were defined as general questions. If the responses of interviewee did not cover the required information about sub-codes, then the specific question were designed to ask. For the interest of the reader, the questionnaire of pilot interviews and main interviews can be found orderly in appendix A and B.

This section is divided in six sub-sections. Each sub-section is devoted to one of each dimension of the model. The initial code list and applied modifications are provided. The final refinement of code list is presented in a figure; and the definition of sub codes (soft practices) are provided in a table. Soft practices are human-related-practices that emphasize on organizational culture, managerial concept, and human relations that are often neglected during adoption processes of Lean. Then, the possible problems related to soft practices are shown at the end of the codification process. Finally, for each dimension, a checklist is provided in order to evaluate the level that a company has before Lean implementation to detect misalignments and possible problems during Lean implementation. Each checklist consists of several yes/no questions where a "*yes*" answer means that organizational culture is aligned with Lean culture. Therefore, if the organization answers "*yes*" to all question, its culture is aligned with Lean culture and no problems are expected according to this dimension. Otherwise, "*no*" answers imply weak points of the organizational culture that are needed to be resolved before Lean implementation. The sum of "*yes*" answers indicates the percentage of alignment to Lean culture. To create the questions, we have considered the characteristics of combined dimensions from three national models (Hofstede et al., 1991; House et al., 2004; Trompenaars and Hampden-Turner, 1997). In addition to national culture characteristics, we have also considered the concept of change management theory for dimension 3 (Marksberry, 2012; Schein, 2010). In fact, the checklist enables us to analyze the organizational culture with considering the influences of national culture.

4.2.1 Codification for Authority Distribution

This dimension deals with the general acceptance of power inequality in the organization. Pilot interviews indicated that authority is delegated to employees depending on the level of the training and implementation of Lean. Table 4.24 indicates initial codes (success factors) along with related sub-codes (soft practices) that recognized according to literature review.

Dimension	Codes (Success factors)	Sub-codes (Soft practices)
Authority Distribution	Management and leadership	Employees' benefits Job promotion
	Employees' participation	Suggestion system

Table 4.24 Initial Code List for Dimension 1

As shown in the table, we have considered "Management and leadership" as success factor of implementing this dimension. Since Lean implementation necessitates a change in managerial acts such as coaching people instead of only managing. Therefore, we have considered managerial practices including Employees' benefits and Job promotion in order to emphasize on the role of managers in motivating employees to involve in change programs. As the problem solving and continuous improvement highly depends on "Employees' participation", we have assigned it as another success factor for dimension 1. These concepts require collecting employees' ideas through Suggestion system.

Pilot interviews revealed that initial code list for this dimension fits in general. However, minor modification was applied before conducting the main interviews:

Since transformation to Lean organizations necessitates adaptations to new organizational structure. It could be interesting to collect more information about what was the main structural change happened in the organization due to Lean implementation. As the studied cases are located in different countries, comparing the responses of different interviewee will probably help to examine different perceptions and investigate whether any impact of cultural difference exists. Thus, regarding this issue, *change in organizational structure* was added as the sub code related to "Management and leadership".

The final version of Codes and related *Sub-codes* considered for this dimension are presented in Figure 4.12.
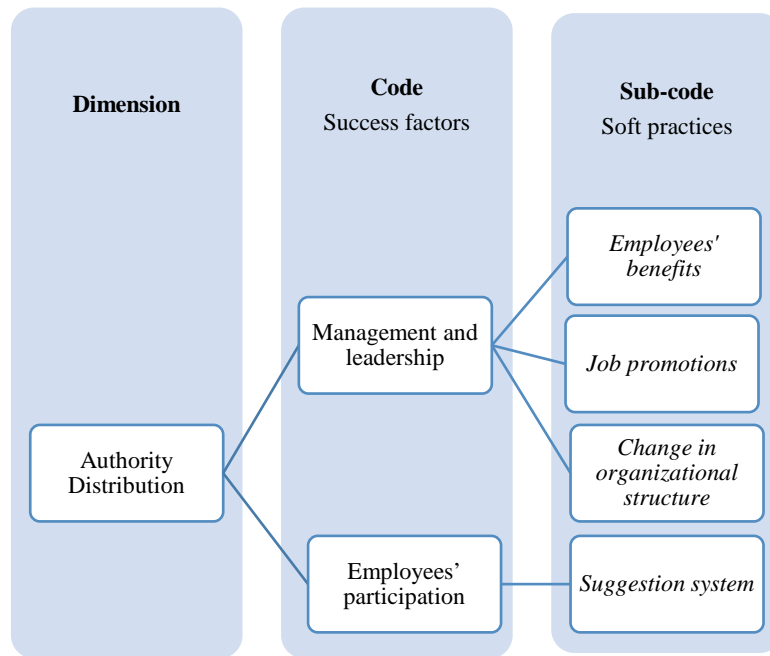
Figure 4.12 Final Version of Coding Process for Dimension 1

The definition of the soft practices (sub-codes) associated to this dimension can be found in Table 4.25 .

Soft practices (Sub-codes)	Definition
Job promotions	It refers to filling the managerial positions with employees that have been grown up from low level through years of working experiences in various departments.
Employees' benefits	It refers to different types of non-salary compensation that can vary from organization to organization.
Change in organizational structure	It addresses necessary structural adaptations that are resulted due to implementation of Lean such as two ways communication, teamwork, etc.
Suggestion system	A system to collect the ideas of employees and give them the opportunity to express their opposite opinions.

Table 4.25 Glossary of Soft Practices (Sub-codes) for Dimension 1

As previously explained, the ideal level of *Authority Distribution* is proposed as *low* for Lean implementation. To clarify inconsistent organizational culture with Lean culture, following problems related to each soft practice are visible in the organizations:

- *Suggestion system***:** employees are not willing to express their opinions because they do not have enough confidence and motivation for giving the useful ideas.
- *Job promotions:* promoting to higher position is limited in the organization.
- *Employees' benefits:* available resources for non-salary compensation are allocated only to higher positions.
- *Change in organizational structure:* no structural adaptations are conducted in order to facilitate implementation of Lean such as creating teams, share of information, etc.

In addition, a checklist is provided in Table 4.26 to facilitate the evaluation for *Authority Distribution* (dimension 1). The checklist consists of Yes/No questions along with the correct answer for Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture
Authority Distribution	Suggestion system	1. Do your employees propose their suggestions and develop their ideas?	Yes
		2. Is communication conducted participative?	Yes
		3. Do your employees express their opposite opinions?	Yes
	Job promotions	4. Is upward mobility common?	Yes
	Employees' benefits	5. Are resources available to almost all?	Yes
	Change in organizational structure	6. Is information equally distributed?	Yes
		7. Are the superiors accessible?	Yes
		8. Is decision making process decentralized?	Yes

Table 4.26 Checklist for Evaluation of Dimension 1

4.2.2 Codification for Sense of Belonging to the Organization

This dimension addresses the willingness of employees for collaboration in teams and their loyalty to the organization. Table 4.27 indicates codes (success factors) along with related sub-codes (soft practices) that initially recognized according to literature review.

Dimension	Codes (Success factors)	Sub-codes (Soft practices)
	Employees' participation	*Motivation system*
	Work teams	*Team building*
Sense of Belonging to the Organization	Employees' commitment	*Teams' reports* *General mood of employees* *Cultural contradictions*
	Occupational gender segregation	*Women participation*

Table 4.27 Initial Code List for Dimension 2

This dimension emphasizes on relatedness of employees to the organization and shows how much employees' endeavor are crucial to maximize the interest of organization. Therefore, we have considered "Employees' participation" as success factor for this dimension and *Motivation system* as the related soft practice that guarantees the participation. *Motivation system* consists of practices that shape employees' behavior with aim to participate in the change programs. Earlier discussed in chapter 2, one of the fundamental concept in Lean philosophy is collaboration of employees and teamwork. Therefore, "Work teams" was chosen as the other critical factor for this dimension which is applied through *Team building*. As this dimension emphasizes on the importance of mutual collaboration and success of teams in lean organizations which depend on devoted workforces whom sincerely care for their teammates and the organization, the initial code list included "Employees' commitment" which we assumed that they are understandable according to three practices including *Teams' reports*, *General mood of employees*, and *Cultural contradictions*. *Teams' reports* was chosen because we suppose the commitment of a team are visible when they reports on their results. The uncommitted team is recognizable if they blame, make excuses, or they are not passionate, move in multiple directions, or engage in endless debate (Bullwinkle, 2014). To distinguish the commitment of individuals, we identified *General mood of employees* as second practice. Bullwinkle (2014) assert that uncommitted employees are recognizable by some moods such as general lethargy instead of excitement, or by some signs such as cynical comments, excuses, or hallway conversations. As we focus on national culture, we considered the third practice, *Cultural contradictions*, to check out if the organizations with multinational employees have ever experienced difficulties because of diversity in national culture and if yes how these difficulties impact the organizational performance and how they manage them. Last success factor, Occupational gender segregation, is considered to highlight *Gender Egalitarianism* aspect that we have already argued in subsection 4.1.2 where we proposed the dimension.

Pilot interviews revealed that in lean organizations, employees are motivated to participate through the authority delegated to each business unit so that they can manage processes, KPIs and budget on their own. As a result, they feel that they have the ownership of the cell. During pilot interviews, questions related to "employees' commitment" were found to be difficult to be replied by the interviewee and it was unfolded that the possibility of getting the true answer is low. Therefore, it was decided to remove them from the final version of codes. Primarily, it was planned to measure commitment of employees by asking questions about teams' reports, general mood of employees, and cultural contradictions. Later, it was clarified that they cannot be considered as practices. After the pilot interviews were conducted, with regard to Mowday et al. (2013), "Employees 'commitment" was edited by including different sub-codes: *turnover analysis* and *absenteeism analysis.*

Another set of questions related "Occupational gender segregation" as code and *women participation* as its Sub-code were decided to remove from the code list since it was found to be judgmental to ask from interviewees. This code addresses that women can have the same opportunities for promotion and development as men have in the organization. Toyota currently emphasizes it as key driver to support a work-life balance.

Moreover, conducted pilot interviews helped to broad the initial code list and expand the interview questions through following modifications:

First, *Unwritten rules* was added as sub-code to "Work teams". Beside the official rules that are mostly written and almost all human resources are familiar with such as policies, job roles and duties, as well as organization's values, vision, and missions, there are always some undocumented rules in the work place. Employees learn such rules through working in teams. According to Mehri (2006), breaking an unwritten rule can expose a worker to harassment and punishment. For this research, if any of those rules exist and if the interviewee is aware of, then it is expected that this will help not only to figure out how they affect the effectiveness of teamwork. But also, by comparing the answers of different interviewees, it will probably useful to examine whether the cultural differences impact on how the relationships in teams are formed.

Second, it was revealed that internal communication practices (either in the form of formal meeting or informal hallway conversations) are key drivers in order to nurture mutual trust and better understanding. Toyota also emphasizes on trust as key for success. Since this dimension highlights the quality of relationship between employees. Therefore, the initial code list was revised by including "Management and leadership" as code and *Communication* as its related sub-code.

Finally, *Motivation system* was considered as sub-code of "Employees' participation" in the initial code list. However, pilot interviews revealed that it is very crucial factor not only to reinforce this dimension but

also to examine the perspective of cultural differences. In fact, Lean organizations stimulate people to do their best and accomplish the goals of organization through effective motivation system. Therefore, this study treats "Motivation system" as success factor for this dimension and defines three related sub-codes such as *Team competition, Reward system* as well as *Appraisal and appreciation*.

In addition, reviewing the codes revealed that *Job Promotions* as sub code of "Management and leadership" is an influential factor that reinforce the employees' feeling of belonging to the organization since it seems that the most of managerial position are filled with the employees themselves.

The final version of codes and related sub-codes considered for this dimension are presented in Figure 4.13.
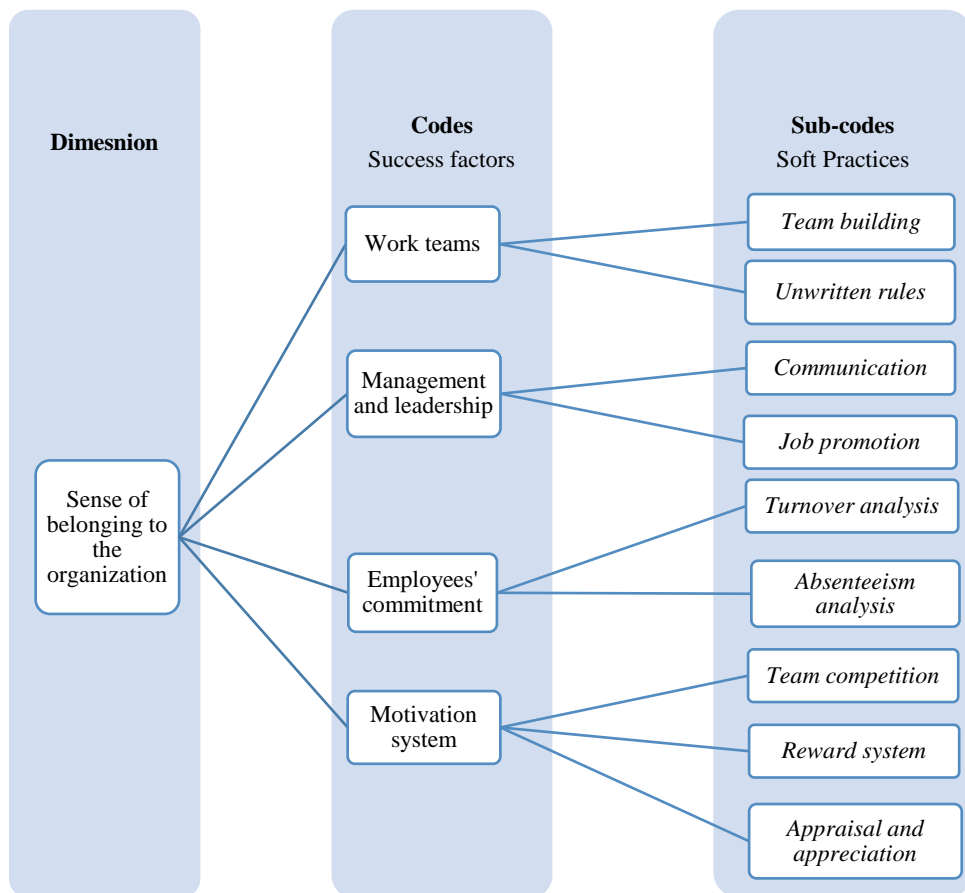
Figure 4.13 Final Version of Coding Process for Dimension 2

The definition of the soft practices (sub-codes) associated to this dimension can be found Table 4.28.

Soft practice (Sub-codes)	Definition
Team building	It is addressed the emphasis of Lean management on mutual collaborations and teamwork.
Unwritten rules	It refers to unofficial and invisible rules that are created, sometimes unintentionally, by the team' members themselves and it is understandable by working within the team.
Communication	Communication refers to practices which enable employees to share information, interact with each other, etc. Lean management encourages simple, open, and explicit communication in order to facilitate information flow in all directions (up, down, and across the organization).
Job promotions	It refers to filling the managerial positions with the employees that have been grown up from low level through years of working experiences in various departments.
Turnover analysis	Employees' turn over refers to the workforces that leave the organization due to self-interest such as higher income.
Absenteeism analysis	Absenteeism refers to non-attendance of employees that happens abnormally and can be considered as lack of commitment.
Team competition	This practice addresses creating friendly and healthy contest environment for teams in order to get their enthusiasm up. Careful consideration should be noted to prevent hindering the co-operative relationship between teams.
Reward system	A system to reward employees' performance on individual and group levels. The individual level consists of capability pay and seniority pay. The group level includes team-performance payment that considers productivity of teams.
Appraisal and appreciation	Showing gratitude for employees' efforts which helps to improve team unity and foster employee's self-esteem.

Table 4.28 Glossary of Soft Practice (Sub-codes) for Dimension 2

As previously explained, the ideal level of *Sense of Belonging to the Organization* is proposed as *high* for Lean implementation. To clarify inconsistent organizational culture with Lean culture, following problems related to each soft practice are visible in such organizations:

- *Team building:* employees are not willing to work in teams and collaboration with others is difficult for them since they feel they are independent to the organization.

- *Unwritten rules:* they are some unwritten rules that are inconsistent with written and official rules and the manager is not aware such as female employees are not practically participated in critical decisions or promoted to higher positions although no gender limitation is considered officially in job promotion system.

- *Communication:* work relationship is contract based rather than be friendly and trust is built on basis of calculation.

- *Job promotions:* promoting to higher position is limited in the organization.

- *Turnover analysis:* employees leave the organization frequently and no analysis is conducted to examine the reasons.

- ***Absenteeism analysis:*** employees do not take their responsibility; have frequent absence of work; and no analysis is conducted to examine the reasons.

- ***Team competition:*** no practices are conducted to create opportunity for teams to compete together or non-effective competitions are held causing employees conflictions.

- ***Reward system:*** bonus payments largely depend on individual contribution of task success.

- ***Appraisal and appreciation:*** the effort of employees toward their job is not recognized and valued by the manager.

In addition, the checklist is provided in Table 4.29 to facilitate the evaluation for *Sense of Belonging to the Organization* (dimension 2).

Dimension	Soft practices (Sub-codes)	Questions	Lean culture
Sense of Belonging to the Organization	Team building	1. Do your employees cooperate together with no need for strong motivation?	Yes
		2. Are critical decisions made by business units?	Yes
	Unwritten rules	3. Do your employees behave according to determined duties and obligations rather than their personal preferences?	Yes
		4. Do your female and male employees have the same opportunity to promote to key positions and participate in critical decision-making?	Yes
	Communication	5. Are manager-employee relationships based on respect and mutual trust?	Yes
		6. Is there cross-functional cooperation among departments?	Yes
	Job promotions	7. Do the manager take employee's in-group hiring and promotion decisions take in to account?	Yes
	Turn over analysis	8. Do your employees have a long-term commitment to the organization?	Yes
	Absenteeism analysis	9. Do your employees take their responsibilities?	Yes
	Team competition	10. Do your employees avoid personal judgments and conflictions where possible?	Yes
		11. Do your employees work to achieve group results?	Yes
	Reward system	12. Are the rewards driven by seniority, personal needs, and/or within-group equity?	Yes
	Appraisal and Appreciation	13. Does the manager reassure employees that they are doing a good job?	Yes

Table 4.29 Checklist for Evaluation of Dimension 2

4.2.3 Codification for Courage to Accept Changes

This dimension shows how much employees are dependent to their daily works and how much it might be difficult for them to change their style of work. How much they accept uncertainty or how they react at first announcement of changing programs. The concept of this dimension is assumed as linear opposition to Uncertainty Avoidance dimension of Hofstede (1980) and GLOBE (House et al., 2004) models. This means high level of *Uncertainty Avoidance* is probably equal to low level of *Courage to Accept Changes*. In fact,

Toyota motives their employees not to avoid uncertainties which is highlighted by one of its mottos "The more uncertain the future is, the more important it is to have this courage" (Toyota Motor corporation global, n.d.).

As presented in Table 4.30, two success factors and their related soft practices have been initially considered according to literature review. We have already discussed the important role of "Management and Leadership" in decreasing the fear of employees when a change is going to be applied. First sub-code (soft practice), *Communication* in different direction helps to decrease confusion of employees and second one, *Support* of employees relieves the tension by giving the opportunity to discuss personal concerns and dissatisfactions. "Work teams" is the other success factor for this dimension. We assumed teamwork as main change that happens in the way of habitual working. Success of "Work teams" depends on *Employees 'reaction.* The positive reaction is considered as acceptance of employees for the change.

Dimension	Codes	Sub-codes
	(Success factors)	(Soft practices)
Courage to Accept Changes	Management and leadership	*Communication*
		Support
	Work teams	*Employees' reaction*

Table 4.30 Initial Code List for Dimension 3

Pilot interviews unfolded that successful organizations announce any changing programs prior to applying in order to lessen any distress. Moreover, the interviewee emphasized that dissatisfactions should be heard in both formal and informal meetings. In addition to formal meetings that let employees know what is happening in the whole factory, informal meetings create the opportunity for employees to discuss their concerns more comfortably.

As a result of reviewing initial codes after pilot interviews, it was decided to expand the code list to make broader analysis of this dimension. Therefore, three codes with their sub codes that have been already defined for previous dimensions were also included. Firstly, "Motivation system" was considered for this dimension. At pilot interviews, a question was asked to understand how employees react to implementation of Lean. The interview responded as:

  "At the beginning, it is hard to move employees from comfortable zone which they worked for a
  few years. Therefore, they will expect the increase in payments."

It seems that motivating employees is influential factor which should be considered prior to applying any change programs in order to decrease negative reactions of employees. Two soft practices out of three seem to be suitable for this dimension that were already determined for dimension 2. Those are *Reward system* as well as *Appraisal and appreciation*. Secondly, for the same reason "Employees' participation" with its

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related sub-code *Suggestion system* was also considered for this dimension. This code has been already defined for dimension 1. Finally, success factors were enlarged by "employees' training" with its related sub-code training system since the employees will be more confident to accept changes when they become aware that the required abilities and skills will be provided to them by training programs. This code has been already distinguished for dimension 1, i.e. Authority Distribution.

Last modification is related to *Employees' reaction* which was primarily considered as sub-code for "Work teams". It was decided to consider "Employees' reaction" as a code (success factor) due to two reasons: first, this dimension does not discuss only the changes regarding teamwork and any change program due to Lean implementation can be included in this dimension; second, successful applying of change programs depends on the acceptance of employees. Any change program makes employees to move from the known zone to unknown one. As a result, some employees may easily accept and some may resist.

In addition, pilot interviews shed light on influences of national culture so that people reactions in different countries are not the same. In this regard, the responses of the interviewee are presented as follows:

"Spanish and Italian people are much more complaining about changes that have to be done than British people. American and South American people are more active to participate in the implementation of a new initiative. Later, when people see and feel benefits of changes in the pilot line, they become more motivated to involve".

Figure 4.14 presents the final codes and related sub-codes that we considered for this dimension.
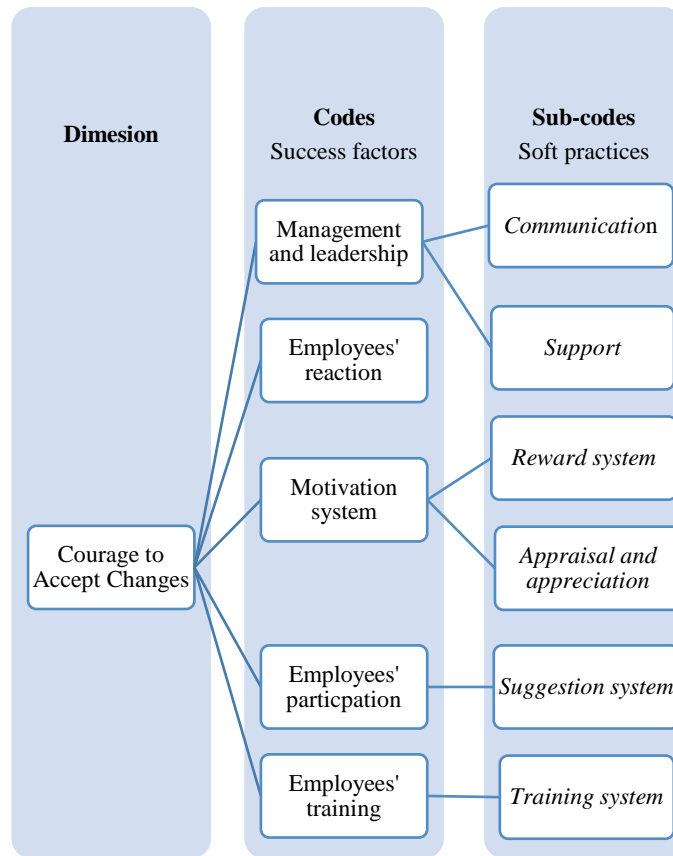
Figure 4.14 Final Version of Coding Process for Dimension 3

The definition of the soft practices (sub-codes) associated to this dimension can be found Table 4.31 .

Soft practices (Sub-codes)	Definition
Communication	Communication refers to practices which enable employees to share information, interact with each other, etc. Lean management encourages simple, open, and explicit communication in order to facilitate information flow in all directions (up, down, and across the organization).
Support	It contains creating positive environment for employees encourages employees to communicate their dissatisfactions with the managers either in informal or formal meetings.
Reward system	A system to reward employees' performance on individual and group levels. The individual level consists of capability pay and seniority pay. The group level includes team-performance payment that considers productivity of teams.
Appraisal and appreciation	Showing gratitude for employees' efforts which helps to improve team unity and foster employee's self-esteem.
Suggestion system	A system to collect the ideas of employees and give them the opportunity to express their opposite opinions.
Training system	A system to analyze the qualifications of employees both interpersonal and technical skills. Multi-layer specialized training programs are determined to develop their ability in various fields, understanding the management philosophy and company policy.

Table 4.31 Glossary of Soft Practice (Sub-codes) for Dimension 3

As previously explained, the ideal level of *Courage to Accept Changes* is proposed as *high* for Lean implementation. According to Schein (2010), the learning anxiety can happen because of the following reasons:

- Employees worry about losing their power or status.
- Employees do not feel competent because they are giving the old ways of working and they have not master in the new ones.
- Employees fear of losing their personal identity.
- If employees are group oriented, they will afraid of losing their group membership as result of applying the new changes.

To clarify inconsistent organizational culture with Lean culture, following problems related to each soft practice are visible in such organizations:

- *Communication:* the manager do not share or announce in clear and simple manner about what will happen as result of applying changes and what benefits the change programs have for the organization.

- *Support:* employees do not feel comfortable to discuss their concerns and dissatisfactions. They work more comfortable with strict rules and deadlines.

- *Reward system:* the reward system is not consistent with the new change programs or the new organizational structure. For example, if the new changes are related to creating teams, the rewards should have been considered based on team-performance to motivate employees in teamwork.

- *Appraisal and appreciation:* managers do not give the employees valid feedbacks about how they are applying the changes in their way of work.

- *Suggestion system:* managers do not effectively communicate employees in order to elicit their opinions about the conditions of work place in the new work system.

- *Training system:* required knowledge and skills for applying the new work system are not provided to the employees effectively. The training programs are not individualized. The employees have not the opportunity to practice freely in the field without being worried of making mistakes.

In addition, the checklist is provided in Table 4.32 to facilitate the evaluation for *Courage to Accept Changes* (dimension 3). For creating the questions, we have also considered the concept of management theory beside the national characteristics of combined dimensions. With agreement to Marksberry (2012) that specifically explored the system property of transformation in TPS/Lean, most of the organizations focus too much on the logical aspect of the change programs. However, resistance to change occurs as result of psychological issues rather logical aspects. We have defined the question with aim on measuring Psychological Safety of organizational culture with respect to Marksberry (2012) and Schein (2010). Since we have earlier mention the learning anxiety, some explanations seem to be needed for questions related to *Training system.* According to Schein (2010), the new way of working requires new knowledge and skills which should be provided to the employees through both formal and informal training. Considering the informal training for the groups helps them to embed the new behaviors or cultural assumption jointly in whole group. As a result, the fear of learners related to losing their group membership will be prevented. Marksberry (2012) explains that change in group level provides members the opportunity to express concerns and difiiculties which it facilitates strengthening communication and relationships among memebrs. Although trainings should be provided in group level, Schein (2010) recommends to give the learners the opportunity of managing their own informal process by involving them in designing their optimal learning process because each learner will learn a little bit differently from others. Thus, the goals of learning are fixed while the individualization of learning has been applied. In this case, we propose mangers to analyze which method of learning is more

effective for each employee. For example, some employees will learn easier by the On-the-job training/experiential learning while some would prefer peer-to-peer learning or some other find themselves more comfortable with the formal and structure training. Last point that is worth to discuss is that to give the employees enough resources, the coaching, valid feedback on how well they are doing and the environment to practice what they have learnt and make mistakes without being worried of disrupting the organization (Marksberry, 2012; Schein, 2010).

Dimension	Soft practices (Sub-codes)	Questions	Lean culture
Courage to Accept Changes	Communication	1. Do the managers communicate the benefits of the change program in the workplace with the employees?	Yes
	Support	2. Are the managers supportive for employees' personal concerns about the change program?	Yes
		3. Do the managers assign enough financial resources for the change?	Yes
	Reward system	4. Is the reward system consistent with the change program?	Yes
	Appraisal and appreciation	5. Do the managers give valid feedbacks to the employees about how they are doing the new way of works?	Yes
	Suggestion system	6. Do the managers communicate with employees in order to know their opinions about workplace conditions?	Yes
	Training system	7. Are required knowledge and skills provided to employees through formal and informal training programs?	Yes
		8. Are the informal training provided to the whole group?	Yes
		9. Is the method of learning individualized?	Yes
		10. Do your employees easily accept to learn new skills?	Yes
		11. Can employees practice the new way of work in the field without being worried of making mistakes?	Yes

Table 4.32 Checklist for Evaluation of Dimension 3

4.2.4 Codification for Performance Orientation

This dimension addresses the concept of performance excellence and the importance of continuous improvement in Lean management. As shown in Table 4.33, "Management and leadership" with related soft practices were considered as the success factor for this dimension since transparency of *Communication* as well as visible and active *Commitment* of management proved to be crucial for the success of Lean implementation (Scherrer-Rathje et al., 2009b). To be performance excellent, employees' knowledge and skills have to be up-to-date and conform to requirements of Lean programs. Therefore, "Employees' training" has been considered as another success factor and *Training system* as related soft practice.

Dimension	Codes (Success factors)	Sub-codes (Soft practices)
Performance Orientation	Management and leadership	*Communication*
		Commitment
	Employees' training	*Training system*

Table 4.33 Initial Code List for Dimension 4

Pilot interviews revealed that the transparency of improvements to the whole plant is a key factor for successful implementation. The quote of interviewees regarded this issue is provided as follows:

> "The same KPIs that sent to leadership level are also tracked in the same way in shop floor level. So, the objectives set on the shop floor and also the results are all transparent."

In addition, the interviewee emphasized on the role of communications to prior to training programs:

> "Trainings always start with basic communications. Then, while tools are being implemented, more capabilities are taught to them."

After pilot interviews conducted, the initial code list for this dimension seemed to be appropriate in general. However, reviewing the code list revealed that there is a need to add some codes to do the analysis more precisely. First, Lean organizations stimulate people to do their best and accomplish the goals of organization through effective motivation system. Therefore, "Motivation system" and its related sub-codes already defined for dimension 2 were added to the code list of this dimension. For the same reason, "Employees' participation" that was already identified for dimension 1 was added with its related sub-code *Suggestion system*. Lean organizations nurture continuous improvement culture by considering their employees as main observer and knowledge workers whom their opinions and ideas are creative and contribute to performance excellence.

Figure 4.12 presents the final codes and related sub-codes that we considered for this dimension.

Figure 4.15 Final Version of Coding Process for Dimension 4

The definition of the soft practices associated to this dimension can be found in Table 4.34 .

Soft practices (Sub-codes)	Definition
Communication	Communication refers to practices which enable employees to share information, interact with each other, etc. Lean management encourages simple, open, and explicit communication in order to facilitate information flow in all directions (up, down, and across the organization).
Commitment	It refers to the role of leaders in keeping employees motivated by considering four aspects: Self-development, Developing others, Supporting daily Kaizen, and Creating vision and aligning goals.
Training system	A system to analyze the qualifications of employees both interpersonal and technical skills. Multi-layer specialized training programs are determined to develop their ability in various fields, understanding the management philosophy and company policy.
Team competition	This practice addresses creating friendly and healthy contest environment for teams in order to get their enthusiasm up. Careful consideration should be noted to prevent hindering the co-operative relationship between teams.
Reward system	A system to reward employees' performance on individual and group levels. The individual level consists of capability pay and seniority pay. The group level includes team-performance payment that considers productivity of teams.
Appraisal and appreciation	Showing gratitude for employees' efforts which helps to improve team unity and foster employee's self-esteem.
Suggestion system	A system to collect the ideas of employees and give them the opportunity to express their opposite opinions.

Table 4.34 Glossary of Soft Practice (Sub-codes) for Dimension 4

As previously explained, the ideal level of *Performance Orientation* is proposed as *high* for Lean implementation. To clarify inconsistent organizational culture with Lean culture, following problems related to each soft practice are visible in such organizations:

- *Communication:* communications are not conducted based on data. Lack of clear structure for providing feedbacks makes the communication complicated and ambiguous.
- *Commitment:* managers are not willing for further self-development and they are not committed to participate in daily-kaizen meeting where the problems should be solved. Managers do not provide enough resources for training programs.
- *Training system:* no system has been considered to record and analyze the current skills of employees. No training programs are planned to align the skills of employees to required ones.
- *Team competition:* no practices are conducted to create opportunity for teams to compete together or non-effective competitions are held causing employees conflictions.
- *Appraisal and appreciation:* team performances are not evaluated.

- **Reward system:** the reward system encourages employees only for individual contributions not to improve team-performance.
- **Suggestion system:** managers do not collect opinions of employees in aspect of improving organizational performance.

In addition, the checklist is provided in Table 4.35 to facilitate the evaluation for *Performance Orientation* of organizational culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture
Performance Orientation	*Communication*	1. Are feedbacks provided formally to the employees?	Yes
		2. Are communications conducted explicitly?	Yes
		3. Does the communication help for achieving results toward identified goals?	
	Commitment	4. Do the managers attend to required training programs for self-development?	Yes
		5. Are the managers committed themselves for daily meetings in order to participate in problem solving?	Yes
		6. Do the managers develop vision and goals consistent to Lean philosophy?	Yes
	Training system	7. Do you have training programs aligned with Lean principle?	Yes
		8. Do you have system to record and analyze employees' skills?	Yes
		9. Do you evaluate training programs?	Yes
	Team competition	10. Is there any effective competition among teams/groups?	Yes
	Appraisal and appreciation	11. Do you evaluate team-performance?	Yes
	Reward system	12. Is your reward system based on team/group performance?	Yes
	Suggestion system	13. Do the managers collect suggestion of employees in order to improve the performance?	Yes

Table 4.35 Checklist for Evaluation of Dimension 4

4.2.5 Codification for Time Perspective Orientation

This dimension addresses the concept that whether organizations expect to achieve their main goals in long or short term and make their action plans and strategies according to it. Table 4.36 indicates initial codes along with related sub-codes that recognized according to literature review.

Dimension	Codes	Sub-codes
	Success factors	Soft practices
Time Perspective Orientation	Management and leadership	Top manager challenge
	Work teams	Cultural change

Table 4.36 Initial Code List for Dimension 5

We have considered "Management and leadership" as first success factor with *Top manager challenge* as the related soft practices. Because, the main goals of any organization are determined by the top manager and achieving long-term goals requires precise planning to manage potential challenges. Second factor for this dimension is "Work teams" with *Cultural change* as its related soft practice. We assumed this factor requires main behavioral change that happens in long term.

Purifying the codes proceed with deleting one of initial codes. The sub-code for "Management and leadership" was changed into *Employees' benefits* for better clarification. On one hand, top manager challenges cannot be considered as soft practice. On the other hand, according to pilot interviews, the important challenge is convincing top manager to allocate enough resources for cultural change because results will reveal in long term:

> "Many top managers do not believe in a long-term result and they expect to see improvements in short term. However, it usually takes 3 years to see cultural changes in one work centre."

In addition, reviewing code list resulted in considering some codes to facilitate complete data analysis for this dimension. Therefore, *Job promotion* the sub-code of "Management and leadership" and "Employees' training" with *Training system* as sub-code were also considered in the code list for this dimension. Both training system and job promotion imply that top manager invests resources to obtain better results in future which is long term orientation

Final modification relates to cultural change. With regard to characteristics of this dimension, it was interesting to investigate whether there is still any change that managers did have problem to apply due to employees' resistance. This shows how much employees stick to their traditions and describes short orientation. The comparison of responses may reveal some important impact of cultural changes. Thus,

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second initial code is also altered to "Cultural change" as main code with *Change in organizational traditions* as sub-codes.

Figure 4.16 presents the final codes and related sub-codes that we considered for this dimension.
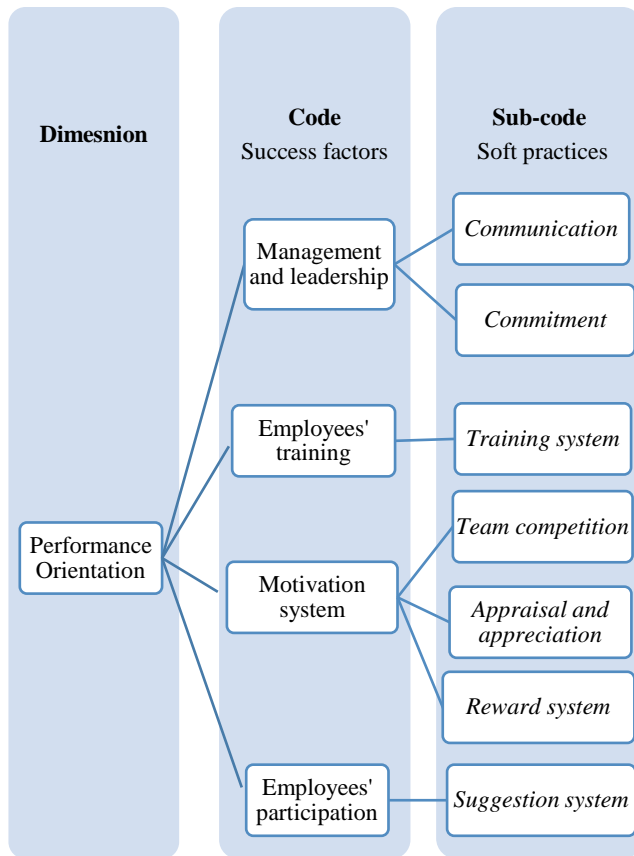

Figure 4.16 Final Version of Coding Process for Dimension 5

The definition of the soft practices associated to this dimension can be found in Table 4.34 .

Soft practices (Sub-codes)	Definition
Employees' benefits	It refers to different types of non-salary compensation that can vary from organization to organization.
Job promotions	It refers to filling the managerial positions with the employees that have been grown up from low level through years of working experiences in various departments.
Training system	A system to analyze the qualifications of employees both interpersonal and technical skills. Multi-layer specialized training programs are determined to develop their ability in various fields, understanding the management philosophy and company policy.
Change in organizational tradition	It includes change in either a mode of thoughts and beliefs or a set of customs, habits, and practices that pass on and stand for a long time in the organization.

Table 4.37 Glossary of Soft Practice (Sub-codes) for Dimension 5

As previously explained, the ideal level of *Time Perspective Orientation* is proposed as *high* for Lean implementation. To clarify inconsistent organizational culture with Lean culture, following problems related to each soft practice are visible in such organizations:

- *Employees' benefits:* the manager does not believe in spiritual fulfillment. Therefore, no non-financial compensations are considered to encourage people to accept changes.
- *Job promotions:* managers prefer achieving quick results so that they fill the organizational positions by hiring new staff from outside rather than promoting employees internally.
- *Training system:* no training programs have been considered to enable employees in applying changes because there is no emphasis on working for long-term success.
- *Change in organizational tradition:* they are not willing to apply any changes since they have great respect for norms and traditions.

In addition, the checklist is provided in Table 4.38 to facilitate the evaluation for Time Perspective Orientation of organizational culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture
Time Perspective Orientation	*Employees' benefits*	1. Does the manager consider non-financial compensation for employees?	Yes
	Job promotions	2. Are employees promoted based on professional qualifications?	Yes
	Training system	3. Do you have training programs to update employees' knowledge?	Yes
	Change in organizational tradition	4. Do the employees conduct multiple tasks in parallel?	Yes
		5. Does the manger plan for the prospects and the technological potentials of the company?	Yes
		6. Does the manger examine the core competence or continuity the company intends to carry with for future?	Yes
		7. Is the organization adaptive and flexible for future changes?	Yes
		8. Does the top manager expect to achieve the results of change program in long term?	Yes

Table 4.38 Checklist for Evaluation of Dimension 5

4.2.6 Codification for Lively Spirit Orientation

This dimension shows how much organizational culture facilitates human interaction within or outside of workplace and strives to generate company unity. As mentioned earlier, initial codification was conducted due to literature review. Because no previous studies were found with the consideration of *Indulgence/ Restraint* from Hofstede (1980), *Diffuse/ Specific* and *Neutral/Emotional* from Trompenaars & Hampden-Turner (1997). Therefore, pilot interviews conducted without considering any question related to this dimension. Later, "Cultural change" as success factor was created along with two sub-codes based on the characteristics of the dimension. The first sub-code is *Performing rituals* that held every week, month or year make employees feel constant and lessen the avoidance of uncertainty during change programs as employees participate in a known event (Martin, 2013). According to the author, celebrating accomplishments remind people the challenges that they passed together. Anniversary celebration of the organization makes people to feel that they all share the same identity. Holiday parties or birthdays not only bring happiness to the environment but it also greatens the concept that people value each other. The second sub-code was considered as *Widening circles of interactions.* This practice helps to provide excitements, unify employees, and smooth communication. As also explained in chapter 2, Toyota develops activities such as internal campaigns, athletic clubs, and lunchtime discussions to create happy work places. As the main factor for this dimension is cultural change, it could be interesting to examine if such practices related to rituals and human relations are held in the organizations that implemented Lean and if yes, check whether there is any cultural difference.

In addition, happier workplace motivates employees to work and strengthen the bonds of employees to each other and to the organization. Therefore, "Employees' commitment" with its sub-codes *Turnover analysis* and *Absenteeism analysis along with* "employees' participation" with *Suggestion system* as sub-code were added to do the analysis of this dimension more precisely. Another factor that helps to prevent conflicts and create positive environment is giving the opportunity to the employees to discuss their concern and dissatisfactions easily with their managers. Moreover, "Management and leadership" as code along with *Support* and *Employees' benefits* as its sub-code were also considered to facilitate the analysis.

Figure 4.17 presents the final codes and related sub-codes that we considered for this dimension.
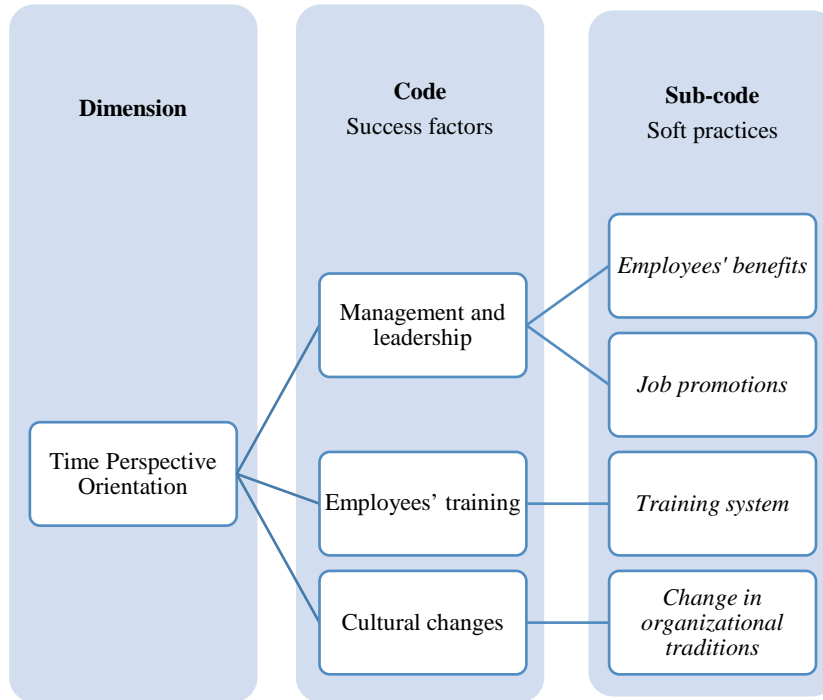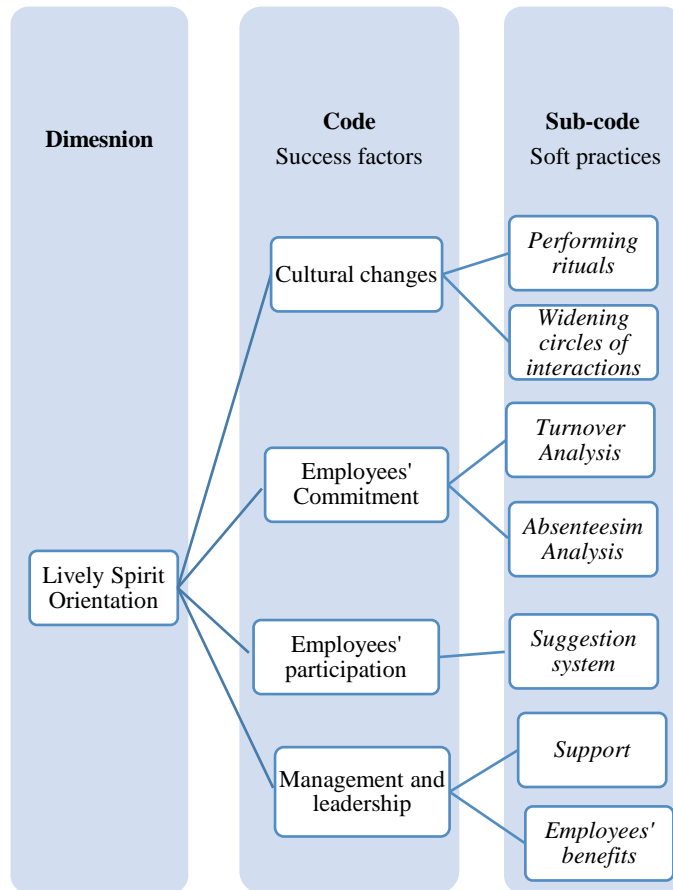

Figure 4.17 Final Version of Coding Process for Dimension 6

The definition of the soft practices associated to this dimension can be found in Table 4.39.

Soft practices (Sub-codes)	Definition
Performing rituals	It refers to some sort of celebrations held weekly, monthly or yearly such as anniversary of organization foundation, birthdays, or a success event related to the organization.
Widening circles of interactions	It addresses developing some sort of activities other than doing the job that allow people spend some time inside or outside workplace in order to strength their collaborations.
Turnover analysis	Employees' turn over refers to the workforces that leave the organization due to self-interest such as higher income.
Absenteeism analysis	Absenteeism refers to non-attendance of employees that happens abnormally and can be considered as lack of commitment.
Suggestion system	A system to collect the ideas of employees and give them the opportunity to express their opposite opinions.
Support	It contains creating positive environment for employees encourages employees to communicate their dissatisfactions with the managers either in informal or formal meetings.
Employees' benefits	It refers to different types of non-salary compensation that can vary from organization to organization.

Table 4.39 Glossary of Soft Practice (Sub-codes) for Dimension 6

As previously explained, the ideal level of *Lively Spirit Orientation* is proposed as *moderate* for Lean implementation. To clarify inconsistent organizational culture with *low* level of Lively Spirit Orientation, following problems related to each soft practice are visible in such organizations:

- *Performing rituals:* no events are held to formally announce the change programs, celebrate the anniversary of establishment or accomplishments of the organization. There are no celebrations for personal events of employees such as birthdays, new employment, or parties for retirees.

- *Widening circles of interactions:* apart from job duty, no group activities are considered with the aim at improving interpersonal skills of the employees. No group activities are held outside of the workplace giving the opportunity to employees to improve their friendship and relatedness.

- *Turnover analysis:* employees leave the organization frequently and no analysis is conducted to examine the reasons.

- *Absenteeism analysis:* employees do not take their responsibility; have frequent absence of work; and no analysis is conducted to examine the reasons.

- *Suggestion system:* employees are not willing to express their opinions because they do not have enough confidence for giving the useful ideas. Employees are not effectively communicated by

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managers in order to elicit their opinions about the conditions of work place in the new work system.

- *Support:* There is no opportunity for employees to freely express and discuss their dissatisfaction and personal concerns with the managers.
- *Employees' benefits:* The work hours are strict and there is no flexibility for parent employees or family cares.

To clarify inconsistent organizational culture with *high* of level Lively Spirit Orientation, following problems related to each soft practice are visible in such organizations:

- *Performing rituals:* some events are held to formally or informally but not in alignment with organization/Lean goals.
- *Widening circles of interactions:* Employees participated in many group activities but the mission of improving interpersonal skills is missed. The group activities intervene with employees' commitment to work.
- *Turnover analysis:* employees leave the organization frequently and no analysis is conducted to examine the reasons.
- *Absenteeism analysis:* employees do not take their responsibility; have frequent absence of work; and no analysis is conducted to examine the reasons.
- *Suggestion system:* employees widely give their opinions in personal matters of their colleagues.
- *Support:* employees easily dissatisfies when something does not run in alignment with their feelings and they widely express their personal concerns with the managers not related to work.
- *Employees' benefits:* rules are so flexible that employees can misuse of such opportunity.

In addition, the checklist is provided in Table 4.40 to facilitate the evaluation for Time Perspective Orientation of organizational culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture
Lively Spirit Orientation	*Performing rituals*	1. Are the changes programs discussing formally with targeted employees?	Yes
		2. Is there any celebration held for accomplishments of organization that all employees participate?	Yes
		3. Do you have special traditions such as holiday parties, celebrating new employees or birthdays?	Yes
	Widening circles of interactions	4. Is there any group activity apart from job duty for employees with aim at reinforcing interpersonal skills of employees?	Yes
		5. Is there any opportunity for the employees to spend time for group activities outside the work place?	Yes
		6. Do such activities facilitate organizational collaboration?	
	Turnover analysis	7. Do your employees have a long-term commitment to the organization?	Yes
	Absenteeism analysis	8. Do your employees take their responsibilities?	Yes
	Suggestion system	9. Is communication conducted participative?	Yes
	Support	10. Do the employees discuss their feeling and dissatisfactions with their managers?	Yes
	Employees' benefits	11. Are the employees offered family-friendly work place?	Yes

Table 4.40 Checklist for Evaluation of Dimension 6

4.3 Summary

Literature review revealed that national culture differences influence on Kaizen programs adoption and Lean transfer (Wong, 2007; Yokozawa, et al., 2010; Yokozawa and Steenhuis, 2013; James and Jones,

2014; Wangwacharakul, et al., 2014; Pakdil and Leonard, 2015; Tsao, Rau and Ma, 2015; Zimmermann and Bollbach, 2015). Moreover, some studies examined cultural profile of Lean organization through GLOBE model (House et al., 2004) which the results are in contradictions (Kull et al., 2014; Bortolotti, et al., 2015). However, no studies could be found on how to adapt organizational culture with Lean culture both cultures are not aligned. Therefore, the proposed model, which combines three national culture models including Hofstede (1980), GLOBE (House et al., 2004), and Trompenaars & Hampden-Turner (1997), can help companies to identify the main aspects to consider before implementing lean.

The proposed model includes six dimensions. As, the model will be validated through case studies in chapter 5, a questionnaire is needed to collect data systematically. Firstly, a codification process was started to help designing the interview questions. Initial code list included success factors as codes, and related soft practices as sub codes, distinguished from the literature review. The initial code list was completed by conducting pilot interviews and then, refined by several times of reviewing. Questions related to each code were defined as general questions. If the responses of interviewee did not cover the required information about sub-codes, then the specific question were designed to ask. For each dimension, final codification was provided along with the definition of sub-codes (soft practices). Finally, the possible problems as result of inconsistent organizational culture related to soft practices were explained at the end of the codification process. And finally, A checklist is provided for each dimension enabling the managers to evaluate their organizational culture before implementing Lean.

Figure 4.18 shows the proposed model to assess organizational culture compatibility to Lean culture. At Level 1, Lean culture appears as ideal culture. The second level indicates six dimensions that we propose. Next, we add the right level for a successful Lean implementation and soft practices/sub-codes corresponding to each dimension are presented at the fourth level.
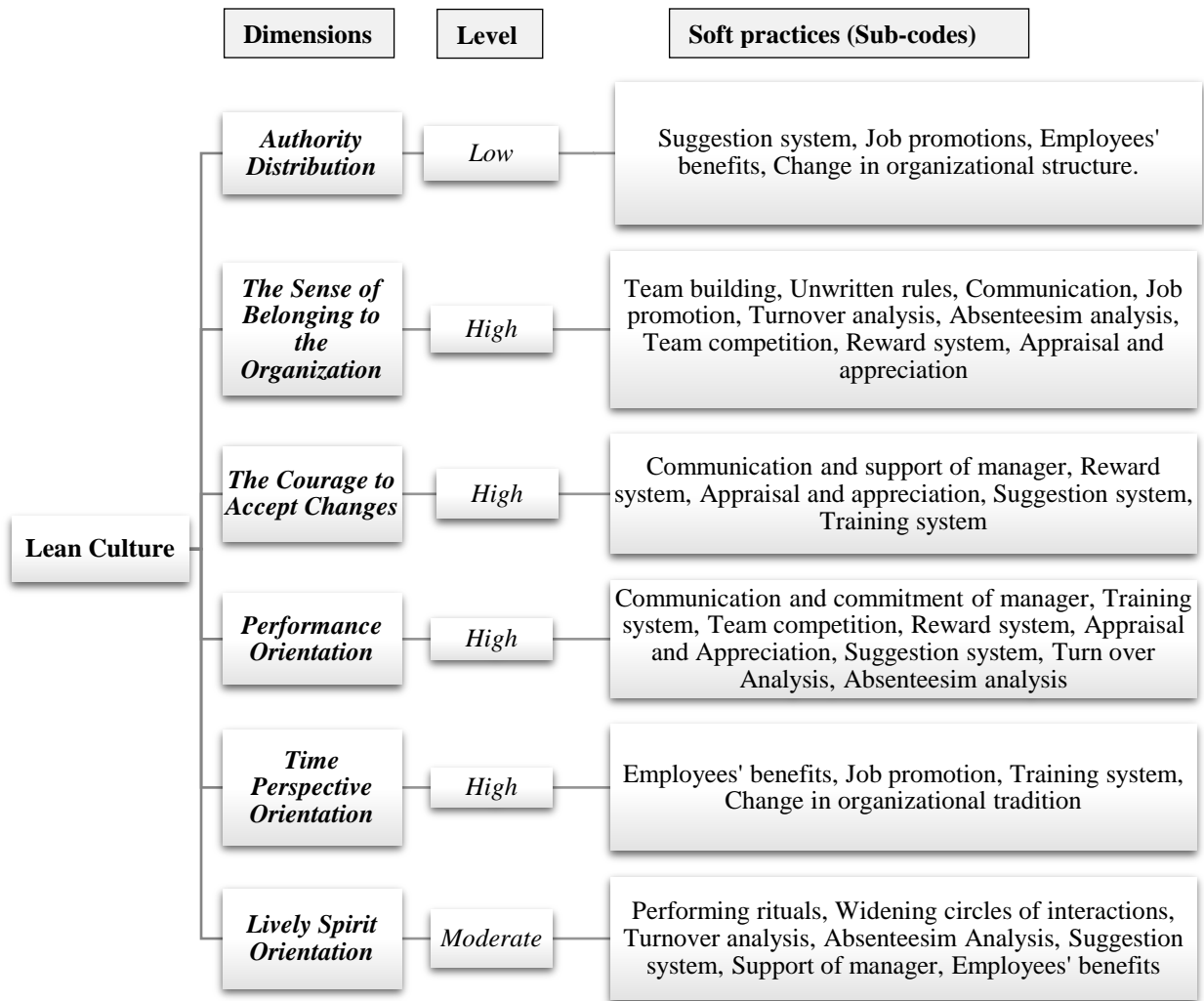
Figure 4.18 Theoretical Model for Evaluating the Preparedness of Organizational Culture Prior to Lean Implementation

The first dimension, Authority Distribution, refers to how decisions are made in the organization. The ideal level for this dimension is *Low*. Such organizational culture empowers employees enough to make decisions, participate in process improvement, and propose their suggestions. Small changes are allowed in such organizations. However, employees are not supposed to make dramatic decisions freely.

The second dimension, Sense of Belonging to the Organization, shows how much employees are bonded to the organization. The best level that fits with Lean organization is *High*. Since such organizations emphasize on tight coordination and sense of relatedness between employees through teamwork and encourage collectivist behavior between departments. Regardless of gender, all employees have the same opportunity to promote to higher position or receive necessary trainings.

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The third dimension, The Courage to Accept Changes, determines how much employees are ready to apply changes to their habitual work. The perfect level for Lean organization is High. In such organizations, employees challenge themselves to take new responsibilities and learn new multilevel skills without resistance.

The fourth dimension, Performance Orientation, demonstrates the general view of organization to success and how much performance improvement is valued. Lean organization has High level in this dimension. Such organizational culture emphasizes strictly on achieving results toward identified goals.

The fifth dimension, Time Perspective Orientation, indicates for how long the organization allocates resources to achieve the expected results or success. The ideal level for this dimension is High. In such organizational culture, managers are already aware of results from implementing changes will be achieved in long term. Therefore, long-term orientation of them facilitates decisions in order to invest in practices such as training and development of employees. Short-term orientation naturally will reinforce organizational culture after implementation of Lean through hard practices such as daily kaizen events and customer oriented plans.

The sixth dimension, Lively Spirit Orientation, expresses how much the organization values friendly and happy work environment. Lean organizations are in Moderate level. Such culture creates inter-personal relationships and trust within individuals through formal and informal inter-organizational socialization activities. There is a balanced control over impulses and desires of employees.

Chapter 5: Analysis of Cases

A qualitative research does not have a specific prescription to follow. Rather, the researcher must design own framework prior to the fieldwork. While the research was progressing, with respect to the proposed dimensions, following hypotheses were identified to conduct the analysis more precisely:

- "If the culture of an organization has *High/Moderate* level of *Authority Distribution*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of S*ense of Belonging to the Organization*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Courage to Accept Changes*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Performance Orientation*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Time Perspective Orientation*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/High* level of *Lively Spirit Orientation*, then specific organizational practices must be applied to avoid potential problems".

To strengthen the analysis in aspect of national culture differences, scores of Hofstede national model and GLOBE studies that are accessible for public users were used. In the comparison with Hofstede model, the scores of GLOBE are the first priority to be applied for this study since the scores are most recent. GLOBE was conducted in 1994-1997 and Hofstede was carried out in 1970. GLOBE model presents scores for two cultural aspects including Practice and Value. The first one is related to the practices of organizations while the second one is associated with societal culture. Primarily, this study considers the scores of Value since national culture is the focal point. The GLOBE model presents the scores of countries by 7-point Likert-type scale. The range scale includes:

- Very low (1), Low (2), Relatively low (3), Moderate (4), Relatively high (5), High (6), and Very high (7).

In addition, this study uses the scores of Hofstede model only for dimension 6 as the proposed dimension does not include any dimension of GLOBE. The range scale of Hofstede includes:

- Low (0,50), Moderate [50], and High (50,100]

Since the ideal level for dimension 6 of our model has been assumed *moderate* and according to Hofstede model, the moderate level is restricted to only countries with score of 50. We analyze the national culture according to the score of country without considering the level of Hofstede. Therefore, we consider the distance of country's score with 50 to evaluate the consistency of national culture with the ideal level for Lean culture.

In this study, some cases were selected in order to study the organizational culture according to aforementioned hypotheses. The procedure of case selection has been already explained in chapter 3. To do the analysis systematically, several phases were considered. Questions were designed according to main factors and required practices of each dimension. The codification process for preparing the questions has been completely explained in chapter 4. In order to make the analysis of organizational culture more comprehensive, data were collected form three sources which are explained in the following:

- A semi-structured interview was conducted with the production manager of each organization. Depending on the access to the participants, the interviews were conducted face to face or through Skype. Spoken language was chosen to be English except for the interview with Company A which was conducted in Persian. Each interview lasts about 60 to 90 minutes. The conversations were recorded and notes were taken during the interviews. Later, audios converted to transcriptions. To greaten the clarity, contacts were made again with the respondents whenever ambiguities arose.

- To find out the level of organizational culture for proposed dimensions, the questions of checklist have been answered for each case and the sub-codes are linked to the related questions of the checklist in order to facilitate the analysis.

- Public information das collected that were related to organizational culture and available through their official websites.

This chapter aims to analyze the role of national culture and the organizational culture in implementation of Lean based on cases studies. Therefore, for each case study, a brief description of the organization is given. Next, for each dimension, the national score is considered and compared with Lean score. Then, we analyze the information collected by checklist and conducted interviews. The percentage of culture alignments to Lean culture is calculated through the checklist. According to the checklist, the weak point of the organization culture is highlighted. Finally, the soft practices of the organization are explained along with our expectations from effects of national culture. The effects of national culture refer to what one can expect related to the implementation of soft practices if aspects of national culture are considered.

Therefore, the organizational culture is analyzed and compared with our expectations from national culture in order to examine our hypotheses.

5.1 Company A

Founded in 1967, company A is the large automobile manufacturer located in Tehran, Iran. The company started manufacturing with American Motors' Rambler and General Motors (GM) products under license. In 2002, company A started working with fundamental concepts of Lean by benchmarking of Nissan Plant Management System. However, the production manager asserts that the system was not completely organized at that time due to limited access to information. Later in 2007, Company A made a new contract with Renault and as a result, the company experienced main change in its work system. As the interview revealed, it was when they familiarized with the concept of team working and they changed their organizational structure by creating teams with specific targets.

To create the teams, the company needed to deal with several challenges. Firstly, accepting the changes needed financial resources. Secondly, lack of appropriate people to assign them as supervisors of teams. Previously, one person had been in charge of 200 people in order to only improve collective determination for work. However, creating a new paradigm oriented toward quality, lean production, productivity, training, problem solving, and ergonomic factors required knowledgeable people. It was decided to add a department with the main mission of enabling people by training to apply the changes. At the time, some old employees were retired and about a great number of young workforces were employed whom had not been trained before regarding these issues. This was a good opportunity since young people accept the training programs more easily. Therefore, a huge amount of trainings happened in all levels of the organization to apply the paradigm as similar as possible to what Renault expected.

Now, the training system of company A includes a school of primary skills for all production workers. Every operator that employs should first attend the school to learn the first principles such as how to work with tools. Then, the operator is evaluated and classified into 4 levels based on some indicators including speed, quality, and accuracy. The workers should be updated during the time according to their level. These training programs are all compulsory. For mastering and higher levels, the trainings are classified into two groups: General and Specialized. The concept of Lean is taught in the specialized group. If an employee wants to become a supervisor, the operator should pass some specific programs. The training programs are planned according to a certificate that is created for each job position. The certificate determines which personal and technical skills are required for the position. For a person who wants to work in that positions,

it is necessary to attend some required training programs prior to start the job and some during working in that positions. Currently, the basic values of the company include:

- recognizing and respecting the rights of others and preserving people's dignity
- being fair and free from discrimination
- understanding and meeting the needs and interests of stakeholders
- honoring the efforts and achievements of others.
- Secrecy of others, truth and clarifications in speech and behavior
- empowerment and participation of employees in decision making
- Taking into account the interests of others in decision-making and collaborative work
- creating, presenting, and implementing new ideas for improving the organization's performance
- identifying optimal solutions to better perform tasks, support and collaboration
- responsiveness to the decisions taken and the duties assigned to them with loyalty and compassion
- make the right, reasonable and timely decisions
- being accountable for the decisions made and the duties assigned
- loyalty and belonging to the organization
- preference for the interests of the organization rather than personal interests
- promote personal competences and apply the knowledge and skills in performing individual and group task.

5.1.1 Analysis of Dimensions for Company A

For each dimension, the national score of Iran is considered and compared with Lean score. Then, the percentage of Company A culture alignments to Lean culture is calculated through the checklist. According to the checklist, the weak point of Parskhodro culture is highlighted. Finally, the soft practices of Company A are explained along with our expectations from effects of national culture.

Authority Distribution of Company A

The value score of Iran is considered as national level for Company A. The level of *Power Distance* for *Iran* is *relatively low* (GLOBE Foundation, n.d.). Table 5.41 summarizes the ideal Lean culture level and Iran national level for this dimension. As the both situations are *relatively consistent* with each other, it is predictable that Company A has experienced minor problems to implement successfully all soft practices (sub-codes) related to dimension 1.

GLOBE dimension	Iran National Level	Lean Culture Level
Power distance	Low- Relatively low (2.8)	Low (2)

Table 5.41 Iran National Level vs. Ideal Level Related to Dimension 1

To find out the organizational level of Authority Distribution, the questions of checklist have been answered for Company A in Table 5.41. As it is shown in the table, 87.5 % of cultural alignment reveals the fact that organizational culture of Company A along with consideration of national culture characteristics is *relatively consistent* with Lean culture. According to the checklist, the weak point of Company A culture is in implementing *Change in organizational structure* where they need to decentralize the decision-making process.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company A
Authority Distribution	Suggestion system	1. Do your employees propose their suggestions and develop their ideas?	Yes	Yes
		2. Is communication conducted participative?	Yes	Yes
		3. Do your employees express their opposite opinions?	Yes	Yes
	Job promotions	4. Is upward mobility common?	Yes	Yes
	Employees' benefits	5. Are resources available to almost all?	Yes	Yes
	Change in organizational structure	6. Is information equally distributed?	Yes	Yes
		7. Are the superiors accessible?	Yes	Yes
		8.Is decision making process decentralized?	Yes	No
Percentage of Culture Alignment			100%	87.5%

Table 5.42 Evaluation of Authority Distribution for Company A

With respect to soft practices (sub-codes), Authority Distribution of Company A is illustrated along with our expectations from effects of national culture:

- **Suggestion system**

Based on national level, we expect that employee are willing to propose their ideas and comments since they believe that the person in higher status does not necessarily know better than the lower ones.

According to the interview, similar to any organization that implemented Lean, employees of Company A must work only based on standardizations and any neglect of the standard perceives as nonconformity. However, if it happens that an employee works in different way of the standardization; his team leader is

responsible to check the reason of why he is doing and how is doing. Because, there is a possibility in leading to an improvement.

Continuous improvement is one of the fundamental concepts of Lean philosophy which its effectiveness is largely depends on participation and involvement of employees to develop ideas and share their opinions. The suggestion system of Company A includes the number that each department should suggest which is identified monthly. The interview revealed that employees are involved in continuous improvement process in four cycles. The first cycle starts with self-control of operator. In this cycle, when an error happens, the operator gives his feedback and propose his solution to the team leader. If the team leader has the authority to apply the solution, he will do so. Otherwise, he should get the permission from the supporting department. In second cycle, there is a check man who gives his feedbacks to the team. Third cycle is at the end of the production line where the operators give feedbacks related to quality improvements. The final cycle is much wider and related to audit products. In this cycle, improvements are proposed related to quality and productivity. Therefore, if any of employees does not involve in the cycle then the improvement process does not work properly as it was expected.

Job observation method is a good example of how much employees' ideas are valued in Company A. There is a rule that each team leader must observe one operator's job in a month. This means that the team leader should observe what the operator does, check the documents and logistics of the workstation to find an improvement. Then, he shares the improvement with the related operator to know his comments. At the end, he will change the standard and train the operator.

The interviewee clearly emphasized that there is not the atmosphere that the operators cannot give their opinions. However, the problem is that sometimes team leaders are not able to finish the cycles perfectly.

- **Job promotions**

Based on national level, we expect that higher-level positions are available to all current employees that have shown proficiency in their job and internal promotion is common in the organization.

The interview revealed it has been a few years that Company A does not recruit new people for job positions except operators. Some promotions are given through the questionnaires done with their managers. Some promotions are done through the suggestion of lower level to the higher-level managers. In addition, it has been a while that some requirements have been determined for "knowledge and skill" so that only the person who can receive the certificate of "job competency" will be promoted. For the managers who want to be promoted, specific evaluation cycles have been established.

- **Employees' benefits**

Based on national level, we expect that the resources for non-financial compensation are available for all organizational levels.

The interview shows that several non-financial benefits have been considered to motivate and retain employees regardless of title or role within the organization. First, all people are offered stable employment and work permanently. Second, all employees are enrolled in health insurance considering similar level of coverage. Third, a very huge facility is located on site with variety of amenities and free membership is offered to all employees giving the opportunity to work out and play sports.

- **Change in organizational structure**

Based on national level, we expect that managers count on the experience of employees so that employees are empowered to make decisions. Superiors are accessible. The information is shared with all employees.

According to the interview, main change in organizational structure was made by creating the teams with identified targets which has been resulted in decentralization of decisions. This necessitates multi-directional communications to share information equally across the teams. Employees involve managers only when severe problems happen and they are not able to solve it.

As previously mentioned in codification process of dimension 2, pilot interviews revealed that "in lean organizations, employees are motivated to participate through the authority delegated to each business unit so that they can manage processes, KPIs, and budget on their own". Therefore, business units are empowered enough to decide on their own and apply changes. However, in Company A, the top manager makes most of the key decisions. During the interview, the production manager pointed out "sometimes, the main barrier in applying changes is that the team leaders cannot convince the top manager". This shows that how much the involvement of the top manager influences in decision-making process.

Sense of Belonging to the Organization of Company A

As explained in chapter 4, proposed ideal level for Sense of Belonging to the Organization is *high*. This means *high* level of *Institutional Collectivism*, *In-Group Collectivism*, *Human Orientation*, *Gender Egalitarianism*, and *low* level of *Assertiveness*. To facilitate comparison of ideal level for Lean implementation with Iran national level, the value level for each of these dimensions is presented in table 5.3. As the both situations are *relatively consistent* with each other, it is predictable that Company A has

experienced minor problems to implement successfully all soft practices (sub-codes) related to dimension 2.

Situations GLOBE Dimensions	Iran National Level	Lean Culture Level
Human Orientation	Relatively high-High (5.61)	High (6)
Institutional Collectivism	Relatively high-High (5.54)	High (6)
In-group Collectivism	Relatively high-High (5.86)	High (6)
Gender Egalitarianism	Relatively low-Moderate (3.75)	High (6)
Assertiveness	Relatively high (4. 99)	Low (2)

Table 5.43 Iran National Level vs. Ideal Level of Combined Dimensions Related to Dimension 2

To find out the organizational level of Sense of Belonging to the Organization, the questions of checklist have been answered for Company A in Table 5.44. As it is shown in the table, 84.61% of cultural alignment reveals the fact that organizational culture of Company A along with consideration of national culture characteristics is relatively consistent with Lean culture and the employees feel that they are a part of organization.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company A
	Team building	1. Do your employees cooperate together with no need for strong motivation?	Yes	Yes
		2. Are critical decisions made by business units?	Yes	No
	Unwritten rules	3. Do your employees behave according to determined duties and obligations rather than their personal preferences?	Yes	Yes
		4. Do your female and male employees have the same opportunity to promote to key positions and participate in critical decision-making?	Yes	No
	Communication	5. Are manager-employee relationships based on respect and mutual trust?	Yes	Yes
		6. Is there cross-functional cooperation among departments?	Yes	Yes
Sense of Belonging to the Organization	Job promotions	7. Do the manager take employee's in-group hiring and promotion decisions take in to account?	Yes	Yes
	Turn over analysis	8. Do your employees have a long-term commitment to the organization?	Yes	Yes
	Absenteeism analysis	9. Do your employees take their responsibilities?	Yes	Yes
	Team competition	10. Do your employees avoid personal judgments and conflictions where possible?	Yes	Yes
		11. Do your employees work to achieve group results?	Yes	Yes
	Reward system	12. Are the rewards driven by seniority, personal needs, and/or within-group equity?	Yes	Yes
	Appraisal and Appreciation	13. Do the manager reassure employees that they are doing a good job?	Yes	Yes
Percentage of Culture Alignment			100%	84.61%

Table 5.44 Evaluation of Sense of Belonging to the Organization for Company A

The analysis of soft practices related to this dimension is illustrated along with our expectations from effects of national culture:

- **Team building**

It is predictable that Company A did not encounter any difficulties for collaboration of employees in teams since national value of Institutional Collectivism is high. This means that team work is something natural, employees tend to work in this way with no need for strong motivation (Hofstede, 2017). In addition, critical decisions are made by teams (House et al., 2004).

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With regard to the conducted interview, teams were built based on principles determined by Renault. First, principles related to how to select team supervisor and his assistants. Second, what duties they have toward lean production including specialization, standardization, training, employees' development, cost management, and etc. Third, which specific tools and techniques must be applied to do the duties.

The interviewee pointed out to creating teams with specific targets as the major change in organizational structure. He explained that employees were very interested in collaborating as a team. Because, before working in teams, about 200 of employees worked under supervision of one person whom had a key role to improve collective determination for work. As results of working in teams, the feedback cycle is much shorter than before and they could consult and communicate with their supervisor sooner.

Contrary to Lean culture that earlier explained in analysis of dimension 1, decision-making process is not effectively decentralized and teams lacks the enough empowerment to make critical decisions on their own. As the interviewee asserted sometimes changing programs do not apply because the top manager is not convinced that the changes are beneficial to be made.

- **Unwritten rules**

High level of Human Orientation shows the fact that in societies like Iran, people are motivated primarily by a need for belonging and affiliation so that the interests of others are important for people (House et al., 2004). High level of Institutional Collectivism shows that people believe they are interdependent so that they naturally adapt to changes, the duties, and the obligations. Moderate national level of Gender Egalitarianism shows that Iranian culture is male dominated and it is not strange to see gender role differences in some levels of the organization.

Several questions have been identified for this sub-code in the checklist. First question is related to whether employees involve their personal preferences in performing the job or they act based on determined duties. As previously explained, work standards are given and taught to employees and they are responsible to act according to their duties and non-conformity caused by employees is not acceptable. Second question is related to whether women and men employees have the same opportunity to promote to key positions and participate in decision-making. As already explained in chapter 4, it was decided not to ask question directly in the interviews. The analysis of national culture revealed that the Iranians generally do not generally believe in differentiation of gender. However, the interview shows the lack of managerial policies regarding this issue.

Thus, some incidents are noteworthy to explain according to the interview: Firstly, it is clear that no limitations were officially considered in job positions except for operators. However, managerial positions

are filled with men more than female in Company A. Secondly, Company A facilitates women attendance in the workplace by establishing a kindergarten a few years ago that helps female employees work with much more confidence and less worries of child care.

- **Communication**

Relatively high level of Iranian culture in Assertiveness reveals the fact that Iranian people try to have control over the environment, they prefer direct and unambiguous communication, and competition, success, and progress. Therefore, it is possible that they behave confrontationally and argumentative meetings are occasional which can result in conflicts and prohibit employees' cooperation.

According to House et al. (2004), people with higher level of assertiveness have high-context language culture. They value expressiveness and revealing thoughts and feelings so that they are explicit and direct to the point. Iranian people have can-do attitude and they emphasize on results over relationships.

According to Kull et al. (2014), assertiveness has important individualism element such as personal competitiveness where employees desire to perform better than others. However, Iranian are highly collectivism and relatively high level of Assertiveness could not create huge problems. Due to high level of human orientation, we expect that communication are done through mutual care, trust, and respect.

Although we expected that Company A may confront problems in the communications due to relatively high level of *Assertiveness*, the interview revealed that the company prevented the potential problems by considering following managerial practices:

1. The important events and core changes are announced to employees firstly through the internal portal intranet of the company that every employee can access and secondly by face-to-face meetings which are held both formally and informally.
2. The relationships between managers and employees are built on mutual respect and trust.
3. Each team has special room that enables team members to discuss and share their opinions while they are having breakfast or lunch together.

- **Job promotions**

In collectivist societies like Iran, we expect that employer/employee relationships are perceived in moral terms. Hiring and promotions decisions take account of the employee's in-group, management is the management of group (Hofstede, 2017).

Interview revealed that various evaluation cycles are conducted to take promotion decisions. Main indicators for evaluations include effort of employee towards teamwork and his job capabilities.

- **Turnover analysis**

High level of Human orientation shows that people do their best to make the firm successful, instead of pursuing personal gains (Bortolotti et al., 2015). Therefore; we expect that employees are committed to the organization and the rate of turnover would be low.

The production manager of Company A proudly explained that the loyalty of the employees has been proved two times. First, when company faced financial problems due to economic sanctions, the company offered some privileges to leave, but most of them stayed and refused. Once again, in some period Company A had some difficulties, the employees continued to work there and they revived the company. The production manager mentioned it as unbelievable event.

- **Absenteeism analysis**

High national level of In-group Collectivism shows that loyalty of Iranian people to the group is premier and they foster relationships where everyone takes responsibilities for members of group (Hofstede, 2017). Therefore, we expect that the absence of employees is low and it is something due to personal life rather related to workplace conditions.

According to the interview, in the production systems, Company A analyzes commitment of employees based on the non-conformities that an operator causes. When materials are fine and the method does not have any problem but the operation does not run perfectly, then, it can be understood that the operator does not act based on standards.

 In the problem-solving system, commitment of the team is measured according to the "reactivity of the team to solving problems". When the team has solved 20% of the issues in the specific deadline, it is clear that the team is not either specialized or committed.

 Measuring absenteeism of employees is another factor to analyze commitment. For the absenteeism, there is a system to track; even for the trainings that a worker does not attend on intent, they will have decrease in their income.

- **Team competition**

As Iranian are Collectivist and Human orientated, we expect that the team competition could be conducted friendly and healthy however minor conflictions and personal judgements are predictable as result of relatively high level of Assertiveness.

With regard to the interview, there is an evaluation method for teamwork based on Lean production and Renault. Teams are evaluated every 6 months. The team with the highest score will be rewarded a golden star medal. This medal is one and will be transferred from one salon to another every six month. And there is a silver medal which is awarded to a most progressive team. The awarded teams should put the medals on the board in their salon where everyone can see it.

- **Reward system**

High level of Institutional Collectivism that organizational and societal institutional practices encourage and reward collective distribution of resources and collective action. Therefore, it is expected that rewards are driven by seniority, personal needs, and/or within-group equity (House et al., 2004).

The rewards are financial and non- financial. According to the interviewee, both types of rewards are effective when provided together. The non-financial rewards include employees' benefits such as vacation allowance and special facilities. The people that have very special idea will be introduced as top workers and they will be provided special privileges such as entering to the master degree without any entry exam.

Moreover, depending on specialty of the idea, sometimes the person will be rewarded some percentage of the profits or they will be promoted to the higher positions.

- **Appraisal and appreciation**

Since high level of Human Orientation reveals that people needs to be cared and relatively high assertiveness shows that Iranians value the competiveness and progress. Therefore, we expect that employees' good performance are seen, recognized, and appreciated in Company A.

As interview revealed, best productive and most progressive teams are recognized through the evaluations held every 6 months and they are awarded gold and silver model. Moreover, various rewards have been considered for best ideas which are evaluated and distinguished through suggestion system.

Courage to Accept Changes of Company A

As it was explained in chapter 4, we assumed that *Courage to Accept Changes* is opposite to *Uncertainty Avoidance* because any change in the organization cause ambiguity and uncertainty. *Uncertainty Avoidance* reflects the extent to which members of a society attempt to cope with anxiety by minimizing uncertainty; On the other hand, *Courage to Accept Changes* implies that how much employees are willing to explore and deal with uncertain situations. As presented in Table 5.45, the value score of Iran for *Uncertainty Avoidance is relatively high* and the ideal level is *low.* This national level shows that Iranian people are less risky; they are stressful about change; and they schedule their life to create a sense of security. As the both situation are *inconsistent* with each other, it is predictable that Company A has experienced intensive difficulty in implementing the related soft practices (sub-codes) of this dimension.

GLOBE dimension	Iran National Level	Lean Culture Level
Uncertainty Avoidance	Relatively high- High (5.36)	Low (2)

Table 5.45 Iran National Level vs. Ideal Level Related to Uncertainty Avoidance

To find out the level of Courage to Accept Changes, the questions of checklist have been answered for Company A in Table 5.46. As it is shown in the table, 90.9% of cultural alignment reveals the fact that organizational culture of Company A along with consideration of national culture characteristics is *relatively consistent* with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company A
Courage to Accept Changes	Communication	1. Do the managers communicate the benefits of the change program in the workplace with the employees?	Yes	Yes
	Support	2. Are the managers supportive for employees' personal concerns about the change program?	Yes	Yes
		3. Do the managers assign enough financial resources for the change?	Yes	No
	Reward system	4. Is the reward system consistent with the change program?	Yes	Yes
	Appraisal and appreciation	5. Do the managers give valid feedbacks to the employees about how they are doing the new way of works?	Yes	Yes
	Suggestion system	6. Do the managers communicate with employees in order to know their opinions about workplace conditions?	Yes	Yes
	Training system	7. Are required knowledge and skills provided to employees through formal and informal training programs?	Yes	Yes
		8. Are the informal training provided to the whole group?	Yes	Yes
		9. Is the method of learning individualized?	Yes	Yes
		10. Do your employees easily accept to learn new skills?	Yes	Yes
		11. Can employees practice the new way of work in the field without being worried of making mistakes?	Yes	Yes
Percentage of Culture Alignment			100%	90.9%

Table 5.46 Evaluation of Courage to Accept Changes for Company A

Contrary to our expectations from national culture, the checklist shows that the only weak point of Company A culture is lack of *support* by the manager where financial resources are needed to allocate to apply change programs. With respect to soft practices (sub-codes), *Courage to Accept Changes* of Company A is illustrated along with our expectations from effects of national culture:

- **Communication**

Based on national level, we expect employees be very organized and precise people so that they need to act based on formalized policies and procedures. Therefore, they are not willing to take risks due to accepting the changes without clear information and understanding the purposes. As, they prefer to save time so the communication should be precise, clear and right to the point.

In addition, Iranians need to have good and relaxing moments in their everyday life, chatting with colleagues, enjoying a long meal or dancing with guests and friends. According to House et al. (2004), the

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effectiveness of communication depends on the capability of employees in managing the uncertainty and anxiety.

With regard to the interview, main changes are communicated in Company A through the internal portal intranet of the company that every employee can access. Further details of change programs are explained to the employees that are the targets for applying changes through both formal and informal meetings. The targeted employees also have the opportunity to discuss their opinions and speak about personal concerns while their having their meal together or while doing the sport at the gym. Moreover, some visual boards are installed in each team's room to share their daily results. Therefore, they felt that they are working in the same direction together.

- **Support**

Based on national level, we expect that the opportunity is not given to the employees to discuss their concerns and dissatisfactions. In addition, employees work better under strict rules and deadlines. According to House et al. (2004), people with higher level of uncertainty avoidance seek feedbacks from various sources through asking questions or monitoring in order to manage the ambiguity and uncertainty. Also, we expect that mangers are comfortable in dealing with operational problems since strategic problems require a great tolerance of ambiguity (Hofstede, 2011).

According to the interview, managers at Company A seem to be supportive since they weekly assign special time for the employees that they could not solve their problems through their supervisor. However, the interviewee pointed to the difficulties of convincing them for assigning enough financial resources.

- **Reward system**

As the Iranian need the sense of security, we expect that job security and long-term employment have been considered in their reward system for individual motivation. Moreover, as they like to work hard or at least to be always busy, we expect Company A uses some non-financial compensation to create the right work-life balance. Moreover, Schuler and Rogovsky (1998) asserted that both seniority-based and skill-based compensation are effective for high uncertainty avoidant culture as they make the compensation system more certain.

The interview showed that employees are long-term employed and as explained in dimension 2 (*Sense of Belonging to the Organization*), various types of rewards have been considered to encourage employees to work. Financial rewards are provided in different forms such as financial aid in buying commodities, discount of buying the car produced by Company A, or some percentage of profit gained as result of the

employees' suggestion. The non-financial rewards are considered such as vacation allowances and entering to the university without taking the entry exams.

- **Appraisal and appreciation**

It is expected that Iranian are passionate and demonstrative people, they hope that their good performance will be recognized and compensated. In addition, managers should frequently give the employees valid and short feedbacks about how they are applying the changes in their way of work as they reduce uncertainty.

According to the interview, general evaluations are conducted twice a year and the excellent team and most progressive team are recognized and awarded. Moreover, a check man is analyzed each team performance and gives his feedbacks to the supervisor in the cycle of continuous improvement. Team supervisor must monthly observe one worker on the site and give his comments to the worker.

- **Suggestion system**

Based on national level, we expect that innovation is slower and resisted by managers because they are not tolerated of opinions that are different from what they are used to (Hofstede, 2011; Lu et al., 2012).

With regard to the interview, the worker can propose his opinions to the check man or the supervisor in the continuous improvement process. There is also the opportunity to communicate them with the manager if the supervisor has not solved his problems.

- **Training system**

As the Iranian people are more likely to attribute their achievements to circumstances or luck rather than own ability (Hofstede, 2011) and they are very formal interaction. Therefore, we expect that formal training will give them the confidence to take more risks and accept learning new skills.

According to the interview, there is school of training in Company A. The training programs are adapted to the required skills for applying the new changes. The participant has the opportunity to practice in the field. After finishing training courses, they are evaluated and classified in various levels. According to which level they have classified, they are assigned to the job positions.

Moreover, interview indicated that generally Company A does not have problem to get the agreement of employees to participate in the change program. However, sometimes resistances appear related to the pressure of workloads due to increase in production and it is not related to the pressure of learning new

knowledge or trying the changes. The interviewee explained that this problem sometimes happened, as they are not allowed to hire temporary workers.

Performance Orientation of Company A

With respect to Table 5.47 , both national level of Iran and ideal level for Lean culture are *high*. As the both situations are *consistent* with each other, it is predictable that Company A has implemented the soft practices (sub-codes) related dimension 4 successfully without problems.

GLOBE dimension	Iran National Level	Lean Culture Level
Performance Orientation	High (6.08)	High (6)

Table 5.47 Iran National Level vs. Ideal Level Related to Dimension 4

To find out the level of Performance Orientation, the questions of checklist have been answered for Company A in Table 5.48. As it is shown in the table, 100% of cultural alignment reveals the fact that organizational culture of Company A along with consideration of national culture characteristics is *consistent* with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company A
Performance Orientation	*Communication*	1. Are feedbacks provided formally to the employees?	Yes	Yes
		2. Are communications conducted explicitly?	Yes	Yes
	Commitment	3. Do the managers attend to required training programs for self-development?	Yes	Yes
		4. Are the managers committed themselves for daily meetings in order to participate in problem solving?	Yes	Yes
		5. Do the managers develop vision and goals consistent to Lean philosophy?	Yes	Yes
	Training system	6. Do you have training programs aligned with Lean principle?	Yes	Yes
		7. Do you have system to record and analyze employees' skills?	Yes	Yes
		8. Do you evaluate training programs?	Yes	Yes
	Team competition	9. Is there any effective competition among teams/groups?	Yes	Yes
	Appraisal and appreciation	10. Do you evaluate team-performance?	Yes	Yes
	Reward system	11. Is your reward system based on team/group performance?	Yes	Yes
	Suggestion system	12. Do the managers collect suggestion of employees in order to improve the performance?	Yes	Yes
Percentage of Culture Alignment			100%	100%

Table 5.48 Evaluation of Performance Orientation for Company A

With respect to soft practices (sub-codes), Performance Orientation of Company A is illustrated along with our expectations from effects of national culture:

- **Communication**

According to national culture, communication is expected to be direct, explicit, and toward identified goals. Formal feedback is provided as they are necessary for performance improvement.

The interview indicates that feedbacks of organizational performance are conducted in a formal structure in order to keep the communication simple and apprehensible for everyone.

- **Commitment**

Based on national level of Iran, we expect that managers identify their goals to reassure the success of organization. They value their growth along with employees' development and they are committed to performance improvement.

Several questions have to be answered in checklist to analyze the commitment of managers in aspect of organization performance. Firstly, general goals have been set in alignment with Lean principles from the first day of implementation and specific objectives of production lines are updated from time to time in order to keep the flexibility with dynamic environment. Secondly, depending on organizational level various training programs have been planned for employees. Some training programs are general and some are specialized in Lean production. These programs are essential not only for newly recruited staff who want to be eligible to work in line as operator but also for the ones who want to be promoted to upper level. As it has been a few years that all positions higher than operators are filled through the promotion system then, managers certainly must have been trained prior to being promoted.

- **Training system**

Considering the national score, it is expected that training system is comprehensively considered in the organization as Iranian people value training and development.

As already explained, the interview shows that a school has been established with the mission of developing the human resources at Company A. Related programs enable employees in order to work with respect to Lean principles. Employees are evaluated at the end of training courses and classified into four levels. Each level determines the position that they are allowed to work.

- **Team competition**

With regard to national level, competition between groups are expected because employees are determined to be best or winner in the workplace so that Iranian value system is driven by competition, achievement and success.

The interviewee mentioned that there is an evaluation method for teamwork based on Lean production and Renault. Teams are evaluated every 6 months. The team with the highest score will be rewarded a golden star medal. This medal is one and will be transferred from one salon to another every six month. There is also a silver medal which is awarded to a most progressive team. The awarded teams should put the medals on the board in their salon where everyone can see it.

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- **Reward system**

Based on national score, we expect that team performances are evaluated and recognized Iranian people appreciate what has been done rather than who has done.

Employees are rewarded based on their contribution both individual and team performance. As explained before, employees are rewarded financially and non-financially.

- **Appraisal and appreciation**

Since Iranian people value what results have been achieved more than who has achieved the results, we expect that the reward system is linked to the contribution of teams rather than individuals.

According to the interview, team-performances are evaluated every six months with the goal of improving teamwork and collaboration. The best team and most progressive team are appreciated with gold and silver medal.

- **Suggestion system**

Based on the Iranian national score, since the emphasis is on competition and excellence, not only employees participate in performance improvement by proposing their ideas but also managers are open to hear for employees' suggestions.

Kaizen or problem solving is a fundamental concept that must be applied in every organization desire to work with respect to Lean principle. The interview indicates that Company A collects suggestion of employees order to improve its process. The suggestion system of Company A includes the number that each department should suggest which is identified monthly.

Time Perspective Orientation of Company A

Table 5.49 shows that both national level of Iran and ideal level for Lean culture are *high*. As the both situations are *consistent* with each other, it is predictable that Company A has implemented the soft practices (sub-codes) related dimension 5 successfully without problems.

GLOBE dimension	Iran National Level	Lean Culture Level
Future Orientation	Relatively high-High (5.84)	High (6)

Table 5.49 Iran National Level vs. Ideal Level Related to Dimension 5

To find out the level of Time Perspective Orientation, the questions of checklist have been answered for Company A in Table 5.50. As it is shown in the table, 100% of cultural alignment reveals the fact that organizational culture of Company A along with consideration of national culture characteristics is *consistent* with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company A
Time Perspective Orientation	*Employees' benefits*	1. Does the manager consider non-financial compensation for employees?	Yes	Yes
	Job promotions	2. Are employees promoted based on professional qualifications?	Yes	Yes
	Training system	3. Do you have training programs to update employees' knowledge?	Yes	Yes
	Change in organizational tradition	4. Do the employees conduct multiple tasks in parallel?	Yes	Yes
		5. Does the manger plan for the prospects and the technological potentials of the company?	Yes	Yes
		6. Does the manger examine the core competence or continuity the company intends to carry with for future?	Yes	Yes
		7. Is the organization adaptive and flexible for future changes?	Yes	Yes
Percentage of Culture Alignment			100%	100%

Table 5.50 Evaluation of Time Perspective Orientation for Company A

With respect to soft practices (sub-codes), Time Perspective Orientation of Company A is illustrated along with our expectations from effects of national culture:

- **Employees' benefits**

With regard to the national level, it seems that Iran culture is long term oriented and they view material success and spiritual fulfillment as an integrated whole. We expect allocating of resources are considered in order to keep the employees' motivation up at Company A.

The interview shows that several non-financial benefits have been considered to motivate and retain employees regardless of title or role within the organization. First, all people are offered stable employment and work permanently. Second, all employees are enrolled in health insurance considering similar level of coverage. Third, a very huge facility is located on site with variety of amenities and free membership is offered to all employees giving the opportunity to work out and play sports. Finally, due to the norm of the industry, managers have access to parking lot, different restaurant, and extra payments.

- **Job promotions**

Based on national level, we expect that higher-level positions are available to all current employees that have shown proficiency in their job and internal promotion is common in the organization.

The interview revealed it has been a few years that Company A does not recruit new people for job positions except operators. Some promotions are done through the suggestion of lower level to the higher-level managers. In addition, it has been a while that some requirements have been determined for "knowledge and skill" so that only the person who can receive the certificate of "job competency" will be promoted. For the managers who want to be promoted, specific evaluation cycles have been established.

- **Training system**

Since the general emphasis of Iranians is on long-term success. Therefore, we expect that Company A be determined to develop their employees so that they consider long-term programs to update the employees' knowledge.

As already explained, the interview shows that a school has been established with the mission of developing the human resources at Company A. Related programs enable employees in order to work with respect to Lean principles. Employees are evaluated at the end of training course and classified in four levels. Each level determines the position that they are allowed to work.

- **Change in organizational tradition**

Because long-term oriented people such as Iranians are flexible and adaptive for future changes, we expect that it is easy for employees to track multiple tasks or learn multiple skills such as multi-machine handling and multi-process handling. In addition, we expect that the manager has identified the core competencies and foreseen the potential technologies and requirements in order to achieve them.

The interview shows that operators have learned to work in more than one process in a product-flow oriented layout due to Lean implementation. They have also acquired different skills in order to work cross-functionally with the aim of keeping Company A flexible. The goals of organization are updated once in a while and the potential change programs are considered to be applied in order to be adaptive to ever-changing environment.

Lively Spirit Orientation of Company A

As explained earlier, we have considered the score of Hofstede national model because no dimension of GLOBE that been considered to propose *Lively Spirit Orientation*. According to Table 5.51, national score of Iran is *40* (Hofstede, 2017) and ideal score for Lean culture is considered 50. As the both situations are *relatively consistent* with each other, it is predictable that Company A has implemented the soft practices (sub-codes) related dimension 6 successfully without intensive problems.

GLOBE dimension	Iran National Level	Lean Culture Level
Indulgence	40	50

Table 5.51 Iran National Level vs. Ideal Level Related to Dimension 6

To find out the level of Lively Spirit Orientation, the questions of checklist have been answered for Company A in Table 5.52. As it is shown in the table, 90% of cultural alignment reveals the fact that organizational culture of Company A along with consideration of national culture characteristics is consistent with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company A
Lively Spirit Orientation	*Performing rituals*	1. Are the changes programs discuss formally with targeted employees?	Yes	Yes
		2. Is there any celebration held for accomplishments of organization that all employees participate?	Yes	No
		3. Do you have special traditions such as holiday parties, celebrating new employees or birthdays?	Yes	Yes
	Widening circles of interactions	4. Is there any group activity apart from job duty for employees with aim at reinforcing interpersonal skills of employees?	Yes	Yes
		5. Is there any opportunity for the employees to spend time for group activities outside the work place?	Yes	Yes
	Turnover analysis	6. Do your employees have a long-term commitment to the organization?	Yes	Yes
	Absenteeism analysis	7. Do your employees take their responsibilities?	Yes	Yes
	Suggestion system	8. Is communication conducted participative?	Yes	Yes
	Support	9. Do the employees discuss their feeling and dissatisfactions with their managers?	Yes	Yes
	Employees' benefits	10. Are the employees offered family-friendly work place?	Yes	Yes
Percentage of Culture Alignment			100%	90%

Table 5.52 Evaluation of Lively Spirit Orientation for Company A

According to the checklist, the weak point of Company A culture is in implementing *Performing rituals* where employees should be participated in the achievement of the organization. With respect to soft practices (sub-codes), *Lively Spirit Orientation* of Company A is illustrated along with our expectations from effects of national culture:

- **Performing rituals**

Based on national score, we expect that some events be held formally to announce the change programs, celebrate the anniversary of establishment or accomplishments of Company A. There are also celebrations for personal events of employees such as birthdays, new employment, or parties for retirees.

The interviewee claimed that all the changes are communicated to targeted employees through formal meetings. The goals, benefits and the skills that needed to be trained are explicitly explained for them. No events are held from time to time for neither celebrating anniversary of employees nor for accomplishments of the organization in the market or industry. Celebrations are held for retirement of employees, their birthdays, and their new-born children. For example, they share important events of employees' personal life such as birthdays on the board. Beside the department, that employee works, human resource department sends message on their cell phone for their birthday or etc.

- **Widening circles of interactions**

Based on national score of Iran, we expect that some group activities be considered apart from job duty with the aim at improving interpersonal skills of the employees. Some of them are held outside of the workplace giving the opportunity to employees to improve their friendship and relatedness.

According to the interview, there are group activities such as mountain climbing or walking attending with their family, or sport competitions. For summer, top workers have a tour for one day.

- **Turnover analysis**

Considering the national characteristics of Iranian people, we expect that employees are committed to the organization and the rate of turnover would be low.

During the interview, the production manager of Company A proudly explained that the loyalty of the employees has been proved two times. First, when company faced financial problems due to economic sanctions, the company offered some privileges to leave, but most of them stayed and refused. Once again, in some period, Company A had difficulties, the employees continued to work there and they revived the company. The production manager mentioned it as unbelievable event.

- **Absenteeism analysis**

According to Iranian characteristics, we expect that employees be committed to their responsibilities. The absence of employees be low and it is something due to personal life rather related to workplace conditions.

The interviewee mentioned that there is a system to track the absenteeism; even for the trainings that a worker does not attend on intent, they will have decrease in their income.

- **Suggestion system**

With regard to national score, we expect that employees share their ideas about the conditions of work place in the new work system because they have enough confidence and motivation.

According to the interview, In the process of continuous improvement, the worker can propose his opinions to the check man or the supervisor. There is also the opportunity to communicate them with the manager if the supervisor has not solved his problems.

- **Support**

Considering the national score of Iran, we expect that there is no opportunity for employees to freely express and discuss their dissatisfaction as well as personal concerns with the managers.

The conducted interview revealed that managers at Company A seem to be supportive since they weekly assign special time for the employees that they could not solve their problems through their supervisor. However, the interviewee pointed to the difficulties of convincing them for assigning enough financial resources.

- **Employees' benefits**

Due to national score, we expect that the rules are flexible enough giving the opportunity to parent employees in order to balance their work-life.

According to the interview, several non-financial benefits have been considered to motivate and retain employees Regardless of title or role within the organization. First, all people are offered stable employment and work permanently. Second, all employees are enrolled in health insurance considering similar level of coverage. Third, a very huge facility is located on site with variety of amenities and free membership is offered to all employees giving the opportunity to work out and play sports. Fourth, Company A facilitates women attendance in the workplace by establishing a kindergarten a few years ago which helps female

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employees work with much more confidence and less worries of child care. Finally, due to the norm of the industry, managers have access to parking lot, different restaurant, and extra payments.

5.1.2 Conclusion of Analysis for Company A

First dimension that has been analyzed is *Authority Distribution*. According to the analysis, the national characteristics of Iran is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company A which is located in Iran *did not experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 87.5 % (*relatively consistent*) and the weak point is *Change in organizational structure* where there is a need to improve decentralization of the decision-making process. According to the interview, the application of change programs failed because the team leaders cannot convince the top manager. With regards to MindTools.com (n.d.), it is recommended the manger involves all employees in decision making whom will be directly affected by the decision.

Second dimension is *Sense of Belonging to the Organization*. According to the analysis, the national characteristics of Iran is *relatively consistent* to what Lean culture necessitates. Therefore, we expected that Company A *did not experience intense problems* during Lean implementation. The cultural alignments of the company is 90.9% (*relatively consistent*). Company A has two weak points. One is *Team building* where teams should make the critical decisions which has been explained in *Authority Distribution*. According to Scherrer-Rathje et al., (2009), lack of team autonomy leads to lengthy decision making process and causes employee frustration. In fact, granting the authority to the teams to implement the process changes and improvements has been recommended by several authors (Angelis et al., 2011; Bollbach, 2012; Kovacheva, 2010; Lee and Peccei, 2007; Niepce and Molleman, 1996; Turesky and Connell, 2010). The second weak point is *Unwritten rules*. Except working as operator, there is no gender restrictions in job positions of the company. However, most of the middle managers are male. According to Wickramasinghe (2016), female employees are higher than male employees in terms of organizational support, job satisfaction, job involvement, and affective commitment. On the other hand, they have higher turnover intentions than the male employees in high performance work systems due to increased pressures, work intensification, associated job stress, and threats to work–life balance. Therefore, this could be the main reason why the managerial level positions are filled mostly by male in Company A.

Third dimension is *Courage to Accept Changes*. According to the analysis, the national characteristics of Iran is *inconsistent* to what Lean culture necessitates. Therefore, we expected that Company A *experienced intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company was 84.61% (*relatively consistent*). The only weak point of Company A culture was lack of

Support by the manager where financial resources are needed to allocate to apply change programs. It is already recommended that the manager should involve all employees that will be directly affected by the decision he makes. According to MindTools.com (n.d.), it is also important that manager uses an objective process to make decisions, and explain the decisions to the employees that are involved. As we discussed in chapter 4, clarifications of decisions and the changes decrease the confusions of employees as well as their resistance.

Fourth dimension is *Performance Orientation*. According to the analysis, the national characteristics of Iran is *consistent* to what Lean culture necessitates. Therefore, we expected that Company A *did not experience any problem* during Lean implementation. According to the checklist, the cultural alignments of the company is 100% (*consistent*). As we expected no problem has been distinguished through the checklist or the conducted interview.

Fifth dimension is *Time Perspective Orientation*. According to the analysis, the national characteristics of Iran is *consistent* to what Lean culture necessitates. Therefore, we expected that Company A *did not experience any problem* during Lean implementation. According to the checklist, the cultural alignments of the company is 100% (*consistent*). As we expected no problem has been distinguished through the checklist or the interview.

Last dimension is *Lively Spirit Orientation*. According to the analysis, the national characteristics of Iran is *relatively consistent* to what Lean culture necessitates. Therefore, we expected that Company A *did not experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 90 % (*relatively consistent*) and the weak point is *Performing rituals*. As it has been already discussed in chapter 4, the celebration of efforts reminds employees the challenges that they faced together. Anniversary celebration of the organization makes people feel that they all share the same identity and gives the encouragement to move forward.

5.2 Company B

Founded in 1935, Company B is now one of the 100 largest automotive suppliers in the world in terms of sales volume. The company has many facilities in 14 countries of different continents. The studied facility is located in Barcelona, Spain. The company is committed to the safety of employees, the quality of products, and environmental sustainability. Not only company B values trust and fosters mutual transparency and accountability but also the company encourages employees to own their careers and supports development of employees.

Qualified and committed employees are considered as a pillar of the company and a significant factor in the success. Company B provides employees with a variety of individual training opportunities and support supervisors in understanding the needs and integrating the knowledge of the employees. Company B recognizes that there is increased value in having a more diverse workforce. They practice this by integrating diversity into the company's philosophy, supporting different cultures and minorities as well as by providing equal opportunities to everyone.

In fact, the organizational culture is completed seeing diversity as a chance that is the slogan of the company. It connects diversity with team spirit, integrity, respect, engagement and continuous improvement. The various backgrounds of the employees encourage creativity and innovation. Respecting and appreciating the diversity of the employees has a positive impact on the interpersonal level and brings them closer together. This reduces uncertainties and fears and helps them grow as a company as a whole. Company B places a heavy focus on the design and production quality of the products. They practice Lean manufacturing principles and drive a continuous improvement in their product, tooling and manufacturing processes.

5.2.1 Analysis of Dimensions for Company B

For each dimension, the national score of Spain is considered and compared with Lean score. Then, the percentage of Company B culture alignments to Lean culture is calculated through the checklist. According to the checklist, the weak point of Company B culture is highlighted. Finally, the soft practices of Company B are explained along with our expectations from effects of Spanish culture.

Authority Distribution of Company B

The value score of Spain is considered as national level for Company B. The level of *Power Distance* for *Spain* is *low* (GLOBE Foundation, n.d.). Table 5.53 summarizes and compare the ideal Lean culture level and Spain national level for this dimension. As the both situations are *relatively consistent* with each other, it is predictable that Company B has implemented the soft practices (sub-codes) related to dimension 1 successfully without intense problems.

GLOBE dimension	Spain National Level	Lean Culture Level
Power distance	Low- Relatively low (2.26)	Low (2)

Table 5.53 Spain National Level vs. Ideal Level Related to Dimension 1

To find out the level of Authority Distribution, the questions of checklist have been answered for Company B in Table 5.54. As it is shown in the table, 87.5% of cultural alignment reveals the fact that organizational

culture of Company B along with consideration of national culture characteristics is relatively *consistent* with Lean culture. According to the checklist, the weak point of Company B culture is in implementing *Change in organizational structure* where it is needed to increase the empowerment of team leaders more.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Authority Distribution	Suggestion system	1. Do your employees propose their suggestions and develop their ideas?	Yes	Yes
		2. Is communication conducted participative?	Yes	Yes
		3. Do your employees express their opposite opinions?	Yes	Yes
	Job promotions	4. Is upward mobility common?	Yes	Yes
	Employees' benefits	5. Are resources available to almost all?	Yes	Yes
	Change in organizational structure	6. Is information equally distributed?	Yes	Yes
		7. Are the superiors accessible?	Yes	Yes
		8. Is decision making process decentralized?	Yes	No
Percentage of Culture Alignment			100%	87.5%

Table 5.54 Evaluation of Authority Distribution for Company B

With respect to soft practices (sub-codes), Authority Distribution of Company B is illustrated along with our expectations from effects of national culture:

- **Suggestion system**

Based on national level, we expect that employee are willing to propose their ideas and comments since they believe that the person in higher status does not necessarily know better than the lower ones.

According to the interview, suggestions are normally collected through different systems. Moreover, employees can discuss their opinions on meetings. Daily meetings are conducted to share information for the employees working on the line. Monthly meetings are also conducted in every department. Normally, there is an "open" culture that employees respectfully express their opinion looking the best for the company.

- **Job promotions**

Based on national level, we expect that higher-level positions are available to all current employees that have shown proficiency in their job and internal promotion is common in the organization.

The interview revealed that Job promotions are something completely common in the company and employees are trained and developed with the purpose of job promoting. Outside acquisition of employees does not exist in the company.

- **Employees' benefits**

Based on national level, we expect that the resources for non-financial compensation are available for all organizational levels.

The interview shows that standard benefits are available for employees regardless of title or role within the organization. For example, both permanent and temporary employees are enrolled in health insurance considering similar level of coverage. The company has also a plan to create opportunity for employees in order to attend a gym. Moreover, all managers have access to parking lot.

- **Change in organizational structure**

Based on national level, we expect that managers count on the experience of employees so that employees are empowered to make decisions. Superiors are accessible. The information is shared with all employees.

According to the interview, the information related to the KPIs' tracking, strategies, and vision are shared frequently with all the employees. Moreover, it is not strange to see the plant manager talking with a team member in the line. Another organizational change is related to decision-making process which is almost decentralized. However, team leaders still need to be more empowered for taking the decisions in the in the production lines.

Sense of Belonging to the Organization of Company B

As explained previously, proposed ideal level for Sense of Belonging to the Organization is *high*. This means *High* level of *Institutional Collectivism*, *In-Group Collectivism*, *Human Orientation*, *Gender Egalitarianism*, and *Low* level of *Assertiveness*. To facilitate comparison of ideal level for Lean implementation with Spain national level, the value level for each of these dimensions is presented in Table 5.62. Comparing both situations of combined dimensions reveals the fact the national culture of Spain is *relatively consistent* with Lean culture regarding to dimension 2.

Situations / GLOBE Dimensions	Spain National Level	Lean Culture Level
Human Orientation	Relatively high-High (5.69)	High (6)
Institutional Collectivism	Relatively high-High (5.2)	High (6)
In-group Collectivism	Relatively high-High (5.79)	High (6)
Gender Egalitarianism	Moderate - Relatively high (4.82)	High (6)
Assertiveness	Moderate (4)	Low (2)

Table 5.55 Spain National Level vs. Ideal Level of Combined Dimensions Related to Dimension 2

To find out the level of Sense of Belonging to the Organization, the questions of checklist have been answered for Company B in Table 5.56. As it is shown in the table, 92.3% of cultural alignment reveals the fact that organizational culture of Company B along with consideration of national culture characteristics is *relatively consistent* with Lean culture and the employees feel that they are a part of organization. According to the checklist, the weak point of Company B is *Turn over analysis* where long-term commitment of employees to the organization is analyzed.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Sense of Belonging to the Organization	Team building	1. Do your employees cooperate together with no need for strong motivation?	Yes	Yes
		2. Are critical decisions made by business units?	Yes	Yes
	Unwritten rules	3. Do your employees behave according to determined duties and obligations rather than their personal preferences?	Yes	Yes
		4. Do your female and male employees have the same opportunity to promote to key positions and participate in critical decision-making?	Yes	Yes
	Communication	5. Are manager-employee relationships based on respect and mutual trust?	Yes	Yes
		6. Is there cross-functional cooperation among departments?	Yes	Yes
	Job promotions	7. Do the manager take employee's in-group hiring and promotion decisions take in to account?	Yes	Yes
	Turn over analysis	8. Do your employees have a long-term commitment to the organization?	Yes	No
	Absenteeism analysis	9. Do your employees take their responsibilities?	Yes	Yes
	Team competition	10. Do your employees avoid personal judgments and conflictions where possible?	Yes	Yes
		11. Do your employees work to achieve group results?	Yes	Yes
	Reward system	12. Are the rewards driven by seniority, personal needs, and/or within-group equity?	Yes	Yes
	Appraisal and Appreciation	13. Do the manager reassure employees that they are doing a good job?	Yes	Yes
Percentage of Culture Alignment			100%	92.3%

Table 5.56 Evaluation of Sense of Belonging to the Organization for Company B

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With respect to soft practices (sub-codes), Sense of Belonging to the Organization of Company B is illustrated along with our expectations from effects of national culture:

- **Team building**

It is predictable that Company B did not encounter any difficulties for collaboration of employees in teams since national value of Institutional Collectivism is high. This means that teamwork is something natural; employees tend to work in this way with no need for strong motivation (Hofstede, 2017). In addition, critical decisions are made by teams (House et al., 2004)

According to the interview, each business unit includes several teams. The members of teams are chosen based on the interpersonal and technical skills the jobs need. Also, when a serious problem happens, a team is created including members from different departments to make it solve as soon as possible.

- **Unwritten rules**

High level of Human Orientation shows the fact that in societies like Company B, people are motivated primarily by a need for belonging and affiliation so that the interests of others are important for people (House et al., 2004).

High level of Institutional Collectivism shows that people believe that they are interdependent so that they naturally adapt to changes, the duties, and the obligations.

Relatively high national level of Gender Egalitarianism shows that Spanish culture desires the equity between male and female however it is not strange to see some male domination and gender role differences in some levels of the organization. In comparison with Iran, we expect to see less organizational gender discrimination and more participation of women in critical roles and decision-making in Spain.

With regard to the conducted interview, it has happened rarely that an employee does not work based on the defined standards and most employees are normally work according to the determined duties. Regardless of gender, all employees treated fairly for benefits package, reward system and promoting to the higher status.

- **Communication**

In comparison with Iranian people, moderate level of Spanish culture in Assertiveness reveals the fact that Spanish people are more tolerable and flexible in discussions where the opinions are not completely the

same as they believe. However, confrontational behavior and argumentative meetings can be expected occasionally.

According to the interview, there is friendly trusted relationship between mangers. Employees feel free to participate in the meetings and express their opinions. Moreover, cross-functional cooperation exists in the plant.

- **Job promotions**

In collectivist societies like Spain, employer/employee relationships are perceived in moral terms. Hiring and promotions decisions take account of the employee's in-group, management is the management of group (Hofstede, 2017).

The interview showed that an evaluation is conducted annually and the contribution of the employee to the achieving targets and the quality of the employee's cooperation within the team are considered in order to promote employees.

- **Turnover analysis**

High level of Human orientation shows that Spanish people do their best to make the firm successful, instead of pursuing personal gains (Bortolotti et al., 2015). Therefore, we expect that employees are committed to the organization and the rate of turnover would be low.

Concerning the interview, there are some employees that have left the company because of earning higher income.

- **Absenteeism analysis**

High national level of In-group Collectivism shows that loyalty of Spanish people to the group is premier and they foster relationships where everyone takes responsibilities for members of group (Hofstede, 2017). Therefore, we expect that the absence of employees is low and it is something due to personal life rather related to workplace conditions.

Based on the interview, absenteeism is always traced and it is zero in general.

- **Team competition**

As Spanish are *collectivist* and *human orientated*, we expect that the team competition could be conducted friendly and healthy.

The interview revealed that no confliction has been occurred between employees and they are encouraged to work in teams only by explaining the benefits of their work for people's life. No competition is held among teams.

- **Reward system**

Relatively high level of *Institutional collectivism* that organizational and societal institutional practices encourage and reward collective distribution of resources and collective action. Therefore, it is expected that rewards are driven by seniority, personal needs, and/or within-group equity (House et al., 2004).

According to the interview, rewarding to employees depends on the seniority level and within-group equity.

- **Appraisal and appreciation**

Since high level of human orientation reveals that people needs to be cared. Therefore, we expect that employees' good performance are seen, recognized, and appreciated in Company B.
The interviewee mentioned that the manger gives valid feedbacks to employees about how well they are doing their jobs.

Courage to Accept Changes of Company B

As presented in Table 5.57, the value score of Spain for *Uncertainty Avoidance* is *Moderate-relatively high* and the ideal level is *low.* Similar to Iranians, this national level shows that Spanish people are less risky; they are stressful about change; and they schedule their life to create a sense of security. As the both situation are *inconsistent* with each other, it is predictable that Company B has experienced intensive difficulty in implementing the related soft practices (sub-codes) of dimension 3.

GLOBE dimension	Spain National Level	Lean Culture Level
Uncertainty Avoidance	Moderate- Relatively high (4.76)	Low (2)

Table 5.57 Spain National Level vs. Ideal Level Related to Uncertainty Avoidance

To find out the level of Courage to Accept Changes, the questions of checklist have been answered for Company B in Table 5.58. As it is shown in the table, 81.81% of cultural alignment reveals the fact that

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organizational culture of Company B along with consideration of national culture characteristics is relatively consistent with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Courage to Accept Changes	Communication	1. Do the managers communicate the benefits of the change program in the workplace with the employees?	Yes	Yes
	Support	2. Are the managers supportive for employees' personal concerns about the change program?	Yes	Yes
		3. Do the managers assign enough financial resources for the change?	Yes	Yes
	Reward system	4. Is the reward system consistent with the change program?	Yes	No
	Appraisal and appreciation	5. Do the managers give valid feedbacks to the employees about how they are doing the new way of works?	Yes	Yes
	Suggestion system	6. Do the managers communicate with employees in order to know their opinions about workplace conditions?	Yes	Yes
	Training system	7. Are required knowledge and skills provided to employees through formal and informal training programs?	Yes	Yes
		8. Are the informal training provided to the whole group?	Yes	No
		9. Is the method of learning individualized?	Yes	Yes
		10. Do your employees easily accept to learn new skills?	Yes	Yes
		11. Can employees practice the new way of work in the field without being worried of making mistakes?	Yes	Yes
Percentage of Culture Alignment			100%	81.81%

Table 5.58 Evaluation of Courage to Accept Changes for Company B

According to the checklist, the company has two weak points in this dimension which need to be managed and resolved. Firstly, the *reward system* of the company needs some reconsiderations in order to be aligned more with the change programs. Secondly, *Training System* must be modified and it is recommended to assign some informal training to the whole group.

With respect to soft practices (sub-codes), *Courage to Accept Changes* of Company B is illustrated along with our expectations from effects of national culture:

- **Communication**

Based on national level, we expect employees be very organized and precise people so that they need to act based on formalized policies and procedures. Therefore, they are not willing to take risks due to accepting the changes without clear information and understanding the purposes. According to House et al. (2004), the effectiveness of communication depends on the capability of employees in managing the uncertainty and anxiety.

According to the interviewee, the first impression and the way that they announce change programs are very important. The interviewee asserted "if we do not believe ourselves in the benefits of the change program that we get from the implementation, then it is very difficult to convince employees to accept." Therefore, all the communication is conducted both in formal and informal meetings which the informal is more effective.

- **Support**

Based on national level, we expect that the opportunity is not given to the employees to discuss their concerns and dissatisfactions. In addition, employees work better under strict rules and deadlines. According to House et al. (2004), people with higher level of uncertainty avoidance seek feedbacks from various sources through asking questions or monitoring in order to manage the ambiguity and uncertainty. Also, we expect that mangers are comfortable in dealing with operational problems since strategic problems require a great tolerance of ambiguity (Hofstede, 2011).

The interview revealed that if employees have any personal problem and concern, they can discuss it firstly with their supervisor. In case that the problem is not solved, there is possibility to argue about it with the manager in higher level. Moreover, the company is working hard in last years on empowerment of team leaders in the production line so that the production manager could be less involved in technical problems and short-term decisions.

- **Reward system**

Similar to the Iranians, Spanish people need the sense of security, we expect that job security or long-term employment has been considered in their reward system for individual motivation. Moreover, Schuler and Rogovsky (1998) asserted that both seniority-based and skill-based compensation are effective for high uncertainty avoidant culture as they make the compensation system more certain.

According to the interview, the company includes both temporary and permanent employees. As the interviewee asserted, normally people are not rewarded financially and only the benefits of changes are explained to them.

- **Appraisal and appreciation**

It is expected that Spanish are passionate and demonstrative people, they hope that their good performance will be recognized and compensated. In addition, managers should frequently give the employees valid and short feedbacks about how they are applying the changes in their way of work as they reduce uncertainty.

The interviewee explained that valid feedbacks are provided to employees reassuring them how well they are applying the changes.

- **Suggestion system**

Based on national score, innovation is slower and resisted by managers because they are not tolerate of opinions that are different from what they are used to (Hofstede, 2011; Lu et al., 2012).

According to the interview, a survey is conducted monthly through email asking employees' comments about workplace's conditions.

- **Training system**

Similar to the Iranians, Spanish people are likely to attribute their achievements to circumstances or luck rather than their own ability (Hofstede, 2011) and they are very formal interaction. Therefore, we expect that formal training will give them the confidence to take more risks and accept learning new skills.

The interviewee mentioned that both technical and interpersonal skills of employees are recorded in an excel file. The skills will be analyzed to check if the job that was selected for the employee is appropriate for him. There are both formal and informal trainings. However, the trainings are conducted only in the individual level.

Performance Orientation of Company B

With respect to Table 5.47 , both national level of Spain and ideal level for Lean culture are *high*. As the both situations are *consistent* with each other, it is predictable that Company B has implemented the soft practices (sub-codes) related dimension 4 successfully without problems.

GLOBE dimension	Spain National Level	Lean Culture Level
Performance Orientation	Relatively high-High (5.8)	High (6)

Table 5.59 Spain National Level vs. Ideal Level Related to Dimension 4

To find out the level of Performance Orientation, the questions of checklist have been answered for Company B. Table 5.60 shows 100% of cultural alignment which reveals the fact that organizational culture of Company B along with consideration of national culture characteristics is consistent with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Performance Orientation	Communication	1. Are feedbacks provided formally to the employees?	Yes	Yes
		2. Are communications conducted explicitly?	Yes	Yes
	Commitment	3. Do the managers attend to required training programs for self-development?	Yes	Yes
		4. Are the managers committed themselves for daily meetings in order to participate in problem solving?	Yes	Yes
		5. Do the managers develop vision and goals consistent to Lean philosophy?	Yes	Yes
	Training system	6. Do you have training programs aligned with Lean principle?	Yes	Yes
		7. Do you have system to record and analyze employees' skills?	Yes	Yes
		8. Do you evaluate training programs?	Yes	Yes
	Team competition	9. Is there any effective competition among teams/groups?	Yes	Yes
	Appraisal and appreciation	10. Do you evaluate team-performance?	Yes	Yes
	Reward system	11. Is your reward system based on team/group performance?	Yes	Yes
	Suggestion system	12. Do the managers collect suggestion of employees in order to improve the performance?	Yes	Yes
Percentage of Culture Alignment			100%	100%

Table 5.60 Evaluation of Performance Orientation for Company B

With respect to soft practices (sub-codes), Performance Orientation of Company B is illustrated along with our expectations from effects of national culture:

- **Communication**

According to national culture, communications are expected to be direct, explicit, and toward identified goals. Formal feedbacks are provided as they are necessary for performance improvement.

The interview indicates that all the communication is conducted both in formal and informal meetings.

- **Commitment**

Based on national level of Spain, we expect that managers identify their goals to reassure the success of organization. They value their growth along with employees' development and they are committed to performance improvement.

According to the interview, there are training courses for executives at the company both in basic and advanced level based on Toyota production system where they learn how to set the goals and develop visions.

- **Training system**

Considering the national score, it is expected that training system be comprehensively considered in the organization as Spanish people value training and development.

The interviewee explained that both technical and interpersonal skills of employees are recorded in an excel file. The skills will be analyzed to check if the job that was selected for the employee is appropriate for him. There are both formal and informal trainings. However, the trainings are conducted only in the individual level. The training courses are also related to TPS.

- **Team competition**

With regard to national level, competition between groups are expected because employees are determined to be best or winner in the workplace so that Spanish value system is driven by competition, achievement and success.

The interview revealed that there was competition between teams at first phase of Lean implementation but now it has been a few years that there is no such competition.

- **Appraisal and appreciation**

Considering national score, we expect that team performances are evaluated and recognized Spanish people appreciate what has been done rather than who has done.

Based on the interview, the employees are given formal feedbacks of how well they are doing their job. During the period that team competed, the successful team was announced on the board of the production hall.

- **Reward system**

It is expected that the reward system is linked to the contribution of teams rather than individuals since Spanish people value what results have been achieved more than who has achieved the results.
The interviewee asserted that the company reward people based on team performance.

- **Suggestion system**

Based on national score, since the emphasis is on competition and excellence, not only employees participate in performance improvement by proposing their ideas but also managers are open to hear for employees' suggestions.

According to the interview, employees can express their opinions through formal and informal meetings. In addition, a survey is conducted monthly by email.

Time Perspective Orientation of Company B

Table 5.61 shows that both national level of Spain and ideal level for Lean culture are *high*. As the both situation are *consistent* with each other, it is predictable that Company B has implemented the soft practices (sub-codes) related to dimension 5 successfully without problems.

GLOBE dimension	Spain National Level	Lean Culture Level
Future Orientation	Relatively high-High (5.63)	High (6)

Table 5.61 Spain National Level vs. Ideal Level Related to Dimension 5

To find out the level of Time Perspective Orientation, the questions of checklist have been answered for Company B in Table 5.62. As it is shown in the table, 100% of cultural alignment reveals the fact that organizational culture of Company B along with consideration of national culture characteristics is *consistent* with Lean culture.

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Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Time Perspective Orientation	*Employees' benefits*	1. Does the manager consider non-financial compensation for employees?	Yes	Yes
	Job promotions	2. Are employees promoted based on professional qualifications?	Yes	Yes
	Training system	3. Do you have training programs to update employees' knowledge?	Yes	Yes
	Change in organizational tradition	4. Do the employees conduct multiple tasks in parallel?	Yes	Yes
		5. Does the manger plan for the prospects and the technological potentials of the company?	Yes	Yes
		6. Does the manger examine the core competence or continuity the company intends to carry with for future?	Yes	Yes
		7. Is the organization adaptive and flexible for future changes?	Yes	Yes
Percentage of Culture Alignment			100%	100%

Table 5.62 Evaluation of Time Perspective Orientation for Company B

With respect to soft practices (sub-codes), Time Perspective Orientation of Company B is illustrated along with our expectations from effects of national culture:

- **Employees' benefits**

With regard to the national level, it seems that Spain culture is long term oriented and they view material success and spiritual fulfillment as an integrated whole. We expect allocating of resources are considered in order to keep the employees' motivation up at Company B.

The interview asserted that employees' benefits are mainly based on the talent development of employees.

- **Job promotions**

Based on national score, it is expected that higher level positions are available to all current employees that have shown proficiency in their job and internal promotion is common in the organization.

Considering the interview, individual performance of employees is evaluated and scored annually. So, the best one will be promoted.

- **Training system**

Since the general emphasis of Spanish is on long-term success. Therefore, we expect that Company B be determined to develop their employees so that they consider long-term programs to update the employees' knowledge.

The interviewee asserted that the main purpose of the company is to empower and develop employees. Therefore, several strategies have been planned to improve the skills.

- **Change in organizational tradition**

Because long-term oriented people such as Spanish people are flexible and adaptive for future changes, we expect that it is easy for employees to track multiple tasks or learn multiple skills such as multi-machine handling and multi-process handling. In addition, we expect that the manager has identified the core competencies and foreseen the potential technologies and requirements in order to achieve them.

According to the interview, since Lean production and continuous improvement have been implemented many years ago, the employees are used to perform multiple tasks; the technological requirements are considered time to time, and the organization is flexible to the market.

Lively Spirit Orientation of Company B

As explained earlier, we have considered the score of Hofstede national model because no dimension of GLOBE that been considered to propose *Lively Spirit Orientation*. According to Table 5.63, national score of Spain is *44* (Hofstede, 2017) and ideal score for Lean culture is *50*. As the both situations are *relatively consistent* with each other, it is predictable that Company B has implemented the soft practices (sub-codes) related dimension 6 successfully without problems.

GLOBE dimension	Spain National Level	Lean Culture Level
Indulgence	44	50

Table 5.63 Spain National Level vs. Ideal Level Related to Dimension 6

To find out the level of Lively Spirit Orientation, the questions of checklist have been answered for Company B in Table 5.64. As it is shown in the table, 80% of cultural alignment reveals the fact that organizational culture of Company B along with consideration of national culture characteristics is *relatively consistent* with Lean culture.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Lively Spirit Orientation	*Performing rituals*	1. Are the changes programs discuss formally with targeted employees?	Yes	Yes
		2. Is there any celebration held for accomplishments of organization that all employees participate?	Yes	Yes
		3. Do you have special traditions such as holiday parties, celebrating new employees or birthdays?	Yes	Yes
	Widening circles of interactions	4. Is there any group activity apart from job duty for employees with aim at reinforcing interpersonal skills of employees?	Yes	Yes
		5. Is there any opportunity for the employees to spend time for group activities outside the work place?	Yes	Yes
	Turnover analysis	6. Do your employees have a long-term commitment to the organization?	Yes	No
	Absenteeism analysis	7. Do your employees take their responsibilities?	Yes	Yes
	Suggestion system	8. Is communication conducted participative?	Yes	Yes
	Support	9. Do the employees discuss their feeling and dissatisfactions with their managers?	Yes	Yes
	Employees' benefits	10. Are the employees offered family-friendly work place?	Yes	No
Percentage of Culture Alignment			100%	80%

Table 5.64 Evaluation of Lively Spirit Orientation for Company B

According to the checklist, the first weak point is Turn over analysis since there are employees who left the company because of higher income. The second weak point is Employees' benefits where flexibility is required to facilitate the conditions for parent employees. With respect to soft practices (sub-codes), Lively Spirit Orientation of Company B is illustrated along with our expectations from effects of national culture:

- **Performing rituals**

With respect to national score, we expect that some events are held formally to announce the change programs, to celebrate the anniversary of establishment or accomplishments of Company B. There are also celebrations for personal events of employees such as birthdays, new employment, or parties for retirees.

The interviewee explained that the change programs are announced to related employees through formal meetings. In production department, a celebration is held when no accident has been occurred for a long period. In addition, on the safety and quality day, all employees are invited for lunch to a hotel where a discussion is held on the performance of the plant. Moreover, there are birthday celebrations for employees of production department.

- **Widening circles of interactions**

Based on national score, we expect that some group activities be considered apart from job duty with the aim at improving interpersonal skills of the employees. Some of them are held outside of the workplace giving the opportunity to employees to improve their friendship and relatedness.

The interview revealed that group activities apart from job are not something official and common but sometimes cycling is performed as an example. However, it is quite common that team managers go out 3 or 4 times per year. In an informal way, employees personally do spend their time outside the company together.

- **Turnover analysis**

According to Spanish characteristics, we expect that employees be committed to their responsibilities. The absence of employees be low and it is something due to personal life rather related to workplace conditions.

According to the interview, there are some employees that have left the company because of earning higher income.

- **Absenteeism analysis**

We expect that employees be committed to their responsibilities. The absence of employees is low and it is something due to personal life rather related to workplace conditions.

The interviewee asserted that absenteeism is always traced and it is zero in general.

- **Suggestion system**

With regard to national score, we expect that employees share their ideas about the conditions of work place in the new work system because they have enough confidence and motivation.

According to the interview, employees can express their opinions through formal and informal meetings. In addition, a survey is conducted monthly by email.

- **Support**

Considering the national score, we expect that there is no opportunity for employees to freely express and discuss their dissatisfaction as well as personal concerns with the managers.

The conducted interview revealed that employees can express their opinions through formal and informal meetings. In addition, a survey is conducted monthly by email.

- **Employees' benefits**

Due to national score, we expect that the rules are flexible enough giving the opportunity to parent employees in order to balance their work-life.

The interview asserted that employees' benefits are mainly based on the talent development of employees and such benefits are not considered for parent employees.

5.2.2 Conclusion of Analysis for Company B

First dimension that has been analyzed is *Authority Distribution*. According to the analysis, the national characteristics of Spain is *relatively consistent* to what Lean culture necessitates. Therefore, we expected that Company B, which is located in Spain, *did not experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 87.5 % (*relatively consistent*) and the weak point is *Change in organizational structure* where there is still a need to increase the empowerment of team leaders. According to Poksinska et al. (2013), the level of empowerment is increased as the Lean implementation progresses. Initially, employees are encouraged to propose their ideas for problem solving and process improvement. Hence, the required structures and routines are developed for daily activities while giving them freedom to make decisions based on the instructions. Later, their responsibilities are increased by assigning them some daily managerial activities such as monitoring and updating KPIs. Moreover, Lee and Peccei (2007) investigated two companies that are in different stages of Lean implementation. In the company that implemented Lean manufacturing for over 20 years, the authors observed that employees have the authority for detecting, inspecting, and correcting the defects as they occur while in the company that have implemented Lean for only 2 years, they distinguished that employees are only responsible for detecting defects and do not have authority to make corrections.

Second dimension is *Sense of Belonging to the Organization*. According to the analysis, the national characteristics of Spain is *relatively consistent* to what Lean culture necessitates. Therefore, we expected that Company B *did not experience intense problems* during Lean implementation. The cultural alignment of the company is 92.3% (*relatively consistent*). The only weak point of Company B is *Turn over analysis* where long-term commitment of employees to the organization is analyzed. Lack of sufficient income is the main reason why employees have left the company. With respect to Martínez-Jurado et al. (2014), although financial rewards play a role as inhibitor in the first phase of Lean transformation (Lean adoption), in the last phase that Lean has been completely implemented, both financial incentives and non-financial rewards that have been linked to Lean targets should be applied together. Non-financial rewards are non-monetary recognitions considering in individual and collective level that we have already referred to it as *Employees' benefits*. We recommend adding some side payments that are linked to the Lean objectives will have positive effect on increasing the loyalty of employees to the organization. The side payments could be awarding the most proficient suggestion to the individual, according to Kerrin (1999), the proposer could be awarded the 50% of the first year savings. The other could be sharing some high profits of company with employees. Such side payment will reinforce employees' commitment to the company as a whole whereas the individual and group awards will only boost the competitiveness (Lee and Peccei, 2007). Moreover, it could be helpful to award some money based on the total number of effective suggestions that individual proposes per year (Karlsson and Hlström, 1996).

Third dimension is *Courage to Accept Changes*. According to the analysis, the national characteristics of Spain is *inconsistent* to what Lean culture necessitates. Therefore, we expected that Company B *experienced intense problems* during Lean implementation. Despite our expectations, the cultural alignment of the company is 81.81% (*relatively consistent*). According to the checklist, the company has two weak points. First, the *reward system* of the company needs some reconsiderations in order to be aligned more with the change programs and we already discussed it in previous dimension. Second, *Training System* must be improved by considering some informal training to the whole group. As earlier mention in chapter 4, considering informal training in the group level facilitates jointly embedment of new behaviors or cultural assumptions and prevent the fear of learners related to losing their group membership. The training in the group level will help people to communicate the concern and lead to better relationship and collaboration among the members.

Fourth dimension is *Performance Orientation*. According to the analysis, the national characteristics of Spain is *consistent* to what Lean culture necessitates. Therefore, we expected that Company B *did not experience any problem* during Lean implementation. According to the checklist, the cultural alignments of the company is 100% (*consistent*). As we expected no problem has been distinguished through the checklist or the conducted interview.

Fifth dimension is *Time Perspective Orientation*. According to the analysis, the national characteristics of Spain is *consistent* to what Lean culture necessitates. Therefore, we expected that Company B *did not experience any problem* during Lean implementation. According to the checklist, the cultural alignments of the company is 100% (*consistent*). As we expected no problem has been distinguished through the checklist or the interview.

Last dimension is *Lively Spirit Orientation*. According to the analysis, the national characteristics of Spain is *relatively consistent* to what Lean culture necessitates. Therefore, we expected that Company B *did not experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 80% (*relatively consistent*). Similar to dimension 2 (*Sense of Belonging to the Organization*), the weak point is *Turn over analysis* since there are employees who left the company because of higher income. Second weak point is related to *Employees' benefits* where lack of flexibility for female employees is highlighted. As discussed it chapter 4, Toyota currently emphasizes women participation as key driver to support a work-life balance in its organizational culture. Figure 5.19 shows child care system of Toyota with main purposes such as (Toyota Motor corporation global, n.d.):

(1) Helping enable women to work and raise children at the same time; (2) Assisting in women's career building, and (3) Reforming the working environment and employee awareness. Moreover, Toyota has introduced flexible working arrangements and constructed child-care facilities at business sites.
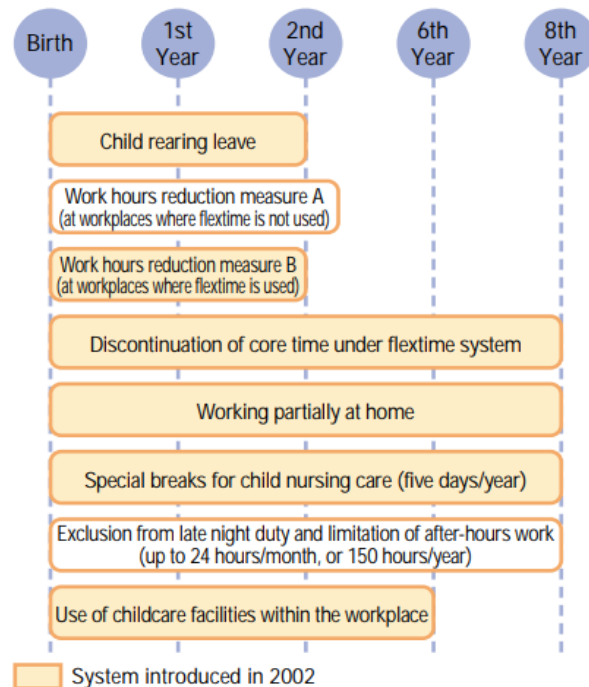

Figure 5.19 Child Care System of Toyota

5.3 Company C

Founded in 1987, Company C is a global company producing frozen dough and pastries. The company has different factories around Europe. The factory that we have studied is located in the Netherlands. The first attempt for Lean implementation failed and the second attempt is going to be started. The factory includes two parts: production that has been fully automated and semi-automatic packaging which needs both permanent and temporary employees. The main problem that the company faces is finding people with low qualifications to be employed. Therefore, when employees find a better job, they just leave the company. Lack of enough employees in packaging part interrupts the production as the line has to be stopped.

The interviewee has experiences of Lean implementation in Spain and now he is responsible to start the new project in the Netherlands. This helped us to contrast Spanish and the Netherlands culture. As he asserted that the environment is quite different from Spain and as a result, he is facing new problems that he could not even imagine. One main difference is the rights of workers at the Netherlands. As an example, such rights allow employees to stay easily at home when they are sick without any explanations to the manager. Moreover, employees' rights prohibit the manager from asking the details of employees' absence because this is considered as invasion of their privacy. Thus, sometimes it is possible that many employees including team leaders remain at home for illness. Moreover, there are no true leaders not even in the office part as they are mostly chosen because of friendship. Therefore, several problems arose due to lack of knowledge, attitude, and commitment.

5.3.1 Analysis of Dimensions for Company C

For each dimension, the national score of the Netherlands is considered and compared with Lean score. Then, the percentage of Company C culture alignments to Lean culture is calculated through the checklist. According to the checklist, the weak point of Company C culture is highlighted. Finally, the soft practices of Company C are explained along with our expectations from effects of national culture.

Authority Distribution of Company C

The value score of Netherland is considered as national level for Company C. The level of *Power Distance* for Netherlands is *Low- Relatively low* (GLOBE Foundation, n.d.). Table 5.65 summarizes the ideal Lean culture level and Netherlands national level for this dimension. As the both situations are *relatively consistent* with each other, it is predictable that Company C can implement the soft practices (sub-codes) related to dimension 1 successfully without vigorous problems.

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GLOBE dimension	Netherland National Level	Lean Culture Level
Power distance	Low- Relatively low (2.45)	Low (2)

Table 5.65 Netherland National Level vs. Ideal Level Related to Dimension 1

To find out the level of Authority Distribution, the questions of checklist have been answered for Company C in Table 5.66. As it is shown in the table, 90% of cultural alignment reveals the fact that organizational culture of Company C along with consideration of national culture characteristics is *relatively consistent* with Lean culture. The weak point of Company C is in Change in organizational structure where there is a need to improve the decision-making process. The problem is mainly when suggestions are collected, the decisions are made slowly to examine the suggestions.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company C
Authority Distribution	Suggestion system	1. Do your employees propose their suggestions and develop their ideas?	Yes	Yes
		2. Is communication conducted participative?	Yes	Yes
		3. Do your employees express their opposite opinions?	Yes	Yes
	Job promotions	4. Is upward mobility common?	Yes	Yes
	Employees' benefits	5. Are resources available to almost all?	Yes	Yes
	Change in organizational structure	6. Is information equally distributed?	Yes	Yes
		7. Are the superiors accessible?	Yes	Yes
		8. Is decision making process decentralized?	Yes	No
Percentage of Culture Alignment			100%	90%

Table 5.66 Evaluation of Authority Distribution for Company C

With respect to soft practices (sub-codes), Authority Distribution of Company C is illustrated along with our expectations from effects of national culture:

- **Suggestion system**

Based on national level, we expect that employee are willing to propose their ideas and comments since they believe that the person in higher status does not necessarily know better than the lower ones.

According to interviewee, the Netherlands people will be motivated more if they know that their ideas will be applied. The meetings are conducted participative and the ideas of team leaders will be considered for implementation. Moreover, as the production line works in day and night shifts, every problem that happens

is communicated with the team leader. Operators can easily express their suggestion as there is a friendly environment. However, due to lack of suitable structures, it takes a long time to apply the suggestions.

- **Job promotions**

Based on national level, we expect that higher-level positions are available to all current employees that have shown proficiency in their job and internal promotion is common in the organization.

The interview revealed that most of workers have been employed for less than three years but generally, several levels have been considered for the operators to be promoted.

- **Employees' benefits**

Based on national level, we expect that the resources for non-financial compensation are available for all organizational levels.

The interview shows that standard benefits are available for employees regardless of title or role within the organization. For example, both permanent and temporary employees are enrolled in health insurance considering similar level of coverage. Moreover, it is common that the suppliers provide some gifts for the company which they are shared between employees.

- **Change in organizational structure**

Based on national level, we expect that managers count on the experience of employees so that employees are empowered to make decisions. Superiors are accessible. The information is shared with all employees.

According to the interview, there is no so much option for operators to make decisions on their own due to standardization. However, when an operator works in different way, the reasons will be examined by the team leader. Moreover, when a suggestion is made, it takes a long time to be implemented.

Sense of Belonging to the Organization of Company C

As explained previously, proposed ideal level for Sense of Belonging to the Organization is *high*. This means *High* level of *Institutional Collectivism*, *In-Group Collectivism*, *Human Orientation*, *Gender Egalitarianism*, and *Low* level of *Assertiveness*. To facilitate comparison of ideal level for Lean implementation with Netherlands national level, the value level for each of these dimensions is presented in Table 5.67. Comparison of both situations of combined dimensions shows that national culture of the

Netherlands is *relatively consistent* with Lean culture. However, by contrasting the scores of Spain, Iran, and the Netherlands, we can expect that companies experience more problems in the Netherlands.

Situations / GLOBE Dimensions	Netherlands National Level	Lean Culture Level
Human Orientation	Relatively high -High (5.2)	High (6)
Institutional Collectivism	Moderate- Relatively high (4.55)	High (6)
In-group Collectivism	Relatively high-High (5.17)	High (6)
Gender Egalitarianism	Moderate - Relatively high (4.99)	High (6)
Assertiveness	Relatively low (3.02)	Low (2)

Table 5.67 Netherlands National Level vs. Ideal Level of Combined Dimensions Related to Dimension 2

To find out the level of Sense of Belonging to the Organization, the questions of checklist have been answered for Company C in Table 5.68. As shown in the table, 76.9% of cultural alignment reveals the fact that organizational culture of Company C along with consideration of national culture characteristics is relatively consistent with Lean culture and the employees feel that they are a part of organization. According to the checklist, there are several weak points with regard to this dimension. First, there is problem in communication where there is lack of cooperation between departments. Second, Turnover analysis is another main problem of the Company C which is lack of long-term commitment. Finally, Absenteeism analysis reveals that the employees do not take their responsibilities as much as it is expected.

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Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company C
Sense of Belonging to the Organization	Team building	1. Do your employees cooperate together with no need for strong motivation?	Yes	Yes
		2. Are critical decisions made by business units?	Yes	Yes
	Unwritten rules	3. Do your employees behave according to determined duties and obligations rather than their personal preferences?	Yes	Yes
		4. Do your female and male employees have the same opportunity to promote to key positions and participate in critical decision-making?	Yes	Yes
	Communication	5. Are manager-employee relationships based on respect and mutual trust?	Yes	Yes
		6. Is there cross-functional cooperation among departments?	Yes	No
	Job promotions	7. Do the manager take employee's in-group hiring and promotion decisions take in to account?	Yes	Yes
	Turn over analysis	8. Do your employees have a long-term commitment to the organization?	Yes	No
	Absenteeism analysis	9. Do your employees take their responsibilities?	Yes	No
	Team competition	10. Do your employees avoid personal judgments and conflictions where possible?	Yes	Yes
		11. Do your employees work to achieve group results?	Yes	Yes
	Reward system	12. Are the rewards driven by seniority, personal needs, and/or within-group equity?	Yes	Yes
	Appraisal and Appreciation	13. Do the manager reassure employees that they are doing a good job?	Yes	Yes
Percentage of Culture Alignment			100%	76.9%

Table 5.68 Evaluation of Sense of Belonging to the Organization for Company C

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With respect to soft practices (sub-codes), Sense of Belonging to the Organization of Company C is illustrated along with our expectations from effects of national culture:

- **Team building**

It is predictable that Company C did not encounter any difficulties for collaboration of employees in teams since national value of Institutional Collectivism and In-Group collectivism are both relatively high. This means that team work is something natural, employees tend to work in this way with no need for strong motivation (Hofstede, 2017). In addition, critical decisions are made by groups (House et al., 2004). The relatively high In-Group collectivism scores suggest that they generally express pride and cohesiveness in their families and organizations. However, we expect that the organization do not strongly consider organizational practices with the goals of collective distribution of resources or rewards. Lower level of Institutional Collectivism, in comparison with Spain and Iran, shows that the organizations do not properly encourage shared objectives and collective behaviors.

According to the interview, people are comfortable and motivated to work in teams. The problem is to find good technicians.

- **Unwritten rules**

Relatively high level of Human Orientation shows the fact that in societies like Company C, people are motivated primarily by a need for belonging and affiliation so that the interests of others are important for people (House et al., 2004).

Relatively high of Institutional Collectivism shows that people believe that they are interdependent so that they naturally adapt to changes, the duties, and the obligations.

Relatively high national level of Gender Egalitarianism shows that Netherlands culture desires the equity between male and female however it is not strange to see some male domination and gender role differences in some levels of the organization. In comparison with Iran and Spain, we expect to see less organizational gender discrimination and more participation of women in critical roles and decision-making in the Netherlands.

According to the interview, it has happened rarely that an employee does not work based on the defined standards and most employees are normally work according to the determined duties. Regardless of gender, all employees treated fairly for benefits package, reward system, and promoting to the higher status.

- **Communication**

Relatively low level of Netherlands culture in *Assertiveness* reveals the fact that Netherlands people are more flexible in discussions and less argumentative in comparison with Iranian and Spanish people and they value cooperation and warm relationships. According to House et al., (2004), people with low level of *assertiveness* and high level of *collectivism* tend to use high-context language. Therefore, they prefer to save their face in the communications and they are less frank and direct to the point.

According to the interviewee, the general communication is very different from Spain. There is very friendly environment that allows employees to discuss easily their ideas to the manager. However, there is lack of collaboration between departments.

- **Job promotions**

In collectivist societies like Netherlands, employer/employee relationships are perceived in moral terms. Hiring and promotions decisions take account of the employee's in-group, management is the management of group (Hofstede, 2017). According to House et al., (2004), people with low level of assertiveness value who you are more than what you do.

The interview explained that most of workers have been employed for less than three years but generally, several levels have been considered for the operators to be promoted.

- **Turnover analysis**

Relatively high level of Human orientation shows that people do their best to make the firm successful, instead of pursuing personal gains (Bortolotti et al., 2015). Therefore; we expect that employees are committed to the organization and the rate of turnover would be low.

Considering the interview, as the packaging parts need more operators with low qualifications, it is difficult to keep employees for a long term because they can find a better job very easily.

- **Absenteeism analysis**

Relatively high national level of In-group Collectivism shows that loyalty of people to the group is premier and they foster relationships where everyone takes responsibilities for members of group (Hofstede, 2017). Therefore, we expect that the absence of employees is low and it is something due to personal life rather related to workplace conditions.

According to the interview, one main difference is the rights of workers at the Netherlands. As an example, the allows employees to easily stay at home when they are sick without any explanation to the manager and sometimes it is possible that many employees including chief leaders do not go to work and no one can ask the reason.

- **Team competition**

People of the Netherlands are collectivist and human orientated and have a low level of assertiveness. Therefore, we expect that employees value cooperation and warm relationship more than competiveness. Therefore, team competition is not quite welcomed. In comparison with Iran and Spain, lesser conflictions and personal judgements are predictable as result of relatively low level of assertiveness.

The interview revealed that there is no competition and no teams or operators are compared to each other.

- **Reward system**

Due to relatively high level of Institutional collectivism and relatively low assertiveness, organizational and societal institutional practices encourage and reward collective distribution of resources and collective action. Therefore, it is expected that rewards are driven by seniority, personal needs, and/or within-group equity rather than performance. Also, "merit pay" could be viewed as destructive to the harmony (House et al., 2004).

The interviewee mentioned that the payments are based on the level of operators and the years of working experience. There are no financial rewards in comparison with Spain. The manager of the Netherlands believe that the salary is enough for being motivated.

- **Appraisal and appreciation**

Since relatively high level of human orientation reveals that people needs to be cared and relatively low level of assertiveness shows that employees value cooperation and warm relationship more than competiveness. Therefore, we expect that employees' good performance are seen, recognized, and appreciated indirectly without emphasizing any competition.

The interviewee asserted that, there are no financial rewards or any competition in spite of Spanish branch. However, the friendship relationship between team leaders, manager, and employees and open culture for discussion are common in the organization.

Courage to Accept Changes of Company C

As presented in Table 5.69, the value score of Netherlands for *Uncertainty Avoidance is relatively low and the ideal level is low.* This national level shows that people of Netherlands are accept ambiguous situations and changes much easier in comparison with Iranian and Spanish people. As the both situations are *relatively consistent* with each other, it is predictable that Company C will experience less difficulties in implementing the related soft practices (sub-codes) of dimension 3.

GLOBE dimension	Netherlands National Level	Lean Culture Level
Uncertainty Avoidance	Relatively low- Moderate (3.24)	Low (2)

Table 5.69 Netherland National Level vs. Ideal Level Related to of Uncertainty Avoidance

To find out the level of Courage to Accept Changes, the questions of checklist have been answered for Company C in Table 5.70. As it is shown in the table, 80% of cultural alignment reveals the fact that organizational culture of Company B along with consideration of national culture characteristics is relatively consistent with Lean culture. According to the checklist, the first weak point is reward system which is not consistent with the change program and the second one is Training system that is not individualized.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company C
Courage to Accept Changes	Communication	1. Do the managers communicate the benefits of the change program in the workplace with the employees?	Yes	Yes
	Support	2. Are the managers supportive for employees' personal concerns about the change program?	Yes	Yes
		3. Do the managers assign enough financial resources for the change?	Yes	Yes
	Reward system	4. Is the reward system consistent with the change program?	Yes	No
	Appraisal and appreciation	5. Do the managers give valid feedbacks to the employees about how they are doing the new way of works?	Yes	Yes
	Suggestion system	6. Do the managers communicate with employees in order to know their opinions about workplace conditions?	Yes	Yes
	Training system	7. Are required knowledge and skills provided to employees through formal and informal training programs?	Yes	Yes
		8. Are the informal training provided to the whole group?	Yes	Yes
		9. Is the method of learning individualized?	Yes	No
		10. Can employees practice the new way of work in the field without being worried of making mistakes?	Yes	Yes
Percentage of Culture Alignment			100%	80%

Table 5.70 Evaluation of Courage to Accept Changes for Company C

With respect to soft practices (sub-codes), *Courage to Accept Changes* of Company C is illustrated along with our expectations from effects of national culture:

- **Communication**

According to House et al. (2004), organization formality is less valued. Therefore, they are informal in their interactions with others. They rely on words of others that they trust rather than legal documents in legal contracts. They are less concerned with orderliness and they do not document the conclusions of the meetings they attend.

Considering the interview, the communication depends on the changes that will be applied. Normally, Manager has monthly individual meeting with each team leader and the changes are discussed prior to application.

- **Support**

Based on the national score we can expect that the opportunity is given to the employees to discuss their concerns and dissatisfactions. According to House et al. (2004), employees show less desire to the rules that dictate behaviours. In addition, we expect that managers are comfortable in dealing with strategic problems and can effectively process new information which require a great tolerance of ambiguity (Hofstede, 2011; Wang and Chan, 1995). According to Sale (2004), weak uncertainty avoidant cultures are less loyal to the employer; they are short-term commitment to the organization; and prefer small organizations. Moreover, the author asserts that the power of superiors is under influenced of their position and relationships.

According to the interview, there is a friendly relationship between employees with higher levels.

- **Reward system**

With regard to Sale (2004), we expect that the Netherland people will be motivated by offering them flexible working hours.

According to the interview, the payments are based on the level of operators and the years of working experience. There is no financial rewards in comparison with Spain. The manager of the Netherlands believe that the salary is enough for being motivated.

- **Appraisal and appreciation**

With regard to Sale (2004), relationships are more highlighted in activities rather than tasks, and managers are confident in the ambition and leadership ability of their employees. We expect that employees do not prefer formal job evaluation. They would rather informal feedbacks communicating in friendly manner.

The interviewee asserted that there are no financial rewards or any competition in spite of Spanish branch. However, the friendship relationship between team leaders, manager, and employees and open culture for discussion are common in the organization.

- **Suggestion system**

According to House et al. (2004), innovation is welcomed and accepted because employees and managers are tolerable about ambiguity and uncertainty.

According to interviewee, the Netherlands people will be motivated more if they know that their ideas will be applied. Meeting are conducted participative and the ideas of team leaders will be considered for implementation. Moreover, as the production line works in day and night shifts, every problem that happens are communicated with the team leader. Operators can easily express their suggestion as there is a friendly environment. However, due to lack of suitable structures, it takes a long time to apply the suggestions.

- **Training system**

Bandura (1995) recommends, for people from low level of uncertainty avoidance, training would be most effective if multidimensional teaching strategies are considered including only partially structured learning materials, general instructions, and flexible, individualized pacing.

The interview revealed that there are different training programs for operators both in theoretical and practical aspects. In the practical aspects, the operators will experience on-the-job-training. For now, most of the training programs include theoretical aspects. However, the studies levels in the Netherlands are quite different from Spain and it is hard to motivate people for attending the training. Because of good conditions of country in finding better job, the employees easily leave the company by finding better jobs. There is a problem of keeping employees in the company even when they are forced to pay the training programs by own due to leaving the company.

Performance Orientation of Company C

With respect to Table 5.71 , both national level of Netherlands and ideal level for Lean culture are *high*. As the both situations are *relatively consistent* with each other, it is predictable that Company C has implemented the soft practices (sub-codes) related dimension 4 successfully without problems.

GLOBE dimension	Netherlands National Level	Lean Culture Level
Performance Orientation	Relatively high-High (5.49)	High (6)

Table 5.71 Netherland National Level vs. Ideal Level Related to Dimension 4

To find out the level of Performance Orientation, the questions of checklist have been answered for Company C in Table 5.72. As it is shown in the table, 75% of cultural alignment reveals the fact that

organizational culture of Company A along with consideration of national culture characteristics is *relatively consistent* with Lean culture. According to checklist, the weak points are *training system*, *team competition*, and *reward system*.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company C
Performance Orientation	*Communication*	1. Are feedbacks provided formally to the employees?	Yes	Yes
		2. Are communications conducted explicitly?	Yes	Yes
	Commitment	3. Do the managers attend to required training programs for self-development?	Yes	Yes
		4. Are the managers committed themselves for daily meetings in order to participate in problem solving?	Yes	Yes
		5. Do the managers develop vision and goals consistent to Lean philosophy?	Yes	Yes
	Training system	6. Do you have training programs aligned with Lean principle?	Yes	No
		7. Do you have system to record and analyze employees' skills?	Yes	Yes
		8. Do you evaluate training programs?	Yes	Yes
	Team competition	9. Is there any effective competition among teams/groups?	Yes	No
	Appraisal and appreciation	10. Do you evaluate team-performance?	Yes	Yes
	Reward system	11. Is your reward system based on team/group performance?	Yes	No
	Suggestion system	12. Do the managers collect suggestion of employees in order to improve the performance?	Yes	Yes
Percentage of Culture Alignment			100%	

Table 5.72 Evaluation of Performance Orientation for Company C

With respect to soft practices (sub-codes), Performance Orientation of Company C is illustrated along with our expectations from effects of national culture:

- **Communication**

According to national culture, communications are expected to be direct, explicit, and toward identified goals. Formal feedbacks are provided as they are necessary for performance improvement.

According to the interviewee, the general communication is very different from Spain. There is very friendly environment that allows employees to easily discuss their ideas to the manager.

- **Commitment**

Based on national level of Iran, we expect that managers identify their goals to reassure the success of organization. They value their growth along with employees' development and they are committed to performance improvement.

According to the interview, manager has monthly individual meeting with each team leader beside daily meetings.

- **Training system**

Considering the national score, it is expected that training system be comprehensively considered in the organization as people value training and development.

The interviewee explained that there are some training programs for operators both in theoretical and practical aspects. In the practical aspects, the operators will experience on-the-job-training. For now, most of the training programs include theoretical aspects such as food safety. However, the studies levels in the Netherlands are quite different from Spain and it is hard to motivate people for attending the training. Because of good conditions of country in finding better job, the employees easily leave the company by finding better jobs. There is a problem of keeping employees in the company even when they are forced to pay the training programs by own due to leaving the company. According to interview, it was revealed that there is lack of enough training program regarding Lean production and it could be due to lack of long term of employees' commitment to the organization.

- **Team competition**

With regard to national level, competition between groups are expected because employees are determined to be best or winner in the workplace so that the value system is driven by competition, achievement and success.

According to the interview, there is no competition and no teams or operators are compared to each other.

- **Reward system**

It is expected that the reward system is linked to the contribution of teams rather than individuals since people value what results have been achieved more than who has achieved the results.

The interviewee asserted that the payments are based on the level of operators and the years of working experience. There is no financial rewards in comparison with Spain. The manager of the Netherlands believe that the salary is enough for being motivated.

- **Appraisal and appreciation**

Based on national score, since the emphasis is on competition and excellence, not only employees participate in performance improvement by proposing their ideas but also managers are open to hear for employees' suggestions.

According to the interview, there are no financial rewards or any competition in spite of Spanish branch. However, the friendship relationship between team leaders, manager, and employees and open culture for discussion are common in the organization.

- **Suggestion system**

Based on national score, since the emphasis is on competition and excellence, not only employees participate in performance improvement by proposing their ideas but also managers are open to hear for employees' suggestions.

According to interviewee, the Netherlands people will be motivated more if they know that their ideas will be applied. The meetings are conducted participative and the ideas of team leaders will be considered for implementation. Moreover, as the production line works in day and night shifts, every problem that happens are communicated with the team leader. Operators can easily express their suggestion as there is a friendly environment. However, due to lack of suitable structures, it takes a long time to apply the suggestions.

Time Perspective Orientation of Company C

Table 5.73 shows that both national level of Netherlands and ideal level for Lean culture are *high*. As the both situations are *relatively consistent* with each other, it is predictable that Company C has implemented the soft practices (sub-codes) related dimension 5 successfully without intense problems.

GLOBE dimension	Netherlands National Level	Lean Culture Level
Future Orientation	Relatively high (5.07)	High (6)

Table 5.73 Netherland National Level vs. Ideal Level Related to Dimension 5

To find out the level of Time Perspective Orientation, the questions of checklist have been answered for Company C in Table 5.74. As it is shown in the table, 71.42% of cultural alignment reveals the fact that organizational culture of Company C along with consideration of national culture characteristics is *relatively consistent* with Lean culture. There are two weak points. First, there is a problem in *Job promotions.* It seems that the team leaders are mostly chosen as result of friendship relationship that they have with the manager. Second problem is in Change *in organizational traditions*. It is difficult for the operators to learn doing the multiple tasks.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company C
Time Perspective Orientation	*Employees' benefits*	1. Does the manager consider non-financial compensation for employees?	Yes	Yes
	Job promotions	2. Are employees promoted based on professional qualifications?	Yes	No
	Training system	3. Do you have training programs to update employees' knowledge?	Yes	Yes
	Change in organizational tradition	4. Do the employees conduct multiple tasks in parallel?	Yes	No
		5. Does the manger plan for the prospects and the technological potentials of the company?	Yes	Yes
		6. Does the manger examine the core competence or continuity the company intends to carry with for future?	Yes	Yes
		7. Is the organization adaptive and flexible for future changes?	Yes	Yes
Percentage of Culture Alignment			100%	71.42%

Table 5.74 Evaluation of Time Perspective Orientation for Company C

With respect to soft practices (sub-codes), Time Perspective Orientation of Company C is illustrated along with our expectations from effects of national culture:

- **Employees' benefits**

With regard to the national level, it seems that Netherlands culture is long term oriented and they view material success and spiritual fulfillment as an integrated whole. We expect allocating of resources are considered in order to keep the employees' motivation up at Company C.

According to the interview, standard benefits are available for employees regardless of title or role within the organization. For example, both permanent and temporary employees are enrolled in health insurance considering similar level of coverage. Moreover, it is common that the suppliers provide some gifts for the company which they are shared between employees.

- **Job promotions**

Based on national score, it is expected that higher level positions are available to all current employees that have shown proficiency in their job and internal promotion is common in the organization.

Considering the interview, most of workers have been employed for less than three years but generally, several levels have been considered for the operators to be promoted. Most of the team leaders have been chosen based on the friendship rather than better qualifications.

- **Training system**

Since the general emphasis of the Netherlands is on long-term success. Therefore, we expect that Company C be determined to develop their employees so that they consider long-term programs to update the employees' knowledge.

According to the interview, there are different training programs for operators both in theoretical and practical aspects. In the practical aspects, the operators will experience on-the-job-training. For now, most of the training programs include theoretical aspects. However, the studies levels in the Netherlands are quite different from Spain and it is hard to motivate people for attending the training. Because of good conditions of country in finding better job, the employees easily leave the company by finding better jobs. There is a problem of keeping employees in the company even when they are forced to pay the training programs by own due to leaving the company. In addition, it is difficult for people to learn working in multiple tasks, because the knowledge level of operators is low.

- **Change in organizational tradition**

Because long-term oriented people such as people of Netherlands are flexible and adaptive for future changes, we expect that it is easy for employees to track multiple tasks or learn multiple skills such as multi-machine handling and multi-process handling. In addition, we expect that the manager has identified the core competencies and foreseen the potential technologies and requirements in order to achieve them.

Considering the interview, it is difficult for operators to conduct and learn multiple tasks as the packaging parts require operators with low skill level.

Lively Spirit Orientation of Company C

As explained earlier, we have considered the score of Hofstede national model because no dimension of GLOBE has been considered to propose *Lively Spirit Orientation*. According to Table 5.75, national score of Netherlands is *68* (Hofstede, 2017) and ideal score for Lean culture is *50*. As the both situations are *relatively consistent* with each other, it is predictable that Company C has implemented the soft practices (sub-codes) related dimension 6 successfully without problems.

GLOBE dimension	Netherlands National Level	Lean Culture Level
Indulgence	68	50

Table 5.75 Netherland National Level vs. Ideal Level Related to Dimension 6

To find out the level of Lively Spirit Orientation, the questions of checklist have been answered for Company B in Table 5.64. As it is shown in the table, 80% of cultural alignment reveals the fact that organizational culture of Company C along with consideration of national culture characteristics is *relatively consistent* with Lean culture. According to the checklist, three weak points have been highlighted. The first problem is in *Widening circles of interactions* where no group activities have been considered to reinforce interpersonal skills of employees. In addition, the two other weak points are *Turnover analysis* and *Absenteeism analysis* that have been repeated several times.

Dimension	Soft practices (Sub-codes)	Questions	Lean culture	Company B
Lively Spirit Orientation	*Performing rituals*	1. Are the changes programs discuss formally with targeted employees?	Yes	Yes
		2. Is there any celebration held for accomplishments of organization that all employees participate?	Yes	Yes
		3. Do you have special traditions such as holiday parties, celebrating new employees or birthdays?	Yes	Yes
	Widening circles of interactions	4. Is there any group activity apart from job duty for employees with aim at reinforcing interpersonal skills of employees?	Yes	Yes
		5. Is there any opportunity for the employees to spend time for group activities outside the work place?	Yes	No
	Turnover analysis	6. Do your employees have a long-term commitment to the organization?	Yes	No
	Absenteeism analysis	7. Do your employees take their responsibilities?	Yes	No
	Suggestion system	8. Is communication conducted participative?	Yes	Yes
	Support	9. Do the employees discuss their feeling and dissatisfactions with their managers?	Yes	Yes
	Employees' benefits	10. Are the employees offered family-friendly work place?	Yes	Yes
Percentage of Culture Alignment			100%	70%

Table 5.76 Evaluation of Lively Spirit Orientation for Company B

With respect to soft practices (sub-codes), Lively Spirit Orientation of Company B is illustrated along with our expectations from effects of national culture:

- **Performing rituals**

With respect to national score, we expect that some events are held formally or informally but not in alignment with organization/Lean goals.

The interviewee explained that the workers and their families are invited to the company to celebrate the Easter.

- **Widening circles of interactions**

Employees participated in many group activities but the mission of improving interpersonal skills is missed. The group activities do not reinforce employees' commitment to work.

According to the interview, sometimes employees play Bingo and the gifts that have been provided by suppliers are shared with the employees.

- **Turnover analysis**

Based on national score, we expect that employees leave the organization frequently and no analysis is conducted to examine the reasons.

The interviewee mentioned that it is difficult to keep employees for a long term because they can find a better job very easily as the packaging parts need more operators with low qualifications.

- **Absenteeism analysis**

Considering the national score, we expect that employees do not take their responsibility; have frequent absence of work; and no analysis is conducted to examine the reasons.

The interviewee explained that one main difference is the rights of workers at the Netherlands. As an example, the allows employees to easily stay at home when they are sick without any explanation to the manager and sometimes it is possible that many employees including chief leaders do not go to work and no one cannot ask the reason.

- **Suggestion system**

National score reveals that employees widely give their opinions in personal matters of their colleagues.

According to interviewee, the Netherlands people will be motivated more if they know that their ideas will be applied. The meetings are conducted participative and the ideas of team leaders will be considered for implementation. Moreover, as the production line works in day and night shifts, every problem that happens are communicated with the team leader. Operators can easily express their suggestion as there is a friendly environment. However, due to lack of suitable structures, it takes a long time to apply the suggestions.

- **Support**

Considering national score, we expect that employees easily dissatisfy when something does not run in alignment with their feelings and they widely express their personal concerns with the managers. Though, they are not totally related to work.

According to the interview, there is a friendly relationship between employees with higher levels giving the opportunities to discuss their opinions very easily.

- **Employees' benefits**

Based on national score, we expect that rules are so flexible that employees can misuse of such opportunity. Regardless of title or role within the organization, standard benefits are available for employees. For example, both permanent and temporary employees are enrolled in health insurance considering similar level of coverage. Moreover, it is common that the suppliers provide some gifts for the company which they are shared between employees.

5.3.2 Conclusion of Analysis for Company C

First dimension that has been analyzed is *Authority Distribution*. According to the analysis, the national characteristics of the Netherlands is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company C, which is located in the Netherlands, *will not experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 90% (*relatively consistent*). The weak point of Company C is in *Change in organizational structure*. It seems that it takes a long time to examine suggestions and make decisions for applying the ideas. It seems that the company lacks the effective suggestion system. According to Bessant and Francis (1999), suggestions system not only should receive, acknowledge, and categorize the ideas but also there should be a guarantee of systematic implementation. Suggestions could be categorized as follows:

- Are acknowledged but not directly implementable
- Those which can be implemented directly by the suggesting individual or group
- Those which may require additional support from specialists
- Those which represent major projects that might be taken forward by a larger and more specialized group.

Such classification of ideas and suggestions will facilitate the process of decision making for implementation. Moreover, Papadopoulou and Özbayrak (2005) assert that the true empowerment and ownership of improvement are key drivers for successful transformation to Lean which are achieved through methodical training system and participation of employees in decision making and problem solving processes.

Second dimension is *Sense of Belonging to the Organization*. According to the analysis, the national characteristics of the Netherlands is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company C *will not experience intense problems* during Lean implementation. The cultural alignment of the company is 76.9% (*relatively consistent*). Several weak points were found through the checklist. First, Lack of cross-functional cooperation prohibits the effective *Communication*. Second, *Turnover analysis* is another main problem of the Company C which is lack of long-term commitment. Finally, *Absenteeism analysis* reveals that the employees do not take their responsibilities as much as it is expected. As we discussed in chapter 3, the commitment of employees has a key role on successful Lean transformation. According to Losonci et al., (2011), communication indirectly impacts on Lean success through belief and commitment. With respect to the authors, it is important to make sure that employees believe in the benefits of new initiatives at the first phase of Lean implementation. As the authors assert, authentic communication related to process changes and the organization-wide vision reinforces the employee belief in the Lean. Therefore, clear communication about the benefit of Lean, roles of employees on success of the company, and the targeted performance has to be done prior to Lean implementation.

Third dimension is *Courage to Accept Changes*. According to the analysis, the national characteristics of the Netherlands is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company C will *experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 80% (*relatively consistent*). According to the checklist, the first weak point is *reward system* which is not consistent with the change program. Many studies have been highlighted the role of pilot projects on success of Lean implementation such as (Bhasin, 2012; Boscari et al., 2016; Hines et al., 2011; Liker and Convis, 2012; Martin et al., 2014; Nordin et al., 2012; Scherrer-Rathje et al., 2009b; Schwartz and Söderberg, 2015; Sohal, 1997). It is recommended to start implementation from the area which has high leverage and low cost as pilot area (Alavi, 2003). As the employees experience the initial benefits in the pilot area, the remainder of employees will be motivated easier to accept the changes. The second weak point is *Training system* that is not individualized. In agreement with Alavi (2003) and as we highlighted before, educating employees prior to implementation is crucial for successful Lean transformation. The in-depth information must be provided such as theory and principles with examples of success stories and the benefits they can experience.

Fourth dimension is *Performance Orientation*. According to the analysis, the national characteristics of the Netherlands is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company C *will not experience any problem* during Lean implementation. According to the checklist, the cultural alignments of the company is 75% (relatively *consistent*). According to checklist, the weak points are training system, team competition, and reward system and we already discussed them in other dimensions.

Fifth dimension is *Time Perspective Orientation*. According to the analysis, the national characteristics of the Netherlands is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company A *will not experience any problem* during Lean implementation. According to the checklist, the cultural alignments of the company is 71.42% (*relatively consistent*). First, *Job promotions* is not as efficient as it should be. It seems that the team leaders are not selected based on qualifications and the good relationship with the manager plays a key role. Second problem is in *Change in organizational traditions*. It is difficult for the operators to learn doing the multiple tasks as they have been employed with minimum skills. According to Papadopoulou and Özbayrak (2005), removing the psychological pressure of not having continual employment or the fear of performing tasks out of the control or ability would increase the chance of sustainability and trust of workers. Therefore, as have been already discussed in chapter 4, it is recommended to pay a great attention of how well the changes are communicated to the employees along with giving them the abilities through systematic training system.

Last dimension is *Lively Spirit Orientation*. According to the analysis, the national characteristics of the Netherlands is *relatively consistent* to what Lean culture necessitates. Therefore, we expect that Company A *will not experience intense problems* during Lean implementation. According to the checklist, the cultural alignments of the company is 80% (*relatively consistent*). Several problems haven found through the checklist. The first problem is in *Widening circles of interactions* where no group activities have been considered to reinforce interpersonal skills of employees. In addition, the two other weak points are *Turnover analysis* and *Absenteeism analysis* that have been repeated several times. Alavi (2003) claims that the improved working conditions due to Lean implementation is mostly perceived as reward by employees while celebrating with lunches, a buffet or by other means is a good practice reinforcing management commitment to the cause.

5.4 Summary

In this chapter, several hypotheses have been examined through multiple case studies such as:

- "If the culture of an organization has *High/Moderate* level of *Authority Distribution*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of S*ense of Belonging to the Organization*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Courage to Accept Changes*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Performance Orientation*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Time Perspective Orientation*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/High* level of *Time Perspective Orientation*, then specific organizational practices must be applied to avoid potential problems".

The selected cases were factories are located in different countries including Iran, Spain, and the Netherlands. Hence, firstly, the national culture of each country were analyzed by explaining the soft practices according to each dimension of the proposed model in chapter 4. The examination of national culture has been conducted through considering the value score of GLOBE as its results are more recent in comparison with Hofstede. The GLOBE model presents the scores of countries by 7-point Likert-type scale. The range scale includes:

- Very low (1), Low (2), Relatively low (3), Moderate (4), Relatively high (5), High (6), and Very high (7).

For dimension 6 (Lively Sprit Orientation), we have considered the score of Hofstede since this dimension does not include any dimension of GLOBE. The range scale of Hofstede includes:

- Low (0,50), Moderate [50], and High (50,100]

Therefore, several expectations are made by comparing the national scores with ideal score of Lean culture:

- The organization experiences *no problems* due to implementation of Lean if the national culture were *consistent* with Lean culture.
- The organization experiences *minor problems* due to implementation of Lean if the national culture were *relatively consistent* with Lean culture.

- The organization experiences *intense problems* due to implementation of Lean if the national culture were *inconsistent* with Lean culture.

Secondly, the organizational culture of our cases was examined. For each dimension of proposed model, the level of consistency of organizational culture with Lean culture was analyzed through the checklist. Analysis of checklist facilitated finding the weak points of organizational culture under influence of national culture. Therefore, three situations are supposed:

- The organizational culture is *consistent* to Lean culture if the percentage of cultural alignment is *100%.*
- The organizational culture is relatively *consistent* to Lean culture if the percentage of cultural alignment is *higher than 50% up to 100%.*
- The organizational culture is *inconsistent* to Lean culture if the percentage of cultural alignment is *lower than 50%.*

Later, the interviews were conducted to understand how the soft practices are used in the organization. As a result, the reasons of weak points were diagnosed and the successful practices were highlighted for each case.

Chapter 6: Conclusions

This study was initiated to answer the question "*how to align the organizational culture to Lean culture*?" The general hypothesis is "*both national culture and organizational culture influence on successful Lean implementation*". As the literature review was gone forward, we developed an evaluation model to estimate the organizational culture alignments to the Lean culture prior to Lean implementation while considering the influences of national culture. As the model highlights the cultural weaknesses of organizational culture, it is also useful for organizations that have implemented Lean but they are still struggling in adapting their structure to Lean environment. Two perspectives were considered in developing the evaluation model. First, national culture was considered by integrating national models such as Hofstede (1984), GLOBE (House et al., 2004), as well as Trompenaars and Hampden-Turner (1997). Second, Lean culture was noted by scrutinizing organizational culture of Toyota along with cultural profiles of successful Lean organizations. The evaluation model includes six dimensions (with the ideal levels for Lean culture) and each dimension compasses a checklist to underline misalignment points of the organizational culture. The dimensions are *Authority Distribution (Low)*, *Sense of Belonging to the Organization (High)*, *Courage to Accept Changes (High)*, *Performance Orientation (High)*, *Time Perspective Orientation (High)*, and *Lively Spirit Orientation (Moderate)*.

Hence, our general hypothesis was expanded to six new ones relating them to six dimensions of our proposed model such as:

- "If the culture of an organization has *High/Moderate* level of *Authority Distribution*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of S*ense of Belonging to the Organization*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Courage to Accept Changes*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Performance Orientation*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/Moderate* level of *Time Perspective Orientation*, then specific organizational practices must be applied to avoid potential problems".

- "If the culture of an organization has *Low/High* level of *Lively Sprit Orientation*, then specific organizational practices must be applied to avoid potential problems".

In addition to literature review, the study was continued with conducting the multiple-case studies. Three organizations were selected based on several inclusion criteria which were already discussed in chapter 3. The organizations operate in different countries such as Iran, Spain, and the Netherlands. Respectively, the first two companies implemented Lean Manufacturing many years ago but they are still engaged with problems in adjusting their organizational culture to Lean culture. The last company is going to implement Lean soon after our study while their first attempt failed in the past.

To proceed the study, semi-structured interviews were conducted with production managers of the cases. We used codification method to systematically collect required qualitative data on their organizational culture. Therefore, the success factors and related soft practices that had been recognized through literature review were considered as codes and sub-codes. The interviews were structured initially based on the general questions about the codes. If the required data were not provided then, it was followed to more details by asking specific questions related to sub-codes. Additionally, the checklist was filled out to measure the percentage of cultural alignments for each dimension. While the organizational culture of each case was analyzed through the sub-codes or related soft practices, our expectations of national culture effects on applying the related soft practices were explained by using the score of GLOBE (House et al., 2004) and Hofstede (1984). The checklists facilitated to recognize the weakness points of organizational culture. In addition, the expectations of national culture assisted in finding out whether these problems can be rooted from national characteristics of employees or are due to lack of appropriate organizational policies.

This chapter aims at discussing contributions to knowledge, the overall research findings, along with clarifying the solutions conducted by the cases under study to resolve the problems that have been occurred due to national inconsistency. With respect to each dimension, some managerial recommendations are made for organizations that have different culture comparing to Lean culture. Research limitations, and recommendations for future research direction are presented respectively in separate subsections.

6.1 Discussion

To best of our knowledge, this study is the first attempt that integrated the national models with organizational culture and proposes an evaluation model along with some recommendations to adapt corporate culture before implementing Lean. Many studies have been conducted highlighting the important role of organizational culture not only in change management (Caldwell et al., 2004; Duncan, 2014; Koter and Cohen, 2002; Martin, 2013; Mike and Slocum, 2003; Quiros, 2009; Schein, 2010; Wursten, 2014) but also specifically in Lean management (Alpenberg and Scarbrough, 2016; Alvesson, 2013; Dahlgaard and

Mi Dahlgaard-Park, 2006; Dora et al., 2016; Martínez-Jurado et al., 2014b; Oudhuis and Olsson, 2015; Pakdil and Leonard, 2015; R. Jadhav et al., 2014; Rajesh, 2008; Urban, 2015; Welo and Ringen, 2015; Wong, 2007). Koter and Cohen (2002) emphasize that highly successful organizations know how to change employees' behavior. The authors suggest eight steps to be successful in large-scale including:

1. Increase urgency: people start telling each other, "Let's go, we need to change things!"
2. Build the guiding team: a group powerful enough to guide a big change is formed and they start to work together well.
3. Get the vision right: the guiding team develops the right vision and strategy for the change effort.
4. Communicate for buy-in: people begin to buy into the change, and this shows in their behavior.
5. Empower action: more people feel able to act, and do act, on the vision.
6. Create short-term wins: momentum builds as people try to fulfill the vision, while fewer and fewer resist change.
7. Do not let up: people make wave after wave of changes until the vision is fulfilled.
8. Make change stick: New and winning behavior continues despite the pull of tradition, turnover of change leaders, etc.

A few frameworks for Lean implementation were proposed by previous studies. Some of them specifically related implementation to human issues and organizational culture (Al-Najem ; H. N. Dhakal ; N.Bennett, 2012; Nordin et al., 2012). Others offered perfect steps for implementation and considered explicitly soft practices as part of pre-implementation phase although they have focused more on the technical aspects (Bhamu and Sangwan, 2016; Gurumurthy and Kodali, 2009; Mostafa et al., 2013). However, the aforementioned studies neglected the notable role of national culture on successful implementation. As we discussed before in literature review, several studies highlighted national culture effects on organizational culture such as (Fenwick et al., 2003; Kidd and Kanda, 2000; Lau and Ngo, 1996; Shim and Steers, 2012; Yokozawa et al., 2009) while others specifically discussed it in the success of Kaizen or continuous improvements including (Yokozawa and Steenhuis, 2013; Yokozawa et al., 2012) and in the success of Lean implementation (Abrahamsson and Isaksson, 2012; Bortolotti et al., 2015; James and Jones, 2014; Kull et al., 2014; Martins et al., 2015; Pakdil and Leonard, 2015; Parkes, 2016; Wangwacharakul et al., 2014; Zimmermann and Bollbach, 2015). Therefore, we decided to start our research with general hypothesis.

According to chapter 5 where we analyzed the cases, the analysis of the interviews was almost consistent with our expectations from national culture were mainly. In fact, the results of analysis support our general hypothesis. Thus, the effects of both national culture and organizational culture should be noticed in order

to achieve success in Lean implementation. It is worth noting that we cannot make comparisons between companies because of their differences such as maturity level of the organizations in Lean concept and the locations.

In the perspective of national culture, the analysis of the cases revealed that all three countries are almost consistent/relatively consistent with what Lean culture requires. However, we expected that both Company A and Company B were expected to encounter intense problems due to Low level of Courage to Accept Changes. However, the interviews revealed that company A was almost thrived in applying the correct soft practices in order to motivate employees and decrease the risks of denial. Such soft practices are summarized in the following:

- **Communication:** the manager shares or announces in clear and simple manner about what will happen as result of applying changes and what benefits the change programs have for the organization.

- **Support:** employees feel comfortable to discuss their concerns and dissatisfactions.

- **Reward system:** the reward system is consistent with the new change programs or the new organizational structure. For example, if the new changes are related to creating teams, the rewards are considered based on team-performance to motivate employees in teamwork.

- **Appraisal and appreciation:** managers give the employees valid feedbacks about how well they are applying the changes in their work.

- **Suggestion system:** managers effectively communicate employees in order to elicit their opinions about the conditions of work place in the new work system.

- **Training system:** required knowledge and skills for applying the new work system are provided to the employees effectively. The training programs are individualized. The employees have the opportunity to practice freely in the field without being worried of making mistakes.

Despite the previous studies, we proposed an evaluation model enabling mangers to assess the cultural readiness of the organizations before wasting resources such as time and budget. The proposed model includes not only related the change management theory to the success of Lean implementation but also considers the impacts of national culture on the organizational culture. By providing the checklists, the model enables manager to detect the weak points. In addition, several managerial recommendations have been proposed not only during the analysis of the cases but also by referring to a leadership skills training corporation in the following subsection.

6.1.1 Managerial recommendations for organizations

Specific solutions have already been recommended in chapter 5 for the detected problems of the studied organizations. For inconsistent culture, some general recommendations along with the characteristics of people are worthy to explained for each dimension of our proposed model according to (MindTools.com, n.d.). Founded in 1996, Mind Tools Corporation provides skill-building resources and management learning solutions helping individuals from different levels within organizations, business owners, young professionals, and career-starters. The following suggestions have been taken from their solutions based on GLOBE (House et al., 2004) and Hofstede (1984) and are presented to facilitate dealing with employees with inconsistent culture level:

Dimension 1 (Authority Distribution)

Employees believe that you should be valued for who you are. Power, title, and position matter in these cultures, and these roles define behavior. The organization is centralized. There is complex hierarchy. There are large gaps in compensation, authority and respect. To deal with the employees, it is recommended to:

- Use titles, especially when these clarify people's status in an organization
- Show respect to people in authority, especially when challenging decisions are being made.
- Acknowledge a leader's status.
- As an outsider, you may try to circumvent his or her power, but do not push back explicitly.
- Be aware that you may need to go to the top for answers.

Dimension 2 (Sense of Belonging to the Organization)

Employees believe in personal freedom and achievement. They believe that you make your own decisions, and that you must take care of yourself. People believe that they can control nature or their environment to achieve goals. This includes how they work with teams and within organizations. They emphasis on building skills and becoming master of something. People work for intrinsic rewards. Maintaining harmony among group members overrides other moral issues. To deal with the employees, it is recommended to:

- Praise and reward individual performance. Acknowledge individual accomplishments.
- Give people autonomy to make their own decisions and to use their initiative.
- Link people's needs with those of the group or organization.
- Allow people to be creative and to learn from their mistakes.
- Do not mix work life with social life too much.
- Encourage debate and expression of people's own ideas.
- Allow people to develop their skills and take control of their learning.

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- Set clear objectives that people agree with.

- Be open about conflict and disagreement, and allow people to engage in constructive conflict.

Dimension 3 (Courage to Accept Changes)

These employees are conservative, rigid, and structured unless the danger of failure requires a more flexible attitude. There are many societal conventions. People are expressive and are allowed to show anger or emotions, if necessary. People place a high importance on laws, rules, values, and obligations. They try to deal fairly with people based on these rules, but rules come before relationships. To deal with the employees, it is recommended to:

- Help people understand how their work ties into their values and beliefs.

- Provide clear instructions, processes, and procedures.

- Keep promises and be consistent.

- Give people time to make decisions.

- Use an objective process to make decisions yourself, and explain your decisions if others are involved.

- Be clear and concise about expectations and goals, and set clearly defined parameters. However, encourage creative thinking and dialogue where you can.

- Recognize that there may be unspoken "rules" or cultural expectations you need to learn.

- Recognize that emotion, anger, and vigorous hand gestures may simply be part of the conversation.

Dimension 4 (Performance Orientation)

Employees are relationship oriented/consensual. There is more focus on quality of life. To deal with the employees, it is recommended:

- Success is more likely to be achieved through negotiation, collaboration and input from all levels.
- Avoid an "old boys' club" mentality, although this may still exist.
- Workplace flexibility and work-life balance may be important, both in terms of job design, organizational environment and culture, and the way that performance management can be best realized.

Dimension 5 (Time Perspective Orientation)

Employees like events to happen in order. They place a high value on punctuality, planning (and sticking to your plans), and staying on schedule. In this culture, "time is money," and they do not appreciate it when

their schedule is thrown off. People often want to know "Why?" there are strong convictions. Values and rights are emphasized. To deal with the employees, it is recommended to:

- Focus on one activity or project at a time.
- Be punctual.
- Keep to deadlines.
- Set clear deadlines.
- People are less willing to compromise as this would be seen as weakness.
- Flattery empowers.

Dimension 6 (Lively Sprit Orientation)

People make a great effort to control their emotions. Reason influences their actions far more than their feelings. People do not reveal what they are thinking or how they are feeling. People keep work and personal lives separate. As a result, they believe that relationships do not have much of an impact on work objectives, and, although good relationships are important, they believe that people can work together without having a good relationship. They are pessimistic. They have more controlled and rigid behavior. To deal with the employees, it is recommended to:

- Be direct and to the point.
- Focus on people's objectives before you focus on strengthening relationships.
- Provide clear instructions, processes, and procedures.
- Allow people to keep their work and home lives separate.
- Manage your emotions effectively.
- Watch that your body language that does not convey negative emotions.
- "Stick to the point" in meetings and interactions.
- Watch people's reactions carefully, as they may be reluctant to show their true emotions.
- Avoid making jokes when engaged in formal sessions. Instead, be professional.
- Only express negativity during informal meetings.

6.2 Future Research

As we considered large manufacturing organizations to propose the model. Further examinations are suggested in order to fit the model for SMEs and service organizations. Moreover, it could also be interesting to examine organizations with similar size, industry, and country in order to make the comparison of the companies possible.

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Appendix A: Interview Questions

Codes	General Questions	Sub codes	Specific Questions
Management and leadership	1. What was main changes in due to LP?	Change in organizational structure	Did you change your organizational structure? How?
	2. What problems did you face when you start changing?	Commitment	How do managerial practices show the commitment of managers?
	3. How did you solve them?	Job promotions	Please explain if it is possible for employees to be promoted.
		Communication	How do employees share information in general? Which method do you think is most effective? Why?
		Support	How much can employees talk about their personal concerns or dissatisfactions with the manager?
		Resource allocations	Have you had any complaints on the resource needs?
Employees' empowerment	1. Please explain about your decision-making process, did it change after LP? How?	Authority of questioning the rules/ standards	Is it possible for employees to question or act against the rules?
	2. What problems did you face when you start changing?		
	3. How did you solve them?		
Work teams	1. Would you explain me how you start working in teams?	Team building	How did you choose the members of teams?
	2. What problems occurred?	Unwritten rules	Do you have unwritten rules? Can you give me some examples?
	3. How did you solve the problems?		

Codes	General Questions	Sub codes	Specific Questions
Employees' reactions	1.Please explain, how was Lean implementation announced to employees at first? 2. How did employees react to Lean implementation? 3. How did you convince the employees to change their habitual work?		
Employees' participation	1. Would you please explain how employees involve to work in Lean environment? 2. What problems did you face when you start changing? 3. How did you solve them?	Suggestion system	Do you have any suggestion system? If yes, please explain how it works.
Employees' training	How do you train and develop employees?	Training System	Do you have any system to track development of employees? If yes, please explain how it works.
Employees' commitment	How do you analyze employees 'commitment?	Turnover analysis	How often have your employees left the company? In the occasions that your organization facing problems, do you think your employees will work with pay cut or salary reduction?
		Absenteeism analysis	How many days your employees can be absent? Have you ever trace it?
Motivation system	1. How did you motivate your employees to work in teams? 2. Which method is most effective?	Team competition	Is there any competition between teams?
		Rewarding system	How do you reward people?
		Appraisal and appreciation	Is the excellent team recognized and appreciated?
Cultural changes	What activities do employees participate apart from doing their jobs?	Change in organizational traditions	Is there anything that you needed to change because of Lean implementation and you still have problems with employees?
		Performing rituals	Do you have special ceremonies such as celebrating new employees, birthdays, and …? If yes, what are they?
		Widening circles of interactions	Have you considered any opportunity for your employees to spend time together other than doing their jobs inside/outside workplace?

Appendix B: Questions of deleted codes/Sub-codes

Codes	Sub-codes	Specific Questions
Commitment	teams' reports	How long the results are normally reported? How clear are the reports? Do they move in multiple directions in their reports? How passionate they speak when they report the progress? How much do they blame? What do they mostly blame? Do you engage in endless debate with them?
	Individuals	Which of these moods are visible in your employees? excitement or general lethargy? Have you ever noticed cynical comments, excuses, or hallway conversations?
	Cultural contradictions	If you have multinational employees, have you ever seen any cultural conflicts? How do they resolve?
occupational sex segregation	Women Participation	How many female employees do you have? Which roles do women play in your organization? Do they participate in decision making the same as male employees?

Appendix C: Conferences and Publications

International conference on Industrial Engineering and Operations Management:

- Taherimashhadi, M. and Ribas, I., "An Evaluation Model for Adaptation of Organizational Culture to Lean Culture", 11th International Conference on Industrial Engineering and Operations Management, XXI Congreso de Ingeniería de Organización (CIO), Valencia, Spain July 5-6, 2017.

International journal of Industrial Engineering and Operations Management:

SCOPUS journal metrics: Cite Score (2015): 0.57, Cite Score (2016): 0.67, Cite Score (Apr 2017): 0.74

SCImago Journal & Country Rank (SJR 2016): 0.315

Source Normalized Impact per Paper (SNIP 2016): 0.574

Subject Area (Scopus 2016): Business, Management and Accounting: Strategy and Management (Q2) - Engineering: Industrial and Manufacturing Engineering (Q2)

- Taherimashhadi, M. and Ribas, I., "A Model to Align Organizational Culture to Lean culture", International journal of Industrial Engineering and Operations Management, JIEM, 2018 – 11(2): 207-221 – Online ISSN: 2013-0953 – Print ISSN: 2013-8423. https://doi.org/10.3926/jiem.2511.

Appendix D: Attended Courses

- Systematic literature reviews: What are they? How to sell them, presented by Dr. Eva Gallardo Gallardo, 16 March 2016, Department of Management, BARCELONATECH- UPC.