

YAŞAR UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
MASTER OF BUSINESS ADMINISTRATION PROGRAMME

MASTER THESIS

**A Framework for Integrating Lean Management and
High Involvement Work Practices**

BURAK İZCİ

THESIS ADVISOR: ASST. PROF. DR. ÖZGE CAN

2020 İZMİR

20/01/2020

MASTER THESIS JURY APPROVAL FORM

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the Master degree.

Thesis Supervisor: Assist. Prof. Dr. Özge Can
Yaşar University



I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the Master degree.

Jury Member: Assist. Prof. Dr. Yıldırım Osman Çetmeli
Yaşar University



I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the Master degree.

Jury Member: Assoc. Prof. Dr. Emir Özeren
Dokuz Eylül University

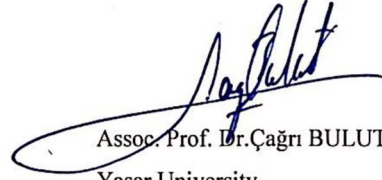


Assoc. Prof. Dr. Çağrı BULUT

Yaşar University

Director of The Graduate School of

Social Sciences





ABSTRACT

A Framework for Integrating Lean Management and High Involvement Work Practices

Burak İzci

Master of Business Administration

Advisor: Asst. Prof. Dr. Özge Can

2020

Today, providing improvements in management systems is to make the processes as lean as possible. For this reason, lean management has been widely adopted which represents an integrated system for reducing supplier, customer, and internal variability. However, there is a lack of understanding about how lean management links to organizational HRM context and human-related perspectives as opposed to the widely covered technical and engineering aspects of lean implementations.

The purpose of this study is to investigate how lean management system is designed and implemented in a Turkish plant of a multi-national production company with respect to the availability of enabling HR practices and high involvement work practices (HIWPs). To this end, 20 structured interviews were conducted with the company employees and the data was analyzed both qualitatively and quantitatively. The findings indicate a general satisfaction of employees about the ongoing LM applications, especially concerning working in teams, collective problem solving and communication mechanisms. It is also found that the positive outcomes of these practices were realized mostly through the support of specific HR policies and structures as well as the particular organizational culture, letting employees more involved in the system. However, important shortcomings in recruitment, training, job design and performance evaluation processes were also identified. Future studies can investigate and test these relationships in more depth by using different methods and samples.

Keywords: *Lean management, HRM, high performance work practices, organization culture*

ÖZ

Yalın Yönetim ve Yüksek Katılım Sağlayıcı İş Sistemleri:

Bütünleştirici Bir Çerçeve

Burak İzci

Yüksek Lisans, İngilizce İşletme

Danışman: Dr. Öğr. Üyesi Özge Can

2020

Günümüzde yönetim sistemlerinde gerekli iyileştirmeleri ve yenilikleri sağlamanın önemli yollarından biri, süreçleri olabildiğince yalın hale getirmektedir. Bu nedenle, tedarikçiler, müşteriler ve içsel süreçlerde değişkenliği ve israfı azaltma amacını taşıyan bütünleşik sistemler olarak yalın yönetim uygulamaları birçok işletme tarafından benimsenmektedir. Ancak, bu uygulamaların teknik ve mühendislik boyutları yazında genişçe incelenip tartışılırken, örgütün insan kaynakları yönetimi özellikleriyle olan ilişkisi yeterince anlaşılammış ve insan odaklı bir perspektif yeterince geliştirilememiştir.

Bu çalışmanın amacı, çok-uluslu bir üretim firmasının Türkiye şubesinde yalın yönetim sistemlerinin nasıl tasarlandığını ve uygulandığını incelemek ve bu uygulamaların örgütün İK sistemiyle, özellikle de yüksek katılım sağlayıcı iş uygulamalarıyla ilişkisini ortaya koymaktır. Bunun için 20 yapılandırılmış mülakat gerçekleştirilmiş, elde edilen veriler hem nitel hem nicel olarak analiz edilmiştir. Bulgular, çalışanların yürütülen yalın yönetim uygulamalarından, özellikle de takım çalışması, beraber problem çözme ve iletişim mekanizmalarından memnuniyetini göstermektedir. Yalın yönetim uygulamalarının olumlu sonuçlarının özellikle çalışanın işe daha fazla katılımını sağlayan mevcut İK süreçleriyle ve örgüt kültürüyle yakından bağlantılı olduğu görülmüştür. Öte yandan, işe alma, eğitim, iş tasarımı ve performans değerlendirme süreçlerinde önemli eksikler saptanmıştır. Gelecekteki çalışmalar, farklı yöntemler ve örneklemeler kullanarak bu ilişkileri daha derinden araştırabilir ve test edebilir.

Anahtar kelimeler: *Yalın yönetim, İKY, yüksek katılım sağlayıcı iş sistemleri, örgüt kültürü*

ACKNOWLEDGEMENTS

I would like to thank my supervisor Asst. Prof. Özge Can for her guidance and patience during this study.

Burak İzci
İzmir, 2020



TEXT OF OATH

I declare and honestly confirm that my study, titled “A Framework for Integrating Lean Management and High Involvement Work Practices” and presented as a Master’s Thesis, has been written without applying to any assistance inconsistent with scientific ethics and traditions. I declare, to the best of my knowledge and belief, that all content and ideas drawn directly or indirectly from external sources are indicated in the text and listed in the list of references.

Burak İzci

Signature

.....

January, 02.01.20

TABLE OF CONTENT

| | |
|---|------|
| ABSTRACT | iv |
| ÖZ | v |
| ACKNOWLEDGEMENT | vi |
| TEXT OF OATH | vii |
| TABLE OF CONTENT | viii |
| LIST OF TABLES | x |
| LIST OF ABBREVIATION | xi |
| INTRODUCTION | 1 |
| CHAPTER 1 THEORETICAL BACKGROUND | 3 |
| 1.1 Lean Management | 3 |
| 1.1.1 Definition of Lean Management | 3 |
| 1.1.2 History of Lean Management | 4 |
| 1.1.3 Contemporary Issues In Lean Management | 5 |
| 1.2 Key Lean Management Practices | 6 |
| 1.2.1 Lean Production | 6 |
| 1.2.2 Operational Performance | 8 |
| 1.2.3 The Role of Workforce Development in Lean Production | 9 |
| 1.2.4 Organization Learning | 10 |
| 1.3 The Effects of Lean Management Practices | 11 |
| 1.3.1 Effects of Lean Management Practices on the Organization..... | 12 |
| 1.3.2 Effects of Lean Management Practices on Employees..... | 12 |
| 1.4 Lean Management and Enabling HRM and HIWP..... | 13 |
| 1.5 Explaining LM-HRM Relationship by JD-R Model..... | 15 |
| CHAPTER 2 CURRENT STUDY | 17 |
| 2.1 Purpose of the Study | 17 |
| 2.2 Research Questions | 17 |
| 2.3 Theoretical Contribution | 19 |

| | |
|---|----|
| CHAPTER 3 METHODOLOGY | 20 |
| 3.1 Research Setting | 20 |
| 3.2 Sample | 22 |
| 3.3 Data collection | 23 |
| CHAPTER 4 FINDINGS | 26 |
| 4.1 Characteristics of respondents | 26 |
| 4.2 Analysis of Interviews | 28 |
| 4.2.1 Qualitative Findings | 28 |
| 4.2.2 Quantitative Findings | 39 |
| CHAPTER 5 DISCUSSION | 49 |
| 5.1. Summary of Findings..... | 49 |
| 5.2. Theoretical Implications..... | 52 |
| 5.3. Limitations and Future Research Suggestions..... | 54 |
| REFERENCES | 56 |
| APPENDIX A | 62 |
| APPENDIX B..... | 64 |

LIST OF TABLES

| | |
|---|----|
| Table 4.1 Profile of Respondents..... | 27 |
| Table 4.2 Key Findings on Lean Management Practices..... | 30 |
| Table 4.3 Key Findings on HRM & Organization Culture..... | 32 |
| Table 4.4 Key Findings on LM Performance Evaluation Process..... | 34 |
| Table 4.5 Positive Outcomes of Lean Management | 36 |
| Table 4.6 Negatives Outcomes & Improvement Potential of LM..... | 37 |
| Table 4.7 Average Scores of Main Subjects..... | 39 |
| Table 4.8 Descriptive Statistics of Lean Management Practices | 39 |
| Table 4.9 Descriptive Statistics of Employee Involvement | 41 |
| Table 4.10 Descriptive Statistics of Enabling HRM Practices..... | 42 |
| Table 4.11 Descriptive Statistics of Organizational Culture..... | 45 |

LIST OF ABBREVIATIONS

| | |
|------|-----------------------------------|
| LM | : Lean Management |
| HIWP | : High Involvement Work Practices |
| HRM | : Human Resources Management |
| OL | : Organizational Learning |
| TPS | : Toyota Production System |
| FPS | : Ford Production System |
| JIT | : Just in time |
| TPM | : Total Productive Maintenance |
| R&D | : Research & Development |

INTRODUCTION

Competitiveness challenges companies in the market. According to their strategy, they are striving for excellence. In the past, the most effective way to survive was by increasing of profitability. Today, it is not enough to be alive for long years. Also, decreasing source usage is another important point which means companies should increase their efficiency. Firms are willing to increase profitability and efficiency by attaining higher employee motivation and satisfaction and this requires renewed management approaches and architectures. Management systems needs to be sustained in the long run through firm's targets which can be rather complex. These points lead to more emphasis on systems emphasizing the employees, their capabilities, involvement and motivation. Thus, companies need different interpretations and improvements in their management systems towards this direction.

To cope with this complexity, new approaches are needed and of them is *lean management (LM)*. LM provides positive figures for company with systematic methods by taking consideration into workers factor who demand motivation and health in their working area.

However, there have been various aspects of LM processes, implementations and outcomes on which we have only very limited knowledge, especially regarding the human and relationship factors beyond its technical applications. Until today, only a few studies in the literature have focused on organizational context that surrounds and affects LM programs, particularly human resource management (HRM) practices and organizational culture. Therefore, this study is an attempt to investigate how and to what extent specific HRM strategies expressed by “high involvement work practices” (HIWP) as well as the organizational culture shape and enable LM systems and their significant consequences.

The study is organized as follows: Chapter 1 provides the theoretical background which includes the definition of LM, key LM practices, and the effects of LM on organizational and employee outcomes. The first chapter also establishes the link between LM and enabling Human Resource Management (HRM) and HIWP by theoretically explaining their connection via the Job Demands-Resources (J-DR)

Model. Chapter 2 continues with the current study which identifies its purpose, research questions, and theoretical contributions. Afterwards, Chapter 3 describes the research methodology according to the identified research setting, sample and data collection process. Chapter 4 delivers the findings from qualitative and quantitative data analysis derived from the structured interviews which include respondent characteristics, descriptive statistics and thematic analysis of the interview content. A review is provided at the end of this chapter as an attempt to conceptually integrate all these findings. Finally, Chapter 5 gives a general discussion of the topic, where an overview of research findings, theoretical and managerial implications, and limitations and future research suggestions are identified.



CHAPTER 1

THEORETICAL BACKGROUND

1.1 Lean Management

In this chapter, LM definition, history, actual topics will be explained. Afterwards, available literature on lean production and management initiatives will be summarized and explained. Finally, the relationship between LM and HRM systems and HIWP will be discussed.

1.1.1 Definition of Lean Management

LM is a philosophy which focuses on eliminating waste and human effort systematically through particular mechanisms such as decreasing hourly produced products per meter square and proceeding products per operator with high level of quality. Lean targets are simple; to provide the lowest cost in the shortest time possible by eliminating non-value added working steps and wastes. The aim is to respond to the customer in a high frequency, and to fulfill their demands. This philosophy is called “lean thinking”. Also, improvement should be introduced and maintained in a continuous manner with the involvement of the entire workforce (Otake-Ebede and Sparrow, 2014).

Toyota motor company handles the lean perspective in Toyota Production System (TPS) with leadership of Taiichi Ohno. In TPS, the objective is not only to increase production amounts and become efficient, but also to make production processes visible and to create easy and reliable systems. Thus, we can easily infer that lean production also creates transparency information flows (Shah and Ward, 2007).

Managers are striving for decreasing costs, increasing efficiency and quality failures in their plant, stake holders, suppliers and customers. They know that this is very important to be alive in the long term (Bamber, 2014).

1.1.2 History of Lean Management

In their pivotal work, Shah and Ward (2007) summarize the history of lean production and management applications in the business as follows:

1927 and before;

Henry Ford created Ford Production System (FPS) which includes manufacturing standards as lean production in “Today and tomorrow” in 1927.

1948 – 78 LM in Japan

1937 - When Toyota Motor Company was established in Japan, they were targeted to investigate FPS. According to Taiichi Ohno studies, TPS was established. In addition for the first time in history, just in time (JIT) production method had been used.

1978 – TPS had been published in Japan. The main target is to be better than FPS with JIT production method usage.

According to Toyota, the priority of TPS is cost reduction (waste elimination as non-value added steps); it can be achieved through quality gates with high responsibility of prevention and respect to people. He strongly suggests producing only the kind of products according to needs and according to time service level.

1973 – 88 TPS learnt in USA.

1973 - In accordance with the oil crisis in USA, they are interested in TPS to decrease waste. It was really important to evacuate non-value added processes.

1977 – An academic article was published for the first time in history of LM. The article focused on Kanban feeding method which is obviously defined as; needed materials should only be placed at the point of use in defined areas (Monden, 1981).

1984 First Toyota Production factory which name is NUMMI, had been established in USA.

The main understanding of TPS is JIT production and material feeding approach which is independent from human control as a closed loop and enable to feed enough amount of materials to material shelves which name is Kanban.

1988-2000: Theoretical and practical attention to the topic has increased as the number of academic articles and other studies have largely expanded.

1988, “Lean” had been called in a first the time in literature.

These articles were also revealed to focus on JIT production (Sakakibara et al., 1993; Dean and Bowen, 1994; Sitkin et al., 1994; Flynn et al., 1995), (Flynn et al., 1995; Sakakibara et al., 1997) and the relationship between the other elements of the production, which are really important from their perspective.

In 1994, *Lean Thinking* was published by Wornack and Jones. The main focus in that book is to explain about lean principles and implementation to the companies in effective steps. In the book, lean basics are explained.

From 2000 – Today

Various books were published today (e.g. Hopp and Spearman, 2004) and some of them are being written right now. Lean production examples and cases have been published a lot and they are very popular among practitioners. In addition, LM is referred to as True North for production; which implies that it should be a core target for every production area and people should strive to reach it (Shah and Ward 2003).

1.1.3 Contemporary Issues in Lean Management

Different sectors and firms have been adopting LM to their company to increase their competitiveness and cost advantage. Some of them are quite successful in doing so but some of them are not. However, several companies that successfully integrated LM have not reached their expectations. Through large scale investigations researchers have analyzed and sought to understand the reason behind the failure in meeting LM goals in full extent. At the same time, laws and regulations change but LM is not affected by them. Also, competitiveness of the market and multiple relationships with diverse stakeholders have been increasing day by day. In some examples, LM appears not to be very effective in these high uncertain and vulnerable situations (Martinez-Jurado and Moyano-Fuentes, 2014).

1.2 Key Lean Management Practices

In lean production and management, there are a number of key practices without which the system cannot work. It can be said that his notion of “lean” was first used in the production area, and then, it has spread to the managerial areas. Their common focus is to evacuate non value-added working steps and try to find the highest value-added. Besides, lean production cannot be achieved without proper goals, strategies and implementations by management.

Accordingly, I divided and categorized the content of LM according to the following four issues: lean production, operational performance, workforce development, and organizational learning (OL). Each of them will be described below.

1.2.1 Lean Production

Lean production is adopted by companies to achieve flexibility and increase their level of competitiveness (Shetty, Ali and Cummings 2010). The term of “lean production” had first been used in Japanese industries (Uhrin et al., 2017). A full definition of lean production was provided by Shah and Ward (2007) as follows: “An integrated socio-technical system whose main objective is to eliminate waste by concurrently reducing or minimizing supplier, customer, and internal variability” (p.791). The authors insist that, rather than being an absolute and identical system across all contexts, the nature of lean production differs according to the special conditions of the firm or industry. As such, it is claimed that lean production systems should be viewed as configurations. That is, different practices can be entered or removed from the system as the connection between different elements of lean production is not constant and they often do not represent any causality. Hence, it is important to see it as a combination of related elements which support one another and typically depend on each other.

Besides its strong emphasis on flexibility, the other aim of lean production is to decrease cost per unit. Thus, operational performance needs to be increased due to flexible and low cost production (Womack and Jones, 1996). In addition, lean production gets different aspects for mass production. A brief explanation of mass production is to produce products in large amounts (Sterling and Boxall, 2013).

Although one of the aims is to produce in bulks, lean production's main focus is on attaining high quality and spending less effort and resources by decreasing the amount of waste in operations (Tortorella and Fogliatto, 2014). In this respect, the main tools/practices within lean production can be listed as; JIT production (Otaye-Ebede & Sparrow, 2014), cellular manufacturing, total productive maintenance (TPM), total quality management (Uhrin et al., 2017).

JIT production is a method of production method, which involves manufacturing the necessary amount of product at the correct time. The main aim is to decrease stock levels, both for raw materials and for finished goods (Camuffo et al., 2017). This is because goods which are not demanded by customers create waste that generates higher costs for production and storage (Menezes et al., 2010).

Cellular manufacturing represents one step above from JIT production. This method combines shop floor production flexibility and production line efficiency together. Operators and machines produce products in small cells through large varieties and high efficiency (Cua et al., 2001).

TPM is a type of maintenance which can be performed by operators in their area of responsibility. The main focus of TPM is to prevent failures before they happen (White and Prybutok, 2001).

Finally total quality management (TQM) is the fulfillment of customer expectations with systematically approaches integrated with employee's involvement. They have responsibility for quality topics reliability and improvement activities.

Aside from these four key elements, more recently Shah and Ward (2007) came up with a 10-factor model to understand lean production systems. These factors are supplier feedback, JIT delivery by suppliers, supplier development, customer involvement, facilitation of JIT production, continuous flow, setup time reduction, TPM, statistical process control and employee involvement. They also developed an all-inclusive measure to evaluate each of these dimensions.

It is worth mentioning that besides these key factors, quality management, group problem solving, cross-functional teams, workforce commitment, employee involvement, and training are also considered as "softer" yet strongly embedded parts of such systems. Actually they compose what is called as "LM", a term representing

how lean production systems are structured and managed. Without them, no efficiency or productivity results can be achieved.

1.2.2 Operational Performance

Operational performance is the inspection and measurement of operations. The performance of the operation is really important for monitoring. Since almost all improvement activities come from operations, it is vital to monitor operational performance. If we know the performance of the system, we can evaluate and investigate it and its components easily.

Operational performance criteria can be classified as scrap and rework costs, manufacturing cycle time, first pass yield, labor productivity, unit manufacturing costs, customer lead time (Turkulainen and Ketokivi, 2013).

Scrap and rework costs are caused by quality failures. If there is a potential problem on the materials or finish goods that increases the costs. If the materials can be used again with additional labor that causes rework cost. If materials or finished goods cannot be used again, they should be evacuated from production, which creates scrap costs (Furlan et al., 2011).

Manufacturing cycle time is the time in between two completed products in the production line. For example: if the cycle time of the production 100 seconds, new products are produced every 100 seconds which requires a decrease as a scrap rate due to efficiency increases (Shah and Ward, 2003).

The first pass yield is the percentage of first time pass correctly. If an appliance passes the test for the first time, the first time yield will be %100. (Spear and Bowen, 1999).

Labor productivity; can be calculated from produced finish goods per operator. (Uhrin et al., 2017). Customer lead time is the time pass frame in between customer orders for delivery of the materials to customers (Moyano-Fuentes, Bruque-Cámara, 2017).

1.2.3 The Role of Workforce Development in Lean Production

As mentioned in the above section, employee development is one of the key elements in LM. The human element is very important in lean production. This is because qualified employees can create huge changes and improvements and prevent problems actively. Moreover, the knowledge and qualification alone are not enough to get over the problems; employees' flexibility and responsiveness to change has a key role of development. For the implementation of lean production, qualification is needed according to employee's skills (Shadur et al. 1995), thus, skill development is necessary. The following practices shows us some of the most important skills in the production which can be classified as active skill development, highly skilled employees, cross functional workforce,), white board application, problem solving skills, open-minded for exchanging the ideas (feedback), one to one sessions and self-directed work items (Moyano-Fuentes, Bruque-Cámara, 2017).

Active skill development is the enhancement of people's abilities. In the daily work, people train their skills according to need. In addition, a training plan is to be created to improve employee's skills. This is part of active skill development (Uhrin et al., 2017).

Highly skilled employees mean, high qualification of people. For example, someone who performs production, he/she can perform assembly also he/she can train somebody newcomers. (Cua et al., 2001).

Cross functional work force can be effective if cross functional team exists. In this group of workers, people are highly skilled because they have experience from different points of view who can solve problems in a short period of time with high levels of quality (Ostermann, 1994).

White Board application means; every employee performs their daily plan according to the tasks. Each day's plan should cover a maximum of 7,5 hours of tasks, including meetings. If there is a capacity increase, tasks are shared between coworkers. Adherence of daily work is monitored in following work day.

Problem solving skill is ability to approach problem solving. If the problem had been raised, people should manage it with systematic methods. The same problem could occur in the past and related actions can be transferred. Otherwise people should find

the root cause again & find existing action from the starting point. That consumes employee's precious capacity (Uhrin et al., 2017).

Being open-minded for exchanging ideas is mostly effective when somebody improves their abilities. Because, the strangeness or weakness of employees' can be observed by coworkers (Moyano-Fuentes and Sacristán-Díaz, 2012). According to communication between them, they can share their observations and then they constitute an action plan. According to actions, employees enhance their weak skills. Thus, that creates opportunities for improvement of workers. Another term used to express this ability is feedback which creates a culture of companies (Power and Sohal, 2000). One to one sessions are being performed between an employee and his or her first supervisor. Employee's weekly tasks are being followed in this meeting. If an employee needs support from a manager, this is one the most appropriate points that they can ask from them. Also, a manager can be aware about his/her subordinate tasks and performance. This is one of the opportunities to increase employee's performance.

Self-directed work items are closed loop organizations which can perform their study and manage themselves. This is one of the important effects of LM. Organizations manage their work-loads, tasks without any management effort, the system is worked independent of people. If one worker leaves the company, the system is not affected because a back-up plan (how the situation is managed if there is a deviation) is being worked on by the rest of the team. Standards are well defined and systematic structures have been established. Therefore, management of the system is being worked on. This is critical if the company is willing to survive for many years (Uhrin et al., 2017).

1.2.4 Organizational Learning

LM is an embedded part of continued improvement in organizations. Thus, it can be regarded as a key process OL is achieved. To create a closed loop cycle; OL is the key point that creates sustainability. Organizations learn and grow together as people; there are common mechanisms through which abilities are increased and skills are learnt. This will happen if an organization learns together. There are six key factors that OL can be listed as: coaching, communication, involvement of

workers, motivational incentives, recognition, teamwork promotion (Tortorella and Fogliatto, 2014).

- Coaching: is the way of learning method that the other coaches the people who has experience in the past and they share with the other colleagues or subordinates. Learning to share together and the same mistakes will be avoided.
- Communication: Information flows in between the people who are growing them. This is similar to coaching about experience exchange but the difference is, they are not just sharing experiences with each other, they can share what they need.
- Involvement of employees: this is chance to do something with less level of experience that enhance people if they have new responsibilities.
- Motivational incentives are creating the opportunity to focus people through the same target.
- Recognition: This is the way of encouraging people to strive for excellence. Today's standards should not be enough for people, they should do better.
- Teamwork promotion: This is a construction that if people wants to achieve their targets, preference should not be performed individually. This is because people improve themselves when they are working in a group with people who have different skills (Tortorella and Fogliatto, 2014).

1.3 The Effects of Lean Management Practices

LM affects companies in various ways (Tortorella and Fogliatto, 2014) that create significant changes in their organization (Noll 2000). As depicted in the previous section, one of the key elements of LM is the continued improvement of organization and employees. This is a culture that combines learning organizations (Hearty, 2004). In general, the effects of LM practices can be discussed in two parts: 1) its effects on the organization and, 2) its effects on employees.

1.3.1 The Effects of Lean Management Practices on the Organization

LM increases the level of quality, efficiency and machine working hours as well as reducing material costs, production costs and others. In the literature, lean production implementations are directly linked to enhanced operational performance (Jabbour et al., 2013). The relationship between lean production and operational performance had been identified in most of the studies. LM also creates transparency of information flow in the organization. Also, positive results on key performance indicators have been shown. Firms reach their targets of high level of profitability through a performance enhanced by LM.

Tortella and his colleagues (2015) analyzed LM effects on organization and indicated that it encourages sharing about learning, empowers people according to the strategies of the company, connects the organization with its environment, and provides leadership about learning. With respect to workforce development, Tortella et al. (2015) identifies three different levels: individual, team and organizational. Individual level includes workforce development, recognition system, clear tasks and functions, feedbacks, and coaching. Team level activities are more like the tasks which can be performed as a group such as small group activities, trainings through career plans, performance evaluations. Finally, we can identify promotion of teamwork and coordination, creating guidelines and employee development policies as organization level developments.

1.3.2 The Effects of Lean Management Practices on Employees

In comparison to the large focus on implementation processes and technical tools of lean approaches, research on the impact of such initiatives on the employees is very limited and mixed (Bamber et al. 2014).

Some studies emphasize the positive outcomes of lean implementation on the employee. For instance, it argues that LM helps employees improve their skills and makes them participate more in the decision-making process (Turner, 2012). It is also claimed that once managers allocate the capacities among employees evenly, this reduces their tension. Not only annually but also in daily work, when they can distribute their tasks among the employees in a proper way, it is supposed to decrease

work stress. In addition, it has been shown that LM has positive effects on job satisfaction and motivation due to motivation and enhancement (Anderson-Connolly, Grunberg, Greenberg and Moore, 2002). Another benefit from LM is organizational and personal development, usually achieved together.

Several studies have suggested that LM initiatives can have negative impacts on employees, including work intensification and the loss of empowerment (e.g. Torella, Falzon and Morais, 2012; Jones, Latham and Betta, 2013; Vidal, 2007). LM might also bring an important amount of stress. Stressful working conditions increase the stress of the people who focus on their job. In addition, higher pressure creates a climate of dissatisfaction for employees (Brenner et al. 2004; Fucini and Fucini 1990).

Overall, there have been different opinions and findings regarding the direction of the impact of lean initiatives on employees. One can claim that both negative and positive outcomes can be possible depending on where, how and under what conditions the system is being applied.

1.4. Lean Management and Enabling HRM and HIWP

Human resources are organized to manage the people through achieving targets. Therefore, the name is given, “HRM”. HRM plays a critical role in creating and sustaining organizational performance (Becker and Gerhart, 1996). Also, it focuses on increasing employees’ capacity and work efforts (Fong, Ooi, Lee and Chong, 2011). Another important issue is to enhance employee motivation and commitment (Macky and Boxall, 2008). In such a framework, HRM practices and policies have been identified as success facilitators.

In this respect, it is an important question to what extent and how HRM factors determine whether LM practices and tolls will work or not. That’s why, there has been a recent interest in how HRM systems might be linked to or affect the lean initiatives in the organization (e.g. Torella et al., 2012; Bonavia and Marin-Garcia, 2011; Bamber et al. 2014; de Koeijer et al. 2014; Menezes et al. 2019). If the main purpose of lean systems is to provide continuous improvement through constant elimination of waste (of time and other resources), the employees implementing the system should have the

necessary knowledge and skills to do that. That is, management should provide them those so that they become capable enough to control all these different aspects in the work environment. Therefore, although lean production systems are primarily discussed through engineering and operation management lenses, a very important part of these systems depend on providing the needed HRM framework and support including all aspects such as planning, recruitment, motivation, orientation and training, performance evaluation and compensation.

One of the prominent aspects of recent enabling HRM efforts is HIWP, which also corresponds with the content and direction of LM efforts at different levels. HIWP are generated to reach higher efficiency from the employees with greater motivation. On one hand companies increase their profitability and efficiency, on the other hand, employees are satisfied from the results.

HIWPs consist of four main attributes: power, information, reward and knowledge (Lawler, Mohrman, and Ledford 1995). Power is where employee's labor, decision, and participation comes from whereas information is being shared between employees (Rana, 2014). Reward can be given if there is a positive performance. Knowledge is mostly related to training; when appropriate training is given, the maturity level and knowledge of the employees will be increased (Lawler, Mohrman, and Ledford 1995).

HIWP has been shown to have positive effects on job satisfaction along with increasing employee's motivation and passion for their work (Rana, 2014). Moreover, it enables better relationships with supervisors and coworkers and helps employees spare more time for their family and private lives (Butts et al. 2009; Macky and Boxall 2008; Mohr and Zoghi 2008). Its impact on company efficiency, productivity and employee retention has also been widely covered in the literature (Benson, Young, and Lawler 2006; Guthrie 2001; Guthrie, Spell, and Nyamori 2002).

1.5. Explaining LM-HRM Relationship by Job Demands-Resources Model

Examining job characteristics and the relationships in the workplace is crucial for achieving effective LM systems. There has been a large amount of literature on how job design and all the relationships around it may have deep effects on several essential outcomes but especially for employees' health, well-being, burnout and work engagement. One of the frameworks that can be applied to understand how HRM practices affect LM systems in organizations is the job demand-resources (JD-R) model (Demerouti, Bakker, Nachreiner and Schaufeli, 2001; Bakker and Demerouti, 2007; Schaufeli and Tarris, 2014).

According to this model, work in organizations is shaped around two key factors: job demands and job resources. Job demands refer to aspects of the job that require certain skills and continuous effort from the employee (Demerouti et al. 2001). These demands can vary involving physiological, psychological, social or organizational ones such as work pressure, unfavorable environment, emotionally demanding relations (Bakker and Demerouti, 2007) and these demands usually lead to certain costs for the employee as well as for the organization.

Job resources, on the other hand, describe the aspects of the job that are useful in attaining work objectives, reducing job demands and the related costs, and motivating individual learning, growth and development (Bakker and Demerouti, 2007). Resources such as role clarity, management support, training opportunities, autonomy and feedback might be valuable on their own or they help support and preserve other resources.

JD-R model asserts that excessive and chronic job demands lead to negative consequences and the depletion of available job resources. Even though employees use some strategies to protect their performance, it might be difficult for them to implement such strategies in the long run where the job demands continue to put pressure on the employee. In contrast, job resources usually have a motivational impact on the employee, intrinsically or extrinsically, leading to higher work engagement and job performance.

Lean production and management systems might bring important job demands on the employees such as high workload and role conflicts. That way, they may become job hindrances and health-impairing negative job demands (Schaufeli and Taris, 2014). Even though job challenges, the other type of job demands, are motivational and bring learning opportunities, they also make the employee spend a lot of energy. LM practices and tools such as team work and collective problem solving might be listed as such job challenges. Altogether, one can conclude that some LM requirements often put a lot of pressure on the employee, resulting in stress and exhaustion (Huo and Boxall, 2017).

On the other hand, other characteristics of LM design such as performance feedback, coaching, boundary control, and training provisions might play a role in job resources (instead of job demands), increasing the performance and well-being of the employees (Cullinane, Bosak, Flod and Demetrouti, 2014; 2017). Besides these lean-specific resources, or beyond them, certain HRM practices will make LM initiatives to have more positive impacts on both the employee and the organization. As the core mechanisms to develop employees and make them ready for task challenges, HRM structure provides the knowledge, skills and motivation to the employees according to the needs in the LM program. In particular, the high-involvement work practices (HIWP) will achieve this directly as some of the key dimensions of LM include employee involvement. Lean applications necessitate the mechanisms and systematic practices designed by the organization through which employees can lead process improvement efforts, involve problem-solving, suggest improvements and take responsibility.

Altogether, it is important to see to what extent JD-R framework or similar theoretical perspectives dealing with the interaction between job expectations, constraints and resources can help us in understanding the complex relationship between the ongoing LM initiatives and the available HR architecture and high-involvement work practices in the organization. The relevant research questions will be introduced in the next chapter.

CHAPTER 2

CURRENT STUDY

2.1 Purpose of Study

As depicted in the previous chapter, LM's main focus is increasing of employee's performance with various methods. In the existing literature, LM has typically been regarded as the implementation of standard management methods to every national context without considering social, cultural or institutional effects. Moreover, while technical application issues and examples cover the largest portion of the existing research on LM, there has been very limited research and understanding of the organizational context, the human factor and relational aspects surrounding these practices. Therefore in this study, I intend to analyze the LM process and its effect in the implementation and execution phase from a human resource development perspective and a cultural point of view. Through the empirical findings, I seek to observe the key points, speed and bumps that affect LM applications with respect to human management policies and resulting attitudinal and behavioral dimensions.

2.2 Research Questions

In line with the above arguments, I have developed a set of research questions to explore the human and cultural dimensions of LM. The focus of this study is not only to understand what specific factors and conditions increase employee's performance in LM but also to identify how these factors affect their attitudes and behaviors toward LM applications in an organization.

To this aim, the following research questions were generated:

- *What is the impact of LM on important employee outcomes?*

This question reflects the importance of lean methods on employee outcomes. There are several ways to increase employee outcomes however we are willing to understand how much we can increase employee performance with LM.

- *Which LM practices are most influential and how?*

According to LM, several methods are being used. The importance is priorities. Capacity is being consumed to apply lean tools. If we can understand the portion of the methods which increase performance, that will be easy to enhance the correct methods and spare most capacity to main focus.

Another expectation from this question is understanding of what makes that method important in the eyes of the employee. Hence, it will be easier to focus on the root cause inside the method.

- *What is the role of enabling HR practices, especially HWIP, on the link between LM and employee outcomes?*

One of the unanswered questions in LM literature is how HRM policies and practices and particularly those described as HIWP support LM; when and how they facilitate positive employee outcomes. Thus, it is essential to explore these mechanisms in-depth and isolate these connections.

- *What is the impact of organizational support and culture on the link between LM and employee outcomes?*

In this study, the impact of organizational culture, namely, the core values, principles and norms of the organization, on LM are analyzed. I intend to investigate how these values, principles and expectations play a role in the perception of LM methods and practices by employees as well as how they shape these practices. A related question that should be asked is how and when specific organizational cultures become a barrier or a support to the deployment of existing and new methods in LM.

2.3 Theoretical Contribution

In previous research, lean production and management systems were either discussed solely based on technical implementation issues or their relevant performance outcomes. Some studies have also investigated LM practices in relation to OL. However, up until today, HIWP have not been discussed in the LM literature. Similarly, LM has not been an issue at all in the HIWP literature. However, as it is outlined in the above section, these concepts are very much related, as the level of involvement required from employees in LM can only be achieved if necessary mechanisms are designed and exist in the organization. Therefore, I want to contribute to the LM research and examining this relationship.

Recently, an increasing number of studies focus on the general link between LM and HRM structures and practices. Yet, most of these studies constitute either conceptual pieces or quantitative investigations. My study is one of the few qualitative investigations seeking to explore this relationship in depth and explain how these two interact with respect to important employee outcomes. To this end, specific questions will be asked to the participants covering every key element of LM initiatives, the HRM architecture and HIWPs, separately.

Last but not least, the study also examines how organizational culture and certain cultural values play a role in the LM processes. The readiness and preparation of employees for lean tasks also depends largely on what type of organizational culture they are in. Specific values are likely to motivate and support them more in this direction. Thus, it is a curious question how significant organizational culture is to explain these interactions.

CHAPTER 3

METHODOLOGY

3.1 Research Setting

This study entails qualitative data collection involving interviews and observations from a single company which is located in Manisa, Organized Industrial Zone. The company works in the field of development and production of boiler and heat pump indoor units and related sub components and control elements. The company manufactures IVT licenses, gas control devices, heaters and heat pump indoor units in its factory, has a closed area of 109.000 m² on land it owns, and sells the products it produces abroad and through dealers.

The subject of production of the company's industrial registration certificate includes flue gas sensors, connecting pieces, materials and parts, construction of copper pipes, burners, other accessories, heat exchangers, gas conversion sets, heaters, heater chimney accessories, spray nozzles, heat pump indoor units and spare parts production.

As of its history, the company was first established in 1991 with 50% -50% shareholding structure. In 1998, the firm acquired 50% of the shares of the other company and the name of the company was changed to Heating Products Industry and Trade Inc. At the beginning of 2008.

The company is a leading manufacturer of heating systems with boilers, heat pumps, indoor units, heat exchangers, copper pipes and control elements. The company has the capacity to develop condensing and conventional combi boilers, heat pump indoor units, water heaters and related sub-components in Research & Development Department. Design and product development processes are carried out by considering the market requirements and aiming at the highest quality standards. For this purpose, endurance, function and field tests are performed.

Research & Development (R&D) Department has been accepted as a Competence Center for the development of conventional boilers in the company

organization since 2003. The mid and short term product development strategies of the Heat Group are determined at the annual central strategy meetings. Conventional product development strategy is directed by R&D Center, which is the center of competence in this product group. In terms of research and development, the Competence Center title was awarded for the highest level of technical know-how and competence within the firm, for the development of plate heat exchangers used in all development tests and devices in 2011, and in 2012 for condensing devices and components; R&D Center for pump, fan and hydraulic unit. The R&D Center has been selected as the best R&D Center in its sector by the Ministry of Science, Industry and Technology for the last 3 years.

The R&D Center in the company, which is located in Manisa factory has the top position in project development, new project proposal and project management within the whole thermomechanical group. In 2011, the factory in Manisa was also selected as the best factory. In receiving these awards; breakdown production records, high sustainability quality ratio (field error rate) and success in R&D projects were effective.

- Employees: There are about 600 blue collar employees, and approximately 250 white collar employees at the plant.
- Main products or services: The company produces condensing and conventional types of combi boilers.

Lean production was introduced to the firm in 2003. Since that date, many activities have been decided based on BPS principles. Among the productions, the main focus has been decreasing waste. Due to the implication of lean production rules, companies have increased their efficiency significantly through the years.

In 2014, companies started applying LM principles to their facilities, which were complementary to existing lean production practices. Lean navigators were assigned and they trained the middle-range and high range managers for applications. At first, they started by explaining the benefits of LM to the managers. Afterwards, problems and improvement potentials started to be discussed within teams. Based on the collection of speed bumps from managers, effective tools were assigned. One such tool is “white boards”. According to the white board method, every employee should

plan their daily capacity of up to 7,5 hours/day. If there is a lack of capacity for daily work, it is distributed with other colleagues in the team. If the capacity is free, the jobs are assigned from the pool. At the end, if managers observe real benefits in their team, then LM is deployed in all parts of the company managerial.

3.2 Sample

In this study, a set of interviews were conducted by company members in which they were asked different aspects and dimensions of their experiences and opinions on the ongoing LM applications in the company.

To do that, a non-random sampling strategy was adopted. The method had been applied to get the participants' perspective on LM in a comprehensive manner. The respondents are selected based on the following criteria: Only the employees who have been experiencing LM activities in their daily work life and who has a certain tenure in the company were approached. They were also selected according to their level of knowledge of the LM processes in the company. Other than these, a balanced distribution among respondents based on their personal characteristics and work responsibilities was sought so that a wider representation of different voices and approaches could be provided.

Hence, it could be concluded that interviewees were selected via a purposive sampling where the researcher's own understanding and experience, the potential respondents' knowledge and characteristics and the scope and content of already collected responses were primarily considered to increase the quality and richness of the interview data (Kuzel, 1999).

One last important aspect of the sample is the multinational characteristics of most of the respondents. The employees who are involved in the sample are in interaction with other Firm's employees and customers from all over the world. They are working on projects involving multi-national teams. To this end, two lean navigators were purposely selected as they possess a deep knowledge about LM implementations in different facilities of company across the world. Organizational members with managerial responsibilities were also deliberately

approached and selected as they also play a customer role in LM tools. On the other hand, younger and less experienced employees were also included in the sample to make more realistic inferences. How they think about and evaluate the existing LM practices as opposed to more experienced employees is essential to see the big picture as it is argued that the whole organization should participate in LM and observe its benefits (Bloom and Crabtree, 2006).

Detailed information on the study participants will be provided in the next chapter.

3.3 Data Collection

In this study, 20 structured interviews were conducted to collect data from participants. In this type of interview, the questions are prepared beforehand on particular topics which will be evaluated after the interview. Interviewer asks the same exact questions to interviewees, and when necessary, he/she gives them guidelines regarding what each question means and asks. Therefore, some questions need to be clarified by the interviewer according to needs (Easwaramoorthy, and Zarinpoush, 2006). Asking the same questions enables the researcher to better set the boundaries of the topic and compare the responses in a more systematic way.

Interviews were performed in multiple formats based on the availability and choice of the respondent including face to face and through e-mail. Face-to-face interviews last approximately around 30-40 minutes. All of them were completed in a three-month period from September to November 2019. Once a theoretical saturation was gained, no additional interviews were made.

All interviews were conducted by the researcher himself who has also been working in the company as an engineer for 6 years, taking key responsibilities for new product implementation, serial production improvements and new assembly line constitution. He also works as a project leader for green field (complete new) projects which are related with all firm's plants. Besides, the researcher started to use lean methods in the company in 2014, thus, he has been implementing them in his work for 5 years. This expertise and knowledge of the production systems and LM processes as

well as the company itself puts the researcher into an advantageous position for speaking a common language as of the respondents as well as interpreting their comments and ideas in an objective and proper way.

The interview protocol included both open-ended and closed-ended questions (See Appendix A and Appendix B) which was useful to collect participants' ideas on several aspects of the topic in alternative ways complementing each other. It turned out to be an effective way of understanding their approach, behavior, context and point of view about LM is more useful. That is, while open-ended questions enable them to express their opinions freely, the following closed-ended question allowed for collecting decisions and attitudes in a more practical and straightforward way.

Open-ended parts of the interviews include questions on LM methods and practices, the connection between the LM application and ongoing HRM policies, organization culture, and expected and realized outcomes of LM. Several different questions were asked on the perception of the existing LM practices in the organization, a few of which were manager's specific questions. Besides this, other questions were asked about how the organizational context and policies interact with the LM system and what the outcomes of the system are.

Closed-ended questions provided to the respondents can also be categorized by LM practices, the level of employee involvement (HIWP), enabling HRM practices and organizational culture. LM practices include 16 items, employee involvement includes 7 items, enabling HRM practices include 19 items and organizational culture was asked by 3 items.

Face-to-face interviews were performed with 17 respondents, the rest send their answers to the researcher via e-mail. If there is a confusion or misunderstanding during the data collection process, I either clarified it during the interview or contacted the person after I received and reviewed their responses. This clarification and further contact was essential as participants may have understood the same question very differently. No voice recording was used in order to make them relax and reduce their tension. While interviewing I asked to use voice recording but most of the respondents approached it unfavorably. Thus, I engaged in detailed note-taking instead. In each interview I made the content and objectives of the study very clear and sought their

consent by also sharing with them the Yaşar University Ethics Committee Approval Form for my study. I also did my best to make them feel comfortable to ensure receiving candid answers including making the interview in a silent and convenient place without any third party involvement and ensuring them about the confidentiality and privacy of their answers. Otherwise they might feel uncomfortable and they could hide their knowledge or they could answer in a way that does not reflect their honest opinions. This was a real challenge for me but I overcame it. Overall, this study was my first experience in conducting face-to-face interviews which was really instructive and stimulating. I believe the data collected was indeed useful in identifying the LM approach and the execution processes in the selected company.



CHAPTER 4

FINDINGS

4.1 Characteristics of Respondents

The profiles of the 20 respondents are listed in Table 4.1. According to the table, 8 are women and 12 are men. Their ages vary in a range of 22 – 49; specifically, 8 of them are between 20-29 years old, 8 participants are between 30-39 years old, and 4 participants are between 40-49 years old. In terms of education, while 9 participants have master's degree, 10 of them graduated from a bachelor's program. Only one of them has a high school degree. The brief information given here indicates a rather balanced sample in each of the aforementioned demographic categories.

The respondents also have diverse nationalities. 16 of them are Turkish, 2 Portuguese, 1 German and 1 English. Most of them stayed and worked abroad at least one year before. Furthermore, among them two respondents worked as “lean navigators” who were responsible for adapting LM systems in different company facilities. One participant is currently working in the Human Resources Department as a HR specialist.

As of their job and educational specialties, 18 participants work as engineers graduated from mechanical or industrial engineering departments in university. Most of these engineers (78%) work in the production department of the company. Their working experience with LM changes from 1 year to 14 years. Despite this large range, 60% of them have a LM experience in between 1-4 years whereas 30% have an experience of 5-9 years. Only two participants have an experience with LM in between 10-15 years. Overall, the sample's average year of experience in LM is 3 years.

One fifth of the whole sample also holds a managerial position. These managerial responsibilities include assembly process and engineering group leadership, pre-assembly process and engineering group leadership, engineering group leadership, and group leadership in manufacturing digitalization.

All the above information as well as other details can be seen in Table 4.1.

Table 4.1. Profile of Respondents

| Speciality | Distribution | # of People |
|---|-------------------------|--------------------|
| Gender | Women | 8 |
| | Men | 12 |
| Age (years) | 20-29 | 8 |
| | 30-39 | 8 |
| | 40-49 | 4 |
| Nationality | Turkish | 16 |
| | Portuguese | 2 |
| | German | 1 |
| | English | 1 |
| Education Level | High School | 1 |
| | Bachelor | 10 |
| | Master | 9 |
| Graduated from | Business Administration | 1 |
| | Technical High School | 1 |
| | Engineering | 18 |
| Position | Manager | 4 |
| | Employee | 16 |
| Total Work Experience (years) | 1-9 | 11 |
| | 10-19 | 6 |
| | 20-29 | 2 |
| | 30-39 | 1 |
| Total Work Experience w/ Lean Management (years) | 1-4 | 12 |
| | 5-9 | 6 |
| | 10-15 | 2 |
| Short term assignment in other locations | No | 16 |
| | Yes | 4 |

4.2. Analysis of Interviews

In order to get the perspectives of the respondents on the existing LM practices in their company, two types of analysis were conducted on the collected interview data: 1) answers to open-ended questions were thematically analyzed to identify and interpret the ideas, beliefs and meaning the respondents hold for LM and related research topics; 2) answers to closed-ended questions were analyzed quantitatively through a set of key descriptive statistics. The following sections provide the findings from each in a consecutive manner.

4.2.1. Qualitative Findings

A thematic analysis of the interview content was conducted in order to identify the most important and interesting themes and patterns in the data in relation to the formerly outlined research questions. It does not only include the summary of the given answers regarding their similarities and differences but also the interpretation of them.

Lean Management Practices

Open-ended questions asked about LM practices can be grouped into the following categories: Common understanding about LM, the methods being used, respondents' level of LM knowledge (theoretical knowledge or practical experience), what LM techniques they find important, perceived challenges in LM processes, and their extent and nature of involvement in these processes.

Common understanding about LM is shared by almost all respondents as eliminating waste which signified that they know the target set by the company very well. According to their answers, it can be understood that they largely see the key benefit of the adopted LM tools as increasing efficiency. This is the reason they gave about why they use them. The most common LM tools mentioned by the respondents are as follows: Problem solving, white board applications, coaching, and one-to-one meetings. They often explain the first one, problem solving, as a systematical way to solve the problems which enables to identify root cause of problems and creates containment and corrective actions for eliminating them. In the whiteboards;

employees write their daily tasks and durations. If daily tasks are more than daily working hours, tasks are either shared in the team or they will be postponed. Along with a meeting every morning, which includes all team members, one-to-one meetings are being performed once a week between the direct manager and the particular employee. In this meeting, they skim and scan employee's tasks together. Coaching is performed every month between the first manager and the employee. They define employee's personal improvement activities, and then, these activities are monitored together.

According to the respondents' evaluation of their LM experience, most of them declare it as intermediate. That is, they know the main approach and tools, and apply them in their specific areas. Most of them take active roles as administrators or users and are willing to use several applications such as the white boards. On the other hand, it can be understood from the answers that some of the tools are only being used because their usage is mandated by the company. It can be regarded that they have an advanced and deeper knowledge about LM practices. Also, they stated that they are encouraging coworkers for tool improvement in a continuous improvement cycle.

Most of the respondents are willing to increase their effectiveness with the usage of diverse LM practices. Yet, they declared the most important LM technique as the whiteboard. According to them, by whiteboards they are able to balance the tasks among their team each morning just before starting the day. White board tools are described as useful for capacity planning which balance workload, and in turn, decreases stress. The tool also helps visualize the capacities in a transparent way. If there is a lack of capacity, tasks are evaluated by the team. On the other hand, most of them stated their willingness to use other tools in the LM system as well.

With respect to the challenges, an important number of participants commented that lack of capacity is the biggest challenge in LM usage. Sometimes once a new tool is created, people do not check the applicability of this tool by taking end-user capacities into consideration. Thus, they think that more capacity is needed or should be created for LM applications.

When they are asked how and to what extent they involve in LM practices in their organization, most of them stated that it is through "problem solving". By using

this particular LM method, they are able to investigate and solve the emerging problems systematically. Moreover, participants highlighted the common usage of it as a team in their answers. They often point out that they feel more comfortable if they cope with the problem together and they are happy working with others in teams. These answers suggest that LM is not only a tool to increase working efficiency but it also gets employees together as a team, that it supports team building and cohesiveness. All of the above findings are summarized in Table 4.2, including example direct quotes.



Table 4.2. Key Findings on Lean Management Practices

| Objectives | Key Words | Findings | Example |
|-------------------------------|---|--|--|
| Common understanding about LM | Waste Elimination | Main target is eliminate waste as much as possible. | "We use the 8 lean routines in the team with the goal of maximizing the team performance and efficiency." |
| Most Common Methods | Problem Solving White board Coaching One-to-one TPM | | |
| Level of LM participation | Application of LM | There are 2 level of maturity. For employees; intermediate For managers; advanced | Employee's comment: "I would say my level of knowledge is intermediate and I use the tools, which were implemented, fairly well." Manager's comment: " Level of knowledge high is high throughout the plant as all departments have done a lean management project" |
| Important technique | Priority Setting Communication Work-Balance | For priority setting & work balance in between employees, white-boards are really useful | "I think the Daily Whiteboard is quite useful so everyone is up to speed on each other's activities." |
| Challenges | Lack of capacity | People are willing to adapt their capacity to use all tools in LM. The most effective are relatively using. They do not have enough capacity to use all tools. | "Sometimes, we can not separate our capacity to perform all tools in the lean management although we know the benefits if we can apply." |
| Involvement ways | Problem Solving As a team | Team building creation while problem is being solved. | We usually talk about ways that we could improve as a team. |

HRM Practices and Organization Culture

Answers to open-ended questions on the existing HRM practices and organizational culture can be grouped in the role of HRM in LM, key HRM practices associated with LM, and the possible effects of organizational culture on LM implementations and outcomes.

Beyond other things, the interview data indicates that respondents have quite diverse opinions about how ongoing HRM policies and practices in their organization are associated with or support LM. Some of them did not observe any role of HRM on LM whereas others declared that they were actively involved in training and recruitment phases managed with the aim of achieving LM objectives and principles. Also, some participants believe that HRM design training plans to enhance employee's LM expertise. Nevertheless, an obvious conclusion from the diverse answers is a lack of awareness about where the HR function stands and does with respect to LM in the organization. This disconnection and lack of knowledge also suggests that there is an idle potential and an opportunity being missed regarding how HR can help release their ideas and improvement potentials on their specific LM applications.

According to a common understanding that several respondents share, HRM can play a really important role in planning required trainings. People feel more comfortable receiving training in a systematic way (e.g. yearly basis), if they want to be qualified. An extensive example for this was given by one of the interviewees: He mentioned that if an employee wants to be a project leader, he or she should complete three training modules. Each module requires three days of learning. At the completion of the three modules, an employee can be a project leader. Also, an employee cannot take the third module if they did not complete the first and second ones. Training paths and modules were created towards the specific LM targets and needs.

Similarly, the recruitment phase is also pretty important. Each position's key characteristics are defined as different levels of difficulty. In the recruitment phase, people are evaluated based on the expectations at each level. If the qualifications are not met, they do not expect to be nominated. For example; in production, quick responses are required due to changing tasks while at the operational level the focus is on daily operational solutions. If a nominee has a broad vision and point of view as, he or she is not related to the operational position. This explanation from the participant shows how the clarity of expectations and the coordination between the HR department and LM practitioners on them is crucial for the success of the system.

In terms of how organizational culture and LM practices are linked to one another, participants suggest the following cultural values as key for supporting effective LM implementation: Belief in continuous improvement, open-mindedness

and emphasis on feedback. Various participants claim that those who are willing to consider new ideas and can remain unbiased on issues can better adopt themselves to LM. In addition, if the organization encourages them to focus on feedback sessions, same problems will not occur repeatedly, which requires an understanding of the feedbacks without any prejudgments in mind. Table 4.3 shows all the related findings.

Table 4.3. Key Findings on HRM & Organization Culture

| Objectives | Key Words | Findings | Example |
|-----------------------------------|--|---|---|
| HRM Involvement to LM | Training Recruitment | Some of the participants do not have any idea about what HRM does, Most of them knows they have a role in training plans. | "Especially training cosntitution, they have actively roles." "I do not have any idea about their participation." |
| Key HRM Practices | Training Recruitment | Training and recruitment are Key HRM practices | "Increasing of lean management understadings, traning has big role." |
| Organizatoin Culture effect on LM | Continuous Improvement Open-minded Feedback | Continouos imprpvment can be only performed if there is a culture. | "Componies culture is continous improvement, they focus every single cases as opportunity. We evaluate our tasks and ask a same question how can we improve ourselves?" |

LM and Performance Evaluation Process

Participants' answers for performance related open-ended questions can be put in the following core subjects; annual targets, performance measurement, attitudes and behaviors if targets are missed.

A common understanding from the answers is that employees have their own individual LM targets which are typically identified by top management every year in

strategy workshops. In these workshops, managers define the needs and expectations from the market and consolidate them in the meeting. At the end of the meeting, targets are defined for every level and part of the organization. Based on the company targets, every department defines their target to reach the company's success. In turn, individual targets are defined according to the company and department targets. The answers given to the respective interview questions indicate that most of the respondents are well aware of their targets and the contribution in their specific areas. As an example, one interviewee stated that overall efficiency increase target of the organization is 10% while his department's target is achieving the 20% if this total increase. He shared that 12,5% of this efficiency increase would come from the area of his responsibility.

Performance is being measured as KPI (key performance indicators). According to their explanation, KPI typically include numeric values. If they do not define any KPI as such, they do not consider them as a target. If there is nothing to be measured, they cannot evaluate or improve it. Most of the respondents highlight the importance of everybody measuring what they are doing. They also emphasize how it is critical that LM performance measurement should be totally independent of subjective evaluations.

With respect to how they think about the scenarios when targets are not achieved, I did not perceive any feeling of discomfort or hesitation from the respondents. Most of them described unexpected situations as likely and could be solved by LM tools. Prevention of the occurrence of the same mistake appears to be more critical for them, than its happening for first time. Most of them claim that they do not feel afraid or panicked if a target is not achieved. Some of them even suggest that they are willing to challenge themselves although the target is achieved. One comment was on how they have open communication areas and share the mistakes together and can avoid them together. A summary of the findings regarding LM performance evaluation processes in the company can be found below (Table 4.4).

Table 4.4. Key Findings on LM Performance Evaluation Process

| Objectives | Key Words | Findings | Example |
|-----------------------|---------------------------------------|---|---|
| Annual Targets | Company Targets Individual Targets | Targets are being deployed from top management to employee. Every level has targets which had been created to reach company target. | "Twice in a year, individual targets are being evaluated for every employee. Also, in the evaluation, they skim and scan company target year to date situation. |
| Performace Masurement | KPI | Every target has one of the KPI which includes numeric values. | KPIs measuring, for example, number of projects/implementations done. |
| Under the Target | Re-evaluation Prevention | They are willing to define containment action to prevent same problem occurance. | We transport the goal to next year so that it is not forgotten and we generally discuss as a team which actions we can take. |

LM Outcomes

Participant responses to the open-ended questions about the outcomes of LM applications in their organization can be discussed around positive effects, negative effects, and impact on health, happiness at work, relationship with coworkers, supervisors, and organization, and potentials for system improvements regarding outcomes.

Several respondents declared in the interviews that they feel more motivated if they use LM methodologies in their expertise area. There is a general understanding of the benefits of the LM tools that are being applied, especially for time planning. They can manage the time if they manage the tasks with LM. Another aspect which was emphasized by the respondents was transparency throughout all LM applications where people can see what the other departments and management are doing. One interviewee told that “my first manager always said this task had been given from the general manager's whiteboard. The information comes from top management via LM”. This is an example of how employees can build links across the organization via LM applications.

Most of the participants stated their confidence on the LM system being useful if it is used properly. However, concern was also raised during some of the interviews that if the standards are not established well and alignment is not completed with new standards, that might create confusions for the employee. It is claimed that new applications need verification; without verification, it may create chaos in the organization. It is also mentioned that predisposition of all LM applications needs to be carefully evaluated.

Regarding the positive effects of LM practices, one of the most frequently mentioned benefits was how they can decrease their stress level at work through keeping time effective and organizing themselves more properly. According to my observation during the interviews, one of the primary reasons why the respondents are willing to use LM is they want to feel less stressed on their job. When employees confront the problems and the problem can be solved systematically in LM; they can solve it by being exposed to less stress and they feel satisfied because they get rid of the problem.

Table 4.5. Positive Outcomes of Lean Management

| Objectives | Key Words | Findings | Example |
|--|-------------------------------|---|---|
| Benefits for Employees | Team Work Motivation | People feel more motivated when they perform LM tools. Most of them feel more useful. | "I feel more motivated when i manage time more effectively" |
| Benefits for Organization | Transperancy | Information sharing in between the working groups, can be performed with LM usage. People understand what the other employees do. | "Everyone is more involved and up to date if regular daily meetings are held to share information. It also seems more fair that everyone has a certain necessary level of information." |
| Impact on healt | Less stress | Common aprach of participants are LM decreases stress. People feel more comfortable in their areas. | "I think that LM brings a good framework for planning and working in a more organized way so in a way it does reduce anxiety and job stress. It could have the opposite effect if employees are too overwhelmed with additional processes so it's crucial to find a balance. LM should be always about optimizing the way we work, not making it more complicated." |
| Happiness at Work | Motivation Satisfaction | People have common idea about the case; " LM increases people motivation." | "By improving alignment with organization strategy and activities prioritization, work engagement is improved; Also on daily work level: close follow up of the problems and focus on problem solving/coaching activities improve associate efficiency – bringing a sense of satisfaction on work level." |
| Relationship with Coworkers, supervisors, organization | Communication Transparency | With LM, people have a better level of communication in between coworkers, supervisors & orgazitaion. Also, transperent ground have been created with LM. | "Communication is much more transparent which makes team work much more efficient and with a better flow. Empowers team members. Positive effect." " Transparent communcation with supervisors and organization is really important." |

Additionally, some respondents stated that they also feel more satisfied with their job since they feel more valuable in their daily tasks. Solving the problems and achieving their targets enhance their self-confidence and motivation, which in turn, creates higher job satisfaction.

In contrast to several benefits of the LM system, less number of negative outcomes were identified by the interviewees. The real and potentially negative outcome mentioned was an increase in workload and duplication of work because of the lack of and/or ambiguity of standards. Some respondents emphasized that under these situations the productivity of the employees as well the organization decreases instead of increasing.

As for improving potential, some respondents suggest that the LM applications need to be aligned with digitalization targets of the company. If the procedures and processes are more digitalized, the implementation can become easier and more practical. Another suggestion from interviewees is to decrease the number of tool usage, making things simpler.

My inference from their attitude is that most of the interviewees have some concrete ideas about how the LM system can be improved. Secondly, respondents both have managerial responsibilities and those do not are willing to use LM practices. They believe that if they can expand their capacity of LM usage, there will be returns via positive results. Table 4.5 and Table 4.6 summarize the qualitative interview findings about how respondents think about the outcomes of LM.

Table 4.6. Negatives Outcomes and Improvement Potentials of LM

| Objectives | Key Words | Findings | Example |
|------------------------|----------------------------------|--|--|
| Negative effects | Double work Lack of standards | The standards should be created very well. If not, that creates double work at every single tasks. | "If the LM implementation is not well done, productivity can actually decrease instead of increasing." |
| Improvement Potentials | NA | There is no common idea about the LM applications. | Every people has different ideas which needs to be improved. |

4.2.2 Quantitative Findings

Besides the aforementioned open-ended questions, a set of closed-ended questions were also directed to the respondents in the interview. All questions were adopted from the literature, especially from a set of recent studies assessing LM (Shah and Ward, 2007; Bouville and Alis, 2014), HIWP (Camuffo et al. 2017; Kilroy, Flood, Bosak and Chenevert, 2016; Lee, Hong and Havgar, 2015; Vasquez-Bustelo and Avella, 2019) and related HRM practices (Sterling and Boxall, 2013; de Koeijer, Paauwe and Huijsman, 2014) quantitatively. Therefore, the second part of the interview form was composed of specific items measuring the perceptions of the respondents about each of these concepts as well as additional three items for assessing their opinions' on organizational culture.

Response options were given by using a 5-point Likert scale. For LM and HRM practices, 1 represents “no implementation” and 5 represents “complete implementation”. For the rest of the items, 1 represents “complete disagreement” while 5 represents “complete agreement” of the participant with the given statement.

Below, Table 4.7 shows the total mean values, standard deviations and frequencies for each of the concepts being measured through a set of items. As can be seen from the table, participants have a common belief that LM practices as well as employee involvement mechanisms and enabling HRM practices are largely implemented in the organization (average score for each of them is greater than 4.0). Thus, it can be easily inferred that they think LM practices integrated with HRM, employee involvement are organizational culture are applied well, which can also denote a general satisfaction with the overall situation of LM.

Lean Management Practices

There are 16 items measuring LM practices which can be grouped as management perspective, customer orientation, quality focus, standard processes, and supplier relationship. As of the distribution, management perspective was measured by two items, customer orientation by three items, quality focus by three items, standard processes by five items and supplier relationships by three items.

Table 4.8 indicates these specific constructs and their means, standard deviations and frequencies. The frequency of agreement represents the percentage of participants who chose the response option of “extensive implementation” or “complete implementation” for the particular practice or tool.

Table 4.7. Average Scores of Main Subjects

| Subject | Average Score |
|---------------------------|----------------------|
| Lean Management Practices | 4,11 |
| Employee Involvement | 4,23 |
| Enabling HRM Practices | 4,03 |
| Organizational Culture | 4,13 |

Table 4.8. Descriptive Statistics for Lean Management Practices

| Topics | Mean | Standard Deviation | Number of Responses | Frequency of Agreement | % of Agreement |
|------------------------|-------------|---------------------------|----------------------------|-------------------------------|-----------------------|
| Management Perspective | 4,43 | 0,62 | 40 | 37 | 93% |
| Customer Orientation | 4,38 | 0,83 | 60 | 44 | 73% |
| Quality Focus | 3,97 | 1,03 | 60 | 40 | 67% |
| Standard Processes | 4,12 | 0,79 | 100 | 77 | 77% |
| Supplier Relationship | 3,78 | 0,96 | 60 | 35 | 58% |

Based on the above table, management perspectives were evaluated as having the largest degree of implementation (4.43). Customer orientation and standard processes also have scores higher than 4.0, implying that these LM practices had been integrated well. On the other hand, their relatively lower mean scores imply that quality focus (3.97) and supplier relationships (3.78) can be improved if the company seeks to apply lean practices better.

According to Table 4.8, it can be concluded that respondents typically think the vision of LM is being created and communicated well by the top management. There is also a large consensus on how management participates and encourages employees to be involved in quality improvement efforts. In addition to top management support, the results show that respondents think there is close contact with key customers; their feedback is received on quality and delivery performance and, customer needs and expectations are regularly surveyed.

Results show that the respondents typically think standards are followed in the organization and operational processes are largely standardized. They particularly believe that “There is an emphasis on following a standardized procedure in planning and conducting improvement initiatives” (4.4).

It might be suggested that, on average, the general quality focus of the company is regarded as satisfactory by the respondents, including the correct implementation of quality management tools and techniques. However, the results indicate that they believe statistical process controls need to be used more and preventive maintenance needs to be applied properly. Moreover, quality focus measures also show the largest dispersion among respondents implying a weaker consensus on quality issues among employees.

According to the results, relationships with suppliers appear to be the first issue that needs greater attention and improvement among all LM dimensions as it gets the lowest score from the respondents (3.78). It is a concern that only 58% of the respondents agree that there are close contacts with suppliers, suppliers selected carefully and the company provides its suppliers with necessary support and training. This implies that within the LM system, special attention should be given to the involvement of suppliers into critical processes.

High-Involvement Work Practices

Table 4.9 represents the findings of the perceptions of the respondents about the extent of employee involvement (HIWP) in the organization. To this end, seven items were used that can be categorized as employee's leadership, team membership, individual awareness, initiative.

Among them are two team membership items that have the highest average score (4.57), implying that they are frequently involved in problem solving and discussing issues with others. Thus, they feel as a part of team at every single task as a member. This is one of the strongest points in LM. They are provided with the opportunity to suggest improvements in the processes.

The two employee leadership items also receive high average scores from the participants (4.2), indicating that employees not only lead improvement efforts in the company but they also have the right to evaluate the work being done.

While the overall awareness of the respondents about ongoing operations, different tasks and activities, and decisions is quite high, the possibilities to take initiative to change or to improve is limited. In fact, only 65% of the respondents agree that such opportunities are available. Altogether, these results on HIWP tell as that such involvement practices are widely recognized and appreciated by the employees. The only exception to this is the seemingly underscored initiation dimension.

Table 4.9. Descriptive Statistics for Employee Involvement (HIWP)

| Topics | Mean | Standard Deviation | Number of Answers | Frequency of Agreement | % of Agreement |
|-----------------------|-------------|---------------------------|--------------------------|-------------------------------|-----------------------|
| Employee's Leadership | 4,2 | 0,69 | 40 | 30 | 75% |
| Team Membership | 4,57 | 0,55 | 40 | 34 | 85% |
| Individual Awareness | 4,3 | 0,73 | 20 | 17 | 80% |
| Initiative | 3,89 | 1,02 | 40 | 26 | 65% |

General HR Practices

HRM practices (19 items) can be examined in the following categories: Training and development, performance evaluation, team work, recruitment, job security and motivation, communication, managers' involvement, and job descriptions.

Table 4.10. Descriptive Statistics of Enabling HRM Practices

| Topics | Mean | Standard Deviation | Number of Responses | Frequency of Agreement | % of Agreement |
|---------------------------|-------------|---------------------------|----------------------------|-------------------------------|-----------------------|
| Training & Development | 3,75 | 1,02 | 60 | 35 | 58% |
| Performance Evaluation | 3,76 | 1,17 | 80 | 49 | 61% |
| Team Work | 4,17 | 0,74 | 60 | 48 | 80% |
| Recruitment | 3,67 | 1,03 | 20 | 9 | 45% |
| Job Security & Motivation | 4,65 | 0,58 | 40 | 36 | 90% |
| Communication | 4,35 | 0,55 | 60 | 51 | 85% |
| Managers' Involvement | 4,00 | 0,85 | 40 | 28 | 70% |
| Job Description | 3,75 | 0,79 | 20 | 13 | 65% |

According to Table 4.10, the highest average score belongs to job security and motivation (4.65), followed by communication (4.35), team work (4.17) and managers' involvement (4.00). The other dimensions of enabling HR practices (training and development, performance evaluation, recruitment and clear job description) have scores lower than 4.00, indicating that respondents evaluate the quality of these practices in an inferior way.

The highest agreement percentage (90%) suggests that participants strongly believe they are provided job security by the organization and they are motivated at work through different mechanisms such as flexible time. Similarly, 85% of them believe that they have effective communication systems in the organization, which is

a crucial point of LM systems. Their responses to communication items show that they can communicate and share information freely with each other on work issues, they receive formal communication regarding company goals, and there are effective information channels among employees and throughout the organization.

Another HR practice highly graded by respondents is team work. In aggregate, 80% of them consider that team work is encouraged in the organization and necessary resources are provided. Namely, they think their organization places a strong emphasis on work in teams, they work closely with other team members on common goals, and teams meet regularly to solve problems and explore opportunities in their area. This result indicates that employees are indeed provided with the appropriate team mechanisms which is perhaps one of the building blocks of LM systems. Without teams working effectively, LM targets cannot be attained.

Table 4.10 also shows that most of the respondents (70%) perceive high management support and encouragement. That is, managers usually encourage employees to look at problems and come up with their own solutions and suggestions. Besides, results suggest that they do not see big status differences between managers and the rest of the organization. This implies that an organizational environment is created where employees do not feel uncomfortable with their managers and receive support from them.

The table also shows that, in respondents' point of view, the rest of the enabling HR practices are not that strongly available in their workplace. First, only 65% of the sample thinks that their job descriptions accurately describe the work they do, which implies that almost one third of them feel some ambiguity about what they are supposed to do. They have conflicts with their manager or coworkers due to the allocation of responsibilities which creates confusion for them. Some of the tasks cannot be attended to due to these unclear, non-transparent job definitions.

Second, only 61% of them think that the performance evaluation system is working effectively regarding several issues such as performance feedback mechanisms, rewards and promotion schemes, pay raises and incentives. Hence, they do not see that there is a strong match between their performance and what they get in return. This denotes that the evaluation and rewarding part of LM implementations are

somewhat missing that are supposed to encourage the employees for further improvements. Thus, it is one of the areas the organization and its HR experts need to focus on and develop.

Third, the opportunities for training and development are not graded high and only 58% of the respondents believe that there is a strong emphasis on training in the company and there are opportunities for them to develop new skills and knowledge. This implies that training programs should definitely be improved such as implementing better training need analysis, creating the right content and choosing the appropriate delivery methods. More room and resources should also be provided to the employees so that they can develop themselves.

As the final dimension of HR practices as measured in the study, the respondents have the lowest degree of agreement that new employees are selected due to company's lean requirements. Only 45% of them believe that employees are critically selected and selection criteria include skills and knowledge on LM. It appears that other HR area organizations should put more focus and attention on recruitment criteria and processes. They should be reviewed so that the recruitment system becomes more in line with the expectations and demands of the LM system. Otherwise, problems may occur afterwards when the selected people start working in the company without the necessary qualifications.

Organization Culture

In the last part of the interview form, three dimensions of organizational culture were asked to the respondents, that is, to what extent their organization 1) emphasizes the importance of improving quality of internal processes, 2) encourages and supports new ideas and innovative approaches, and 3) facilitates supports employees' efficiency and productivity at work.

Table 4.11 shows that each of the above cultural values are graded with high scores by participants (the mean scores for each one are higher than 4.00). But perhaps first and foremost they have a strong belief that the organization focuses on improving efficiency and productivity as 85% of them agree with this. This suggests that whatever the organization is doing to increase efficiency, particularly through LM, is working.

At least, these principles and attempts are perceived and acknowledged by the employees to a high extent.

Table 4.11. Descriptive Statistics of Organizational Culture

| Topics | Mean | Standard Deviation | Total Responses | Frequency of Agreement | % of Agreement |
|-----------------------|-------------|---------------------------|------------------------|-------------------------------|-----------------------|
| Quality Approach | 4,05 | 0,89 | 20 | 14 | 70% |
| New ideas | 4,00 | 0,65 | 20 | 14 | 70% |
| Employee's Efficiency | 4,35 | 0,59 | 20 | 17 | 85% |

In addition to this core cultural emphasis, the quality approach (4.05) and encouragement of new ideas (4.00) are also perceived positively by the respondents. Both of these dimensions received an agreement level of 70% from the sample.

Indeed, quality and quality improvement seems to be a major focus of the organization. According to the responses given to open-ended questions and based on the researcher's own observation, it is taken very seriously. For instance, projects are frequently rejected or stopped if there is a side effect to quality. During the interviews it became clearer that quality is a priority for most of the employees, embedded in their mindsets and manifested through their attitudes and behaviors.

However, when answering the LM practice questions, respondents did not have the same attitude towards the quality focus in the system (67% of them agreed that quality focus is implemented). Thus, there seems to be an incompatibility between what is culturally supported and what is implemented. I believe the discrepancy largely emerges from the fact that although they see and appreciate the overall attention to quality by top management and LM experts (it is being addressed and communicated in every single meeting), there are some inefficiencies and problems in application, particularly about timely collection and availability of quality data, the use of right quantitative metrics and conducting statistical process controls. This indicates that the

company needs to pay more attention to the measurement of quality performance as its importance in principle has already been understood and shared by the employees.

In a similar vein, the majority of the respondents believe that new ideas are encouraged and welcomed in the company. One example supporting this result is what one of the participants said during the interview: “I can always express my ideas in the meetings even if they are not useful”. This indicates that besides the predominantly emphasized efficiency and quality values, the organization is also able to encourage an innovation orientation culture, giving enough space and opportunities to the employees to search and think freely and share and discuss these new ideas.

These findings from the organizational culture items also say important things about the integration between LM ideas and organizational culture. It will not be wrong to state that they are closely aligned, also supported by the fact that during the interviews several participants explain an issue by starting the sentence with “in our culture...”. This can be regarded as an indicator of how certain, values, principles and norms are internalized by the employees.

General Evaluation

A general assessment of the quantitative results from closed-ended questions indicates that while the general managerial perspective on LM, standardization of the processes and customer orientation of the system are recognized and appreciated by the employees, there are some issues in the system that needs to be solved regarding the measurement of quality performance and supplier relationships. Specifically, the supplier relationships seem to be the most problematic and weakest part of the adopted LM system. A suggestion would be that the organization includes its suppliers more into the system, build more long-term trusting relationships, and share their lean knowledge and resources with them.

Employee involvement, which is theoretically one of the core underpinnings and support mechanisms of LM, seems to be effectively established in the organization. In fact, the high scores given to team membership, individual awareness and concern regarding what is happening in operations and the extent that employees take responsibility in improvement indicate that HIWP are now an embedded part of organizational policies and practices. Nevertheless, the opportunities that they can take

initiative to change things, suggest new options seem to be limited. Therefore, more should be done to involve them in decision-making mechanisms to identify, analyze, discuss and propose solutions to work-related issues.

Concerning to what extent participants see the available HR process and policies in the organization as useful and intact; team work structure, communication systems and job security appear to be evaluated very positively. However, the results indicate that participants have concerns about and/or see important inefficiencies with respect to training and development, performance evaluation systems and the way jobs are allocated and defined. But according to the respondents, the most problematic HR area is the way new employees are selected and recruited to the company. The employees appear to have important doubts about the quality of recruitment processes. This implies that although some of the HR mechanisms are successful and able to support the LM system in the right direction, there are also some essential parts of it which should be carefully analyzed and improved for attaining better LM results both for the employees and the organization as a whole.

Finally, responses indicate that specific cultural values, especially those related with attaining efficiency and productivity, are widely available across the entire organization and internalized by the employees. Besides efficiency, quality improvement is also highlighted. In fact both efficiency and quality orientation closely matched with the aims of the LM system. Thus, a close relationship and ongoing, perhaps iterative, interaction between LM practices and the general organizational culture can be assumed.

To sum up, each of the above gives empirical support to the availability of the close connections between LM and the organizational and relational context surrounding it. That is, employee high involvement mechanisms, general HR policies and practices and the overall culture seems to be facilitating and increasing the impact of LM on positive outcomes. Yet, still some essential mechanisms are lacking or they are weak, particularly some of the core HR policies and processes which are supposed to complement and facilitate the existing LM practices.

CHAPTER 5

DISCUSSION

In this study, LM practices had been investigated together with HIWP, typical HR processes and organizational culture. The aim was to understand to what extent these interact with each other, specifically, to what extent the ongoing HR practices, high involvement work applications and the general organizational culture shape LM mechanisms and effectiveness. To this aim, a local branch of an international production company was selected and 20 respondents were interviewed including open-ended and close-ended questions, enabling both a qualitative and quantitative analysis of the collected responses.

5.1. Summary of Findings

The interview findings suggest that people are aware that time and resources are valuable which needs to be managed perfectly as most of the respondents stated that waste elimination is the key issue in LM. Thus, LM is used to keep these resources effective due to limited capacities. One can claim that the importance of LM is clearly highlighted in the selected empirical setting.

According to the findings, people are motivated to perform LM practices. The most widely used LM methods were described as problem solving teams, whiteboards, coaching and one-to-one meetings. Yet, the findings show that the level of participation in the LM processes is not the same across employees and managers. While employees' involvement typically occurs at the application level, managers are mostly involved at the strategic and decisional-level.

The most common form of employee involvement was identified as team-based problem solving. In fact, all interview findings imply that teamwork and team-based structure lays at the core of the system and employees are satisfied working as team members. Participant responses on the matter suggest that they often feel as a part of team members with high level of responsibility. They have a common problem solving

session which makes them a team to solve the same problem together. Therefore, they are all a part of the solution.

Results give some clues that LM can decrease job stress due to workload balancing between coworkers. If one employee has the tasks, which are above their capacity, it is visible and shared with the whole team. Thus, necessary work distribution happens properly. This can be observed in the whiteboard applications, as frequently given as an example by respondents. Through such mechanisms it is provided that priorities are set together, and there is no fear or hesitation whether there will be enough workforce or who will do it. If tasks are to be achieved, whether they are complicated or not, they should be performed in a systematical way. Because, in the future, same tasks may reappear or new employee to be hired, they can be performed in the same way with less effort. Interview results also show that there is indeed a lean, smart and clear communication among coworkers and between different levels of the organization.

The findings from the open-ended interview questions also suggest that LM gets transparency into the organization; managers and their subordinates have quite a lot of ideas about what each other are doing. In addition, employees are informed about the tasks and projects that are related to their areas in the plant. LM appears to be a good way of deploying targets set by top management. This creates visibility to strategic goals all around the organization.

Besides such positive points, an important number of participants also highlight how there have been some capacity problems. That is, they often lack the capacity in terms of time, resources and skills to use all suggested or demanded LM tools. As the JD-R model suggests, this could put a lot of stress and tension on the employee if the demands and resources are not matched properly.

As for the key outcomes of LM, participants have mostly referred to positive ones, including better teamwork and performance, higher motivation and satisfaction, less stress, and better supervisor and co-operative relationships due to open communication and transparency. They still mentioned a number of negative outcomes, though. They emphasized how LM system can bring an excessive work load, especially if proper standards are lacking and capacities are not enough to meet set

goals. Obviously, they experience significant levels of role conflict and role ambiguity when there are problems with capacity planning and standards.

Besides the LM processes themselves, the findings also emphasize how important organizational support is (especially HIWP and other HR practices and tools) for better planning and implementation of the LM programs. While some of these support mechanisms seem to be working properly, others are not. Team work, awareness of systems, delegation of responsibilities, proper communication, and job security can be listed among the effective mechanisms. Indeed, employee involvement seems to have a large impact on LM system integration and effectiveness as they make sure that LM practices are actively applied according to necessities and expectations. Several HRM processes seem to be improving the employee-manager with respect to LM goals. Yet, several others should be reviewed and improved. At the very least, the findings show that significant progress and/or change is needed for a number of HR practices and policies such as training and development, performance evaluation, job analysis and allocations, and recruitment of employees.

Especially, establishing a fair and accurate performance evaluation system should be given specific attention. The employees can only be motivated and satisfied with their job if they feel that their performance is accurately evaluated and necessary rewards and incentives are available for their efforts and good performance.

Training and development of employees is a part of continuous improvement and lean training plans needs to be created due to organization needs and employees' career path. The lack of positive evaluation of training and development opportunities by the respondents suggest that the existing training program and modules should be revised and constituted due to knowledge and skill needs. Module training can be taken due to acceptances. Positive or negative feedback is also part of continuous improvement. It should be given to right time right place with correct way of communication. Otherwise, the same problems can occur with the same behavior.

According to interview findings, the recruitment process in the organization is found to be problematic, as well. Ideally, people should be allocated the appropriate position and responsibility according to the needs of the task at hand. Otherwise, the

adopted lean philosophy and approach cannot be actualized. Hence, nominees should be selected carefully through proper criteria.

It is worth noting that the shortcomings in recruitment and training processes were clearly identified in both the qualitative and quantitative data findings. It implies how these two HRM dimensions are critical and should be given much more attention to build effective LM systems.

Finally, it can be concluded that organizational culture also matters a lot concerning LM implementations. The participant responses make it evident that the values of continuous improvement, quality focus, open-mindedness, new idea generation and feedback are very important to help employees in their LM applications. They become focused and motivated in their LM responsibilities to the extent that these values are emphasized and reinforced across the organization. Thus, efficiency and productivity goals should be supplemented by these core values.

All in all, organization can increase efficiency and performance as well as the work engagement and motivation of employees as long as the LM tools and methods work in an integrative way and the organizational environment supports this integration. The important thing is to pay attention to the key parameters including employee involvement and right HR policies and practices, both of which have direct effects on LM processes and outcomes. There can be a lean tool which was not verified well and if people do not have any idea about opportunities and benefits through different support and development mechanisms provided by the organization, it is very hard to implement them. Thus, top management as well as the whole organization should invest in and design such a human resources infrastructure first. Otherwise, the effectiveness of LM along with its separate tools and methods would disappear.

5.2. Theoretical Implications

LM and HIWP have already been discussed in the organizational literature, yet until today, no attempt has been made to understand the connection between them with respect to how certain organization-level human resource policies and mechanisms affect, enhance and shape LM applications and outcomes. Therefore, this paper can be considered one of the few attempts to understand how LM tools are associated with

the HRM processes and to what extent the latter enhance the expected positive results of the former. In addition, implementation of specific HIWP and existence of a supportive organizational culture are assumed to enhance positive LM results and mitigate the negative ones such as stress, burnout, emotional exhaustion and possible health problems. This study provides a unique empirical investigation to what extent these dynamics and effects exist in an organizational setting.

In line with the theoretical expectations based on the job demands-resources (JD-R) model, it was found that supportive HR policies and practices indeed play a key role as significant resources to meet the demands and expectations of LM programs. In other words, they become “enablers” through which the system is checked, maintained and strengthened concerning needed human expertise, knowledge, skills and motivation. Moreover, HIWP has a particular place in all of these, facilitating the development and participation of employees to the system. When the involvement of the employees in LM processes is attained through right mechanisms, they absorb its goals and principles more easily as their own. HIWP also makes them more comfortable and confident in bringing more input and new ideas to the system, making it more adoptive and innovative. As such, better results in the form of increased task performance, job satisfaction, organizational commitment, and lessened stress are achieved.

In situations where such organizational resources are absent or not adequate, employees experience a lot of difficulties adopting to the demands and requirements of LM that can be quite complicated and challenging for the employee. Particularly organization-wide application of LM ideas and methods requires the consent, trust and approval of the employees who will implement it. Thus, it is necessary to look beyond the technical aspects and pay more attention to the organizational and relational conditions underlying the success of such systems.

5.3. Limitations and Future Research Suggestions

This study is based on the data collected from 20 respondents via structured interviews, hence, the empirical findings and inferences are limited to the data available. Future studies can examine the same mechanisms and relationships by adopting alternative data collection methods such as surveys. Due to the qualitative and descriptive nature of the study, no specific hypotheses were tested or developed, either. Further theoretical assumptions can be made and related hypotheses be tested with a larger number of observations and a bigger sample by using surveys or other quantitative data collection methods. Other qualitative methods could also be utilized, such as focus groups, systematic observations and document analysis getting more in-depth information and insights. In such a case study design, there would be more confidence with the findings, as a combination of multiple data resources and types.

Additionally, the data collection was limited to one single firm. Unique characteristics of the selected organization surely have a significant impact on the findings. Higher generalizability can be attained if data is collected across different firms and industries. This will also enable us to take firm- and industry-level effects into consideration and compare different organizations based on their own LM practices and processes.

Although the general interview process was unproblematic, there have been a few issues and concerns such as the inexperience of the research as an interviewer, his insider role as a member of the same organization, and the possibility of respondents' hesitations to openly share some of their ideas and attitudes. Despite the fact that full consent was taken with the proper assurance of anonymity and confidentiality, social desirability and other bias mechanisms might play some role in their answers. For example, this might be the reason why respondents refer to negative outcomes of LM in a much lesser extent compared to its benefits.

Another limitation and possible future research suggestion is to design a cross-cultural study on LM or similar management systems. Different national norms, beliefs and values might significantly influence how LM processes and its interaction with organizational contextual factors are perceived by employees. For instance, a study could be designed for a multinational company having facilities and plants in different

countries. A comparison among these affiliated divisions would isolate the impact of societal factors and cultural values.

This study only presents a general overview and discussion of the aforementioned relationships. There is a need to develop a more theoretically-based understanding to understand them. Conceptually, specific LM tools and HRM practices can be identified and the correspondence between them can be tested. Similarly, the impact of different organizational characteristics (organizational climate factors, strategies, top management profile, age, size, organizational rules and policies) can be investigated. Here, how leadership plays a role on LM implementations is particularly worth studying. Specific leadership styles, values and behaviors should be analyzed regarding how they have an effect on the level of LM implementations and their outcomes.

REFERENCES

- Anderson-Connolly, R., Grunberg, L., Greenberg, E., & Moore, S. (2002). Is Lean mean? Workplace transformation and employee well-being. *Work Employment and Society*, 16, 38-412.
- Bamber, G. J., Stanton, P., Bartram, T. & Ballardie, R. (2014). Human resource management, Lean processes and outcomes for employees: Towards a research agenda, *International Journal of Human Resource Management*, 25(21), 2881-2891. <http://dx.doi.org/10.1080/09585192.2014.962563>
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309 – 328.
- Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal* 39(4): 779–801.
- Benson, G. S., Young, S. M., & Lawler, E. E. (2006). High-Involvement Work Practices and Analysts' Forecasts of Corporate Earnings. *Human Resource Management* 45(4), 519–537. doi:10.1002/hrm.20130.
- Bloom, B., & Crabtree B. (2006). The qualitative research interview. *Medical Education*, 40, 314–321 doi:10.1111/j.1365-2929.2006.02418.x
- Brenner, M. D., Fairris, D., & Ruser, J. (2004). “Flexible” work practices and occupational safety and health: Exploring the relationship between cumulative trauma disorders and workplace transformation. *Industrial Relations: A Journal of Economy and Society*, 43(1), 242– 266.
- Bonavia, T., & Marin-Garcia, J. (2011). Integrating human resource management into lean production and their impact on organizational performance. *International Journal of Manpower*, 32, 923-938.
- Bouville, G., & Alis, D. (2014). The effects of lean organizational practices on employees' attitudes and workers' health: Evidence from France. *International Journal of Human Resource Management*, 25(21), 3016-3037.

Boxall, P., & Purcell, J. (2000). Strategic human resource management: where have we come from and where should we be going? *International Journal of Management Reviews*, 2(2), 183-203.

Butts, M. M., Vandenberg, R. J. DeJoy, M., Schaffer, B. S., & Wilson, M. G. (2009). Individual Reactions to High Involvement Work Processes: Investigating the Role of Empowerment and Perceived Organizational Support. *Journal of Occupational Health Psychology* 14 (2), 122– 136.

Camuffo, A., Stefano, F., Paolino C. (2017). Safety Reloaded: Lean Operations and High Involvement Work Practices for Sustainable Workplaces. *Journal of Business Ethics*, 143, 245–259.

Cua, K., McKone, K. and Schroeder, R.G. (2001). Relationships between implementation of TQM, JIT and TPM and manufacturing performance. *Journal of Operations Management*, 19(6), 675-94.

Cullinane, S, J, Bosak, P. F., & Demerouti, E. (2014). Job design under lean manufacturing and the quality of working life: A job demands and resources perspective. *International Journal of Human Resource Management* 25(21), 2996–3015.

Cullinane, S. J., Bosak, j., Flood, P. C. & Demerouti, E. (2017). Job crafting for lean engagement: The interplay of day and job-level characteristics. *European Journal of Work and Organizational Psychology*, 26(4), 541-554.

de Koeijer, R. J., Paauwe, J. & Huijsman, R. (2014). Toward a conceptual framework for exploring multilevel relationships between lean management and six sigma, enabling HRM, strategic climate and outcomes in healthcare. *International Journal of Human Resource Management*, 25(21), 2911-2925.

Demerouti, E., Bakker, A., Nachreiner, F., & Schaufeli, W. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology* 86(3), 499– 512.

Dean Jr., J.W., & Bowen, D.E. (1994). Management theory and total quality: improving research and practice through theory development. *Academy of Management Review* 19 (3), 392–418.

Easwaramoorthy, M., & Zarinpoush, F. (2006). *Interviewing for Research. Canada Volunteerism Initiative*. Retrieved on 24 December, 2019, from http://sectorsource.ca/sites/default/files/resources/files/tipsheet6_interviewing_for_research_en_0.pdf

Fong, C., Ooi, K., Tan, B., Lee, V. and Yee-Loong Chong, A. (2011). HRM practices and knowledge sharing: an empirical study. *International Journal of Manpower*, 32(5/6), 704-723.

Fucini, J. J., & Fucini, S. (1990). *Working for the Japanese: Inside Mazda's American auto plant*. New York: The Free Press.

Furlan, A., Vinelli A., and Pont, G., (2011). Complementarity and lean manufacturing bundles: an empirical analysis *International Journal of Operations & Production Management*, 31(8), 835-850.

Guthrie, J. P., Spell, C. S. & Nyamori, R. O. (2002). Correlates and Consequences of High Involvement Work Practices: The Role of Competitive Strategy. *International Journal of Human Resource Management* 13(1): 183–197.

Heraty, N. (2004). Towards an Architecture of Organization-led Learning. *Human Resource Management Review* 14: 449–472.

Hopp, W. J., & Spearman, M. L. (2004). To pull or not to pull: What is the question? *Manufacturing and Service Operations Management* 6(2), 133–148.

Huo, L.-M., & Boxall, P. (2017). Lean production and the well - being of the frontline manager: The job demands-resources model as a diagnostic tool in Chinese manufacturing. *Asia Pacific Journal of Human Resources* 55, 280– 297.

Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Govindan, K., Teixeira, A. A., & de Souza Freitas, W. L. (2013). Environmental management and operational performance in automotive companies in Brazil: The role of human resource management and lean manufacturing. *Journal of Cleaner Production*, 47, 129-140.

Jones, R., Latham, J., & Betta, M. (2013). Creating the illusion of employee empowerment: Lean production in the international automobile industry. *International Journal of Human Resource Management*, 24, 1629– 1645.

Kilroy, S., Flood, P. C., Bosak, J., and Chenevert, D. (2016). Perceptions of high-involvement work practices and burnout: The mediating role of job demands. *Human Resource Management Journal*, 26: 408-424.

Kuzel, A. (1999). Sampling in qualitative inquiry. In: B. Crabtree & W. Miller (Eds). *Doing Qualitative Research* (pp. 33-45). Thousand Oaks, California: Sage.

Lawler, E. E., Mohrman, S. A., & Ledford, G. E. (1995). *Creating High Performance Organizations: Practices and Results of Employee Involvement and Quality Management in Fortune 1000 Companies*. San Francisco, CA: Jossey-Bass.

Lee, E. K., Hong, W., & Avgar, A. C. (2015). Containing conflict: A relational approach to the study of high-involvement work practices in the health-care setting. *International Journal of Human Resource Management*, 26:1, 100-122.

Macky K., & Boxall P. (2008). High-involvement work processes, work intensification and employee well-being: A study of New Zealand worker Experiences. *Asia Pacific Journal of Human Resources* 46(1), 38-55.

Martinez - Jurado, P., & Moyano – Fuentes, J. (2014). Lean management, supply chain management and sustainability: A literature review. *Journal of Cleaner Production*, 85(15), 134-150.

Menezes L., Wood, S., Gelade, G., (2019). The integration of human resource and operation management practices and its link with performance: A longitudinal latent class study. *Journal of Operations Management* 28 (2010) 455–471.

McLachlin, R. (1997). Management initiatives and just-in-time manufacturing. *Journal of Operations Management* 15 (4), 271–292.

Mohr, R. D., & Zoghi, C. (2008). High-Involvement Work Design and Job Satisfaction. *Industrial & Labor Relations Review*, 61(3): 275–296.

Monden, Y. (1981). Adaptable Kanban system helps Toyota maintain just-in-time production. *Industrial Engineering*, 13(5), 29–46.

Noll, C. (2000). Change Process. *Encyclopedia of Business and Finance* 125: 4–10.

Osterman, P. (1994). How common is workplace transformation and who adopts it? *Industrial & Labor Relations Review*, 47(2), 173-188.

Power, D. J., & Sohal, A. S. (2000). Human resource management strategies and practices in just-in-time environments: Australian case study evidence. *Technovation*, 20(7), 373-387.

Rana, S. (2015). High-involvement work practices and employee engagement. *Human Resource Development International*, 18(3), 308–316.

Sakakibara, S., Flynn, B.B., Schroeder, R.G., & Morris, W. T. (1997). The impact of just-in-time manufacturing and its infrastructure on manufacturing performance. *Management Science* 43 (9), 1246–1257.

Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for improving work and health. In: G. F. Bauer & O. Hämmig (Eds.), *Bridging occupational, organizational and public health: A transdisciplinary approach* (pp. 43-68). Springer Science.

Shadur, M.A., Rodwell, J. J., & Bamber, G. J. (1995). Factors predicting employees' approval of lean production. *Human Relations*, 48(12), 1403-1425.

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

Shah, R., & Ward, P. (2007). Defining and developing measures of lean production, *Journal of Operations Management* 25, 785–805.

Shetty, D., A., & Cummings, R. (2010). Survey-based Spreadsheet Model on Lean Implementation. *International Journal of Lean Six Sigma* 1 (4): 310–334.

Sitkin, S., Sutcliffe, K.M., & Schroeder, R. G. (1994). Distinguishing control from learning in TQM: A contingency perspective. *Academy of Management Review* 19 (3), 537–564.

Sparrow, P., & Otaye-Ebede, L. (2014). Lean management and HR function capability: The role of HR architecture and the location of intellectual capital. *International Journal of Human Resource Management*, 25(21), 2892–2910.

Spear, S. and Bowen, H.K. (1999). Decoding the DNA of the Toyota production system. *Harvard Business Review*, 77(9/10), 97-106.

Sterling, A., & Boxall, P., (2013). Lean production, employee learning and workplace outcomes: A case analysis through the ability-motivation-opportunity framework. *Human Resource Management Journal*, 23(3), 227–240.

Torella, M. S., Falzon, P., & Morais, A. (2012). Participatory design in Lean production: Which contribution from employees? For what end? *Work*, 41, 2706–2712.

Tortorella G., & Fogliatto F. (2014). Method for assessing human resources management practices and organizational learning factors in a company under lean manufacturing implementation. *International Journal of Production Research*, 52(15), 4623–4645.

Tortorella G., Marodin, G., Fogliatto, F., & Miorando, R. (2015). Learning organization and human resources management practices: An exploratory research in medium-sized enterprises undergoing a lean implementation. *International Journal of Production Research*, 53(13), 3989–4000.

Turkulainen, V., & Ketokivi, M. (2013). The contingent value of organizational integration. *Journal of Organization Design*, 2(2), 31-43.

Turner, C. M. (2012). *Implement a Lean management system: Create change through improvement*. North Charleston, SC: Createspace.

Uhrin, A., Bruque-Cámara, S., & Moyano-Fuentes, J. (2017). Lean production, workforce development and operational performance. *Management Decision*, 55(1).103-118.

White, R. E., & Prybutok, V. (2001). The relationship between JIT practices and type of production system. *Omega*, 29(2), 113-24.

Womack, J.P., & Jones, D.T. (1996) *Lean Thinking*, Simon & Schuster: New York, NY.

Vasquez-Bustelo, D., & Avella, L. (2019). The effectiveness of high-involvement work practices in manufacturing firms: Does context matter? *Journal of Management & Organization*, 25(2), 303-330.

Vidal, M. (2007). Lean production, worker empowerment and job satisfaction: A qualitative analysis and critique. *Critical Sociology*, 33, 247– 278.

APPENDIX A

Open-Ended Questions

Individual Info:

- Gender
- Age
- Education level
- Total work experience
- Work experience at the plant (length of service)
- Total experience with lean production/ management
- Any short-term and/or long-term assignment in other firm factories (If yes, where?)

Lean Management Practices

General

1. Please briefly describe your job. What are your work responsibilities?
2. Can you please explain the general LM processes in this plant? What are the main goals for LM? What are the specific LM tools/methods being adopted?
3. How do you evaluate your level of knowledge AND the level of usage (implementation) of LM principles and practices?
4. Which lean management methods, techniques and practices do you think are most important/useful? Why?
5. What are the biggest challenges in following the lean management practices and methods?
6. To what extent do you involve in lean management practices (through suggestions, and feedback, team discussions, problem solving sessions, one-to-one sessions with managers etc.)

(For Managers Only):

7. How do you encourage employees for using lean management practices and methods?
8. What is your attitude if employees do not follow the given LM rules & activities?

HRM & Organizational Culture

9. How much is HRM involved in the implementation of LM in your plant? Please explain.
10. For you, what are the key HRM practices most relevant for improving LM implementation in your plant (e.g. training, employee participation, compensation...)?

11. Do you think your organization's culture (its core values and principles) matters in LM implementation? How?

Performance

12. Do you have annual LM targets (as an employee and as the whole plant)? If yes, what are they?

13. How do you measure performance increases?

14. If the desired targets are not attained, what actions do you take?

Outcomes

15. What do you think are the biggest benefits (positive outcomes) for adopting lean management methods;

a. For employees?

b. For the plant?

16. Are there any negative (undesirable, unexpected) effects of implementing LM;

a. For employees?

b. For the plant?

17. How do you think the existing LM practices affect employee's health? (regarding fatigue, sleep disorders, job stress, burnout and etc.)?

18. How do you think the existing LM practices affect employee's happiness at work? (job satisfaction and work engagement)?

19. How do you think the existing LM practices affect the quality of employee's relationships with their:

a. Coworkers

b. Supervisors/ managers

c. Organization in general

20. Do you have any suggestions to improve LM implementation and positive results in your plant?

APPENDIX B

Closed-Ended Questions

A. Lean Management Practices

Please indicate the extent of implementation of each of the following LM practices in your plant.

- 1- No implementation
- 2- Little implementation
- 3- Some implementation
- 4- Extensive implementation
- 5- Complete implementation.

| | | 1 | 2 | 3 | 4 | 5 |
|-----|---|---|---|---|---|---|
| 1. | Top management creates and communicates a vision focused on quality | | | | | |
| 2. | Top management encourages and participates in quality improvement efforts. | | | | | |
| 3. | There is a close contact with key customers. | | | | | |
| 4. | Our customers give us feedback on quality and delivery performance. | | | | | |
| 5. | Customer needs and expectations are regularly surveyed; customer satisfaction is measured. | | | | | |
| 6. | Timely collected quality data are available to employees, and used for improvement. | | | | | |
| 7. | Quantitative metrics are used to measure process performance and quality performance, and set improvement goals. | | | | | |
| 8. | Statistical process control and preventive maintenance are applied. | | | | | |
| 9. | Managers and employees in our plant make efforts to maintain clean shop floors and meet schedules. | | | | | |
| 10. | There is emphasis on mistake-proof process design. | | | | | |
| 11. | There is an emphasis on following a standardized procedure in planning and conducting improvement initiatives. | | | | | |
| 12. | Appropriate quality management tools and techniques are applied. | | | | | |
| 13. | The organization uses a group of improvement specialists, with different expertise. These specialists have specific leadership roles and responsibilities in improvement teams. | | | | | |
| 14. | We are frequently in close contact with our suppliers. | | | | | |

| | | | | | | |
|-----|--|--|--|--|--|--|
| 15. | Suppliers are selected on the basis of quality and involved in product development and quality improvement | | | | | |
| 16. | The organization provides suppliers with training and technical assistance. | | | | | |

B. Employee Involvement (“High Involvement Work Practices”)

Please indicate the extent of implementation of each of the following LM practices in your plant.

- 1- No implementation
- 2- Little implementation
- 3- Some implementation
- 4- Extensive implementation
- 5- Complete implementation

| | | 1 | 2 | 3 | 4 | 5 |
|----|--|---|---|---|---|---|
| 1. | Employees lead product/process improvement efforts. | | | | | |
| 2. | Employees have a great deal of say over how work is done. | | | | | |
| 3. | Employees are involved in formal or informal problem-solving activities. | | | | | |
| 4. | Employees are provided with the opportunity to suggest improvements in production processes. | | | | | |
| 5. | Employees are involved in quality decisions and have the opportunity to take responsibility for their own tasks. | | | | | |
| 6. | Employee frequently rotate among different activities, tasks, or departments. | | | | | |
| 7. | Employees are involved in regularly scheduled meetings to identify, analyze, discuss and propose solutions to work-related issues. | | | | | |

C. Enabling HRM Practices

Please indicate your agreement with each of the following statement regarding HRM practices in your plant.

- 1- Strongly disagree
- 2- Disagree
- 3- Neither agree, nor disagree
- 4- Agree
- 5- Strongly agree

| | | 1 | 2 | 3 | 4 | 5 |
|-----|---|---|---|---|---|---|
| 1. | My plant places a strong emphasis on training. | | | | | |
| 2. | There is training on quality management and work-related skills for employees. | | | | | |
| 3. | In my plant, there are many opportunities to develop new skills and knowledge. | | | | | |
| 4. | Managers or supervisors formally appraise each employee's job performance systematically. | | | | | |
| 5. | Employees receive feedback on performance and are rewarded for improvement. | | | | | |
| 6. | There is a compensation promotion scheme for encouraging employee participation in quality improvements. | | | | | |
| 7. | Employees can receive pay rises or incentives as a result of their job performance or work in a team. | | | | | |
| 8. | My plant places a strong emphasis on work in teams. | | | | | |
| 9. | Employees are required to work closely with other members of a team to achieve a common goals or results. | | | | | |
| 10. | Teams meet regularly to solve problems and explore opportunities in their area. | | | | | |
| 11. | New employees are critically selected. Selection criteria include skills and knowledge on quality management. | | | | | |
| 12. | Employees have an employment contract that offers job security. | | | | | |
| 13. | Employees have the possibility to work flexible hours and arrange their work schedule. | | | | | |
| 14. | Employees communicate and share information freely with each other on work issues. | | | | | |
| 15. | Employees receive formal communication regarding company goals and objectives. | | | | | |
| 16. | There are effective processes for information sharing among employees and throughout the organization. | | | | | |
| 17. | Managers encourage employees to look at problems and come up with their own solutions and suggestions. | | | | | |
| 18. | There are few status differences between managers and the rest of the employees. | | | | | |
| 19. | Employees have job descriptions that accurately describe the work they do. | | | | | |

D. Organizational Culture

Please indicate your agreement with each of the following statement regarding the organizational culture in your plant.

- 1- Strongly disagree
- 2- Disagree
- 3- Neither agree, nor disagree
- 4- Agree
- 5- Strongly agree

| | | 1 | 2 | 3 | 4 | 5 |
|----|---|---|---|---|---|---|
| 1. | My organization emphasizes the importance of improving quality of internal processes. | | | | | |
| 2. | My organization encourages and supports new ideas and innovative approaches. | | | | | |
| 3. | My organization encourages and supports employees' efficiency and productivity at work. | | | | | |