Effective Lean Middle Manager Behaviours Amongst Different Cultures:

A Mixed-Methods Comparison Study Between Brazilian and Dutch National Culture

Laura C. M. van Leeuwen

Twente University

Laura van Leeuwen
S1893939

First supervisor:
Dr. Desirée H. van Dun

Second supervisor:
Prof. dr. Celeste P. M. Wilderom

Zevenhuizen, ZH
13-07-2019

Abstract

This paper reports on exploratory research, gained through a mixed methods approach, that aimed to identify values and behaviours of Brazilian effective lean middle managers (ELMMs). The research focusses on the middle manager who is 'caught in the middle', and has a big impact on the effectiveness and sustainability of the implementation and execution of Lean. Additionally, it is argued that some national cultures (NC) have a significant better fit than others, hence two different cultures where compared. Consequently, Brazilian ELMM values and behaviours where analysed and compared to earlier done research on Dutch ELMMs. The mixed-methods included, questionnaire responses (N = 57) and interviews (N = 25) of senior managers, middle managers and team leaders from a total of 7 teams from the private sector (i.e., IT services and manufacturing) (N = 5) and the public sector (i.e., university) (N = 2). The data was analysed with descriptives on the q-sort distribution, and the questionnaires. Additionally, the interviews were interpreted through the elemental qualitative method, process coding, on both values and behaviours. Both Brazilian and Dutch ELMMs have similar values (i.e., participation/teamwork, responsibility, and honesty). Additionally, macro managing (calm and control) as a value was retrieved in this research. Subsequently, the way a person acts is based on their values, hence it is expected that both countries have similar perceived effective behaviours. Indeed, behaviours linked to the meta-category relations-oriented (RO) behaviours (recognizing and supporting) are regarded as most important for Brazilian and Dutch ELMMs. Yet, unlike Dutch ELMMs, Brazilian ELMMs prioritise change-oriented (CO) behaviours (facilitating organisational learning) over task-oriented (TO). However, the four different data gathering methods showed different sets of perceived effective behaviours. These findings are explained through cultural hegemony. When asking participants about the effective (Lean) middle manager behaviours the so-called a-typical behaviours, which are consciously observed, come to the surface. Since they deviate from their cultural hegemony they stand out, and thus influence the *perceived* effectiveness. These behaviours therefore should be emphasized, as they will lead to being perceived effective. Notwithstanding the fact that the general set of effective behaviours is necessary to be an effective Lean middle manager. In practicality, for a Brazilian middle manager to be perceived effective they should display relations-oriented (recognizing and supporting) and change-oriented behaviours (facilitating organizational learning), however this does not mean that task-oriented behaviours (monitoring operations) should be disregarded.

Table of Contents

List of table

List of figures

1   Introduction

Lean management is known for its convenient tools and underlying philosophy meant to help any organization to create value for the customer, by reducing waste from the production process (Hines, Holweg, & Rich, 2004; Holweg, 2007; Bicheno & Holweg, 2009; Emiliani, 1998; Womack & Jones, 2003). Consequently, Lean management implementations generally focus on the operational instruments, emphasizing elements such as continuous improvement and total quality management (Van Dun & Wilderom, 2012). So, many organizations solely adopt Lean practices and tools when converting to Lean which, according to Mann (2009) "makes up for only 20 percent of the effort of the Lean implementation" (p. 15). Contrarily, he states that 80 percent of the effort is in the hands of the change leaders, through their practices, mindset and most importantly behaviours. As a matter of fact, Albliwi, Antony, Lim and Van der Wiele (2014) mention that Lean often fails in organisations that lack communication, training and education. Which is mostly because of a top management that lacks commitment to, and involvement with Lean management. Additionally, organizational culture is seen as one of the main causes of Lean management failure (Saurin, Marodin, & Ribeiro, 2011). Hence, without also changing the human behavioural side, namely, the mindset and culture within the organisation, organisations fail to implement Lean management as a philosophy (Bhasin, 2015). Culture is a set of values, which according to Bardi and Schwartz (2003) and Sagiv and Schwartz (1995) highly correlates with intentional behaviours. So initially, the human behavioural side is claimed to be of importance, as Van Dun and Wilderom (2012) state that higher-level leader behaviours are at the basis of sustaining high Lean team performance. That is a result of a so-called cascading effect, where higher-level leaders have power over the output from the lower staff and so the organizations' value creation (Van Dun & Wilderom, 2015). The cornerstone of culture is defined by Schein (1984) as a combination of values and beliefs shared by members of a group. In addition, this cascading effect proves that higher-level leaders strongly affect the way people think and act within the organization. Subsequently, middle managers are 'caught in the middle', linking the executive management and front-line workers (Holmemo & Ingvaldsen, 2016; Nonaka, 1994). Fortunately, like Yang et al. (2010, p. 654) states, "Leaders at the supervisory level are acting on their higher-level leaders' focus on Lean". By laying responsibility on the higher Lean management, logically, Lean teams are less likely to decrease their effectivity over time. According to Shah and Ward (2003; 2007), organizations are realizing the importance of the human behavioural side of Lean effectiveness. Yet, De Treville and Antonakis (2006) argued that the non-hierarchical nature and focus on empowering and promoting the bottom up

approach of Lean, while simultaneously maintaining control and cost of labour makes the role of a Lean Middle Manager (LMM) even more challenging. Even with the higher-level management on board, the LMM needs to adapt to these new set of values and transfer those to the lower-level employees and according to Hofstede, Hofstede, and Minkov (1991), changing the organizational culture is difficult. Thus, LMMs behaviours affect team leaders in the same way their behaviours have an effect on the eventual team behaviours and, in turn team/organizational performance (Mathieu et al., 2008; Zaccaro et al., 2001). Van Dun, Hicks and Wilderom (2017) argued that a certain set of behaviours makes a Lean Middle Manager an Effective Lean Middle Manager (ELMM). In essence, behaviours of the (E)LMM have a big impact on the effectiveness and sustainability of the implementation and execution of Lean.

Both Brown and Treviño (2009) and Yukl (2006) argue that values are linked to a person's upbringing from an early age, which is bound to national culture (NC) and is often unconsciously internalized by managers. Hence, there are values linked to NC that are unconscious and cannot be changed along with changing the organizational culture. Accordingly, a variety of studies have shown that the national culture of the organization plays an important role (Boscari, Danese, and Romano 2016; Gambi et al. 2015; Kull et al. 2014). For a long time, culture has been addressed as important to the managers' values and thus their behaviours at work (Connor & Becker, 1994). Moreover, Erthal and Marques (2018) argued that certain cultures have a significantly better fit for Lean management than others. Yet, the influence of NC and mainly its effect on behaviours is still hardly explored. An initial literature review on effective Lean manager behaviours had proven a lack of data on Latin America, Sub-Saharan Africa, and the Middle East (Erthal et al., 2018; Danese, Manfè, & Romano, 2018). Compared to all countries in these culture groups Brazil has the highest GDP (nominal and PPP), meaning it has the most interesting market development for the management research (IMF, 2017). Therefore, the research for this thesis will be conducted on Brazilian ELMMs while replicating the study amongst Dutch ELMMs conducted by Van Dun, Hicks and Wilderom (2017). Thus, this thesis will compare Brazilian ELMMs values and behaviours with findings from earlier conducted research on Dutch ELMMs. The aim of this explorative research is to find if the context of national culture has an effect on the values and behaviours of perceived effective LMMs. By the means of a literature review, it will be analysed whether the National Culture of an ELMM can help predict his/her behaviours. Hence, the main research question is as follows: *To what extent do the values and behaviours of effective Lean*

middle managers differ across national cultures that vary in terms of Hofstede's dimensions? Additionally the research question will be supported by the following sub-questions:

1. What are the values and behaviours of effective Lean middle managers in Brazil?

2. What are the differences and similarities in values and behaviours of effective Lean middle managers in Brazil and the Netherlands?

3. How can these difference be explained in terms of national culture dimensions?

In order to answer the research question a combination of mixed-methods was used. Initially a literature review was done on behaviours of effective Lean leaders. From this literature review four behavioural components were deduced. Secondly, for the verification of these findings, middle manager values and behaviours were explored using field-inductive methods (DeHoratius & Rabinovich, 2011; Edmondson & McManus, 2007; Ketokivi & Choi, 2014). Particularly, the middle manager, his/her senior manager, and team leaders were interviewed and completed a questionnaire to retrieve a nearly complete perspective. Middle managers from different sectors were analysed, i.e., education, manufacturing, and IT. Finally, the findings from Brazilian middle managers were compared to the findings from a similar research among Dutch middle managers (Van Dun, Hicks and Wilderom, 2017).

The thesis is structured as follows: in the next chapter the theoretical framework will be discussed, focussing on values and behaviours of effective Lean leaders and national culture dimensions. Additionally, these behaviours are linked to national culture. The Methods section addresses the sampling procedure, sample, measure, construct validity, and data analysis methods. Afterwards the Results are discussed. The thesis ends with the "Discussion" and "Limitation and further research" sections.

2   Theoretical framework

2.1.   Lean Management

Lean is defined as a management philosophy, targeted at creating value for customers through a set of tools. These tools contribute to waste reduction, continuous improvement, optimization, and value stream mapping. Lean manufacturing tools are standardization, Kanban, one-piece flow, 5s, and Kaizen (Fullerton et al., 2014). Other contributors are measuring tools in the form of visual performance, management accounting practices, operations and financial performance.

Erthal and Marques (2018) show an increase in literature around Lean management after the financial crisis of 2008. In addition, a similar trend can be discovered in articles from after 2014. These focus on and even combine National and Organizational Culture within the Lean philosophy. Nonetheless, within the Lean management literature, the topic of leader behaviours has been neglected for a long time. Most studies only cover the Lean implementation phase and not the maintenance of the philosophy. Moreover, these studies tend to be mostly through quantitative research. On the contrary, the studies that are done by means of qualitative research methods, have mostly been done in the service sector. Lastly, there are no studies done that research NC and Lean leadership after implementation (Erthal and Marques, 2018).

Initial steps have been taken towards explaining the effectiveness of Lean tools among different cultures and to determine the behaviours of effective (Lean) leaders. This means that there is an increase in empirical literature that is sufficient enough to build from. Yet, there is a clear gap in the combination of Lean effectiveness among cultures and effective Lean leader behaviours. As mentioned before, culture encompasses a set of values, which highly correlate with intentional behaviours (Bardi & Schwartz, 2003; Sagiv & Schwartz, 1995). Additionally, due to the middle management being 'caught in the middle', it is a key-figure for successful long-term Lean management (Holmemo & Ingvaldsen, 2016; Nonaka, 1994). Consequently, in order to fill this gap, this article will look at the relation between work values and behaviours of Lean middle managers and the effect it has on their perceived effectiveness, within the context of National Culture. Based on the literature, there is an assumption that NC will have influence on the behaviours of ELMM, consequently, this led to the following research model (figure 1).

Figure 1

Research model
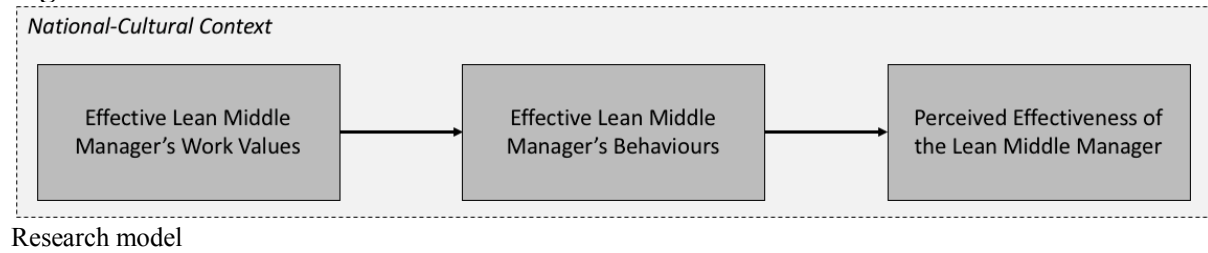
2.2   Lean values and behaviours

Through the analysis of a multitude of literature reviews a selection of Lean manager's values and behaviours is determined (Erthal & Marques, 2018; Camuffo & Gerli, 2018; Kjeld et al., 2017; Tortorella et al., 2017; Van Dun & Wilderom, 2016; Van Dun, Hicks, & Wilderom, 2017). Firstly, in table 1 a set of 24 values can be found, which are determined through a pilot study conducted by Van Dun et al. (2017), who merged her work with Fairholm's (1995) value taxonomy. These values can be considered as general values that someone's frame of reference can consist of. These values appear to be all positive in a certain way and applicable to anyone. Some of these values though, are in principle either more or less important to an individual.

Table 1

Collection of the 24 principal values

General Lean Values			
1. Result driven	7. Information sharing and analysing	13. Equality	19. Perseverance
2. Constructive feedback	8. Innovation	14. Freedom of choice	20. Potential of the average employee
3. Continuous improvement	9. Integrity	15. Helpful	21. Respect for the people
4. Courage	10. Justice	16. High quality	22. Responsibility
5. Creative	11. Open minded	17. Honesty	23. Self-reflection
6. Customer focus	12. Participation/ teamwork	18. Humility	24. Trust in the people

Note. Based on pilot study conducted by Van Dun et al. (2017), who merged her work with Fairholm's (1995) value taxonomy, resulted in a total of 24 values

Secondly, Van Dun et al. (2017) summarised a set of ELMM values based on a multitude of sources (see table 2). Based on Schwartz et al's (2012) seminal theory on human values, which shows four distinguishing higher-order value clusters ("self-transcendence" and "self-enhancement;" plus "openness to change" and "conservation."), the Lean values mentioned by Van Dun et al. 2017 can be categorized under two value clusters, namely, self-transcendence cluster (e.g., "Teamwork," "Respect for People," and "Employee Empowerment") and the openness to change cluster (e.g., "Continuous Improvement"). Elaborating on that, research on ELMMs in The Netherlands showed that Dutch ELMMs have values such as Honesty, Participation, Teamwork, Responsibility, Persistence, Continuous Improvement, Respect for

People and Candour. These values can be categorised under the same two higher-order value clusters, as an addition to the earlier mentioned division, Self-transcendence cluster (e.g., "Honesty", "Participation", "Teamwork", "Responsibility", and "Candour") and Openness to Change cluster (e.g., "Continuous Improvement"). On the contrary, Dutch ELMMs also have Conservation values (e.g., "Persistence", and "Respect for People").

Table 2

Specific values of effective Lean managers

Values	Sources
Continuous improvement	Dahlgaard-Park et al. (2013); Dean and Bowen (1994); Emiliani (2003); Emiliani and Emiliani (2013); Hellsten and Klefsjö (2000); Lakhsman (2006); Liker and Convis (2012); Sosik and Dionne (1997); Waldman et al. (1998)
Teamwork	Beer (2003); Dean and Bowen (1994); Hellsten and Klefsjö (2000); Lakhsman (2006); Liker and Convis (2012); Waldman et al. (1998)
Customer focus	Dahlgaard-Park et al. (2013); Dean and Bowen (1994); Hellsten and Klefsjö (2000); Lakhsman (2006); Waldman et al. (1998)
Respect for people	Emiliani (2003); Emiliani and Emiliani (2013); Liker and Convis (2012)
Information sharing	Lakhsman (2006); Waldman (1993)
Management by facts	Dahlgaard-Park et al. (2013); Hellsten and Klefsjö (2000)
Management commitment	Hellsten and Klefsjö (2000); Larsson and Vinberg (2010)

Note. Based on reviews performed by Van Dun et al., 2017, p. 176. This table lists items that are mentioned by two or more of a total of 22 separate sources, which were content-analyzed by Van Dun et al. 2017.

In other literature, Hartnell, Ou, and Kinicki (2011) argue that there are three competing value frameworks, which are positively associated with effective leadership, namely, Clan (attachment, affiliation, collaboration, trust and support), Adhocracy (growth, stimulation, variety, autonomy and attention to detail), and Market cultures (communication, competition, competence and achievement) (see appendix A). These leadership styles including their linked values also have their own set of assumptions, beliefs and behaviours. As a matter of fact, with a total of 65%, the Clan culture shares the most values with ELMMs (Appendix A), meaning that according to Hartnell et al. (2011), a typical ELMM displays: "Teamwork", "Participation", "Employee involvement", and "Open communication". However, as values are globally accepted, unlike behaviours, they are not included in the form of assumptions about effective Lean leaders (Schwartz et al. 2017).

On the other hand, all LMM behaviours extracted from the earlier mentioned sources are displayed in Table 3. According to Yukl, Gordon, and Taber (2002, p. 17) and Yukl (2012): "Each behaviour must be directly observable. It cannot be defined only in terms of attributions or outcomes". Additionally, the behaviours are also categorised in four Meta-categories and nine components (Yukl, 2012). However, only three out of four of the Meta-categories are used

within this research. The first meta-category is Change-oriented, which focusses on increasing innovation, collective learning, and adaptation to external changes (components linked to this meta-category are: Encouraging innovation; Envisioning change; Facilitating collective learning). The second Meta-category is Relations-oriented, which aims for enhancing member skills, the leader–member relationship, identification with the work unit or organization, and commitment to the mission (components linked to this meta-category are: Empowering; Recognizing; Supporting). The last meta-category is Task-oriented, which has the primary purpose of accomplishing the organizations' mission through the efficient use of people, equipment, and other resources (components linked to this meta-category are: Clarifying; Monitoring operations; Problem solving (short-term planning)).

In addition, Yukl, Mahsud, Prussia, & Hassan (2019), found that relations-oriented behaviour is significantly related to subordinate job satisfaction and the task-oriented behaviour component problem-solving is related strongest to managerial effectiveness. For the sake of the analysis, the components have been paired with actual behaviours mentioned in a multitude of studies, through which a link can be made with culture. By means of linking each "ELMM behaviour" to the country where the research is conducted, all behaviours and countries are mapped on a scale of cultural dimensions (Hofstede et al., 2010), see Appendix B and C. The next section explains all relations between behaviours and the National Cultural context of culture.

2.3   National culture
Like mentioned before, few studies exist on NC in combination with effective Lean behaviours. Subsequently, while trying to understand the influence of NC on behaviour a gap was found. Accordingly, scientific research on effective Lean behaviours has not yet been done on a global scale. Not yet per NC, nor is there an acceptable coverage of scientific research per cultural group, based on the clustering through the GLOBE study (House et al., 2004). On that account, there has only been a small amount of studies done on Lean behaviours in Latin America, as opposed to Anglo, Germanic/Nordic Europe and Confusian Asia (Appendix B). Consequently, performing this research in Brazil is an excellent opportunity to also cover this unexamined cultural group (House et al., 2004).

Table 3

An overview of behaviours (meta-categories and components) and the countries in which they have been observed

Meta-categories	Component	Behaviours	Country	Source
Change-oriented	Encouraging innovation	(Intellectual) stimulation and giving autonomy for team leaders to experiment	1, 5, 8, 13, 15, 17, 21, 23, 24, 25	Busk Kofoed et al., 2002; Cummings, 1978, Dankbaar, 1997; Alagaraja & Egan, 2013; Karlsson & Åhlström, 1996; Waldman 1993; Bessant, Caffyn, & Gallagher 2001; Doeleman et al., 2012; Laohavichien et al., 2011
		Daily knowledge exchange	13, 17, 24, 25	Delbridge, 1995; Waldman et al., 1998
	Envisioning change	Awareness of goals and strategic performance measures	13, 21, 24, 25	Delbridge, 1995; Bessant, Caffyn, & Gallagher, 2001; Larsson & Vinberg, 2010
		Clear and explicit informing vision and goals	15, 23, 24	Hines et al., 2004; Van Dun & Wilderom 2012; Bateman & Rich, 2003; Carton et al., 2014; Laohavichien et al., 2011
		Display of long-term commitment to Lean	*2, 3, 4, 6, 7, 8, 12, 13, 17, 19, 20, 21, 24, 25	Kozlowski & Ilgen, 2006; Alagaraja & Egan, 2013; Netland & Ferdows, 2016; Camuffo & Micelli, 1997; Poksinska et al., 2013; Waldman et al., 1998; Hellsten & Klefsjo, 2000; Larsson & Vinberg, 2010; Mathieu et al., 2008; Bortolotti et al., 2015; Emiliani, 1998; Nwabueze, 2011; Sosik & Dionne, 1997; Camuffo, & Gerli, 2018
	Facilitating collective learning	Asking for team leaders to share factual, work-related information	25	Kozlowski & Ilgen, 2006; Bendoly et al., 2010; Keating et al., 1999
		Maintaining a culture with team building through collaboration and equality	13, 15, 17, 24, 25	Rothenberg, 2003; Mathieu et al., 2008; Van Dun & Wilderom, 2015; Sosik & Dionne, 1997; Waldman, 1993
		Facilitating organizational learning	*1, 3, 4, 7, 8, 10, 11, 12, 13, 18, 19, 20, 21, 24, 25, 27	Burke et al., 2006; Bunderson & Boumgarden, 2010; Calantone et al., 2002; Camuffo & Micelli, 1997; Poksinska et al., 2013; Camuffo, & Gerli, 2018
		Open-minded for distinct view	1, 3, 4, 8, 9, 14, 16, 18, 19, 20, 22, 25, 26	Kozlowski & Ilgen, 2006; Mathieu, 2008; Podsakoff et al., 2014; Chan, 2013; Morrison, 2011
Relations-oriented	Empowering	By distancing, let teams be self-directed teams	8, 12, 13, 24, 25, 27	Burke et al., 2006; Kauffeld, 2006; Bessant et al., 2001; Delbridge, 1995; Mathieu et al., 2008; Mullarkey et al., 1995; DeChurch et al., 2010; Zaccaro et al., 2001; Camuffo, & Gerli, 2018
		Celebrating and recognizing success	3, 7, 8, 13, 15, 17, 24, 25	Emiliani, 1998; Found & Harvey, 2006; Lucey et al., 2005; Waldman, 1993; Rothenberg, 2003
		Individual consideration work related	13, 15, 17, 25, 27	Waldman, 1993; Doeleman et al., 2012; Burke et al., 2006
		Blaming or making people feel pressure from up top by controlling the employees working speed	13, 24, 25	Delbridge, 1995
		Responding to employees willingness (facilitating education/training)	1, 4, 5, 8, 9, 10, 13, 15, 19, 21, 24, 25	Busk Kofoed et al., 2002; Cummings, 1978, Dankbaar, 1997; Bessant et al., 2001; Banks et al., 2014; Seers, 1989; Kauffeld, 2006; Rothenberg, 2003
		Rewarding members' through providing compliments	1, 5, 8, 13, 15, 21, 24, 25, 27	Busk Kofoed et al., 2002; Cummings, 1978, Dankbaar, 1997; Kozlowski & Ilgen, 2006; Burke et al., 2006
		Trusting employees with a greater number of tasks	3, 7, 8, 12, 13, 15, 21, 24, 25	Poksinska et al., 2013: 893: Found & Harvey, 2006; Lucey et al., 2005; Larsson & Vinberg, 2010; Emiliani, 1998; Sosik & Dionne, 1997; Mullarkey et al., 1995; Camuffo, & Gerli, 2018

Behaviours. Country numbers: *=**Brazil**, 1=Australia, 2=Austria, 3=Canada, 4=China, 5=Denmark, 6=Finland, 7=France, 8=Germany, 9=Hong Kong, 10=India, 11=Israel, 12=Italy, 13=Japan, 14=Mexico, **15=Netherlands**, 16=Portugal, 17=Russia, 18=Singapore, 19=South Korea, 20=Spain, 21=Sweden, 22=Taiwan, 23=Thailand, 24=UK, 25=US, 26=Venezuela & 27=Worldwide

Note1. Literature on Lean leader behaviours are overrepresented in the following regions: "Anglo, Germanic/Nordic Europe and Confusian Asia". Underrepresented regions are: "Latin America, Middle East and Sub-Saharan Africa"

Note2. Based on reviews performed by Erthal & Marques, 2018; Camuffo, & Gerli, 2018; Kjeld et al., 2017; Tortorella et al., 2017; Van Dun & Wilderom, 2016; Van Dun, Hicks, & Wilderom, 2017; Seidel, Saurin, Marodin, & Ribeiro (2017). Meta-categories and components are based on literature from Yukl, Gordon and Taber, 2002

Table 3 [continued]

Meta-categories	Component	Used behaviours	Country	Source
Relations-oriented	Recognizing	Active listening (nodding and eye-contact)	3, 13, 15, 17, 24, 25	Van Dun, Hicks, & Wilderom, 2016; Emiliani, 1998; Nwabueze, 2011; Waldman et al., 1998
		Asking team leaders for feedback and improving oneself afterwards	*21, 25	Ilgen et al., 2005; Emiliani, 1998; Liker & Convis, 2012; Larsson & Vinberg, 2010; Bendoly et al., 2010
		Considering the individual (non-work related)	11, 25, 27	Carmeli et al., in press; Dutton, 2015; Burke et al., 2006
		Making time for one-on-one talk with employees	1, 3, 4, 5, 7, 8, 10, 11, 13, 15, 18, 19, 21, 24, 25	Busk Kofoed et al., 2002; Cummings, 1978, Dankbaar, 1997; Kozlowski & Ilgen, 2006; Bunderson & Boumgarden, 2010; Bessant et al., 2001; Mullarkey et al., 1995; Rothenberg, 2003
		Quickly acting upon suggestions	*13, 17, 25	Waldman et al., 1998
		Showing trust by taking employees serious	8, 21, 24, 25	Bessant et al., 2001; Rothenberg, 2003; Kauffeld, 2006; Emiliani, 1998; Larsson & Vinberg, 2010; Sosik & Dionne, 1997
	Supporting	Supporting the team composition	12, 13, 15, 17, 25	Sosik & Dionne, 1997; Waldman, 1993; Van Dun & Wilderom, 2012; Camuffo, & Gerli, 2018
		Taking responsibility for the team	*1, 3, 4, 5, 8, 9, 10, 13, 14, 15, 16, 18, 19, 20, 22, 24, 25, 26	Banks et al., 2014; Seers, 1989; Van Dun & Wilderom, 2015; Marks, Matthieus, & Zaccaro, 2001; Salas, Sims, & Burke, 2005; Dankbaar, 1997; Podsakoff et al., 2014
		Showing visible support, application and commitment to goals	7, 12, 13, 15, 17, 20, 25	Camuffo & Micelli, 1997; Van Dun & Wilderom, 2012; Emiliani, 1998; Mann, 2009; Waldman, 1993; Camuffo, & Gerli, 2018
Task-oriented	Clarifying	Providing clarity about team structure	*1, 3, 4, 7, 8, 10, 11, 13, 18, 19, 21, 24, 25	Bunderson & Boumgarden, 2010; Kauffeld, 2006
		Communicating through a closed-loop	13, 24, 25	Salas et al., 2005; Delbridge, 1995
		Sharing information structured	*1, 3, 4, 7, 8, 10, 11, 13, 15, 18, 19, 21, 24, 25	Kozlowski & Ilgen, 2006; Bunderson & Boumgarden, 2010; Godard, 2001; Salas et al., 2005; Mesmer-Magnus & DeChurch, 2009; Larsson & Vinberg, 2010; Poksinska et al., 2013; Van Dun & Wilderom 2012
		Communicating timely	1, 3, 4, 7, 8, 10, 11, 13, 18, 19, 21, 24, 25	Bunderson & Boumgarden, 2010; Rothenberg, 2003
	Monitoring operations	Checking up on goals and evaluating	3, 7, 8, 13, 15, 24, 25	Mann, 2009; Nwabueze, 2011; Found & Harvey, 2006; Lucey et al., 2005
		Discussing visual performance dashboards during daily startup meetings	13, 24, 25	Mann, 2009; Nwabueze, 2011; Bateman & Rich, 2003; Carton et al., 2014; Delbridge, 1995; Anand et al., 2009; Day et al., 2004, Marks et al., 2001; Salas et al., 2005, 2004; Rothenberg, 2003
		Giving instant feedback on errors	24, 25	Ilgen et al., 2005; Rothenberg, 2003
		Participation in/supporting of (daily) Quality/Continuous improvement projects and events	*1, 4, 6, 8, 12, 13, 17, 19, 20, 21, 24, 25	Bessant et al., 2001; Bortolotti et al., 2015; Worley & Doolen, 2006; Delbridge, 1995; Waldman et al., 1998; Sosik & Dionne, 1997; Waldman, 1993
		Visiting the work floor	3, 13, 17, 21, 24, 25,	Emiliani, 2003; Larsson & Vinberg, 2010; Waldman et al., 1998; Rothenberg, 2003
	Problem solving (short-term planning)	Discussing problems	1, 3, 4, 7, 8, 10, 11, 13, 18, 19, 21, 24, 25	Bunderson & Boumgarden, 2010; Bessant et al., 2001
		Mediating in conflict situations	1, 3, 4, 7, 8, 10, 11, 13, 18, 19, 21, 24, 25	Bunderson & Boumgarden, 2010; Delbridge, 1995

Table 3 "continued". Behaviours. Country numbers: ***=Brazil**, 1=Australia, 2=Austria, 3=Canada, 4=China, 5=Denmark, 6=Finland, 7=France, 8=Germany, 9=Hong Kong, 10=India, 11=Israel, 12=Italy, 13=Japan, 14=Mexico, **15=Netherlands**, 16=Portugal, 17=Russia, 18=Singapore, 19=South Korea, 20=Spain, 21=Sweden, 22=Taiwan, 23=Thailand, 24=UK, 25=US, 26=Venezuela & 27=Worldwide

Note1. Literature on Lean leader behaviours are overrepresented in the following regions: "Anglo, Germanic/Nordic Europe and Confusian Asia". Underrepresented regions are: "Latin America, Middle East and Sub-Saharan Africa"

Note2. Based on reviews performed by Erthal & Marques, 2018; Camuffo, & Gerli, 2018; Kjeld et al., 2017; Tortorella et al., 2017; Van Dun & Wilderom, 2016; Van Dun, Hicks, & Wilderom, 2017; Seidel, Saurin, Marodin, & Ribeiro (2017). Meta-categories and components are based on literature from Yukl, Gordon and Taber, 2002

Most literature on NC and effective Lean leader behaviours use Hofstede's cultural dimensions. Consequently, for the sake of consistency, the Hofstede dimensions are chosen to interpret the literature and develop assumptions on Brazilian behaviours. The six dimensions of Hofstede can be explained as follows:

- Power Distance (PDI); The height of the score on this dimension shows the degree of acceptance by lower staff towards their superiors. It shows how society deals with inequalities among people.

- Individualism vs. Collectivism (IDV); People in individualistic countries prefer to have loose ties with people like colleagues and care more about themselves and their direct family. On the other side people in collectivistic countries expect family and friends to look after them as they do that in return.

- Masculinity vs. Femininity (MAS); People in culture with high masculinity strive for achievement, assertiveness, possession and success. People in more feminine countries prefer cooperation, modesty, caring and quality of life.

- Uncertainty Avoidance (UA); This dimension concerns the degree of comfort people in certain cultures have with uncertainty and ambiguity. Does the population on average try to control the future or just let it happen. People in culture that score high on this dimension have strong rules and rigid beliefs and behaviours.

- Long term orientation vs Short term orientation (LTO); People in countries that score high are more pragmatic and prepare for the future, through education of saving behaviour. People in countries that score low on this dimension are suspicious of change and are more normative.

- Indulgence vs Restraint (IVR); For people in indulgent countries it is easy to indulge oneself freely with whatever drives the person and whichever gives pleasure and joy. On the other side for people in a more restraint culture, there are strict social norms and society wants gratification to be suppressed.

In order to put an emphasis on culture and effective organizational leadership both the theory of Hofstede and the GLOBE study are used to interpret the differences between effective Brazilian and Dutch LMMs. The GLOBE study explains National Culture based on the cultural groups, so the findings can be put into Latin America (Brazil) and Germanic Europe (Netherlands). Despite that both Hofstede et al. (2010) and House et al. (2004) are criticised, Hofstedes' "culture dimensions measurements" have a high construct and convergent validity and relevance (Merritt, 2000; Magnusson et al., 2008). Furthermore, House et al. (2004)

describes a good additional measure for the sake of generalization, due to its focus on effective organizational leadership. Initially, the literature review led to the behaviours and the countries where they were observed (see table 3). In turn, these behaviours were linked to Brazil and the Netherlands per Hofstede dimension.

2.4   Lean leadership behaviours linked to national culture

In the first place, a multitude of studies argue that NC plays an important role in what employees value in a leader. For example, North-European countries such as Sweden and The Netherlands value empowerment and teamwork, which is of less importance in Latin American countries (Cagliano, Caniato, Golini, Longoni, & Micelotta, 2011; Larsson & Vinberg, 2010; Poksinska et al., 2013). Interestingly, Erthal and Marques (2018) found that Japanese Masculinity and Power Distance hinders Lean, due to its restrictions on sharing opinions with seniors within the company, as it is perceived to be rude to question their knowledge. Remarkably, since this suggests that the country where Lean philosophy originates, does not have a perfect score on its cultural dimensions for Lean, as according to Erthal and Marques (2018) a low-middle score on Masculinity and Power distance seem to be ideal (see Figure 2). Additionally, Van Dun et al. (2017), found that Dutch ELMMs show significantly more relation-oriented behaviours such as active listening and agreeing.

Even though not significant, Dutch ELMMs show a change-oriented behaviour such as encouraging. Lastly, a more task-oriented behaviour shown is informing by structuring conversations. Dutch ELMMs show significantly less behaviours such as task-monitoring, providing negative feedback and defending one's own position. Actually, the literature assumes more or less a similar behavioural pattern (see appendix D). Most dominant are the relations-oriented behaviours i.e., "quickly acting upon suggestions, asking team leaders for feedback, after which willing to improve oneself, active listening (nodding and eye-contact) and taking responsibility for the team". The task-oriented category shows the importance of structured information sharing and having discussions/problem addressing. Lastly, change oriented behaviour, shows the importance of leaders emphasizing the sharing of their own work-related information and ideas and open-mindedness for distinct views.

Figure 2
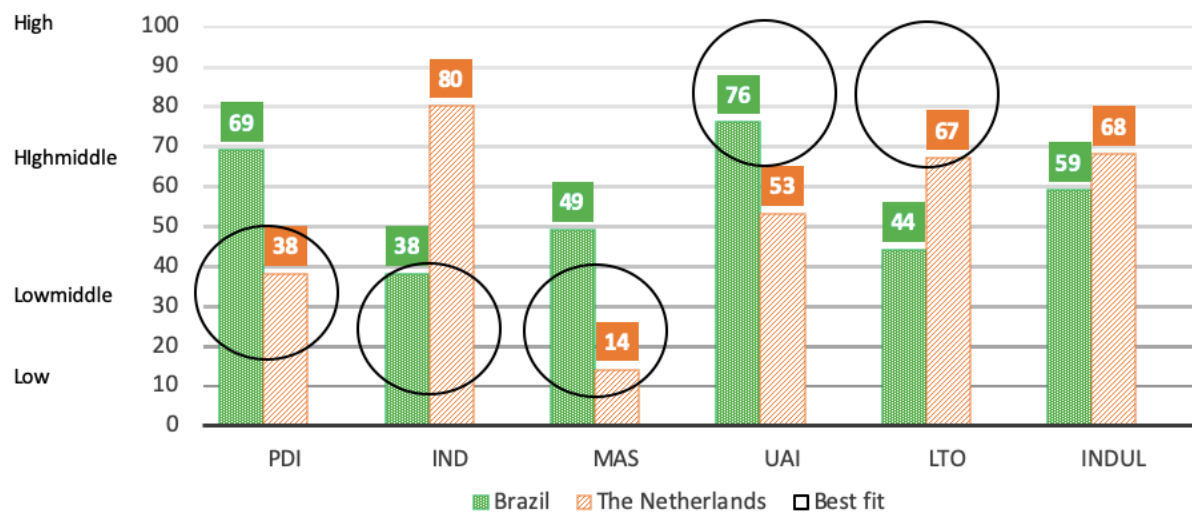
National culture comparison chart
Note. Hofstede dimension comparison Brazil (green) and The Netherlands (orange), based on Hofstede (2010).
The scores with the best fit for Lean are indicated with a black circle, based on Erthal & Marques (2018).

Table 4
National culture comparison table

	PDI	IDV	MAS	UAI	LTO	IVR
Brazil	High-middle	**Low-middle**	Average	**High-middle**	Low-middle	Average
Netherlands	**Low-middle**	High	Low	Average	**High-middle**	High-middle
Best fit	**Low-middle**	**Low-middle**	Low-middle	**High-middle**	**High-middle**	-

Note. Based on the cultural dimension, Hofstede et al. (2010)

As shown in figure 2, Brazil and The Netherlands score different on the Hofstede's cultural dimensions. In addition, neither one has an ideal set of scores compared to the best fit for Lean. Table 4 shows a clear overview of the dimensions per country that do overlap with the best fit. For instance, Brazil scores good on individualism and uncertainty avoidance and The Netherlands scores good on power distance and long term orientation.

The following paragraph will zoom in on each NC dimension. Using the literature review on effective leadership behaviours an assumption is made on the to be expected behaviours of Brazilian and Dutch ELMMs (appendix E). It is important to consider that some effective behaviours are linked to cultural dimensions with a good fit for Lean management, and vice versa (table 4). This would mean that for Brazil behaviours linked to Individuality and Uncertainty avoidance and for the Netherlands Power distance and Long term orientation could play a bigger role in the effectivity of the manager (table 4). In appendix F, the division of all behaviours linked to the Brazilian culture per dimension can be found.

Power distance

Brazil has an above average PDI, additionally, behaviours shown by effective leaders in these countries seem to compensate for this inequality between the higher and lower staff. For instance by: Leaders share their own work-related information, are open-minded for different views, act quickly upon suggestions and take the responsibility for the team. This makes sense, as subordinates can accept inequality in exchange for leadership. A leader in this case facilitates (collective learning) initiative, after which suggestions are recognized. Last but not least, the leader is a supporter and takes responsibility for the team. On the contrary, the score the Dutch have on this dimension is a very good fit for effective Lean management (figure 2). So, in The Netherlands, the low PDI shows that the ELMM's listening and learning is important. There is more often conflict and discussions, to which the manager has to listen, because it helps with learning and improving in the long run. In conclusion, the literature shows that Effective Lean Middle Managers in national cultures with a high-middle score on power distance will display more behavioural components such as Facilitating collective learning, Recognizing, Supporting and Problem solving, as the staff sees the manager as the ultimate responsible person.

Individualism versus collectivism

Brazil is a more collectivistic country as opposed to the Netherlands where there is a more individualistic culture. The literature suggests that, for a LMM to be effective in Brazil, he/she should be actively giving teams autonomy and trusting them with a greater number of tasks. Additionally, subordinates have to be listened to actively one-on-one and suggestions should be acted quickly upon. Lastly, the collectivistic nature shows in a way that an effective leader is present and participated in/supports events in continuous improvement. The behaviours show how the manager sees the subordinates as humans with autonomy, but whom need to be listened to, trusted and valued, as they are one of the group. Dutch ELMM on the other hand mostly focus on information sharing and listening to employees, which could be in order to compensate for the higher degree of individualism. In conclusion, the literature shows that Effective Lean Middle Managers in national cultures that score high-middle on collectivism will display ideally behavioural components such as Empowering and Recognizing, and additionally Encourages innovation, Monitors operations and Solves problems.

Masculinity versus femininity

Brazil has an average score but tends to be a little more feminine, this means there is no drastic competition among team members and leaders and creates a climate that is open for information sharing, harmony, and creating psychological safety. Which makes that behaviours shown by leaders are sharing their own work-related information, are open-minded and create a collaborative culture with team building and equality. Additionally, caring is also important and shows through behaviours such as, quickly acting upon suggestions, taking responsibility for the team and having discussions/problem addressing. Dutch culture on the other hand is even more feminine, which is according to Erthal and Marques (2018) a better fit, and is linked to behaviours such as the ELMM being open for providing problem-solving consults, back-up behaviour, responsibility and rewarding member's self-management. This shows how indeed, counterproductive behaviours like task-monitoring and negative feedback are behaviours shown less by ELMMs. In conclusion, the literature shows that Effective Lean Middle Managers in national cultures with a high-middle score on femininity will display more behavioural components such as facilitating collective learning, recognizing, supporting and problem solving.

Uncertainty Avoidance

Brazil's Uncertainty Avoidance score is somewhat on the higher side, this makes that controlling the future, strong rules and rigid beliefs are important. The ELMM shows change oriented behaviours such as creating collaborative culture/team building with equality and sharing one's own work-related information and open-mindedness. Relationship-oriented behaviours are strongly showed by quickly acting upon suggestions and taking responsibility for the team. Lastly, there are also task-oriented behaviours such as, visible support, application and commitment to this goal. Additionally, the score of the Dutch uncertainty avoidance, is average and does not show any specific outstanding behaviours. In conclusion, the literature shows that Effective Lean Middle Managers in national cultures with a high-middle score on Uncertainty avoidance will display behavioural components such as facilitating collective learning, recognizing, supporting and monitoring operations.

Long term orientation versus short term orientation

Brazil has a more short term oriented culture and behaviours are very much focussed on the relation with the team (asking team leaders for feedback, after which willing to improve oneself, quickly acting upon suggestions, active listening, taking responsibility for the team).

Additionally the change-oriented behaviour where leaders share their own work-related information and open-mindedness are also important. Behaviour components such as "facilitating collective learning" and behaviours such as "asking team leaders for feedback, after which willing to improve oneself" seem unusual for a short term mentality. This makes sense as the Erthal and Marques (2018) argue that a long term culture is best fit for Lean management. Perhaps, effective Lean managers in short term oriented countries show more long term oriented behaviours. As opposed to Brazil is Dutch culture more long term oriented, consequently, information sharing keeps on playing an important role. Additionally, conflict and learning behaviour are important and help in the long run for the growth and continuous improvement of a team. Furthermore, responsibility, building commitment and harmonious relationships. This has a link with encouraging – enthusiasm and providing positive feedback. In conclusion, the literature shows that Effective Lean Middle Managers in national cultures with a high-middle score on short term orientation will display more behavioural components such as, facilitating collective learning, recognizing and supporting.

Indulgence versus restraint

Brazil scores average on this dimension and ELMM behaviours that may be effected by this dimension are, visible support, application and commitment to the goal, participation in/supporting events & continuous improvement projects. Contrarily, the Dutch culture scores higher on indulgence. Behaviours linked to this type of culture are information sharing, active listening, and task monitoring and evaluating among others. The behaviours do not seem to explain indulgence or have an obvious connection. Unfortunately, for both countries there do not seem to be any clear linkages, hence this dimension cannot be used a measure to argue behaviours of ELMMS. In conclusion, the literature shows that Effective Lean Middle Managers in national cultures with an average score on indulgence will display more behavioural components such as, facilitating collective learning, recognizing and supporting.

Finally, through analysing and understanding the recurring dominant effective behaviours, from each Hofstede dimensions, a conclusion on general effective behaviours can be drawn. Overall, important effective leadership behaviours in Brazil are mostly RO behaviours such as, recognizing and supporting. Additionally, the CO behaviour facilitating collective learning. Lastly, the TO behaviours problem solving and monitoring operations are also important. A full overview of all assumed dominant behaviours including the frequency with which it is mentioned, based on the literature can be found in appendix F.

3   Methods

In this chapter the methods used for the verification of the findings in the literature review are explained. Triangulation is achieved through the combination of mixed-methods used in this research (Cohen and Manion, 2000). Namely, a field-inductive approach focussed on LMMs situated in entirely different organizations (DeHoratius & Rabinovich, 2011; Edmondson & McManus, 2007; Ketokivi & Choi, 2014). Similar to Van Dun, Hicks and Wilderom (2017), in order to retrieve a nearly 360°, data was conducted through a multi-source view on the LMM's behaviours. These included multiple in-depth interviews and questionnaires with their top manager, the concerning middle manager, and two of their team leaders (see Figure 3). Additionally, all other team leaders were also given a questionnaire. Using the snowball sampling method a sufficient sample size was established. Finally, these exploratory research methods were used for the sake of comparing the outcomes of the research performed by Van Dun, Hicks and Wilderom (2017) on LMM values and behaviours in the Netherlands.

Figure 3
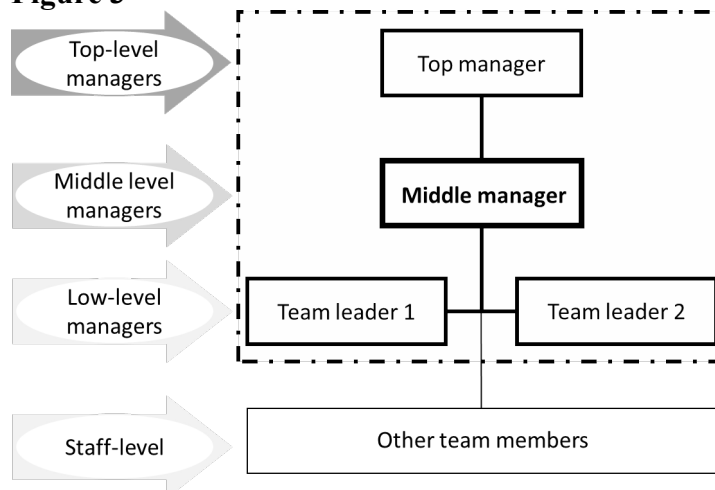
Sample participants structure lay-out

Note. Within the white square are the participants that will be interviewed about the middle manager (namely: top-, middle manager and two team leaders). In the right corner outside the square with a thick border are the other team leaders who will be filling in a questionnaire.

3.1   Sampling procedure

Through snowball sampling we selected a total of seven focal ELMMs as well as their senior manager and team leaders, which was deemed sufficient enough to draw a conclusion (Goodman, 1961). Most contact was assumed to take place directly between the ELMM and its senior manager and the LMM and its team leaders, with whom also daily and/or weekly team meetings took place. The LMM in the ideal case is highly effective, using a multitude of Lean tools and together with the senior and subordinates represents the Brazilian population.

Data gathering was done at Brazilian organizations located in the province of Santa Catarina, that have been implementing Lean for a minimum of one year. Potential participants were approached through five different means:

- Networking with (senior) managers within the Lean business during the "VIII Congresso de Sistemas Lean" a Lean management congress with 270 participants that took place on the 29th and 30th June 2018 of in Florianopolis, Santa Catarina

- Four company visits to Lean organizations that have been working with Lean for 5-16 years. These visits had been initiated by UFSC through the Systems and Production Engineering Department, on July 4th and 5th 2018

- Contact information of possible ELMMs, provided by Dr. Guilherme Tortorella, local supervisor at the Universidade Federal Santa Catarina.

- A contact person from the UFSC university student enterprise focussing on Lean consulting (GLean)

- Word-of-mouth

Although, within this research a total of seven LMMs spread over five organizations have been analysed. Yet there were a total of nine other potential companies, which due to a variety of reasons eventually chose not to participate in the study. For instance, some organizations structures were to flat, ergo either they were unable to define a middle manager or provide a multi-source scope of their middle manager. In other cases more emphasize was put on them assuming their middle managers were not *effective* enough to participate within the research.

Following the ethical research guidelines, all participants were informed about the possibility to withdraw from the research at any point during or after the research without having to give an (valid) explanation.

3.2   Sample description

Like mentioned before, the sample consisted of seven LMMs from five different organizations (table 5). A total of 25 open-ended interviewees were included in this research with the seven middle managers, seven senior managers and 11 team leaders. As the collected data was multi-source feedback on these ELMMs, besides the interview, a total of 57 questionnaires were completed.

Table 5
Context of focal six effective Lean middle managers

	Industry	Department	Gender	Sub-ordinates	Experience with lean (M)	N per method	
						Interview	Survey
1	IT Services	Product development	M	45	12	4	17
2	IT Services	Product management	M	35	24	4	17
3	Manufacturing "hydraulic building materials"	Production	M	90	120	3	7
4	Manufacturing "Home Appliances"	Production & Engineering	M	6	60	2	4
5	Manufacturing "Starter Drive Production"	Product management	M	154	60	4	4
6	University	HR	F	3	18	4	4
7	University	HR	F	3	24	4	4
	Total					25	57

The LMMs worked in the following organizations: 1 Service IT, 1 university, 3 manufacturing ("hydraulic building materials", "Starter Drive Production" and "Home Appliances"). Out of these seven teams, five teams were in the private and two teams in the public sector. Table 6 shows the average tenure years, Lean tenure in months, age, team age in months, and number of team members per participant type and for the total sample. Additionally is shows the percentage of male participants and the type of education completed per participant type and for the total sample.

Table 6
Average of the total sample (N=57)

		Tenure Years	Lean Ten. Months	Gender % male	Age	Education	Team age Months	Member #
Senior manager	N = 7	10	64	100,00	40	7S/0B/0H		
Middle manager	N = 7	10	43	71,00	40	6S/1B/0H		
Team leaders	N = 12	6	18	67,00	33	4S/8B/0H		
Other TL	N = 31	11	18	79,00	36	13S/13B/5H		
Sample average	N = 57	9,25	36	79	37	30S/22B/5H	20	39

S= Specialized (Master/post-graduation and PhD) | B= (Bachelor degree) | H= (High school completed)

3.3   Measures

Table 7 shows the methods and measures which were used in this research. Overall, the interview and survey formats are based on those used in Van Dun, Hicks & Wilderom (2017), in order to make a clearer comparison of both cultures (Patton, 2002). Explanation about all steps used for the data gathering can be found below.

Table 7
The research design all variables and their measure methods

	Work values	LMM behaviours	Perceived effectiveness	National culture
In-depth (open-ended) interview	X	X	X	
Q-sort distribution	X			
Hierarchical Taxonomy questionnaire		X		
Hofstede VSM test				X
Lean tool use			X	
Effectiveness test (ELQ)			X	

3.3.1   Work values

ELMM's values were retrieved via a q-sort measure (Brown, 1996; Souba & Day, 2006) and a critical incident technique (CIT) (Flanagan, 1954). In total the q-sort values is based on 24 values (Brown, 1996; Van Dun et al., 2017; Schwarz, 2012; Brown & Treviño, 2009). A list of all values used in the q-sort distribution can be found in table 1. The q-sort distribution, which usually consists of 24 statements, forces the participant to prioritise a small set of values, hence it prevents social desirability and has a degree of ipsativity (McCloy et al., 2005). The procedure forced the 25 respondents to place all 24 statements about the LMM within the pre-arranged model (Brown, 1996; Fu et al., 2010). The distribution of the given values has to be ranked within a quasi-normal distribution with two opposing extremes (Brown, 1996). The distribution has a 9-point scale, ranging from "Least important", to "Most important". Each point on the scale has a pre-specified number of cards that is allowed to link to the point scale, which is divided in the form of a normal distribution (from left to right this comes down to the following distribution 2, 2, 3, 3, 4, 3, 3, 2, and 2 cards per scale). Secondly, through the use of a Critical Incident Technique (CIT) during the interviews the values displayed by the LMMs can be determined (Bonesso, Gerli, & Scapolan, 2014; Flanagan, 1954; Edvardsson & Roos, 2001). Using the CIT, interviewees were asked to recall a moment the LMM displayed an act of true Lean leadership and tries to link particular values to the act. Accordingly, the participant has to describe this situation after which the interviewer asked on the basis of which values the middle manager acted (Yukl & Van Fleet, 1982).

3.3.2   Behaviours

Behaviours were tested by means of a questionnaire, the Hierarchical Taxonomy of Leadership Behaviours questionnaire, based on research conducted by Yukl and Van Fleet (1982) and Yukl (2002). This is in order to determine the honesty, reliability and additional extra unconscious information. Questions on the questionnaire are on a 7-point Likert-scale from "Never" to "Always", and consists of statements about the behaviour shown by the middle

manager. The questionnaire consists of statements such as: (The concerning middle manager) "Clarifies role expectations for task performance" and "Facilitates collection and dissemination of information". Secondly, similar to value measures, behaviours will also be measured using the Critical Incident Technique (CIT), in order to determine the behaviours displayed by the LMMs that are perceived as effective (Flanagan, 1954; Edvardsson & Roos, 2001).

3.3.3   Perceived leader effectiveness

Besides the main elements there is also a set of other categories tested. These are measuring variables that argue whether the LMM is actually (perceived as) an "effective" Lean middle manager

1. *Lean tool use*; All 25 participants were asked which Lean tools are used within their organization, using the list created by Fullerton et al (2014). Participants indicated their agreement to the following example statements, "Performance metrics are aligned with operational goals" [Strongly agree; Strongly disagree] and "to what extent has your facility implemented the Kanban system". They could respond on a 5-point scale with as scale labels: Not at all, A little, To some extent, Considerably, A great deal.

2. *Lean Middle Manager Effectiveness;* The degree of effectiveness of each of the focal LMM's is measured via the ethical leadership scale (ELQ) (Yukl et al., 2011). Various studies have found positive linkages between ethical leadership and perceived leader effectiveness (Brown et al., 2005; De Hoogh & Den Hartog, 2008; Kalshoven et al., 2011; Hassan et al. 2013). As the "Lean tool use" measure will focus solely on the effectivity of the practical work related aspects in the team, the ELQ measure covered the people managing of the LMM. Hence, as opposed to a perceived a effectiveness test, the ELQ was used in order to extract more suitable data for this specific research. Hassan et al. (2013) also argues that ethical leadership behaviours "provide subordinates with important cues about the extent to which they can develop open and trusting relationships with their leader and such cues, in turn, may strengthen their emotional attachment to the work unit and modify their perception of leader effectiveness" (p. 414). It is measured with a 6-point Likert-scale with 15 items about the LMM. The LMMs team leaders are the ones to fill out this test and based on this data the degree of effectiveness of the LMM and whether or not this person can be considered an ELMM. The questionnaire is on a 6-point Likert-scale from: "Strongly disagree" to "Strongly agree". Examples of questions asked are: "My boss can be trusted to carry out promises and commitments" and "My boss insists on doing what is fair and ethical even when it is not easy."

3.3.4   National culture

It should be taken in consideration that a native Brazilian does not necessarily have a typical Brazilian score on the cultural dimensions of Hofstede et al. (2013). Consequently, to determine whether the participant is indeed a representative of the Brazilian culture the VSM 2013 test was used (Hofstede, 2013). This way each individual's score on Hofstede's six cultural dimensions can be compared to the average score of the Brazilian population (Hofstede, 2010). Questions are on a 5-point Likert-scale from "At utmost importance" to "Off very little or no importance" or from "Always" to "Never". A question is for example: "In choosing an ideal job, how important would it be to you to have sufficient time for your personal or home life?" or "In choosing an ideal job, how important would it be to you to have a boss (direct superior) you can respect?"

3.3.5   Respondent's background information

Core ELMM data and general views on the Lean philosophy; This data was gathered by means of open ended interviews and questionnaires. This part focussed on the interviewees' view on Lean organizations, leadership, values, behaviours and culture. The initial questions of the in-dept interview aimed at understanding the opinion/view of the interviewee on the topic of Lean organizations and leadership. In this stage the participant was told that there are no wrong answers and that the interview is confidential and anonymous. Accordingly, questions asked at this stage were, "(1) What is, according to you, a Lean organization?; (6) In your opinion, why is this middle manager an effective manager?; (7a) Is this distinctive from other middle managers (in other non-Lean organizations) that you have had?". Using these introductory questions the participant starts thinking about examples of Lean behaviours. Consequently, revealing which behaviours of the LMM are most on the surface according to the participant.

3.4   Data analysis

The total analysis consists of a total of 4 main research categories. Namely, "Values", "Behaviours", "Leader Effectiveness" and "Culture". Each category has its own data sub-categories in order to fully understand and analyse the essence within the boundaries of the research.

3.4.1   Lean middle manager values

Value measuring through the multi-source q-sort is analysed by means of descriptive statistics, such as the mean and standard deviation per LMM. The descriptive statistics were calculated

per participant category: Senior manager, Middle Manager, and Team Leaders. In addition the set of 24 values were also analysed as rank-order correlation statistics: Spearman's rho. Besides the q-sort distribution, values were also analysed per sentence by means of the open-ended interview and the CIT. Specifically, the open-ended interviews audio data was fully translated and transcribed as accurate as possible. The transcripts were closely analysed per sentences and interpreted through the elemental qualitative method, process coding. Consequently, each sentence used in the CIT and other parts in the interview where the LMMs' values were mentioned, were closely analysed, evaluated and categorized as one of the general 24 values. Additionally the frequency with which each element was mentioned could be determined, and thus the total sum of all values per LMM was formed. Eventually, the value output through the q-sort distributions and the interviews were combined, after which the effective and ineffective values of both Brazilian and Dutch middle managers were compared, both with each other and with the literature review.

3.4.2   Lean middle manager behaviours

The survey output also consists of descriptive statistics (similar to 3.4.1). An additional reliability test was done using Cronbach's alpha and an Mann-Whitney U Two-Independent-Samples test. Secondly, similar to the qualitative analysis on values, this same close interview transcription analysis was done in order to generate LMM behaviours. Thereupon, behaviours were extracted which were then categorized under the micro-behaviours earlier displayed in table 3 (after which they are simultaneously categorised under their components, and meta-categories). Lastly, the same procedure used on the value analysis of quantification was used on behaviours. Eventually, the behaviour output through the questionnaires and interviews were combined, after which the effective and ineffective behaviours of both Brazilian and Dutch middle managers were compared, both with each other and with the literature review.

3.4.3   Perceived leader effectiveness

Firstly the data from the case reports was used (see appendix G) to separate middle managers who have been implementing Lean management for a long time from middle managers who are new to Lean management. For the sake of measurement, Lean middle managers have who had been Lean managers at the same company for at least two years were considered to be "Established Lean Managers". On the other hand, managers who did not meet this minimum were considered "New Lean Managers". Additionally, all LMMs and their teams were unique and had a different construct, work ethic and history. Since this cannot be controlled, while it

could have an effect on the result, it should be taken into account throughout the analysis. Furthermore, between Middle manager and team leaders there is looked at the amount of consensus on the use of Lean tools, based on the "Lean manufacturing and firm performance" questionnaire by R.R. Fullerton et al. (2014). Lastly, Leadership effectiveness is measure using the Ethical Leadership Questionnaire from Yukl et al. (2011). For this analysis the questionnaire outcome for each of the ELQ items per LMM was multiplied with the associated Ethical Leadership Factor Loadings, which are determent through research conducted by Yukl et al. (2013). Essentially all seven Lean Middle Managers were categorized under one of the following labels: "Effective [66.6;55.5]; Average [55.4;38.85]; Ineffective Leader [38.84;11.1]". Additionally, in order to check the reliability, the Cronbach's alpha will be measured. In essence, through categorizing all LMMs, possible outliers can be controlled and better interpreted.

3.4.4 Culture

All participants Value Survey Module (Hofstede et al., 2013) test-scores were calculated, interpreted and compared to the typical Brazilian culture. Additionally, the reliability was tested with Cronbach's alpha. The test gave an indication on the score of the participant for each dimension, which in turn helped with understanding deviating behaviours for example. The cultural analysis was split into two analysis. Firstly, the average scores per team were calculated including descriptive statistics for each team. This helped with understanding whether or not the team has a typical cultural identity. Secondly, the individual LMMs were also analysed per category, meaning all ethical, average and unethical LMMs were looked at for an effect. Lastly an assumption was made as to whether or not culture can explain the difference between Brazilian and Dutch ELMM values and behaviours.

4   Results

4.1   Leader effectiveness

4.1.1   Organization A (Service "IT")

Lean middle manager 1, First of all, on average the Lean tools used are coordinated and managed quite well. Considering that there are many tools used sufficiently. However, not everyone is in unison with the progress of the implementation and there often seems to be a somewhat high SD. This can be explained by the fact that this concerns a New Lean Manager. Most importantly, the team is very satisfied with Lean manufacturing practices such as, standardization, Lean cells, Kanban, Kaizen and financial performance. Nonetheless, there are some short-comings on setup times, one-piece flow, lot size and buffers. On the topic of Visual performance measures and management accounting practices the opinions were divided. Not everyone seemed to agree on the degree of positive impact and implementation progress. On average, the team says that their Lean managers' managing brings considerable positive results, but the opinions range from very positive to very negative. Secondly, the ELQ suggest, with a score of 61.55, that the team considers the LMM an ethical and therefore effective LMM. The LMM is ethical and trustworthy, he "walks the talk", values honesty and integrity, and puts others above himself. In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

Lean middle manager 2, Similarly to the first LMM of this organization, on average, the Lean tools used are coordinated and managed quit well. There are many Lean tools used within the team and they are considers to be applied more sufficient. This makes sense since as opposed to the first LMM, this LMM is an Established Lean Manager. However besides Kanban, reduced lot size, visual management and financial performance, the opinions are very much divided. Lastly, the team seems to agree that they benefit from the Lean implementation. Furthermore, on the basis of the EQL, the team finds the LMM and ethical, and therefore an effective leader, giving him a score of 61.31. According to the team the LMM holds members accountable for using ethical practices in their work, Regards honesty and integrity as important personal values and is honest and can be trusted to tell the truth. In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

4.1.2   Organization B (Manufacturing "Hydraulic Building Materials")

The overall performance on the Lean tool use is rated as insufficient. The manager is an established Lean Manager, thus it makes sense that to a certain extent all tools are used within the company. Yet, the opinions are very much divided on whether they are really implemented well or not. The team only seems to agree on the considerable amount of standardization and the return on assets. Additionally, the score is consistently just above average, and the team does not have a coherent opinion, meaning that the use of Lean management is insufficient. Furthermore, on the topic of effectivity, the LMM got an average score of 51.63. Despite there being no specific outliers, the LMM showed behaviours such as "keeping his actions consistent with his stated values ("walks the talk")", "being fair and unbiased when assigning tasks to members", and "acknowledging mistakes and taking responsibility for them". In conclusion, the LMM will not be considered to be an Effective Lean Middle Manager.

4.1.3   Organization C (Manufacturing "Home Appliances")

The team has implemented Lean tools very well. Besides there being an overall high score on Lean manufacturing practices (except for Kanban), Visual/financial performance and accounting performance measure, the Standard deviation also show a high degree of unity per tool. Yet, there seems to be points of improvement on operations performance. Overall, the team is very satisfied with the Lean management execution. As for the ethical leadership questionnaire, the LMM also seemed to be appreciated by his subordinates and scored a 54.87. According to his subordinates he: Sets an example of ethical behaviour in his decisions, actions, and communication; Is trustworthy and responsible; Holds members accountable for using ethical practices in their work. In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

4.1.4   Organization D (Manufacturing "Starter Drive Production")

The team has clearly an Established Lean manager and thus implements all Lean manufacturing practises and visual performance measures. This is also visible in the execution of the financial performance, according to a part of the team. The Lean management can be considered sufficient. However, one-piece flow, set-up time, the accessibility and availability of visuals are a bit debatable still. Furthermore, the LMM score an average score of 44.56. There were no outliers, however the following behaviours were above average: Shows a strong concern and dedication towards ethical and moral values; Communicates clear ethical standards for members and opposes the use of unethical practices to increase performance. In

conclusion, despite the LMM having an average score on the ELQ, Lean management is executed really well, ergo the LMM can be considered to be an Effective Lean Middle Manager.

4.1.5   Organization E (Education "University")

Lean middle manager 1, First of all, this team is in a non-manufacturing (tertiary) sector, hence not all the Lean tools are applicable. However, there are a number of tools and visual performance measures used sufficiently. Especially, standardization, Kanban, Kaizen and visual performance on the shop floor/for information sharing. Since she is a New Lean Manager, it makes sense not all Lean tool and measures are optimized and fully implemented. This shows though the high Standard deviation. Furthermore, she is considered an ethical leader, scoring a 60.7 on the ELQ. All behaviours scored an average of 5.5 out of 6, except for: "She puts the needs of others above his/her own self-interest". In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

Lean middle manager 2, Similarly to the other University team, this team works in a non-manufacturing (tertiary) sector, hence not all the Lean tools are applicable. As opposed to the other team LMM, this teams LMM is considered to be an Established Lean manager. Although there is not a wide variety of tools used, this LMM seems to be more skilled with Lean manufacturing practices such as Kanban. Overall, the Lean management implementation is considered average. Furthermore, she is considered an ethical leader, scoring a 60.35 on the ELQ. All behaviours were given around the 5.5 out of 6, except for: "She puts the needs of others above his/her own self-interest". In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

Lastly, in general we established a summary of all teams in table 8 which shows all teams linked to their organization. In total there are five established LMMs and two new LMMs. Team 4 and 5 have implement Lean tools really well, however team 3 has an insufficient implementation of tools. The other teams, 1, 2, 6, and 7, have an average score on their Lean tool implementation, yet they all scored really high on the ELQ, making them all categorized as effective. Lastly, with their average score on leadership, team 4 and 5 are also effective, nonetheless, team 3 will not be considered effective. This is as a result of the importance of the concept of Lean within the research. Even though the manager of team 3 is considered to be a

good leader, the fact that the LMMs' implementation of Lean is insufficient despite being an established manager, makes that he will not be considered an effective Lean middle manager.

Table 8

Organizational division of effective and ineffective LMMs

Organization	Team	Established/new Lean manager	Lean tools	Leadership		Effective
A - Service IT	1	New Lean Manager	Average	Ethical	61.55	Yes
	2	Established Lean Manager	Average	Ethical	61.31	Yes
B - Hydraulic building materials	3	Established Lean Manager	Insufficient	Average	51.63	No
C - Home appliances	4	Established Lean Manager	Sufficient	Average	54.87	Yes
D - Starter drive production	5	Established Lean Manager	Sufficient	Average	44.56	Yes
E - University	6	New Lean Manager	Average	Ethical	60.70	Yes
	7	Established Lean Manager	Average	Ethical	60.35	Yes

Note. In-depth analysis for per team can be found in appendix G

4.2   Lean middle manager values

On the left table 9 shows the rank-order of ELMM (middle manager number 1, 2, 4, 5, 6, and 7) values, based on the CIT. The middle manager of team 3 was not included, because he was not deemed effective which would influence on the outcome in the rank-order. The CIT resulted in the following six most mentioned values: respect for the people [13.58%], continuous improvement [8.29%], trust in the people [8.05%], responsibility [7.40%], participation/teamwork [6.72%], and Honesty [6.64%]. In addition, independently of each other 13 interviewees mentioned that the manager values macro-managing [4.28%], in a way that the manager is always calm and in control, because he sees the whole picture. This value can be interpreted as an umbrella term for values such as: trust in the people, teamwork and responsibility, however it does deviate from these values and is considered as a stand-alone category. For example, a team leaders said that they experience their manager being in control, keeping calm and overseeing situations of chaos. In addition, a senior manager said: "His working ethic as a leader is really good, any problem you put in front of him he will find a solution to." (Libio, 2019). This is based on a situation where his team a got very bad evaluation by an external party and unlike the team he did not let himself get caught up in it. He looked at it very rational, after which he shared his findings as their current status. Lastly, together with the team he redefined the new true north. Interestingly, in some way this value has been mentioned by Selznick (1948), however his perspective has not been incorporated in the later theories on manager values (Kraatz and Flores, 2015). Consequently, alongside the top six values, macro managing (calm and control) will also be considered an important value for effective Lean middle managers. Other definitions of this values could be "keeping the big picture in mind" and "perspective thinking" (Joseph, 2018; Lipman, 2013)

On the right of table 9 it shows the rank-order of LMM score on the q-sort. In this case all teams were included as there was no notable influence on the final result after including the middle manager of team 3.

Table 9
Values of Lean middle managers, Based on the critical incident technique and a q-sort used in the Interviews

	Critical incident technique (N=25)			Q-sort (N=25)		
	Values	%[a]		Values	M[b]	SD
1	Respect for the people	13.6	1	Trust in the people	2.1	1.922
2	Continuous improvement	8.3	2	Continuous improvement	2.0	1.207
3	Trust in the people	8.1	3	Participation/Teamwork	1.9	2.040
4	Responsibility	7.4	4	Respect for the people	1.9	1.716
5	Participation/Teamwork	6.7	5	Honesty	1.5	1.982
6	Honesty	6.6	6	Responsibility	1.4	1.411
7	Potential of the average employee	5.6	7	Customer focus	1.2	2.278
8	Helpful	3.2	8	Integrity	0.8	2.517
9	Perseverance	3.1	9	High quality	0.4	2.398
10	Result driven	2.9	10	Result driven	0.2	2.014
11	High quality	2.8	11	Constructive feedback	0.2	1.864
12	Information sharing and analysing	2.8	12	Justice	0.0	1.567
13	Integrity	2.4	13	Potential of the average employee	-0.2	2.260
14	Customer focus	2.1	14	Humility	-0.2	2.141
15	Equality	2.1	15	Information sharing and analysing	-0.4	2.238
16	Constructive feedback	1.9	16	Equality	-0.8	1.615
17	Openminded	1.8	17	Creative	-0.8	1.581
18	Humility	1.7	18	Perseverance	-1.0	2.141
19	Courage	1.2	19	Helpful	-1.0	2.245
20	Justice	1.1	20	Innovation	-1.2	1.930
21	Self-reflection	1.1	21	Openminded	-1.5	1.735
22	Creative	0.4	22	Courage	-2.0	1.683
23	Innovation	0.3	23	Self-reflection	-2.2	1.993
24	Freedom of choice	0.0	24	Freedom of choice	-2.2	1.480

[a] The CIT is illustrated through a standardized frequency in % of the total of all statements per ELMM (experienced and inexperienced). There is a total of seven extra values through the CIT, namely: macro-managing (calm and in control) (4.28); dedication (2.88); quality of life (1.56); harmonious (1.27); positivity (1.24); autonomy (1.22); monitoring (0.38)
[b] The Q-sort entailed a 9-point rank-order answering scale, carried out with 25 persons: seven middle managers, 11 subordinate team leaders, and their seven bosses.

However, a more in-depth analysis of the q-sort can be found in appendix H, where the scores were divided into effectiveness and whether they are established or not. Table 9 shows three important values from the q-sort that are consistently important for managers, as their standard

deviation is below 1.9. Firstly, continuous improvement [1.96] is considered important. Yet, the analysis per LMM category shows that for ineffective middle managers this values is perceived as a lot more important than middle managers that are categorized as effective. On the other hand, respect for the people [1.88] and responsibility [1.36] are considered much more important for effective Lean middle managers. Additionally, respect for the people is also perceived as more important by new Lean middle managers. Lastly, although the following values have a higher standard deviation, the following values were also considered important, "trust in the people" [2.12]; "participation/teamwork" [1.92], and honesty [1.52]. Interestingly enough, as opposed to the important values, there was more consistency with the less important values. The least important value was freedom of choice [-2.24], followed by courage [-2.00] which was even less important among effective Lean middle managers and lastly openminded [-1.52]. In conclusion the overall most important values amongst Brazilian Lean middle managers are: Respect for the people, Trust in the people, Continuous improvement, Participation/Teamwork, Responsibility, and Honesty.

4.2.1   Brazilian vs. Dutch ELMMs

Both Brazilian and Dutch ELMMs have the same values according to their senior managers, team leaders, and themselves. The top three most important values are, participation/teamwork, responsibility, and honesty (which can all be categorized under the higher-order value cluster "self-transcendence"). Additional values that on average are considered important by Brazilian and Dutch are, respect for the people, continuous improvement, and trust in the people (which is a mix of the higher-order value clusters "self-transcendence", "openness to change" and "conservation"). A comparison table can be found in appendix I.

4.3   Lean middle manager behaviours

Table 10 firstly shows how relations-oriented behaviours according to the CIT have the highest standardized frequency. In total it is 47.62% and this high percentage comes mostly from the middle managers showing behaviours such as recognizing [17.33%], and supporting [16.48%]. Secondly, change-oriented behaviours are also important with a standardized frequency of 32.65%. However, for this category, only facilitating collective learning [15.56%] is very often observed during effective Lean leadership. An additional observation done on the interviews was that participants, when asked to describe why their LMM is effective and what specifically makes the participant think that, without looking at the CIT, many task-oriented behaviours were mentioned. On the other hand the findings from the questionnaire, based on Yukl & Van

Fleet (1982) and Yukl (2002), show five behaviours that are significantly more frequently observed by effective Lean middle manager as opposed to ineffective Lean middle managers. Through the statistical analysis the internal consistency and therefore reliability were confirmed with a Cronbach's alpha of 0.92 (Appendix L). Firstly, the change-oriented behaviours "facilitating collective learning" with an alpha of 5% and "encouraging innovation" with an alpha of 10%. Interestingly enough, the category change-oriented is also tested significant.

Table 10
Qualitative CIT analysis comparing effective and ineffective Lean middle managers and the quantitative ELQ outcomes on all Lean middle managers

Behaviours	Examples CIT	Standardized frequency in %	M^a	SD^b
		Critical incident technique (N=25)	Behaviours questionnaire (N=57)	
Change-oriented		**32.65**	**5.74***	**0.59**
1. Encouraging innovation	Communicate with the team leaders and listen is they have a solution	4.73	5.65**	0.76
2. Envisioning change	Sharing improvement ideas and plans	12.37	5.83	0.52
3. Facilitating collective learning	Asks for the employees opinion about the situation	15.56	5.72*	0.63
Relations-oriented		**47.62**	**5.72**	**0.52**
4. Empowering	Rewarding for hard work, by giving days off if they are ahead of schedule	13.82	5.34	0.68
5. Recognizing	Listening to their complaint	17.33	6.01*	0.58
6. Supporting	He stayed calm and kept control over the situation	16.48	5.82	0.74
Task-oriented		**19.73**	**5.83**	**0.49**
7. Clarifying	He is communicating and translating for both sides about softwares	4.86	5.85	0.54
8. Monitoring operations	Looks at the processes and the performance	12.45	5.77**	0.64
9. Problem solving	He persisted and made the team think about the importance of …	2.42	5.87**	0.48
Sum		100%		

*p < 0.05 (two-tailed, based on a Mann-Whitney U Two-Independent-Samples test)
**p < 0.1 (two-tailed, based on a Mann-Whitney U Two-Independent-Samples test)
[a] CIT includes all Lean middle manager teams (see, Appendix J)
[b] Behaviours questionnaire [Likert scale ranging from 1 to 7], based on Yukl & Van Fleet, 1982 and Yukl, 2002, which includes all Lean middle manager teams (See, Appendix K)

Additionally, the next behaviour significantly more observed in effective Lean middle managers is the relations-oriented behaviour "recognizing" with an alpha of 5%. Recognizing is with an average of 6.01 also the highest scoring behaviour. Lastly, two task-oriented behaviours were significantly more mentioned with an alpha of 10%. These behaviours are

"monitoring operations" and "problem solving". All other behaviours were also mentioned, however they were not significantly more or less shown by effective Lean middle managers. Overall relations-oriented behaviour was observed almost 50% of the time during the Lean middle managers effective moments. In addition, change-oriented behaviours were observed an additional one-third of the time. Although, task-oriented behaviour has a low score on the CIT, interestingly enough the questionnaire data shows a higher average than change-oriented behaviour.

Table 11

Qualitative CIT analysis on the top 3 most observed behaviours of all Lean middle managers

Behaviours			Standardized frequency in %
Meta-behaviour	Component	Micro behaviours	CIT (N=25)
Change-oriented	Facilitating collective learning	Asking for team leaders to share factual, work-related information	3.32
		Creating collaborative culture/team building with equality	5.55
		Facilitating organizational learning	3.07
		Leaders sharing their own work-related information and idea and open-minded for distinct view	3.62
Relations-oriented	Recognizing	Active listening (Nodding and Eye-contact)	5.12
		Asking team leaders for feedback, after which willing to improve oneself	1.00
		Individual consideration non work related	1.89
		Making time for one on one talk with employees	1.78
		Quickly acting upon suggestions	2.04
		Showing trust by taking employees serious	5.51
	Supporting	Committing and supporting the team construct (team leadership)	7.98
		Taking responsibility for the team	5.00
		Visible support, application and commitment to this goal	3.50

Note. CIT includes all Lean middle manager teams (see, Appendix J),
Note2. Meta-categories and components are based on literature from Yukl, Gordon and Taber (2002)

An additional analysis on the CIT using the top three behaviours extracted from table 11 (facilitating collective learning, recognizing, and supporting) shows the most important micro-behaviours. Table 11 consist of almost 50% of the total observations (appendix J) and from this selection the highest micro behaviours (+/-25%) will be considered to have the highest impact on the perceived effectiveness of the Lean middle manager.

In conclusion, the following will be considered to be the behaviours a Brazilian middle manager should display in order to be perceived effective. Firstly, supporting seems to have micro behaviours with the highest impact. Subsequently, for supporting the highest scoring

micro behaviours are "Committing to and supporting the team construct (team leadership)" with a Standardized frequency of 7,98%, and "Taking responsibility for the team" with a Standardized frequency of 5%. Secondly, with a standardized frequency of 5.55% is the micro-behaviour linked to facilitating collective learning, "Creating collaborative culture/team building with equality". Lastly, it shows the importance of showing recognition through, "Active listening (Nodding and Eye-contact)" " with a Standardized frequency of 5.12%, and "Showing trust by taking employees serious" " with a Standardized frequency of 5.51%.

4.3.1 Brazilian vs. Dutch ELMMs
Table 12
ELMM behaviour comparing table [BR vs NL]

		Brazil	Netherlands	Brazil		Netherlands	
		Standardized frequency in %		M	SD	M	SD
Behaviours	*Example (van Dun et al., 2017)*	CIT (N=25)	CIT (N=4)	Behaviours questionnaire			
Change-oriented		**32.65**	**13.01**	**5.74***	0.59	**5.23**	0.75
Encouraging innovation		4.73					
Envisioning change	Visioning	12.37	11.12				
Facilitating collective learning	Asking for ideas	15.56	1.78				
Relations-oriented		**47.62**	**54.97***	**5.72**	0.52	**5.50**	0.82
Empowering	Agreeing	13.82	6.24*				
	Encouraging - enthusing		5.36				
	Providing positive feedback		1.70				
	Socializing		0.30				
Recognizing	Active listening	17.33	39.82*				
	Showing personal interest		0.10				
Supporting	Encouraging - cooperating	16.48	1.44				
Task-oriented		**19.73**	**26.75**	**5.83**	0.49	**5.21**	0.97
Clarifying	Structuring a conversation	4.86	11.56				
	Informing		8.42				
	Delegating		1.84				
Monitoring operations	Task monitoring	12.45	4.81*				
Problem solving	Structuring followers' time	2.42	0.12				

Note. Table data Netherlands based on "Video-coded staff-meeting behaviors of the effective Lean middle managers, compared to a sample of equivalent non-Lean middle managers (study 2)" (Van Dun et al., 2017)
Note2. Data on Brazilian ELMMs is based on the CIT
Note3. Behaviours questionnaire [Likert scale ranging from 1 to 7], based on Yukl & Van Fleet, 1982 and Yukl, 2002, which includes all Lean middle manager teams
*$p < 0.05$ (two-tailed, based on a Mann-Whitney U Two-Independent-Samples test).

When analysing the CIT (table 12) for Brazil and the Netherlands we can note that on average 50% of the observations are relations-oriented behaviours. In Brazil all relations-oriented behaviours are considered important, however recognizing (active listening) is most important. Although often showed by Dutch ELMMs, Brazilian ELMMs consider supporting to be more important for effective management. There is a big difference between the frequency of showing task-oriented behaviours. Dutch ELMMs show task-oriented behaviours one-third of

the time and Brazilian ELMMs only one-fifth of the time. Where Dutch ELMMs display behaviours such as structuring a conversations and Informing, Brazilian ELMMs show more task monitoring. Yet, the questionnaire shows a very high score on task-oriented behaviours. Lastly, Brazilian ELMMs display change-oriented behaviours one-third of the time and Dutch ELMMs only one-tenth. However, Brazilian and Dutch ELMMs have a similar score on envisioning change (visioning). Subsequently, the questionnaire shows that besides supporting, envisioning change is displayed by Brazilian ELMMs very often. In addition, unlike Dutch ELMM, Brazilian ELMMs are perceived effective if they facilitate collective learning. In conclusion, both Brazilian and Dutch ELMMs show more relations-oriented behaviours and an equal amount of envisioning change. Lastly, a difference is that Brazilian ELMMs put more emphasize on change-oriented behaviours (facilitating organizational learning) and Dutch ELMMs put more emphasize on task-oriented behaviours (structuring a conversation and informing). It should be considered that Brazilian ELMMs also show high envisioning change, supporting and clarifying, however these behaviours did not play a dominant role in the CIT examples.

4.4   Culture

First of all, all participant have the Brazilian nationality, however due to the size of the country and its diversity, Brazil is considered to have five different cultures (Brown, 2017). Subsequently, all participating countries are from one state (located in the southern region), which is heavily influenced by European immigration.

Table 13
Cultural dimension scores based on Hofstede (2010)

	PDI	IDV	MAS	UAI	LTO	IVR
Brazil average	69	38	49	76	44	59
Team 1	58	64	53	28	55	79
Team 2	68	70	62	29	54	73
Team 3	48	63	51	28	77	70
Team 4	33	60	68	25	57	81
Team 5	53	69	41	32	67	90
Team 6	58	53	41	49	68	73
Team 7	68	56	38	27	63	78
All teams	**57**	**64**	**54**	**30**	**61**	**76**
All ELMMs	**56**	**62**	**50**	**32**	**61**	**79**

Note 1. PDI = Power distance index; IDV = Individualism vs. Collectivism; MAS = Masculinity vs. Femininity; UAI = Uncertainty avoidance index; LTO = Long term orientation vs Short term orientation; IVR = Indulgence vs Restraint

Note 2. All scores are on a rank from 1 – 100, and the total questionnaire has a Cronbach Alpha of 0.892 (PDI = 0.496; IDV = 0.803; MAS = 0.867 ; UAI = -0.026; LTO = 0.642 ; IVR = -0.079) (see appendix M)

Note 3. Teams 2, 4, 5, & 7 are established and effective teams, teams 1 and 6 are new and effective teams, and team 3 is ineffective and new.

Table 13 shows really well how all Lean middle managers score similar to all Lean teams combined. Analysing the dimension in figure 4 one by one, it is clear that none of the teams has a typical Brazilian culture on all dimensions, nor do they score the same as the best fit (Erthal & Marques, 2018). However, there is similarity among the teams, which could mean that they do represent a more southern Brazilian culture which possibly deviates from the overall Brazilian culture based on Hofstede (2010). Another interesting observation is that average Brazilian score on individuality and uncertainty avoidance are very close to their best fit, yet none of the individual teams are close to this average.

Figure 4
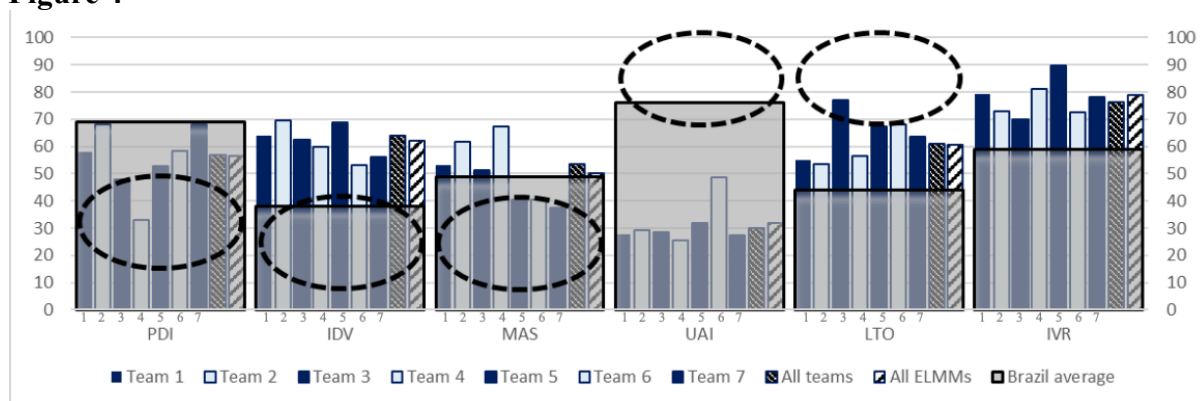
Cultural dimension score comparison

Note. Hofstede (2010) dimension comparison, the teams (alternating dark and light blue, with 1 being on the far left, to 7 being on the far right), all teams average (narrow dashed lines), all effective Lean middle managers (wide dashed lines), and Brazils' average (overlapping square). Additionally, the best fit (dotted circle) is also shown, which is based on Erthal & Marques (2018).
Note2. In Appendix M the full cultural analysis can be found of each team
Note3. PDI = Power distance index; IDV = Individualism vs. Collectivism; MAS = Masculinity vs. Femininity; UAI = Uncertainty avoidance index; LTO = Long term orientation vs Short term orientation; IVR = Indulgence vs Restraint

As opposed to the already mentioned individuality and uncertainty avoidance index, figure 4 "power distance" shows that team three, four, and five score similar to the best fit. Although the remaining teams tend to Lean more towards the average Brazilian index score, it is somewhat surprising how team 3, which is considered ineffective, shows a good fit for Lean management. In general, the participants and the ELMMs have a slightly above average power distance just like individualism. Furthermore, on the masculinity index team five, six, and seven show a good fit, however the average of ELMMs is more similar to the average Brazilian. The participants and ELMMs have an average masculinity. Moreover, the participants and ELMMs have a low uncertainty avoidance index. On the other hand, the participants are long term oriented. This average deviates from the average Brazilian and is a better fit for Lean

management. Surprisingly enough, team three shows the best fit for Lean management again. Lastly, indulgence has a high average index.

In conclusion, there is no trend to be found looking at effectiveness and established versus new LMMs when it comes to culture. Additionally, the perceived ineffective LMM has a good fit on PDI and LTO. Nonetheless, the effective Lean middle managers score similar to their teams.

Discussion and conclusion

This paper reports exploratory research that aimed to identify the values and behaviours of Brazilian effective Lean middle managers. Additionally, the results were compared with Dutch ELMM values and behaviours, in order to understand the role of national culture (NC) in terms of Hofstede's dimensions, with regards to ELMM values and behaviours.

Out of the total constellation of 24 values, the following six values were ranked highest among the Brazilian participants: respect for the people, trust in the people, continuous improvement, participation/teamwork, responsibility, and honesty. These values align with four out of five top Dutch values i.e., "honesty, participation and teamwork, responsibility, and continuous improvement" (Van Dun et al., 2017). Furthermore, the remaining *respect for the people* was ranked fourth on the Dutch q-sort, however it had a very high SD and on the other hand *trust in the people* ranked sixth on the Dutch critical incident technique (CIT). Lastly, the extra value candour, which was spontaneously mentioned by multiple Dutch participants, was not mentioned by the Brazilian participants. However, an extra value which was mentioned spontaneously on the CIT by a multitude of participants was macro-managing (calm and control), i.e., "the manager is always calm and in control of the situation". Regardless of the amount of stress surrounding the situation, he keeps a clear mind and sees the entire picture. Subsequently, this additional value, macro-managing, was a contribution of the study. Macro-managing can be categorized under the higher-order value cluster "conservation" (Schwartz, 2012). Although, the higher-order value clusters "self-transcendence" and "openness to change" are more dominant amongst both Brazilian and Dutch ELMMs, Van Dun et al. (2017) also observed "conservation" (e.g., "persistence", and "respect for people") amongst Dutch ELMMs. Although new within the research on Lean management, Macro-managing has also been mentioned in other literature under different terms (e.g., "keeping the big picture in mind" and "perspective thinking") (Joseph, 2018; Lipman, 2013; Selznick, 1948). Macro-managing as a value is connect to more tasks-oriented behaviours, which is the least mentioned meta-category in the CIT analysis. Subsequently, the reason for this will be clarified after elaboration on the different measures on ELMM behaviours and their outcomes. In essence, Brazilian and Dutch values are similar, however they are in a somewhat different rank order, which confirms that, unlike behaviours, values are globally accepted (Schwartz et al. 2017).

By comparing the three different means of analysing LMM behaviours (Interview question where the interviewee was asked why the LMMs is an effective leader, the CIT, and the questionnaire) in combination with the findings from the literature review, the influence of NC on behaviours was understood. Firstly, the literature review predominantly showed perceived effective behaviours which are deviating (a-typical) from the general effective behaviours. These findings tend to be more leaning towards RO (e.g., recognizing and supporting) and CO (e.g., facilitating organisational learning) behaviours. Secondly, the open-ended interviews showed a more general, yet Lean focussed set of behaviours. Resulting in more TO behaviours (e.g., monitoring operations). On the other hand, similarly to the literature review, the CIT revealed a-typical behaviours. Lastly, the questionnaire gave a more average view of effective Lean middle manager behaviours. Hence, most important effective behaviours were RO (e.g., recognizing), followed by TO (e.g., problem solving and monitoring operations) and lastly CO (e.g., facilitating organisational learning and encouraging innovation) behaviours.

This can be explained as follows, for the CIT the participants mention a moment that stood out, and thus has been *perceived* as very effective. This incident stood out because it deviated from the participants' general experiences with leadership. A similar effect was created while understanding the effective behaviours of ELMMs per Hofstede dimension by comparing similar NC behaviours. On the other hand while answering the question about what makes the LMM an effective 'Lean' leader, participants tend to limit themselves to the behaviours linked to the Lean tools. Subsequently, if you focus on behaviours explicitly dedicated to the use of tools, evidently the behaviours are very task-oriented. Lastly, the questionnaire on leader behaviours gave a really general unbiased view on the LMM. The next paragraph will focus on (perceived) effective Lean middle manager behaviours more in-depth.

Unlike values, behaviours are not globally accepted, hence prior to the data analysis a set of assumptions was made on both Brazilian and Dutch ELMM behaviours (Schwartz, 2017). This functions as the foundation of the predictability of the ELMM behaviours based on the Lean middle managers' NC. Ultimately, this amounted to the following findings on expected behaviours per dimension for Brazil:

- *Power distance:* is above average and Brazilian NC has a bad fit (Erthal and Marques, 2018). Overall, the assumed behaviours were facilitating collective learning (change-oriented); recognizing and supporting (relations-oriented); problem solving (task-oriented). Ultimately, all these behaviours, except for problem solving (task-oriented), were effective

Lean middle manager behaviours. However, the teams on average scored an index score which was a better fit for Lean (Erthal and Marques, 2018).

- *Individualism versus collectivism:* Brazilian NC has a near perfect fit. Overall, the assumed behaviours were encouraging innovation (change-oriented); empowering and recognizing (relations-oriented); monitoring operations and problem solving (task-oriented). Ultimately, only recognizing (relations-oriented) is considered an effective behaviour, however the teams on average did deviate from the average Brazilian index score.

- *Masculinity versus femininity:* Brazilian NC and the teams average deviated slightly from the perfect fit. Furthermore, the similar to the PDI behaviours, Brazils' initial behaviours assumptions on masculinity were Facilitating collective learning (change-oriented); recognizing and supporting (relations-oriented); monitoring operations and problem solving (task-oriented).

- *Uncertainty avoidance:* is above average and Brazilian NC has an excellent fit. Overall, the assumed behaviours were facilitating collective learning (change-oriented); recognizing and supporting (relations-oriented); monitoring operations (task-oriented). Ultimately, all these behaviours, except for monitoring operations (task-oriented), were effective Lean middle manager behaviours. Surprisingly, the teams on average scored an index score which does not fit Lean (Erthal and Marques, 2018). According to Cagliano et al. (2011) and Hofer et al. (2011) a high UAI had negative effects on Lean. They argue that it decreases workers from making autonomous decisions. Following this theory the sample has a good fit with Lean. Lastly, this also explains why the perceived effective behaviours where extracted from the literature review.

- *Long-term versus short-term oriented:* is above average and Brazilian NC has a bad fit. It is notable how the assumed behaviours were facilitating collective learning (change-oriented); recognizing and supporting (relations-oriented), which are simultaneously the behaviours an effective Lean middle manager is expected to display according to the data. However, the teams had an overall index score which was a better fit for Lean (Erthal and Marques, 2018).

- *Indulgence versus restraint:* Brazil generally has an above average indulgence and the sample showed an overall higher score on indulgence. However, there is no data on the best fit regarding indulgence. Nonetheless, the assumed behaviours were supporting (relations-oriented); monitoring operations (task-oriented).

In conclusion, the assumption made on the dimensions where the NC of Brazil does not overlap with the "best fit", have a set of assumed behaviours that are closest to the effective behaviours generated through the data analysis (i.e., power distance index, masculinity index and long-term oriented index). This is cause by the type of analysis in the literature, because the perceived effective behaviours tend to stick-out more when they a-typical and thus deviate from the cultural hegemony.

Secondly, less often perceived as effective, the following TO behaviours, problem solving and monitoring operations, keep playing an important role as assumed effective behaviours. Although hardly mentioned during the CIT, these behaviours showed to be of significant importance on the behaviours questionnaire. This means that monitoring operations and problem solving are of general importance for achieving effectiveness and sustainability of the implementation and execution of Lean. However, these behaviours are perceived as normal within their cultural hegemony. Hence, they are not what came to mind when the participants were asked to recall a moment in which their LMM showed very successful leadership.

Lastly, both the assumptions and research data show that change oriented behaviours such as 'facilitating collective learning' (Creating collaborative culture/team building with equality) and relations-oriented behaviours such as 'recognizing' (Active listening & Showing trust by taking employees serious) and 'supporting' (Committing to and supporting the team construct & Taking responsibility for the team) are the behaviours a Brazilian effective Lean middle manager should display in order to be perceived as effective.

On the other hand, assumptions made on the basis of Dutch NC were as follows:
- *Power distance:* Dutch NC has a good fit with Lean and assumed effective behaviours are clarifying and monitoring (task-oriented); Empowering and recognizing (relations-oriented).
- *Individualism versus collectivism:* has a very bad overall fit, however effective behaviours are facilitating collective learning (change-oriented); recognizing (relations-oriented)
- *Masculinity versus femininity:* has an average fit, with assumed behaviours such as empowering and supporting (relations-oriented).
- *Uncertainty avoidance:* has a bad overall fit with assumed behaviours such as facilitating collective learning (change oriented); recognizing and supporting (relations-oriented); clarifying (task-oriented).

- *Long term versus short term oriented:* has an overall good fit with assumed behaviours such as recognizing (relations oriented); facilitating collective learning

- *Indulgence versus restraint:* is linked to behaviours such as empowering, recognizing (relations oriented); monitoring operations (task-oriented).

In conclusion, assumed behaviours of Dutch ELMM consist mostly of recognizing and empowering (relations-oriented) and facilitating collective learning (change-oriented). In addition, clarifying and monitoring operations (task-oriented) and supporting (relations-oriented) were also considered important. Additionally, the research done on Dutch ELMMs by Van Dun (2017) shows that actual behaviours shown by ELMMs are recognizing and empowering (relations-oriented); clarifying and monitoring operations (task-oriented); envisioning change (CO). So, all behaviours observed by Van Dun (2017) were assumed through the literature, however, facilitating collective learning (change-oriented) and supporting (relations-oriented) were not often observed during the video-coded staff-meetings of the Dutch ELMM (Van Dun, 2017). The behaviours extracted through the video-coded staff-meetings are not influenced by cultural hegemony, hence it gives a general overview of all behaviours shown by a ELMM.

In general Brazilian and Dutch effective Lean middle managers have similar values, which correlates highly with their intentional behaviours (Bardi and Schwartz, 2003; Sagiv and Schwartz, 1995). However, this does not show in the results. The first explanation is the order in which the values are prioritized. Based on the order of the top Brazilian ELMM values the culture type is almost exclusively a "clan" culture (Hartnell et al., 2011,). Consequently, Dutch ELMMs mostly have values linked to mainly "clan" and "adhocracy" culture, but also somewhat "market" and "hierarchy" culture, which makes that these managers could shift more towards values such as achievement and stability. The most important and most dominant values could exert influence on the eventual set of behaviours displayed by the effective Lean middle manager. Ergo, despite the similarity in values, this leads to a difference between Brazilian and Dutch ELMM behaviours. On the other hand, the difference in outcome is more likely linked to the different means of data extraction and analysis. The mean findings on behaviours were done on the CIT and the questionnaire. Where the questionnaire generates a general set of effective behaviours, the CIT only reveals behaviours which deviated from the cultural hegemony. Consequently, the analysis done on the Dutch ELMMs was done through the analysis of video-coded staff-meetings, which will give a far more accurate and unbiased analysis (Van Dun et al., 2017).

To conclude, this inductive, exploratory study has four main contributions. Initially, macro-managing is an important value for Brazilian effective Lean middle managers. This is a value under the higher-order value cluster "conservation values" and is connect to more tasks-oriented behaviours. Similar values have been mentioned in scientific literature as "keeping the big picture in mind" and "perspective thinking" (Joseph, 2018; Lipman, 2013; Selznick, 1948). Secondly, through the comparison of behaviours of similar NCs per Hofstede dimension, assumptions can be made on *perceived* effective behaviours. Interestingly enough, when a NC has a bad fit on a certain Hofstede dimension, the dominant behaviours amongst similar scoring NCs give a good indication on *perceived* effective behaviours of ELMMs. This is not the case when it comes to assumptions made on dimension with a so-called good fit. Elaborating on this, the following contribution is the findings on perceived effective behaviours. The three main perceived effective behaviours are recognizing RO, supporting RO, and facilitating collective learning CO. Last but not least, a very important contribution is the influence of cultural hegemony on effective behaviours. This concept justifies the difference between behaviours which are *perceived* as effective rather than the general effective behaviours which are taken for granted.

Limitations and recommendations (implications for further research)

As mentioned, the was a difference between the outcome of the interview questions about what makes their LMM effective Lean leaders and the eventual CIT. There could be a potential bias on the concept of Lean behaviours concerning the general question. On the other hand the CIT could cause people to only name the specific behaviours that stand out, overlooking behaviours that are considered normal or every day. Nevertheless, these behaviours can be critical of the effectiveness of the ELMM, hence in order to have a better sample it is advised to turn this research into a longitudinal study. Accordingly, prior to the surveys and interviews, video recordings focussing on the ELMM should be made of a daily team meeting, a daily work interaction and a conversation during a lunch break with the team leaders (Czarniawska, 2007; McDonald, 2005; Vie, 2010). These sort of video-coded staff-meetings will create a total set of used behaviours of ELMM, rather than only *perceived* effective behaviours. This explorative research can eventually be the basis of a longitudinal research by use of ethnographic observational research methods of the video-recordings made of the ELMM and their team leaders. However, in order to succeed in a longitudinal study such as this, one should consider

the Hawthorne effect and build trust with the participant, in order to get honest and authentic behaviour from the participants.

An important factor of the research was NC, however the average NC of the teams deviated from the average Brazilian NC (Hofstede, 2010). This could be explained due to the size of Brazil, but most of all due to the variety of cultural influences throughout history, which shaped the country and divided the average NC into five sub-cultures. The sample of this research was gained from participants from one province, which could explain the "consistent" deviation from the NC. However, in order to understand the influence of cultural dimension better, it would be more appropriate to measure the teams their culture per Hofstede dimension and create assumptions based on these as opposed to the NC of the team.

The scale used to measure effectivity of the LMM was the "ethical leadership" scale (ELQ). As the Lean operational effectivity was measured using Fullertons' "Lean manufacturing and firm performance" questionnaire, the ELQ would be an additional scale to measure the ethics which also highly correlated with leader effectiveness. Nonetheless, for further research it is advised to include the two item "Leader effectiveness" scale (Kim and Yukl, 1995; Mahsud et al., 2010; Yukl et al., 2012). These items are on a 9-point scale. The first question is: "Rate the overall effectiveness of their manager in carrying out his/her job responsibilities" (1 the least effective manager I have known; 9 the most effective manager I have known). The second question is: "Rate the overall effectiveness of your manager" (1 ineffective; 9 very effective).

Lastly, the sample size differed per LMM and not all LMMs had an equal amount of team leaders that participated in the questionnaire. Some samples were as small as four participants while others had 15. In further research it is recommended to have at least 10 team leaders filling out the questionnaire per ELMM besides the four interviews (senior manager; middle manager; and two team leaders).

Practical implications

Finally moving on to the practical implications. In principle, Lean management is a set of various tools which are used in order to create value for the customer by reducing waste. However, through earlier research the importance of people management was found. Accordingly, the middle manager has the most critical role when it comes to people management, as they are the ones expected to translate abstract management strategies into

practical goals and they are closest to the workers. As a Lean middle manager, being close to the workers, in Brazil it is advised to show values such as: "respect for the people, trust in the people, continuous improvement, participation/teamwork, responsibility, and honesty". Important Dutch values are nearly similar to the ones mentioned on Brazil. Additionally, in Brazil one should incorporate the value macro-managing. While acting based on these values in the form of behaviours a Lean middle manager can be effective. However, in order to also be *perceived* effective, one is advised to also show behaviours which deviated from the cultural hegemony. By emphasizing and incorporating these a-typical behaviours a Lean middle managers effective behaviours do not go unnoticed. Within a Brazilian company with Brazilian natives one should display behaviours such as: "supporting" by committing to and supporting the team construct and taking responsibility for the team; "facilitating collective learning" by creating collaborative culture/team building with equality; "recognizing" by active listening (Nodding and Eye-contact) and showing trust by taking employees serious.

Literature

Aij, K. H., Simons, F. E., Widdershoven, G. A. M., & Visse, M. (2013). Experiences of leaders in the implementation of lean in a teaching hospital. *Barriers and facilitators in clinical practices: A qualitative study*. BMJ Open, 3, 1-8.

Alagaraja, M. & Egan, T. (2013), The strategic value of hrD in lean strategy implementation. *Human Resource Development Quarterly* 24, 1-27.

Albliwi, S., Antony, J., Halim Lim, S.A. & Van der Wiele, T. (2014). Critical failure factors of Lean Six Sigma: A systematic literature review. *International Journal of Quality & Reliability Management,* 9, 1012-1030. doi:10.1108/IJQRM-09-2013-0147

Anand, G., Ward, P. R., Tatikonda, M. V., & Schilling, D. A. (2009). Dynamic capabilities through continuous improvement infrastructure. *Journal of Operations Management*, 27, 444-461.

Ashkanasy, N. M., Wilderom, C. P. M., & Peterson, M. F. (2011). Introduction. *The Handbook of Organizational Culture and Climate,* 2, 29–49.

Banks, G. C., Batchelor, J. H., Seers, A., O'Boyle Jr., E. H., Pollack, J. M., & Gower, K. (2014). What does team-member exchange bring to the party? A meta-analytic review of team and leader social exchange. *Journal of Organizational Behavior*, 35, 273-295. doi: 10.1002/job.1885

Bardi, A., & Schwartz, S. H. (2003) Values and behavior: Strength and structure of relations. *Pers Soc Psychol Bull,* 29(10), 1207-20.

Bateman, N., & Rich, N. (2003). Companies' perceptions of inhibitors and enablers for process improvement activities. *International Journal of Operations & Production Management*, 23, 185-199. doi: 10.1108/01443570310458447

Beer, R. D. (2003). The Dynamics of Active Categorical Perception in an Evolved Model Agent. *Adaptive Behavior*, 11(4), 209–243. doi:10.1177/1059712303114001

Bendoly, E., Croson, R., Goncalves, P., & Schultz, K. (2010). Bodies of knowledge for research in behavioral Operations. *Production and Operations Management,* 19(4), 434-452.

Bessant, J. (1995). Networking as a mechanism for technology transfer; the case of continuous improvement. Kaplinsky, R., den Hertog, F., Coriat, B. (Eds.), Europe's Next Step. Frank Cass, London.

Bessant, J., Caffyn, S., & Gallagher, M. (2001). An evolutionary model of continuous improvement behaviour. *Technovation*, 21, 67-77. doi: 10.1016/S0166-4972(00)00023-7

Bhasin, S. (2012). An Appropriate Change Strategy for Lean Success. *Management Decision,* 50 (3), 439–458.

Bhasin, Sanjay. (2015). Lean management beyond manufacturing: A holistic approach. doi: 10.1007/978-3-319-17410-5.

Bicheno, J., & Holweg, M. (2009). The Lean Toolbox: The Essential Guide to Lean Transformation (4th edn). Buckingham: PICSIE Books

Bonesso, S., Gerli, F., & Scapolan, A. (2014). The individual side of ambidexterity: Do individuals' perceptions match actual behaviors in reconciling the exploration and exploitation trade-off? *European Management Journal,* 32(3), 392–405. doi:10.1016/j.emj.2013.07.003

Bortolotti, T., Boscari, S., & Danese, P. (2015). Successful lean implementation: organizational culture and soft lean practices. *International Journal of Production Economics*, 160, 182-201

Boscari, S., P. Danese, & P. Romano. (2016). Implementation of Lean Production in Multinational Corporations: A Case Study of the Transfer Process from Headquarters to Subsidiaries*. International Journal of Production Economics,* 176, 53–68.

Brown, S. R. (1996). Q methodology and qualitative research. *Qualitative Health Research*, 6, 561-567.

Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes,* 97(2), 117–134. doi:10.1016/j.obhdp.2005.03.002

Brown, M.E. & Treviño, L.K. (2009), Leader-follower values congruence: are socialized charismatic leaders better able to achieve it? *Journal of Applied Psychology*, 94(2), 478-490.

Brown, S. (2017). A Region-By-Region Guide to Brazil's Diverse Cultures. Retrieved from: www. theculturetrip.com/south-america/brazil/articles/a-region-by-region-guide-to-brazils-diverse-cultures/

Bunderson, J. S., & Boumgarden, P. (2010). Structure and learning in self-managed teams: Why "bureaucratic" teams can be better learners. *Organization Science*, 21, 609- 624.

Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly*, 17 (3), 288-307. http://dx.doi.org/10.1016/j.leaqua.2006.02.007

Busk Kofoed, L., Gertsen, F., & Jørgensen, F. (2002). The role of CI and learning in an organisational change process: Experiences from a longitudinal study of organisational change. *Integrated Manufacturing Systems,* 13, 165-175. doi: 10.1108/09576060210416616

Cagliano, R., Caniato, F., Golini, R., Longoni, A., & Micelotta, E. (2011). The impact of country culture on the adoption of new forms of work organization. *International Journal of Operations & Production Management*, 31, 297-323.

Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management,* 31, 515-524.

Camuffo, A., & Micelli, S. (1997). Mediterranean lean production: Supervisors, teamwork and new forms of work organization in three European car makers. *The Journal of Management and Governance* 1 (1), 103-122.

Camuffo, A., & Gerli, F. (2018). Modeling management behaviors in Lean production environments. *International Journal of Operations & Production Management*, 38(2), 403-423.

Carmeli, A., Dutton, J. E., & Hardin, A. E. (2015). Respect as an engine for new ideas: linking respectful engagement, relational information processing and creativity among employees and teams. *Human Relations,* 1-28 (in press)

Carton, A. M., Murphy, C., & Clark, J. R. (2014). A (blurry) vision of the future: How leader rhetoric about ultimate goals influences performance. Academy of Management Journal 57 (6), 1544-1570. doi: 10.5465/amj.2012.0101

Chan, S. C. H. (2013). Paternalistic leadership and employee voice: Does information sharing matter? *Human Relations*, 67(6), 667-693.

Chin, W. W., Salisbury, W. D., Pearson, A. W., & Stollak, M. J. (1999). Perceived cohesion in small groups: Adapting and testing the perceived cohesion scale in a small group setting. *Small Group Research,* 30, 751-766. doi: 10.1177/104649649903000605

Cohen, L., Manion, L., & Morrison, K. (2000) Book Reviews, *British Journal of Educational Studies,* 48(4), 446-468, doi: 10.1111/1467-8527.t01-1-00157

Connor, P. E., & Becker, B. W. (1994). Personal values and management: what do we know and why don't we know more? *Journal of Management Inquiry*, 3, 67-73.

Cummings, T. G. (1978). Self-regulating work groups: A socio-technical synthesis. *The Academy of Management Review*, 3(3), 625-634. doi: 10.2307/257551

Czarniawska, B. (2007). Shadowing, and other techniques for doing fieldwork in modern Societies. *Liber AB.*

Dahlgaard-Park, S. M., Chen, C., Jang, J., & Dahlgaard, J. J. (2013). Diagnosing and prognosticating the quality movement: A review of the 25 years quality literature (1987-2011). *Total Quality Management & Business Excellence,* 24, 1-18. doi: 10.1080/14783363.2012.756749

Danese, P., Manfè, V., & Romano, P. (2018). A systematic literature review on recent lean research: State-of-the-art and future directions. *International Journal of Management Reviews*, 20(2), 579-605.

Dankbaar, B. (1997). Lean production: Denial, confirmation or extension of sociotechnical systems design? Human Relations 50 (5), 567- 583. doi: 10.1177/001872679705000505

Day, D. V., Gronn, P., & Salas, E. (2004). Leadership capacity in teams. *The Leadership Quarterly*, 15(6), 857-880. doi: 10.1016/j.leaqua.2004.09.001

De Hoogh, A. H. B., & Den Hartog, D. N. (2008). Ethical and despotic leadership, relationships with leader's social responsibility, top management team effectiveness and subordinates' optimism: A multi-method study. *The Leadership Quarterly,* 19(3), 297–311. doi:10.1016/j.leaqua.2008.03.002

Treville, S., & Antonakis, J. (2006). Could lean production job design be intrinsically motivating? Contextual, configurational, and levels-of-analysis issues. *Journal of Operations Management*, 24(2), 99–123. doi:10.1016/j.jom.2005.04.001

Dean, 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.

DeChurch, L. A., & Mesmer-Magnus, J. R. (2010). The cognitive underpinnings of effective teamwork: A meta-analysis. *Journal of Applied Psychology*, 95, 32-53. doi: 10.1037/a0017328

Dehoratius, N., & Rabinovich, E. (2011). Field research in operations and supply chain management. *Journal of Operations Management*, 29(5), 371-375.

Delbridge, R. (1995). Surviving Jit: Control and resistance in a Japanese transplant. *Journal of Management Studies*, 32(6), 803-817. doi: 10.1111/j.1467-6486.1995.tb00153.x

Delbridge, R., Lowe, J., & Oliver, N. (2000). Shopfloor responsibilities under lean teamworking. *Human Relations*, 53, 1459-1479.

Doeleman, H. J., Ten Have, S., & Ahaus, K. (2012). The moderating role of leadership in the relation between management control and business excellence. *Total Quality Management & Business Excellence*, 23, 591-611. doi: 10.1080/14783363.2012.669935

Dutton, J. E. (2014). Build high-quality connections. How to Be a Positive Leader, [pp. 11-21]

Edmondson, A. C., & S. E. McManus (2007). Methodological Fit in Management Field Research. *Academy of Management Review* 32, 4

Edvardsson, B., & Roos I. (2001). Critical incident techniques. Toward a framework for analysing the criticality of critical incidents. *International Journal of Service Industry Management*, 12(3), 251-268. doi: DOI: 10.1108/EUM0000000005520

Emiliani, M. L. (1998). Lean behaviors. *Management Decision*, 36, 615-631. doi: 10.1108/00251749810239504

Emiliani, M. L. (2003). Linking leaders' beliefs to their behaviors and competencies. *Management Decision*, 41(9), 893-910

Emiliani, M. L., & Emiliani, M. (2013). Music as a framework to better understand Lean leadership. *Leadership & Organization Development Journal*, 34 (5), 407-426

Erthal, A., & Marques, L., (2018). National culture and organisational culture in lean organisations: a systematic review. *Production Planning & Control*, 29(8), 668-687, doi: 10.1080/09537287.2018.1455237

Fairholm, G. W. (1995). Values leadership: A values philosophy model. *International Journal of Value Based Management,* 8(1), 65-77

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin,* 51, 327-358.

Ford, R. C., Wilderom, C. P., & Caparella, J. (2008). Strategically crafting a customer focused culture: An inductive case study. *Journal of Strategy and Management*, 1, 143–67.

Found, P. A., & Harvey, R. (2006). The role of leaders in the initiation and implementation of manufacturing process change. *The International Journal of Knowledge, Culture & Change Management*, 6, 35-46.

Fu, P. P., Tsui, A. S., Liu, J., & Li, J. (2010). Pursuit of whose happiness? executive leaders' transformational behaviors and personal values. *Administrative Science Quarterly*, 55, 222-254.

Fullerton, R. R., Kennedy, F. A., & Widener, S. K. (2014). Lean manufacturing and firm performance: The incremental contribution of lean management accounting practices. *Journal of Operations Management,* 32, 414–428. doi: 10.1016/j.jom.2014.09.002"

Gambi, L. N., Boer, H., Gerolamo, M. C., Jørgensen, F., & Carpinetti, L. C. R. (2015). The Relationship Between Organizational Culture and Quality Techniques, and its Impact on Operational Performance. *International Journal of Operations & Production Management,* 35(10), 1460–1484

Godard, J. (2001). High performance and the transformation of work? The implications of alternative work practices for the experience and outcomes of work. *Industrial and Labor Relations Review,* 54, 776-805. doi: 10.1177/001979390105400402

Goodman, L.A. (1961). "Snowball sampling*". Annals of Mathematical Statistics*. 32(1), 148–170. doi:10.1214/aoms/1177705148

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: A meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology,* 96(4), 677–694. doi:10.1037/a0021987

Hasle, P., Bojesen, A., Jensen, P. L., & Bramming, P. (2012). Lean and the Working Environment: A Review of the Literature. *International Journal of Operations & Production Management*, 32(7), 829–849

Hassan, S., Mahsud, R., Yukl, G., & Prussia, G. E. (2013). Ethical and empowering leadership and leader effectiveness. *Journal of Managerial Psychology*, 28(2), 133–146. doi:10.1108/02683941311300252

Hatch, M. J. (2011). Material and meaning in the dynamics of organizational culture and identity with implications for the leadership of organizational change. In N. M. Ashkanasy, C. Wilderom, & M. F. Peterson (Eds), *The Handbook of Organizational Culture and Climate* (pp. 341–58).

Hellsten, U., & Klefsjö, B. (2000). TQM as a management system consisting of values, techniques and tools. The TQM Magazine, 12, 238-244. https://doi.org/10.1108/09544780010325822

Hines, P., Holweg, M., & Rich, N. (2004). Learning to evolve: A review of contemporary lean thinking. *International Journal of Operations & Production Management,* 24(10), 994-1011. doi: 10.1108/01443570410558049

Hines, P., P. Found, Griffiths, G., & Harrison, R. (2008). Staying Lean: Thriving, Not Just

Surviving. Cardiff: Lean Enterprise Research Centre, Cardiff University

Hofer, A. R., Hofer, C., Eroglu, C., & Waller, M. A. (2011). "An Institutional Theoretic Perspective on Forces Driving Adoption of Lean Production Globally China vis-à-vis the USA." *The International Journal of Logistics Management,* 22 (2): 148–178. doi: 10.1108/09574091111156532

Hofstede, G., Hofstede, G. J. & Minkov, M. (2010). Cultures and Organizations: Software of the Mind (Rev. 3 rd ed.). New York: McGraw-Hill.

Holmemo, M., & Ingvaldsen, J. (2016) Bypassing the dinosaurs? – How middle managers become the missing link in lean implementation. *Total Quality Management & Business Excellence,* 27(11-12), 1332-1345. doi: 10.1080/14783363.2015.1075876

Holweg, M. (2007). The genealogy of lean production. *Journal of Operations Management,* 25(2), 420–437. doi:10.1016/j.jom.2006.04.001

Hoogeboom, A. M. G., & Wilderom, C. P. M. (2015). Effective leader behaviors in regularly held staff meetings: surveyed vs. videotaped and video-coded observations. *The Cambridge handbook of meeting science* (pp. 381-412). Cambridge, United Kingdom: Cambridge University Press.

House R.J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies. Thousand Oaks, CA: Sage

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From input-process-output models to IMOI models. *Annual Review of Psychology,* 56, 517-543. doi: 10.1146/annurev.psych.56.091103.070250

International Monetary Fund. (2009). World economic outlook, April 2009: Crisis and recovery. Retrieved from: http://www.imf.org/external/pubs/ft/weo/2009/01/ pdf/text.pdf

International Monetary Fund. (2017), World Economic Outlook Database, October 2017. https://www.imf.org/external/pubs/ft/weo/2017/02/weodata/download.aspx

Jackson, P. R., & Mullarkey, S. (2000). Lean production teams and health in garment manufacture. *Journal of Occupational Health Psychology,* 5, 231-245. doi: 10.1037%2F1076-8998.5.2.231

Joseph, I., (2018). As A Leader, How Do You Think 'Big Picture'? Retrieved from: https://leaderonomics.com/leadership/leaders-and-big-picture-thinking

Kalshoven K., Den Hartog D. N., De Hoogh A. H. B. (2011a). Ethical leadership at work questionnaire: Development and validation of a multidimensional measure. *Leadership Quarterly,* 22, 51–69. doi: 10.1016/j.leaqua.2010.12.007

Kalshoven K., Den Hartog D. N., & De Hoogh A. H. B. (2011b). Ethical leader behavior and big five factors of personality. *Journal of Businss Ethics,* 100, 349–366. doi: 10.1007/s10551-010-0685-9

Karlsson, C. & Åhlström, p. (1996), Assessing changes towards lean production, Inter-

national Journal of Operations & Production Management, 16(2), 24-41.

Kauffeld, S. (2006). Self-directed work groups and team competence. *Journal of Occupational and Organizational Psychology,* 79, 1–21.

Keating, E., Oliva, R., Repenning, N., Rockart, S., & Sterman, J. (1999). Overcoming the improvement paradox. *European Management Journal* 17(2), 120-134.

Ketokivi, & Choi, (2014). Renaissance of Case Research as a Scientific Method. *Journal of Operations Management* 32(5). Doi: 10.1016/j.jom.2014.03.004.

Kjeld H. A., Teunissen, T. (2017). Lean leadership attributes: a systematic review of the literature, *Journal of Health Organization and Management*, 31(7/8), 713-729. doi: 10.1108/JHOM-12-2016-0245.

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest,* 7, 77-124. doi: 10.1111/j.1529-1006.2006.0003.

Kraatz, M. S., & Flores, R., (2015). "Reinfusing Values" In Institutions and Ideals: Philip Selznick's Legacy for Organizational Studies. doi: /10.1108/S0733-558X20150000044013

Krafcik, J.F. (1988). Triump of the lean production system. *Sloan Management Review*, 1(30), 41-52.

Kull, T. J., Yan, T., Liu, Z., & Wacker, J. G. (2014). The Moderation of Lean Manufacturing Effectiveness by Dimensions of National Culture: Testing Practice-culture Congruence Hypotheses. *International Journal of Production Economics,* 153, 1–12.

Lakshman, C. (2006). A theory of leadership for quality: Lessons from TQM for leadership theory, Total Quality Management & Business Excellence, 17(1), 41-60. doi: 10.1080/14783360500249729

Laohavichien, T., Fredendall, L. D., & Cantrell, R. S. (2011). Leadership and quality management practices in Thailand. *International Journal of Operations & Production Management*, 31, 1048-1070.

Larsson, J., & Vinberg, S. (2010). Leadership behaviour in successful organisations: Universal or situation-dependent? *Total Quality Management & Business Excellence,* 21, 317-334 doi: 10.1080/14783360903561779

Larteb, Haddout, & Benhadou. (2015). National culture impact on lean leadership and lean manufacturing maturity – case study of multinationals based in Morocco, *IJRET*, 4, 2.

Liker, J. K., & Convis, G. L. (2012). The Toyota way to lean leadership: Achieving and sustaining excellence through leadership development. New York: McGraw-Hill.

Lipman, T. O. (2013). Critical Reading and Critical Thinking—Study Design and Methodology. *Nutrition in Clinical Practice*, 28(2), 158–164. doi:10.1177/0884533612474041

Lucey, J., Bateman, N., & Hines, P. (2005). Why major lean transitions have not been sustained. Management Services, 59, 9-13.

Magnusson, P., Wilson, R.T., Zdravkovic, S., Zhou, J.X. and Westjohn, S.A. (2008), Breaking through the cultural clutter; a comparative assessment of multiple cultural and institutional frameworks, *International Marketing Review*, 25(2), 183-201.

Mann, D. (2005) Creating a Lean Culture: Tools to Sustain Lean Conversions, Second Edition ISBN-13: 978-143981141

Mann, D. (2009). The missing link: Lean leadership. *Frontiers of Health Services Management,* 26, 15-26.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A Temporally Based Framework and Taxonomy of Team Processes. *The Academy of Management Review,* 26(3), 356. doi:10.2307/259182

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34, 410-476. doi: 10.1177/0149206308316061

McCloy R. A., Heggestad E. D., & Reeve C. L. (2005). A silk purse from the sow's ear: Retrieving normative information from multidimensional forced-choice items. *Organizational Research Methods,* 8, 222-248.

McDonald, S. (2005). Studying actions in context: a qualitative shadowing method for organizational research. *Qualitative Research,* 5, 455-473.

Merritt, A. (2000), "Culture in the cockpit: do Hofstede's dimensions replicate?, *Journal of Cross-Cultural Psychology*, 31(3), 283-301.

Mesmer-Magnus, J. R., & Dechurch, L. A. (2009). Information sharing and team performance: a meta-analysis. *Journal of Applied Psychology*, 94(2), 535-46. doi: 10.1037/a0013773.

Morrison, E. W. (2011). Employee voice behavior: Integration and directions for future research. *The Academy of Management Annals,* 5(1), 373-412. doi: 10.1080/19416520.2011.574506

Moyano-Fuentes, J., & Sacrist an-Díaz, M. (2012). Learning on lean: a review of thinking and research. *International Journal of Operations & Production Management,* 32, 55-582.

Mullarkey, S., Jackson, P. R., & Parker, S. K. (1995). Employee reactions to JIT manufacturing practices: A two-phase investigation. *International Journal of Operations & Production Management*, 15, 62-79. doi: 10.1108/01443579510102909

Netland, T., & Ferdows, K. (2016). What to Expect from a Corporate Lean Program (2016). *Summer 2014 MIT Sloan Management Review.* https://ssrn.com/abstract=2726186

Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 5(1), 14-37. doi: http://www.jstor.org/stable/2635068

Nwabueze, U. (2011). Implementing TQM in healthcare: The critical leadership traits. *Total Quality Management & Business Excellence*, 22, 331-343. doi: 10.1080/14783363.2010.532338

Papadopoulou, T. C., & Ozbayrak, M. (2005). Leanness: experiences from the journey to date. *Journal of Manufacturing Technology Management*, 16, 784-807.

Patton, M. Q. (2002). Qualitative research and evaluation methods (3rd ed.). Thousand Oaks

Podsakoff, N. P., Podsakoff, P. M., MacKenzie, S. B., Maynes, T. D., & Spoelma, T. M. (2014). Consequences of unit-level organizational citizenship behaviors: A review and recommendations for future research. *Journal of Organizational Behavior* 35(1), 87-S119. doi:10.1002/job.1911.

Poksinska, B., Swartling, D., & Drotz, E. (2013). The daily work of lean leaders: Lessons from manufacturing and healthcare. *Total Quality Management & Business Excellence,* 24(8), 886-898. doi: 10.1080/14783363.2013.791098.

Procter, S., & Radnor, Z. J. (2014). Teamworking under lean in UK public services: Lean teams and team targets in her Majesty's revenue & Customs (hrMC). *The international Journal of human resource Management,* 25(21), 2978- 2995.

Pustkowski, R., J. Scott, & J. Tesvic. (2014). Why implementation matters. McKinsey & Co. [Online] Retrieved from https://www.mckinsey.com/ business-functions/operations/our-insights/why-implementationmatters

Quinn, R. E. and Kimberly, J. R., (1984) "Paradox, planning, and perseverance: Guidelines for managerial practice," in New futures: The challenge of managing corporate transitions (pp. 295–313), edited by J. R. Kimberly and R. E. Quinn, 1984, Homewood, IL: Dow Jones–Irwin.

Rich, B. L., Lepine, J. A., & Crawford, E., (2010). Job Engagement: Antecedents and Effects on Job Performance. *The Academy of Management Journal*, 53(3), 617-635. doi: 10.5465/AMJ.2010.51468988.

Rothenberg, S. (2003). Knowledge content and worker participation in environmental management at NUMMI. *Journal of Management Studies,* 40, 1783–802. doi: 10.1111/1467-6486.00400.

Sagiv L, & Schwartz, S. (1995) Value priorities and readiness for out-group social contact. *Journal of Personality and Social Psychology*, 69, 437–448.

Salas, E., Sims, D. E., & Burke, C. S. (2005). Is there a "Big Five" in teamwork? *Small Group Research*, 36, 555-599. doi: 10.1177/1046496405277134

Samuel, D., Found, P. A., & Williams, S. J. (2015). How did the publication of the book the Machine that changed the world change management thinking? Exploring 25 years of lean literature. *International Journal of Operations & Production Management,* 35, 1386-1407.

Saurin, T., G. Marodin, & J. Ribeiro. (2011). A Framework for Assessing the Use of Lean Production Practices in Manufacturing Cells. *International Journal of Production Research*, 46(23), 32–51.

Saurin, T. A., Marodin, G. A., & Ribeiro, J. L. D. (2011). A framework for assessing the use

of lean production practices in manufacturing cells. *International Journal of Production Research,* 49(11), 3211-3230.

Schein, E. H. (1984). Coming to a New Awareness of Organizational Culture. *Sloan Management Review,* 25(2), 3–16.

Schein, E. H. (2004). Organizational Culture and Leadership (3rd edn). San Francisco: Jossey-Bass.

Schein E. H. (2010). Organizational Culture and Leadership. San Francisco: Wiley Schmenner, R. W., Van Wassenhove, L., Ketokivi, M., Heyl, J., & Lusch, R. F. (2009). Too much theory, not enough understanding. *Journal of Operations Management,* 27, 339-343.

Schwartz, S. H. (2012). An Overview of the Schwartz Theory of Basic Values. *Online Readings in Psychology and Culture*, 2(1). doi: 10.9707/2307-0919.1116

Schwartz, S. H., Cieciuch, J., Vecchione, M., Torres, C., Dirilen-Gumus, O., & Butenko, T. (2017). Value tradeoffs propel and inhibit behavior: Validating the 19 refined values in four countries*. European Journal of Social Psychology,* 47(3), 241-258.

Seers, A. (1989). Team-member exchange quality: A new construct for role-making research. *Organizational Behavior and Human Decision Processes,* 43, 118-135. doi: 10.1016/0749-5978(89)90060-5

Seidel, A., Saurin, T., Marodin, G., Duarte Ribeiro, D. (2017). Lean leadership competencies: a multi-method study, *Management Decision,* 55(10), 2163-2180. doi: 10.1108/MD-01-2017-0045

Selznick, P. (1948). Foundations of the Theory of Organization*, American Sociological Review,* 13(1), 25. doi:10.2307/2086752

Shah, R., & Ward, P. T. (2003). Lean manufacturing: Context, practice bundles, and performance. *Journal of Operations Management,* 21(2), 129-149. doi:10.1016/S0272-6963(02)00108-0

Shah, R. and Ward, P.T. (2007), Defining and developing measures of lean production. *Journal of Operations Management*, 25(4), 785-805.

Sosik, J. J., & Dionne, S. D. (1997). Leadership styles and Deming's behavior factors. *Journal of Business and Psychology,* 11, 447-462. doi:10.1007/BF02195891

Souba, W. W., & Day, D. V. (2006). Leadership values in academic medicine. *Academic Medicine,* 81(1), 6-20.

Spicer, D. P. (2011). Changing culture: A case study of a merger using cognitive mapping. *Journal of Change Management*, 11, 245–64.

Szabo, E., Reber, G., Weibler, J., Brodbeck, F. C., & Wunderer, R. (2001). Values and behavior orientation in leadership studies: reflections based on findings in three German-speaking countries. *The Leadership Quarterly,* 12, 219-244

Taulli, T. (2019). The Best Investing Books. Retrieved from: https://www.forbes.com/sites/tomtaulli/2019/06/30/the-best-investing-books/#29c21cd97ed5

Taylor, M., & Taylor, A. (2008). Operations Management Research in the Automotive
    Sector. *International Journal of Operations & Production Management*, 28(6), 480–489

Tortorella, G., Fettermann, D., Anzanello, M., & Sawhney, R. (2017). Lean manufacturing
    implementation, context and behaviors of multi-level leadership: A mixed-methods
    exploratory research, *Journal of Manufacturing Technology Management,* 28(7), 867-891.
    doi: 10.1108/JMTM-06-2017-0128

Van Den Bossche, P., Gijselaers, W. H., Segers, M., & Kirschner, P. A. (2006). Social and
    cognitive factors driving teamwork in collaborative learning environments: Team learning
    beliefs and behaviors. *Small Group Research*, 37, 490–521.

Van Dun, D. H., & Wilderom, C. P. M. (2012). Human Dynamics and Enablers of Effective
    Lean Team Cultures and Climates. *International Review of Industrial and Organizational
    Psychology,* 27, 115-152.

Van Dun, D. H. & Wilderom, C. P.M . (2015), Governing highly performing lean team
    behaviors: a mixed-methods longitudinal study, in Humphreys, J. (Ed.), Proceedings of the
    Seventy-fifth Annual Meeting of the Academy of Management, Vancouver.

Van Dun, D. H., & Wilderom, C. P. M. (2016). Lean-Team Effectiveness through Leader Values
    and Members' Informing. *International Journal of Operations & Production Management,*
    11 (36), 1530-1550.

Van Dun, D. H., Hicks, J. N., & Wilderom, C. P. M. (2017). Values and Behaviors of Effective
    Lean Managers: Mixed-methods Exploratory Research. *European Management Journal*.
    doi:10.1016/j.emj.2016.05.016

Vie, O. E. (2010). Have post-bureaucratic changes occurred in managerial work? *European
    Management Journal,* 28, 182-194.

Waldman, D. A. (1993). a theoretical consideration of leadership and total quality
    management. *The Leadership Quarterly*, 4, 65-79. doi: 10.1016/1048-9843(93)90004-D

Waldman, D. A., Lituchy, t., Gopalakrishnan, M., Laframboise, K., Galperin, B., &
    Kaltsounakis, Z. (1998). A qualitative analysis of leadership and quality improvement. *The
    Leadership Quarterly,* 9, 177-201. doi: 10.1016/S1048-9843(98)90004-2

Womack, J. P., & Jones, D. T. (2003). Lean Thinking: Banish Waste and Create Wealth in
    Your Corporation. New York: Simon & Schuster.

Worley, J.M., Doolen, T.L. (2006). The role of communication and management support in a
    lean manufacturing implementation. *Management Decision*, 44(2), 228-245. doi:
    10.1108/00251740610650210

Yang, J., Zhang, Z. X., & Tsui, A. S. (2010). Middle manager leadership and frontline employee
    performance: Bypass, cascading, and moderating effects. *Journal of Management Studies,*
    47(4), 654-678.

Yukl, G. A., & Van Fleet, D. D. (1982). Cross-situational, multimethod research on military

leader

Yukl, Gordon and Taber, (2002). A hierarchical Taxonomy of leadership behaviour. 9(1). doi: 10.1.1.468.6323)

Yukl, G. (2006). Leadership in organizations. (6th ed.). Upper Saddle River, *NJ: Pearson Prentice Hall*

Yukl, G., Mahsud, R., Hassan, S., & Prussia, G. E. (2011). An Improved Measure of Ethical Leadership. *Journal of Leadership & Organizational Studies*, 20(1), 38–48. doi:10.1177/1548051811429352

Yukl, G. (2012). Effective leadership behavior: What we know and what questions need more attention. *Academy of Management Perspectives*, 26(4), 66-85.

Yukl, G., Mahsud, R., Hassan, S., & Prussia, G. E. (2011). An Improved Measure of Ethical Leadership. *Journal of Leadership & Organizational Studies*, 20(1), 38–48. doi: 10.1177/1548051811429352

Yukl, G., Mahsud, R., Prussia, G., & Hassan, S.. (2019). Effectiveness of broad and specific leadership behaviors. *Personnel Review*. 48. doi: 10.1108/PR-03-2018-0100.

Zaccaroa, S. J., Rittmana, A. L., & Marks, M. A., (2001). Team leadership. *The Leadership Quarterly,* 12(2001), 451–483. doi: 10.1016/S1048-9843(01)00093-5

Appendix A: Values and behaviours of organizational culture and organizational effectiveness

Culture type	Assumptions and beliefs	Values	ELMM values[2]	Artefacts (behaviours)
Clan	*Human affiliation (People behave appropriately when they have trust in, loyalty to, and membership in the organization)*	Attachment, Affiliation, Collaboration, Trust, & Support	- Teamwork - Respect for the people - Participation - Honesty - Responsibility - Candour - Employee empowerment **5.83/65%[3]**	*Teamwork Participation Employee involvement Open communication*
Adhocracy	*Change (People behave appropriately when they understand the importance and impact of the task.)*	Growth Stimulation Variety Autonomy Attention to detail	- Continuous Improvement - Persistence - Employee Empowerment **1.5/16.7%[3]**	*Risk-taking Creativity Adaptability*
Market	*Achievement (People behave appropriately when they have clear objectives and are rewarded based on their achievements.)*	Communication Competition Competence Achievement	- Continuous Improvement - Candor **0.83/9.2%[3]**	*Gathering customer and competitor information Goal-setting Planning Task focus Competitiveness Aggressiveness*
Hierarchy	*Stability (People behave appropriately when they have clear roles and procedures are formally defined by rules and regulations.)*	Communication Routinization Formalization Consistency	- Candor, - Persistance **0.83/9.2%[3]**	*Conformity Predictability*

Note 1. Table adapted from research conducted by Hartnell et al., 2011, p. 679 ("Values" and "Artifacts (behaviours)"). Consequently, Hartnell et al., 2011, basis came from Quin and Kimberly 1984 ("Culture type" and "Assumptions and beliefs")

Note 2. ELMM values based on reviews performed by Van Dun et al., 2017, p. 176. Values which were mentioned by two or more sources out of a total of 22 separate sources, which were content-analyzed by Van Dun et al. 2017. Additionally, ELMM values were added based on Van Dun 2017 findings.

Note 3. Out of a total of 9 value options, the division per culture type is a follows: **Clan 5.83**: (teamwork 1; Respect for the people 1; Participation 1; Honesty 1; Responsibility 1; Candor 0.33; Employee empowerment 0.5) = 65%. **Adhocracy 1.5**: (Continuous Improvement 0.5; Persistence 0.5; Employee Empowerment 0.5) = 16,7%. **Market 0.83:** (Continuous Improvement 0.5; Candour 0.33) = 9.2%.**Hierarchy 0.83**: (Candor 0.33; Persistance 0.5) = 9.2%.

Appendix B: Globe study country article division

Country	House culture group	Own literature review		A. Erthal & L. Marques (2018)		Average
		Articles#	%	Articles#	%	
Anglo	Australia	5	27%	0	41%	34%
	Canada	1		1		
	UK	7		7		
	US	15		15		
Confucian Asia	China	5	22%	5	25%	24%
	Hong Kong	5		0		
	Japan	6		6		
	Singapore	4		0		
	South Korea	1		0		
	Taiwan	2		2		
	South-Korea	0		1		
Latin Europe	France	5	19%	0	11%	15%
	Israel	**3**		0		
	Italy	3		3		
	Portugal	5		0		
	Spain	4		3		
Germanic Europe	Austria	1	13%	0	9%	11%
	Belgium	1		1		
	Czeck	1		1		
	Germany	1		1		
	Netherlands	**9**		2		
Southern Asia	India	2	4%	2	5%	5%
	Philippines	1		1		
	Thailand	1		0		
Eastern Europe	Greece	1	7%	0	2%	4%
	Hungary	1		1		
	Russia	5		0		
	Slovenia	0		0		
Nordic Europe	Denmark	1	5%	0	4%	4%
	Finland	2		0		
	Sweden	2		2		
Latin America	Brazil	1	3%	1	4%	3%
	Mexico	1		1		
	Venezuela	1		0		
Middle East	Morocco	1	1%	0	0%	0%
Sub-Saharan Africa	/	0	0%	0	0%	0%

Culture groups based on House et al. (2004)

Appendix C: Hofstede dimension NC score division

Table A
Dimension score division (Hofstede et al., 2010)

Dimension score division

Level	Score	Power distance				Individualism			Masculinity				
High	100								Japan				
	90	Russia				USA	Australia						
	80	China	Mexico	Venezuela		UK / NL / Italy	Canada		Austria				
		India											
Upper Middle	70	Slovenia	Singapore			Sweden	Denmark	France	Italy	Venezuela			
		Brazil	**France**	**Hong Kong**		Germany			China	Australia	Germany	UK	Mexico
	60	South korea	Greece	Thailand	Portugal	Finland			US				
		Czeck	Spain	Taiwan		Czeck	Austria		India	Czeck	Hong kong	Greece	
Lower Middle	50	Japan	Italy			Spain	Israel		Canada				
						Japan	India		**Brazil**	**Israel**	**Singapore**		
	40	USA	Germany			**Brazil**	**Greece**	**Russia**	Spain	France	Taiwan		
		NL	Australia	Canada					South korea	Russia			
Low	30	Sweden	Finland	UK		Mexico			Portugal	Thailand			
	20					Slovenia	Hong kong	Portugal	Finland				
						China	Singapore	Thailand					
	10	Denmark				South Korea	Taiwan		Slovenia	Denmark			
		Austria	Israel			Venezuela			NL				
	0								Sweden				

Table B
Dimension score division [continued] (Hofstede et al., 2010)

Dimension score division

Level	Score	Uncertainty avoidance				Longterm orientation				Indulgence			
High	100	Greece				South Korea				Venezuela			
		Portugal	Russia							Mexico			
	90	Japan				Taiwan							
		Slovenia	France			Japan	China						
	80	Spain	South-korea	Mexico	Israel	Germany	Russia			Sweden			
		Brazil	**Venezuela**			Denmark							
Upper Middle	70	Czeck	Austria	Italy		Czeck	Singapore			Denmark	Australia	UK	Canada
		Taiwan				NL				NL	USA		
	60	Germany	Thailand			Austria	France	Italy	Hong kong	Austria			
		Finland								**Finland**	**Brazil**		
Lower Middle	50	NL	Australia			Sweden	India	UK		Greece			
		USA	Canada			Slovenia	Spain	Greece		Slovenia	Taiwan	Singapore	France
	40	India				**Brazil**	Finland	Israel		Spain	Japan	Thailand	Germany
						Canada							
Low	30	Sweden	China	UK		Denmark	Thailand			Portugal	Italy	South Korea	
	20	Hong kong				USA	Portugal			India	Czeck		
		Denmark				Mexico	Australia			Russia	China		
	10					Venezuela				Hong Kong			
	0	Singapore											

Appendix D: Brazil and Netherlands ELMM behaviour division (Literature review)

Brazil

Meta-category	Component	Used behaviour	#	%
Change-oriented	Facilitating collective learning	**Leaders sharing their own work-related information and idea and open-minded for distinct view**	30	9
		Creating collaborative culture/team building with equality	18	5
Relations-oriented	Recognizing	**Quickly acting upon suggestions**	34	10
		Asking team leaders for feedback, after which willing to improve oneself	15	5
	Supporting	**Taking responsibility for the team**	30	9
Task-oriented	Problem solving	Having discussions/problem addressing	25	8

Netherlands

Meta-category	Component	Used behaviour	#	%
Change-oriented	Facilitating collective learning	**Leaders sharing their own work-related information and idea and open-minded for distinct view**	39	6
Relations-oriented	Recognizing	**Quickly acting upon suggestions**	32	5
		Asking team leaders for feedback, after which willing to improve oneself	31	5
		Active listening (Nodding and Eye-contact)	30	5
	Supporting	**Taking responsibility for the team**	50	8
Task-oriented	Clarifying	**Structured information sharing**	41	6
	Problem solving	**Having discussions/problem addressing**	35	6

Appendix E: Brazil and Netherlands ELMM behaviour division per Hofstede dimension (Literature review)

Power distance

Meta-categories	Component	#
Change-oriented (41)	Encouraging innovation	10
	Envisioning change	8
	Facilitating collective learning	23
Relations-oriented (124)	Empowering	39
	Recognizing	54
	Supporting	31
Task-oriented (112)	**Clarifying**	51
	Monitoring operations	34
	Problem solving	27

Dominant PDI components and their meta-categories BR/NL

Meta-category	Component	BR %	NL %	Used behaviour	Brazil		Netherlands	
					#	#%	#	#%
Change-oriented	Encouraging innovation	5	4	(Intellectual) stimulation and giving autonomy for team leaders to experiment	1	**1**	6	**3**
				Daily briefing, knowledge exchange	3	**4**	0	**0**
	Envisioning change	1	4	Awareness of goals and strategic performance measures	0	**0**	1	**1**
				Clear and explicit informing Vision and goals	1	**1**	4	**2**
				Display of long-term commitment to lean	0	**0**	2	**1**
	Facilitating collective learning	18	5	Asking for team leaders to share factual, work-related information	0	**0**	3	**2**
				Creating collaborative culture/team building with equality	5	**6**	4	**2**
				Leaders sharing their own work-related information and idea and open-minded for distinct view	9	**12**	2	**1**
Relations-oriented	Empowering	12	15	Individual consideration work related	0	**0**	4	**2**
				No blaming or making people feel pressure from up top by controlling the employees working speed	0	**0**	5	**3**
				Rewarding members' through complements	0	**0**	6	**3**
				By distancing, let teams be Self-directed teams	0	**0**	2	**1**
				Celebrating and recognizing success	2	**3**	5	**3**
				Responding to employees willingness facilitating (education/training)	5	**6**	2	**1**
				Trusting employees with a greater number of tasks	2	**3**	6	**3**
	Recognizing	19	20	Active listening (Nodding and Eye contact)	0	**0**	9	**5**
				Showing trust by taking employees serious	0	**0**	4	**2**
				Asking team leaders for feedback, after which willing to improve oneself	4	**5**	12	**6**
				Individual consideration non work related	1	**1**	4	**2**
				Making time for one on one talk with employees	2	**3**	1	**1**
				Quickly acting upon suggestions	8	**10**	9	**5**

	Supporting	9	12	Committing and supporting the team construct (team leadership)	0	**0**	6	**3**
				Taking responsibility for the team	7	**9**	15	**8**
				Visible support, application and commitment to this goal	0	**0**	3	**2**
Task-oriented	**Clarifying**	17	19	Clarity about team structure	5	**6**	5	**3**
				Closed loop communication	4	**5**	0	**0**
				Structured information sharing	4	**5**	25	**13**
				Timely communication	0	**0**	8	**4**
	Monitoring operations	6	15	Discussing visual performance dashboards, daily start-up meetings	4	**5**	11	**6**
				Giving instant feedback on errors	0	**0**	4	**2**
				Participation in/supporting events & (daily) Quality/Continuous improvement projects	1	**1**	7	**4**
				Visiting the work floor	0	**0**	7	**4**
	Problem solving	13	9	Having discussions/problem addressing	6	**8**	9	**5**
				Mediating in conflict situations	4	**5**	8	**4**

Individualism

Meta-categories	Component	#
Change-oriented (26)	Facilitating collective learning	19
	Encouraging innovation	5
	Envisioning change	2
Relations-oriented (66)	**Recognizing**	36
	Empowering	16
	Supporting	14
Task-oriented (38)	Monitoring operations	18
	Problem solving	12
	Clarifying	8

Dominant IND components and their meta-categories BR/NL

Meta-categories	Component	BR %	NL %	Used behaviour	Brazil		Netherlands	
					#	#%	#	#%
Change-oriented	Encouraging innovation	9	1	(Intellectual) stimulation and giving autonomy for team leaders to experiment	4	9	1	1
	Envisioning change	9	2	Awareness of goals and strategic performance measures	0	0	1	1
				Clear and explicit informing Vision and goals	0	0	1	1
	Facilitating collective learning	4	20	Asking for team leaders to share factual, work-related information	0	0	3	4
				Creating collaborative culture/team building with equality	2	4	4	5
				Facilitating organizational learning	0	0	3	4
				Leaders sharing their own work-related information and idea and open-minded for distinct view	0	0	7	8
Relations-oriented	Empowering	13	12	By distancing, let teams be Self-directed teams	0	0	1	1
				Celebrating and recognizing success	2	4	3	4

				Used behaviour				
				Individual consideration work related	0	0	2	2
				No blaming or making people feel pressure from up top by controlling the employees working speed	0	0	2	2
				Trusting employees with a greater number of tasks	4	9	2	2
	Recognizing	41	20	Active listening (Nodding and Eye contact)	6	13	7	8
				Asking team leaders for feedback, after which willing to improve oneself	0	0	3	4
				Individual consideration non work related	2	4	1	1
				Making time for one on one talk with employees	4	9	1	1
				Quickly acting upon suggestions	7	15	5	6
	Supporting	11	11	Committing and supporting the team construct (team leadership)	2	4	2	2
				Taking responsibility for the team	1	2	6	7
				Visible support, application and commitment to this goal	2	4	1	1
Task-oriented	Clarifying	0	10	Clarity about team structure	0	0	1	1
				Structured information sharing	0	0	3	4
				Timely communication	0	0	4	5
	Monitoring operations	13	14	Discussing visual performance dashboards, daily start-up meetings	0	0	6	7
				Giving instant feedback on errors	0	0	1	1
				Participation in/supporting events & (daily) Quality/Continuous improvement projects	4	9	3	4
				Visiting the work floor	2	4	2	2
	Problem solving	9	10	Having discussions/problem addressing	4	9	5	6
				Mediating in conflict situations	0	0	3	4

Masculinity

Meta-categories	Component	#
Change-oriented (25)	**Facilitating collective learning**	25
Relations-oriented (45)	**Recognizing**	24
	Supporting	14
	Empowering	7
Task-oriented (32)	Problem solving	15
	Clarifying	12
	Monitoring operations	5

Dominant MAS components and their meta-categories BR/NL

Meta-categories	Component	BR %	NL %	Used behaviour #	Brazil		Netherlands	
					#	#%	#	#%
Change-oriented	Facilitating collective learning	25	0	Asking for team leaders to share factual, work-related information	1	1	0	0
		25	0	Creating collaborative culture/team building with equality	10	10	0	0
		25	0	Facilitating organizational learning	2	2	0	0

		25	0	Leaders sharing their own work-related information and idea and open-minded for distinct view	12	12	0	0
Relations-oriented	Empowering	6	50	Celebrating and recognizing success	2	2	0	0
		6	50	Individual consideration work related	1	1	0	0
		6	50	Rewarding members' through complements	0	0	1	50
		6	50	Trusting employees with a greater number of tasks	3	3	0	0
	Recognizing	24	0	Active listening (Nodding and Eye contact)	3	3	0	0
		24	0	Asking team leaders for feedback, after which willing to improve oneself	4	4	0	0
		24	0	Individual consideration non work related	4	4	0	0
		24	0	Making time for one on one talk with employees	3	3	0	0
			0	Quickly acting upon suggestions	8	8	0	0
		24	0	Showing trust by taking employees serious	2	2	0	0
	Supporting	13	50	Committing and supporting the team construct (team leadership)	1	1	0	0
		13	50	Taking responsibility for the team	11	11	1	50
		13	50	Visible support, application and commitment to this goal	1	1	0	0
Task-oriented	Clarifying	12	0	Closed loop communication	6	6	0	0
		12	0	Structured information sharing	6	6	0	0
	Monitoring operations	5	0	Discussing visual performance dashboards, daily start up meetings	2	2	0	0
		5	0	Participation in/supporting events & (daily) Quality/Continuous improvement projects	2	2	0	0
		5	0	Visiting the work floor	1	1	0	0
	Problem solving	15	0	Having discussions/problem addressing	9	9	0	0
		15	0	Mediating in conflict situations	6	6	0	0

Uncertainty avoidance

Meta-categories	Component	#
Change-oriented (29)	Facilitating collective learning	23
	Encouraging innovation	5
	Envisioning change	1
Relations-oriented (69)	**Recognizing**	32
	Supporting	26
	Empowering	11
Task-oriented (48)	Clarifying	17
	Monitoring operations	16
	Problem solving	15

Dominant UAI components and their meta-categories BR/NL

Meta-categories	Component	BR %	NL %	Used behaviours	Brazil		Netherlands	
					#	#%	#	#%
Change-oriented	Encouraging innovation	0	5	(Intellectual) stimulation and giving autonomy for team leaders to experiment	0	0	5	5
	Envisioning change	0	1	Display of long-term commitment to lean	0	0	1	1
	Facilitating collective learning	20	13	Asking for team leaders to share factual, work-related information	0	0	2	2
				Creating collaborative culture/team building with equality	6	12	1	1
				Facilitating organizational learning	0	0	2	2
				Leaders sharing their own work-related information and idea and open-minded for distinct view	4	8	8	8
Relations-oriented	Empowering	2	10	By distancing, let teams be Self-directed teams	0	0	1	1
				Celebrating and recognizing success	0	0	2	2
				No blaming or making people feel pressure from up top by controlling the employees working speed	0	0	2	2
				Responding to employees willingness facilitating (education/training)	0	0	1	1
				Rewarding members' through complements	0	0	3	3
				Trusting employees with a greater number of tasks	1	2	1	1
	Recognizing	27	20	Active listening (Nodding and Eye contact)	0	0	4	4
				Asking team leaders for feedback, after which willing to improve oneself	2	4	5	5
				Individual consideration non work related	3	6	5	5
				Making time for one on one talk with employees	1	2	1	1
				Quickly acting upon suggestions	6	12	3	3
				Showing trust by taking employees serious	1	2	1	1
	Supporting	24	14	Committing and supporting the team construct (team leadership)	0	0	2	2
				Taking responsibility for the team	8	16	8	8
				Visible support, application and commitment to this goal	4	8	4	4
Task-oriented	Clarifying	8	13	Clarity about team structure	0	0	4	4
				Closed loop communication	2	4	1	1
				Structured information sharing	2	4	4	4
				Timely communication	0	0	4	4
	Monitoring operations	8	12	Checking up on goals and evaluating	0	0	2	2
				Discussing visual performance dashboards, daily start-up meetings	0	0	2	2
				Giving instant feedback on errors	0	0	2	2
				Participation in/supporting events & (daily) Quality/Continuous improvement projects	4	8	4	4
				Visiting the work floor	0	0	2	2
	Problem solving	10	10	Having discussions/problem addressing	3	6	6	6
				Mediating in conflict situations	2	4	4	4

Long term orientation

Meta-categories	Component	#
Change-oriented (22)	**Facilitating collective learning**	22
Relations-oriented (43)	**Recognizing**	25
	Supporting	12
	Empowering	6
Task-oriented (23)	Problem solving	10
	Monitoring operations	7
	Clarifying	6

Dominant LTO components and their meta-categories BR/NL

Meta-categories	Component	BR %	NL %	Used behaviours	Brazil		Netherlands	
					#	#%	#	#%
Change-oriented	Facilitating collective learning	18	33	Creating collaborative culture/team building with equality	2	4	4	9
		18	33	Facilitating organizational learning	1	2	1	2
		18	33	**Leaders sharing their own work-related information and idea and open-minded for distinct view**	5	11	9	21
Relations-oriented	Empowering	9	5	Celebrating and recognizing success	1	2	1	2
		9	5	Individual consideration work related	1	2	0	0
		9	5	Trusting employees with a greater number of tasks	2	4	1	2
	Recognizing	36	21	Active listening (Nodding and Eye contact)	3	7	0	0
		36	21	**Asking team leaders for feedback, after which willing to improve oneself**	4	9	2	5
		36	21	Individual consideration non work related	2	4	1	2
		36	21	Making time for one on one talk with employees	2	4	2	5
		36	21	**Quickly acting upon suggestions**	4	9	4	9
		36	21	Showing trust by taking employees serious	1	2	0	0
	Supporting	11	16	Committing and supporting the team construct (team leadership)	1	2	0	0
		11	16	Taking responsibility for the team	3	7	5	12
		11	16	Visible support, application and commitment to this goal	1	2	2	5
Task-oriented	Clarifying	9	5	Closed loop communication	2	4	2	5
		9	5	Structured information sharing	2	4	0	0
	Monitoring operations	9	7	Discussing visual performance dashboards, daily start-up meetings	1	2	1	2
		9	7	Participation in/supporting events & (daily) Quality/Continuous improvement projects	2	4	2	5
		9	7	Visiting the work floor	1	2	0	0
	Problem solving	9	14	Having discussions/problem addressing	2	4	4	9
		9	14	Mediating in conflict situations	2	4	2	5

Indulgence versus restraint

Meta-categories	Component	#
Change-oriented (37)	Facilitating collective learning	25
	Encouraging innovation	6
	Envisioning change	4
Relations-oriented (109)	**Recognizing**	41
	Empowering	39
	Supporting	29
Task-oriented (75)	Monitoring operations	34
	Clarifying	24
	Problem solving	17

Dominant IDG components and their meta-categories BR/NL

Meta-categories	Component	BR %	NL %	Used behaviours	Brazil		Netherlands	
					#	#%	#	#%
Change-oriented	Encouraging innovation	0	3	(Intellectual) stimulation and giving autonomy for team leaders to experiment	0	0	6	3
				Clear and explicit informing Vision and goals	0	0	4	2
				Display of long-term commitment to lean	0	0	2	1
	Facilitating collective learning	0	12	Asking for team leaders to share factual, work-related information	0	0	6	3
				Creating collaborative culture/team building with equality	0	0	6	3
				Leaders sharing their own work-related information and idea and open-minded for distinct view	0	0	13	6
Relations-oriented	Empowering	0	18	By distancing, let teams be Self-directed teams	0	0	4	2
				Celebrating and recognizing success	0	0	6	3
				Individual consideration work related	0	0	6	3
				No blaming or making people feel pressure from up top by controlling the employees working speed	0	0	8	4
				Responding to employees willingness facilitating (education/training)	0	0	2	1
				Rewarding members' through complements	0	0	4	2
				Trusting employees with a greater number of tasks	0	0	8	4
				Trusting employees with a greater number of tasks	1	10	8	4
	Recognizing	20	18	Active listening (Nodding and Eye contact)	0	0	10	5
				Asking team leaders for feedback, after which willing to improve oneself	0	0	9	4
				Individual consideration non work related	0	0	5	2
				Showing trust by taking employees serious	0	0	2	1
				Making time for one on one talk with employees	1	10	2	1

				Quickly acting upon suggestions	1	10	11	5
	Supporting	30	12	Taking responsibility for the team	0	0	15	7
				Visible support, application and commitment to this goal	3	30	11	5
Task-oriented	Clarifying	0	11	Clarity about team structure	0	0	4	2
				Closed loop communication	0	0	2	1
				Structured information sharing	0	0	9	4
				Timely communication	0	0	9	4
	Monitoring operations	30	15	Checking up on goals and evaluating	0	0	10	5
				Discussing visual performance dashboards, daily start-up meetings	0	0	4	2
				Giving instant feedback on errors	0	0	4	2
				Visiting the work floor	0	0	6	3
				Participation in/supporting events & (daily) Quality/Continuous improvement projects	3	30	7	3
	Problem solving	10	8	Mediating in conflict situations	0	0	5	2
				Having discussions/problem addressing	1	10	11	5

Appendix F: Brazil highest behaviours per dimension

Meta-categories	Component	Micro-behaviour	#
PDI			
Change-oriented	Facilitating collective learning	Leaders sharing their own work-related information and idea and open-minded for distinct view	9
Relations-oriented	Recognizing	Quickly acting upon suggestions	8
	Supporting	Taking responsibility for the team	7
Task-oriented	Problem solving	Having discussions/problem addressing	6
IND			
Change-oriented	Encouraging innovation	(Intellectual) stimulation and giving autonomy for team leaders to experiment	4
Relations-oriented	Empowering	Trusting employees with a greater number of tasks	4
	Recognizing	Quickly acting upon suggestions	7
		Active listening (Nodding and Eye contact)	6
		Making time for one on one talk with employees	4
Task-oriented	Monitoring operations	Participation in/supporting events & (daily) Quality/Continuous improvement projects	4
	Problem solving	Having discussions/problem addressing	4
MAS			
Change-oriented	Facilitating collective learning	Leaders sharing their own work-related information and idea and open-minded for distinct view	12
		Creating collaborative culture/team building with equality	10
Relations-oriented	Recognizing	Quickly acting upon suggestions	8
	Supporting	Taking responsibility for the team	11
Task-oriented	Problem solving	Having discussions/problem addressing	9
UAI			
Change-oriented	Facilitating collective learning	Creating collaborative culture/team building with equality	6
		Leaders sharing their own work-related information and idea and open-minded for distinct view	4
Relations-oriented	Recognizing	Quickly acting upon suggestions	6
	Supporting	Taking responsibility for the team	8
		Visible support, application and commitment to this goal	4
Task-oriented	Monitoring operations	Participation in/supporting events & (daily) Quality/Continuous improvement projects	4
LTO			
Change-oriented	Facilitating collective learning	Leaders sharing their own work-related information and idea and open-minded for distinct view	5
Relations-oriented	Recognizing	Asking team leaders for feedback, after which willing to improve oneself	4
		Quickly acting upon suggestions	4
		Active listening (Nodding and Eye contact)	3
	Supporting	Taking responsibility for the team	3
IVR			
Relations-oriented	Supporting	Visible support, application and commitment to this goal	3
Task-oriented	Monitoring operations	Participation in/supporting events & (daily) Quality/Continuous improvement projects	3

Appendix G: Case report

In the following chapter all teams and organizations are described by: "The organizational context; The team characteristics; Overall performance; Leader behaviours through interviews; Real observed Leader behaviours; Cultural dimensions comparable to Brazilian population."

Organization A: Service IT
Organizational context

The first organization is one of the largest Brazilian service/IT companies, specialized in management software. The organization started with vertical implementation of Lean, one team at a time, and is still in transition. At the start of the implementation of one and a half years ago, the initial principles used were "stop the line", Kaikaku, Kaizen, work agreement and visual management. In this organization, two LMMs and their team and senior are analysed.

<u>Organization A, LMM 1</u>
The team characteristics

The team is specialized in product development, focussing on information exchange with the customer. The ELMM has 45 subordinates and his team leaders are mostly men (80%), who are all born and raised in Brazil. In addition, the team and the LMM have been implementing Lean for over 12 months, which makes for this LMM to be categorized as "New Lean Manager". Additionally, all current team members have worked under the ELMM since the start of the transformation to Lean. The LMM has an specialised education, either Master or higher and his subordinates all either have a bachelor or are specialized. His senior's education is specialised and therefore either a Master or higher. The average age of the team members is 35 years and 2 months. Lastly, this team has daily morning meetings.

	Tenure	Lean Ten.	Gender	Age	Education	Team age	Member #
	Years	*Months*				*Months*	
Senior manager	8	12	M	38	Specialized		
Middle manager	8	12	M	38	Specialized		
Team leader 1	4	12	M	28	Specialized		
Team leader 2	6	13	F	38	Specialized		
Other TL (N=11)	4	11.55	9M/2F	35	6S/5B/0H		
Team average	4Y 8M	1Y	82%M/18%F	35Y 2M	10S/5B/0H	12	45

Table organisation A, Team 1

Overall performance[1]

First of all, on average the Lean tools used are coordinated and managed quite well. Considering that there are many tools used sufficiently. However, not everyone is in unison with the progress of the implementation and there often seems to be a somewhat high SD. Most importantly, the team is very satisfied with Lean manufacturing practices such as, standardization, Lean cells, Kanban, Kaizen and financial performance. Nonetheless, there are some short-comings on setup times, one-piece flow, lot size and buffers. On the topic of Visual performance measures and management accounting practices the opinions were divided. Not everyone seemed to agree on the degree of positive impact and implementation progress. On average, the team says that their Lean managers' managing brings considerable positive results, but the opinions range from very positive to very negative. Secondly, the ELQ suggest, with a score of 61.55, that the team considers the LMM an ethical and therefore effective LMM. The ELMM is ethical and trustworthy, he "walks the talk", values honesty and integrity, and puts others above himself. In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	5,917	0,276	4,852
2. _Communicates clear ethical standards for members.	5,750	0,595	3,738
3. _Sets an example of ethical behavior in his/her decisions and actions.	5,667	0,471	4,703
4. _Is honest and can be trusted to tell the truth.	5,917	0,276	4,793
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	5,833	0,373	4,375
6. _Is fair and unbiased when assigning tasks to members.	5,417	0,862	3,900
7. _Can be trusted to carry out promises and commitments.	5,417	0,862	3,900
8. _Insists on doing what is fair and ethical even when it is not easy.	5,500	0,645	4,565
9. _Acknowledges mistakes and takes responsibility for them.	5,500	0,764	3,740
10. _Regards honesty and integrity as important personal values.	5,750	0,433	4,140
11. _Sets an example of dedication and self-sacrifice for the organization.	5,167	1,067	3,358
12. _Opposes the use of unethical practices to increase performance.	5,667	0,745	4,533
13. _Is fair and objective when evaluating member performance and providing reward	5,250	0,829	3,728
14. _Puts the needs of others above his/her own selfinterest.	4,750	1,090	3,325
15. _Holds members accountable for using ethical practices in their work.	5,500	0,764	3,905
SUM			61,554

---

[1] ELMM performance is supported by the analyses of the use of lean tools, composed by Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

			1	2	3	4	5
ELMM1			1 Fortemente	Considerável	centro pointo	Um poco	5 De modo nenhum
Lean Manufacturing Practices	M	SD	Great deal	Considerable	Some	Small	Not at all
Standardization	**2.46**	**0.5**		7	6		
Lean Cells	**2.55**	**0.5**		5	6		
Reduced setup times	**2.58**	**1.11**	3	2	4	3	
Kanban	**1.31**	**0.46**	9	4			
One-piece flow	**2.18**	**0.72**	2	5	4		
Reduced lot size	**2.38**	**0.62**	1	6	6		
Reduced buffer	**2.77**	**0.89**	1	4	5	3	
5s	**3.09**	**0.9**		4	2	5	
Kaizen	**1.57**	**0.49**	6	8			
Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	**2.08**	**0.68**	2	7	3		
Metrics aligned with matrix	**2.31**	**0.91**	3	4	5	1	
Visuals used for infosharing	**1.85**	**1.17**	7	3	2		1
Info quality readily available	**2.46**	**1.22**	4	3	2	4	
Charts show defects	**2.25**	**1.01**	4	2	5	1	
Visual mode of org	**1.75**	**1.01**	7	2	2	1	
Info on productivity available	**2.38**	**1.33**	5	2	3	2	1
Quality data displayed at work stations	**2.75**	**1.42**	4	1	2	4	1
Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	**2.67**	**0.94**	1	1	3	1	
Accounting streamlined	**2.67**	**0.94**	1	1	3	1	
Accounting supports stratigic initiatives	**2.83**	**0.69**		2	3	1	
Accoutning facilitated decision making	**2.83**	**0.69**		2	3	1	
			1Aumento significante	Aumento moderado	Pouca ou nenhuma mudança	Diminuição moderada	5 Diminuição significativa
Operations/Financial performance	M	SD	1 Significant increase	Moderate increase	Little or no change	Moderate decrease	5 Significant decrease
Scrap and rework	3.89	0.57			2	6	1
Machine setup time	3.88	0.6			2	5	1
Queue and move times	3.2	0.87		3	2	5	
Machine down time	3.63	1.11		2	1	3	2
Lot sizes	3.8	0.4			2	8	
Cycle time	3.6	0.8		1	3	5	1
Net sales	**1.8**	**0.75**	2	2	1		
Return on assets	**2.5**	**0.5**		2	2		
Overall firm profitibility	**2.25**	**0.43**		3	1		
Market share	**2.25**	**0.43**		3	1		
			1 Fortemente	Considerável	centro pointo	Um poco	5 De modo nenhum
VSC	M	SD	Great deal	Considerable	Some	Small	Not at all
Value stream costing	**2.86**	**0.99**		3	3		1

Organization A, ELMM 2
The team characteristics

The team is specialized in product management, logistics and customer value. Besides the teams' specialization, their manager focusses on Individual Development Management for his subordinates. The ELMM has a total of 35 subordinates and his team leaders are mostly men (73.3%), who are all born and raised in Brazil. In addition, as opposed to the LMM, who has been running the department for 2 years, the team has an average age of 12 months. The team should be considered new to Lean, however, the LMM is an "Established Lean Manager". Additionally, 12 months is also the tenure of lean implementation for this team, meaning that the team started as a Lean team as opposed to it being reformed from a traditional non-Lean team. The team members have an average tenure of 2.5 years. The ELMM has an specialised education, either Master or higher and his subordinates all either have a bachelor or are specialized. His seniors education is also Specialized, meaning he has either a Master degree or higher. The average age of the team members is 35 years and 6 months. Lastly, this team has daily morning meetings.

	Tenure *Years*	Lean Ten. *Months*	Gender	Age	Education	Team age *Months*	Member #
Senior manager	8	12	M	38	Specialized		
Middle manager	2	24	M	39	Specialized		
Team leader 1	1	12	M	40	Bachelors		
Team leader 2	2	4	F	36	Bachelors		
Other TL (N=11)	2.55	9.45	8M/3F	31.73	5S/6B/0H		
Team average	2Y 9M	10M	73%M/27%F	35Y 6M	7S/8B/0H	10	35

Table organisation A, Team 2

Overall performance[2]

Similarly to the first LMM of this organization, on average, the Lean tools used are coordinated and managed quit well. There are many Lean tools used within the team and they are considered to be applied more sufficient. This makes sense since as opposed to the first LMM, this LMM is an Established Lean Manager. However besides Kanban, reduced lot size, visual management and financial performance, the opinions are very much divided. Lastly, the team seems to agree that they benefit from the Lean implementation. Furthermore, on the basis of the EQL, the team finds the LMM and ethical, and therefore an effective leader, giving him a

---

[2] ELMM performance is supported by the analyses of the use of lean tools, composed by Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

score of 61,31. According to the team the LMM holds members accountable for using ethical practices in their work, Regards honesty and integrity as important personal values and is honest and can be trusted to tell the truth. In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	5,692	0,606	4,668
2. _Communicates clear ethical standards for members.	5,538	0,746	3,600
3. _Sets an example of ethical behavior in his/her decisions and actions.	5,462	0,634	4,533
4. _Is honest and can be trusted to tell the truth.	5,769	0,421	4,673
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	5,308	0,821	3,981
6. _Is fair and unbiased when assigning tasks to members.	5,385	1,146	3,877
7. _Can be trusted to carry out promises and commitments.	5,385	0,625	3,877
8. _Insists on doing what is fair and ethical even when it is not easy.	5,538	0,499	4,597
9. _Acknowledges mistakes and takes responsibility for them.	5,538	0,746	3,766
10. _Regards honesty and integrity as important personal values.	5,769	0,421	4,154
11. _Sets an example of dedication and self-sacrifice for the organization.	5,385	0,738	3,500
12. _Opposes the use of unethical practices to increase performance.	5,769	0,576	4,615
13. _Is fair and objective when evaluating member performance and providing reward	5,385	0,625	3,823
14. _Puts the needs of others above his/her own selfinterest.	5,154	1,099	3,608
15. _Holds members accountable for using ethical practices in their work.	5,692	0,462	4,042
SUM			61,313

Lean Manufacturing Practices	ELMM2 M	SD	1 Fortemente Great deal	Considerável Considerable	centro pointo Some	Um poco Small	5 De modo nenhum Not at all
Standardization	**2.78**	**1.03**		5	2	1	1
Lean Cells	**2.86**	**1.12**		4	1	1	1
Reduced setup times	3.14	1.25		3	2		2
Kanban	**1.4**	**0.49**	6	4			
One-piece flow	**2.57**	**1.59**	2	3			2
Reduced lot size	**1.57**	**0.49**	3	4			
Reduced buffer	**2.43**	**1.5**	3	1	1	1	1
5s	3.25	1.3	1	2		4	1
Kaizen	**1.78**	**0.63**	3	5	1		

Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	**1.86**	**0.64**	2	4	1		
Metrics aligned with matrix	**1.86**	**0.83**	3	2	2		
Visuals used for infosharing	**1.56**	**0.83**	6	1	2		
Info quality readily available	**2**	**1**	3	3	1	1	
Charts show defects	**2.29**	**1.03**	2	2	2	1	
Visual mode of org	**1.38**	**0.48**	5	3			
Info on productivity available	**1.88**	**0.78**	3	3	2		
Quality data displayed at work stations	**2.71**	**1.39**	2	1	2	1	1

Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	3.67	0.94			2		1
Accounting streamlined	3.67	0.94			2		1
Accounting supports stratigic initiatives	3.33	0.47			2	1	
Accoutning facilitated decision making	3.33	0.47			2	1	

Operations/Financial performance	M	SD	1Aumento significante / 1 Significant increase	Aumento moderado / Moderate increase	Pouca ou nenhuma mudança / Little or no change	Diminuição moderada / Moderate decrease	5 Diminuição significativa / 5 Significant decrease
Scrap and rework	3.2	0.75		1	2	2	
Machine setup time	3.75	1.3		1	1		2
Queue and move times	3	1.22	1		1	2	
Machine down time	3.5	0.5			2	2	
Lot sizes	3.5	0.5			2	2	
Cycle time	3.5	0.5			2	2	
Net sales	**2.5**	**1.5**	1	2			1
Return on assets	**2.75**	**0.83**		2	1	1	
Overall firm profitibility	**2.5**	**0.87**		3		1	
Market share	**2.5**	**0.87**		3		1	

VSC	M	SD	1 Fortemente Great deal	Considerável Considerable	centro pointo Some	Um poco Small	5 De modo nenhum Not at all
Value stream costing	**2.25**	**0.43**			3	1	

Organization B (Manufacturing "hydraulic building materials")

Organizational context

The following organization is a manufacturing company is specializes in hydraulic building materials. An international award winning company stablished in 1956. Applying lean management since 2005. Initial principles used were informing people better, using dashboards and the A3 method and implementing 5S. Around 2012 the Lean management within the organization was somewhat neglected, but in recent year it is thriving again. Therefore, currently the organization is running fully on the Lean philosophy.

The team characteristics

This teams LMM, along with his 90 subordinates manages the initial production flow until semi-finished products. The data on the team leaders consists of only men (100%), who are all born and raised in Brazil. In addition, the team in its current composition has been implementing Lean for almost a year and mostly all current members have worked under the LMM since the start of the transformation to Lean. Except for one Team leaders, all participants surrounding the LMM, as well as the LMM, have a high tenure. The SM and the LMM have both already 10 years of experience with Lean management, the subordinates measured have, on average, one year of Lean experience. The LMM has an specialised education, meaning he either has a Master or higher. Furthermore, his subordinates all either have finished high school or did a bachelor degree. His senior managers education is also Master or higher. The average age of the team members is 45.2 years. Lastly, within this team the LMM has weekly meetings with the team leaders.

	Tenure	Lean Ten.	Gender	Age	Education	Team age	Member #
	Years	*Months*				*Months*	
Senior manager	22	120	M	43	Specialized		
Middle manager	31	120	M	57	Specialized		
Team leader 1	1	12	M	43	Bachelors		
Team leader 2	24	12	M	43	Bachelors		
Other TL (N=7)	17	18	2M/0F	42.5	0S/0B/2H		
Team average	18Y 9M	31.7	6M/0F	45.2	2S/2B/2H	11	90

Table organisation B

Overall performance[3]

The overall performance on the Lean tool use is rated as insufficient. The manager is an established Lean Manager, thus it makes sense that to a certain extant all tools are used within the company. Yet, the opinions are very much divided on whether they are really implemented well or not. The team only seems to agree on the considerable amount of standardization and the return on assets. Additionally, the score is consistently just above average, and the team does not have a coherent opinion, meaning that the use of Lean management is insufficient. Furthermore, on the topic of effectivity, the LMM got an average score of 51,63. Despite there being no specific outliers, the LMM showed behaviours such as "keeping his actions consistent with his stated values ("walks the talk")", "being fair and unbiased when assigning tasks to members", and "acknowledging mistakes and taking responsibility for them". In conclusion, the LMM will not be considered to be an Effective Lean Middle Manager.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	4,500	0,500	3,690
2. _Communicates clear ethical standards for members.	4,500	1,000	2,925
3. _Sets an example of ethical behavior in his/her decisions and actions.	4,500	1,000	3,735
4. _Is honest and can be trusted to tell the truth.	4,875	0,781	3,949
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	4,625	0,484	3,469
6. _Is fair and unbiased when assigning tasks to members.	4,625	0,484	3,330
7. _Can be trusted to carry out promises and commitments.	5,000	0,707	3,600
8. _Insists on doing what is fair and ethical even when it is not easy.	4,875	0,781	4,046
9. _Acknowledges mistakes and takes responsibility for them.	4,625	0,484	3,145
10. _Regards honesty and integrity as important personal values.	4,875	0,781	3,510
11. _Sets an example of dedication and self-sacrifice for the organization.	4,750	0,829	3,088
12. _Opposes the use of unethical practices to increase performance.	4,500	1,500	3,600
13. _Is fair and objective when evaluating member performance and providing reward	4,625	0,857	3,284
14. _Puts the needs of others above his/her own selfinterest.	4,250	1,090	2,975
15. _Holds members accountable for using ethical practices in their work.	4,625	0,696	3,284
SUM			51,629

---

[3] ELMM performance is supported by the analyses of the use of lean tools, composed by Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

Lean Manufacturing Practices	ELMM3 M	SD	1 Fortemente Great deal	Considerável Considerable	centro pointo Some	Um poco Small	5 De modo nenhum Not at all
Standardization	2.63	0.48		3	5		
Lean Cells	2.67	0.67		4	4	1	
Reduced setup times	2.78	0.92		5	1	3	
Kanban	3.11	1.2		4	2	1	2
One-piece flow	3.22	0.79		2	3	4	
Reduced lot size	2.89	0.87		4	2	3	
Reduced buffer	2.78	0.63		3	5	1	
5s	2.56	0.83		6	1	2	
Kaizen	2.78	0.63		3	5	1	

Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	2.67	0.94	1	3	3	2	
Metrics aligned with matrix	2.78	0.92	1	2	4	2	
Visuals used for infosharing	2.22	1.03	2	5		2	
Info quality readily available	2.44	0.96	1	5	1	2	
Charts show defects	2.22	1.42	2	5		2	
Visual mode of org	2.33	1.34	1	6		2	
Info on productivity available	2.33	1.34	1	6		2	
Quality data displayed at work stations	2.33	1.34	1	6		2	

Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	3.11	0.57		1	6	2	
Accounting streamlined	3.22	0.42			7	2	
Accounting supports stratigic initiatives	3	0.67		2	5	2	
Accoutning facilitated decision making	3	0.67		2	5	2	

Operations/Financial performance	M	SD	1Aumento significante / 1 Significant increase	Aumento moderado / Moderate increase	Pouca ou nenhuma mudança / Little or no change	Diminuição moderada / Moderate decrease	5 Diminuição significativa / 5 Significant decrease
Scrap and rework	3	0.82		3	3	3	
Machine setup time	3.5	0.5			4	4	
Queue and move times	3.25	0.43			6	2	
Machine down time	4.13	0.6			1	5	2
Lot sizes	3.75	0.43			2	6	
Cycle time	3.63	0.48			3	5	
Net sales	2.89	1.2		5	2		2
Return on assets	2.44	0.5		5	4		
Overall firm profitibility	2.56	0.83		6	1	2	
Market share	2.67	0.82		5	2	2	

VSC	M	SD	1 Fortemente Great deal	Considerável Considerable	centro pointo Some	Um poco Small	5 De modo nenhum Not at all
Value stream costing	2.78	0.63		3	5	1	

Organization C (Manufacturing "Home Appliances")
Organizational context

This organization is the largest manufacturer of home appliances in the world. Moreover, leading the market with its brands and products and operational and people excellence are the main pillars that represent the essence of this organization. The organization has been implementing Lean management since 2003 and it really took off in 2004. There is a strong use of tools within the company and continuous improvement is of paramount importance. Furthermore, the organization lives by its values very strongly. The organization values are respect, integrity, diversity, inclusion, team work, and spirit of victory. Only one LMM is analysed in the organization.

The team characteristics

The team the LMM leads focusses on manufacturing and engineering. The Team Leaders are supervising the assembly lines and apply Lean tools as well as World Class Manufacturing (WCM) and Workplace Organization (WO). At the same time the teams main task is to find improvements, solutions, new model areas and technology expansions. The LMM is already an Established Lean Manager and has been working with the team for over four years. The team applies tools such as standardization, manufacturing cells, one-piece flow, 5S, Kaizen and dashboards. Under the so-called pillar which he leads are two Team Leaders (i.e., his subordinates) who supervise the shop floor employees. The LMM and his TLs have weekly meetings and the TLs have daily start-up meetings. The team is 100% male and are all Brazilian. All participants have a specialised education, so they have a Master degree or more. Lastly, the average age is 32 and a half years.

	Tenure	Lean Ten.	Gender	Age	Education	Team age	Member #
	Years	*Months*				*Months*	
Senior manager	15	180	M	34	Specialized		
Middle manager	6	60	M	31	Specialized		
Team average	11Y 6M	120	100%M	32.5	2S/0B/0H	60	4

Table Organisation C

Overall performance[4]

The team has implemented Lean tools very well. Besides there being an overall high score on Lean manufacturing practices (except for Kanban), Visual/financial performance and accounting performance measure, the Standard deviation also show a high degree of unity per tool. Yet, there seems to be points of improvement on operations performance. Overall, the team is very satisfied with the Lean management execution. As for the ethical leadership questionnaire, the LMM also seemed to be appreciated by his subordinates and scored a 54.87. According to his subordinates he: Sets an example of ethical behaviour in his decisions and actions; Communicates clear ethical standards for members; Can be trusted to carry out promises and commitments; Holds members accountable for using ethical practices in their work; Acknowledges mistakes and takes responsibility for them; Regards honesty and integrity as important personal values; Is honest and can be trusted to tell the truth. In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	3,000	2,000	2,460
2. _Communicates clear ethical standards for members.	5,500	0,500	3,575
3. _Sets an example of ethical behavior in his/her decisions and actions.	5,500	0,500	4,565
4. _Is honest and can be trusted to tell the truth.	5,500	0,500	4,455
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	5,000	0,000	3,750
6. _Is fair and unbiased when assigning tasks to members.	5,000	1,000	3,600
7. _Can be trusted to carry out promises and commitments.	5,500	0,500	3,960
8. _Insists on doing what is fair and ethical even when it is not easy.	5,000	1,000	4,150
9. _Acknowledges mistakes and takes responsibility for them.	5,500	0,500	3,740
10. _Regards honesty and integrity as important personal values.	5,500	0,500	3,960
11. _Sets an example of dedication and self-sacrifice for the organization.	5,000	0,000	3,250
12. _Opposes the use of unethical practices to increase performance.	3,500	1,500	2,800
13. _Is fair and objective when evaluating member performance and providing reward	5,000	0,000	3,550
14. _Puts the needs of others above his/her own selfinterest.	4,500	0,500	3,150
15. _Holds members accountable for using ethical practices in their work.	5,500	0,500	3,905
SUM			54,870

---

[4] ELMM performance is supported by the analyses of the use of lean tools, composed by R.R. Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

Lean Manufacturing Practices	ELMM4 M	SD	1 Fortemente / Great deal	Considerável / Considerable	centro pointo / Some	Um poco / Small	5 De modo nenhum / Not at all
Standardization	1.4	0.49	3	2			
Lean Cells	2.2	0.75	1	2	2		
Reduced setup times	2.6	0.49		2	3		
Kanban	3.4	0.49			3	2	
One-piece flow	1.8	0.4	1	4			
Reduced lot size	2	0		5			
Reduced buffer	2.2	0.4		4	1		
5s	1.4	0.49	3	2			
Kaizen	1.4	0.49	3	2			

Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	2.2	0.75	1	2	2		
Metrics aligned with matrix	1.8	0.4	1	4			
Visuals used for infosharing	1	0	5				
Info quality readily available	1.4	0.49	3	2			
Charts show defects	1	0	5				
Visual mode of org	1.8	0.4	1	4			
Info on productivity available	1.4	0.49	3	2			
Quality data displayed at work stations	1.4	0.49	3	2			

Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	2.4	0.8		4		1	
Accounting streamlined	3.2	0.4			4	1	
Accounting supports stratigic initiatives	2.2	0.75	1	2	2		
Accoutning facilitated decision making	2.6	0.8	1		4		

Operations/Financial performance	M	SD	1 Aumento significante / 1 Significant increase	Aumento moderado / Moderate increase	Pouca ou nenhuma mudança / Little or no change	Diminuição moderada / Moderate decrease	5 Diminuição significativa / 5 Significant decrease
Scrap and rework	3.4	1.2	1			4	
Machine setup time	3.8	1.47	1			2	2
Queue and move times	3.8	0.4			1	4	
Machine down time	4	1.1		1		2	2
Lot sizes	3.8	0.4			1	4	
Cycle time	3.4	1.2	1			4	
Net sales	1.6	0.49	2	3			
Return on assets	1.8	0.4	1	4			
Overall firm profitibility	1.8	0.4	1	4			
Market share	2	0		5			

VSC	M	SD	1 Fortemente / Great deal	Considerável / Considerable	centro pointo / Some	Um poco / Small	5 De modo nenhum / Not at all
Value stream costing	1.6	0.49	2	3			

Organization D (Manufacturing "Starter Drive Production")

Organizational context

A manufacturing company ranked among the 150 best companies to work at according to Você s/a Magazine, Brazil's largest career and personal finance magazine. Measured with surveys on the organizational climate, based on a methodology developed by the Institute of Administration Foundation (FIA). The organization specialises in Starter Drive Production and has been implementing Lean Management for over 5 years. The organization implements Lean by integrating the people with daily problems through daily discussions on production improvement. There is a variety of tools used, such as 5s, Dashboards and VSM, in order to achieve reduced start-up times, production cells, reduced inventory. For this organization, only one ELMM and his team and senior were analysed.

The team characteristics

The main activities of the team product management, maintenance and quality control. The LMM has a total of 154 subordinates who are all Brazilian. Furthermore, all the participants were male. The LMM has been doing Lean management for 6 year, ergo he is considered an Established Lean Manager. The LMM does a lot of value stream mapping and has close contact with the shop floor with whom through daily start-up meetings. Besides the senior manager who has a specialized education, the LMM and his team has a Bachelor degree. Lastly, the average age of the participants is 39 years and 6 months.

	Tenure	Lean Ten.	Gender	Age	Education	Team age	Member #
	Years	*Months*				*Months*	
Senior manager	7	84	M	47	Specialized		
Middle manager	6	60	M	44	Bachelor		
Team leader 1	15	48	M	33	Bachelor		
Team leader 2	9	72	M	34	Bachelor		
Team average	9Y 3M	5Y 6M	100%M	39Y 6M	1S/3B/0H	11	90

Table organisation D

Overall performance[5]

The team has clearly an Established Lean manager and thus implements all lean manufacturing practised and visual performance measures. This execution also, according to a part of the team visible in the financial performance. The Lean management can be considered sufficient. However, one-piece flow, set-up time, the accessibility and availability of visuals are a bit debatable still. Furthermore, the LMM score an average score of 44.56. There were no outliers, however the following behaviours were above average: Shows a strong concern for ethical and moral values; Sets an example of dedication and self-sacrifice for the organization; Sets an example of ethical behaviour in his/her decisions and actions; Communicates clear ethical standards for members; Opposes the use of unethical practices to increase performance. In conclusion, despite the LMM having an average score on the ELQ, Lean management is executed really well, ergo the LMM can be considered to be an Effective Lean Middle Manager.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	5,000	0,000	4,100
2. _Communicates clear ethical standards for members.	4,500	0,500	2,925
3. _Sets an example of ethical behavior in his/her decisions and actions.	4,500	0,500	3,735
4. _Is honest and can be trusted to tell the truth.	4,000	0,000	3,240
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	3,500	0,500	2,625
7. _Can be trusted to carry out promises and commitments.	4,000	0,000	2,880
8. _Insists on doing what is fair and ethical even when it is not easy.	4,000	1,000	3,320
9. _Acknowledges mistakes and takes responsibility for them.	3,500	0,500	2,380
10. _Regards honesty and integrity as important personal values.	4,000	1,000	2,880
11. _Sets an example of dedication and self-sacrifice for the organization.	4,500	0,500	2,925
12. _Opposes the use of unethical practices to increase performance.	4,500	0,500	3,600
13. _Is fair and objective when evaluating member performance and providing reward	4,000	0,000	2,840
14. _Puts the needs of others above his/her own selfinterest.	3,000	0,000	2,100
15. _Holds members accountable for using ethical practices in their work.	3,500	0,500	2,485
SUM			44,555

---

[5] ELMM performance is supported by the analyses of the use of lean tools, composed by R.R. Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

Lean Manufacturing Practices	M	SD	1 Fortemente / Great deal	Considerável / Considerable	centro pointo / Some	Um poco / Small	5 De modo nenhum / Not at all
Standardization	1.5	0.5	2	2			
Lean Cells	1.5	0.5	2	2			
Reduced setup times	2.25	0.83	1	1	2		
Kanban	2.5	0.5		2	2		
One-piece flow	2.5	0.87		3		1	
Reduced lot size	2.25	0.83	1	1	2		
Reduced buffer	2.25	0.43		3	1		
5s	1	0	4				
Kaizen	2	0	1	2	1		

Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	1.5	0.5	2	2			
Metrics aligned with matrix	1.75	0.43	1	3			
Visuals used for infosharing	2.5	1.12	1	1	1	1	
Info quality readily available	2	0.71	1	2	1		
Charts show defects	2.25	0.43		3	1		
Visual mode of org	2.5	1.12	1	1	1	1	
Info on productivity available	2.25	1.09	1	2		1	
Quality data displayed at work stations	1.75	0.43	1	3			

Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	4	0.71			1	2	1
Accounting streamlined	3.5	0.5			2	2	
Accounting supports stratigic initiatives	4	0.71			1	2	1
Accoutning facilitated decision making	4	0.71			1	2	1

Operations/Financial performance	M	SD	1Aumento significante / 1 Significant increase	Aumento moderado / Moderate increase	Pouca ou nenhuma mudança / Little or no change	Diminuição moderada / Moderate decrease	5 Diminuição significativa / 5 Significant decrease
Scrap and rework	4.5	0.5				2	2
Machine setup time	3.75	0.83			2	1	1
Queue and move times	4.25	0.83			1	1	2
Machine down time	3.25	1.09		1	2		1
Lot sizes	4.25	0.83			1	1	2
Cycle time	4	1			2		2
Net sales	2	0.71	1	2	1		
Return on assets	2.25	0.83	1	1	2		
Overall firm profitibility	2	0.71	1	2	1		
Market share	2.25	0.83	1	1	2		

VSC	M	SD	1 Fortemente / Great deal	Considerável / Considerable	centro pointo / Some	Um poco / Small	5 De modo nenhum / Not at all
Value stream costing	2.5	1.5	2			2	

Organization E (University)
Organizational context

The last two LMMs were analysed were working in an university. This university is one of the leading universities in Latin America, ranking 14th on the Times Higher Educatin (2018). In the Brazilian annual ranking, according to the Brazilian newspaper Folha de São Paulo (2017), it is the 6th best Brazilian university[6]. The university is the only public organization in this research. Due to a strict hierarchy, rigid culture and the many disciplines, the implementation did not happen through a natural cascade effect. On the contrary, this organization is implementing Lean incrementally through a bottom-up approach. The faculty specialised in "Production and Systems Engineering" started the initiative within the organization, two to three years ago, through small project groups led by HR managers. This initiative was under the supervision of university professors (Lean blackbelts). There is a significant use of Kanban, monitoring (visual management), KPIs, Kaizen and spreading the word through giving workshops throughout the university. Lastly, the project groups start off with intensive weekly meetings and after implementation the quality and kaizen is maintained through monthly gatherings.

Organization E, LMM 1

The team characteristics

The first LMM is very much involved in projects, and besides her own department her primary job is to lead continuous improvement. Even though the main team leaders and the LMM have their basis in the HR department they generally focus on business project management (BPM) and analyses processes outside their own department. Additionally, in order the achieve waste reduction within the entire organization, there is a need to transfer the Lean and Agile mentality. The team attempts to achieve this using tools such as process mapping (VSM), 6sigma, 5s, setting a future prognosis and a "To-be" situation for further waste reduction. She works together with and leads two team leaders directly who assist her. Subsequently, she does not have a fixed group of subordinates, because she constantly leads different project teams with whom she has intensive implementation periods and then moves to the next project(group). The participants within the research are 50% male and 50% female, all have the Brazilian nationality, with an average age of 31,25 years and except for one TL who has bachelors, all other participants have a specialised education. The LMM has only been leading

---

Lean teams for four months, however, she has gained a lot over experience prior by working together with another, already established, LMM within the same organization. Within the research she will be considered a "New Lean Manager".

	Tenure	Lean Ten.	Gender	Age	Education	Team age	Member #
	Years	*Months*				*Months*	
Senior manager	5	19	M	39	Specialized		
Middle manager	7	4	F	36	Specialized		
Team leader 1	1	10	F	21	Bachelor		
Team leader 2	5	8	M	30	Specialized		
Team average	4Y 6M	11M	50%M/50%F	31Y 3M	3S/1B/0H	18M	3*

Table organisation E, team 1

Overall performance[7]

First of all, this team is in a non-manufacturing setting, hence not all the Lean tools are applicable. However, there are a number of tools and visual performance measures used sufficiently. Especially, standardization, Kanban, Kaizen and visual performance on the shop floor/for information sharing. Since she is a New Lean Manager, it makes sense not all Lean tool and measures are optimized and fully implemented. This show though the high Standard deviation. Furthermore, she is considered an ethical leader, scoring a 60.7 on the ELQ. All behaviours were given around the 5.5 out of 6, except for: "She puts the needs of others above his/her own self-interest". In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	5,500	0,500	4,510
2. _Communicates clear ethical standards for members.	5,500	0,500	3,575
3. _Sets an example of ethical behavior in his/her decisions and actions.	5,500	0,500	4,565
4. _Is honest and can be trusted to tell the truth.	5,500	0,500	4,455
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	5,500	0,500	4,125
6. _Is fair and unbiased when assigning tasks to members.	5,500	0,500	3,960
7. _Can be trusted to carry out promises and commitments.	5,500	0,500	3,960
8. _Insists on doing what is fair and ethical even when it is not easy.	5,500	0,500	4,565
9. _Acknowledges mistakes and takes responsibility for them.	5,500	0,500	3,740
10. _Regards honesty and integrity as important personal values.	5,500	0,500	3,960
11. _Sets an example of dedication and self-sacrifice for the organization.	5,500	0,500	3,575
12. _Opposes the use of unethical practices to increase performance.	5,500	0,500	4,400
13. _Is fair and objective when evaluating member performance and providing reward	5,500	0,500	3,905
14. _Puts the needs of others above his/her own selfinterest.	5,000	0,000	3,500
15. _Holds members accountable for using ethical practices in their work.	5,500	0,500	3,905
SUM			60,700

---

[7] ELMM performance is supported by the analyses of the use of lean tools, composed by R.R. Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

Lean Manufacturing Practices	ELMM6 M	SD	1 Fortemente / Great deal	Considerável / Considerable	centro pointo / Some	Um poco / Small	5 De modo nenhum / Not at all
Standardization	2.33	0.47		2	1		
Lean Cells	4	1			1		1
Reduced setup times	3	0			2		
Kanban	2	0.82	1	1	1		
One-piece flow	3	0			2		
Reduced lot size	3	0			2		
Reduced buffer	4	1			1		1
5s	3	1		1		1	
Kaizen	2	0.82	1	1	1		

Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	2.5	0.5		1	1		
Metrics aligned with matrix	3	0			2		
Visuals used for infosharing	2.33	1.25	1	1		1	
Info quality readily available	2.67	0.47		1	2		
Charts show defects	3	0			2		
Visual mode of org	2.33	0.94	1		2		
Info on productivity available	3.33	0.94		1		2	
Quality data displayed at work stations	3	1		1		1	

Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	3	0			1		
Accounting streamlined	3	0			1		
Accounting supports stratigic initiatives	3	0			1		
Accoutning facilitated decision making	3	0			1		

Operations/Financial performance	M	SD	1Aumento significante / 1 Significant increase	Aumento moderado / Moderate increase	Pouca ou nenhuma mudança / Little or no change	Diminuição moderada / Moderate decrease	5 Diminuição significativa / 5 Significant decrease
Scrap and rework	3.67	0.47			1	2	
Machine setup time	3.5	0.5			1	1	
Queue and move times	3.5	0.5			1	1	
Machine down time	3.5	0			1	1	
Lot sizes	3.5	0.5			1	1	
Cycle time	3.5	0.5			1	1	
Net sales	3	0			1		
Return on assets	3	0			1		
Overall firm profitibility	3	0			1		
Market share	3	0			1		

VSC	M	SD	1 Fortemente / Great deal	Considerável / Considerable	centro pointo / Some	Um poco / Small	5 De modo nenhum / Not at all
Value stream costing	4	1			1		1

Organization E, LMM 2
The team characteristics

Inside the sector where she works, they have a small administration and process of the people that work there. HR department for UFSC employees. And she is responsible for this sector/department. I do the indicators and the mapping of the process, everything inside this sector. This LMM also works together with two other TLs who she supervises. Additionally, she does not have a fixed group of subordinates, because she too constantly leads different project teams with whom she has intensive implementation periods and then moves to the next project(group). The participants within the research are 50% male and 50% female, all have the Brazilian nationality, with an average age of 32 years and except for one TL who has bachelors, all other participants have a specialised education. The LMM has been leading Lean teams for over two year, ergo, she is considered an "Established Lean Manager".

	Tenure	Lean Ten.	Gender	Age	Education	Team age	Member #
	Years	*Months*				*Months*	
Senior manager	5	19	M	39	Specialized		
Middle manager	7	24	F	38	Specialized		
Team leader 1	1	10	F	21	Bachelor		
Team leader 2	5	8	M	30	Specialized		
Team average	4Y 6M	16M	50%M/50%F	32Y	3S/1B/0H	18M	3*

Table organisation E, team 2

Overall performance[8]

Similarly to the other University team, this team works in a non-manufacturing setting, hence not all the Lean tools are applicable. As opposed to the other team LMM, this teams LMM is considered to be an Established Lean manager. Although there is not a wide variety of tools used, this LMM seems to be more skilled with Lean manufacturing practices such as Kanban. Overall, the Lean management implementation is considered average. Furthermore, she is considered an ethical leader, scoring a 60.35 on the ELQ. All behaviours were given around the 5.5 out of 6, except for: "She puts the needs of others above his/her own self-interest". In conclusion, the LMM can be considered to be an Effective Lean Middle Manager.

---

[8] ELMM performance is supported by the analyses of the use of lean tools, composed by R.R. Fullerton et al (2014), the ELMM and the team uses and awareness of the usage independent of each other to argue whether or not they are in sync. Additionally, the ethical leadership questionnaire (ELQ), by Yukl et al. (2010), is in order to measure the perceived effectiveness of the ELMM.

My boss	MEAN	SD	M*Factor
1. _Shows a strong concern for ethical and moral values.	5,500	0,500	4,510
2. _Communicates clear ethical standards for members.	5,500	0,500	3,575
3. _Sets an example of ethical behavior in his/her decisions and actions.	5,500	0,500	4,565
4. _Is honest and can be trusted to tell the truth.	5,500	0,500	4,455
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").	5,500	0,500	4,125
6. _Is fair and unbiased when assigning tasks to members.	5,500	0,500	3,960
7. _Can be trusted to carry out promises and commitments.	5,500	0,500	3,960
8. _Insists on doing what is fair and ethical even when it is not easy.	5,500	0,500	4,565
9. _Acknowledges mistakes and takes responsibility for them.	5,500	0,500	3,740
10. _Regards honesty and integrity as important personal values.	5,500	0,500	3,960
11. _Sets an example of dedication and self-sacrifice for the organization.	5,500	0,500	3,575
12. _Opposes the use of unethical practices to increase performance.	5,500	0,500	4,400
13. _Is fair and objective when evaluating member performance and providing reward	5,500	0,500	3,905
14. _Puts the needs of others above his/her own selfinterest.	4,500	0,500	3,150
15. _Holds members accountable for using ethical practices in their work.	5,500	0,500	3,905
		SUM	60,350

Lean Manufacturing Practices	ELMM7 M	SD	1 Fortemente Great deal	Considerável Considerable	centro pointo Some	Um poco Small	5 De modo nenhum Not at all
Standardization	2.33	0.47		2	1		
Lean Cells	4	1			1		1
Reduced setup times	3	0			2		
Kanban	1.67	0.47	1	2			
One-piece flow	4	1			1		1
Reduced lot size	3.5	0.5			1	1	
Reduced buffer	4	1			1		1
5s	3.5	1.5		1			1
Kaizen	2	0.82	1	1	1		

Visual performance measures	M	SD	1 Strongly agree				5 Strongly disagree
Visual performance on shopfloor	2.5	0.5		1	1		
Metrics aligned with matrix	3	0			2		
Visuals used for infosharing	2.33	1.25	1	1		1	
Info quality readily available	2.67	0.47		1	2		
Charts show defects	4	1			1		1
Visual mode of org	2.33	0.94	1	2			
Info on productivity available	3.67	1.25		1		1	1
Quality data displayed at work stations	3.5	1.5		1			1

Simplified management accounting practices	M	SD	1 Strongly agree				5 Strongly disagree
Simplified accounting system	4	1			1		1
Accounting streamlined	4	1			1		1
Accounting supports stratigic initiatives	4	1			1		1
Accoutning facilitated decision making	4	1			1		1

Operations/Financial performance	M	SD	1Aumento significante / 1 Significant increase	Aumento moderado / Moderate increase	Pouca ou nenhuma mudança / Little or no change	Diminuição moderada / Moderate decrease	5 Diminuição significativa / 5 Significant decrease
Scrap and rework	3.5	0.5			1	1	
Machine setup time	3	0			1		
Queue and move times	3	0			1		
Machine down time	3	0			1		
Lot sizes	3	0			1		
Cycle time	3	0			1		
Net sales	3	0			1		
Return on assets	3	0			1		
Overall firm profitibility	3	0			1		
Market share	3	0			1		

VSC	M	SD	1 Fortemente Great deal	Considerável Considerable	centro pointo Some	Um poco Small	5 De modo nenhum Not at all
Value stream costing	3	0			1		

Appendix H: In-depth values q-sort

Values	All Middle Managers		Effective|Established teams: 2, 4, 5, 7		Effective|New teams: 1, 6		Uneffective|Established teams: 3	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1 Participation/Teamwork	1,92	2,04	1,62	2,22	1,75	1,91	3,25	1,50
2 Potential of the average employee	-0,15	2,26	0,08	2,18	-0,75	2,43	-0,25	2,63
3 Customer focus	1,24	2,28	1,15	2,12	1,00	2,88	2,00	1,83
4 Result driven	0,16	2,01	0,62	1,94	-0,25	2,31	-0,50	1,73
5 Trust in the people	2,12	1,92	1,69	1,97	2,25	1,98	3,25	1,50
6 Integrity	0,80	2,52	1,69	2,56	-0,38	2,33	0,25	2,06
7 Continuous improvement	1,96	1,21	1,92	1,44	1,75	1,04	2,50	0,58
8 Perseverance	-1,00	2,14	-1,46	2,03	-0,13	2,30	-1,25	2,22
9 Equality	-0,76	1,61	-0,15	1,46	-1,88	1,55	-0,50	1,29
10 Responsibility	1,36	1,41	1,38	1,56	1,50	1,20	1,00	1,63
11 Openminded	-1,52	1,73	-1,92	1,32	-1,25	2,38	-0,75	1,50
12 Honesty	1,52	1,98	1,62	2,10	1,25	2,25	1,75	1,26
13 Information sharing and analysing	-0,44	2,24	-0,38	2,06	-0,13	2,30	-1,25	3,10
14 Courage	-2,00	1,68	-2,69	1,49	-1,63	1,85	-0,50	0,58
15 Constructive feedback	0,16	1,86	-0,46	2,03	0,75	1,39	1,00	1,83
16 Helpful	-1,04	2,24	-1,08	1,71	-0,88	3,40	-1,25	1,26
17 Creative	-0,80	1,58	-0,92	1,38	-1,00	1,51	0,00	2,45
18 Humility	-0,20	2,14	0,00	2,35	0,13	1,96	-1,50	1,73
19 Respect for the people	1,88	1,72	1,85	1,86	2,38	1,60	1,00	1,41
20 Self-reflection	-2,16	1,99	-2,15	2,08	-1,38	2,00	-3,75	0,50
21 Innovation	-1,16	1,93	-1,15	1,91	-1,63	2,13	-0,25	1,71
22 High quality	0,40	2,40	0,69	2,32	0,25	2,43	-0,25	3,10
23 Justice	0,04	1,57	0,62	1,50	-0,38	1,51	-1,00	1,41
24 Freedom of choice	-2,24	1,48	-2,54	0,97	-1,38	1,69	-3,00	2,00

Appendix I: Values Brazil versus The Netherlands

Comparison table Brazil/Netherlands ELMM values [CIT and Q-sort]

Critical incident technique	BR	NL	Q-sort	BR		NL	
Values	*%*		*Values*	*M*	*SD*	*M*	*SD*
1 Respect for the people	14	4	1 Trust in the people	6.12	1.92	6.22	1.86
2 Continuous improvement	8	3	2 Continuous improvement	5.96	1.21	6.78	1.52
3 Trust in the people	8	5	3 **Participation/Teamwork**	5.92	2.04	6.28	2.30
4 **Responsibility**	7	6	4 Respect for the people	5.88	1.72	6.39	2.35
5 **Participation/Teamwork**	7	8	5 **Honesty**	5.52	1.98	6.50	1.76
6 **Honesty**	7	13	6 **Responsibility**	5.36	1.41	6.78	1.44
7 Potential of the average employee	6	2	7 Customer focus	5.24	2.28	5.89	2.17
8 Helpful	3	1	8 Integrity	4.80	2.52	6.28	1.60
9 Perseverance	3	6	9 High quality	4.40	2.40	5.67	2.14
10 Result driven	3	5	10 Result driven	4.16	2.01	6.28	2.93
11 High quality	3	2	11 Constructive feedback	4.16	1.86	4.94	1.89
12 Information sharing and analysing	3	3	12 Justice	4.04	1.57	4.83	2.18
13 Integrity	2	2	13 Potential of the average employee	3.85	2.26	4.50	1.47
14 Customer focus	2	0	14 Humility	3.80	2.14	2.44	2.12
15 Equality	2	3	15 Information sharing and analysing	3.56	2.24	4.83	1.69
16 Constructive feedback	2	0	16 Equality	3.24	1.61	2.61	1.38
17 Openminded	2	4	17 Creative	3.20	1.58	3.44	1.65
18 Humility	2	2	18 Perseverance	3.00	2.14	4.44	2.12
19 Courage	1	1	19 Helpful	2.96	2.24	4.44	1.79
20 Justice	1	1	20 Innovation	2.84	1.93	4.22	2.37
21 Self-reflection	1	1	21 Openminded	2.48	1.73	3.67	1.88
22 Creative	0	1	22 Courage	2.00	1.68	3.78	2.34
23 Innovation	0	0	23 Self-reflection	1.84	1.99	5.17	1.92
24 Freedom of choice	0	2	24 Freedom of choice	1.76	1.48	3.61	2.28

Note. Dutch value descriptive based on reviews performed by Van Dun et al., 2017, p. 176. This table lists items that are mentioned by two or more of a total of 22 separate sources, which were content-analysed by Van Dun et al. 2017.

Note2. Brazilian values based on the CIT

Appendix J: CIT all LMM teams (behaviour)

Meta-behaviour	Component	Micro behaviours	1	2	3	4	5	6	7	All Middle Managers 1, 2, 3, 4, 5, 6, 7	Effective|Established teams: 2, 4, 5, 7	Effective|New teams 1, 3	Uneffective|Established teams: 3
Change-oriented	Encouraging innovation	(Intellectual) stimulation and giving autonomy for teamleaders to experiment	2,08	5,74	3,68	6,67	0,00	2,30	0,00	2,92	3,10	2,19	3,68
		Daily briefing knowledge exchange	1,04	3,28	3,68	1,67	1,82	1,15	0,00	1,80	1,69	1,10	3,68
	Envisioning change	Awareness of goals and strategic performance measures	1,04	1,64	2,94	0,00	3,64	2,30	2,47	2,00	1,94	1,67	2,94
		Clear and explicit informing Vision and goals	6,25	3,28	8,82	6,67	1,82	9,20	6,17	6,03	4,48	7,72	8,82
		Display of long-term commitment to lean	2,08	1,64	2,21	10,00	3,64	4,60	6,17	4,33	5,36	3,34	2,21
	Facilitating collective learning	Asking for team leaders to share factual, work-related information	1,04	2,46	5,15	0,00	7,27	1,15	6,17	3,32	3,98	1,10	5,15
		Creating collaborative culture/team building with equality	7,29	2,46	4,41	5,00	5,45	8,05	6,17	5,55	4,77	7,67	4,41
		Facilitating organizational learning	2,08	3,28	2,21	0,00	9,09	1,15	3,70	3,07	4,02	1,62	2,21
		Leaders sharing their own work-related information and idea and open-minded for distinct view	3,13	5,74	5,88	3,33	0,00	2,30	4,94	3,62	3,50	2,71	5,88
Relations-oriented	Empowering	By distancing, let teams be Self-directed teams	2,08	3,28	1,47	3,33	1,82	3,45	2,47	2,56	2,72	2,77	1,47
		Celebrating and recognizing success	1,04	0,00	0,74	5,00	0,00	0,00	0,00	0,97	1,25	0,52	0,74
		Individual consideration work related	5,21	4,10	2,21	3,33	1,82	2,30	3,70	3,24	3,24	3,75	2,21
		No blaming or making people feel pressure from up top by controlling the employees working speed	1,04	0,82	0,74	1,67	0,00	0,00	1,23	0,79	0,93	0,52	0,74
		Responding to employees willingness facilitating (education/training)	0,00	1,64	0,74	0,00	1,82	0,00	1,23	0,78	1,17	0,00	0,74
		Rewarding members' through complements	1,04	0,82	2,21	3,33	3,64	0,00	0,00	1,58	1,95	0,52	2,21
		Trusting employees with a greater number of tasks	2,08	3,28	5,88	8,33	5,45	1,15	1,23	3,92	4,58	1,62	5,88
	Recognizing	Active listening (Nodding and Eyecontact)	9,38	5,74	5,88	1,67	3,64	4,60	4,94	5,12	3,99	6,99	5,88
		Asking team leaders for feedback, after which willing to improve oneself	3,13	0,82	0,00	0,00	1,82	0,00	1,23	1,00	0,97	1,56	0,00
		Individual consideration non work related	5,21	3,28	0,00	1,67	1,82	0,00	1,23	1,89	2,00	2,60	0,00
		Making time for one on one talk with employees	5,21	3,28	1,47	0,00	0,00	0,00	2,47	1,78	1,44	2,60	1,47
		Quickly acting upon suggestions	1,04	4,92	3,68	1,67	1,67	1,15	0,00	2,04	2,10	1,10	3,68
		Showing trust by taking employees serious	7,29	4,10	5,15	1,67	7,27	6,90	6,17	5,51	4,80	7,09	5,15
	Supporting	Committing and supporting the team construct (team leadership)	3,13	3,28	4,41	8,33	10,91	18,39	7,41	7,98	7,48	10,76	4,41
		Taking responsibility for the team	4,17	7,38	4,41	8,33	3,64	4,60	2,47	5,00	5,45	4,38	4,41
		Visible support, application and commitment to this goal	3,13	3,28	1,47	5,00	1,82	1,15	8,64	3,50	4,68	2,14	1,47
Task-oriented	Clarifying	Clarity about team structure	2,08	0,82	4,41	0,00	0,00	2,30	0,00	1,37	0,20	2,19	4,41
		Closed loop communication	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Structured information sharing	7,29	1,64	2,21	1,67	0,00	2,30	1,23	2,33	1,14	4,80	2,21
		Timely communication	0,00	0,82	0,74	0,00	1,82	3,45	1,23	1,15	0,97	1,72	0,74
	Monitoring operations	Checking up on goals and evaluating	1,04	2,46	2,21	1,67	7,27	2,30	4,94	3,13	4,08	1,67	2,21
		Discussing visual performance dashboards, daily startup meetings	0,00	3,28	2,94	0,00	3,64	4,60	8,64	3,30	3,89	2,30	2,94
		Giving instant feedback on errors	0,00	2,46	2,94	0,00	1,82	0,00	2,47	1,38	1,69	0,00	2,94
		Participation in/supporting events & (daily) Quality/Continuous improvement projects	1,04	4,10	2,94	6,67	1,82	4,60	1,23	3,20	3,45	2,82	2,94
		Visiting the work floor	2,08	2,46	2,21	3,33	0,00	0,00	0,00	1,44	1,45	1,04	2,21
	Problem solving	Having discussions/problem addressing	5,21	2,46	0,00	0,00	3,64	2,30	0,00	1,94	1,52	3,75	0,00
		Mediating in conflict situations	1,04	0,00	0,00	0,00	0,00	2,30	0,00	0,48	0,00	1,67	0,00

Appendix K: Questionnaire Behaviours

Questionnaire result based on the Hierarchical Taxonomy questionnaire

Meta-Behaviour	Component		ELMM1 MEAN	SD	ELMM2 MEAN	SD	ELMM3 MEAN	SD	ELMM4 MEAN	SD	ELMM5 MEAN	SD
Change-oriented	Encouraging innovation	SM	4,50	0,50	5,75	0,43	6,00	0,00			5,00	0,71
		LMM	5,50	0,87	5,75	0,43	5,50	0,50	6,50	0,50	6,00	0,71
		TL	5,46	0,93	6,21	0,60	5,19	0,88	6,75	0,43	4,88	1,17
	Envisioning change	SM	5,43	1,18	5,86	0,64	6,29	0,70			5,43	1,29
		LMM	6,00	0,93	6,29	0,70	5,71	0,45	6,43	0,73	6,43	0,49
		TL	5,59	1,28	5,98	0,59	5,75	0,85	6,86	0,35	5,43	1,35
	Facilitating collective	SM	5,20	0,75	5,40	1,02	5,40	1,20			6,00	0,63
		LMM	6,40	0,80	5,40	1,02	5,00	0,63	6,20	0,40	6,20	0,40
		TL	5,82	0,74	5,89	0,95	5,23	0,69	6,80	0,40	5,50	1,50
Relations-oriented	Empowering	SM	4,90	1,14	3,80	1,47	5,10	1,45			5,10	1,51
		LMM	5,90	1,76	5,40	1,62	5,20	1,25	5,60	0,66	5,40	1,62
		TL	5,59	1,25	5,09	1,69	5,35	1,24	6,05	1,75	4,90	2,05
	Recognizing	SM	5,08	1,85	4,42	1,66	5,50	1,61			5,08	1,55
		LMM	6,17	1,77	6,00	1,41	5,42	1,26	5,50	1,50	5,50	2,06
		TL	5,56	1,93	5,56	1,69	5,02	1,31	5,88	2,20	5,25	1,53
	Supporting	SM	5,50	0,50	5,50	0,50	6,50	0,50			6,00	0,00
		LMM	6,50	0,50	5,50	0,50	5,50	0,50	6,00	0,00	6,50	0,50
		TL	5,50	1,34	5,50	0,50	6,13	0,93	6,75	0,43	6,25	0,83
Task-oriented	Clarifying	SM	5,29	0,70	6,14	0,83	5,71	0,45			5,29	0,45
		LMM	6,00	0,76	6,00	1,20	5,57	0,73	5,86	0,83	6,14	0,64
		TL	5,62	0,72	6,31	0,71	5,66	0,58	6,79	0,41	5,71	1,10
	Monitoring operations	SM	4,67	1,25	6,00	0,94	6,11	0,74			5,33	0,82
		LMM	5,67	0,94	6,00	0,67	5,67	0,67	6,44	0,68	6,67	0,47
		TL	5,48	1,38	6,07	0,88	5,42	0,97	6,89	0,31	5,44	1,26
	Problem solving	SM	4,33	2,05	3,50	1,80	5,00	1,83			4,50	1,80
		LMM	4,67	2,69	5,17	2,03	4,17	1,57	4,67	2,05	4,50	2,22
		TL	4,85	2,03	4,45	1,91	4,54	1,78	4,83	2,73	4,25	2,20

Meta-Behaviour	Component	ELMM6 MEAN	SD	ELMM7 MEAN	SD	ELMM [New] MEAN	SD	ELMM MEAN	SD	.MM [ESTABLISHED] MEAN	SD
Change-oriented	Encouraging innovation	4,00	0,71	4,75	1,09	4,25	0,60	4,00	0,57	6,00	0,00
		6,00	0,71	5,25	0,83	5,75	0,79	5,00	0,58	5,50	0,50
		6,00	0,87	4,88	1,36	5,73	0,90	4,88	0,77	5,19	0,88
	Envisioning change	4,57	0,49	4,71	1,16	5,00	0,84	4,33	0,79	6,29	0,70
		5,86	0,35	4,86	0,99	5,93	0,64	5,12	0,60	5,71	0,45
		6,07	1,22	5,86	0,64	5,83	1,25	5,11	0,78	5,75	0,85
	Facilitating collective	4,20	1,47	4,60	0,49	4,70	1,11	4,23	0,73	5,40	1,20
		5,40	0,80	5,60	0,80	5,90	0,80	5,03	0,60	5,00	0,63
		6,40	1,20	5,10	1,14	6,11	0,97	5,07	0,85	5,23	0,69
Relations-oriented	Empowering	5,50	1,50	4,60	1,69	5,20	1,32	3,98	1,22	5,10	1,45
		5,40	1,85	4,60	2,06	5,65	1,81	4,61	1,37	5,20	1,25
		5,90	1,92	5,05	1,63	5,75	1,59	4,65	1,47	5,35	1,24
	Recognizing	5,50	1,85	5,08	1,38	5,29	1,85	4,19	1,38	5,50	1,61
		5,25	1,53	4,58	2,06	5,71	1,65	4,71	1,48	5,42	1,26
		5,71	2,07	5,25	2,09	5,64	2,00	4,74	1,64	5,02	1,31
	Supporting	6,00	0,00	5,00	0,00	5,75	0,25	4,67	0,17	6,50	0,50
		5,00	0,00	4,50	1,50	5,75	0,25	4,86	0,43	5,50	0,50
		6,75	0,43	6,50	0,50	6,13	0,89	5,32	0,58	6,13	0,93
Task-oriented	Clarifying	4,57	0,73	4,57	1,05	4,93	0,71	4,31	0,63	5,71	0,45
		5,57	1,05	4,86	0,99	5,79	0,90	4,92	0,78	5,57	0,73
		6,00	1,20	5,64	0,72	5,81	0,96	5,15	0,69	5,66	0,58
	Monitoring operations	4,56	1,17	4,67	1,63	4,61	1,21	4,20	0,97	6,11	0,74
		5,89	1,37	5,22	1,31	5,78	1,16	5,13	0,78	5,67	0,67
		5,89	1,24	6,06	0,97	5,68	1,31	5,12	0,86	5,42	0,97
	Problem solving	4,50	1,50	2,67	1,11	4,42	1,78	3,25	1,38	5,00	1,83
		4,50	2,14	4,00	1,83	4,58	2,41	3,93	1,85	4,17	1,57
		4,83	2,30	3,83	2,19	4,84	2,17	3,86	1,91	4,54	1,78

Appendix L: Behaviours reliability SPSS stats

Cronbach's alpha, mean min and max, interesting for analysis

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.912	.920	9

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.764	5.335	6.012	.677	1.127	.036	9

Inter-Item Correlation Matrix

	Encouraging_ innovation	Envisioning_ change	Facilitating_collective _learning	Empowering	Recognizing	Supporting	Clarifying	Monitoring_ operations	Problem_solving
Encouraging_innovation	1.000	.774	.827	.496	.505	.097	.860	.860	.355
Envisioning_change	.774	1.000	.702	.434	.462	.391	.868	.845	.571
Facilitating_collective_learning	.827	.702	1.000	.633	.671	.204	.769	.723	.559
Empowering	.496	.434	.633	1.000	.689	.251	.367	.394	.442
Recognizing	.505	.462	.671	.689	1.000	.351	.467	.528	.623
Supporting	.097	.391	.204	.251	.351	1.000	.339	.436	.668
Clarifying	.860	.868	.769	.367	.467	.339	1.000	.878	.544
Monitoring_operations	.860	.845	.723	.394	.528	.436	.878	1.000	.557
Problem_solving	.355	.571	.559	.442	.623	.668	.544	.557	1.000

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.764	5.335	6.012	.677	1.127	.036	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Encouraging_innovation	46.22	13.718	.760	.926	.898
Envisioning_change	46.04	15.017	.818	.805	.895
Facilitating_collective_learning	46.15	14.244	.825	.823	.892
Empowering	46.54	15.063	.580	.637	.911
Recognizing	45.86	15.184	.684	.659	.903
Supporting	46.05	15.757	.394	.659	.926
Clarifying	46.02	14.853	.827	.883	.894
Monitoring_operations	46.11	14.100	.850	.902	.890
Problem_solving	46.00	15.755	.687	.714	.904

Test Statistics[a]

	Encouraging innovation	Envisioning change	Facilitating collective learning	Empowering	Recognizing	Supporting	Clarifying	Monitoring operations	Problem solving
Mann–Whitney U	144.000	215.500	92.500	198.500	76.500	178.500	168.500	156.500	152.000
Wilcoxon W	199.000	270.500	147.500	253.500	131.500	1306.500	223.500	211.500	207.000
Z	−1.931	−.412	−3.037	−.772	−3.337	−1.235	−1.407	−1.659	−1.756
Asymp. Sig. (2–tailed)	.054	.680	.002	.440	.001	.217	.160	.097	.079

a. Grouping Variable: Effectivity

The mean score of effective lean middle managers on "Facilitating collective learning" and "Recognizing" are significantly different from the score of ineffective lean middle managers.

Mann–Whitney Test

Ranks

	Effectivity	N	Mean Rank	Sum of Ranks
Encouraging	0	47	30.94	1454.00
	1	10	19.90	199.00
	Total	57		
Envisioning change	0	47	29.41	1382.50
	1	10	27.05	270.50
	Total	57		
Facilitating collective learning	0	47	32.03	1505.50
	1	10	14.75	147.50
	Total	57		
Empowering	0	47	29.78	1399.50
	1	10	25.35	253.50
	Total	57		
Recognizing	0	47	32.37	1521.50
	1	10	13.15	131.50
	Total	57		
Supporting	0	47	27.80	1306.50
	1	10	34.65	346.50
	Total	57		
Clarifying	0	47	30.41	1429.50
	1	10	22.35	223.50
	Total	57		
Monitoring operations	0	47	30.67	1441.50
	1	10	21.15	211.50
	Total	57		
Problem solving	0	47	30.77	1446.00
	1	10	20.70	207.00
	Total	57		

0 = effective/ 1= ineffective

Mann–Whitney Test

Ranks

	Effectivity	N	Mean Rank	Sum of Ranks
Change oriented	0	47	31.51	1481.00
	1	10	17.20	172.00
	Total	57		
Relations oriented	0	47	29.48	1385.50
	1	10	26.75	267.50
	Total	57		
Task oriented	0	47	30.94	1454.00
	1	10	19.90	199.00
	Total	57		

Test Statistics[a]

	Change oriented	Relations oriented	Task oriented
Mann–Whitney U	117.000	212.500	144.000
Wilcoxon W	172.000	267.500	199.000
Z	−2.482	−.473	−1.914
Asymp. Sig. (2–tailed)	.013	.636	.056

a. Grouping Variable: Effectivity

Appendix M: **Full cultural analysis**
Dimension scores

		PDI	IDV	MAS	UAI	LTO	IVR
Brazil average		69	38	49	76	44	59
TEAM 1	*ELMM*	75	38	25	10	79	78
	Team	58	64	53	28	55	79
TEAM 2	*ELMM*	50	100	75	15	50	98
	Team	68	70	62	29	54	73
TEAM 3	*LMM*	50	100	38	38	94	63
	Team	48	63	51	28	77	70
TEAM 4	*ELMM*	15	75	113	19	75	75
	Team	33	60	68	25	57	81
TEAM 5	*ELMM*	60	38	13	65	50	97
	Team	53	69	41	32	67	90
TEAM 6	*ELMM*	71	75	25	50	79	88
	Team	58	53	41	49	68	73
TEAM 7	*ELMM*	75	63	25	1	79	100
	Team	68	56	38	27	63	78
TOTAL	*ELMM*	57	64	54	30	61	76
	Team	56	62	50	32	61	79

TEAM1

TEAM2

TEAM3

TEAM4

TEAM5

TEAM6

TEAM7

ALL ELMM AND TEAMS
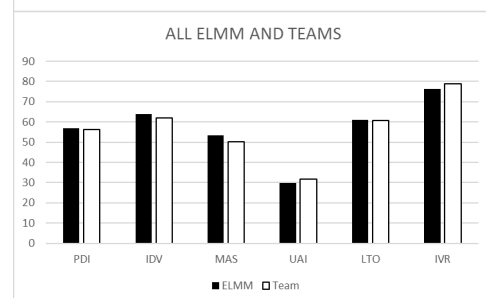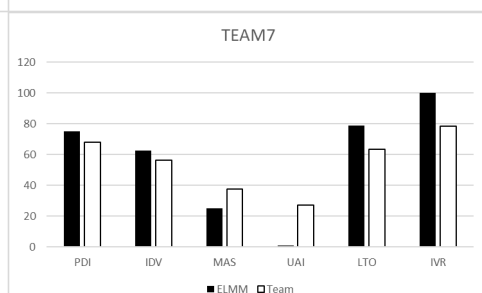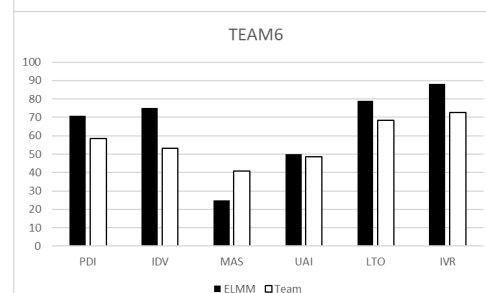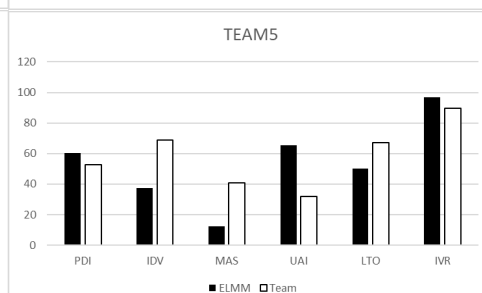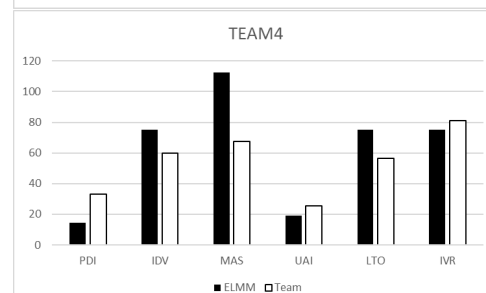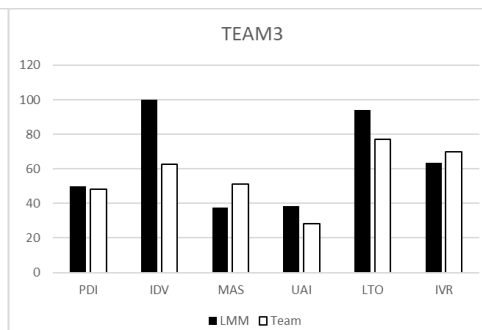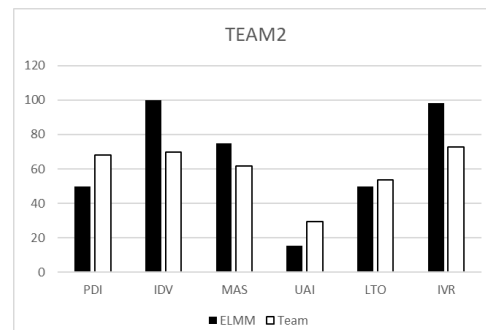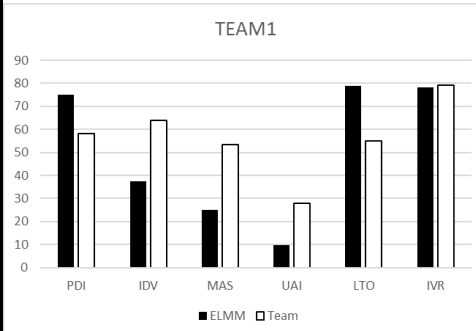
Cronbach Alpha (reliability)

Total survey

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.907	.892	24

PDI

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.510	.496	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PDI_Have_a_boss_direct_superior_respect	10.32	3.791	.588	.576	.104
PDI_To_be_consulted_by_your_direct_superior_in_the_decisions	10.47	4.897	.416	.572	.327
PDI_In_your_experience_how_often_are_subordinates_afraid_to	11.44	6.429	.235	.063	.491
PDI_An_organizational_structure_in_which_some_subordinates_have	10.98	6.839	.038	.097	.653

IDV

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.802	.803	4

MAS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.866	.867	4

UAI

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items[a]	N of Items
.047	-.026	4

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

LTO

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.640	.642	4

IVR

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items[a]	N of Items
.037	-.079	4

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Appendix N: Surveys

Starting off with a quick data collection overview (see table: data collection). Explaining which participants will get to fill out which parts of the questionnaires/interviews/recording. Below this table all the surveys and interview questions are given and the participants are highlighted that will be included within the discussed part. Furthermore, for every questionnaire part, it will be shown for which research link the question will gather data. Lastly, each part within the survey is explained and backed with its theoretical background.

Like mentioned, the participants that will be included will be displayed with the figure shown below (see figure: participant overview).

Senior manager	ELMM	Two Team leaders	All other Team leader

Figure: Participant overview

At every questionnaire part, through the research model will be shown, for which link the question will gather data (see figure: model).
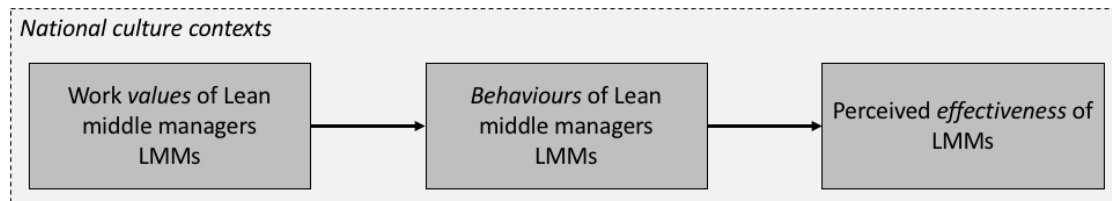
Figure: Research model

2 Interview + 2A Q-sort + 2B CIT
The part of the interview focusses on ELMM values en behaviours
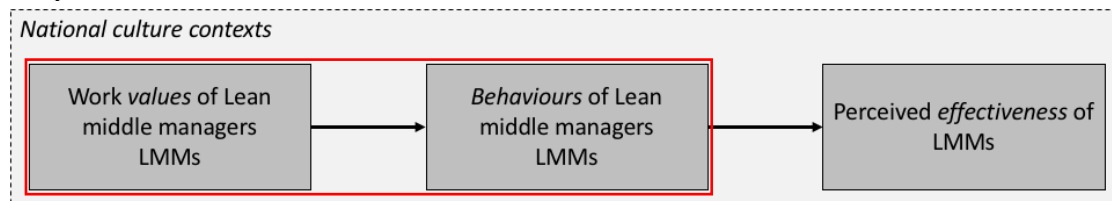
Part 2 - Introduction - Lean organization - Leadership

Senior manager	ELMM	Two Team leaders		

Introduction
o Tell about target research.
o Data will be treated confidentially.
o Everything that is said here will be completely anonymized.
o The middle manager will not hear what you say about him / her.
o There are no wrong answers.

Can I record this conversation?
Can you briefly tell us about your position within your organization?
  o (number of subordinates, responsibilities, since when?)

Lean organisation

Senior manager	ELMM	Two Team leaders		

Lean organization
1. What is, according to you, a Lean organization?
2. How do you see the role of a manager in a Lean organization?
3. Do you see your own organization as a Lean organization? Why?
4. When did your organization start implementing the Lean principles?
5. What do you do differently since your organization made the transition to Lean compared to the situation before?

Senior manager	ELMM	Two Team leaders	

Leadership
The research focuses on effective middle management in Lean organizations.
6. In your opinion, why is this middle manager an effective manager?
        a. What does this middle manager do specifically what you think?
        b. Is this distinctive from other middle managers (in other non-Lean organizations)?

Senior manager	ELMM	Two Team leaders	

Definition: values are 'convictions that someone carries with them in all situations as a guideline for his / her actions.' An example of values are the ten commandments, or a value as 'honesty'.
Definição: valores são 'convicções que alguém carrega consigo em todas as situações como diretriz para suas ações'. Os dez mandamentos são exemplos de valores, assim como 'honestidade'.
7. What personal values does this middle manager consider important?
        a. Is this distinctive from other middle managers (in other non-Lean organizations) that you have had?

Part 2A – Q-sort Values

Senior manager	ELMM	Two Team leaders	
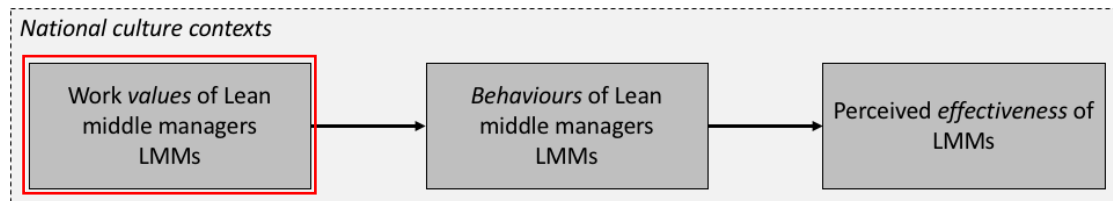
Q-sort (Values)
8. Which values are, in your opinion, most applicable to this highly effective middle manager?

Divide the cards in the normal distribution

4	3	2	1	0	-1	-2	-3	-4
Most important				Neutral				Least important

After the Q-sort:

9. Would you like to explain something further to your distribution?
10. Why did you make these choices? Extreme important and not important
11. Did you experience difficulties during the division?

Part 2C – CIT Behaviours

Senior manager	ELMM	Two Team leaders	
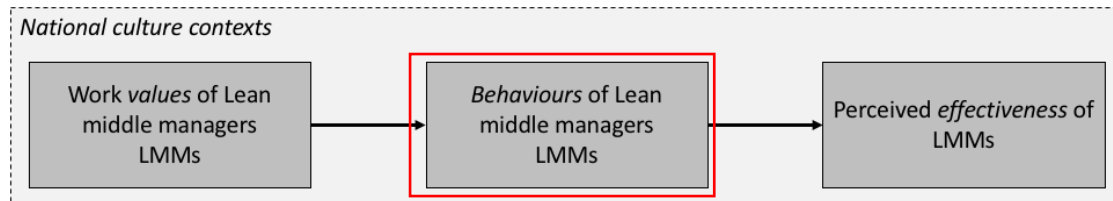
Critical Incident Technique

1. Think of a recent specific moment when you contacted this middle manager and (s)he showed very successful leadership. Can you describe this situation and tell us exactly what happened?

   A successful moment could be: when the 'click' is made and employees actually think Lean.

2. When did this moment occur?
3. What caused this situation?

4. What did this middle manager do at that specific moment?
Definition: Behaviors can be described as 'what leaders and managers do in their work'. Different levels of abstraction are possible here.
Definição: Comportamentos podem ser descritos como "o que líderes e gerentes fazem em seu trabalho". Diferentes níveis de abstração são possíveis aqui.

 Invoke requests and specific behaviors
 Is this distinctive for Lean middle managers?

5. On which personal values did this middle manager hammer at that moment?
Definition: values are 'convictions that someone carries with them in all situations as a guideline for his / her actions.' An example of values are the ten commandments, or a value as 'honesty'.
Definição: valores são 'convicções que alguém carrega consigo em todas as situações como diretriz para suas ações'. Os dez mandamentos são exemplos de valores, assim como 'honestidade'.
 Allow questions and personal values to be named
 Is this distinctive for Lean middle managers?

2B Behaviours - Leadership behaviour questionnaire

Senior manager	ELMM	Two Team leaders	
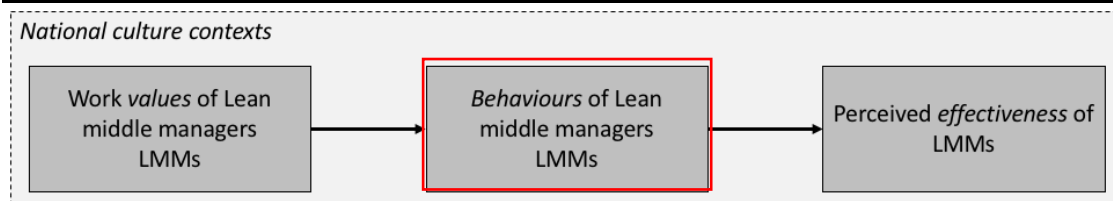
Behavioral Leadership Questionnaire

		Never	*Almost never*	*Sometimes*	*Regularly*	*More than regularly*	*Often*	*Always*
1.	Organizes work activities to improve effectiveness	O	O	O	O	O	O	O
2.	Develops milestones and action plans for a project	O	O	O	O	O	O	O

3.	Determines what resources are needed to do a project	O	O	O	O	O	O	O
4.	Clarifies role expectations for task performance	O	O	O	O	O	O	O
5.	Facilitates collection and dissemination of information	O	O	O	O	O	O	O
6.	Actively monitors operations and performance	O	O	O	O	O	O	O
7.	Resolves immediate questions or problems from team	O	O	O	O	O	O	O
8.	Clarifies quality standards for task performance	O	O	O	O	O	O	O
9.	Actively listens attentively to a person's concerns	O	O	O	O	O	O	O
10.	Actively provides support and encouragement	O	O	O	O	O	O	O
11.	Socializes with team beyond work to build relationships	O	O	O	O	O	O	O
12.	Publicly recognizes contributions and accomplishments	O	O	O	O	O	O	O
13.	Provides individual role and/or behavior coaching	O	O	O	O	O	O	O
14.	Consults with members on decisions affecting them	O	O	O	O	O	O	O
15.	Helps team members (as a group) resolve conflicts	O	O	O	O	O	O	O
16.	Keeps team (group) informed about upcoming actions	O	O	O	O	O	O	O
17.	Leads by example and models exemplary behavior	O	O	O	O	O	O	O
18.	Encourages viewing things from multiple perspectives	O	O	O	O	O	O	O
19.	Expresses confidence team can attain objectives	O	O	O	O	O	O	O
20.	Creates sense of urgency, promotes change	O	O	O	O	O	O	O
21.	Studies other projects to get ideas for improvements	O	O	O	O	O	O	O

22. Envisions exciting new possibilities for the organization	O	O	O	O	O	O	O
23. Develops strategies linked to organization's vision	O	O	O	O	O	O	O
24. Builds coalition of stakeholders to get change approved	O	O	O	O	O	O	O
25. Creates task force to guide implementation of change	O	O	O	O	O	O	O
26. Suggests symbolic changes that affect the work	O	O	O	O	O	O	O
27. Empowers members to implement new strategies	O	O	O	O	O	O	O
28. Announces, celebrates progress supporting changes	O	O	O	O	O	O	O
29. Encourages/facilitates learning by team members	O	O	O	O	O	O	O
30. Experiments with new approaches	O	O	O	O	O	O	O
31. Asks for ideas and/or opinions of employees	O	O	O	O	O	O	O
32. Builds trust	O	O	O	O	O	O	O
33. Engages employees	O	O	O	O	O	O	O
34. Recognizes, communicates and celebrates success	O	O	O	O	O	O	O
35. Creates time for improvement	O	O	O	O	O	O	O
36. Keeps focus on continuous improvement	O	O	O	O	O	O	O
37. Provides feedback	O	O	O	O	O	O	O
38. Trains and teaches the Lean principles by ´doing´	O	O	O	O	O	O	O
39. Uses the capabilities of people	O	O	O	O	O	O	O
40. Listens to and observes the process	O	O	O	O	O	O	O
41. Sets and prioritizes goals for improvement	O	O	O	O	O	O	O
42. Is regularly on the shop floor	O	O	O	O	O	O	O
43. Designs and coaches teams	O	O	O	O	O	O	O
44. Shows personal interest in his/her employees	O	O	O	O	O	O	O
45. Focuses on long term results	O	O	O	O	O	O	O

46. Is friendly towards his/her employees	O	O	O	O	O	O	O
47. Interrupts his/her employees when they are talking to him/her	O	O	O	O	O	O	O
48. Calls his/her employees into line, when necessary	O	O	O	O	O	O	O
49. Encourages his/her employees in a positive manner	O	O	O	O	O	O	O
50. Shows (to be) uninterested	O	O	O	O	O	O	O
51. Gives his/her employees clear goals	O	O	O	O	O	O	O
52. Cooperates effectively with his/her employees	O	O	O	O	O	O	O
53. Judges and/or rewards his/her employees positively	O	O	O	O	O	O	O
54. Shows it when he/she agrees with his/her employees	O	O	O	O	O	O	O
55. Listens well to his/her employees	O	O	O	O	O	O	O
56. Negatively criticizes his/her employees	O	O	O	O	O	O	O
57. Delegates sufficient tasks to his/her employees	O	O	O	O	O	O	O
58. Informs his/her employees well	O	O	O	O	O	O	O
59. Structures conversations with his/her employees well	O	O	O	O	O	O	O
60. Verifies not too much yet not too little either	O	O	O	O	O	O	O
61. Contradicts his/her employees	O	O	O	O	O	O	O
62. Demonstrates a strong conviction in his/her beliefs and values	O	O	O	O	O	O	O

2C* Cultural dimension score

Senior manager	ELMM	Two Team leaders	All other Team leader
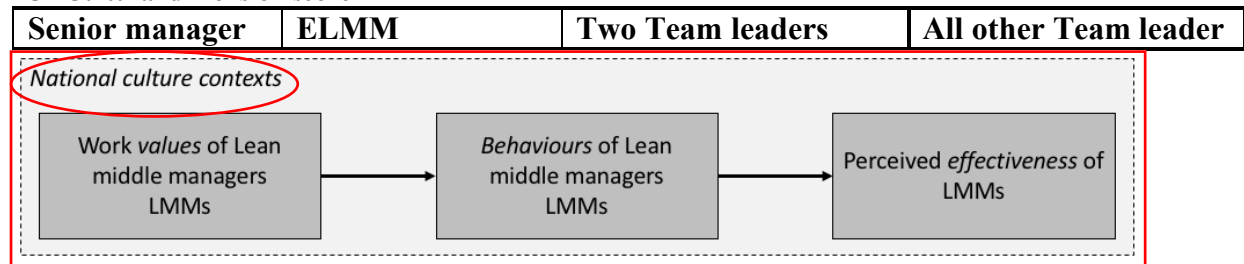
INTERNATIONAL QUESTIONNAIRE (VSM 2013)- page 1

Please think of an ideal job, disregarding your present job, if you have one. In choosing an ideal job, how important would it be to you to ... (please circle one answer in each line across):

1 = of utmost importance
2 = very important
3 = of moderate importance
4 = of little importance
5 = of very little or no importance

01. have sufficient time for your personal or home life	1	2	3	4	5
02. have a boss (direct superior) you can respect	1	2	3	4	5
03. get recognition for good performance	1	2	3	4	5
04. have security of employment	1	2	3	4	5
05. have pleasant people to work with	1	2	3	4	5
06. do work that is interesting	1	2	3	4	5
07. be consulted by your boss in decisions involving your work	1	2	3	4	5
08. live in a desirable area	1	2	3	4	5
09. have a job respected by your family and friends	1	2	3	4	5
10. have chances for promotion	1	2	3	4	5

In your private life, how important is each of the following to you: (please circle one answer in each line across):

11. keeping time free for fun	1	2	3	4	5
12. moderation: having few desires	1	2	3	4	5
13. doing a service to a friend	1	2	3	4	5
14. thrift (not spending more than needed)	1	2	3	4	5

15. How often do you feel nervous or tense?
  1. always
  2. usually
  3. sometimes
  4. seldom
  5. never

16. Are you a happy person ?
  1. always
  2. usually
  3. sometimes
  4. seldom
  5. never

17. Do other people or circumstances ever prevent you from doing what you really want to?
  1. yes, always
  2. yes, usually
  3. sometimes
  4. no, seldom
  5. no, never

18. All in all, how would you describe your state of health these days?
  1. very good
  2. good
  3. fair
  4. poor
  5. very poor

19. How proud are you to be a citizen of your country?
  1. very proud
  2. fairly proud
  3. somewhat proud
  4. not very proud
  5. not proud at all

20. How often, in your experience, are subordinates afraid to contradict their boss (or students their teacher?)
  1. never
  2. seldom
  3. sometimes
  4. usually
  5. always

To what extent do you agree or disagree with each of the following statements? (please circle one answer in each line across):

  1 = strongly agree
  2 = agree
  3 = undecided
  4 = disagree
  5 = strongly disagree

21. One can be a good manager without having a precise answer to every question that a subordinate may raise about his or her work   1   2   3   4   5

22. Persistent efforts are the surest way to results   1   2   3   4   5

23. An organization structure in which certain subordinates have two bosses should be avoided at all cost   1   2   3   4   5

24. A company's or organization's rules should not be broken - not even when the employee thinks breaking the rule would be in the organization's best interest   1   2   3   4   5

3A Lean tool used

	ELMM	Two Team leaders	All other Team leader
▮▮▮▮			

National culture contexts

Work *values* of Lean middle managers LMMs	→	*Behaviours* of Lean middle managers LMMs	→	Perceived *effectiveness* of LMMs
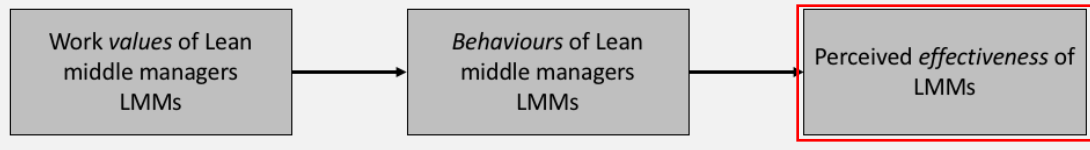
Lean manufacturing practices (LMFG)	To what extent has your facility implemented the following				
	1	2	3	4	5
	Not at all	Small	Some	Considerable	Great deal
Standardization					
Manufacturing cells					
Reduced setup times					
Kanban system					
One-piece flow					
Reduced lot sizes					
Reduced buffer inventories					
5S					
Kaizen (continuous improvement)					

Visual performance measures (VLPM)	Indicate your agreement to the following statements related to your management accounting system				
	1	2	3	4	5
	Strongly Agree				Strongly Disagree
Many performance measures are collected on the shop floor					
Performance metrics are aligned with operational goals					
Visual boards are used to share information					
Information on quality performance is readily available					
Charts showing defect rates are posted on the shop floor					
We have created a visual mode of organization					
Information on productivity is readily available					
Quality data are displayed at work stations					

| Simplified management accounting practices (SMAP)	Indicate your agreement to the following statements related to you management accounting system				
	1	2	3	4	5
	Strongly Agree				Strongly Disagree
Our accounting system has been simplified in the past 3 years					
Our accounting closing process has been streamlined					
Our management accounting system supports our strategic initiatives					
Our accounting information system facilitates strategic decision making					

Operations performance (OPRF)	Indicate how you facility's operations have changed over the last three years				
	1	2	3	4	5
	Significant increase	Moderate increase	Little or no change	Moderate decrease	Significant decrease
Scrap and rework					
Machine setup times					
Queue times and move times					
Machine downtime					
Lot sizes					
Cycle time					

Financial performance (FPRF)

	Indicate how you facility's operations have changed over the last three years				
	1	2	3	4	5
	Significant increase	Moderate increase	Little or no change	Moderate decrease	Significant decrease
Net Sales					
Return on assets					
Overall firm profitability					
Market share					

Value stream costing (VSC)

Indicate the extent to which your facility uses value stream costing				
1	2	3	4	5
Not at all	Small	Some	Considerable	Great deal

3B   Effectivity test

| | | Two Team leaders | All other Team leader |

My boss:	1. Strongly Disagree	2. Moderately Disagree	3. Slightly Disagree	4. Slightly Agree	5. Moderately Agree	6. Strongly Agree
1. _Shows a strong concern for ethical and moral values.						
2. _Communicates clear ethical standards for members.						
3. _Sets an example of ethical behavior in his/her decisions and actions.						
4. _Is honest and can be trusted to tell the truth.						
5. _Keeps his/her actions consistent with his/her stated values ("walks the talk").						
6. _Is fair and unbiased when assigning tasks to members.						
7. _Can be trusted to carry out promises and commitments.						
8. _Insists on doing what is fair and ethical even when it is not easy.						
9. _Acknowledges mistakes and takes responsibility for them.						
10. _Regards honesty and integrity as important personal values.						
11. _Sets an example of dedication and self-sacrifice for the organization.						
12. _Opposes the use of unethical practices to increase performance.						
13. _Is fair and objective when evaluating member performance and providing rewards.						
14. _Puts the needs of others above his/her own selfinterest.						
15. _Holds members accountable for using ethical practices in their work.						
Copyright © by Yukl (2010).						

Appendix O: Method for NC behaviour linkage

In order to build a relevant assumptions on effective lean leadership behaviours among cultures, the following steps have been taken:

1. All micro behaviours are extracted from a broad array of literature, translated into behaviour themes and linked to the country (NC) where the research has been conducted.

2. The countries from which behaviours are extracted in all the literature analysed are put on the scale per Hofstede dimension score. These country score on each dimension will categorize them in either a high, middle or low. This way a selection can be made on the countries that are within a certain score range for each dimension.

3. Afterwards a summation of all the behaviours (theme behaviours and not micro behaviours for consistency) that the effective lean managers in these countries display, extracted from the literature. The managers' nationality is assumed through the place of the analysis/research. Will also tally how often these behaviours are mentioned per country in different articles (i.e., the strength)

4. Combines step 2 and 3. In step 2, the countries that are in a particular dimension that all score "high" e.g., are collected. Then using the findings in step 3, these collected countries, that have a similar score per dimension, will be checked on their behaviours and whether there are similar and/or dominant behaviours all these countries display. That way behaviours can be linked to dimensions and whether they occur in countries where they score high, middle or low on this dimension.

5. Lastly, a conclusion can be made on the meaning of having a high or a low score on a certain dimension and what kind of behaviours are linked to these dimension/scores. This will give an estimation on the behaviours of effective lean managers in a country with the Hofstede scores (such as Brazil).

Appendix P: Transcripts

I   Team 1, Senior manager

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Chief agile coach.

No Subordinates: **6, all of them with a middle management position**
Responsibilities: **Apply the lean transformation in the company is my first responsibility**
Since when in org: **1,5 years, since 2017**

The Lean organisation

What is, according to you, a lean organisation?
A lean organisation is an organisation you can be sustainable all the time and working for continuous improvement anytime in any level of the organisation applying continuous improvement improving the performance and quality every day and every time.

How do you see the/your role of a manager within a Lean organization?
It's really important because they are the most influential persons in the company their main responsibility is to make all these changes happen in the operational level so we need to train and we need to share all the knowledge about what is Lean what is the purpose of making a lean company they are there the key piece to make this information happen successfully.

Do you see your own organisation as a Lean organization? Why?
Not yet we have only started with the implementation since last year and we are trying to make a culture transition and change the mindset of the people because they are the ones to sustain the transformation. So it's not only mapping the processes and only take the best ways to implement we need to invest really hard in the people transformation and the mindsets of the people. More here because in Brazil we have a cascade or a hierarchy model and control this is really hard to change in a short amount of time what we are doing is trying to change the mindset of the person who will need to involve all the people and who is engaged and committed with a transformation and understand what is the purpose. Where we need to go what is our North what is your goal.
With the engaging and the cascading effect initially we start with the people in some formation and in order to do that we are trying to make clear what does the purpose of this transformation why we need to change from cascade mobile to a full participant mobile. Expecting contribution from all the people. We have a lot of capacitation and training for these people in all the three levels of the organisation the strategic and tactics and operational. We are doing courses and workshops with that and meetings where are we... all the layers are involved but the Workshops and courses are getting separately so workshops with senior managers workshops with middle managers and workshops with operations. Afterwards the entire team will learn about the values and goals and a bad what needs to be done we will involve all of them together. In this case we tried to apply the hoshikari in the last year to make all the strategic management and it's not 100% successful because we don't have a lot of catch ball that is needed and some alignment don't be done but when this was made all people were involved and all the people contributed and made the sheet metrics it was good but it can be better so we are learning and studying. We are trying to apply and improve these processes.

As of when did your organization start implementing Lean principles?

They started in September 2017 in the last year with my arrival so now we've only implemented the lean philosophy for one year and what do we're doing different

What have you done differently since your organization made the transition to Lean compared to the situation before?
Engagement and communication is what we made different because we are understanding all levels we are involving all the people in the Decisions of the strategic plan of the company. More where the people is working more like a pull system and not like a push system everybody is taking care about how I can contribute individual for this change for this strategic plan to be a lean enterprise so this is what we are trying to do differently.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
What he did is specifically that particularly talking about him is that he is one of the early adopters of this change so he saw some studies about lean end saw how the Enterprise could transformed to a lean organisation. So they know little more because they are ready learnt about lean management and they know about the purpose of this transformation. They started to implement better methods and better processes looking into continuous improvement and they say for example he started to apply a 3 kaizen to improve and take any idea or any necessity or opportunity to be better and to be the best.
Who started about talking about the benefits of lean he is always trying to see what is the best approach to do anything he's trying to. He is focused at implementing tools. He is mapping for a few things she needed help to understand what is the better way to eg so but he goes and finds and asks about what is the best approach to do that and to get it together. So he introduces the tools but he asks the team leaders to find the answers to fill in the tools. So he makes this different for others he's one of our early adopters for this change and it's also a promoter of that. And he of the success for few indicators is about implementing of lean and he improved many others performance of teams like jidoka and just in time and applying and other processes related to and it is happening in his team right now we are applying to the company a method that is called value maturity model and this is to understand what is the level of maturity applying lean and other cultures within the company. So one of the teams who is more efficient in this case is the team of this middle Manager so this represents how we is involved in this transformation.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
He is focused on results he is focused on the people involved to make an engagement and he is a very good coach. You Focuses on results in a way that he tried to compare the results from today 2 tomorrow and this Curve of maturity he asks and finds a better way to do the things that happened and sustain the ways to do this he uses the people so we can be sustainable he has feedback every time. Feedback 360 one on one and applying coaching so it's more related with that

d.   Would you like to explain your two choices for the most important values?
Looking at him and his position that he represents he is middle Manager of products looking for products because he needs to provide better quality of software they have focus on the customer as a first and the quality because why. A few years ago there a problem with the quality we had a high-performance but there was a low quality in our products so right now we started to lose few customers because of that because the quality and Performance so he is one of the managers did made a few adjustments in the way of his management perspective together with a team and changed a few little part of the process and his contract of the customer representative senior to understand it better way how to customise things talks and feels about her products so he has Focus on the customer she's

trying to elevate the quality of the software as well and I know it's because he talks about it. He talked about his thriving his ideas and his actions.
In order to extract information from the clients we have a panel with the indicators it's a tool to understand through the score how are service level is and the outcome of this panel issued with a team leaders and from that we can see what the best approach is in order to improve. So we also know how to improve our indicators with a team and not only with the team leaders but with the entire team therefore we have a weekly meeting with the entire team to talk about if the implement an improvement related to processes for example you'll be mapping for one week what is the improvement and a consistency of the change so that I can show the results of all the people involved with the change.
There is a weekly in a daily meeting the daily meeting is for the daily work and a weekly meeting is for possible improvements

e.   Would you like to explain your two choices for the least important values?
Open mindedness and innovation are least important
Open mindedness because even though he's open to changes and to continuous improvement he has a lot of years here in the company and it's difficult to show more ideas to the senior managers why because maybe he is a little scared of actions made by senior managers to not care about his ideas for example and then don't be feeling and considering his actions and ideas they do not have an open mind to receive feedback the middle Manager in question is too emotional to receive feedback from the senior managers who doesn't mind receiving feedback from the team leaders because he's really emotional Guy. Some care about when you try to pass a different idea or any other position different from his own ideas
Innovation is the other one it's not an important value because it's not the main focus of his team a lot of teams are looking for sustaining the Legacy and this is talking about software development and another team is looking for innovation new software new ideas and promote new ways talking about software development so for him this is less important because innovation is not his work

Critical Incident Technique

For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
1 months ago he was with the entire team and his team leaders in the weekly meeting talking just about the ideas and the successful plans about improvement made from before he open to space for everybody to talk about how they are feeling with his management style and what we can improve looking for a way of managing the people and managing the team. One resource one person stood up to him and told him that he is really sad and he is really unmotivated because they are done working with him because he has had promoted because he didn't have any adjustment in the salary because the company is not implementing there are ways to increase capacity etc etc so it was a negative feedback for him so in this case.
Laura, so let me try to understand this. So his team leader was telling him but he has a team leader a software developer was sad and he stood up to the manager and told him how he was unhappy about the situation that how they are feeling about a company had a feeling about the manager him as manager how they are said and how they are this motivated with the company. and the decision-making with the wages and their position. The manager was just listening to it and let them talk and didn't say that it was wrong he just let them finish talking he was trying to hear and understand but he didn't here before this problem. afterwards they had a one-to-one meeting. The people took a decision to go out of the company after that the manager calls all the people that got out of the company to talk about incidents and to share what is the problem that all the guys had with a company and the problems that they have with a career perspective and share that with the entire team. As if any others have the same approach they need to improve this

problem they need through better this problem so that there's not any bad noise within the team. So they all took a made a assessment and did not open it/anonymous and provide for the entire team a copy of that and he made this collection after the results he presented the results for the team and elaborated and action plan to resolve the situation for the team so do have a prioritisation of what is the more painful for the team at this time and this case it was salary and not being satisfied with the process of the capacity. They started with the action plan to try to resolve this with actions concert to him and the senior manager. I think it was a good approach because he took the feeling of the entire team and did not expose anybody in the game. He presented the results and he was transparent with all the people and he was engaging the entire team to make together the action plan to resolve the situation so it wasn't only for him it was for the entire team. Not only the manager has the responsibility

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
He only heard about the position of the other guy he was listening to the Other Guys story after that he asked if any other person had an idea of the position about the situation. Obviously nobody talked because it was a better climate and the ambient was not good so everybody was quiet. So after that he had a one-to-one meeting with a person. He is always calm really calm he is really not stressed and he sustains a posture a really good posture he doesn't change words in the moment he was really quiet at this moment only thinking and hearing.

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Is a lean middle Manager you need to understand what is the situation what is the context about what is happening and in this moment maybe with the people involved around there's not a better way to expose a few things. There is a personal perspective about the situation so we need to understand the entire context from both this perspective from this collaborator so I think yes you need to understand you need to hear and see what is happening try to understand what is the best approach to resolve the problem find the root cause of the problem and try to resolve it. In order to do that you need to construct or make action plan to go ahead with the result. I think he has a good approach a good lean approach he applied the Toyota k a t a for the people management.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
The first value I can see looking at the Q sort values as well I think that trust of the people because he is open to everybody and their opinions from an anonymous position to understand all the context and all the feeling of the team another one is teamwork.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes these are typical lean manager behaviours right now more than any other time we are transcending lean. I am talking about the lean philosophy 5.0 that is focused on the people more than on the processes for me this is a good approach because the people right now in this decade it's not the same. The people right now are more taking care about themselves and the quality of life for example so the approach to take care of the people in the respect for the people and teamwork is more sufficient to sustain then the lean approach in any company.

As a closing note
Would you like to add something to the interview?

From his perspective he needs to learn and practice more tools as well. All the company need to do that but he is in the right way.

II   Team 1, Middle manager

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am a product manager

No Subordinates: **I have 45 subordinates**
Responsibilities: **My responsibilities are Product Development (product quality and customer delivery); Vertical Billing (faturamento); Budgeting (orçamento); and People development.**
Since when in org: **Since 2010**

The Lean organisation

What is, according to you, a lean organisation?
A Lean organization is an organization that understands what is waste; that recognizes what parts of the process can be excluded to improve productivity, and a Lean organization also needs to "think" in a Lean way, focusing always on which is the best way to carry out internal processes to make them more productive.

How do you see the/your role of a manager within a Lean organization?
A person who is attentive to the way of how the teams are distributed ("this is important!"), but understanding specifically what these people do. Many people who make part of the organization and its culture, do their jobs because they are used to do that way, but they don't really know why they are doing it that way, so the fact that you question people about why they are working that way is very important. For me, one of the most important manager roles is question people.

Do you see your own organisation as a Lean organization? Why?
For me, the organization is becoming Lean, but it is still in the transition process. Last year we hired a consultant to implement the idea of Lean, and we chose this "vertical" (team) to be the first one implementing Lean in the organization. So, I cannot say that the whole organization is Lean, because this organization has other "verticals" (other "teams") that haven't implemented Lean yet. This vertical can be considered the "model" with regard to lean implementation.

As of when did your organization start implementing Lean principles?
We have been trying to implement lean for some time, but it has always been isolated initiatives. This vertical started implementing Lean in fact last year (June 2017). We started implementing "stop the line", kaikaku, kaizen, work agreement, visual management.

What have you done differently since your organization made the transition to Lean compared to the situation before?
As I said before, the organization is still in the transition process, but one example that I can tell you now is that we always tried to implement the "stop the line" concept in this vertical, but now not only me, but the entire team are able to "stop the line" and verify if some kaizen needs to be improved. So now I'm sharing all these tasks with the team. Management is now more focused on empowering people (giving them autonomy), since they can actually see if there is something that needs to be improved.

Leadership

This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
I listen to the people, keep a close eye on what people are doing. This way I can empower the work they are doing and can also give the necessary directions (if necessary). Lastly, aligning expectations. I am always talking to people to align expectations between what the organization needs and what people are willing to do.

a. On what specific behaviour are you basing this?
− **Listening, Monitoring in order to compliment, Empowering, Give directions if necessary, Align expectation, through clear communication, Passing communication from the higher management to the teams on the work floor.**

b. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It's hard for me to talk about other managers, because I do not know them, so I cannot say that others do not do the same. But I believe we have more prominence in terms of effectiveness.

Values

Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Respect, empathy, collaboration, and I think it's nice because it's aligned with the values we created here. These three values are my values and are also the same ones that the team has defined. We have co-created values to guide our daily routine and these three personal values I have are part of the values that the team defined.

c. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think it's a bit different. I work with coaching and I can see the people with very strong values. Here we have different people from different cultures, and what makes people have the same goal is an alignment of values. I think that probably other managers do not work hard at this, and here it is explicit. I don't think that Lean introduces you to specific values, but I think that Lean strengthens and facilitates the alignment of values.

d. Would you like to explain your two choices for the most important values?
"Trusting people" and "Respecting people" I am more people-oriented (focused on people), so "personal development" and "leadership" are more important because they are connected to it. I certainly value other things too, but those are the ones that have the most impact for me.

e. Would you like to explain your two choices for the least important values?
"Helpfulness" and "Courage"
I believe that when we focus on people, these values (e.g., courage) come naturally, as a consequence (as a result).

f. Did you experience difficulties while distributing the values? If yes, how?
I was complicated for me, and it is funny because I work with people and their values and it is usually easy for me, but now when I needed to choose the most and less important it was difficult. It is difficult to prioritize what is more or less important, because these here are a set of values that you cannot forget at all, especially being a manager.
Yes, prioritizing is a difficult and complex process.

Critical Incident Technique

For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?

An example of a successful moment could be: when the 'click' is made and employees actually think Lean.

We had one of this situation today, before this interview. Our product is very complex, and we have a weekly special time to meet and discuss some aspects of the product. We have different views at this moment. Some people think that they do not need to attend these meetings, because they already know the product. But thinking in a lean way, these people who have more knowledge need to attend the meeting, because this will help to emerge insights. So I asked the team if it made sense to keep these weekly meetings, and one of them said that they must keep these meetings, because sharing information and knowledge is really important, but people must not see this as an obligation. At this moment I tried to make them think about those meetings, work as a team and see how important sharing information and knowledge is. I could see that the person understood the real meaning of those meetings.

When did this situation occur?
Right before this interview

What caused this situation?
Well the fact that some people do not feel like they have to attend meetings because it does not concern them. But on the contrary, there is a reason why these meetings are with a bigger team and people with different backgrounds. This is beneficial because it helps with seeing the problem/subject from different perspectives.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
At that specific moment, the first feeling I had was frustration, because the idea was sharing knowledge, but the team didn't understand, and I wanted everyone to understand that it was beneficial to everyone. But I persisted and made the team think about the importance of these meetings and work as a team.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
- **Listening to their complaint, Making them realize for themselves the importance, Giving them autonomy and their own decision opportunity, Persisting for them to understand**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Absolutely! When you think Lean, you think about the system as a whole and at that moment I wasn't thinking about one person, I was thinking about the whole team and how the whole team could absorb knowledge.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
I tried to explain the benefits of these meetings and eventually let them make a decision of their own

Which specific values where shown by the Lean middle manager in this story?
- **Transparency, Openness, Trust**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

I don't think so. I think that Lean strengthens and facilitates the alignment of values. The organization always had its values, but they were far from the people. With lean implementation, the values became part of our work.

As a closing note
Would you like to add something to the interview?
After the Lean implementation we obtained very good satisfactory results regarding customer satisfaction and the organization reached another level of product/service quality.

III   Team 1, Team leader 1
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am a team leader and propose changes and improvements through scrum

No Subordinates: **I have 32 subordinates**
Responsibilities: **I am a team leader. I work with the scrum master and the manager and my work is more people-focused. I propose changes/improvements and I support the teams.**
Since when in org: **Since 2014**

The Lean organisation
What is, according to you, a lean organisation?
A lean organization is an organization that can work with lean principles, with lean production, with less waste, that can get the lean sense and bring values and principles into practice. The most important subject and aims are continuous improvement, automation, reduce waste, reduce inventory, have lean production, achieve optimum flow, automate what is manual.

How do you see the/your role of a manager within a Lean organization?
The manager should question the team about what can be provided to the team in order to achieve the organization goals.

Do you see your own organisation as a Lean organization? Why?
I see the organization aiming to become Lean. Maybe in two years the organization will be Lean, but now it is not Lean yet. Not even our team is Lean yet.

As of when did your organization start implementing Lean principles?
July of 2017. And we were the first team implementing lean. In the last 6 months lean has gained more strength in the organization.

What have you done differently since your organization made the transition to Lean compared to the situation before?
Basically how we have worked differently is through the implementation of different tools. For example the way of the work agreement, kaizen, A3, always working on continuous improvement, and also we are working in a different ways, the dynamics of planning and retrospective.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?

Because he can clearly show the organization strategic objectives and values so that the team can work in that direction. If the values are not very clear, there may be a conflict of objectives.

d. On what specific behaviour are you basing this?
–   **Communication clear organizational strategic objectives and values**
–   **Giving direction**
–   **Preventing conflict**

e. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, a Lean manager does not have the command-control way of manage. The Lean manager gives directions based on strategic goals and asks the team about what can be provided to the team in order to achieve the organization goals.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
–   **Transparency**
–   **Respect**
–   **Humility**
–   **Trust in people**

f. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It depends on the manager, but I do believe that Lean has an influence on values. The other non-Lean organizations managers probably have values related to command-control.

d. Would you like to explain your two choices for the most important values?
"Trust in people" and "Honesty"
These are the values I see in practice. He brings these values to himself, act according to those values and tries to show them to the team. During the game I have tried to organize the values in a sequence where I see the stronger values in practice first and go down from there.

e. Would you like to explain your two choices for the least important values?
"Information sharing and analysing" and "Self-reflection"
The less important ones I see as a consequence of the others because others are stronger. Also these could be less because these are values that the team itself helps building.

f. Did you experience difficulties while distributing the values? If yes, how?
No, it was easy to visualize and organize considering what happens in practice.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
Last week we had a problem with the system, a slowness problem in a client system. So the manager put the team together so that everyone together could think in the best way not to generate rework. In addition to teamwork, the manager gave people autonomy.

When did this situation occur?
Last week

What caused this situation?

The slowness of the client system, which was really a problem which had to be solved

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
He put the team together so that everyone together could think in the best way not to generate rework. In addition to teamwork, the manager gave people autonomy.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **He questions**
– **Acts as a coach**
– **Fostering discussion**
– **Showing values**
– **Proposed improvement and solution**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, if it was not Lean the directions would be more incisive (command-control). Perhaps knowledge would not be shared and there would be no external proposals for solution.
Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
…

Which specific values where shown by the Lean middle manager in this story?
– **Trust in people**
– **Transparency**
– **Responsibility**
– **Participation in decisions**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
In a way, yes. I believe that transparency and decisions participation are related to Lean, but maybe "trust in people" is not a specific lean manager value.

IV   Team 1, Team leader 2
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am a team leader and I do Scrum

No Subordinates: **There are three teams with six people per team. I am leading one of these three teams.**
Responsibilities: **I do not see myself as a leader, I see myself as a part of the team and do not literally lead the team. I am a coach of the team and help with the logistics, what they have to do and with improving together with the people. With logistics, I mean in the form of ordering.**
Since when in org: **I have been working at the company for 6 years now, since 2012.**

The Lean organisation
What is, according to you, a lean organisation?

I think that lean is a kind of agreement with the customer that you need to bring the orders asap to the customer. Delivery to the customer as quickly as possible.

How do you see the/your role of a manager within a Lean organization?
I think that a manager needs to solve the problem that the scrum master or team leader is not able to solve and talk to the employees is they have complaints and if they have ideas for improvements.

Do you see your own organisation as a Lean organization? Why?
I think that it is still not a Lean organization. We are still in the process, because we are still not on time with delivering the products to the customer due to delay.

As of when did your organization start implementing Lean principles?
Since one year ago, 2017

What have you done differently since your organization made the transition to Lean compared to the situation before?
Care a lot more for the employees, I feel that they are happier and more satisfied in the working environment. Everyone puts in the same effort, they are more focussed on the final result, we have had feedback in between from the customers which were positive.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
I think that the manager is always available and in the office so employees can always walk up to him and talk.

g.   On what specific behaviour are you basing this?
–   **Availability**
–   **Open attitude for his employees**

h.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It is different, because other managers only look and the final result and this manager/ Lean management you look at all steps in the process people/employees and mechanical (value stream)

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
–   **Transparency**
–   **Respect**
–   **Humility**
–   **Trust in people.**

i.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
They have the values build with the entire team together, but he gave tips. Like how about respect, what do you think about it. The entire team agreed with the respect being important. In the end the important values are: Respect, transparency, collaboration.

d.   Would you like to explain your two choices for the most important values?
"Trust in people" and "respect for people"
The most important aspect within the team is respect in the team and trust. If you have no respect, you do not belong to the team. If he is not at the office, he can trust that the team will continue working by themselves,

e.   Would you like to explain your two choices for the least important values?
"Helpfulness" and "Creativity", not because these values are not important, but I do not see these values in the managers behaviour.

[Was unable to answer the following questions]
Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

V   Team 2, Senior manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Chief agile coach.

No Subordinates: **6, all of them with a middle management position**
Responsibilities: **Apply the lean transformation in the company is my first responsibility**
Since when in org: **1,5 years, since 2017**

The Lean organisation
What is, according to you, a lean organisation?
A lean organisation is an organisation you can be sustainable all the time and working for continuous improvement anytime in any level of the organisation applying continuous improvement improving the performance and quality every day and every time.

How do you see the/your role of a manager within a Lean organization?
It's really important because they are the most influential persons in the company their main responsibility is to make all these changes happen in the operational level so we need to train and we need to share all the knowledge about what is Lean what is the purpose of making a lean company they are there the key piece to make this information happen successfully.

Do you see your own organisation as a Lean organization? Why?
Not yet we have only started with the implementation since last year and we are trying to make a culture transition and change the mindset of the people because they are the ones to sustain the transformation. So it's not only mapping the processes and only take the best ways to implement we need to invest really hard in the people transformation and the mindsets of the people. More here because in Brazil we have a cascade or a hierarchy model and control this is really hard to change in a short amount of time what we are doing is trying to change the mindset of the person who will need to involve all the people and who is engaged and committed with a transformation and understand what is the purpose. Where we need to go what is our North what is your goal.

With the engaging and the cascading effect initially we start with the people in some formation and in order to do that we are trying to make clear what does the purpose of this transformation why we need to change from cascade mobile to a full participant mobile. Expecting contribution from all the people. We have a lot of capacitation and training for these people in all the three levels of the organisation the strategic and tactics and operational. We are doing courses and workshops with that and meetings where are we... all the layers are involved but the Workshops and courses are getting separately so workshops with senior managers workshops with middle managers and workshops with operations. Afterwards the entire team will learn about the values and goals and a bad what needs to be done we will involve all of them together. In this case we tried to apply the hoshikari in the last year to make all the strategic management and it's not 100% successful because we don't have a lot of catch ball that is needed and some alignment don't be done but when this was made all people were involved and all the people contributed and made the sheet metrics it was good but it can be better so we are learning and studying. We are trying to apply and improve these processes.

As of when did your organization start implementing Lean principles?
They started in September 2017 in the last year with my arrival so now we've only implemented the lean philosophy for one year and what do we're doing different

What have you done differently since your organization made the transition to Lean compared to the situation before?
Engagement and communication is what we made different because we are understanding all levels we are involving all the people in the Decisions of the strategic plan of the company. More where the people is working more like a pull system and not like a push system everybody is taking care about how I can contribute individual for this change for this strategic plan to be a lean enterprise so this is what we are trying to do differently.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
In the case of him he has a different approach he is more focused on the processes and to improve the processes in the performance. He does little of the people management but he is more related to improve any processes. He is less of a people manager but he is a people manager as well but he is more focused on the product and not in the people. So he has a different perspective of the things about how he make his works so he is a little more calculated person he is more focus on numbers then persons and that is also how he differs from other lean middle managers within a company he is a little more distance from a lean manager from one side it's OK because he's looking for improvement and looking for a quality and better processes this is good because this is a lean perspective as well but considering my experience it's not the best way because it's a part to take care of processes and take care of the quality and Performance which is good but he can be distance of a people's manager

j.   On what specific behaviour are you basing this?
Most profiles here of the middle managers is like this very focused on tools and results and figures performance and quality and not per se the people of our company there is more Focus and products and processes and tools and software and not in people so this is what we need to work on. Changing the mindset letting them Focus a little bit more on people and make the things happen

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?

He is a very honest and transparent person and he needs to talk about anything he will do that without any noise or any other argument he has idyllically talk about how he sees the things and so the honesty it's one of his values. The other one is The Pursuit of perfection it's not perfectionistic because it's different but it is the pursuit of perfection.

k.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It is not wrong to do that because one of the pillars of a lean thinking is the pursuit of perfection and this is more like continuous improvement it is more or less the same thing but a little bit more drastic it is not bad but it's not what needs to be driving his actions and in this case it's more that he looks to the customers the process and to the quality of the product and yes someone that puts a little stress in a team to have better performance so this can be in sometimes good for the operators/employees. So we're strong and important values but we have another way to apply the same values using the people as part of the processes and others only a number.

d.   Would you like to explain your two choices for the most important values?
Like I said he is more looking for a number a best performance a result and the best quality of the product because they are in the area that demands that. You forgot for others ways to do that but it's most important to him but he doesn't like to be questions about performance or quality because he grants that with his team so they try to apply every step in the processes to Grant that they have big performance they have big quality in every activity and delivered it to the customer

e.   Would you like to explain your two choices for the least important values?
In this case the feedback is not the best tool for him is that applied we are trying to do that with him helping him into doing that. A good way to do that it's not to ask it from him it's not this development from his profile as a person as a manager so for that he uses this team leaders Roberto and Andrea who are more focused on persons and he uses Andrea to do that part of the work
You need to improve that more than just looking for a lean transformation also thinking about of people he needs to improve that immediately

f.   Did you experience difficulties while distributing the values? If yes, how?
There's still a lot to work on that not just with this middle Manager but also with the other people managers working with lean. Most of them are technical managers not people managers so we are doing really big effort to try to change that first with the same group but additionally through training and courses and workshops etc you would like to do this with all managers.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
I got a situation but it's had a good successful situation it was kind of bad but successful. It was something bad he turned into something good. It's not for his own perspective he needed help to resolve the situation so it's not the best example. I don't know if he cares about but he has the integration team. he is a middle person between a lot of teams he had the integration to open the communication between One software and another and he is in the middle word doing the communication from both softwares for example. So in this position he has to change constantly ideas and provide technical feedback for the other managers like the earlier mentioned manager for example and the other ones ok. Even he doesn't have the skills to make feedback he has good communication skills and he can engage all the people in the same room and provide all the ideas necessary to resolve the problem so in the past the last 3 months we've had a really big problem related with integration of the softwares.

He made a workshop of design thinking and engage all the people related to do that and he followed up the demands and the actions related to resolving the situation and he applied tools for problem solving he didn't have the skill to communicate with the people but he did it he did it using technical skills that he is strong at. He could deal at that time using the workshop to solve the problem in the situation and creates as well an action plan and delegate the actions for every area involved and make the follow-up constantly to get renovated the problem and resolve the problem so right now is that a problem it started with his own position about it. It is a good example because he used his strength that he has to apply lean using problem solving methods and therefore it's a good example.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
Actions to make the things happen. Good communication and clear communication. How he makes the things and demonstrates his skills it's a technical behaviour he's also involving other people because I have the knowledge and let them solve all the problems and sharing the information.
- for problem solving behaviours he get the problem involve of the people related to resolve this problem to fix it and promote a solution.

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
In my opinion these are typical lean behaviours

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
...

Which specific values where shown by the Lean middle manager in this story?
Responsibility and perseverance.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think this is very typical for lean middle managers

VI   Team 2, Middle manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am a product manager

No Subordinates: **I have four groups under me with a total 35 subordinates**
Responsibilities: **I take care of the people and their development. PDI which is individual development managing. Additionally I am responsible for products and contact with the customer. I also do logistics and talk to customers about the value of the products and what they want from the products and how value can be added, in order to have as little waste as possible. There is daily integrating with the customers, process or constant improvement. Furthermore I contact customers daily either through telephone or visits,**

about the products and the company, so they know about the product and the whole company.

Since when in org: **I have been working at the company since February 2017.**

The Lean organisation

What is, according to you, a lean organisation?

A Lean organization is a kind of organization that is directly connected with the customer, because they try to find out what does not add value to the product and can be deleted. If you do that you have less waste. Lean also gives more agility with the use of Kanban and agile. Lastly, Lean also can be used to have a better organization, and afterwards the customer is also more satisfied.

How do you see the/your role of a manager within a Lean organization?

As a manager I am under the assumption that you should help the groups of employees with giving directions. You have to make the employees understand what Lean is and how the can start thinking Lean. They get help from a GTA group that helps the employees and gives support. This group is led by Erasto. Because I have 4 groups, I have to distribute my help and support equally among the different groups. You should also accept external help if you want the best for the group and I do this with the GTA and from the LMM who is Lean expert.

Do you see your own organisation as a Lean organization? Why?

No the total organization is not Lean yet. However I consider my department to be Lean. We have been implementing Lean for over a year, launching the main and intense program 10 months ago through the workshops where we learned how to be Lean.

As of when did your organization start implementing Lean principles?

Since one year we started with Lean. Launching the project in February, but a whole lot has changed since I also started working in February. Many consultants have come and help with the implementation.

What have you done differently since your organization made the transition to Lean compared to the situation before?

Initially there where a lot of groups that worked with scrum. The logistics are a lot better now than before, and the customer has a lot more faith in us. Nowadays we can estimate when the product will be delivered and we are always on time with delivering the product. Therefore we have a higher customer satisfaction and trust.

Additionally we use tools like Kaizen, kaikako, Kanban, gemba (We have meetings witht he director and follow the kanban steps). The Gemba is very up-to-date with the current state of the company and everything is stepwise, standardized and according to the instructions.

Leadership

This research focuses on effective middle management in Lean organizations.

Why are you/is the concerned manager [Name] an effective manager?

I do not think I am a really Lean manager yet. I was at a fair about Lean management and I saw these advanced steps, theories and tool and I am not there yet. Based on that and the meetings we had where we discussed options for improvement we have a lot of ideas what we have to do to get better. We have yet to implement them and turn ideas into action. I think the company is not that open for these changes and that is holding back all the great ideas.

Behaviours that I possess that are Lean are baring the responsibility to follow all the steps in the production and tell the employees which steps to take. Also adjust when necessary. Based on the contact I have with the customer and the information I gather from them. I do my desired middle manager tasks, but the people who are really busy with Lean are the

appointed Lean masters. These people do not act as middle managers, they work on a much higher level.

l.   On what specific behaviour are you basing this?
–   **Learning about things that help me do my job better and I can pass on to my employees**
–   **Communicating with the employees and having meetings for improvement**
–   **Trying to turn the ideas into action**
–   **Checking the progress of the employees and their work**
–   **Give feedback and point out if the work can be done better**
–   **Learning about the customer by talking to them**

m.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think this is a big difference with the traditional method. Lean values the opinion of the customer a lot. This is something very strong in Lean companies and not so much at normal/non-Lean companies. Also the delivery and the creation of the product is much faster than at traditional companies.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Honesty with the customers, if the customer wants a product, then you must honestly say if it is not available. Always be transparent. You are obligated if you promise something to fulfil that promise, so that the customer can trust you. Trust, honesty and responsibility.

n.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think this is more the personality of the person or his or her character, not really something that is created by Lean. It is not due to following a Lean pattern or something like that.

d.   Would you like to explain your two choices for the most important values?
"Customer focus" We no longer use scrum, but kanban we use occasionally. The focus is now really the satisfaction of the customer.
"Honesty", For creating trust and a stable and open basis within you own team. For example, in the company people do not check if you work from 8-17, you just need to reach your targets and if you do it in less time, it is ok and you can go home.
In addition, one time I sent an e-mail and the communication was not executed properly. I sent an email which turned out to be written in a very aggressive way. I did not notice this myself. Then someone came to me and told me about the message he received and how it made him feel, I only then realized that my way of writing was not really nice / respectful. Then I started to take a course to learn to enlighten what I wanted to bring across with respect and assertiveness. I am still very thankfull for the honesty of that one employee.

e.   Would you like to explain your two choices for the least important values?
"Self-reflection" and "Perseverance"
Openminded-ness is missing in the company. Due to the daily hustle and bustle, we cannot be openminded to the employees. It is not possible due to the workload. I have the courage but not the time. So there is the perseverance but it is difficult to really be the one who perseveres as you are demotivated by the higher management and prevailing culture

f.   Did you experience difficulties while distributing the values? If yes, how?

It was not difficult to do, I just put the most important ones on the left side. A couple of the values are from his upbringing and youth which he are things he has received and still believes from home

<u>**Critical Incident Technique**</u>
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
The basis is always the customer and the delivery time to the customer, so I have had a meeting with the group of most important customers about what the customers want. Then discussed with the employees all the results to get them on the same line. These groups are still being done with the customers, also with new customers. Every 2 or 3 months the customers are brought together and discuss about deliveries and products. And then it is linked back to the employees. This was on my initiative.

Another example
We have these four groups of employees and every group has a leader. These leaders come with problems and then we discuss them with the total group of leaders including me. After the discussion and coming up with a solution, the team leaders discus the solution with the other employees.

When did this situation occur?
This happened really well since four months ago, but we have been doing this with the committees since ten months. Four months ago our logistics have changed based on the ideas of the customer committee outcomes.

What caused this situation?
The need for higher quality and less waste, was what helped us decide that we needed this to improve the company and the product value

<u>Behaviours</u>
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
In the meeting I am already a leader and look at the Kanban. In the Lean basis I look at the figures and sometimes they are good and sometimes they are not good. If they are not good then we discuss and change if there is a problem. With the meetings with the customers I listen really well to find possible ways to reduce waste and pass that on to the team leaders to see if we can improve this in our production.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **Lead the team**
– **Use the Kanban**
– **Monitoring and giving feedback based on that**
– **Discussing the problem**
– **Listen to the customers**
– **Find ways to reduce waste**
– **Communicate with the team leaders and listen is they have a solution**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes I think so. I thinks that the kaizen mentality should work better and is very Lean, a mentality that is also distinctive for Lean managers. But they try to look with a lean vision. Sometimes kaizen is good, but sometimes there is something unexpected and then they

leave kaizen and go back to their own ways. Overall the mentioned behaviours are distinctive for the Kaizen ways and therefore Lean.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Honesty is very important to me. And I am someone who is open to talking with clients and employees. Sometimes there is a situation where I can place himself in the customer and also in the employee. So that I can see through the eyes of both parties. I think I am humble. The communication with his teams is very good because I am a very loyal person. So people are not afraid to ask and can talk to me very openly. For example, if someone has to be free to go to the doctor, then they simply ask.

Which specific values where shown by the Lean middle manager in this story?
– **Approachable**
– **Honesty**
– **Empathic and compassioned**
– **Loyal, open communication**
– **Humble**
– **Listening well and being non-judgemental**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
They are not specific Lean values, they are personal values, that have nothing to do with Lean.

VII   Team 2, Team leader 1

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I started as a Scrum master, and now I am a personnel leader

No Subordinates: **I have 13 teams and in those teams are a total of 30 people.**
Responsibilities: **The Flow and the Kanban. I try to evaluate my team to get better every time and I also give feedback of the personnel.**
Since when in org: **Since one year, 2017**

The Lean organisation
What is, according to you, a lean organisation?
An organization that tries to not have much waste. A company that sees very clearly, by using tools, being transparent and standardizing so that it is easier to see the waste and where the wasting happens and how to cut it from the flow.

How do you see the/your role of a manager within a Lean organization?
A Lean middle manager is a facilitator that facilitates between all department. And makes decisions on C-level (CEO|CFO) about strategies and coordination. He coordinates.

Do you see your own organisation as a Lean organization? Why?
The company is not yet a Lean organisation. They are trying to change some things, but the people that work there for 27 years, the old employees, are making it hard. It is very difficult to change the mindset of these people, which is making it a very slow process. Sometimes this gives a delay a makes that is takes long to implement something new.

As of when did your organization start implementing Lean principles?
The real hardcore changes have been appearing since six months, the beginning of 2017. It really hid off when they changed the manager and after this they started the Lean mentality. By changing the manager they started thinking Lean. Did not try to implement Lean before the manager came.

What have you done differently since your organization made the transition to Lean compared to the situation before?
I don't know how it was before, because I haven't not been here for very long. But when I started working here I started with a different pair of eyes. Saw thing differently. I was never afraid to take on challenges. They called me the challenge men, in addition, I also started a board. This board is about quality and to always keep a high quality for the product. Right now, after I set the example, the other departments are also using his board idea. His team should not waste time./ lose time doing nothing.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
He is a manager that knows exactly the reality of the product. He know the flow of the product and he is open to talk with people about new ideas. He always takes care of the target of the people. If they are low with their target he helps the people to get better or closer to their target. If people are good with reaching their targets he stimulates them to get even better.

o.   On what specific behaviour are you basing this?
–   **Knows the product and shows an interest in the reality of the product.**
–   **Talks to employees about ideas**
–   **Helps the employees to get to their targets**
–   **Stimulates to do their best**
–   **Complements when employees are doing well**

p.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
My manager, yes. also in the company, there are managers that are Lean and managers that are non-Lean. My manager has a very good mentality. He takes really good care of the waste of the product within the company. But there are other managers that are very technical and only look to the coding .

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
He really have values that are about living well, are comfortable, easily communicate and treat them like human beings. Giving a good welfare.

q.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
He does not know, it should not be distinctive that the focus is on the people within the company. This should be a normal thing. What is very important in the company is the quality of life. So they don't have to work extra hours and they feel good.

d.   Would you like to explain your two choices for the most important values?
"Trust in the people" and "Respect for the people"
He took the values thinking about the quality of life. The manager has his focus on the quality of life of the people, how they feel. Respect is on top, everyone should respect each other. Trust is the other one important values, the manager should be able trust in his people and their work

e.   Would you like to explain your two choices for the least important values?
"Self-reflection" and ""perseverance"
Least important ones don't fit with the company or the manager himself.

f.   Did you experience difficulties while distributing the values? If yes, how?
No

<u>Critical Incident Technique</u>
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
They had, he, the manager and a women a meeting discussing the goals the women had in her job. She started working at the company not so long ago. They were doing an "inside" with her, which is something the manager finds very important. An inside come down to looking for the things she wants to do in the company, her expectations, and checking if she is either on the right track or in the right function. She said she wants to be a leader and a manager function. And afterwards they concluded that she is right now the right person in the right place.

When did this situation occur?
Yesterday

What caused this situation?
The fact that the manager finds it very important that people are in the right function within the company, which resulted in a meeting.

<u>Behaviours</u>
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
Showing a personal interest in the employees and listening well to what they have to say and either leaving them in their current function, because they're already in the right spot, or otherwise helping them grow towards their goals within the company, so they have a good quality of life.
This is the managers natural behaviour. He always cares about his people. Because of this conversation (the inside) they knew that she is in the right/good place within the team

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **Active listening**
– **Showing personal and work related interest**
– **Helping to get a better quality of life within the company**
– **Cares for people**
– **Has one on one talks to understand the employee**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
This is not specific for a Lean manager. It was specific in that situation and then the manager had this click that this is the right choice.

<u>Values</u>
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

He used the welfare and caring for his people. Important for him is that the employee feels good in the role/function that he/she fulfils.

Which specific values where shown by the Lean middle manager in this story?
– **Sees the potential of the normal employee**
– **Helpful**
– **Respects his people**
– **Quality of life**
– **Continuous improvement**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, but it is not specific for Lean, however the Lean makes you think like this, because you have the philosophy you can put the correct person in the correct place. The philosophy helps you to find the right person for the right place.

VIII   Team 2, Team leader 2
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I do Planning and management of projects

No Subordinates: **Not a specific amount**
Responsibilities: **I am responsible for managing a group from work and I organize projects of technology.**
Since when in org: **I have been working here for over one year, from which I have managed a Lean team for four months.**

The Lean organisation
What is, according to you, a lean organisation?
An organization that takes care of not wasting and that the product needs to be right/good on time for the customer.

How do you see the/your role of a manager within a Lean organization?
A good Lean manager is someone that facilitates the steps from the work, they try to give strategies and teaches the people to have Lean and standardized actions. Based on the strategy every person has his/her own action to help in the company. In addition, organizing the work floor is important, because it helps with everyone staying in the right place. Lastly the manager should be able to find the right person for the right spot.

Do you see your own organisation as a Lean organization? Why?
Our organisation is not yet a Lean organization, we have the potential to be, but we don't know yet how to control the waste. And we also don't know yet how to control the logistics of the people with the product. There is not yet a good flow of the value stream.

As of when did your organization start implementing Lean principles?
I have been working there for one year before I started working with Lean.

What have you done differently since your organization made the transition to Lean compared to the situation before?
Not in general but in the teams I can see that some types of teams that work with Lean and in some of these Lean teams you can really see the difference, between Lean and non-Lean. Before Lean, for example, it took us one week to product one product. After the

intense Lean implementation period we increased our production to 10-11 finished products per week. Not just quantity, also the quality rose. The cycle is shorter and the value stream was shorter and more optimized by removing waste.

<u>**Leadership**</u>
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
He is a good manager, because he gives space to the team leaders to coordinate their people. He gives power and autonomy/integrity to everyone and not just keeps it to himself, so that everyone can be a leader, and not only himself.

r.   On what specific behaviour are you basing this?
–   **Letting go of full control**
–   **Giving people autonomy and control**

s.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think yes, because if you need to be a team leader you need that leadership, other leaders don't want to give away their control, so Albaro's style of giving autonomy and letting the leaders lead is good.

<u>**Values**</u>
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
–   **Confidentiality**
–   **Reliability**
–   **Transparency**
–   **Respect with the people/human beings**

t.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think this is really personal. That it has nothing to do with Lean or non-Lean. If you have these values in your life, you try to work with people with the same values as you.

d.   Would you like to explain your two choices for the most important values?
"Integrity" is one of the most important values I think. It is how he treats others if when respect people and so on.
"Customer focus" or focus on the client is the second most important value. In an industry of factory like this the customer and the wishes of the customer are crucial.

e.   Would you like to explain your two choices for the least important values?
"The potential of the normal employee" and "Helpfulness"
There must be potential, and employees / people must want to grow on their own, so it is not necessarily the responsibility of the manager and therefore also not something very important to have as a value.

f.   Did you experience difficulties while distributing the values? If yes, how?
Not difficult, but all subjects are important, so it was very difficult to choose.

<u>**Critical Incident Technique**</u>
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
I think he is a good manager because he listens to the people and he always tries to give feedback with all the people (the people give him feedback, and he gives feedback to

them). There was this moment where someone was disappointed with the department and talked to Albaro about it and then Albaro helped him get transferred to another department.

When did this situation occur?
5 months ago

What caused this situation?
Because the person started with his conversation to Albaro and he was not necessary complaining, but the conclusion of the manager after the conversation was the he/she could better work at another department and the person was transferred to a better working place. Albaro and the employee had the same conclusion and were both happy with the result.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
It was a very open/transparent talk how the guy talked with the manager, which made him more confident to express how he felt.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **Good communication**
– **Open**
– **Share leadership**
– **Share the power with the others**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It is not all managers that can act like him, being so open and shares power and responsibility. You need a capacity to do this and it is not all managers that do this I the company. So not necessarily Lean, more personal.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
He is transparent

Which specific values where shown by the Lean middle manager in this story?
– **Transparency**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It definitely should be.

As a closing note
Would you like to add something to the interview?
He is perfect with people management, but maybe he should try and think more Lean. This may help with having less waste and he should also think more about the customers for value creation.

IX   Team 3, Senior manager

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Production coordinator

No Subordinates: **I have a total of 177 subordinates of which 164 are directly under my supervision and 13 are technical staff**
Responsibilities: **I Control and manage the products and the flow within the factory. Furthermore I am in charge of technical and quality department and I am the designated person for accepting and passing through suggestions for improvement for these departments.**
Since when in org: **I have been working at the company for 22 years, since 1996**

The Lean organisation
What is, according to you, a lean organisation?
A lean organization is an organization that aims to give more value to the product. Giving value can be seen as being transparent and giving clear information about the product. Also besides giving more values, there should be continuous improving in the production process and waste reduction

How do you see the/your role of a manager within a Lean organization?
In my opinion the manager needs to be someone that keeps track of the lean organisation, give support to the employees and give support so that they can work good and according to the lean philosophy. He or she should know what people have to do and monitor if they did that, using with dashboard (indicators). Lastly they should give assistance so that they can work in an efficient way.

Do you see your own organisation as a Lean organization? Why?
The company is a Lean organization. However, in the past we were much more Lean than now. In the beginning there was an intense Lean change and implementation, after many years we have kept the most important things from lean, but there is just improving the current production and flow incrementally. We still use much of the product value indicating tools and the dashboards. This gives us clear information and insight if we reach our goals which is Lean. The incremental improving is created through talking about where we can improve and subsequently keeping the constant flow and make it go faster. At this moment we are trying to go a bit deeper again, but till now we have lost a bit.

As of when did your organization start implementing Lean principles?
We started with Lean in 2005 and 2006. In 2007 and 2008 People where there for consulting after which we implemented a very strong Lean philosophy. From 2012 the strength of our Lean management decreased. Like I said, we are currently trying to get back on track of where we left, to add more value to our product again.

What have you done differently since your organization made the transition to Lean compared to the situation before?
We give more clear information to the employees and they work with the dashboard and the method 5s. Additionally we have a higher production capacity and a better control on waste. We try to not have so many things in stock and to have a process or flow where the machine keeps going. Our goals is to not let the machines stop, because that would mean that they have to be restarted. We still use 5s a lot and have the people think critical using this method.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
He gives a clear idea of how to use the lean tools. This helps with trying to figure out how to give the products to the client faster. This is also the case with the more important managers, they also think this way and give clear ideas of Lean, what it means and how it can be implemented. They say for example that you need to create the products with little to low waste and in an economic way.

u.   On what specific behaviour are you basing this?
Clarity and clear information sharing with employees and conformity and agreement with the seniors and other managers.

v.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes it is very different. Like I said, we don't use lean anymore, but all the good experiences and outcomes we had are due to lean and we have kept those. For the manager to give very clear information, is very important and is something we gained through the Lean philosophy. We are also very open to ask investment to improve the quality of the product, so this goes also up to the higher management. When there is a good idea for an improvement in the factory, the department or team will discuss this with their team leader who can formulate this to the middle manager who has the power to make a proposal for the change and the necessary investment.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Clarity when you are expressing yourself, respect for the people, each for each other or everyone for one another and giving/generosity. Always very clear and direct with informationsharing. He is disciplined and strict, in a good way and consistent. He makes a daily plan which is very correct, detailed and clear so that people exactly know what they need to do that day.

w.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think yes, because if the entire structure is not clear, the manager cannot give exact information. If you don't have a good structure/base, they will have holes in the system, people don't know what to do and you create doubt. Then everybody starts to get opinions and that will result in conflicts.
As structure, clarity and knowing what everyone should do and keep their eyes open the above mentioned problems do not occur. The elements are something the middle manager has learned through Lean and therefore are very Lean values. Without the help of these tools, these values would not have been prioritised and become so important within the company. Therefore I think that these values are distinctive for a Lean manager.

d.   Would you like to explain your two choices for the most important values?
"Participation and teamwork"
To have a good team, because you by yourself cannot work alone, so you need to work together. He has seen this and this is something he really values.
He is someone that is always open for suggestions and new ideas for better quality and working together. He shares also the feedback and information with the employees. Good news and bad news, so that the employees all know what is happening.

"High quality"
He wants a very high quality in the products. He tries to explain this to the teams, about the good quality so that everyone has the same vision.

e. Would you like to explain your two choices for the least important values?
The values that are less important, don't mean that he is a bad person.

"Self-reflection"
Firstly his self-reflection may not be his highest priority. He is just so focussed on the quality of the product and improving all the time that he maybe does not see the behaviour of the employees. Maybe they are tired, but he does not see, because of his focus.

"Freedom of choice"
The interest of the company is always priority and not the well-being of the people.

f. Did you experience difficulties while distributing the values? If yes, how?
It was definitely not easy to do this and if he had more time I may have been able to do a more accurate/better job, but this really shows and gives an image of how the manager is.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
There is an example of a moment not long ago, in a production line with a very clear stream. They had to do maintenance on a machine in another department. At the same time we had to produce the products that usually are product by the machine that is currently under maintenance. The employees in the other department, that was not under maintenance, did not know exactly how to make the product, because they usually do not produce that product. They did not know how to do this type of product, but the manager stood in front of everyone and explained in-depth the process and steps of how to create the product to the employees. He did not say "you just make the product and we'll see", and just leave them to chance, he took the responsibility and was the one who kept control. He said very clearly, "we are going to do it like this" and stood there during making the product. He pointed out what could go wrong pre-emptive, in order to not let it happen. In addition he fixed mistakes immediately when they were made, hence in little time they were able to autonomously produce the product. The results were very good and the process went very well. Doing a product they had never done before should be difficult, but it went without a problem. And we also could deliver the final product also on time, without problems with the client.

When did this situation occur?
The last week of July 2018

What caused this situation/what did he/she do?
He had a very good organization and planning, which is very clear. This could be negative in these kind of situations, because the maintenance could have meant that this very structured line would have been out of order. The fact that the manager kept everyone involved with the problem everyone could help and contribute to the solution. He did not see it as a problem, but as a challenge. They put more control and personnel so that they did not have so much waste. If you are making a new product with new people/machines you have to put an extra control.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.

He took the responsibility over the problem, which he saw as a challenge and kept the control, but at the same time he kept employees also involved and letting them contribute to the solution.
He gave an in-depth and very clear explanation to the employees. He also stayed and helped until they knew how to do it by themselves without making mistakes. While standing there he mentioned how certain things could go wrong and how to prevent them from happening or fix them.

The manager prioritised the customer and did his best to deliver the final products on time and at the same time he took into account to not waste a lot.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **Took responsibility**
– **Was positive, by seeing it as a challenge**
– **Showed that he had everything under control**
– **Involved the employees and letting them contribute**
– **Clear explaining, to have a good final product, but also not waste too much**
– **Was on the work floor to support them**
– **Kept the final goal and the customer in mind**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think "yes", that because the manager has a lean basis, he has a more open mind to take some values that lead to behaviours that make this situation better. Another person could do the same even if he is not lean, because it comes from the values (his open mind). Maybe a non-lean manager does not have such an open mind and this mindset will never be encouraged if it is not in the company culture or philosophy.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
There was a very strong sense of team work. Additionally, share the challenge with the other team members and how to deliver the product to the customer right on time.

Which specific values where shown by the Lean middle manager in this story?
– **Team work**
– **Customer focus and responsibility**
– **Trust in people and getting the best out of the personnel**
– **Share information**
– **Helpfulness**
– **Creativity**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
The values in my opinion have a Lean basis, is derived from the Lean philosophy, and therefore it is typically Lean.

X   Team 3, Middle manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am the Product supervisor, my seniors are the president, director, general manager and coordinator. I am the "Supervisor"

No Subordinates: **I have a total of 90 subordinates.**
Responsibilities: **I have targets for the production, which I have to supervise and check whether or not everyone meets his or her targets. I am also the one who creates the targets for the production. Additionally I am in charge of check the cashflow, the quality of the products, and the security of the employees.**
Since when in org: **I have been working for the company for 31 years, since 1987.**

The Lean organisation
What is, according to you, a lean organisation?
It is an organization with a kind of program where you need to give value to the product for the client. The client is not responsible if you have a very high stop and waste, so you do not let them pay for that, on the contrary, you try to reduce it so you get more revenue. With high waste you will lack value for the client for which the client has to pay. A Lean organization has gotten rid of this waste.

How do you see the/your role of a manager within a Lean organization?
I think as a manager you need to give an example and come with a plan, which you then tell your employees. Furthermore, a manager also needs to follow up on the plan. Practice what you preach.

Do you see your own organisation as a Lean organization? Why?
The organisation is not yet completely lean, because we have more than 3000 different types of products, and you cannot make all these 3000 product fully Lean. Another big improvement opportunity is that after the product are done, they have 20 days that the products can stay in the stock, but because they usually start to negotiate the product with the clients only in the end of the month. That is Brazilian culture. Sometimes you have too much in stock because of this.

As of when did your organization start implementing Lean principles?
We started with Lean management in 2005

What have you done differently since your organization made the transition to Lean compared to the situation before?
Now the production has a flow from the production and now they try and put departments together, before they were all separate and now they try and create a flow and put all the department together.
The difference is that they have a planning to follow the production. Together with the team I have to follow and be more productive, with the planning and monitoring. They try and become more productive and make more products in less time than before. This has already changed a lot.
One time per week they do a team leader meeting. They take the production planning and then the team leader will evaluate, how where to days of the production and how it went. Whether everything went will, and if they need to change something, need more or less people and more time and so on.
Before they did not to these meetings and with the a3 now they do meetings and evaluate based on the a3. They started with these meetings last year April. They gave his team autonomy that he can make decisions with the team not having to justify the ideas/decisions with the higher management.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
I think perseverance and that I really go for my goals. I see the improving as a challenge, because I am working with and leading the a team who is running the production line, I try to effectively motive them.

x. On what specific behaviour are you basing this?
–   **Persistence**
–   **Seeing everything as a new challenge**
–   **Having a new planning every week always actively motivating the team to do their best.**

y. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, I thinks that a company without Lean is different. For example, now I needed to stop a machine that was working on products, but was not good, it damages the product. I could decide to stop the machine and a little bit of production was not produced and time was wasted but I could solve the problem so that the overall products where on average less % damaged. In an non-Lean company that would have just continued and there would be a higher % damaged.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
I think family in life, but in work it is important to follow the regulations of the company, security in the work, quality, and I have 90 people that work with me, I try to treat everyone the same, so justice and respect.

z. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think it is distinctive yes. I like to treat everyone the same, which in my opinion is something very Lean and in non-Lean companies it is not so obvious for a manager to do that.

d. Would you like to explain your two choices for the most important values?
"Participation and teamwork" and "Trust in the people" because you have to do it together. The employees are the working force from whom you have to learn in order to improve. Once you do not have to work together with them and trust them with the work and keeping you updated, you can work together to improve.

e. Would you like to explain your two choices for the least important values?
"Self-reflection"
I do not think it is necessary to reflect on yourself. Aiming for the goals and strategizing your personnel is better for the results. That does not mean self-reflection is unimportant.

"Freedom of choice"
You should work for the greater good of the company.

f. Did you experience difficulties while distributing the values? If yes, how?
No not really

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
There was a situation where different departments had to share some machines. One out of four machines which are almost last in the manufacturing line. There was a customer that asked for a very specific product, so because it was a really big order, it was planned that one of the four machines would just be used for this one customer to make this special order. It had never happened before that one machine was used for one special order, but afterwards I showed the results of this unusual step. The usage of just one machine for a

special order had never occurred before, so the team leaders needed an explanation to justify this plan.
When I explained about the product and profit, the employees gave more attention to the machine that was only doing that product.

Additionally there is also a procedure for when that the machines are producing, and two times per hour they stop the machine and check the quality of the produced products. There is a sample/product taken and the quality is tested. They put this example that is graded with a very high figure for display on a wall and then everybody can see this product which is a perfect product and is an example for everyone to follow. This happens 16x a day. The employees will see the product and think that everyone takes this as a measure and strive to produce the same quality.

When did this situation occur?
For the second example, they started with this sample display procedure last year June. We also do it with the metallic oven and 4 times a day we have to check the chemistry, components combination of the metal.

What caused this situation?
I wanted a faster way/vision way of producing. People seemed to be needing clarity and by having a live example they know the standard. You just check the quality real time and try to fix it. The team leaders also do the process parameters analysis two times a day. That was also the aim with the special order. By making that one special order with on machine and the same staff, there was consistency and increasing speed and skill.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
By creating the special order, I listened very well to the customer, hence I created value. I had a clear plan on how we were going to do this special order, I standardised the process, even tough is was more or less tailormade, to increase producing speed. As it was unusual I tried to clarify the importance and justify my decision mostly to get the team leaders on board. Lastly I showed the results. On the other hand I also was active in an overall quality check with standardizations and giving a visual quality measure.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **Listening to the customer, adding value to the product**
– **Clear information sharing**
– **Giving clear goals and direction**
– **Justifying my decisions with figures**
– **Getting the team on board**
– **Letting the team create their own standard and giving them autonomy and trusting in them.**
Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, because with the standardized example we see immediately what is happening. We could always stop the machine to redo the product, maybe this is not something that is done in a non-Lean company. Also the listening to the customer may be something really Lean. Some companies prefer to have quantity over quality and want to produce as much as possible, so they would never occupy one full machine for one customer with a special order.

Values
Which personal values where dominant in this situation according to you?

Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

The quality control, because they some sometimes to see the quality, and that is putting value to the product, giving more quality.

Which specific values where shown by the Lean middle manager in this story?
– **Quality control**
– **Value adding**
– **Quality over quantity**
– **Creativity**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes because this example shows the importance of a company it's value, the quality of the product to the customer. However, you need to have a vision. To keep/get the customer satisfied.

XI   Team 3, Team leader 1

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am in production facility or a product facilitator

No Subordinates: **I have a total of 20 subordinates**
Responsibilities: **I take care of the people that work for me, they do a program and I am responsible to deliver the product on time according to the program they are in atm.**
Since when in org: **I have been at the company for 1 year and 9 or 10 months, since 2017**

The Lean organisation

What is, according to you, a lean organisation?
A lean company for me is a company that needs to work with the Lean philosophy. You need to realize the process/procedure according to Lean

How do you see the/your role of a manager within a Lean organization?
The manager receives an idea through the Lean philosophy or somebody above him and then he/she has to tell the idea to his employees.

Do you see your own organisation as a Lean organization? Why?
Yes, because we work with 5S to give a continuous flow within the process and to keep the quality high. There is a way when we are working I can see the problems/difficulty during the process and there is a way for me to resolve them together with his team/people. To me this is the lean way of working.
We also have a project that is called "Change project". They choose some people from each department and they gave a training in the Lean mentality and they change the mentality and go back to their team to become a team leader with the Lean mentality.

As of when did your organization start implementing Lean principles?
The company started with Lean in 2007

What have you done differently since your organization made the transition to Lean compared to the situation before?

Yes, when I started there we started to do more visual controls which helped with the process. Through the visual controls we could see that we had a kind of machine that did a component of the product, after the piece is ready the employee picks up the product with his hands to bring it to the other machine. The employee asked for a car to bring to the other machine. This is more safe and easier for the employee. You can see how employees are looking more analytical to their own work activities. In addition, the company gives premiums to employees that have good ideas, and this employee got a premium.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
If you have a problem and you go to him with the problem he always tries the fasted way to solve the problem and he also asks for the employees opinion about the situation. Even if the employee already has an idea to improve or solve the problem he still consults the others how they see it of feel about it.

aa. On what specific behaviour are you basing this?
He listens very well and takes our suggestions serious, but he does want input from all of us. He is very open and easy to approach for work-related questions and suggestions.

bb. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, the other company that I used to work in did not have Lean. Hence, I see a big difference between this company and my former company. For example, the manager of this company worries a lot about the quality of the product and his employees which I think is because of the Lean philosophy.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
– **Quality of the product**
– **Security of the people and the team.**

cc. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, I think they are different from non-Lean manager values. I think that the difference is that in companies that do not have Lean, managers are only thinking about the quantity and not the employees. In those companies there is a lot of working extra hours and low quality, stock surplus, and bad employee work balance and quality.

d. Would you like to explain your two choices for the most important values?
"Trust in people"
He listens to you and also always asks the others about their opinion on the topic or idea

"Customer focus"
The 5S is very important and additionally we strive for very high quality to have value for the customer.

e. Would you like to explain your two choices for the least important values?
"Sharing information"
He listens very well, but he does not necessarily share his analyses if it is not important. He does explain when people need to hear why a change is happening.

"Self-reflection"
He focusses a lot on results and improving the product flow, so reflecting is not necessary.

f. Did you experience difficulties while distributing the values? If yes, how?
No not really

<u>Critical Incident Technique</u>
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
Well there was one of the final machines in the production line flow of the product. This machine is used to merge the product using the graphite. The manager asked why the product needs the graphite and what the exact amount/quantity of graphite needs to be. Nobody knew how to answer this question and then they started to look why this is used. It was found that the graphite is used to lubricate the faucet after which they found the right quantity of graphite. They found the right quantity because they could observe/see for every finished product if it was drying to fast or good and so on.

When did this situation occur?
Somewhere this year in 2018.

What caused this situation?
The managers' observing and asking questions. It was this influence from the manager, because the manager taught them to think in a Lean way, and think more economical. And because the team leader learned from the manager and he did not want to waste and found this solution. It was also a way to not have so much waste.

<u>Behaviours</u>
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
He started with questioning our workways and gave us the space and time to reflect on our product and process. He listens to us if there is a good idea, so we tried thinking economical and with less waste by standardizing.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **He accepts very good the ideas and listens**
– **He is very open towards ideas for the employees**
– **If an idea is good then he asks he superiors if the employee who came with the idea of he can develop him/herself more**
– **Together try to develop the idea, the employee get autonomy in that way**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I do not know, if these behaviours are typically Lean.

<u>Values</u>
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
He respects is people and gives the option to really give input in the process.

Which specific values where shown by the Lean middle manager in this story?
– **Providing quality**
– **Flexibility**
– **Utilization**

–   **Respecting people**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, because the mentality of lean is to constantly do something better and better. These values create an environment where we can constantly improve.

XII   Team 3, Team leader 2
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am the technical process leader

No Subordinates: **15-20 subordinates in my team**
Responsibilities: **Making employees satisfied and reaching a high/good quality for products**
Since when in org: **Since 1994 (24jaar)**

The Lean organisation
What is, according to you, a lean organisation?
A kind of organisation that gives more value to the product. Additionally it creates better logistics of the product.

How do you see the/your role of a manager within a Lean organization?
A Lean manager is someone that looks for new ideas and who helps his subordinates.

Do you see your own organisation as a Lean organization? Why?
Yes it is a Lean organization. There is always a continuous flow in the production and there is very high quality.

As of when did your organization start implementing Lean principles?
The implementation started in 2007.

What have you done differently since your organization made the transition to Lean compared to the situation before?
I am trying to keep in mind how the system works to not get of track of the Lean ways. Additionally, overall the flow is a lot better and the productivity is also better. If they have a product, after it is packaged, it goes immediately to the customer, it is not left in stock for a long time. Before it was not like this. Before the product had to go to a department and had to wait in stock, after which it went to another department and was edited/value was added, after which it was put in stock again. That is not the case anymore

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
Because he hopes and tries his best to keep the flow going

dd. On what specific behaviour are you basing this?
–   **Determined**
–   **Create a flow**
–   **Easier to give feedback**

ee. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

Yes there is a difference between Lean and non-Lean companies, but I do not know an example, because I have never worked in another company.

Values

Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which personal values do you consider important?

Transparency, respect, humility, trust in people. Security of the people from machines, quality and simplicity of the people

ff.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

Yes

d.   Would you like to explain your two choices for the most important values?

"Participation/teamwork" and "Trusting people"

There is very good contact between the manager and us team leaders. He often discusses his ideas, asks for input and lets us advise him and more practical matters

Would you like to explain your two choices for the least important values?

"Potential of the 'normal' employee" and "freedom of choice"

f.   Did you experience difficulties while distributing the values? If yes, how?

No not really

Critical Incident Technique

For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?

An example of a successful moment could be: when the 'click' is made and employees actually think Lean.

The team leaders had contact with the manager about how the production should be just one track/flow without stops. Initially the process was not connected and now it is one track. And now it is much faster, with a better option of giving feedback, because it is only one track. As everything is in one track, they can see more clear if there is something wrong with a part of the track/product. When we see a problem or defect we can immediately (re)solve it. They stop the track, see what is wrong and repair it right away.

The manager is from another department so the team leaders had to explain an option to improve and also instruct him.

When did this situation occur?

This has been ongoing for a long time. The instructing was not so long ago. Like a month

What caused this situation?

The drive to create one flow and to be able to standardize and to have a clearer overview of the production line.

Behaviours

What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?

Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.

Listening to the employees and wanting to understand the process in order to be able to improve.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?

−   **Listening to employees**

– **Having an open posture**
– **Acting upon request**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
It should be because improving logistics is important in Lean and without those behaviours it would not be easy to improve.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
He accepted the idea

Which specific values where shown by the Lean middle manager in this story?
– **Acceptance**
– **Recognizing and valuing employees**
– **Improving**
– **Teamwork and trusting the people.**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
In order to succeed as a Lean organization, this is necessary.

XIII   Team 4, Senior manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Nowadays I am a manufacturing operations senior manager at whrlpl the we have. I am responsible for all problems of the WCM at the joinville plant.

No Subordinates: **I lead 12 pillar leaders and for each leader we have two successors so that is 36 direct in total and below these guys you have more people working like engineers and etc, this is for the WCM concept. Looking for the operation I have 3 more managers reporting directly to me, so 1 manager for utility, 1 for installations and maintenance and one for logistics and logistics engineering and one other manager for controls and inventories, using financial and etc.**
So 3 directly reporting managers and 12 pillar leaders. 3 of these 12 pillar leaders are also senior managers, so we are partners but I lead them because I am head of WCM.
Responsibilities: **As a manufacturing senior manager I am responsible for maintenance, utilities and instellations, logistics, logistics engineering and wcm, that is the new type of lean manufacturing we are moving for the last two years, we changed the Lean manufacturing to the new concept of WCM (world class manufacturing) from the professor yamashima consulting and etc for office and now we are leading the wcm at joinville plant, so now I have this kind of responsibility nowadays at the joinville plant, which is the biggest plant**
***difference between Lean and WCM (World class manufacturing): that is a very good question, I have worked with Lean manufacturing since 1999 so that is since a long time and I think its not so much a difference as it is the evolution of Lean management. It is the concept that professor Yamashima and fiat and Chrysler automotive, they brought this kind of automotive in the fiat plant and they had a separation and it's a kind of lean manufacturing revolution as it is more neurological and very effective and indepth, you go as deep into the material as you can, so I can explain an example for you. I had an accident in the factory where a guy was using a forklift and they crashed in the pillar, so we studied**

what happened with the guy and try to understand the mind of this guy for the operation using some devices to understand the waves of the brain and what is the best time to make some stops to rest a little bit and to recover the concentration and etc. so it's a lot deeper and even more neurological than Lean manufacturing. We divide it in 10 pillars and the Lean manufacturing does not use these type of methodology, there you just use the tools, so we now use one leader for every pillar and in whirlpool we have 12 pillars and I lead every leader of one of these pillars.

Since when in org: **I myself really started with Lean manufacturing at whirlpool 15 years ago. I started working at whirlpool in 2004, but have been doing lean since 1999 at docol.**

The Lean organisation
What is, according to you, a lean organisation?
A lean organisation is an organisation without any accidents but that is not a lean concept first of all we always are looking for safety because safety first we don't have any accidents and we need to look like that. As a lean manufacturing company you need to have like a very optimised supply chain completely looking for the suppliers and our customer and the return of our products for the environment so we need to look for the whole chain and as much optimised as you can is lean manufacturing company or wcm company.

How do you see the/your role of a manager within a Lean organization?
...I think for lean manufacturing you need to look for the implementation you need to be a kind of religious Guy with a book on our hands and trying to change the culture all the time and the highest part of lean manufacturing or wcm in any transformation is the changing culture. So the change management of this kind of manager of this kind of responsibility of this guy I think it's the most important one we can have a better Guy to understand it tools . the best guide that can apply the tools but to put this kind of concept and this kind of culture change in the head of the people is the hardest part they need to see to believe because of that we use the concept, using the model area. We start doing it in a Small Part and we choose our highest problem and we apply this so if you can solve the problem the big one then the worst problem can be solved everywhere show this as an example and change the mindset of the people because they will be able to see and believe it so that is the most important part for a manager that works with lean manufacturing or wcm etc..

Do you see your own organisation as a Lean organization? Why?
...I do always compare lean with Toyota so Toyota it's the best one I'm also going to Toyota next week to do a benchmark with the company to understand them better and of course we are not wcm or a perfect lean plant or company. This is a very important part wcm we have an assessment and a score so professor yamashina came here 8 times every 6 months so every 6 months the professor came here and we had an assessment and we had a nice score dividing on the steps and the of the management Pillars so we achieved some scores like 50 points we have a bronze level after 60 points we have a silver level and after 75 points we have a gold level and after 85 you can achieve world class manufacturing. So we are applying Lean manufacturing since 2003 and we start with wcm since 2 years ago and we are going for the 4th and we are trying to achieve the bronze level this time so you can see the high weight we've been working towards achieving world class manufacturing because we're not a lean manufacturing company but I think we are going on the right way..

As of when did your organization start implementing Lean principles?
...2004.

What have you done differently since your organization made the transition to Lean compared to the situation before?
I think I changed a lot my mind about lean manufacturing so I'm reflecting on myself and looking at me in 1999 and learning about lean again since the beginning the first safety pillar again using the score and the accident that the company had in the past and we dig very deeply in assessing doing risk analysis in the human nature why this could happen so

I am learning lean manufacturing again. so it's kind of the beginning to ask at the beginning.
It's like a one year old starting to walk again.
Changes for example are we change from being primitive in the past comparing our previous process to the current one so we had a great evolution a great transformation and I can imagine how far we can go so it's completely changed it's a completely different company.
Examples of literal change we had a worst record with safety and now we have two years without any accidents in this area and also no lost time accidents and that's the part of these results. In the last year we reduced to costs of the manufacturing in 19.5 percent so can you imagine in 19. 5 percent of cost reduction in one year so it is very impressive....

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
...Paolo is one of my engineers leading one of the pillars he is one of our leaders he is leading working place organisation and we are maybe thinking to change his in our areas. He did a very good job looking for the virtual planning in the end of 2018 maybe he is going to be a very good leader in this area so if you did this kind of interview with Paolo he will be lead for another pillar.

gg. On what specific behaviour are you basing this?
...He is a very flexible Guy he lead some projects in the past very technical ones about installations and etc he's a very discipline Guy he studied a lot he's a calm men. During very difficult times he is calm. I love Paolo's way of working as Paolo's leader I have confidence for any problem I can put for Paolo or create Paolo as a leader so that is one of the behaviours I have 4 Paulo he's a great guy..

hh. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
...Yes as a workplace organisation leader Paolo a contacts with the logistics area and another manager he reports directly to and she needs to have a very linkage with Logistics and a.m. autonomous maintenance and working place organisation in leaders of the assembly line and their point of view and followed very much. Paolo is very interesting Guy as I told you for the primitive process we used to have it was an assembly line and we need to work and the product concept and not on the manufacturing concept. He lead the guys of the product development and he had a very good influence for all the parts in the company that's because he has some behaviours that makes him good as a leader at whirlpool and gives him a great future in the company I believe he will have a very good and successful future a whirlpool.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
...For me Paolo is one of the examples in terms of values of the company so when I'm looking at the company values the most important ones are inclusion, respect, integrity and he has all of these so he is a role model when I'm looking at the engineer's or in other words the same level and etc and is an example for the managers and senior managers to. I have a joke with Paolo and I always tell him that he is the boyfriend for my daughter to have I would like 4 Paolo to marry my daughter. An example is of how Paolo teachers, leads and develops the people who work with him so he respects all the people and there is no difference between people above and below for him he works in the same way and he always looks towards system operators and blue colours and the director of the plant the same way and as I told you when I have some stressful parts for a project and etc Paolo is always in the same level a very clear to speak with and to talk to like sometime I

am desperate and Paulo is very calm so I really understand how he does that but he is one example when it comes to values at the company. So he is one of the role models..

ii.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
...Yes but not all the leaders at the company work with lean manufacturing but the company has that kind of knowledge so Paolo is one that has this different compared to the other ones so of course if you have this kind of concept you do it different and you have like more acquisition with the leadership and nowadays Paolo is like reporting directly for the director of the plant because industrial planning is with him directly with him and Paolo is leading this part this is the guy who is a different mind in a different way to lead so Paolo very important for us and the lean evolution.
He is different in a way that he already had a set of values in his life that are very good for lean management but additionally the values from the company he also adopted nicely therefore these values are based of a lean philosophy making it good that he adopted these and that he can be a better lean leader
Because he knows this philosophy you can understand and explain to the people very well and apply and changing culture using the Paolo way of teaching and leading. It's not easy when you get in the area like an assembly line that you have a specific manager responsible for this assembly line and another manager for another assembly line in another area who is maybe younger this will make a lot of difference and he had this kind of exposition so when Paolo can manage this very well you can use all of these concept using the team work way. He is a very Humble Guy going for the easy way over the manager of a assembly line is looking for Paolo as a person but you can have some problem or that getting this way your situation for the manager. They will go to Paolo for the problems so they really trust him for this..

d.   Would you like to explain your two choices for the most important values?
...Respect for the people and integrity
Integrity is in terms of just??? So that's the part that I told you it is very similar to integrity like Justice and honesty and etc Paolo is always working on the way we always say like the way that we can move and that we have like someone from the lottery. In one side we have laws and on the other side the company values and the rules so we need to work and walk in this kind of way and he can walk in this right way very well so it's that bad of integrity a lot of integrity and it's part of the respect to.
His respect and development of people etc that's what for him is important it's the most important for him. I think you can do all things in terms of core energy and high performance people and etc but if you don't have integrity and respect you're not working in the right way so for our company we are not working with you or hiring you if you're not integrity and you don't have respect for the people.

e.   Would you like to explain your two choices for the least important values?
...Potential of employee and feedback. Yes because Paulo is not leading people he is leading of course people who are working with him but he is not directly managing because nowadays is not important for him I think for his next step it's going to be one of the most important parts but nowadays is not important it's least important then compared with the rest. This is mostly because of his role right now so higher-level manager should have this values stronger.

f.   Did you experience difficulties while distributing the values? If yes, how?
...It is not easy because everything is important so if I look for me it would be different than his but it's not easy because for me all of these 24 values are important none of them are going to be on the left side as most important.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?

An example of a successful moment could be: when the 'click' is made and employees actually think Lean.

...I think he is a lean leader every single day working every day using this concept he is focus on lean manufacturing and a concept of the working place organisation and for me 1 very good example was when we receive the feedback from professor yamashina he told us about our primitive process and Paolo was responsible for that after that he had 6 months to work again with our team and our team was very sad with what they heard from the professor and we did a great audit for the next time so he he recovered the team I showed it to the professor with very good property and how our Revolution was how we understood the professors feedback and he encouraged the team to move the company forward. There is the most important example from Paolo. he showed much transparency and courage is a team leader.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
It was after our first ordered with professor yama Shima which was October from 2017 and a second audit was in April of 2018 and he followed up showed his improvement and changed the game
What caused the exact situation well at first it was not easy for the team and neither for the whole company but he had a very good paper in this way to lead the working place organisation this was one of the most difficult areas and more critical feedback to the primitive process and he changed the game so it was not easy to lead the development leaders and assembly line leaders and assembly line manager's and etc so I think that it was a very good example of him as a lean leader and the challenge that he had the last week's.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
...For me he believes in process he believes in the tools he studied a lot he is very confident in technical terms he knows what he was doing so I think that's the part did he is very important.
When you have this knowledge it's the easiest way to lead in like I told you he's a very calm guy so that is part of the behaviour that he has and gives him this kind of success in terms of the working place transformation and then I can compare with myself I'm a very nervous guy and a very accelerated Guy so to compared with him so maybe he was better for changing the assembly line then I
The way of his leading caused the success in the working place organisation..

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes this is a typical behaviour of a lean leader
He asks a lot he developed the people that's the part of the people MGMT. Is not behaviour but it's the way to lead and and as a lean leader so how you develop people how to ask how to go to the Gamba go to the shop floor to understand the problem that's the way and Paolo does it very well

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Think it is respect all the time is part of the respect to understand two people to deal with people that's part of respect and teamwork

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

Yes all of that are lean leader values if you study lean manufacturing in the past comparing with professor yamashina way back in time at some moment it's not easy to understand that that is part of the Japanese culture comparing with Brazilian culture it's maybe we can consider respect to lead but for a Japanese guy when you do something like that it's not personal it's just to improve the professional Guy and the Brazilian way it can sound like a not good way so when I compare lean manufacturing leaders in the past in Japan the respect is not the best part it's the most important in Brazil.

XIV   Team 4, Middle manager

Can you briefly tell us about your position within your organization?
(number of subordinates, responsibilities, since when?)
3years this position, manufacturing supervisor (focus on engineering). There is one team that focusses on lean and Paulo leads all the lean leaders within the team.
Since last year back to lean manufacturing, leading the assembly line and WCM/WO[9] leader. WCM has technical pillars
After this year focusing more on WO, in combination with Lean manufacturing
Leader of transition that uses lean manufacturing tools like (....), 5t, 5s yamazumi chart, (no) value added activities. Implementing these tools in his current position.

2:05
Now in a position where responsible for defining what is our model area and increase our model area in the activity using these tools. And responsible for the expansion of the technology for all the development

2:30
Lean is still used besides WCM/WO?
Yes, we use lean tools inside of our WCM, because it is not different from lean, WCM more for accidents accidentoil, for example with Latin people, who are not disciplined, so they need to have some kind of competition and this is the way that WCM drives our company for example. It is easy to compare one team/plant with another one. And its easy to share some information, because it is very logical, the application of WCM. But the base of the plant is lean manufacturing.

3:25
How many subordinates?
Directly two guys, but I am working with all managers, for the expansion, so we have 4 managers that we have meetings with them to understand the ..., because each manager is responsible for one business unit and this business unit/... expansion of my work will happen besides these business units, so I am not the responsible for this business unit, but I am responsible for the methodology, that these managers need to use to expand the methodology.

Lean organization
1. What is, according to you, a Lean organization? (4:29)
Well, I think a lean org, is mainly its to dive on top of the organization. It starts with our president and the directors thinking that this is the ...
5:10
If we have one road map for projects and the middle of the roadmap will have something that a new way that the company needs to go, I really think that they need to think, this is lean this is the same line of WCM
        So they really need to breath the philosophy of lean and need to live it to show the example to the rest of the company.
Yes this is what I think.

2. How do you see the role of a manager in a Lean organization? (6:09)

---

[9] wcm world class manufacturing and workplace organization

I think it is the same, we need to study a lot and understand the concept and philosophy of lean and the WCM to drive the mainly the gambas that we …. To with our supervisors and the first managers, we need to get the knowledge from them and drive the organisation in that direction, looking for the whole philosophy. What I am responsible for, I need to think about lean, I need to think about upscale management, work with this. So I need to look for a lot of/some workstations for example, I need to think that its lean this part or not, what kind of tools I need to use here in order to solve problems and …. I think it is possible to have a lean organization, because as a manager having the discipline is one of the many/main important things of cultural change for example

3. Do you see your own organization as a Lean organization? Why? (7:27)
I think it is not a fully ready lean organization. It is heading there, in a way.
- *But you have been doing lean for such a long time already? It's been since 1999*

Yes, I think it started 2003, yes 2003-ish we started with Lean, but how I told you, we were not so, we did not have a lot of discipline. And we start with 2003 and then I think 2013/14 we closed one of our parts that are WPS (whirlpool production systems) we have this one area of people and this area stopped working. So we stayed one or two years until we started implementing WCM, and where without anything. And without Lean and while we stopped with this was really bad for the company and bad for the factory. Because we lost a lot of knowledge, we stopped using tools and I think that is why now we did not have a lean organization, but its on the right way, I think we we start in…

4. When did your organization start implementing the Lean principles?

5. What do you do differently since your organization made the transition to Lean compared to the situation   before?   (9:10)
The pace and the rigor of the .. for example, we have the meetings to roadmap and all the roadmap are now lean discussion with more methodology. I think when we have more kinds of methodology it is more technical our discussions and when whirlpool decided on WCM will be the way of the manufacturing to go, everybody started thinking about it and of course with some difficulty, because of the tools that not everyone is trained in and this is the process to increase the knowledge of our people, but we started… I think we were on the right way when we started looking for the shopfloor and not just the transformation of the shopfloor, yes the transformation of the shopfloor is important, but the people on the shopfloor are being the responsibles for some change. So you can look for the leader of one small area and he/she starts thinking about lean and starts looking for "oh that way is not the right way", "I have some losses there", "I have some losses at another part", so they start talking about some methodologies and looking/changing their eyes.
- So you say there is a lot of doing by the books, but that is the management and additionally you want to have the shopfloor people to also look for improvement. Is it through trainings that these people are more aware or is this something you want in the future and is not happening yet? 11:00
Its happened, it is already happening since last year we are training but not everybody, just team leaders.

Leadership 11:23
The research focuses on effective middle management in Lean organizations.
6. In your opinion, why is this middle manager an effective manager?
  a. *What does this middle manager do specifically what you think?*
    The first part is belief and to not give up that the way you work today is the best way, so we need to change some things, some parts, some way of the work its not easy to make a change. So I think the first part is to believe and to understand that this is the best way to work, but its not the easy one in the beginning. So sometimes its easy to say, OK, lets give up and lets continue the way we have already worked since the beginning (go back to the old way and not change, its easier). But I think this is the first way, and the second one is to not accept the things the way that they are. So we need to look for

everything and know that they can be better, so these are, I think, the main behaviours that you need to have to be a lean manager.

- *With belief, you mean belief in the philosophy of lean or belief in the people underneath you, or how can I interpret that?* (12:40)

I think its both, you need to belief that the tools really work and if they are not working now, or if you don't get results now it is because we are learning and did not get the results yet. And you can look for results now, but we need to know that this is the way that we know that it worked in other plants…. We know that it is the best way, but sometimes we need to change a lot of things more for people to look resultsfocussed, that is why I say that we can't give up, we need to really believe that the way is not easy but it is THE way.

b. Is this distinctive from other middle managers (in other non-Lean organizations)? (13:41)

I think it is different, not all middle managers think like this. I know that the people who have passed through lean and sometimes they have lost this belief, because they think "I have already looked through this way, this wave has passed whirlpool 10 years ago and now we have changed for the other wave". So sometimes they know that in the… they did not talk about it, but in their conscience they think this and have this mentality. So this is not a good mindset and people need to belief. But it is because they have other experiences, past experiences, you know?

Definition: values are 'convictions that someone carries with them in all situations as a guideline for his / her actions.' An example of values are the ten commandments, or a value as 'honesty'. 14:54 – 15:46

Definição: valores são 'convicções que alguém carrega consigo em todas as situações como diretriz para suas ações'. Os dez mandamentos são exemplos de valores, assim como 'honestidade'.

7. What personal values does this middle manager consider important?

So first of all, we have our company values and driver company and drive some of the decisions of the company so I think we need to share and its important that you as a manager really accept and really belief these values, so if you do not belief in the values of the company, something is wrong with you, well I don't know, if you are not happy working on this company, because when … you need to pass through your values (change your values?) you cannot be happy. This for me, the definition of values I think that if you to do something differing from your values I think this is bad for you. You cannot do this and go home and sleep and sleep well and think that everything is OK. So this for me is the best definition for values and do you want me to give some examples of values?

- Yes (17:13)

I think we have to have the spirit of winning, you want to win every day and need to want perfection, you need to come here and win the day and make every day better than yesterday. And I think another one is integrity, so respect and all of this together. You need to talk with shopfloor people and with the director for example in the same way and with the same respect and talk with women and boys and other kinds of genders and with this same respect and so I think this is very important when you have a lot of different people. In Brazil we have a lot of diversity in classes, so it is really divers.

So you mean equality (18:25)

Yes, so we need to treat everyone in the same way with equality. If there, because the're very different people you so you need to have empathy for all of them. So empathy is I think is respect, its both of them together, because I am not hungry, but sometimes there is people here with their kids and without a place to stay and because they did not have the opportunities I had, so we need to have this empathy and understanding for some problems that the people have outside of the company. They can not just for get when they come here and work (listen to personal feelings). You are human, a human-being, so it's impossible to forget your life and come here to work.

a. Is this distinctive from other middle managers (in other non-Lean organizations) that you have had?

No I think it is really similar here to the other managers, I really see that our company thinks about it, thinks about diversity, think about respect and talk a lot about intergrety and I think no one of the middle managers can work well if they did not have this kind of balans.

Part 2A - Values
Q-sort (Values)
8. Which values are, in your opinion, most applicable to this highly effective middle manager?

After the Q-sort:

9. Would you like to explain something further to your distribution?

10. Why did you make these choices? Extreme important and not important
Extreme important Integriteit &Nederigheid (t.o.v. de medewerker)
To me People is in the first place, so the values I see in a lean organisation and its culture, then you need to have good people and these kind of people with these two values is the most important is the most important value that you need to have. You must be integrety. Don't look down and thinking what they think, so you need to have empathy and humble.
Not important Moed & Zelfreflectie (1:10)
I think the way that the tools work make them less important, but I think that the other ones, we need to have these values too, but I think the other ones are more important, than
We need to have these types of diverse tools. Not really sure why

11. Did you experience difficulties during the division?
Yes you need to choose just 2 or 3, and all of them are important.

Part 2B - Behavior
Critical Incident Technique
1. Think of a recent specific moment when you contacted this middle manager and (s)he showed very successful leadership. Can you describe this situation and tell us exactly what happened?
A successful moment could be: when the 'click' is made and employees actually think Lean.
There is a moment where there was a behaviour that was really important. We chose a model area and started working over there. When we chose this model area, people couldn't belief or didn't see whats the new way that we are supposed to work. And when we take down one other factory we chose some people and leave them in the other factory, so they see with their own eyes a process that is possible to do. And when some started to belief it is possible to change and when we changed the area and they started working with us, they participated in the change. There was one department where there was almost no value added and they started coming with us and working together with engineers and the other people and started looking at it and what they said and suggested was looked at and evaluated very serious. They wanted to change and they were enjoying this. When we have a problem in the assembly line when there is change they will be the / start being the owners of these work stations. And I think these product/changes and beliefs starts looking at and they start feeling, because they are the owner of the workstation.
[Laura: By giving them autonomy and by letting them see it first handed you think that they also saw it like how you see it and that motivated them to also think more lean and be more motivated. So the thing that actually happened is, was it with the shopfloor employees? Yes, so giving these autonomy to these shopfloor employees from whom you saw potential maybe.
Another example is when we received a business course here, for example, and they were proud to show their area and so proud of the assembly line. This pride is very important to the situation
2. When did this moment occur?

3. What caused this situation?

4. What did this middle manager do at that specific moment?
Definition: Behaviors can be described as 'what leaders and managers do in their work'. Different levels of abstraction are possible here.

> Definição: Comportamentos podem ser descritos como "o que líderes e gerentes fazem em seu trabalho". Diferentes níveis de abstração são possíveis aqui.

¬ Invoke requests and specific behaviors
Look that is possible to change. Belief that the change is possible.
I think it is like a don't be afraid to change, this behaviour is important. So to not paralyze when something is going completely wrong, this kind of behaviour is important. The other one is to be the owner, it not really a behaviour, but the ownership of the area, they (shopfloor workers) need to know they are really important and I think inclusion together with this. And the way that I talk about, they are proud of the area, a sense of pride. Pride because when we did everyone goes to this area and people say they want to work at the area where they work and that everyone wants to work there, because they are changing and improving their area.
Listen to and talk with people

¬ Is this distinctive for Lean middle managers?
Yes, but in the beginning of the change here, when we started lean again, I think they needed to belief again that the change is possible for everybody, also for managers. They need to see that its possible, the real physical change, they saw that its possible.

5. On which personal values did this middle manager hammer at that moment?
Definition: values are 'convictions that someone carries with them in all situations as a guideline for his / her actions.' An example of values are the ten commandments, or a value as 'honesty'.

> Definição: valores são 'convicções que alguém carrega consigo em todas as situações como diretriz para suas ações'. Os dez mandamentos são exemplos de valores, assim como 'honestidade'.

¬ Allow questions and personal values to be named
Respect of the people
Empathy with the people, when we have one kind of position, if you work 8 hour in a certain way and are not in a good economic position
Listen to people, go there, you can talk with the people who are really working on the shopfloor
Show them the way and show that its possible to be together with them and build this thing with them and be near and its easier to hear them and understand. They will trust and belief you. Also with portraying your beliefs and values

XV   Team 5, Senior manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
m

No Subordinates: **5 direct subordinates, 550 subordinates indirectly**
Responsibilities: **Responsible for production and creating low cost. Maintenance of the machines and equipment.**

Since when in org: **Almost 7 years**

The Lean organisation
What is, according to you, a lean organisation?
it's an organization that with efficiency gets positive financial results. Efficiency creates low cost, because of the reduction of waste.

How do you see the/your role of a manager within a Lean organization?
I need to help the people and be a facilitator for the people so that they do not have to waste. So I am facilitating them so that they can have less waste.

Do you see your own organisation as a Lean organization? Why?
Yes it is a Lean organization. They do everyday meetings to discuss the more important problems they had that day with the production, in order to get a continuous flow in the production. Two points that the Lean philosophy says is to take care of the quality of the people and the quality of the production and we both do these things here.

As of when did your organization start implementing Lean principles?
We started with Lean 5 years ago. Now we are really completely Lean.

What have you done differently since your organization made the transition to Lean compared to the situation before?
We do more things like integrating the people more with the daily problems in the production. For example, the operators of the machines, they participate daily with the discussion of improving in the production and to create a better flow within the production.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
He has a very good performance. They had a kind of indicator in the company and they do a kind of evaluation with him and he is always inside the borders of where he should be as a manager and he is also perfectly like a person within the Lean concept.

jj. On what specific behaviour are you basing this?
He integrate the people that work with him also with the problems and they all try to work together to find a solution and the get a better result.

kk. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, especially the working together part

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
The first one is respect for the employees, that is very clearly in him and honesty. Ethics, morality and that he can integrate the people to do the work good at the finish line. Integrating is important for the organization, because they have handicapped people and he puts these people in a place where they don't have to feel different. He puts the handicapped people with the non handicapped for a integration.

ll. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes it is different because he worked for 30 years in this kind of business. And what he sees in other factories he sees that the managers treat their people definitely different.

Value Q-sort game

d.   Would you like to explain your two choices for the most important values?
I started with putting the ones more important to the less important ones. I was thinking in the character of the manager Jeison. I was also thinking in the values that the company says are the right value when you are a manager within this company.
Respect and integrity are most important.

e.   Would you like to explain your two choices for the least important values?
The least ones are less important. Not per se bad but just not that strong.

f.   Did you experience difficulties while distributing the values? If yes, how?
Yes it was difficult, because when I was using the computer for the online questionnaire I did not see the values all at once. Only one after another.
No, only the technical arrangement was difficult.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
We had a kind of performance indicator from the employees, where for each workhour they need to produce one product and for this they have a kind off planning. So if you have 100 people you have more products per hour. But he saw that with this they had a lot more product in stock and this was at the moment for the company not good. He gave holidays to these people. So with less people you do less products.

When did this situation occur?
2 weeks ago. Somewhere at the beginning of October. He started to arrange this situation at the end of September. Because the performance is not busted when it is in the middle of the month. They started with the arrangement at the beginning of the month to see the result at the end of the full month.

What caused this situation?
There was a too high production because there where too many employees. As a consequence the stock got too high.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
You can see with this that he was thinking to reduce the stock and the waste of the factory. This is very good. He knows the complete process of the product from begin until the delivery to the client. The managers have everyday meetings. They have a kind of indicator they need to do and then everyday they have meetings and need to discuss if they are on schedule or not. This gives a feeling to be on schedule and gives this urge of responsibility and be on schedule.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
Using dashboards and monitoring. Having daily meetings and precise indicators and daily targets they can discuss. Giving responsibility to the employees and rewarding for hard work, because the get days off if they are ahead of schedule.

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

Yes if you want. A good result in the end you need this kind of compartment and also the respect with the employees and the integrity.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which specific values where shown by the Lean middle manager in this story?
Yes that is automatic, you are in the company and then you hear everyone talking about Lean and you adopt, after which you automatically do everything in the company with the concept of Lean. He use the integrity, respect, honesty. He is a very open person to communicate this makes it/the process easier.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes there is a difference, but of course in companies without Lean people have also respect and integrity, but within a lean company this feeling and these values are more strong.

XVI   Team 5, Middle manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am the production supervisor.

No Subordinates: **There are a total of 154 employees under my supervision**
Responsibilities: **I supervise if the employees deliver the product. The employees receive an order and then they have to follow the order how to make it. And create the wished for order.**
Since when in org: **He started in 2012 to work there.**

The Lean organisation
What is, according to you, a lean organisation?
A Lean organisation is an organisation that needs to make the client feel satisfied with less waste and less stock.

How do you see the/your role of a manager within a Lean organization?
I need to guarantee that everyone does what they need to do. Help them get to their targets. The employees have a value flow, they see what they need and have to do. I am a manager has to make sure that the flow goes continuously.

Do you see your own organisation as a Lean organization? Why?
With the years it is getting better and better. The Lean concept in the company for example, which shows through the mapped value stream from beginning to end and that you participate with the development. Only then you can improve. This is what is Lean. Right now they are not 100%, but they are on their way there.

As of when did your organization start implementing Lean principles?
I think a little bit before 2012, but in 2012/3 they really started more strong.

What have you done differently since your organization made the transition to Lean compared to the situation before?

We have a variety of tools, that we have in order to help us to deliver on time, without waste and we also don't want to waste time for example when a machine is broken. That is unnecessary waiting time.
This is something we worry about daily, before Lean we only worried about delivering on time, now we also worry about wasting time with broken machines, waste and extra stock.
Before, the departments where not connected with each other. I was only within my department and now we work together with all the departments within the factory that are connected to the value stream. We have the daily meetings for improvement.
The flow is everything together, the flow of the product.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
We have indications which are the target that the company gives to us and I am a good manager/efficient manager if I reach the target. The fact that I reach my targets makes me an efficient//effective manager.

mm.   On what specific behaviour are you basing this?
– **Monitoring**
– **Striving to reach goals and targets**
– **Working hard with my people**

nn. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes because other companies are different. I used to work in a non-Lean company and they have a kind of competition between the departments. My department did good and the others did not. And the one department does not care about the other. But in the end the final product does not get to the customer on time, so no one is winning. With the integration of the departments the company overall is a lot more efficient.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
– **Transparency**
– **Sincerity**
– **Honesty**
– **There is a kind of slogan in the company that is: if you cannot say how you did, don't do it.**

oo. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I do not know exactly if it is different. In this company, we are very transparent, clear about and follow the regulation and laws. For example, if there is a bonus they give it to all the employees, not only the top managers. Transparency is very high.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
There was a machine broken, or at least a part of a machine. So we needed this one part of a product in order to repair this machine, but it had to be made in another department. So we could fix our own machine be replacing the part with an internally made object. However, there was a delay, because of the machine where this part had to be made. In the end they were talking half a day and finding a solution with another department and in the end they found a solution to fix the machine. To solve this product without getting

delay. They talked to the other department in order to find a solution. The solution was only using one machine to fix this part (what was broken from the machine) and in the end it only cost one day to product this part at the other department and to fix the machine.

When did this situation occur?
Today

What caused this situation?
An unforeseen event where a machine had to be fixed.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
I stayed calm and kept control over the situation. Try to solve the problem

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
– **Show leadership**
– **Being a calm leader, who has everything under control**
– **Solve problems**

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes it is Lean behaviour, you have to try to oversee the conflict. You cannot solve one problem and by doing that create another one. To find a solution, not to only create more problems. A real solution while controlling all aspects is very Lean.
Also doing this without stop the flow of the production, because than you are creating more problems and not finding a solution. A Lean manager needs to know where and when he can be stressed.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Being relax, control your feelings. Being very transparent. I talked to the employees, was calm and wanted to know why the machine was broken and how they can solve it.

Which specific values where shown by the Lean middle manager in this story?
– **Tranquillity**
– **Controlling**
– **Transparency**
– **Information sharing**
– **Listening to employees**
– **Giving them autonomy**

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
These are not specific Lean middle manager values. This is in my personality I think, being relaxed and transparent. If the company is Lean, the philosophy of Lean does portray on you as a person and it shows how these values are important for a manager. So yes and no. The values do not change per company. The Lean philosophy makes the values stronger. Being clearly and transparent.

XVII Team 5, Team leader 1
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Hij is de team leader

No Subordinates: **I have 35 employees**
Responsibilities: **Follow what the employees do from close by and look at quality, safety and productivity. What do the employees feel, how do they feel, whether they have complaints etc.**
Since when in org: **I have been working here for 15 years**

The Lean organisation
What is, according to you, a lean organisation?
Work economically to get the maximum out of your own resources, not by buying new things. Try to teach to the employees the Lean mentality

How do you see the/your role of a manager within a Lean organization?
I think the you should 100% support the employees, the organization and the customers. If people want to invest in the company, show them an easy way to invest in the company and each other. Through this strategy using one's own resources from the company to be able to grow.

Do you see your own organisation as a Lean organization? Why?
I think that we are a Lean organization because we do all the Lean steps and we use the tools. There are typical labels through which you can show whether a company is Lean and we meet these standards

As of when did your organization start implementing Lean principles?
I think more the 10 years of Lean, or at least that is what I have experienced since I worked there. The last 4 years, we have been using is a lot and the Lean philosophy has become really strong. I have experienced a lot of strong grow from the Lean implementation.

What have you done differently since your organization made the transition to Lean compared to the situation before?
I think that employees have become more enthusiast, but that is not always easy, because the work is very standardized and everyone have to follow the standards. I have become more encouraging towards my subordinates. There has not really been a lot of change, but the higher management tries to understand the Lean concept and implement it with the help of the shop floor employees.
My role in the company has changed a lot. There is a lot more with in the form of patterns and there is more a feeling that the work is being done more neat. I do not have to track everyone's work, because it is not unstructured anymore.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
I am happy with my manager, but my manager is more concerned with productivity, quality and safety of the people, but does not care a lot about technique and machines.

pp. On what specific behaviour are you basing this?
Thrives for high productivity and quality. At the same time he wants safety for the people. He is not really concerned with the technique and the machines. Let's the people advise him and trusts them to the one's informed.

qq. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
This is my first job, so I do not think I can give a statement.

Values

Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which personal values do you consider important?

Trustworthiness, he creates an atmosphere where people can trust each other, he respects me and I respect him. He gives space for initiative and the opinion of the team leader.

rr. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

At the company team leaders of more respected, you can have a discussion with the manager. At other companies you just have to listen and do what the manager says.

d. Would you like to explain your two choices for the most important values?

Firstly teamwork, because the team is divided into groups and they work in a type of Relay race. With this kind of teamwork there needs to be reciprocally among the employees. For example, if someone is asked to work on sunday, and that person does not come to work, the entire planning for the factory will not work out. This responsibility and trust are important values. In addition, quality is also important.

e. Would you like to explain your two choices for the least important values?

Courage and self-reflection. The employees do not self-reflect. Only when the leader askes for the employee to reflect and think, they will analyse and self-reflect, but not by themselves.

f. Did you experience difficulties while distributing the values? If yes, how?

As a matter of fact, I thought everything is important and everything is interlinked. If I had to do it again, maybe I would make a different distribution. It is a wholesome in fact so it could also change of the importance of the values.

Critical Incident Technique

For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?

An example of a successful moment could be: when the 'click' is made and employees actually think Lean.

It is good behaviour and also Lean behaviour. Every once in a while there is a Lean course in the company. Through this course they stimulate people so that they can learn to think differently and in a Lean way. It is in your own time and the manager encourages people to do the course. Then when they have done the course, the manager brainstorms with those people and gives them autonomy. The course is free.

When did this situation occur?

When was this course, well it is busy now and it takes three quarter of a month to finish.

What caused this situation?

How can the manager evaluate this course? He started with the issue of people not being openminded. So it became his search to try and get the people more openminded so that they can see the company in a different way. With a more Lean mindset.

Behaviours

What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?

Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.

He gave his people the option to develop different skills and let them become openminded about their work if they want to. In the end it was selfish because he wanted to be able to learn from them to improve, so they needed to learn to think Lean.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
- Giving option to develop oneself.
- Asking the employees for input
- Distributing the Lean philosophy
- Listening to the employees

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, it's something especially Lean, because he wants to brainstorm and really want to talk to the people under him.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which specific values where shown by the Lean middle manager in this story?
Respect, he pushes/forces and stimulates the people to think in a different way.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, but not only for him, this is something that is from the highest director to the lowest employee in the hierarchy. From the highest manager cascading down. This is a really Lean way of thinking

As a closing note
Would you like to add something to the interview?
I only want to say that the company very quickly implements the Lean process. But during implementation it is difficult to get older employees. So a lot of pushing has to be done to penetrate it everywhere. A lot of discipline to make it really go anywhere.

XVIII Team 6, Senior manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?

No Subordinates: **No direct subordinates. I do train and guide people on lean. I do have students working under me, but not really subordinates.**
Responsibilities: **I work as a professor here. We don't have any people above of, it is very hierarchical organization. In this project I work as a consultant and make workshops and training and supporting them about the culture of Lean. BPM and some Agile concepts that we use in the project and continuous improvement. So I work as a consultant**
Since when in org: **I started in 2013**

The Lean organisation
What is, according to you, a lean organisation?
A lean organisation would be I think an organisation which can apply the lean concept not only in the manufacturer industry, but also in all kinds of areas such as: "purchase,

marketing". You should also be able to apply lean concepts, waste reducing tools and continuous improvement. So an organization that can apply all these concepts.

How do you see the/your role of a manager within a Lean organization?
The manager would be the person which can motivate people, because of the change of culture that's very hard to achieve, so we have to have a manager which has leadership skills and is able to motivate people to change their mind and changed their way to interact. It's all about being able to change the mindset of the people and motivate not only technical subjects or kanban tools but also the behaviours.

Do you see your own organisation as a Lean organization? Why?
Not at all they are in the public sector and they have a culture that is very particular. It is a very wasteful process but it is changing. We work here and are trying Lean management, because we have this changing mindset to be more efficient and have better results. So I think things are changing and the project is one part of this change I would say. I am thinking in the higher levels about making this kind of initiative going up the hierarchy. Last week there was a meeting with the higher manager of the university to start the initiative and that is why right now they're trying to make it work (in order to show by example) and they're thinking about spreading this concept higher for all the university.

But how about the HR department?
Yes in a way they are lean, I think we are on the path to achieve it. We have been working on it for 2 to 3 years it's been going slowly but we're trying to start another course and introduce people to the concepts in order to branch out through hole University. So in a way we are lean but we still have a long way to go

As of when did your organization start implementing Lean principles?
We started 2 to 3 years ago. We start with implementing tools doing it as a strategic process and implementing because a lean office would feel better here and we're trying to communicate that throughout the University. So we're maintaining Kanban and visual management and some continuous flow/improvement. So we are using a few tools in our process and additionally we are constantly providing workshops and projects with other interested departments that want to become more efficient

What have you done differently since your organization made the transition to Lean compared to the situation before?
Even though we didn't achieve all the process goals, all people we are with working on projects (e.g., kaizen) and in the process have change their minds and see ways to improve their process in all different areas. So we don't have one specific lean area they're all different groups who have done projects so we are working for spreading more.

*real answer: **I am perceiving waste in a more general way not only things they do again or rework, but also waiting, moving and transporting time. People are more critical about what they do, that's why their behaviour has changed. My behaviour changed now they see in the project they see the difference and they buy the idea and think in a different context. So I've become more the Motivator towards the people and my main task is to support the people.**

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
**I would say not about the technical knowledge but I think she knows how to motivate people and knows how to gain people to make improvement and put effort into a cause. So I think she is very good in this aspects to motivate to engage people.
She lets people speak openly, feel safe to talk about the processes, is persuasive, makes them believe and do changes and motivates them.**

ss. On what specific behaviour are you basing this?
Motivational and listening behaviour, through which she gains peoples trust, willingness to help, effort, and engagement. Listening without judging and taking peoples opinions serious. Het persuasive character. She believes in Lean and acts according to the philosophy.

tt. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes it is different because she is persuasive and she is enthusiastic. Although she is less technical, more tools will be out there under her supervision.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Teamwork and synergy with people

uu. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
This makes her distinctive as a lean middle Manager as opposed to other managers. She gets more people on the boat with her optimism and enthusiasm and she sells ideas better. I honestly do think that values are personal and that there's not necessarily a sets of lean values. I think it's also very difficult to change someone's values they're very deeply nestles.

Value Q-sort game
d. Would you like to explain your two choices for the most important values?
Like I told you before in the interview she is more focused on this behavioural values then the performance. Teamwork and she is very enthusiastic, persuasive and engaged. More than our chief of quality and high performance and these kind of things

f.   Did you experience difficulties while distributing the values? If yes, how?
No I would say by the idea that I have about her and grading each value I could associate about these two aspects performance and human behaviours so I first split it into two aspects and put them to the degree they are related to.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
There were a lot of times before where I was out of the office because I just had a baby. I stayed like 20 days without talking to her and then when I got back to work I went to her to ask her how things are going and I figured out that she changed the entire office to make it more lean with visual management she put post it's and a kanban on the wall to start and make some notes about the process which they had done and what should be done (priorities). So I was really surprised she get the leadership to change everything materially different. You was really living lean and becoming a lean leader and then she materialized all the goals in the office and visualised.

When did this situation occur?
After I left her alone to figure out to be a lean leader without any help.

What caused this situation?
Maybe some problems happened in the process and then it required an attitude, such as "we have this problem and we had to solve this problem". In addition, there was a lot of demand of work to do, so she said "ok we have to do it so I will do it my way". She said it

to change things and apply what she learnt. Before, she was like "ok I'm here I'm just learning, I am not responsible for that and I'm not sure if I can lead this change". Now she is comfortable enough to take the lead. She was kind of forces, because Lillian, the woman who was leading before, is currently with pregnancy-leave, so there was no-one leading the lean transformation. Emanuele saw herself as the responsible one and now she's doing very well. I Think the situation that we have a problem to solve now and she's alone in the management of lean so she started to act different

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
- Self-confidence
- Engagement
- Leadership
- She proved these behaviours
(Proactive, Hands on behaviour, Create the path and environment for her subordinates, Works together with the subordinates, Setting true north and defining vision and clear communication, Changes the leading to her own hand and therefore really believes in what she does, Shows responsibility) (eigen toevoeging)

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I wouldn't say particularly lean, but I think it helps it's important to make lean successful. In my opinion a person that is continuously improving is a distinctive lean leader.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Values that lead to continuous engagement, because the people who work closest to the real product and customer have very valuable information.

Which specific values where shown by the Lean middle manager in this story?
- Helpfulness
- Participation
- Engagement
- Teamwork

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes Lean leaders should work in continuous engagement

XIX   Team 6, Middle manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
She thinks that she is a middle manager. She does what Lillian does.

No Subordinates: **She does not really have people under her, only the interns. They work in some projects, then they have teams with two to five people. It differs per time**

Responsibilities: **They have some projects, what are the responsibilities. She analyses the project processes in the lean mentality and agile and after we do the process of bpm for six sigma and and then to look into the future they do the "to be" /"2b"**
She analyses the process in the lean way and then she analyses with this 2b (is for future purposes) process if it is good lean and then she looks with the future tools if it will continue like this or get better in the future with more waste reduction.
Ook helpen bij interne projecten van de universiteit.
Now they are doing electronic points for checking in and they are evaluation if it will be good or not and if it is rendable/worth it. She is a kind of manager, in the university they call it different but in a private company her title would be manager.
Since when in org: **she started in 2011 but she has been a kind of manager since July.**

The Lean organisation
What is, according to you, a lean organisation?
An organization that takes care of the process and always looking for a better way to do thing s and constantly improving.

How do you see the/your role of a manager within a Lean organization?
The manager is a facility manager, that makes the things more clearly. They need to put the lean culture in the mindset of the people.

Do you see your own organisation as a Lean organization? Why?
Not yet, maybe in the future, but the university is a very big world with many different realities. Different departments in. different places. Between the employees there are a lot departments and different ways of thinking.

As of when did your organization start implementing Lean principles?
The university is not doing anything with the lean yet. Her department, their core, is thinking in a different way, in a lean way. So they are lean, but departments around them are not lean at all. They created this core of lean thinkers in 2016.

What have you done differently since your organization made the transition to Lean compared to the situation before?
The mentality/culture has changed a lot, since she came/they started in 2016. Everyone was talking/asking "why would we want to change, it is not going to change anything", why do we need to change. Everyone was against, they did not belief it was going to change anything and now everyone accepts and likes it because the changes have positive outcomes for them.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
She worries with the deadlines of the projects/processes, She does the planning, to always have a good result in the end. Have a good deadline, know beforehand how much time she needs etc.

vv. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
….she thinks that the profile of someone that works with lean is very different from someone that does not work with lean because you have to adapt to the company and may take over their values.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Dedicated, compromise and honest

ww.Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
....it depends per person. It is more inside the person and it does not really have to do with the organization.

d. Would you like to explain your two choices for the most important values?
Persistance, to be persistant because they work in a public organization. It is very different from a private. There is not enough money. If you want to do something you have to really be persisitant.

Responsibility, something really interferes in the quality of life of the people, so they have to really be responsible of the choices.

Honesty, give constructive feedback

e. Would you like to explain your two choices for the least important values?
Everything is important, so it was very difficult.
The least important that she choose where because she works in a public organization and not in a private. So these values are not really applicable in a public organization. Tha tis why she choose them.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
....It happened in the MAPCD. A project they are doing right now. When you analyse this project you also need to look into the public/governmet legislation/laws (the legislations created a better way for this problem and more options). In the middle of this project they changed the law, so now they have to do a type of adaptation again to do this project better. It is about people with a handicap, before these new laws, they where looking through a intake form what type of handicap they have and then sent those papers to the doctor to see what kind of handicap these people have (and what kind of measures can be taken for these people). Then the wait what the doctor says. So in the project the wanted to make this process faster so they can sent the forms faster.
This team broke the flow. Because the people from the team are analysing the form before sending it to the doctor. Because they did brainstorming and meetings. Because she does not know so deeply about this project, but she was a leader of the team. So she was putting fire for the people to think, it was nog from her ideas, it was the Ideas of the team

When did this situation occur?
1 month ago

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
She had the lean behaviour I the last meeting. The other meetings where only discussing, discussing and so on. And in the last meeting she said and now we need a solution and they came with the solution. That was her moment of lean

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
No not really, but when everyone is discussing and discussing and then you need a moment where you centralize the conversation and force a conclusion. But it is something all mangers need to have.

<u>Values</u>
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which specific values where shown by the Lean middle manager in this story?
Values like positive feedback and having the Responsibility, because they need a final conclusion.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
No

XX   Team 6, Team leader 1
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Was contracted as an intern, now I work more in the process and the strategy

No Subordinates: **None**
Responsibilities: **I do the indicators every month on the board. The guy before me did it not good so I created a new one. I also work in the new process. I do the maps of the new process.**
Since when in org: **Since March 2018**

The Lean organisation
What is, according to you, a lean organisation?
The Lean is a way to think in a efficient way. Before I worked in a food company that was also lean. But it is a lot different from now, it is more with bureaucracy. It is totally different industry, but the way of thinking is the same.

How do you see the/your role of a manager within a Lean organization?
Somebody that is always analysing how to do things better, but always how is the reality of the company and not dreaming only. So how can things be better based on the reality of the company.

Do you see your own organisation as a Lean organization? Why?
No, sure it is not lean, because the university is very big with a lot of people. In Public organizations people work really long. In a public org you work for life, so the people are really old in the company, as well as their way of thinking.

As of when did your organization start implementing Lean principles?
We started with Lean last year to implement it in the university. We started at the directory with implementing Lean.

What have you done differently since your organization made the transition to Lean compared to the situation before?
Every day I start to think more with the lean tools, this is what I try to do to have more Lean concept in the company.

Leadership

This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
She has a very open mind, and is very open for new challenges and new things. She has a very realistic view from the problems and how she needs to find a solution.

xx. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes, because she is really open to change and new challenges, to change things and new methodologies.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Productivity, Adaptability, Responsibility, Organizational

d. Would you like to explain your two choices for the most important values?
"Potentieel gewone werknemer"
Mostly we work with the 2 of us, we need to be good, because we do not have other people working for us and we have to do it ourselves. But she believes in the potential of the others in the organization as well, so when they need others she can also ark others and they will be able to do it as well and she trusts them.
"Behulpzaam"

e. Would you like to explain your two choices for the least important values?
Not that they are not important, she just did not know where to put them, and they stayed till last so she had to put them somewhere.
"Courage", "Selfreflection"

f. Did you experience difficulties while distributing the values? If yes, how?
Very difficult, because 3-4 that where not important, but all the others where very important. Because it is more specific to the industry.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
Lilian, who was before Emanualle, she was more afraid to change the things, Emanuelle is more open to try more different things. And she fits better with who I am.
Every end of the month, they need to show indicator but they where doing it manual, and they where not doing it with the computer of excel, because they where not good at this, but this manual ways was easy to make mistakes and it took a long time to fill this out. And them Emanuelle saw they delayed a lot, and now they have a lot of data to analyse, don't waste your time on this, soon we'll have a program that will help with the analysis and then they can use the program the do the monthly checkup. So she gave really priority to what was important at the moment.

When did this situation occur?
The beginning of this month

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.

She is very motivated and happy and enthusiast

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
No it is her own behaviour, but she does have a bit of Lean profile in her mind. This mixes, she knows Lean and she knows her behaviour so she mixes both.

Values
Which personal values where dominant in this situation according to you? *Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.*
Productivity, Focus on the customer

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
No, these are her values.

XXI   Team 6, Team leader 2
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am an public servant, I work at UFSC. But my employment, is business management and I work currently with the process of people management.

No Subordinates: **I do not have direct people working under me, only with a rotating group with people who are involved in the problem. It is a very horizontal/flat hierarchy.**
Responsibilities: **With Lean and all other forms, like sometimes we need to take a problem and come with a resolution and come with a new system. Not always with Lean or other agile methods. We do use these projects to make things better.**
Since when in org: **Beginning of 2018**

The Lean organisation
What is, according to you, a lean organisation?
**A Lean organisation is to make the process better into making. Waste reduction and zero waste, but in this case we dont use some terms because we are in service, we dont make products and not in a manufactoring organisation.
It's to make the process better and to make the process more efficient and to reduce waste**

How do you see the/your role of a manager within a Lean organization?
I think it is the ultimately it is important but if you do not have to support of a middle or higher manager we can't do the job or improve the process. It is a problem with a lot of organisations because sometimes the middle management can't don't see the importance of these methods to improve the organisation and it's a complicated thing. In ufsc have support of the higher manager and we have support of middle MGMT we also get more and more support from these people. You can see how lean can fail if the higher management does not support this does not happen though in our organisation. We have all the support from the managers. I think it is obligatory to have the management support you in order to make lean management a success.

Do you see your own organisation as a Lean organization? Why?
not at all because we are starting this applying these concepts and the organisation is big and we don't have the culture and the people to make the lean management throughout all the departments processes and through all the managers. So we cannot say this about all of ufsc.

As of when did your organization start implementing Lean principles?
It depends because it's a very big organisation and sometimes the teams don't communicate with the others. That is a problem but I think I can tell you we started with our team people management we started with some lean methods in the middle of last year so the middle of 2017.

What have you done differently since your organization made the transition to Lean compared to the situation before?
Yes because sometimes we have we saw improvement of some processes we are working in a lot of processes together but we saw a big improvement in some of these Ender people the teams are getting the idea to implement some of these processes improvements.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
She knows all the teams it's a positive point and let me see she got together in the meaning to prove a process and she got to end the meeting with a conclusion. She found a problem in the process and got to improve this she let them meetings to improve this and I Lillian and Amanda we can use this information and try to improve and work on the process with the other teams.

yy. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I do not know a lot of lean managers to answer you but yes it does different from managers who are not lean. Because she can organise and make a position and a solution with this problem I think it's good/lean because if you don't do this you'll only get to the problem and get together and ok but what we need to do to resolve this problem she's getting hard in this and trying every time to make the process different and make it better I think it's different from non lean manager
I think it is behaviour from a leader who is Lean
He did not answer whether or not this behaviour came from the lean philosophy or if it is may be based of of the values from the person in question.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
She has alright idea what to do with the situation. This could be a good Instinct but Instinct is different if it is based off of experience. It is more from you when you are born like me Rudolph Being Human but experience is like what I learnt in my life and then I get together to resolve this problems it's a lot of skills were getting more and more and to improve this. Initiative and maybe courageous our values that she thinks are very important. It's hard because day by day we don't think about you two things but I don't know what more I can tell you.
zz. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think it's a typical but not completely or necessarily lean because I think it's a part of the lean leader. Part of the skills and behaviours are part of who you are not per se because of your style of management.
I don't know I think it is only because these behaviours are skills and are part of lean leader
I don't think if I understand the question. I think the values are part of a lean leader. Her skills are getting ok but other parts no

d. Would you like to explain your two choices for the most important values?
First one is working together and I think she can get all together to resolve the problem or discuss a problem to resolve. Together with the lean team or the other teams and I think it's strong charectoristic of her.

The next one is focus on the client. I think that she thinks a lot about this and the results of the process. When the process makes a difference to the client. Client is a term used in general to who can get some information from the other or who can send and receive information in a process but we don't use this terms like clients in university because we have different processes. The client takes some informations and some products and from the other processes like this, the student is not a client and knowledge is not the product because we are in people management so it changes to something like a professor is our client. In our process the client is the professors and the other employees of the university but I think she thinks like this what my client need to see to make this process better and to make the life of my client better.

e.   Would you like to explain your two choices for the least important values?

Freedom to choice I think it's less important because sometimes we don't have this space to choose but it's because we need to think in our clients for example I have hard work to do and I think this changes makes and changes are hard to make we need to keep this in mind. We have this we cannot choose to do it change because I have a focus on the clients it's opposite from the more important so I think the freedom to choose is less important because of this.

The second one is innovation because it's something irrational because when we are improving or trying to improve a process we need to take facts and take the opinion of people take indicators and try to do something in this to improve the process but innovation I think in my concept is more than more to make a difference in something. Eureka I had to biggest idea I think it's more like doing the small things in the process that make a big difference then doing improvements and like an opposite of and yes this is something also how emanuelli things because she gets the opinion of people and put all these opinions together to resolve the problem and I think therefore innovation is not a magical thing.

When I hear the word innovation to me it sounds like a big thing comma I don't know if my thinking is negative about a lot of things but in this case to me innovation is like a Tesla is launching a rocket into space end of the rocket can get back that to me is innovation. We have a phrase here let's try to translate. The better is the goods enemy. Better/ good, we need to focus on the good because if you focus on the better it's a long step to do the better before you do the good. Like innovation is the better a new machine results of the problems that is better. She doesn't think innovation is the most important first look at the good.

f.   Did you experience difficulties while distributing the values? If yes, how?

yes I experienced difficulty I had a lot of difficulty because because it's complicated. We usually do not think about this kind of stuff we are different people we don't necessarily think in the same line of process then we need to respect the opinion

<u>**Critical Incident Technique**</u>

For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?

An example of a successful moment could be: when the 'click' is made and employees actually think Lean.

I did not work yet really in this team but I have a lot of meetings with emanuelli and other people and external people in the organisation.

I think she has power to resolute a meeting like to make an organisation to the next step to another meeting to resolute the things or to point the problems in the progress.

We are...

The name of the process it's an kind of innovation process because we only have to explain the context. We have a fight with organisation that stands for the employees who represents the workers. But they are trying to make a new process to register the frequency or to register when did people go to work timing when people clock in and clock out. They are trying to make a different process with this is a very complex process with a

lot of teams in the university. If this process is ok we will have to change all the thinking about this in Brazil. But it's a complicated process sometimes we get word fights in this meeting and emanuelli breaths and says something like wait we need to think this or this and the consequences of this is this. We need to think better about this and always making choices or always talking like will we need to do this to finish this we need to do this and to enter process here and we need to study more this process and we need to refine this process because the process is not so good like you think and it's experience there are a lot of meetings I think like 12 for 13 meetings and every meeting we have these conflicts and she always was resolving the conflicts and the meeting stopped. Because of the end of the political term does discussion stopped but she was always a good leader during these meetings. She always got everyone on the same page during these meetings. she's always thinking about a problem and then resolving the problem. She doesn't take anything personal or takes to things people say personal only the idea of the person.

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
Let me see working in a group like teamwork it's a team working together to resolve a problem.
Continuous improvement and shown responsibility because every time she was remembering the team and we have a deadline to show a result and she took the responsibility for the team because in this situation we have a problem because it's a democratic process and this time we are trying to improve the process in order to we have people trying to improve and to force a process and sometimes the things are mixed but in part of trying to make choices better he has a responsibility to show the team all this process is not ok yet we need to improve this or that. I think it's a behaviour. Also for example showing leadership and taking to lead. she's taking the information and then she leads to people through it. She is Gathering all the information and then she leads to people through it she also listens to what the problems are do you think she shows that that she is really actively listening and soaking up the information and then taking the leading to what to do and showing the direction. I think that is the behaviour she's showing every time she's getting the group through the process and getting the group to improve the information.

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I think they are typical behaviours of a lean leader

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which specific values where shown by the Lean middle manager in this story?
I think group work and a focus on the clients or client focus and positive feedback or constructive feedback and continuous improvement and that all the employees have a potential to contribute to the organisation like the second one.
The number 2 of the Q sort value there is the potential to the common employee and all employees have a potential do the organisation giving them autonomy. Respect to the people and humility humbleness number 18 on the Q sort value.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes most of these are typical but nothing in our lives is absolute.

XXII Team 7, Senior manager

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?

No Subordinates: **No direct subordinates. I do train and guide people on lean. I do have students working under me, but not really subordinates.**
Responsibilities: **I work as a professor here. We don't have any people above of, it is very hierarchical organization. In this project I work as a consultant and make workshops and training and supporting them about the culture of Lean. BPM and some Agile concepts that we use in the project and continuous improvement. So I work as a consultant**
Since when in org: **I started in 2013**

The Lean organisation

What is, according to you, a lean organisation?
A lean organisation would be I think an organisation which can apply the lean concept not only in the manufacturer industry, but also in all kinds of areas such as: "purchase, marketing". You should also be able to apply lean concepts, waste reducing tools and continuous improvement. So an organization that can apply all these concepts.

How do you see the/your role of a manager within a Lean organization?
The manager would be the person which can motivate people, because of the change of culture that's very hard to achieve, so we have to have a manager which has leadership skills and is able to motivate people to change their mind and changed their way to interact. It's all about being able to change the mindset of the people and motivate not only technical subjects or kanban tools but also the behaviours.

Do you see your own organisation as a Lean organization? Why?
Not at all they are in the public sector and they have a culture that is very particular. It is a very wasteful process but it is changing. We work here and are trying Lean management, because we have this changing mindset to be more efficient and have better results. So I think things are changing and the project is one part of this change I would say. I am thinking in the higher levels about making this kind of initiative going up the hierarchy.
Last week there was a meeting with the higher manager of the university to start the initiative and that is why right now they're trying to make it work (in order to show by example) and they're thinking about spreading this concept higher for all the university.

But how about the HR department?
Yes in a way they are lean, I think we are on the path to achieve it. We have been working on it for 2 to 3 years it's been going slowly but we're trying to start another course and introduce people to the concepts in order to branch out through hole University. So in a way we are lean but we still have a long way to go

As of when did your organization start implementing Lean principles?
We started 2 to 3 years ago. We start with implementing tools doing it as a strategic process and implementing because a lean office would feel better here and we're trying to communicate that throughout the University. So we're maintaining Kanban and visual management and some continuous flow/improvement. So we are using a few tools in our process and additionally we are constantly providing workshops and projects with other interested departments that want to become more efficient

What have you done differently since your organization made the transition to Lean compared to the situation before?

Even though we didn't achieve all the process goals, all people we are with working on projects (e.g., kaizen) and in the process have change their minds and see ways to improve their process in all different areas. So we don't have one specific lean area they're all different groups who have done projects so we are working for spreading more.

real answer: I am perceiving waste in a more general way not only things they do again or rework, but also waiting, moving and transporting time. People are more critical about what they do, that's why their behaviour has changed. My behaviour changed now they see in the project they see the difference and they buy the idea and think in a different context. So I've become more the Motivator towards the people and my main task is to support the people.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
I think she has a good sense of responsibility. In addition, with what she does, she makes things happen and that is why I think she is very responsible. She sets a target she will reach it because of her dedication. It is not in the way of perseverance, because that means she has something holding her back which is not the case. She is dedicated and responsible.

aaa.   On what specific behaviour are you basing this?
- Dedication to targets
- Taking responsibility for the results

bbb.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
I wouldn't say distinctive, I think because all managers should be responsible and dedicated. This is not something specific for Lean

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
She is a very correct and honest person. She does everything according to the books and the rules and is very strict and correct in what she does. Not in the way that she is clear about what she expects from people, on the contrary, she is not clear sometimes she does not make it transparent. She wants to work very correctly all the time, which makes everything right without making a mistake. A perfectionist and preparing everything according to the books and to the law.

ccc. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
No these are very common values in my opinion

Value Q-sort game
d.   Would you like to explain your two choices for the most important values?
Honesty, she is honest and very worried about doing things right.
Integrity, Treating people well and those are the best values. She is very worried about people not so much about the higher performance higher quality

e.   Would you like to explain your two choices for the least important values?
Courageous, she is not really good at challenges, she doesn't look for extreme challenges, she's not a "go for it" person and I think she is also not looking for results results results.

Question Laura. Because with lean you need to take a lot of risks do you think that her not being courageous about her back yes answer. I think so and also 4 results yeah because

with lean you also look at indicators and results and then I think that would be one thing that makes her maybe not a high achiever with results

f.   Did you experience difficulties while distributing the values? If yes, how?
No. Just like the previous one. Again honesty and integrity and just thinks about Justice and value and then results. Better than her sense of courage so I just connected that to both the most important and least important.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
We had a project like a kaizen and we dealt with a lot of different people and then I tried to support them with the method and the concept and she was responsible for the application and meetings. During meetings in the beginning there were specific people unencouraged in order to get them along. There were meetings of mapping, making a value stream and other starting tool use meetings. She used that in order to ask questions get the help and to set up the lean implementation for improvements and kaizen. During the start of their implementation and in these meetings she showed really good leadership skill.
Her role was for her to motivate other people to help in the implementation of lean. She showed convincing behaviour not just by talking, but showing kaizen during different meetings and I felt as if the people in these meetings in the beginning where very closed and that they didn't want to help, but she showed by mapping what the future could look like and how she wanted to be and she showed better ways to do things and these people who are not motivated specifically changed their minds and started to help. And today this person helps all kaizen projects.

When did this situation occur?
During the begin stages of creating comprehension amongst the key players within the Lean transformation. Literally when people saw where they could be heading they got motivated.

What caused this situation?
Her taking the lead and showing the possibilities

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
She was very systematic and effective showing step by step what's convincing about the information and showing what is the best way to do things and Improvements so the people that were very closed changed. After the things she showed people were very convinced and in fact people changed and started helping after the idea was explained. So people were motivated by seeing the effects and the data and she the middle Manager changed their minds. So first she was talking and talking and nothing helps but after she showed data, examples and effects people were interested and change their minds

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
Informative, clear and systematic
Leading the way
Convincing/motivating
Clear explaining
Showing data/results

Not giving up and perseverance
Practise what you preach

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Yes.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Data and analytical proof, perseverance, because in the beginning she almost wanted to give up, because people didn't want to tag a long but she kept on going and showed great perseverance to get everyone to tag along. A lot of tools and you mapping showed People the right behaviour so she displayed a philosophy

Which specific values where shown by the Lean middle manager in this story?
- Data and analytical proof
- Perseverance
- Team work
- A lot of tools
- Mapping, dashboards and monitoring
- Showed People the right behaviour so she displayed a philosophy

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Changing culture and people are difficult and she was there to change people's minds and people's ways as sometimes they didn't want to help so she had perseverance and stayed calm and try to make strategies to read people

XXIII Team 7, Middle manager
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Administration

No Subordinates: **I have partners in the same level, but she does not really have subordinates. Before she had 2 partners and now she has three, (before pregnancy and after Preg)**
Responsibilities: **Inside the sector where she works, they have a small administration and process of the people that work there. HR department for UFSC employees. And she is responsible for this sector/department. I do the indicators and the mapping of the process, everything inside this sector**
Since when in org: **7 jaar en 9 maanden**

The Lean organisation
What is, according to you, a lean organisation?
It is an organization that has as little as possible people, try to optimize so much that less people can do the job, so lean as mager company. With the right number of people and with a lot of agility.

How do you see the/your role of a manager within a Lean organization?

It needs to be a leader, a leader that can show a good example how is a good lean mentality. Maybe he/she is not the one that does the work, but he needs to show the mentality.

Do you see your own organisation as a Lean organization? Why?
No Very for from becoming a lean organization, firstly because it is a public organization and the mentality and culture is different from the people the work I a public organization. In addition the politic in a public organization is different.
Not only in this university, in Brazil all public organizations are like this.

As of when did your organization start implementing Lean principles?
For a half year but only in the one sector that she works at.
(Dat ze nu 3 partners employees heeft, maakt haar een Lean leader)

What have you done differently since your organization made the transition to Lean compared to the situation before?
They start to discuss the way that they work and they worked. And start to brainstorm about questions and the way they work. Now they can do question on a daily basis to ask about the process to improve. They use now the indicators to develop better and are monitoring, view beheer.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
Because I introduce this new things in the department the development indicatersand the view beheer. We see that our results are getting better. I feel like we put a seat the and now we just have to make it grow. Basis is gelegd en nu moeten we het aanvulen om het te laten doorlopen en groter te maken.

ddd.   On what specific behaviour are you basing this?
....
eee.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
The lean manager he has a more strategic position. In a company because he needs to act more, more activity, he focusses on the final goal and looks more at the end result. So it is distinctive for a lean manager

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Respect
Ethics
Work together in a team, not that I take a solution alone and you need to do. So team work, work together, and transparency and clearly.
fff. Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
They can be similar, but the thing that is different is the way that you act. Values are not distinctive but the way you act/behaviours is

d.   Would you like to explain your two choices for the most important values?
"Teamwork"inside the teamwork you have the respect and the focuss. On the client. So because there are so may important values linked/hidden inside the team work.
"continuous improvement". Important because everyone is thinking in lean and to grow from from al sides mentally

e.   Would you like to explain your two choices for the least important values?
"Openminded" and "freedom of choice"

Not that they are not important, but they are connected to the values that are most important and because they are already mentioned they don't have to be mentioned twice.

f.   Did you experience difficulties while distributing the values? If yes, how?
Yes difficult because you have to say which important which not. But they are all connected, but neutral seems like is does not matter but the neutral overall is also very important.

Critical Incident Technique

For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
It is something I do always when I start working with a porces. I call the people that are involved in this new process and then they analyse the process and start to do a brainstorm, why you will work like this and why you choose this way to anlayse. Ze beweegt mensen om think about the process. They say why you did this, why do you want te analyse from this kind of way ad this meeting is not only for that process, but they can also use these information in a following project son they do not have to ask the question again. After a while people come to her and they implemented a thing in a project and then they realize they can implement that also in another project so they start to analyse themselves.

When did this situation occur?
2 months ago before she went with pregnancy leave

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
....

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
.... People that are more open to receive these questions, and people that are less open to these kind of questions (niet over lean manager maar de employees)

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
....Yes, because if you want to start a lean mentality, you need a manager to push the people to also think lean. By using these questions you gave a wakeup call to the lean mentality of the lean people.

Values
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which specific values where shown by the Lean middle manager in this story?
....Team work and continuous improvement and you also need to analyse the informations you have at that moment and share the results.

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
....yes specific for lean, but. Not exclusive for lean. If you are a good manager you have these values daily.

XXIV Team 7, Team leader 1
May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
Was contracted as an intern, now I work more in the process and the strategy

No Subordinates: **None**
Responsibilities: **I do the indicators every month on the board. The guy before me did it not good so I created a new one. I also work in the new process. I do the maps of the new process.**
Since when in org: **Since March 2018**

The Lean organisation
What is, according to you, a lean organisation?
The Lean is a way to think in a efficient way. Before I worked in a food company that was also lean. But it is a lot different from now, it is more with bureaucracy. It is totally different industry, but the way of thinking is the same.

How do you see the/your role of a manager within a Lean organization?
Somebody that is always analysing how to do things better, but always how is the reality of the company and not dreaming only. So how can things be better based on the reality of the company.

Do you see your own organisation as a Lean organization? Why?
No, sure it is not lean, because the university is very big with a lot of people. In Public organizations people work really long. In a public org you work for life, so the people are really old in the company, as well as their way of thinking.

As of when did your organization start implementing Lean principles?
We started with Lean last year to implement it in the university. We started at the directory with implementing Lean.

What have you done differently since your organization made the transition to Lean compared to the situation before?
Every day I start to think more with the lean tools, this is what I try to do to have more Lean concept in the company.

Leadership
This research focuses on effective middle management in Lean organizations.
Why are you/is the concerned manager [Name] an effective manager?
She always looks for very good results, and she is very strict with deadlines and she really wants to work with deadlines and daar hamert ze op. Ze knipt ook projecten I kleine stukjes om er deadlines aan te hangen.

ggg.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Similar to other managers, not perse Lean.

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Responsibility with the deadlines
Productivity

She is really technical and she uses a lot of technical methodologies.

hhh.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Her vision is very similar to companies that have the Lean mentality. Yes the lean is about always doing better things and Lilian is a leader with the mentality.

<u>Value Q-sort game</u>
d.   Would you like to explain your two choices for the most important values?
"Responsibility" and "Continuous improvement"

e.   Would you like to explain your two choices for the least important values?
"Openminded" because she is very technical and she only follows the methodology
"Courage", because I did not know where to put, was the last one

f.   Did you experience difficulties while distributing the values? If yes, how?
Yes very complicated, but a lot of values are very important, also for personal and also for managers.

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
We needed to start to organize a sort of concourse/exam for the professors and this is a very big process to do, because it is not only in that sector of the university, it is in the full university. They were making this manual map op the process. They were holding a meeting with all the people the where involved in the process and then Lilian saw people were getting tired, they had been talking for 3 hours. Even though they did not yet have a conclusion. Because everyone is very tired, and we will continue another day. What gave me attention, Lillian is always worried about the deadline, so this time she saw the people and she stopped for benefit of the people instead of pushing in order the get to the deadline on time.

When did this situation occur?
2 months ago

<u>Behaviours</u>
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
She had very good leadership skills

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Not really Lean, but from all leaders.

<u>Values</u>
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.

Which specific values where shown by the Lean middle manager in this story?
Courage to do it and responsibility

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
No not from a lean manager but from a general manager

XXV Team 7, Team leader 2

May I record the conversation for transcribe purposes?
Yes, you may

Can you briefly tell us about your position/job within your organization?
For example, what is your number of subordinates, are your responsibilities, and since when have you been working in the organisation?
I am an public servant, I work at UFSC. But my employment, is business management and I work currently with the process of people management.

No Subordinates: **I do not have direct people working under me, only within a rotating group with people who are involved in the problem. It is a very horizontal/flat hierarchy.**
Responsibilities: **With Lean and all other forms, like sometimes we need to take a problem and come with a resolution and come with a new system. Not always with Lean or other agile methods. We do use these projects to make things better.**
Since when in org: **Beginning of 2018**

The Lean organisation
What is, according to you, a lean organisation?
A Lean organisation is to make the process of creation better. Better by waste reduction and zero waste for example. As we are not in a manufacturing organisation, in our case we do not use some terms, because we are in service. We do not make "products" like in a manufacturing organisation. It's to make the process better and to make the process more efficient and to reduce waste within this process.

How do you see the/your role of a manager within a Lean organization?
I think it is important, because if you do not have the support of a middle or higher manager we can't do the job or improve the process. It is a problem with a lot of organisations because sometimes the middle management can't/don't see the importance of these methods to improve the organisation and it's a complicated thing. In the university we have the support of the higher manager and we have support of middle management, we also get more and more support from these people. You can see how Lean can fail if the higher management does not support this, Luckily, this does not happen in our organisation. We have all the support from the managers. I think it is obligatory to have the management support you in order to make Lean management a success.

Do you see your own organisation as a Lean organization? Why?
Not at all because we are starting to apply these concepts and the organisation is big and we don't have the culture and the people to implement Lean management throughout all the departments processes and through all the managers. So we cannot say this about all of the university.

As of when did your organization start implementing Lean principles?
It depends, because it's a very big organisation and sometimes the teams don't communicate with the others. That is a problem but I think I can tell you we started with our team people management we started with some lean methods in the middle of last year so the middle of 2017.

What have you done differently since your organization made the transition to Lean compared to the situation before?
Yes because sometimes we saw improvement of some processes we are working in a lot of processes together, but we saw a big improvement in some of these and the people the teams are getting the idea to implement some of these processes improvements. People overall are becoming a lot more motivated after seeing changes

Leadership
This research focuses on effective middle management in Lean organizations.

Why are you/is the concerned manager [Name] an effective manager?
Yes, but it is hard to answer you because I work with Lillian in other situations. because Lillian was my boss and before that I was her boss and now she's my boss again so it's hard to answer you, as I really didn't work with Lillian in this team trying to improve a process. I think she is a good manager, but sometimes I think she, how can I say it, it's hard because she has many responsibilities. With the work she gets all together to talk about the things she is always talking to people to convince the people to do something and she every time does feedback with the team. She studies before making a (higher) decision. Yes I think she is effective, she is effective in this position she does meet her targets. She made her targets with the people, she is not nagging, she's effective and she meets her goals with autonomous subordinates. I think she can manage people, but not like Emmanuelle, because she is more shy than Emanuelle. She pushes but sometimes in the other way she is more relaxed calm.

iii.   On what specific behaviour are you basing this?
She talks to people a lot. She does not push a lot of face to face managing, but I think she does not encourage the people like Emmanuelle does, I think there is a difference.
With the one on one talking she also gives feedback
Lets her subordinates free and goes after het goals.

jjj.   Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
If we want to have a perfect leader management then no, she is not, but we do not have this in the world. A person can't have a lot of skills like Superman, but in her mood like this in her way she is effective, because she delivers results and processes are improved and I think if people are working together and she was teaching and ministering courses about bpm and I think all this supply the skills necessary to be a good leader. As a conclusion I think this is typical for a lean leader

Values
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Which personal values do you consider important?
Responsibility and working in a group continuous process and improvement and she always gives positive and constructive feedback and she studied the problem to try to make changes and reflects about herself and let me see she respects the people and I think that's it.
- Respect for the people
- Responsibility
- Teamwork
- Continuous improvement
- Positive and constructive feedback
- Studies problem to understand
- Self-reflection

d.   Would you like to explain your two choices for the most important values?
The most important values are similar to the other middle manager, so first of all, working in a group or teamwork. I think they are always working in groups and always think the group or the team is very important for resolving problems and to improve the process. The second one is the focus on the client. I think she always thinks about the end of the process and to improve the process. She does this through focussing on the clients and using them as a final order medium client.

e.   Would you like to explain your two choices for the least important values?
Again innovation and freedom of choice. Freedom of choice I think it is important because sometimes we don't have this choice to make a difference in the process and we only need

to make a hard decision to choose the process and improve the process I think this what I should interpret you have choice.

f. Did you experience difficulties while distributing the values? If yes, how?
Again it was really difficult

Critical Incident Technique
For the correct execution of the CIT, please imagine a recent and specific moment when you were/the concerning Lean middle manager was in contact with your/his/her immediate employees and showed very successful leadership. Can you describe this situation and tell us exactly what happened?
An example of a successful moment could be: when the 'click' is made and employees actually think Lean.
Just like I said to you, she was my boss for like a year and we worked in a group. She got our people to resolve a problem together and then I think it's a best way to lead a group and I think the leadership is a positive thing to say about that.
It's difficult to find one story, because we worked every day for one year and every day was a different situation but one example is.
I don't know exactly what is the problem was, but we had elections to choose the best employees to work for the government and at ufsc. Apos o publico which we can translate to public selection and it generates a lot of problems with justice and with people. We have a lot of problems with this process, because the people want to get in the university and I want to work there and I remember that someday we have big problem with this and she calls altogether the bosses and people there were together with this process to make a better decision like what's the risk if we get this way what's the answer we want to do or what's the answer you want to give to the Justice I don't remember a specific moment but every time we had this problem she asks all the people the opinion it doesn't it been on the hierarchy she always listen to the entire team before she makes a decision.

When did this situation occur?
It happened after there was a change of policy within the government for public organisations.

What caused this situation?
There was an urgency to change according to this new rules

Behaviours
What did you/the concerning Lean middle manager do at the exact moment? What where his/her behaviours?
Definition: Behaviours can be described as 'what leaders and managers do during their work as leaders'. Different levels of abstraction are possible here.
She is always calm and calms people down. And she listens very well. good behavior is to listen very well to the people. You need to listen to the people some people don't listen to anyone but she listens and let me see. She shows respect and respects the entire team and people and she sees everyone equal she also shows leadership. Because she involves everyone grabs everyone together as it seemed and shows initiative takes the lead.

What are specific behaviours the Lean middle manager displayed which you recognize in this story?
- Calm behaviour and calms people by showing that she's got everything under control
- Good listening/always listens, no matter the hierarchical position of the person
- Shows respect and respects the entire team/asks every ones opinion
- Involves and gets everyone (key people) together
- Shows initiative and takes the lead
- Makes decision based on the input of all the people
- Resolving problem together

Is this distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?

I think these behaviours are the characteristics of a lean leader. Other characteristics that I expect from a lean leader or more than the earlier mentioned characteristics for example I think like <u>improve speed and make pressure to get results and to make sure the schedule to make the results come back more fast</u> I think something like this.

<u>Values</u>
Which personal values where dominant in this situation according to you?
Definition: values are 'the frame of reference which someone carries with them in all situations as a guideline for his/her actions.' An example of values is the ten commandments, or a value such as 'honesty'.
Teamwork and responsibility and equality and a number two the potential of the employees the common employees. Respect to the people and in humility humbleness number 18 and I think that's it

Which specific values where shown by the Lean middle manager in this story?
Teamwork
Responsibility
Equality
The potential of the (common) employees
Respect to the people
Humbleness

Are these distinctive of Lean middle managers (as opposed to other/non-Lean organizations)?
Think it is distinctive for lean middle managers I think in the story it is distinctive.