

# Lean and the implementation process – managers perspective on change

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## ABSTRACT

**Introduction and aims:** Research has shown that view on Lean production differs both between researchers and practitioners and that there is no uniform definition of the concept (Emiliani 2006; Pettersen 2009). Furthermore, the perspective on Lean production as toolbox or philosophy, sometimes expressed as Lean thinking, influences the Lean implementation. Implementation of Lean can be seen as a project or an initiation of an ongoing developmental process where learning is taking place (Rother 2010). The purpose of this paper is to survey manager's view on Lean in terms of "toolbox Lean" or "Lean thinking" and their view of the implementation process in terms of a project with a time limit or as an initiation of an ongoing developmental process. The intention is to increase understanding about the relationship between how Lean production is defined and implemented.

**Method:** This paper is based on a case study at a Swedish manufacturing company aiming to become a company working with a business system based on Lean principles. The study has a multilevel, vertical, perspective covering five hierarchical management levels in the organization, from president of the company to first line managers at the shop floor. Data was collected through individual semi structured interviews with 14 managers at different organizational levels.

**Findings and reflection:** The view on Lean has, according to managers, evolved at all management levels within the organization during the implementation. From a starting point where Lean was perceived as a set of tools by most, it has, as the managers increased their knowledge evolved into a view that is more complex and also includes behavioral and cultural issues. This would indicate that even if the starting point of an implementation of Lean is Lean tool focused it may over time come to include issues of management protocol addressing cultural development, coaching and communication as learning regarding the organizational needs take place. The interviews showed that managers on different hierarchical levels of the organization believed there to be differences in view regarding Lean within the organization. We however found the view on Lean to be quite similar at all management levels, described as a customer focused; standardized way of working that is continuously improved by keeping a process focus. The impression of there being differences in view regarding Lean is most likely caused by a lack of dialogue between organizational levels within the organization. Varying competence levels regarding Lean and thereby varying ways of working within the organization may create a lack of support between production and support functions. Health and health promotion are seen as important factors at the production unit that was studied.

**Research limitations:** Organizational size and only partial coverage of the organization may limit the results validity to the parts of the organization that was researched and to larger organizations.

**Value:** This paper provides insights regarding the learning process connected to a Lean implementation and that alterations of perspectives and needs may take place during such a process.

**Keywords:** Lean production; Lean management; Lean implementation

Paper type: Case study

## INTRODUCTION

Kotter & Schlesinger (1979) argue that few change efforts end as success and this is also the situation with regard to Lean implementation. Many companies have tried to learn from and imitate Toyotas production system, but although Toyota has been very open about its practices, very few companies have successfully copied Toyota (Spear & Bowen 1999, p. 97). Bhasin & Burcher (2006, p. 56), with reference to Mora (1999), claim that 10 percent or less of the companies succeed, when implementing TPM and other lean practices. So although the years that TPS/Lean has been around, all the books written, seminars conducted, all companies worldwide that have started a “Lean journey”, it is now argued that most attempts fail and that the Lean concept has not been fully understood. It is argued that the important principle in TPS/Lean that has not been understood is “respect for the people” and this has hindered the efforts to correctly practice and sustain Lean and improve business (Sugimori *et al*/1977; Imai 1997; Spear & Bowen 1999; Hines *et al*/2004; Emiliani 2006; Osono *et al*/2008; Rother 2010). Beer et al (2005) quote Kotter, claiming that strategy formulation accounts for only 10 percent of success, while implementation accounts for the other 90 percent, and that it is during the implementation process that strategy is adapted, molded, and changed to fit the organizations specific circumstances. That is a statement that is supported by Toyota Supplier Support Center (TSSC) as they describe that Toyota Production System is designed to move to a vision of the ultimate conditions for delivering customer satisfaction and this will involve both human development and process revision. To be able to move towards the vision, professional development is needed and that is achieved by direct experience more than formal training and has to involve all workers (Ibid). Learning by all people in the organization is essential in Lean/TPS, and Rother (2010) argues that the most important factor behind Toyota’s success is the skill and actions of all the people working in the organization.

## Purpose

The purpose of this paper is to research manager’s view on Lean in terms of “toolbox lean” or as a philosophy, “lean thinking”, their view of the implementation process in terms of a project with a time limit or as an initiation of an ever ongoing developmental process and thereby increase understanding about the relationship between how Lean production is defined and implemented.

## Theoretical framework

Toyota Motor Corporation is generally recognized for having developed an effective production system that many manufacturing and service companies now strive to copy and adapt into their own operations. Toyota Production System (TPS) has been influenced by western industrial management practices such as Training within Industry (TWI) (Imai 1997; Emiliani 2006; Liker & Meier 2007; Liker & Hoseus 2008) and the Ford system (Krafcik 1988; Emiliani 2006; Holweg 2007). Elements of these systems were integrated in a new environment by people like Taiichi Ohno, Eiji Toyoda and Shigeo Shingo, thus creating a hybrid (Holweg 2007 p.422, with reference to Fujimoto 1999). The phrase “Lean” was first mentioned by John F. Krafcik as an opposite to buffered production systems Krafcik (1988). But the term was introduced and spread worldwide with the book *The machine that changed the world* (Womack *et al*, 1990). This book was the result of a study at MIT called the “International Motor Vehicle Program”. The study focused on understanding the reasons for higher productivity, better quality and thereby more competitive pricing among Japanese automakers compared to US and European automakers.

There appears to be no consensus on a definition of Lean in contemporary literature. Opinions differ on which characteristics the concept should be based on. Pettersen (2009) states that:

*Lean Production is a translated version of the Toyota Production System (TPS) and Lean Production has itself been translated into many different versions (Ibid, p. 39).*

There are two main traditions of Lean; “toolbox lean” and “lean thinking” (ibid, p.132). Due to the variety of translations of what Lean Production (LP) is, measuring results when implementing it will prove difficult unless the organization has clearly defined what LP is to them. According to Pettersen (2009) it would be unreasonable to expect LP to generate certain results since any results would be determined by how the concept of LP has been interpreted and translated within the organization intending to implement it. Pettersen (2009) shows in his analysis that:

*“Individual actors translate the core ideas of the LP concept so that they become more in line with their own frames of reference, which cause the concept to have several different meanings within the organization” (Ibid 2009, p.33).*

### The two complementary sides of TPS/Lean

The internal Toyota Way 2001 Document provides a description on the two top level principles in TPS: “Continuous Improvement” and “Respect for the people” (Emiliani 2006). In Liker & Hoseus (2008) Toyotas internal version of the two top level principles is modeled as a house with two pillars, continuous improvement and respect for the people (Ibid p. xxviii). Isao Kato one of the initial Master trainers at Toyota, tells about a saying at Toyota, “making things is about making people” and continue saying that:

“If people want to succeed with Lean or TPS they have to emphasize people development and making leaders capable of delivering improvements” (ibid p. xxiii).

Kato additionally states that it is not possible to separate people development from production development and succeed in the long run (ibid p. xxiii). Osono *et al* (2008) also give a clear statement about the importance of having the two sides complementing each other as they write that after 6 years of research and more than 220 interviews at Toyota, they came to understand that it is how Toyota combines the hard and the soft side that is what has made Toyota successful. They argue that:

Both sides depend on each other to work. They are like two wheels on a shaft that bear equal weight and together move the entity forward in the right direction. It is Toyota’s relentless focus on the human being as the center of the production and consumption that drives this company’s continuing success. It is a model of the new global company that is also a mirror of human creativity-always growing and always incomplete (Ibid p. 19).

A similar account about the importance of the soft or human side is to be found in Liker & Meier (2007) who state that the technical side, *Toyota Production System*, is designed to identify and highlights problems while the human side, *Toyota Human System* is designed to engage people who are willing and able to solve the problems. Toyota Supplier Support Center (TSSC) gives a description of Toyota Production System as based on four principles: customer first, people are the most valuable resource, kaizen (continuous improvement) and shop floor focus. And to reach True North, i.e. the ultimate ideal, for the overall process, and for every sub-process, the development of people is as important as development of the processes as shown in fig 1.

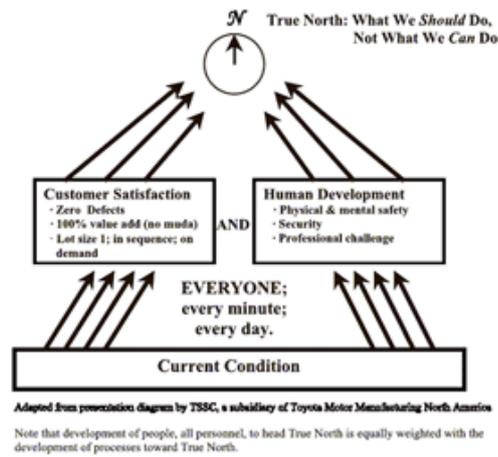


Figure 1. The Toyota concept of heading for True North.

Fig. 1. True North from Toyota Supplier Support Center (TSSC)

Development of processes and people thru learning by all people in the organization is a key component in Lean/TPS, and Rother (2010) argues that it is not production techniques or principles that are the most important factors behind Toyota's success, it is the skill and actions of all the people working in the organization and he sees this, the issue of human behavior and the subject of managing people, as the primary differentiator between Toyota and other organizations. Toyota is frequently referred to as a learning organization (Liker, 2008. Spear & Bowen 1999; Emiliani 1998; Rother 2010). Senge in Beer & Nohria (2000) states that:

*“The famous “Toyota production system” is in fact a learning system inseparable from the knowledge embodied in the people who make up the system”* (Ibid p.73).

A clear statement is made by Emiliani (2006) regarding the importance of the respect for the people principle:

Top managers who practice Lean management must make greater efforts to ensure they understand the true meaning of kaizen – “change for the better” – and the “continues improvement” and “respect for the people” principle, in order to achieve favorable financial and non-financial outcomes that benefit all key stakeholders (Ibid. p. 178).

So it is perhaps just logical that most company's fail when trying to implement Lean if they don't understand the importance of the human side of the concept. According to the above, we will argue, that it is the people who are the active part in Lean/TPS, not the tools.

### TPS/lean and leadership

Kotter (2001) argues that management and leadership are two different but complementary systems of action. He describes management as coping with complexity and leadership as coping with change. Management sets a structure thru organizing and staffing to develop capacity to achieve plans, while leadership is about aligning people thru communication of a vision about the new directions and the more change the more leadership is necessary (Ibid). A similar distinction between management and leadership is made by Geller (2002) who means that managers obtain their influence by controlling other people's consequences and leaders, as going beyond consequence control to benefit the behaviors and attitudes of their colleagues and coworkers. When managers direct the leader direct, support, coach and/or delegate (ibid p. 47). Kotter (2001) argues that management and leadership are complementary systems of action and that both are needed for success in an increasingly

complex and volatile business environment. Leadership within a lean organization can be said to be characterized by developing people by mentoring, coaching, taking active part in problem solving and role modeling (Liker & Hoseus 2008; Rother 2010). The Toyota leadership model rests on basic assumptions that differ from those found in many traditional organizations (Rother 2010). Toyota leadership is sometimes referred to as “servant leadership” indicating that the leader is there to basically support the production team members who are building the sellable product (Liker & Hoseus 2008 p.319), this is addressed as important by Emiliani (2007 p. 16) too, who points to the “Wiremold story” and their view of managers role: “*The primary job of management is to provide leadership to help people do a better job*”. Thus we argue that it is the manager’s responsibility, by acting as leaders, to develop people, which in a way, means to constantly challenge them. Developing people is a way to assure continuous improvement. With a long term perspective and the principle of respect for people, this means balancing the challenge to avoid overburdening (Muri) and to teach, coach and support. Emiliani (2006, p.168) points to a strong belief among Toyota managers that they must be very practical, see reality clearly, understand the true nature of problems, and be willing to challenge existing paradigms. This indicates that a deep knowledge regarding the operations processes is needed in order to be able to coach, mentor and develop employees in line with current standards. Regarding development of leaders, Spear (2004) describes the training of a Toyota leader. It is clear that starting to work for Toyota does not mean brief introductions, but rather learning TPS the long, hard way-practicing it. This is the way Toyota trains all new employees regardless of function or rank. To truly internalize the Toyota culture leaders have to grow within the company, learning and experiencing first hand. For this reason leaders are not easily recruited from outside the company, rather TPS is designed to cultivate leaders who in turn develop and teach the culture to others (Ibid pp.78-86).

### Implementation strategy

Mintzberg & Waters (1985) argue that the conception of strategy as something leaders of an organization “plan” to do in the future and the tendency thereby to treat strategy formation as an analytical process for establishing long range goals and action-plans for an organization; that is, as one of formulation followed by implementation is seriously limited. Mintzberg & Waters (ibid) define strategy as “*a pattern in a stream of decisions*”, stating that this definition was developed to “operationalize” the concept of strategy, namely to provide a tangible basis on which to conduct research into how it forms in organizations. Comparing intended strategy with realized strategy (Fig. 2) allows for distinction between *deliberate* strategies realized as intended from *emergent* strategies, patterns or consistencies realized despite, or in the absence of intentions.

*“Emergent strategy itself implies learning what works – taking one action at a time in search for that viable pattern or consistency. It is important to remember that emergent strategy means, not chaos, but, in essence, unintended order.” (ibid p. 271)*

This perspective on strategy implementation would suggest that intentions and priorities may change in the process of implementation as the organization learns, uncovers needs and/or discovers what works. Hence lean implementation or development in an organization may start out with one specific focus but change over time as the organization generates competence and understanding regarding its own needs.

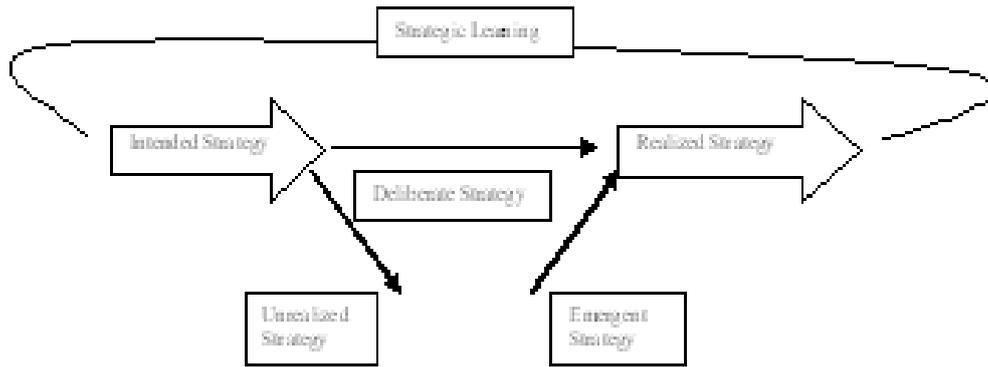


Fig. 2. Types of strategies. Mintzberg (1985 p. 271)

Emergent strategies as described by Mintzberg & Waters (ibid) appear to be similar to what Rother (2010) describes as Toyota's approach to continuous improvement;

*“The way from where we are to where we want to be next is a gray zone full of unforeseeable obstacles, problems, and issues that we can only discover along the way. The best we can do is to know the approach, the means, we can utilize for dealing with the unclear path to a new desired condition, not what the content and steps of our actions-the solutions- will be”* (ibid. p.8)

Rother (ibid) points out that we often make plans and then intend to execute them; reality however is neither linear nor predictable enough for this to be an effective way to reach our target conditions. Any step taken engenders reactions from the system and due to interconnectedness; we are not able to predict those reactions. What we are actually doing with a plan is making a prediction, and despite our best efforts we will not be able to avoid planning errors. Obstacles, unforeseen problems, abnormalities and false assumptions will appear as we work to move forward.

### Barriers to strategy implementation

Beer et al (2005) describe barriers to alignment of the organization with strategy and quotes Kotter, claiming that strategy formulation accounts for only 10 percent of success, while implementation accounts for the other 90 percent. It is during the implementation process that strategy is adapted, molded, and changed to fit the organizations specific circumstances. Beer et al (2005) state that:

*“Plans on how to achieve strategic objectives regularly change to reflect progress and the shifts in events that take place both internal and external to the organization. Thus the strategic process becomes an ongoing one, continuously updated in response to changes in the environment”* (Ibid. p. 449).

Barriers which obstruct the change process and the ability to implement change are by Beer et al (2005) presented in four themes:

- “Unhealthy” power & politics. (Overriding personal interests & ineffective resource allocation)
- Lack of organizational purpose & commitment (Weak/inefficient communication & lack of involvement)
- Resistance to change (Defensive routines & “organizational silence”)

- Preventing organizational learning (“Old” mental models & lack of honest feedback and communication) (ibid. p. 450)

These barriers generate symptoms within the organization such as unclear strategy and/or conflicting priority’s. They also impact the effectiveness of the top management team, the leadership style and skills within the organization, the coordination across functions and the vertical communication (ibid. p. 452).

Vertical communication as a prerequisite for awareness regarding obstacles or needs within an organization, i.e. factors for emergent strategy is addressed by Kotter & Schlesinger (2008), who state:

*“Managers who initiate change often assume both that they have all the relevant information required to conduct an adequate organization analysis and that those who will be affected by the change have the same facts, when neither assumption is correct. In either case, the difference in information that groups work with often leads to difference in analyses, which in turn can lead to resistance.”* (Ibid p.5)

The difference in analyses and perspectives within an organization make communication and dialogue essential in directing an organisation in one common direction (desired new way of working).

## Method

This paper is based on individual semi structured interviews with 14 managers on different levels in a Swedish manufacturing company aiming to become a company working with a business system based on Lean principles. Research sequencing consisted of 4 steps:

### 1. Involvement of participants

The research had a multilevel vertical approach and the managers were chosen from the company’s 5 different hierarchical levels with the aim to include all managers, from the President to first line managers, in one of the company’s business units (see fig. 3 below). Involved in the study were all managers within one production unit parttaking in a four year study regarding Lean implementation. To ensure a broader picture, top and middle management levels also included three participants from one other business unit and two other production units from the same organization. These participants were invited from the units representing the highest number of employees. All invited to take part in the study accepted and are included in the research presented in this paper.

Questions in the interview guide were the following:

- What is Lean to you?
- Does Lean implementation affect leadership? If yes, how?
- Do you have an image (vision) of aspired condition? If yes, please describe it.
- Do you feel there exists a common, shared understanding of the company’s business system.
- How is the implementation conducted?
- How do you view the implementation process?
- What challenges or obstacles do you see in establishing Lean within the organization?

## 2. Interviews

All interviews were conducted in company offices. Each manager was individually interviewed about their view of Lean and the company's Lean implementation process. The individual interviews lasted between 1.5 to 2.5 hours. The interviews were recorded with a digital voice recorder and the answers were transcribed to text. The interviews were divided between the researchers. Each researcher transcribed their interviews to text.

## 3. Analysis

The analysis was conducted by discussions and comparisons regarding the transcribed texts. Using a whiteboard the results were processed and finally structured, according to the research questions, in three themes; 1: The managers' view on Lean, 2: The managers view on the implementation process and 3: The relationship between how Lean production is defined and implemented. Furthermore the analyses resulted in the structuring of the five hierarchical levels into three management levels: top managers, middle managers and shop floor managers..

### Research questions:

1. How do managers on different organizational levels view lean, in terms of "toolbox lean" or "lean thinking"?
2. How do managers on different organizational levels view the implementation of Lean, in terms of a project with a time limit or as an ongoing developmental process?
3. How do managers view on Lean influence the implementation of Lean?

### The company

The study was carried out at a globally established Swedish manufacturing company. The company is divided into several independent strategic business units which in turn contain several production units. Total number of employees exceeded 8000 people. The company initiated the development and implementation of a Lean based business system seven years ago. Reasons for this change were needed improvements regarding quality, profitability and lead times. The business system is intended as a joint platform for the company's standardized way of working and doing business, aiming to enabling the company to run its operations in a decentralized way and yet assuring continuous improvement of its business and competitiveness. Initially an international consulting agency was hired to train a number of designated change agents (navigators) by running 16 week long "transformation-pilots" in selected production areas of the company. These transformation initiatives were later run entirely by the company's own change agents in production, sales&marketing and product development. Financial goals at the start of the implementation were to double earnings before interest and taxes and return on capital employed in three years and these goals were achieved. Secondary goals after achieving a financial platform have been growth and continuous improvement of productivity. The development and implementation of the system has now reached a point where demands are made across the organization in the form of "mandatory's" or fundamental standards that are to be met by local units, this can be seen as a way of sequencing the change effort.

### Findings

Based on the research questions the findings are presented as three major themes, 1; The managers view on Lean, 2; The managers view on the implementation process and 3; The

relationship between how Lean production is defined and implemented. Findings are presented in three organizational levels, top managers, middle managers and shop floor managers.

### Theme 1 The managers view on Lean

Among the top managers the view of Lean has changed over time from a tool oriented view to a more complex view of Lean as being about people's behavior and thinking as well. Lean is described as standardized tools in continuous improvement, a process of constant improvement of efficiency to generate customer value. The underlying needs for implementing Lean are said to be an increased level of competitiveness over time and the ability to run a decentralized organization and yet assure continuous improvement and mandatory company standards. The necessity of making this way of working company specific is stressed as absolutely essential. The president of the company reacted to the term Lean by saying "*We do not use the term Lean; we use the name of the company business system*". It is also stated that the company cannot compare itself with Toyota or other companies seen as lean representatives, since the tools or solutions applied within the company need to be specific for the company's needs. Comparing with Toyota the president states that "*If you look at it in terms of management protocol, then there is no difference but if you look at what Toyota does according to Lean, then it differs. Our solutions will be very different. We need to develop our own standardized tools and continuously improve them to be able to run a decentralized organization in a way that strengthens our competitive ability over time.*" The desired condition to be reached by the organization by developing a Lean based business system is described by top management as a state of transparent or highly visual communication and shared insight regarding the current state and way of working. The president states that the entire organization should have "*one, not the same, but a similar knowledge regarding how we operate and what we do, how we compete and what our current condition is. This should be obvious just by walking through (a department) and if you start a conversation with whom ever, you will get a damned clear picture of what the most important issues are at the moment and how one is positioned in regard to the nearest competitors.*"

The middle managers describe Lean as a way of maximizing customer value and assuring that employees grow as professionals. Focus is long term company survival by minimizing waste and by utilizing all the competence within the organization. One person states that "*I see Lean as the foundation of our business system*" and describes how his view of Lean has changed over time "*Lean for me has grown over time. In the beginning it was more of a set of methods and tools but there is also a very interesting philosophy behind it.*" The need to make improvements and way of working company specific is also mentioned at middle management level by one of the managers saying "*we are not implementing Lean; we are developing our way of working. To focus on implementation would be to exclude the employees from the development process.*" Aspired condition is described by middle managers as a standardized and highly visual state. Behavior and attitude among employees is indicated in terms of inspiration and a willingness to be part of development and reaching challenging goals. One unit manager describes what he wants to see in this way: "*The image I have of how it will be is that each individual, out here at the unit, by his own free will at each given moment does his utmost to reach jointly set goals, and to get there we need what I call articulated leaders. That is leaders who are clear about what it is that they want to achieve and why. They are able to connect to the big picture and explain it to their co-workers.*"

Among the shop floor managers the view of lean was said to have changed over time from a technical view to a view with both technical and human parts. There was a common

description of what Lean is about. They described the fundamental core of Lean as to create value for customers and trying to only do work that the customer is willing to pay for and that meant to avoid doing work that the customer does not need, which was said to be waste and something that they with Lean wanted to eliminate as far as possible. They said that in the end it was about survival for the company and that Lean was important in that respect. To be able to create value for the customer and avoid waste the work has to be done in a structured and controlled way and one of the shop floor managers was representative for the group when he said: *“organized control of the activity”*. Other common phrases about Lean, was that Lean was much about common sense and about trying to organize daily operations as simple as possible. The tools mentioned, to be able to do that, were standardized work, 5S and then continuous improvement. The shop floor managers meant that the Lean tools were very important and were confident that they could implement them in their workplace, but they felt that the problem and challenge with Lean lay in changing old habits and ways of thinking among the people in the company, they often during the interview related to that the most important and difficult challenge was to change the company culture. And even if they did see the tools in Lean as important they were very clear about that Lean is more a way of thinking and behaving than a set of technical tools and that the soft side of Lean, leading people, in the end is the hard part. All shop floor managers said that they needed much more knowledge about how to change people’s thinking and behavior.

At all the manager levels the view of Lean has changed over time, from Lean viewed as a set of tools to lean viewed as a concept of both a set of tools and a philosophy that is a base for creating a culture that guides the behavior and mindset among all employees working at different levels in the organization. This means that the implementation process, thru high lightening needs that were not foreseen, has “forced” the mangers to alter their view of what Lean is about, from a toolbox view to a Lean philosophy view, as illustrated in fig 3:



Fig.3 illustration of how the view of Lean can be changed thru the implementation process.

## Theme 2 The mangers view on the implementation process

Among the top managers the implementation is said to have been slower than they expected from the beginning and the changing of the company’s way of working is seen as a process over time and not as a project with a time limit. The company president described the strategy for implementation as an intervention over time were the general direction is what is most important and that tools for change are constantly revised and improved. *“We have been trying to find the way to best practice and along the way found problems that forced us to develop our way of working.* The president stated that the process had been a lot about trial and error and that it has been a learning and training process as he explain his view: *The better trained your organization is, the better trained your staff is the less error. We have made a lot off Error. I myself describe this process in a totally different way today than what I did five years ago, completely. The direction has not been changed but priority’s regarding what tools to use have been changed.”* The top managers argued that the leadership in the company has to be different in the future and described that the future leadership has to be

more focused on process and behavior than before. The president stated that; *“..it is a necessity to start finding ways to, in the same way as with the financial results, asking questions or having the organization auditing itself regarding it’s way of working, are we changing way of working and do we have the way of working that we perceive that we should have”*. Coaching of subordinates regarding way of working at this level is said to take place, but implicit and without a set structure.

Clarity regarding the framework of the business system, consistency and lower tolerance for deviations from set standards are mentioned together with a need for competence development for leaders. Manager’s ability to communicate is mentioned as a key factor in regard to this, one person states that; *“.. I feel that we sometimes take too little time to communicate what it is we are really trying to achieve and for what reasons and this may result in some people not fully understanding the reasons for our decisions. If we on top of that complicate things we will generate resistance instead of inspiration. Even if we say the same thing that does not mean we put the same meaning into what we say. So even within top management we should have more discussions.”* Communication between top management and the organization is pointed out by the president saying; *“The organization must, if we believe in continuous improvement, be allowed to come up with its own interpretation of what is needed for their unit, in order to enable a dialogue.”*

The way new leaders are introduced into the company and its way of working is constantly mentioned as important improvement areas for the organization. But it is also seen as important to grow leaders from within the organization to. One manager is clear about that when he says that: *“For the most critical positions we should always be able to recruit from within the company almost immediately”*. One of the business area managers sees the organizations way of introducing mandatory’s as a way to assure a long term perspective and local ownership of the actions needed to reach current mandatory demands. The same manager also expresses concern regarding how change efforts at the present are prioritized by financial payback, leaving support functions that do not generate direct financial results behind in the development process and thereby possibly generating internal tension. Commitment to the implementation and development process is said to come from an understanding that in order to remain competitive there is no option to establishing a way of working that ensures continuous improvement within the entire organization.

By middle management the strategy for implementation was consistently said to be locally owned and driven. There are local plans with specified focus areas. The work is said to be slow and reflective with time spent on vision and mission discussions to ensure heightened awareness and involvement regarding needs and intended activities. One manager states that; *“We are fairly competent with the tools, but the important thing is really the principles and philosophy behind the tools.”* One unit has composed a reference team made up of representatives from subunits to be able to test ideas and plans previous to acting. Another unit plans book circles for managers regarding Lean and coaching behavior. Mandatory demands are seen as positive if they are timed with current development within the local organization and point to what is to be achieved without to rigidly defining how it is to be done. This is however not always the case. One middle manager indicates one perceived important factor: *“That all people get on the same train and that they know why they are aboard”*. When he discovered a need among his shop floor managers’ for a forum for discussion, support and sharing experiences, and that they needed some sort of standard for their work as teachers and coaches he decided to have them all read the book Toyota Kata and

after that set up meetings for discussion about the book and what they could use from it to get a standardized management way of coaching and teaching.

The shop floor managers were very clear that in their opinion there was no shared picture, a vision, of the conditions in the company as a future Lean company. But they all said that they felt that at their workplace they had a common view of Lean and that they were very close to set a clear common vision of the future conditions they wanted. All of the shop floor managers said that it had taken much longer to come to where they were today than they had expected. One common explanation was that in the first years when the consulting company and the navigators came in to help them with the Lean implementation, it had been out of a technical view of Lean and with a set of tools. This had been done under a short time and as a project. When the project time was to an end the consults and navigators went on to other projects somewhere else, leaving them without really understanding what it all was about. All of the shop floor managers meant that the real Lean journey started now, when they had the knowledge they thought they needed about Lean themselves. But they said that outside their workplace they did not believe there was any common view of what Lean is, the company's purpose with Lean and neither any shared strategy for implementation. A reason they mentioned for having a more common view of Lean and being close to having a shared vision of the desired future conditions was that they had gone through the same Lean education and this had helped them to discuss and formulate their vision from a shared language and shared experiences. A common statement among all shop floor managers was that they didn't think that the top managers understood Lean and that the top managers and most middle managers were only concerned with numbers and did not care about the processes. One of the shop floor managers expressed this in a representative way when saying: *"Lean is still seen as a tool to improve the results fast, by many. Lean should instead be seen as a process focus and that the results are the natural output from the processes. Lean is about to be process oriented not result oriented"*. A common opinion among the shop floor managers was that top managers and middle managers had too little knowledge about the daily work and the processes.

Theme 3 The relationship between how Lean production is defined and implemented. It seems that the definition of Lean is affected by the learning taking place during implementation and that the evolving definition highlights needs within the organization which in turn affect the implementation. Needs like ability to coach and mentor employees and to influence behavior are mentioned at all management levels. The fact that the implementation and development process has been an ongoing one would suggest that there has been time and opportunity to learn from errors and improve the way of working in regard to implementation. Among top management it was stated that the work has been slower than anticipated, it was however seen as a process over time that aims at continuously improving the company's way of working. That future leadership will have to focus more on processes and behavior and the auditing of processes and way of working as well as financial results is seen as a necessity. Among middle managers the development of "our way of working" was mentioned and it was stressed that it is important not to exclude employees from the development process. Influencing employee behavior and attitude was seen as important and was reflected in the expressed need to develop coaching behavior among managers as well as the perceived importance of "getting all employees on the same train". Among shop floor managers it was stated that "Lean is more a way of thinking and behaving than a set of technical tools" and that the true challenge was to influence company culture. Although managers at all levels meant that over time there had been a change in their view of Lean from a technical, toolbox view to a philosophy view, with more focus on people,

learning and behavior. Some of the middle managers and all shop floor managers were under the impression that other management levels, particularly top management, still had not understood the importance of the human side of Lean/TPS, i.e. that the top managers still had a Lean toolbox view. This was very strongly outspoken when shop floor managers talked about top managers. This is a sign of lack of dialog between the different levels in the organization and may create distrust between the managers of different parts and hierarchical levels of the organization. Among the shop floor managers and one middle manager this had led them to a coping strategy that was described as “putting up an safety umbrella” to prevent supporting parts of the organization, as the HR department, to interrupt with instructions and plans that were to them contradictory to Lean and the “working culture” they were trying to establish at shop floor level. The use of a “safety umbrella” indicates that the problem stays hidden and is not being made visible to the organization, and thereby not possible to address and solve, which is contradictory to the Lean/TPS philosophy of highlighting problems so that they can be “Kaizened”. Since HR has a vital function in people development as described by Liker & Hoseus (2010) this lack of coordination or these conflicting prioritys most likely affect the implementation in a negativ way. The need for increased dialogue is also expressed at top management level by one of the Business Unit Presidents indicating that communication is not sufficient since even if the same words are used, that does not mean that the meaning behind the words is the same.

A future challenge mentioned by middle managers is to relieve first line managers of administrative duties to free more time for coaching and improvement work. However among the shop floor managers the HR department in the company was seen as a threat to the Lean implementation process and they were all very clear, saying that the HR-people didn't understand the daily work processes, the needs at the production level, and didn't understand Lean. And that HR comes up with directives and solutions that are contradictory to what was needed at production level and that increased their workload. That was so strongly viewed by the shop floor managers that they were trying to take over work from HR and do it by themselves. The feelings toward the HR department among the shop floor managers is clearly shown by a representative statement by one of the shop floor managers: *“I would never in my life contact the HR department”*. This may be a reflection of what one senior managers referred to when raising concerns regarding how change efforts at the present are prioritized by financial payback, leaving support functions that do not generate direct results behind in the development process and thereby possibly generating internal tension.

One middle manager, the head of the production unit that all the shop floor managers participating in the research worked at, sees health as a resource and wants to use ‘sense of coherence’ (SOC) (Antonovsky 1996) as a reference frame for developing people and uncovering needs within his part of the organization. The middle manger argues that, if work is perceived to be comprehensible, manageable, and meaningful by all people working in the unit, they have a greater chance to feel well at work. And that was in his opinion very important for their ability to do their best every day. If people don't feel well at work, and therefore can't do their best it will be waste of human resources and that would be contrary to lean philosophy. He wanted SOC to become an overarching philosophy for the managers in his unit, guiding them in their teaching and coaching role.

## Discussion

It is clear that the view on Lean has evolved at all management levels within the organization during the implementation. From a starting point were Lean was perceived as a set of tools by

most, it has, as the managers increased their knowledge evolved into a view that is more complex and also includes behavioural and cultural issues. As the president states; *I myself describe this process in a totally different way today than what I did five years ago, completely. The direction has not been changed but priority's regarding what tools to use have been changed*". This would indicate that even if the starting point of an implementation of Lean is tool focused, with focus on what Liker & Meier (2007) calls product value flow and Osono *et al* (2008) calls the hard side, it may over time come to include issues of management protocol addressing cultural development, behavioral issues, coaching and communication, what Liker & Meier (2007) calls human value flow and Osono *et al* (2008) calls the soft side, as learning regarding the organizational needs take place. This would be to get the two top level principles in TPS: "Continues Improvement" and "Respect for the people" (Emiliani 2006), what Liker & Hoseus (2008) call "the two pillars in the TPS house", in place. Which according to Isao Kato is fundamental, as he states that it is not possible to separate people development from production development and succeed with TPS/Lean in the long run (ibid p. xxiii). A prerequisite for this learning process would be that there is time and opportunity to learn. The implementation has as stated by both top management and shop floor managers progressed at a slower pace than planned. Emergent strategies are one reason for a slower pace than what was planned, as indicated by the statement *"We have been trying to find the way to best practice and along the way found problems that forced us to develop our way of working"*. This uncovering of unanticipated problems would suggest the development of *"unintended order"* and emergent strategies as described by Mintzberg (1985) which has reshaped the plans both for actions and timeframes. The introduction of mandatory's across the organization is one of the developments of *"way of working"* and is a result of the learning's the organization has made during the implementation. In spite of the pace of the implementation being slower than expected it has nevertheless been ongoing. The reason for this might be the understanding expressed by top management that *"in order to remain competitive there is no option to establishing a way of working that ensures continuous improvement within the entire organization"*. It is also stated by top management that the implementation is seen as a process over time and not as a project with a time limit.

The interviews showed that managers on different hierarchical levels of the organization believed there to be differences in view regarding Lean within the organization. A common statement among all shop floor managers was that they didn't think that the top managers understood Lean and that the top managers and most middle managers were only concerned with numbers and did not care about the processes, something the president proves to be wrong saying; *"..it is a necessity to start finding ways to, in the same way as with the financial results, asking questions or having the organization auditing itself regarding its way of working"*. We found the view on Lean to be quite similar at all management levels, described as a customer focused, standardized way of working that is continuously improved by keeping a process focus. The impression of there being differences in view regarding Lean is most likely caused by a lack of dialogue between organizational levels within the organization. One member of top management also addresses this issue saying that there is a need for improved communication and dialogue on order not to create resistance and confusion. That the need is perceived would suggest there being a *"knowing - doing gap"* in terms of communication and dialogue. This gap is present at all levels of the organization as illustrated by the defensive strategy of the *"safety umbrella"* used at middle and shop floor level. These defensive routines and the organizational silence as described by Beer et al (2005) results in a lack of feedback within the organization, preventing organizational learning and the reshaping of mental models.

The implementation process is by shop floor manager's perceived to be without a clear vision or ultimate goal for the organization overall, what Beer et al (2005) defines as "*Lack of organizational purpose and commitment*". There is however a clearer picture regarding the own unit, where there is said to be a clearer view of a vision for the developmental work. This can be linked to the statement that the strategy for implementation was by middle management consistently said to be locally owned and driven, which is in line with the president saying; "*The organization must, if we believe in continuous improvement, be allowed to come up with it's own interpretation of what is needed for their unit, in order to enable a dialogue.*" Without the desired dialogue the local ownership might however oppose top managements intention to run a decentralized organization and yet assure continuous improvement and mandatory company standards. It may also explain the defensive routine of the "safety umbrella". The lack of organizational purpose and commitment might according to Beer et al (2005) result in conflicting priorities and is caused by weak or inefficient communication and involvement.

The implementation process has increased the need for communication and dialogue within the organization and uncovered a feeling of lack of ability to coach and teach among the shop floor managers. It has become obvious to shop floor managers that proficiency regarding tools is not sufficient; the ability to coach employees in a desired way of working and influencing behavior is also needed. Related to Kotter (2001) and Geller (2002) this may indicate that the managers feel comfortable with their management ability but need to reinforce their leadership ability. The way Lean production is currently defined within the company thus apparently generates an increased need for leadership.

To see health as a resource is a view that is to be found within the health promotion context, here health is considered less as an abstract state and more expressed in functional terms as a *resource which permits people to lead an individually, socially and economically productive life*. Health is thereby seen as a resource for everyday life. It is then seen as a positive concept emphasizing social and personal resources as well as physical capabilities (WHO 1998). In Ottawa Charter for Health Promotion from 1986, Health promotion is described as the process of enabling people to increase control over, and to improve their health (WHO 1986). Health promotion is described as a comprehensive social and political process, and not only embraces actions directed at strengthening the individuals skill and capabilities, but also actions directed to changing social, environmental and economic conditions, which has an impact on public and individual health (WHO 1998). The definition of health promotion has, since the 1986 Ottawa charter been developed to: *Health promotion is the process of enabling people to increase control over the determinants of health and thereby improve their health*. Participation is essential to sustain health promotion action (WHO 1998). Antonovsky introduced his salutogenic theory 'sense of coherence' (SOC) as a global orientation to view the world, claiming that the way people view their life has an influence on their health. Sense of coherence explains why people in stressful situations can stay well and even be able to improve their health (Lindström & Eriksson 2006). The strength of one's SOC is shaped by three kinds of life experiences: consistency, underload-overload balance, and participation in socially valued decision making (Antonovsky 1996). The three key components in SOC is 1 comprehensibility—the cognitive component, 2 manageability—the instrumental or behavioural component; and 3 meaningfulness—the motivational component. Antonovsky meant that people have to understand their lives and they have to be understood by others, perceive that they are able to manage the situation and deepest and most important perceive it is meaningful enough to find motivation to continue Lindström & Eriksson (2006).

## Conclusion

We conclude that manager's definitions of Lean may develop and alter during an implementation, due to the learning taking place in the organization during the implementation process. As the definition of Lean develops, new and unforeseen deviations or needs may be identified, as in this case, an increased need for leadership, coaching and dialogue. This in turn affects manager's view on the implementation process. Prerequisites for this type of learning and development are time and opportunities to learn. So, as supported by Schein (1993, p.91), although the learning process may begin as a project intended to make one major transition, the learning organization will discover that what it has launched has to become a way of life and that the norms supporting learning have to be reinforced perpetually.

Based on the findings and on the fact that Lean is focused on continuous improvement we argue that implementing Lean has to be seen as an initiation of a never ending learning process and not as a project. Further we argue that people are the active part in Lean/TPS, not the tools, and this would require management to adopt a chain of teaching and coaching rather than a chain of control, a participative behavior rather than a directive one and reflection on their own behavior and results in order to promote self development as well as organizational development. Further, if health promotion is viewed as an action process with the goal to strengthening the individuals skill and capabilities to move toward healthiness and well being, and that health is seen as resource which permits people to be individually, socially and economically productive, we argue that health is an important issue for organizations that set out for Lean and is connected to the "respect for the people" and human value stream part of TPS/Lean. We mean that a lower degree of health than necessary is waste in the human value flow with negative impact on the production value flow. And from that follows that Sense of coherence (SOC) perhaps may be seen and may be used as a practical guiding principle for managers in organizations working to implement and sustain Lean, and thereby should be researched further.

## REFERENCES

- Antonovsky, A. (1996) The salutogenic model as a theory to guide health. *Health Promotion International*, Vol. 11, No. 1.
- Beer, M., Nohria, N. (2000) *Breaking the code of change*. Harvard Business School Press. Boston, Massachusetts
- Beer, M. Voelpel, S. Leibold, M. Eden, B. (2005) Strategic Management as Organizational Learning: Developng fit and Alignment through a Disciplined Process. *Long Range Planning* Vol.38, pp. 445-465.
- Bhasin, S., Burcher, P. (2006) Lean viewed as a philosophy. *Journal of Manufacturing Technology Management*. Vol. 17, No. 1 pp. 56-72.
- Emiliani, M. L. (1998) Lean Behaviors. *Management Decision*. 36/9 pp. 615-631.
- Emiliani, M. L. (2006) Origins of lean management in America - The role of Connecticut bussinesses. *Journal of management History*, pp167-184.

- Emiliani, M. L. (2007) *Better thinking, better results* (second ed). USA: The Center for Lean Business Management, LLC.
- Geller, S. E. (2002) Leadership to Overcome Resistance to Change: It takes More Than Consequence Control. *Journal of Organizational Behavior Management*, Vol. 22 (3) 2002. pp. 29-49.
- Hines, P., Holweg, M. and Rich, N. (2004) Learning to evolve, *International Journal of Operations & Production Management*, Vol. 24, No. 10, pp. 994-1011.
- Holweg, M. (2007) The genealogy of lean production. *Journal of Operations Management*. 25 pp. 420-437.
- Imai, M. (1997) *Gemba Kaizen - a commonsense, low-cost approach to management*. New York: Mc Graw Hill.
- Kotter, J. P. (2001) What Leaders Really Do. *Harvard Business Review* (reprint) December 2001, pp. 85-96.
- Kotter, J. P. & Schlesinger, L.A. (1979) Choosing strategies for Change. *Harvard Business Review*, March - April, pp. 106-114.
- Kotter, J. P. & Schlesinger, L.A. (2008) Choosing strategies for Change. *Harvard Business Review*, (reprint) July – August.
- Krafcik, J. F. (1988) Triumph of the Lean production System. *Sloan Management Review*. pp. 41-52.
- Liker, J. K. & Meier, D. P. (2007) *TOYOTA TALENT – DEVELOPING YOUR PEOPLE THE TOYOTA WAY*. USA: McGraw-Hill.
- Liker, J. K. & Hoseus, M. (2008) *TOYOTA CULTURE – THE HEART AND SOUL OF THE TOYOTA WAY*. USA: McGraw-Hill.
- Liker, J. K. & Hoseus, M. (2010) Human Resource development in Toyota culture. *International Journal Human Resources Development and Management*, Vol. 10, No. 1, pp. 34-50.
- Lindström, B. & Eriksson, M. (2006) Contextualizing salutogenesis and Antonovsky in public health development. *Health Promotion International*, Vol. 21 No. 3.
- Mintzberg, H. & Waters, J.A. (1985) Of strategies, Deliberate and Emergent. *Strategic Management Journal*. Vol. 6, No. 3. pp. 257-272
- Osono, E., Norihiko, S., Takeuchi, H. (2008) *Extreme Toyota*. New Jersey: John Wiley and Sons Inc.
- Pettersen, J. (2009) Defining lean production: some conceptual and practical issues. *The TQM Journal*. Vol. 21 No 2, 2009.

Rother, M. (2010) *Toyota Kata. Managing People for Improvement, adaptiveness and superior results*. USA: McGraw-Hill.

Schein, E.H. (1993) How Can Organizations Learn Faster? The Challenge of Entering the Green Room. *Sloan Management Review*. Winter 1993, pp. 85-92

Spear, S., Bowen, K. H. (1999) Decoding the DNA of the Toyota Production System. *Harvard Business Review*. September – Oktober, pp. 97-106.

Spear, S. (2004) Learning to Lead at Toyota, *Harvard Business Review*. May 2004, pp.78-86.

Sugimori, Y., Kusunoki, K., Cho, F. and Uchikawa, S. (1977) 'Toyota production system and kanban system materialization of just-in-time and respect-for-human system', *International Journal of Production Research*, Vol. 15, No. 6, pp. 553-564.

Toyota Supplier Support Center (TSSC) *The Toyota Production System Seeks True North*. [www.sme.org/cgi-bin/get-newsletter.pl?LEAN](http://www.sme.org/cgi-bin/get-newsletter.pl?LEAN)

World Health Organization (1986) *Ottawa Charter for Health Promotion*. WHO: Geneva

World Health Organization (1998) *Health Promotion Glossary*. WHO: Geneva

Womack, J. P., Jones, D. T., Roos, D. (1990) *The machine that changed the world*. New York: Rawcon Associates.