

The lean value assumption

Reconsidering two value assumptions of lean, for improvement of total value creation



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Inhoudsopgave

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Introduction

Lean is a management theory that has proven to be no management fad, since its presence has steadily increased from the introduction at the end of the last century. It is said that lean is about creating customer value by minimizing 'waste' in the production processes. Besides, the value that is created for customer the literature shows doubt about the capacity of lean to provide value to employees. Therefore, this thesis identifies and investigates two lean value assumptions and compares this assumptions with the current knowledge about value creation for customers and employees.

The first chapter shortly describes the theory of lean thinking, and tries to extract the underlying assumptions about the creation of value in a lean thinking and producing environment. The second chapter will investigate the current knowledge about value creation on the field of customers, followed by the third chapter, which will be about value creation for employees. After that, follows the conclusion, which summarizes how the total value that lean creates, can be improved. Finally the discussion will be used to discuss the validity of this thesis and the future research possibilities on the topic of lean and value creation.

1. Lean

This chapter consists of two paragraphs. The first part will give a short explanation about the theory of lean, for those who do not know the concept. This explanation will serve as a stepping stone to the second part of the chapter, in which the underlying value assumption of lean will be extracted.

1.1 Lean in a nutshell

The origin of lean

The concept of lean originates from the production methods developed at Toyota Motor Corporation by Taiichi Ohno (Womack and Jones, 2003; Hines et al., 2004; Arlbjørn and Freytag 2013). He combined the ideas of flow, quality prevention and continuous improvement to form the basis of the Toyota Production System also called TPS (Arlbjørn and Freytag 2013).

It took a few decades, before the concept of 'lean production' was first mentioned in Western literature (Hines et al, 2004), in the 1990 book, 'The machine that changed the world' by Womack and Jones (Black, 2007). In their book they described the production philosophy, tools and techniques of the Japanese car producer Toyota.

Eliminating waste

The core concept of the theory of lean is about eliminating as much waste as possible (Hines et al., 2004; Chauhan and Singh, 2012; Arlbjørn and Freytag 2013). Originally Taiichi Ohno identified seven wastes that need to be minimized. Those seven wastes are:

(1) *overproduction*, (2) *excess motion* (of operator, material or machine), (3) *waiting* (of operator, material or machine), (4) *transportation*, (5) *excess processing*, (6) *inventory*, and (7) *defects* (rework and scrap) (Womack and Jones, 2003; Czapke et al., 2008; Staats and Upton, 2011; Chauhan and Singh, 2012). Authors later added wastes like '*unused employee creativity*' (Czapke et al., 2008; page 78) or '*goods and services which do not meet the needs of the customer*' (Womack and Jones, 2003; page 15).

Customer value

Womack and Jones (2003) identified five steps to lean. The five subsequent steps are; identify the value, identify the value stream, create flow, establish pull and finally striving for perfection. While tools and techniques are mentioned for the last four steps (e.g. 2nd step: value stream mapping, 3rd step: total preventative maintenance, 4th step: just-in-time practices, and 5th step: kaizen events) the only advice that is given for the first step is ‘...talk to customers...’ (Womack and Jones, 2003; page 35). Although this is a good start for identifying the value, its vagueness might explain why it is hard to find literature stating specific tools or techniques to identify customer value in the context of lean. Therefore, one of the two goals of this thesis, is to identify how lean could enhance the value delivered to customers.

Employee value

Lean can be seen as a collection of tools and techniques that all complement each other (Chauhan and Singh, 2012). A few examples of techniques are; Just-in-time production (Womack and Jones, 2003; Hines et al., 2004; Pettersen, 2009; Chauhan and Singh, 2012), which minimizes inventory, Total Quality Management (Womack and Jones, 2003; Pettersen, 2009; Angelis et al., 2010; Arlbjørn and Freytag 2013) minimizing mistakes and defects, and Total Productive Maintenance (Womack and Jones, 2003; Pettersen, 2009; Angelis et al., 2010) which minimizes machine downtime. When Taiichi Ohno originally developed the Toyota Production System, there was much attention for the human aspects of respect for people (Hines et al., 2004; Treville and Antonakis, 2006; Pettersen, 2009; Marley and Ward, 2013). However, when non-Japanese firms are introducing lean to their companies, they in general, focus on the tools and techniques and neglect the human part of the philosophy (Losonci et al., 2011; Liker and Morgan, 2006; Hines et al., 2004). As a reaction to this, the second goal of this thesis is, to focus on the value that lean is creating to their employees.

1.2 The lean value assumption

There is no unambiguous definition of lean (Hines et al., 2004; Pettersen, 2009; Arlbjørn and Freytag 2013), this absence of clear guidelines to identify if a company is truly lean, or is only thinking or pretending to be lean (Pettersen, 2009; Arlbjørn and Freytag 2013) probably explains why results about the outcomes of lean initiatives on the subject of company performance (Arlbjørn and Freytag 2013), and human aspects (Treville and Antonakis, 2006), are often mixed.

Customer value

A core lean principle on which every lean author agrees, is that lean is about adding value by minimizing the internal waste in the production chain (Hines et al., 2004; Angelis et al., 2010; Chauhan and Singh, 2012). By producing without ‘waste’ - meaning the minimal resources necessary to produce a product - lean tries to bring the product cost down to the minimum amount, thereby reasoning that this creates the best price/quality ratio. Intuitively, this feels like lean is only using half of the value equation, thereby missing the part of customer value perception. Two authors (Womack and Jones, 2003; Hines et al., 2004) however talk about the adding of extra value for the customer. Hines et al. (2004) has produced a graph in which this two-sided value equation is clearly stated (see figure 1, at the right hand side).

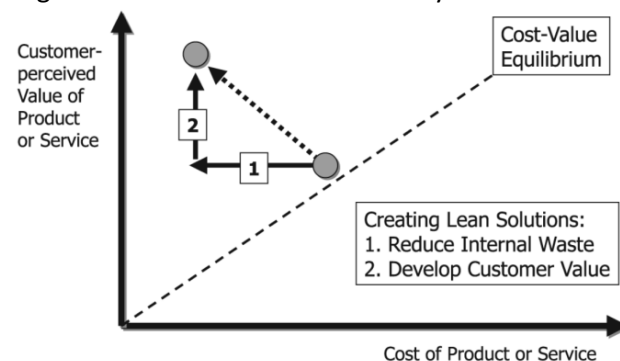


Figure 1: two types of lean value creation, as developed by Hines et al. (2004) 3

However, both Womack and Jones (2003), and Hines et al. (2004) are giving examples of adding customer value by reducing the delivery cycle, or decreasing the delivery batches (Womack and Jones, 2003; Hines et al., 2004). Still, these given options are focusing on the way the product is produced, and thus not necessarily on the addition of perceived customer value. Womack and Jones (2003) state that listening to the customer is a way in which value can be identified, but they later negate this statement by saying that customers can only come up with variations of what they already know. These findings are supported by Pettersen (2009) who states that methods to analyze customer requirements are exceptionally rare, suggesting that it is not an intervention that is typical to lean. The first lean assumption, created from the information above, is about customer value, and states:

'Customer value is created by eliminating all non-value adding activities in the production process which results in the lowest possible production costs, and thus an optimal price/quality ratio'.

Employee value

The human aspect, or respect for people is an important pillar of the original lean philosophy as developed by Toyota (Hines et al., 2004; Treville and Antonakis, 2006). Non-Japanese companies however, have a tendency to focus on the tools and techniques of lean production because these create the most visible and immediate results, thereby often neglecting the human part of the lean philosophy (Hines et al., 2004; Pettersen, 2009). An often mentioned statement about lean workers is that they are multi-skilled, thereby being able to be placed wherever there is need in the production process. The reasoning is that this challenging and varying work keeps the work more interesting. Another element of lean, is that the work is standardized (Pettersen, 2009), thereby increasing the quality and speed, and simultaneously decreasing the possibility of mistakes. The fact that people do not have to actively think about the standardized production steps, creates the brain capacity to come up with ideas to improve production. Because the work is standardized, and the employees are multi-skilled they can often produce the product from start to beginning. This is in sharp contrast with regular assembly line workers, who generally only see a small part of the product. The increased product knowledge and work challenge, should make the worker more involved with the product and the organization as a whole. From this lean employee characteristics, results the second lean value assumption.

'Employee value is created by giving workers different tasks in a standardized working environment, in which they can contribute to the whole product, and come up with improvement ideas'.

Chapter three will go further into what employees value, and to which degree lean performs in delivering that value to the employee. But first chapter two will explore the realm of perceived customer value, and how lean organizations could use that knowledge to its advantage, when trying to create customer value.

2. Customer value

This chapter starts with shortly explaining the concept of customer value by comparing value research. Subsequently, the concept of customer value will be divided into four distinctive parts. Each of those parts will explain in more detail how customers perceive value and how it can be enhanced. This chapter will be concluded with the most important lean implications for adding more customer value.

2.1 Defining customer value

'Customer value' is a definition that can have different meanings and can be interpreted in various ways. Because 'customer value' is a rather broad definition, the scientific literature is not unambiguously clear about the description of customer value. Non the less, there are four commonalities that can be recognized among the different descriptions and formulations of customer value.

The first recurring aspect of customer value, is the presence of a benefit that brings the user a benefit that outweighs the costs (Anderson and Narus, 1998; Wang et al., 2004; Khalifa, 2004; Lindgreen et al., 2012; Lee, 2013). Costs involve the cost of finding, buying, using, and dissolving of the product or service. A second aspect of customer value that is widely cited, is the comparison of the offering value, with the value created by competitors (Anderson and Narus, 1998; De Chernatony et al., 2000; Lee, 2013). A product only has value when it beats the competition on one or more essential value characteristics. The third aspect of customer value on which authors unanimously agree, is that the value of a product gets determined by the value perception of the customer (Neap and Celik, 1999; Wang et al., 2004; Khalifa, 2004; Sánchez-Fernández and Iniesta-Bonillo, 2007;). The last of the four commonly named aspects of customer value, is that the amount of value customers perceive differs among individuals (De Chernatony et al., 2000; Lindgreen et al., 2012; Maznan et al., 2012). This means that the degree of value customers perceive is subjective, and thus variable. The four aspects of customer value as introduced above will be explained further in the remaining part of this chapter.

2.2 Benefits versus costs

The first of the four aspects of customer values identified, is the trade-off between benefits and costs. The benefits a customer perceives can be both intrinsic and extrinsic. The former, being a part of the physical product, and the latter, including attributes related but not part of the product itself (Lowry, 2003; Sánchez-Fernández and Iniesta-Bonillo, 2007). Extrinsic value is about the value the product delivers, that is not a part of the core value, and thus not a part of the physical product. A car for example can be attractive to see (aesthetic), have a low gas mileage (costs), or give the user more status. Extrinsic value of a vacuum cleaner could be, that it has a long wire, high sucking power, or that it does not need a dust bag because of a new innovation.

The second part of the trade-off involves the costs of a product, these can be both monetary and non-monetary. Examples of non-monetary aspects can be time, effort, or risk (Sánchez-Fernández and Iniesta-Bonillo, 2007;).

Types of customer value

Zeithaml (1988) as cited in (De Chernatony et al., 2000; Khalifa, 2004; Lee, 2013) identifies four types of customer value:

1. Low price (focus on sacrifice);
2. Whatever the consumer wants in a product/service (focus on benefits);
3. The quality obtained for the price paid (trade-off between sacrifice and benefit);
4. Total benefits obtained for total sacrifice incurred (all relevant components considered).

The first type of value is the lean value interpretation of lean, but is only likely to be relevant when all other offering aspects are equal, which is the characteristic of homogenous goods. Only focusing on the benefits, as in the second type of customer value, is not realistic because most customers are bounded by their time and money budget, and thus need to take those among others into account. The third value only involves quality and price, which limits the description to the tangible and monetary product aspects. Therefore the fourth type of customer value is the best representation of how customer perceive the value trade-off. A visual representation of how customer value is build, can be seen in figure 2 (Khalifa, 2004; page 656).

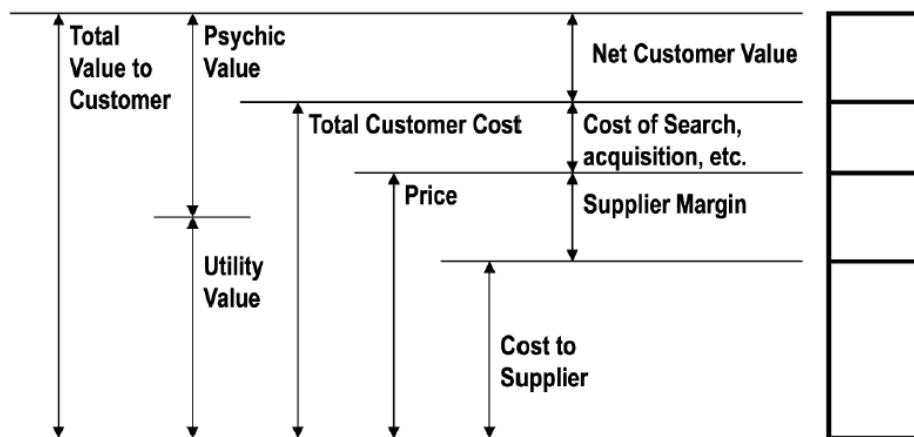


Figure 2: the total customer value, as developed by Khalifa (2004)

Improving the trade-off

Figure 1 shows that a decrease in cost of search, would result in higher net customer value. A retail example of reducing the non-monetary costs of customers is to provide distribution services like a convenient location, depth and breadth of assortment, on site information, among others. Those services reduce the customers' precious time and effort needed for the purchase. Therefore a retailer can charge a premium for those services as long as the premium is lower than the savings in time costs of the consumer (De Chernatony et al., 2000; Priem, 2007).

Another way of raising profits for both producer and customer, can be to utilize the customer access value. Customer access value can be described as the value of using the customer for marketing and selling value-adding or third party products (Lai, 2014). However, overdoing this, will likely decrease customer value, so the product and/or services that are marketed or sold need to really add value in the eye of the customer. An example of this is the ANWB (Dutch car problem assistance) who also sells car- and travel insurance to their members.

2.3 Customers determine the value

Although a company or retailer determines the selling price – also referred to as ‘exchange value’ - for a product or service, the important customer value is determined by the customer itself (Neap and Celik, 1999; Lowry, 2003; Khalifa, 2004; Sánchez-Fernández and Iniesta-Bonillo, 2007). Customers only buy a product when the price is below the perceived customer value (see figure 2)

Customer value models

There are different theoretic models about the way customer perceive value from a product or service. These theoretic models can be divided into three groups, being; value component models, utilitarian models or benefit/cost models, and means-end models (Khalifa, 2004). It goes beyond the scope of this thesis to explain all the models in these three groups in detail. Therefore the models will be shortly explained on the group level.

Value component models in general try to identify and explain the different components of (dis)value that comprise a product or service. Two main value components are value adding components (satisfiers), and ones that destroy value (dissatisfiers). There are also neutral (neutrals), and essential (criticals) components (Khalifa, 2004; Vargo et al., 2007). Over-satisfaction is the situation in which customers basic expectations are exceeded. This over-satisfying of customers leads to delight which results in an offering that is superior to that of competitors (De Chernatony et al., 2000).

A second value model group consists of utilitarian or benefit/cost models, those are about weighing the (perceived) benefits against the costs for customers. According to these models benefits can be tangible, or non-tangible and the costs can be monetary and non-monetary (Khalifa, 2004; Sánchez-Fernández and Iniesta-Bonillo, 2007; Priem, 2007).

The third group of means-ends models assume that customers use products and services to accomplish certain goals or purposes. According to these theories, value can be categorized as functional, social, emotional, epistemic and conditional (De Chernatony et al., 2000; Wang et al., 2004; Khalifa, 2004; Sánchez-Fernández and Iniesta-Bonillo, 2007). With functional dealing with the functionality, social with the social utility, and emotional being about the utility of an affective state that is generated by a product. Epistemic and conditional are about the knowledge and habits of the customer.

Customer relationships

Lai (2014) recognizes the importance of the building of a relationship in creating customer value. This is acknowledged by Khalifa (2004) who mentions that customers base their buying decisions for up to 70 percent on interactions and only 30 percent on product attributes. Therefore the relation with the customer is an essential part to consider when attempting to increase customer value. The ‘customer value buildup’ model of Khalifa (2004) gives a good multidimensional expression of the influence of the relationship on customer value (see figure 3: Khalifa, 2004; page 657).

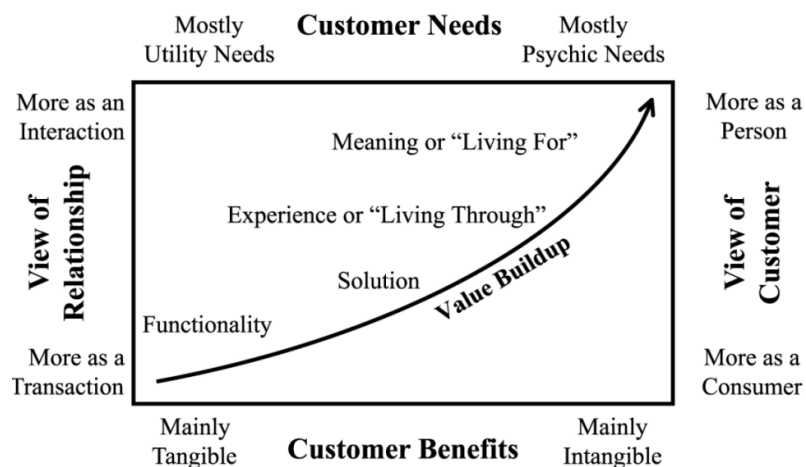


Figure 3: the customer value buildup model, as developed by Khalifa (2004)

Besides delivering a superior product in the eyes of the customer, the connection between producer and consumer is important for value creation and competitiveness (Chan et al., 2010). A method that can help by keeping contact with the customer and anticipating the needs of the customer is using a CRM system (Chan et al., 2010; Lai, 2014). Another way to increase the customer relationship, is by using a marketing information system (MIS), which can make personalized offerings to customers (Lowry, 2003).

Increasing customer satisfaction

This paragraph will go further into the concept of satisfiers, dissatisfiers, criticals, and neutrals, having its origin in the Kano model (Vargo et al., 2007; Conti, 2013). Satisfiers are features that satisfy the customer when present in a product or service. Satisfiers do, on the other hand, not decrease the perceived value when absent, because customer see it as something extra, and therefore do not miss its presence when not applied. Dissatisfiers are product or service elements that decrease the perceived value when present, but do not enhance its value when absent. This is because customers generally expect an offering to be of good quality, and to experience a smooth business transaction and thus not value the absence of dissatisfiers.

When the product or service however performs below expectations, it will cause a significant drop in the perceived customer value. 'Prospect theory' as developed by Kahneman and Tversky (1979) suggests that the influence of losses (dissatisfaction) is greater than the impact of gains (satisfaction) (Vargo et al., 2007). This means that for maximum value creation, the elimination of dissatisfiers needs to have priority over the increase of satisfiers. Research seems to support the theory on the influence of customer value, identifying that several compensatory satisfying transactions are needed, to compensate for one dissatisfying transaction (Vargo et al., 2007). Complaint handling, can be a useful source of identifying dissatisfiers, with the goal of reducing the dissatisfiers as much as possible, thereby increasing customer value (Vargo et al., 2007).

Criticals are features or elements that have to be present in the product or service to be able to actually be in the marketplace because they are critical in the consumers' decision making process to buy or not to buy.

2.4 Comparison with competition

There is a broad consensus that customer value creation is necessary for creating a competitive advantage and long term success (De Chernatony et al., 2000; Payne et al., 2000; Wang et al., 2004; Khalifa, 2004; Sánchez-Fernández and Iniesta-Bonillo, 2007; Vargo et al., 2007; Lindgreen et al., 2012;).

Creating a competitive offering

Products or services can have more value than the competition by having a decreased exchange value - meaning a lower price - or by increasing the product value (Neap and Celik, 1999; Priem, 2007). This value can consist of 'use value' involving the physical product and its features, 'esteem value' (prestige and status), and 'other value situations' such as aesthetics, ethics, morals, religion, (Neap and Celik, 1999; Lindgreen et al., 2012; Bode and Müller, 2013; Lee, 2013) but also efficiency, excellence, play, and politics (Lee, 2013). Sánchez-Fernández and Iniesta-Bonillo (2007) cite the terms 'utilitarian value', and 'hedonic value' from which the ladder is a combination of both the earlier mentioned esteem-, and other value components.

The decrease of satisfier value

The existence and influence of satisfiers has already been discussed in the previous paragraph, but it can be useful to know that the existence of competition, can lower the satisfiers to the level of criticals. The critical can in turn change into a dissatisfier when not present in a product. This effect of decreasing satisfiers arises from the fact that competing companies try to copy the successful satisfier, thereby decreasing its value because it no longer creates a distinct advantage in comparison with the competition (Vargo et al., 2007; Conti, 2013). When a satisfier is implemented by almost all the direct competitors, the customer takes the presence of the once satisfier for granted, which finally decreases the satisfier to the level of critical, meaning it is essential but does not enhance satisfaction. A clear example of this effect can be seen in the developments in the car industry. Where electric windows and steering support were once features, exclusively reserved for the most expensive and luxury cars. While it is now a standard feature on practically every new car. As a result the features existence does not add value, but the lack of its presence can lower the perceived customer value of the car significantly, as earlier explained on the subject of criticals. So, to keep customer satisfied it is essential to continuously create new satisfiers in the rat-race against satisfier inflation (Vargo et al., 2007; Kähkönen and Lintukangas, 2012). It can be useful to know that satisfiers that are linked to the symbolic meaning of a product, and thus intangible, seem to be more sustainable than non-symbolic, or tangible satisfiers (De Chernatony et al., 2000; Vargo et al., 2007). Although dissatisfiers have more influence than satisfiers, the impact of criticals seems to be of even greater influence (Vargo et al., 2007), therefore companies searching for maximizing customer value should focus on assuring the presence of all the products' criticals.

Increasing customer loyalty

Service quality, being an intangible satisfier is specifically mentioned to cause customer loyalty and thus giving a sustainable competitive advantage (De Chernatony et al., 2000; Lee, 2013). Other research shows, that there is a strong correlation between satisfied customers and their loyalty to a company. When customers are more loyal they will most certainly stay customer for a longer period, consume more of the product or service, and produce positive word-of-mouth (Vargo et al., 2007), with the latter, being free and invaluable marketing.

Research suggests that a five percent increase in the retention (relationship length) of customers can enhance the customer net profit with up to 125 percent. Even among a wide range of industries, the increase of net customer value, increased with 40 to 50 percent (Payne et al., 2000). This effect can mostly be prescribed to the fact that keeping customers is far less expensive than the acquisition of new ones (Chan et al., 2010). Customer retention can be increased by having high service quality, because research shows, that service quality has the strongest influence on customer loyalty and retention (Lee, 2013). Others, correctly mention that trying to increase the retention of customers who are unprofitable, is destroying value, instead of creating it (Payne et al., 2000; Lindgreen et al., 2012). Therefore, creation of value lies only in the retention of profitable customers.

2.5 Value perceptions differ between individuals

The amount of value a customer assigns to a product or service is influenced by the circumstances, emotions, knowledge, memories and historical experiences of the individual (Maznan et al., 2012). Also the utility value can differ among customers (De Chernatony et al., 2000; Lindgreen et al., 2012) because a customer might not use all the extrinsic value aspects of a product. As a result customer do not fully recognize the value the product could deliver (Priem, 2007). For those people the

potential value is not acknowledged and therefore is never fully materialized, which in lean terms can be seen as a waste. How much value a customer perceives or experiences, can be enhanced in different ways. One way to enhance the customer value, is to increase the experience a customer has with a certain product or service. This is the reason why new products often have a low introduction price, or that free samples are given away (Priem, 2007). Not only product experience, but also product knowledge can be of influence in enhancing the value a customer perceives (Priem, 2007). Someone who knows a lot about a certain painting style will enjoy the paintings in a museum far more than someone who lacks that knowledge. Therefore, the informing and education of customers can create additional offering value, without actually changing the offering itself. A way to inform potential customers about a product, can be advertising. Advertising costs typically range from 40 to 60 percent of a products' selling price. Therefore, a firm needs to strive for reaching no customer outside the product target group, because all advertising beyond this group is useless and thus in lean terms 'waste' (Lowry, 2003).

2.6 Lean implications for customer value

From the benefits versus costs comparison, a few implications can be identified for lean production or service practices. As chapter one about the lean value assumptions identified, lean assumes to create maximum value by minimizing the internal waste. The knowledge, that customers weigh the costs against the value of a product or service, shines a new light on the waste reduction philosophy of lean. From the benefits versus costs perspective can be said, that by reducing the internal waste, the 'costs' for the customer are lowered because of lower product price. The other side of the equation – the benefits side – lays a whole spectrum of opportunities for lean, to add extra value to the products or services. From this can be said, that most lean practicing companies, are only using half of the opportunity to add value to their product or services.

Looking at the subjectivity of the value that is perceived, a real opportunity for lean application arises. All the added benefits that do not enhance the perceived value for the customer are not adding value (Lowry, 2003), but are creating waste by using resources in the form of time, money, or materials to put in the product or service, without increasing its value. Those added product- or service features, that do use resources, but do not enhance the perceived customer value, should - in line with the first lean value assumption – be eliminated. A solution for the elimination of all non-value adding features would be to produce customized products or services that only consists those features the particular customer values. An already existing example of this, are the options and features that are possible when ordering a new car. Besides the unnecessary product features, advertising only needs to reach potential customers, because all the advertising that reaches beyond the target market is waste (Lowry, 2003).

When looking at those non-value adding product or service features from a perspective of value adding (instead of waste elimination) a solution arises in the form of informing the customer about the existence of certain features who would otherwise stay unnoticed. A company or retailer could also consider to educate the customer about the usefulness of certain features. Both the informing and educating of the consumer can make the customers value the product in a (more) positive way, and thus, increase value. Important to notice, is that a benefit/cost analysis should be made, to make sure the added value of informing or educating, is costing less than the value equivalent it is producing.

3. Employee value

This chapter will start with a short description of what literature tells about happiness and well-being in the workplace. The second part will give a description of the lean assumptions about what workers want. This will be followed by a summary of some lean case-studies in which the employee part of the value creation was absent or at least incomplete. The chapter will then be concluded with the most important lean implications for adding more value for the employees.

3.1 What employees value

Defining engagement

Literature uses many ways for describing the positive state of mind in which workers are happy, enjoying their work, and perform at their best. Authors mainly call it '*employee well-being*' (Harter et al., 2003; Page and Vella-Brodrick, 2009), or '*employee engagement*' (Lockwood, 2007; Attridge, 2009; Raines, 2011), employee satisfaction and involvement are often seen as a part of the first two. Although the detailed descriptions may differ to some extent, the underlying thought of enhancing the joy, happiness and experiences of employees is the common part in this body of research. This paragraph will give an explanation of the job characteristics that are most important for adding of value for both employees and organizations. There will be referred to the word '*engagement*' when wanting to describe the preferred state of the employee in which he or she is passionate and enthusiastic about the work, feels involvement and connection towards the organization (Attridge, 2009) and performs at its best.

Employee engagement

Most workers want more than a save job, benefits and a monthly pay check (Harter et al., 2003). They want to be able to grow in their job, contribute to their organizations, and enhance their capabilities. Besides that, people feel a deep need for recognition (Lockwood, 2007; Attridge, 2009; Raines, 2011) and respect (Lockwood, 2007; Raines, 2011) from their colleagues and employer. People also want to feel they are a part of something bigger, in which they believe (Raines, 2011) and can create meaningful relationships (Lockwood, 2007). When organizations succeed in fulfilling those important needs of employees, both parties will benefit. The employees will be happier, healthier and more fulfilled with their job. The company will most likely experience a lowering in sick days (Conti et al., 2006), accidents (Lockwood, 2007; Attridge, 2009), and employee turnover (Harter et al, 2003; Lockwood, 2007; Attridge, 2009; Page and Vella-Brodrick, 2009), all of which save the organization money. Besides those savings, an increase in employee engagement increases creativity (Harter et al., 2003; Attridge, 2009), productivity (Lockwood, 2007; Attridge, 2009; Raines, 2011), quality (Raines, 2011), customer loyalty (Harter et al., 2003; Lockwood, 2007; Attridge, 2009), and profits (Attridge, 2009; Page and Vella-Brodrick, 2009; Raines, 2011). So, caring for employees – when done the right way - can be seen as a win-win situation for both individual and organization, which is also known as the happy/productive worker thesis (Page and Vella-Brodrick, 2009).

Employee development

To maximise the potential of employees, they need to receive proper training and education (Lockwood, 2007; Page and Vella-Brodrick, 2009). Employees also need to have the availability of all important resources, in the form of an ergonomic workplace (Harter et al., 2003; Attridge, 2009), the right tools, and help of colleagues when necessary (Attridge, 2009). Employees also seem to reach

the highest level of engagement when doing the type of job that best fits their personal strengths (Harter et al., 2003; Page and Vella-Brodrick, 2009; Attridge, 2009), which is also described as person-environment fit (Attridge, 2009) or work-role fit (Harter et al., 2003). Having a personal development plan also seems to increase employee engagement significantly (Attridge, 2009). The possibility for employees to make decisions (Lockwood, 2007; Attridge, 2009), and come up with improvement ideas (Raines, 2011), adds to their satisfaction about the workplace and their feelings of contribution, and therefore increases engagement. Partly because internet blurred the line between work and private, there seems to be a trend of greater need for work-life balance (Lockwood, 2007; Attridge, 2009).

Employee recognition

The necessary employee recognition can be monetary, and non-monetary. Although the monetary recognition is most important for non-engaged workers, the monetary importance seems to decline when engagement increases. Non-monetary rewards are therefore a far better way of rewarding, because the effect is longer lasting and harder to be outbid by competitors wanting to lure employees away (Harter et al, 2003). Yearly performance appraisals seem to increase engagement levels (Attridge, 2009), but must be combined with frequent and immediate feedback (Harter et al., 2003; Raines, 2011). When workers have come up with improvement ideas or questions, the follow-up needs to be fast and clear in order to make sure the employee feels respected and listened to (Lockwood, 2007; Raines, 2011). When people feel their supervisor or manager really cares about them as a person (Attridge, 2009), they tend to feel more trust and engagement towards the organization (Lockwood, 2007).

Employee communication

Communicating frequently and clearly (Lockwood, 2007; Raines, 2011; Harter et al., 2013) with, and to employees, strengthens the feelings of trust and increases the feeling of involvement with the organization (Lockwood, 2007). Leaders must be clear in communicating the goals, changes, and reasons for them (Lockwood, 2007; Attridge, 2009), this is beneficial for the feelings of employee engagement. Being clear in communicating the financial data and ratios about certain departments or business units, increases motivation, and strengthens the feelings of teamwork and accomplishment (Lockwood, 2007). The existence of social contact and friendships at work tends to positively correlate with feelings of employee engagement (Harter et al, 2003).

3.2 Disentangling the lean employee assumption

According to chapter one, lean assumes that employee value is created by giving workers different tasks in a standardized working environment in which they can contribute to the whole product and come up with improvement ideas. This paragraph is going to analyze this assumption by comparing it with the theory of employee engagement and some lean employee case-studies.

Giving workers different tasks

Intuitively, having different tasks would bring more variation, and therefore a less boring job. On the other hand, if workers are continuously changing between tasks it will be harder to get into a flow experience. Negative case studies often cite that lean workers are not trained correctly to do all the different tasks (Womack and Jones, 2003; Pettersen, 2009). Successful lean case studies (Crute et al., 2003; Czabke et al., 2008; Shook, 2010) report, that training and education was an important part of

the implementation procedure. This is in line with the importance of training and education as identified earlier in this chapter. The act of teaching workers different tasks, makes them more generalistic. When looking at the need of workers to fit into their specific job to be fully engaged, as mentioned in the first part of this chapter, there seems to be a possible problem. When someone tends to a more specialist character than a generalist character, he or she will most certainly not be fully engaged. Some negative articles refer to the multi skilling as multi-tasking (e.g. Carter et al., 2011) in which the only process change is, that workers have to do more tasks in the same amount of time.

A standardized working environment

Articles about lean, often state that the multitude of tasks makes sure that workers continuously need to be concentrated and aware, which leads to a positive stress experience (Womack and Jones, 2003; Carter et al., 2011). Being under continuous pressure (Carter et al., 2011) however can cause negative stress (Conti et al., 2006; New, 2007; Saurin and Ferreira, 2009; Carter et al., 2011; Losonci, 2011, Mehri, 2006) and burnouts, which are proven to lower productivity and employee engagement. Because lean, among others, is about minimizing the inventory (Treville and Antonakis, 2006; Pettersen, 2009), an often reported flaw, is that workers feel tense and rushed (Saurin and Ferreira, 2009; Mehri, 2006; Losonci et al., 2011). This is because they have to produce the product within a certain time frame to keep the whole production stream flowing. Some negative case-study articles mention the regular use of working overtime to handle product demand (Mehri, 2006; Conti et al., 2006). This however, is in strong contradiction with the need for employee work-life balance, as mentioned in the first part of this chapter. The lean point of view about the standardization of work is that it increases quality, efficiency and productivity, and decreases defects (Womack and Jones, 2003; Carter et al., 2011). Often however, employees do not feel these benefits in the same way. They feel they are losing their autonomy, because every step and movement is standardized (Treville and Antonakis, 2006; Saurin and Ferreira, 2009; Angelis et al., 2010). The intense focus on efficiency and standardization sometimes even leads to bad ergonomics (Losonci, 2011). Lean theory however states that workers can use these freed up brain capacity to come up with improvement ideas and check and improve the product quality (Losonci, 2011).

Contribute to the whole product

Normally workers only see a small part of the production and therefore are not really aware of the end-product. Because lean is about multi-skilling and letting the product flow through the production steps, employees in general have a good sense of all the production steps (Womack and Jones, 2003). This has the result that workers feel they are contributing to the product and the company, which increases employee engagement. Lean employees often work in teams in which they have to closely cooperate (Treville and Antonakis, 2006; Angelis, 2011). This teamwork has the possibility to create meaningful relationships, which is identified as an engagement enhancer, earlier in this chapter.

Come up with improvement ideas

A core principle of lean is that employees come up with improvement ideas (Womack and Jones, 2003; Angelis et al., 2011). An average Toyota employee for example comes up with 187 improvement ideas per year, of which 98 percent gets implemented (Atkinson, 2010). This is completely in line with the fact that employees want to be able to contribute by coming up with

ideas. The follow-up of these improvement ideas however is a requirement for employee engagement. Some case studies, describe that workers are pressurized to come up with new ideas, and therefore develop a negative connotation with the theory of improvement ideas (Mehri, 2006). This pressure to come up with ideas, and the negative stress it creates, most likely inhibit the creativity, while more engaged employees on the other hand are proven to be more creative.

3.3 Lean implications for employee value

First and foremost, lean firms should investigate the interests and character of (future) employees in order to be able to provide them with work that best fits their personal strengths. Besides job-fit, the organization must also make sure every employee receives proper training and education, and has the opportunity to keep developing, for example by using a personal development plan. Basic workplace needs, are an ergonomic workplace and the availability of all the necessary resources. Although already imbedded in the lean theory, organizations need to make sure that employees can easily contribute improvement ideas and make decisions. The fact that lean workers in general go through the whole production process, makes sure that they feel they are contributing to something meaningful. Nonetheless, lean organizations need to make an effort to recognize, and praise the efforts of employees on a regular basis, and try to motivate them by sharing revenues and costs of departments. Last but not least, management should let workers know, they really care about them personally, for instance by communicating and facilitating work-life balance. It seems that stress does not have to be a part of the lean working environment (Conti et al., 2006). The Toyota 'Kyushu' plant, which has been built in 1993, has the updated philosophy that Lean practices should not be applied to the employees (Conti et al., 2006). This is in line with the fact, that a lot of lean characteristics like high pace and low buffers, create stress (Angelis et al., 2010) which decrease employee health and productivity. When workers on the other hand, are engaged in their work, they have increased productivity and creativity. Concluding those implications, it can be said that lean should focus more on human resource practices (Payne et al. 2000). This will include bringing down the stress levels, by lowering the line speed, and work pressure, which will result in higher employee engagement, which in turn will result in mutual benefits for employee and organization.

Conclusion and discussion

It can be concluded that the lean value assumption about producing customer value is not complete. The lean assumption for creating value is mostly focused on efficient and high quality production for the lowest possible price. However, to maximize the potential customer value, and thus the monetary profit for the producer, lean also needs to focus more on the adding of extra value in the eye of the customer instead of only focusing on the decreasing of wasteful activities. Thereby it is important that there is a focus on minimizing the absenteeism of criticals and eliminating the dissatisfiers because these seem to have the most influence on the value experience of the customer. As a result of this increased value, the customer retention will increase, resulting in higher profits for the company. On the part of the satisfiers, there needs to be a focus on using the employee potential, and the customers itself for developing ideas for product improvements instead of only looking at the perfection of the processes inside the company.

There seems to be a clear wedge between the value that lean should deliver their employees in theory and how lean is experienced in real life situations. Therefore, it is important to monitor the parameters that are essential to the well-being of workers. The parameters that seem to have the highest immediate increase in employee engagement are the lowering of the work pace, and

increasing the cycle time and buffers, because this lowers employees stress levels. Besides that, organizations need to make sure that employees are recognized for their contributions. Employee engagement in a lean company is likely to increase when human resource practices are introduced or enhanced. In short, the goal of perfection that is already present in lean production processes, should also be implemented for product features, and employee practices.

The current lean literature lacks a unambiguous definition of lean, this could explain, why until now, there were no clear lean value assumptions identified. As a result, two lean value assumptions are identified in this thesis, on the basis of existing lean literature. Those two lean value assumptions are about the value creation for customers and employees, because they were hypothesized to have the most influence on the increase of total value creation. Because of the absence of reference material, the two identified assumptions might be incomplete or possibly be formulated in a better or more concise manner.

Future research could focus on improving and extending the two lean value assumptions that are formulated in this thesis. Research could also focus on identifying other lean value assumptions, which might result in more and a completer knowledge about lean and its value assumptions. Other research could focus on identifying tools and methods for the improvement of the perceived product value in a lean environment, because that seems to be a clear gap in the lean literature. A suggestion for the enrichment of lean literature relating to employee engagement could be to compare levels of employee wellbeing and engagement among different lean companies and compare these with parameters like product quality, employee and customer retention, efficiency and profitability. Successful case studies of lean practices already exist, but these are mostly focused on tools and techniques and the streamlining of processes. Herein lies the potential of identifying if the successful case study firms also have high employee wellbeing and engagement. When it would appear that employee engagement and well-being are of influence on performance and profitability, this would most certainly give a boost to the amount of research on this subject. From that research could possibly be identified which lean practices lead to more employee engagement and well-being. This thesis, is a step towards the improvement of two currently under exposed fields of value in the lean literature.

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