



11th International Strategic Management Conference 2015

An Empirical Study of Lean Concept Manifestation

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Abstract

Lean is a prominent philosophy and a practice that assumes the expenditure of all types of resources for any purpose other than the creation of value for the end customer to be wasteful, and therefore a target for exclusion. This philosophy and the way of thinking expressed by a set of principles, supplemented by different tools and techniques helps for waste elimination, operational performance improvement, inventory reduction, and optimum quality level to the end customers. It is one of the paramount and wide-ranging concepts that contribute companies all over the world to gain competitive advantage and prosper in the world market. The purpose of the paper is to disclose the manifestation of multidimensional Lean concept in companies operating in Lithuania.

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Peer-review under responsibility of the International Strategic Management Conference

Keywords: Lean concept, manifestation, Lithuania, empirical research

1. Introduction

Nowadays companies all over the world are facing with increasing pressure from customers and competitors. Customers have higher expectations, and manufacturers can meet these expectations by increasing product's quality, reducing delivery time, and minimizing costs – or a combination of these three ranges (George, 2002). This forces business companies to implement new production strategies to enhance their competitiveness in the global market place (Chena, 2010).

Lean is an integrated system of principles, practices, tools, and techniques which assumes the expenditure of all types of resources for any purpose other than the creation of value for the end customer to be wasteful, and therefore a target for exclusion. The elimination of non-value-added activities reduces costs and cycle time, which results in agile, customer-responsive and more competitive organizations (Alukal, 2003).

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Lean thinking increased in popularity in the 1990s. Several last decades scientists are actively discussing about lean manufacturing and lean concept implementation both on theoretical and empirical level.

The results of retrospective scientific literature analysis draw attention to such names as: Womack et al. (1990), Womack and Jones (1996), Imai (1997), Monden (1998), Spear (2004), Howell (2001), George (2002), Shah and Ward (2003), Hines et al. (2004), Hopp and Spearman (2004), Narasimhan et al. (2006), Radnor and Boaden (2008), Pettersen (2009), Vendan and Sakthidhasan (2010), Chena et al. (2010), Staats et al., (2011), Bollbach (2012), Čiarnienė and Vienažindienė (2012), who have been analyzing the essence, main principles of Lean concept, tools and techniques. Chappell (2002) and Atkinson (2010) were analyzing cultural issues while implementing Lean concept.

The main barriers to lean implementation have been researched by Bhatia and Drew (2007), Radnor and Walley (2008), Alinaitwe (2009), Brandão de Souza (2009), Pirraglia et al. (2009); Brandão de Souza and Pidd (2011), Bhasin (2012), Čiarnienė and Vienažindienė (2012), Bollbach (2012), Čiarnienė and Vienažindienė (2014).

Readiness factors which increase the probability of success of Lean implementation have been analysed by Anchanga (2006), Antony (2013), Vienažindienė and Čiarnienė (2013), Antony (2014). The benefits of Lean in the industrial world ranging from automobiles and electronics to a wide range of service organizations have been highlighted by Shah and Ward (2007), Laureani and Antony (2012), Kumar et al. (2013).

Despite a high number of significant studies and works related with Lean concept carried out by scientists of different foreign countries, this field lacks of empirical research works in Lithuania. The paper aims to disclose the manifestation of Lean concept in companies operating in Lithuania. The study begins by the analysis of Lean concept in a multidimensional approach. On the basis of conducted scientific literature analysis and synthesis the empirical research instrument in the form of a survey is created. The methodology of empirical research in details is presented at chapter 3.1. Results of an empirical research and recommendations are provided at the final section.

2. Literature Review

2.1. The multidimensionality of Lean concept

Although there are some a bit different opinions of what piece out Lean concept, the most of researches reflect the waste reduction nature of the Toyota production system and identify its roots in the Toyota production system (Womack et al., 1990; Womack and Jones, 1996; Monden, 1998).

The term "Lean" was coined by Krafcik (1988) in order to highlight the principles of limiting inventory and excess workers, or waste, as opposed to other auto manufacturers' "buffered" approaches (Hopp and Spearman, 2004; Staats et al., 2011). With the unique culture of continuous improvement, Toyota put together various tools, techniques and methodologies to eliminate waste and increase leanness of manufacturing systems (Monden, 1998).

Herewith, Womack et al. (1990), Bhasin and Burcher (2006) defined Lean production as a business and production philosophy that shortens the time between order placement and product delivery by eliminating waste from a product's value-stream. Howell (2001) defined it as a target to "give customers what they want, deliver it instantly with no waste". Singh et al. (2011) emphasized Lean manufacturing as a multi-dimensional management practice including just in time, quality systems, work teams, cellular manufacturing, supplier management, etc. in an integrated system. Spear (2004), Womack and Jones (1996), Womack and Jones (2003) highlighted that the principle view of Lean production rests on a set of tenets. A clear understanding and application of these principles are essential to implement Lean successfully (Bollbach, 2012). Shah and Ward (2003), Narasimhan et al. (2006), Bicheno and Holweg (2009) had a dominant view in describing and measuring Lean production as a set of practices and tools for waste elimination.

While researchers disagree on the exact practices and their number, there is a general consensus that there are four primary aspects of Lean production, and practices can be grouped into bundles. According to Cua et al. (2001) and Shah et al. (2008) these practices are associated with pull production, quality management, preventive maintenance, and human resource management. Hines et al. (2004), Radnor and Boaden (2008), Radnor and Walley (2008) emphasize strategic and operational levels of Lean concept. They state, that at a strategic level it focuses on the principles, and at an operational level focuses on the tools and techniques.

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