Chapter 3

Lean Thinking via Business Intelligence Technologies and Innovation Process

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ABSTRACT

Lean Thinking aims to eliminate non-value added activities in the system. The application of Lean Thinking allows firms, enterprises and organizations to manage quality, decrease variation, reduce costs by eliminating waste. The real time data/information are important to understand the value of the organization. In order to maintain flow, information should be accurate, up to date and available in the shortest possible time. To reveal the continuous improvement opportunities data must be processed effectively and efficiently. In this point the importance of Business Intelligence (BI) Technologies arises. The integration of Lean Thinking and BI complement each other by BI’s providing useful information to lean decision making process improvements. In addition to IT integration with Lean Thinking, the utilized IT software needs to be designed in a way that supplies right information, on the right time and on the right way. The chapter organized in four subsections which are dealt with respectively, BI with Lean Thinking, Lean Thinking with BI, Lean BI, and Adaptation of Lean Tools in BI.

INTRODUCTION

In global competition environment, strategic initiatives should be adopted to survive. One of these adaptations is the integration with information technology. So in today’s technology driven environment the importance of information technology should not be underestimated (Ahn et al., 2012). An
organization’s information technology should have the property of serving the right data, on right time and also this data should be utilized with the right purpose. In the presence of Big Data in this technology era, serving the right data which results right information is being much more important. One part of information technology is Business Intelligence (BI). BI aids decision makers with the properties of gathering, storing, analyzing data (Mohan et al., 2010). Data mining, forecasting, analytical processing, planning, decision support activities are under BI term.

Business Intelligence is set of methodologies, processes, and technology that convert raw data into useful information for desired purposes. BI can cope with large amounts of data to identify, assist development, and provide new opportunities. BI can be used to support strategic, tactical and operational decision making processes. BI with combined external and internal data, provides a broader perspective to business (Olivia, 2009).

Another crucial adoption for firms can be considered as lean thinking. Lean is one of the most successful implementation that has been applied extensively in last two decades. Lean thinking is a philosophy that exactly serves with the same purpose for manufacturing organizations since 1950s. Lean is at the center of manufacturing and service sectors. The application of lean principles allows firms not only control costs, decrease variation of quality and eliminating waste but also focus on customer value (Manzini et al., 2015; Intra, & Zahn 2015).

Lean thinking seeks to satisfy customer demand with less of every kind of resource. The underlying idea is to eliminate all non-value added activities which are called waste from the system. Value is everything related with a product, service, etc. that the customer is willing to pay for. If an activity, process, resource is not demanded from the customer than it is called as a waste. Seven types of waste for manufacturing environments were defined in context of lean thinking. These wastes are; overproduction, waiting, transport, extra processing, inventory, motion and defects (Hicks, 2007). The successful application of Lean thinking takes the attention of researchers’ and practitioners application of its principles to service industries.

One of the first implementation of lean thinking in service industries is supply chain operations (Piercy & Rich, 2009). Ahn et al. (2012) states that in order to survive in highly volatile markets, supply chains should be designed and managed in a flexible way. Flexibility is a requirement from both physical and information system perspectives. The alignment of supply chains in accordance with volatile characteristics of the market requires Information Technology system’s being designed that quickly response to the needs. This customer based alignment is in line with the lean thinking since both concepts are heavily based on customer needs.

Continuous improvement is also a must for lean thinking, since its underlying philosophy is on eliminating waste through continuous improvement activities. To reveal the continuous improvement opportunities data must be gathered and processed effectively and efficiently. In this point the importance of Business Intelligence (BI) Technologies arises. Enterprise Resource Planning (ERP) software, product life cycle management software all support continuous improvement activities. Carefully assessed information by software all creates opportunities for continuous improvement activities.

There is a growing importance of information intelligence which is indicated by the growing importance given to BI by top managers (Luftman & Mclean, 2004). However there are some factors preventing organizations reaching information intelligence. Misuse of information, not sharing the relevant information between departments and processes lacking standardization which cause past knowledge absenteeism are some important factors (Luftman & Mclean, 2004). To cope with these factors, lean philosophy can also be applied to organization’s information system management, especially to software development.