The Impacts of Risk on Deploying and Sustaining Lean Six Sigma Initiatives

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ABSTRACT

Continuous improvement is used to enhance productivity and customer value. However, throughout the years, its efficacy dwindled. Thus, a hybrid methodology known as Lean Six Sigma was developed. It combines Lean and Six Sigma in a continuous improvement effort to address most challenges organizations face. However, risks are associated with deployment and implementation of Lean Six Sigma in differing organizations. Lean Six Sigma uses DMAIC to evaluate and measure efficacy. Successful execution of Lean practices depends on effective project management, support, and commitment from top management, employees, and stakeholders. An organization must be willing to change existing corporate culture, empower employees, and hire trained personnel to experience the benefits of Lean Six Sigma. This paper discusses results from implementing this hybrid methodology, including improved productivity, quality, and customer satisfaction. This paper concludes that Lean Six Sigma is an effective approach for any organization to use to ascertain continuous improvement.

KEYWORDS

Continuous Improvement, DMAIC, Lean Six Sigma, Project, Project Management, Quality, Risk Management

1. INTRODUCTION

1.1. Motivation Behind Study

Continuous improvement is a philosophy initiative that increases success and decreases failure continuously to enhance quality management (Bhuiyan & Baghel, 2005). According to Oakland (1999), it is a novel approach that enhances innovation. As a result, companies maintain competitive excellence. Effective quality management can be achieved through constant pursuit of continuous improvement by involving all tiers of an organization in the process (Kossoff, 1993). Furthermore, Bhuiyan & Baghel (2005) describe continuous improvement as a culture involving sustained improvement, accomplished by eliminating waste in every process and system. Continuous improvement may occur via evolutionary improvement, occurring through numerous increments or radical changes that result from innovative technology or ideas (Alharthi et al., 2014). Such improvements can be accomplished via techniques and tools that detect and minimize sources of wastes, issues, and variation (Bessant et al., 1994).

According to the IAEA Safety Standards (2006), it is imperative that an integrated Management System is well-documented, established, maintained, and implemented. Furthermore, the system’s efficacy must be continuously improved to ensure organizational goals are achieved. CI processes
must be well-managed to detect and prioritize improvement initiatives (Bhuiyan & Baghel, 2005). Finally, to ensure effective development and utilization of sustainable processes, the following should be considered (IAEA, 2006; Alvarez et al., 2015):

- Development and implementation of process indicators per process;
- Simplification of processes and information;
- All those involved in implementation of continuous processes (employees, suppliers, and contractors) must engage in improvement activities;
- Continuous improvement of sustainable processes in the organization.

CI requires an organization to comprehend each process step. Its efficacy and efficiency must be measured so subsequent changes can be made (Conway, 2002; Niven, 2002).

Principles required for successful implementation of CI initiatives include (IAEA, 2006; De Freitas et al., 2017; Hilton & Sohal, 2012):

- Sustainable senior management leadership to ensure support, attention, and commitment;
- Continuous improvement initiatives that are integrated into the business plan;
- Clear statements of the organization’s continuous improvement program objectives;
- Advantages of the program are evaluated against resources and costs during its development and implementation;
- Implementation of a practical and simple methodology;
- Implementation of measurable and specific improvement objectives;
- Continuous evaluation based on data and facts.

1.2. Problem Statement

This study focuses on the impact that risk has on the deployment and sustainability of continuous improvement. It will implement a meta-analysis to identify the key themes and relationships existing between risk and CI deployment and sustainability.

1.3. Contribution

Review of existing literature demonstrates that minimal research exists about the relationship between risk and CI deployment and sustainability. Thus, this study fills that void and contributes significantly to the risk management and CI bodies of knowledge. Since this research better understands the relationship between risk and CI deployment and sustainability, we shed light on the advantages and disadvantages of these variables and their relationship. Furthermore, this study offers new ideas and avenues for future research. New ways to understand the relationships and variables were identified, which is beneficial to the practitioner’s perspective.

This paper is organized in the following manner: section 2 presents the literature review performed for the study; section 3 outlines the methodology used to execute the study; section 4 presents the findings of the study; section 5 outlines the discussion of the findings, and section 6 concludes by presenting the limitations, future research ideas, and general conclusions of the study.

2. LITERATURE REVIEW

Investigating the related literature on the topic of this study demonstrates there are several studies conducted on Six Sigma, risk management and linkages of these two issues. For example, Alharthi et al. (2014) performed a study to reduce risks in Entertainment and Media Industries, by implementing integrated approach of Six Sigma with risk management. The problem is the high number of complain by employees because lack of safety. The Six Sigma DMAIC (Define,
Balanced Approach for Hiding Sensitive Association Rules in Data Sharing Environment
www.igi-global.com/article/balanced-approach-for-hiding-sensitive-association-rules-in-data-sharing-environment/136365?camid=4v1a

Advanced Security Incident Analysis with Sensor Correlation
www.igi-global.com/chapter/advanced-security-incident-analysis-sensor/62388?camid=4v1a