

Investigating the green impact of lean, six sigma and lean six sigma

Investigating the green impact of Lean, Six Sigma and Lean Six Sigma: A systematic literature review

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Abstract

Purpose

The academic literature and research lines exploring the effect of quality improvement methods on environmental performance still remain in early stages. The purpose of this paper is therefore to investigate, through a systematic review of the existing academic literature, the environmental (green) impact of using quality and operations improvement methods such as Lean, Six Sigma and Lean Six Sigma. This includes the impact on energy saving and the usage of natural resources.

Design/methodology/approach

This study follows a systematic literature review approach through which it analyses research papers published in top 16 operations and quality management journals. No specific time frame was established, but a set of keywords were used to short-list the articles. A sample of 70 articles was finally short-listed and analysed to provide a discussion on environmental concerns related to Lean, Six Sigma and Lean Six Sigma.

Findings

The comprehensive review of short-listed articles indicates that both Lean and Six Sigma can be considered effective methods to support the conservation of resources, combat global warming and saving energy. Various scholars provide evidence of this, and as such, organisations should not only consider these methods to manage quality and improve operational performance but also meet environmental regulations. A set of research questions that demands further investigation has also been proposed based on the findings of this research.

Research limitations/implications

This study is limited to a sample of 70 articles collected from top 16 operations and quality management journals. The search of journals is also limited to a set of key words ("Lean", "Green", "Six Sigma", "environment", "sustainable" and "sustainability") used to short-list the sample size.

Practical implications

The study shows that organisations can consider the adoption of Lean, Six Sigma and Lean Six Sigma to meet environmental regulations, save costs and also meet quality management standards. This will contribute in helping organisations to formulate more effective and inclusive strategies which do not only consider the quality and operational dimensions but also the environmental dimension.

Originality/value

Literature exploring the environmental/green impact of quality management methods commonly used in industry is limited. There is also a lack of studies aiming to investigate the green impact of Lean and Six Sigma in top operations and quality management journals. The study focusing on investigating the green impact of Lean, Six Sigma and Lean Six Sigma methods altogether is also a research first of its kind.

Keywords

Six
Sigma

Lean

Lean Six
Sigma

Green

Literature review

Environment

Citation

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There are three main methodologies: Lean, Six Sigma and Lean Six Sigma. Despite the differences, they are all designed to increase a company's competitive advantage. Understanding the differences between the three can help you determine which one is right for you and your organization. What is the Difference Between Lean, Six Sigma and Lean Six Sigma? SHARE ON: admin — March 26, 2018. For those new to Six Sigma, the terminology can get confusing. Before getting too deep into trying to learn the methodology, it's important to know exactly which one you should be working with. There are three main methodologies: Six Sigma, Lean and Lean Six Sigma. Understanding the differences between the three can help you determine which one is right for you and your organization. Essentially, Six Sigma and Lean systems have the same goal. They both seek to eliminate waste and create the most efficient system possible, but they take different approaches toward how achieving this goal. In simplest terms, the main difference between Lean and Six Sigma is that they identify the root cause of waste differently. Villanova University. Every business has areas that need improvement and sometimes it can be hard to know where to start. Although many people compare Lean vs Six Sigma, they can often be more powerful when used together. This article will look more closely at the differences between Lean vs Six Sigma and the benefits of both. Are you looking to document and run your processes? Don't use MS Word or Google Docs, and don't use flowcharts. 1. Investigating the Green Impact of Lean, Six Sigma, and Lean Six Sigma: A Systematic Literature Review. The purpose of this paper is to investigate, through a systematic review of the existing academic literature, the environmental (green) impact, mainly represented through energy savings and the usage of natural resources, of using quality and operations improvement methods such as lean, six sigma, and lean six sigma. The paper shortlisted and analysed 70 articles, from which it concluded that both lean and six sigma.