

# Lean Manufacturing: Can it be Applied Successfully within the Higher Education Sector?

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## **Abstract**

The purpose of this paper is to present the findings of a research project which aims to determine if and how lean manufacturing principles can be applied to the Higher Education sector. The research is based on a comparative qualitative analysis of literature and semi-structured interviews with those involved in lean implementation across a number of sectors including Higher Education. It is shown that while lean projects can be successful at a local level, a more strategic approach is required to ensure a culture for continuous improvement and full implementation of lean principles is achieved. Furthermore, critical success factors are identified at all levels of implementation. The practical implication of this work is to provide a framework which will help in the planning and implementation stages of applying lean manufacturing to the Higher Education Sector. The value of the work which this paper conveys is the presentation of a framework, informed by best practice and lessons learned in implementing lean manufacturing and which can be applied to the higher education sector.

**Keywords:** Lean practices, best practice, higher education.

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Lean manufacturing or lean production, often simply "lean", is a systematic method for the elimination of waste ("Muda") within a manufacturing system. Lean also takes into account waste created through overburden ("Muri") and waste created through unevenness in work loads ("Mura").<sup>1</sup> Lean manufacturing is a management philosophy derived mostly from the Toyota Production System (TPS) (hence the term Toyotism is also prevalent) and identified as "lean" only in the 1990s.<sup>[1][2]</sup> TPS is renowned for its focus on reduction of the original Toyota seven wastes to improve overall customer value, but there are varying perspectives on how this is best. **ABSTRACT** Lean Manufacturing (also referred to as Lean) has traditionally been associated with manufacturing industries; lately many service industries have adopted the methodology with the aim of improving their processes and customer satisfaction.<sup>3</sup> **4.3 Lean in the Food Sector** Lean can be applied effectively in service sectors focusing on food. Although this industry uses its own standards, Lean principles can still apply.<sup>4</sup> **4.6 Lean in the Higher Education Institution** A study conducted by Comm and Mathaisel <sup>[32]</sup> on Lean and assessing the best Lean sustainability within higher education forms the foundation of Lean in higher education institutions. Lean manufacturing is a systematic framework for eliminating waste from a manufacturing system, or value stream, without sacrificing productivity. The value stream comprises all of the activity and information streams that exist between the raw material supplier and the possession of the customer. Lean is about empowering people at all levels of an organization to identify and eliminate waste in order to continuously increase the value delivered to customers. A lean mentality and culture adds value and reduces activities that decrease value. Put simply, lean manufacturing aims to create more value. Lean manufacturing can be defined as "a systematic approach to identifying and eliminating waste through continuous improvement by flowing the product at the demand of the customer (Silva, 2012)".<sup>5</sup> From: *Garment Manufacturing Technology*, 2015. Related terms<sup>6</sup> Lean has gotten something of a bad name since it was coined in the 1990s. For one thing, it's become a euphemism to reduce head count <sup>[34]</sup>: "We cut jobs 10% to lean our organization." That view is antithetical to lean thinking, which relies on creating trust for the long-term relationships needed to transform an organization.