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Date of Degree: May, 2014

Title of Study: AN ENTERPRISE ARCHITECTURE FRAMEWORK OF A LEAN ENTERPRISE TRANSFORMATION

Major Field: Industrial Engineering and Management

Abstract:

Today’s business environment is characterized by fast changes, uncertainty, variability, and unpredictability. To be more competitive firms have to improve their operations performance. To achieve this, one path is to develop a strategy based on the Lean philosophy across the entire organization. However, to transform a company into a Lean Enterprise is not simple. After examining the literature it was determined that there is no comprehensive Lean framework that provides a complete integration of the Lean elements into a coherent whole neither a detailed step-by-step methodology for the Lean manufacturing implementation.

The purpose of this dissertation is to design an Enterprise Architecture Framework of a Lean enterprise transformation to guide a company towards operational excellence. This framework integrates holistically the main components crucial to transform a traditional enterprise into a Lean Enterprise. It can be useful to support the whole organization in its Lean journey by transforming the company into a more productive system.

Several Lean frameworks were identified, as well as the most well-known national quality award models for operational excellence, and the main architecture frameworks for enterprise integration. Concepts derived from this analysis contributed to the design and understanding of the enterprise architecture framework. The framework has been designed to guide a company towards Lean enterprise transformation using an analytical, logical and systematic approach and considering the main tools and principles of Industrial Engineering as well as Lean Manufacturing and Business Improvement Programs. It is comprised of layers that represent the enterprise views. Each layer is divided into groups and each group is broken down into components of the same category. Both layer components and phases have been integrated into a coherent whole forming the Lean enterprise transition roadmap. Phases 1 to 4 of the framework have been tested in a German engine parts company of the automotive sector.

The methodology used for this dissertation was developmental research, using a qualitative research design approach that encompasses inductive logic to develop the framework and deductive logic to test it. The enterprise architecture framework was designed using an analytical, logical and systematic approach, based on a three-dimensional thinking scheme.