

Optimization of Lean Methodologies in the Textile Industry Using Design of Experiments

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Abstract : Industries in general have a lot of waste. Wool textile company, Baniwalid, Libya has many complex problems that led to enormous waste generated due to the lack of lean strategies, expertise, technical support and commitment. To successfully address waste at wool textile company, this study will attempt to develop a methodical approach that integrates lean manufacturing tools to optimize performance characteristics such as lead time and delivery. This methodology will utilize Value Stream Mapping (VSM) techniques to identify the process variables that affect production. Once these variables are identified, Design of Experiments (DOE) Methodology will be used to determine the significantly influential process variables, these variables are then controlled and set at their optimal to achieve optimal levels of productivity, quality, agility, efficiency and delivery to analyze the outputs of the simulation model for different lean configurations. The goal of this research is to investigate how the tools of lean manufacturing can be adapted from the discrete to the continuous manufacturing environment and to evaluate their benefits at a specific industrial.

Keywords : lean manufacturing, DOE, value stream mapping, textiles

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