

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF
NEEDS-DRIVEN LEAN KAIZEN
IMPLEMENTATION MODEL
THROUGH INTEGRATION OF
GEMBA KAIZEN METHOD AND
AHP-QFD TECHNIQUE IN
MALAYSIAN AUTOMOTIVE
INDUSTRY**

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ABSTRACT

This research explains the development of an implementation model framework for practical deployment of Lean Kaizen activities with respect to analytical selection of Lean Manufacturing strategy deployment. The needs-driven implementation model framework is formulated through real case studies of 16 Kaizen Event cycles done in Malaysian automotive component manufacturers. AHP-QFD method is used to analyze the process of prioritizing the Lean strategy, tools and technique for 3 major common manufacturing environments. Through a comprehensive plant-wide lean implementation case study done at a manufacturing company, the methodology, tools and techniques to perform Kaizen Events are recorded and the primary purpose of this study is to formulate a practical Lean Implementation model framework was achieved. The model framework was utilized further to perform a series of 15 Kaizen Events which comprises of companies with manufacturing setting of Job Shop, Cellular Line and Assembly Line respectively. The data obtained from the Kaizen Events were analyzed with AHP-QFD method in which the research evaluated the best combination and prioritization of lean elements to be deployed systematically. The study found that the main strategy to implement Lean depends on the needs of the production situation of the company. The approach is mainly about improvement in process flow, standardization of the process, creation of Kanban Pull System and process visualization for control of the production. It is found that the creation of Kanban Pull System in the production system is the ultimate target of all the companies performing the Kaizen Event. Kanban Pull System can be regarded as the epitome of the Lean strategies where it binds all the other lean elements. The Lean Kaizen Implementation Model framework was established and it is the main contribution of the overall research work suggesting the achievement of the thesis objectives.

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Focus, Strive, Pray.

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