Integration of Lean Production Systems and Agile Manufacturing

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ABSTRACT

Lean production systems have been proven effective in enhancing production performance. However, variability induced by market environment and customer demand interrupts the high-mix-low-volume strategy. The objective of the study is to integrate the lean production systems and agile manufacturing to create customer value under the changing environment. A lean-agile production model is developed using system dynamics. In the model, factors influence enterprise competitiveness is represented using causal feedback loops. A real cast factory is used to validate the effectiveness of the lean-agile production model by considering First Time Through (FTT) and Overall Equipment Effectiveness (OEE). Validation results show that the proposed model can enhance manufacturing efficiency, product quality, and equipment utility. Enterprise competitiveness can thus be improved.

Keywords : lean production ; agile manufacturing ; system dynamics ; First Time Through ; Overall Equipment Effectiveness

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