A Second-order Model of Lean Manufacturing Implementation to Leverage Production Line Productivity with the Importance-Performance Map Analysis

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Abstract

The objective of this article is to examine the direct path from lean manufacturing (LM) to production line productivity using second-order analysis in a structural equation model (SEM). Data were collected from 236 large manufacturers using a cross-sectional survey. The findings confirmed the positive direct effect of LM practices on production line productivity. The outcome of importance-performance map analysis (IPMA) revealed that the productivity can be leveraged when manufacturing firms are able to produce more than one product model per day with the support of a kanban system to authorize production and material movements. LM supported by a small number of high-performance suppliers leads to improved production line productivity. This study contributes to closing existing gaps of studies investigating the effect of LM on productivity. Practitioners will benefit by understanding the vital constructs of LM practices to improve the overall productivity of a production line.

Keywords
Lean manufacturing, productivity, importance-performance map analysis (IPMA), Indonesia