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Empowering Kanban through TPS-principles – an empirical analysis of the Toyota Production System

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Abstract

The purpose of this paper is the empirical investigation of the Toyota Production System in order to test existing relationships as they are proposed in theory. The underlying model consists of seven factors reflecting the key practices of the Toyota Production System. Using data from 188 manufacturing plants participating in the High Performance Manufacturing research project, the model's measurement characteristics were validated through confirmatory factor analysis. Path analysis of the model showed that the majority of the relationships can be confirmed. Furthermore, a comparison of mean analysis based on a conducted cluster analysis indicates that plants with a higher implementation degree of the practices of the Toyota Production System also show a higher perceived performance in terms of the key criteria of production, i.e. time, cost, quality, and flexibility.

Toyota Production System

JIT production

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