

Why the Toyota Production System integrates with Total Quality Management and People Factors ?

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DESCRIPTION

In the 1950s, Japanese economy collapsed, as a result, the company's funds were scarce and financing was very difficult. The Japanese auto market was dominated by western cars, and local cars owned very low market share, due to the local cars were of poor quality with high costs. In order to improvement the quality and reduce the costs, Toyota developed and adopted several special practices such as waste elimination, production leveling, pull system, kanban system, automatic detection and stop, etc.. These practices are gradually integrated as Toyota Production System (TPS). These practices and the used tools constitute the 'hard side' of TPS. In order to successfully implement the specific production system, Toyota specially emphases on the 'soft side' of TPS including respect for people, realization of quality awareness, continuous improvement, empowerment, based on the implementation of Company-Wide Quality Control (CWQC).

Since the mid-1980s, total quality management (TQM) had developed based on the benchmarking of CWQC, and was quickly implemented by industries, governments, and many kinds of organizations around the world. In the meantime, International Motor Vehicle Program (IMVP), which is based at the Massachusetts Institute of Technology (MIT), had studied TPS, and named as 'Lean production'. IMVP found out many significant advantages of TPS, and then promoted lean production globally.

Based on these backgrounds mentioned above, the authors of this paper propose an integrated model of the TPS, which incorporates the technical aspects of the TPS with TQM, Human Resources Management (HRM), and the 'people factors'. This integrated model is constituted by eight constructs: (i) 'people factors'; (ii) HRM; (iii) TQM; (iv) continuous improvement; (v) 'just-in-time' (JIT); (vi) 'autonomation'; (vii) the lean process; and (viii) performance benefits. This study then

expresses the causal relationships among the eight constructs in the proposed holistic model of TPS as a Structural Equation Model (SEM), and then uses the LISREL terminology to conduct the empirical study to confirm the developed model.

It is well-known that Taiwan owns the manufacturing advantages in the world. The industries in Taiwan learn the production systems and management methods from both Japan and USA, TPS or lean production, TQM or CWQC, HRM, continuous improvement (using tools as QCC or Six-Sigma methods), empowerment, job satisfaction, etc. are very commonly adopted by Taiwanese industries. It is suitable that this paper conducts the empirical study by using samples of Taiwanese industries, which can be confirmed that the reliability and validity, and the evaluation of goodness-of-fit of the research model are very good.

The empirical study indeed confirms the developed model. The practices of 'people factors', especially respect for people, job security, and empowerment, are the foundation of the successful implementation of both TQM and HRM. The realization of TQM, like as CWQC, has directly enhances the effects of continuous improvement, 'JIT', and 'autonomation'. The HRM practices provide the motivation for employees to perform TQM, continuous improvement, 'JIT', and 'autonomation'. Both HRM and TQM have significant indirect influences on the lean process and performance, but both 'JIT' and 'autonomation' have direct influence on lean process and result in significant performance.

This research concludes that adoption of TPS (or lean production) is the critical strategy for industries, in order to raise their competitive advantage. The prerequisite for successful implementation of TPS is the realization of both TQM and HRM, and the drivers of TQM and HRM, and then TPS, are the people factors, which incorporate the style of managers' leadership, their management policy, and the offered welfare and benefits to employees.

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