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A review of production planning and control: the applicability of key concepts to the make-to-order industry

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Abstract

The paper reviews ‘classic approaches’ to Production Planning and Control (PPC) such as Kanban, Manufacturing Resource Planning (MRP II) and Theory of Constrains (TOC), and elaborates upon the emergence of techniques such as Workload Control (WLC), Constant Work In Process (CONWIP), Paired cell Overlapping Loops of Cards with Authorization (POLCA) and web- or e-based Supply Chain Management (SCM) solutions. A critical assessment of the approaches from the point of view of various sectors of the Make-To-Order (MTO) Industry is presented. The paper considers factors such as the importance of the customer enquiry stage, company size, degree of customization and shop floor configuration and shows them to play a large role in the applicability of planning and control concepts. The paper heightens the awareness of researchers and practitioners to the PPC options, aids managerial system selection decision-making, and highlights the importance of a clear implementation strategy. WLC emerges as the most effective Job Shop solution; whilst for other configurations there are several alternatives depending on individual company characteristics and objectives. The paper

outlines key areas for future research, including the need for empirical research into the use of Workload Control in small and medium sized MTO companies.

Keywords:

Production planning and control (PPC) Make-to-order (MTO) Job shop

Small and medium sized enterprises (SME) Workload control (WLC)

Notes

Sadly, Professor Brian Kingsman died in August 2003, part way through this research project. His contribution and encouragement are greatly missed by the co-authors.

Additional information

Notes on contributors

B. G. Kingsman †

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