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## Editorial

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**Biographical notes:** Timothy L. Urban is the Collins Professor of Operations Management at The University of Tulsa. He has degrees in industrial engineering, statistics and business administration from Kansas State University and the University of Texas at Arlington. His primary research interests are in the areas of inventory modelling and facility design; he has been ranked as the eighth most productive researcher of operations management (according to a survey published in the *Journal of Operations Management*). He currently serves as Editor of the *International Journal of Inventory Research* and North American Regional Editor for the *International Journal of Operations and Quantitative Management*.

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## 1 Introduction

Historically, much of the research conducted in the manufacturing technology and management field has focused solely on manufacturing decisions with little consideration of the impact on or the contribution of other fields. Such an approach has provided a number of useful theories and tools that have been used to improve the efficiency and productivity of manufacturing systems. However, contemporary business organisations have moved away from the structure of stovepipe disciplines to a more interdisciplinary and even interorganisational, framework.

The demand for products with short life cycles and greater variety dictates that manufacturing maintain a close relationship with R&D and engineering on product development issues and with marketing and logistics on product supply aspects. The need for manufacturers and retailers to coordinate supply-chain activities is essential to optimise the profitability of both organisations. The greater reliance on information technology, the extent of global sourcing, customers and competition and the changing legal environment, etc., all make the manufacturing function increasingly inseparable from other areas of an organisation. Therefore, the goal of this special issue of the *International Journal of Manufacturing Technology and Management* is to address the need for research that reflects the interdisciplinary nature of the interaction between manufacturing and other fields.

## 2 Inside this issue

This Special Issue brings together five papers that examine a variety of issues in manufacturing technology and management.

Two of the more prevalent manufacturing technology and management systems are Material Requirements Planning and Just-In-Time manufacturing. The first paper of this special issue investigates the current application of manufacturing planning and control technologies for 246 Chinese companies and provides empirical evidence concerning the impact of the implementation degree of MRP and JIT on a firm's operational performance. The authors find that MRP and JIT have become widely accepted by Chinese enterprises, and that the degree of implementation and integration has a positive relationship with the manufacturer's performance. They also note that the integrated application of MRP and JIT is a popular trend in China.

The supplier–manufacturer relationship has always been an important aspect of a firm's operation. But with the growing importance of Just-In-Time purchasing and supply-chain management, vendor evaluation becomes even more critical in quality improvement, cost reduction and customer satisfaction. In the second paper, the value of information sharing in improving vendor evaluation is examined. Stochastic models are developed to evaluate the value of information sharing for three different scenarios (no, partial or complete sharing) and to illustrate the advantages for Just-In-Time Purchasing vendor evaluation under an assemble-to-order manufacturing environment.

The third paper of this Special Issue examines the coordination and cooperation between operations and other functional areas within a firm. Based on a study of 231 firms, the authors investigate the direct influence of coordination capability within the firm on product quality improvement as well as its indirect influence on financial performance. They find that the working relationships of operations, marketing, purchasing and engineering have significant benefits and that organisations would be well-served to develop coordination capability.

The interface between pricing and inventory control is the focus of the fourth paper. In particular, the effect of reference prices – consumers' expectations of the price – on the demand of the item is considered. An inventory model is developed that incorporates the effects of reference prices, demand uncertainty and price elasticity on the coordinated pricing and production decisions. Numeric analysis indicates that accounting for reference prices can have a substantial impact on the pricing and inventory decisions and the resultant profitability, made by a firm.

In the final paper, a project risk-management process is proposed for a global enterprise that establishes a virtual organisation to complete a manufacturing project according to a customer contract. The multiphase project risk-management process is formed consisting of risk analysis, risk evaluation and risk control. Due to the complexity of the resulting model (i.e. a multiobjective, non-linear and integer program), genetic algorithm approaches are proposed as the solution methodology. The process is applied to a project, the aim of which is to construct a small-sized, clean and efficient power station in northeastern China.

**Acknowledgements**

Firstly, I would like to thank the authors of these papers for providing the results of their research efforts to this Special Issue. It is obvious that a great deal of effort has gone into this work and in my opinion, a valuable product is being provided to the manufacturing technology and management research and practitioner communities. Secondly, the referees are to be commended for giving their time and their expertise for improving the quality of the papers. Finally, I would like to thank the Editor-in-Chief of the *International Journal of Manufacturing Technology and Management*, Dr. M.A. Dorgham, for providing the opportunity to compile these papers on an important and contemporary topic. I hope that the readers of this Special Issue find these papers as interesting and worthwhile as I have.