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## Editorial

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**Biographical notes:** Dr. K.L. Choy is an Assistant Professor in the Department of Industrial and Systems Engineering of the Hong Kong Polytechnic University. He gained his MSc degrees in Manufacturing Systems Engineering, Management Science, his MPhil degree in Engineering at the University of Warwick, UK in the 1990s, and his doctorate degree at the Hong Kong Polytechnic University in 2003. Dr. Choy has published one book chapter and more than 70 international journal papers in the areas of logistics information, data systems, supply chain management, technology management and applying expert systems in industry.

Dr. Henry C.W. Lau is currently an Associate Professor in the Department of Industrial and Systems Engineering at the Hong Kong Polytechnic University, involved in research and teaching activities. He received his Master's degree at Aston University in Birmingham in 1981 and his doctorate at the University of Adelaide in 1995. His current research areas cover manufacturing information systems and artificial intelligence applications. He has authored and co-authored over 160 international research papers covering multi-agent modelling, object technology, global manufacturing and computational intelligence applications.

Dr. Felix T.S. Chan received his BSc degree with First Class Honor in Mechanical Engineering from Brighton Polytechnic (now University), UK, and obtained his PhD in Manufacturing Engineering from the Imperial College of Science and Technology, University of London, UK. He was a Research Fellow for two years in the Department of Design, Manufacture and Engineering Management, University of Strathclyde, UK. Prior to joining The University of Hong Kong in 1996, Dr. Chan was a Senior Lecturer at the School of Manufacturing and Mechanical Engineering, University of South Australia. Dr. Chan is currently an Associate Professor in the Department of Industrial and Manufacturing Systems Engineering, The University of Hong Kong. His current research interests are logistics and supply chain management, distribution coordination, systems modelling and

simulation, and supplier selection. To date, he has published nine book chapters, over 160 refereed international journal papers and 180 peer-reviewed international conference papers. He is a senior member of the Society of Manufacturing Engineers, and a chartered member of the Chartered Institute of Logistics and Transport in Hong Kong.

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## 1 Introduction

Owing to the effects of globalisation, current supply chain networks have become increasingly complex. Enterprises have to deal with numerous channel partners who may be located a great distance apart, who request a greater than ever diversity of products, and who need to deal with more statutory requirements and documentation than ever before. As a result, the fulfilment of customers' demands with good quality products, on-time product delivery and superior logistics services becomes difficult to achieve. It is essential to adopt new theories, emerging technologies, effective strategies and innovative systems for enterprises to respond to the demands in the supply chain network.

The purpose of this special issue is to evaluate the advantages of implementing latest, innovative theories and technologies in different domains in the current supply chain networks. The special issue contains six papers discussing the role of enabling technologies in optimising supply chain activities in the innovative age. A brief overview of these papers included in this issue is provided as follows.

The paper, 'Modelling a CRM Markov chain process using system dynamics', by Ip *et al.*, notes that 80% of the profits of most companies are generated from 20% of their loyal customers, whereas the capability to retain loyal customers with a close relationship is the key to surviving in the present one-to-one marketing environment. By applying the Markov chain model in computing customer lifetime value, a CRM system with OLAP is suggested to analyse the relationship level with direct customers and downstream customers and provides a definite marketing advantage in the customer share campaign.

Pellerin, in his paper, 'Development and integration of a simulation-based repair and overhaul execution strategy in ERP systems', contends that the difficulty of controlling production of a defence repair and overhaul organisation within an integrated logistics system resides in the variable nature of the remanufacturing process. The aim of this study is to generalise the control policy described by inventory thresholds triggering the use of different execution modes that were formulated in previous research and to propose its implementation with Enterprise Resource Planning (ERP) and Manufacturing Execution Systems (MES).

The paper, 'Towards e-business and supply chain operations: an empirical study of Hong Kong's trading industry', by Pun *et al.*, highlights that many trading firms have shifted from conventional business operations towards an e-business paradigm because of the dynamic competition in regional and global marketplaces. The paper discusses the e-business paradigm, the SCM initiatives and the changing roles of trading firms, incorporating the empirical findings of a recent study in Hong Kong. The aim of the study is to identify the key determinants such as drivers, obstacles and perceived benefits and contributes to study the traditional versus the emerging roles of trading firms in Hong Kong.

Kwok *et al.*, in their paper, 'Design of a knowledge-based virtual asset management system in dispersed manufacturing', propose a knowledge-based virtual asset management system to help manufacturers with virtual production operations management in a dispersed manufacturing network. Rule-based reasoning, Radio Frequency Identification (RFID) and the production cost minimisation model are included in the system, which enable the discovery of potential asset problems among the dispersed production entities and help manufacturers in selecting suitable subcontracted manufacturers during the reconfiguration of dispersed manufacturing network.

The paper, 'A model for supply chain networks', by Singh, realises that building a good network in supply chain is important for companies that are geared towards providing customer satisfaction and thus maintaining a competitive advantage. In addition, a management system for managers is essential to optimise the supply chain network plan. A supply chain planning framework with a generic model of supply chain network is introduced, which enables improvement in supply chain decisions.

Choy *et al.*, in their paper, 'A RFID implementation study in inventory management', review and compare three RFID implementation strategies:

- 1 pallet-level tagging
- 2 case-level tagging
- 3 combined tagging strategy.

A simulation model is used to perform a trade-off study between the investment resulting from implementing RFID tagging using the three different strategies and visibility of the inventory level. A better understanding of the condition under which RFID implementation strategies are cost-effective is achieved.

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