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## Editorial

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Eleftherios Iakovou is Associate Professor in the Department of Mechanical Engineering (Division of Industrial Management) and the Director of the Laboratory of *Quantitative Analysis, Logistics and Supply Chain Management* of the Aristotle University of Thessaloniki, Greece. His teaching, research and consulting interests include supply chain management, logistics, inventory management, production systems, revenue management, and emergency response management. He has published in journals such as *Transportation Science*, *IIE Transactions*, *European Journal of Operations Research*, *International Journal of Production Research*, *Transactions of the ASME*, *Transportation Research*, *Annals of Operations Research*, *Maritime Policy and Management*, *Quality Engineering*, *Computers and Operations Research*. Dr. Iakovou sits at the editorial board of the *International Journal of Emergency Management*. He is a member of the Institute for Operations Research and the Management Sciences (INFORMS), the Institute for Industrial Engineers (IIE), the Hellenic Operational Research Society and the Technical Chamber of Greece.

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This special issue of the *International Journal of Logistics Systems and Management* is devoted to a selection of papers, revised and edited for publication from the *3rd International Workshop on Supply Chain Management and Information Systems (SCMIS2005)* focusing on *Logistics Systems Strategy in Global and Electronic Markets* held in Thessaloniki, Greece, in July 2005. The aim of this special issue is to bring together theoretical perspectives and empirical evidence regarding the contribution of logistics systems to the achievement of sustained competitive advantage in the global and electronic markets. The accepted papers present theoretical contributions, report innovative ideas and practical results in real life applications, and shape future directions for research on the topic of supply chain management.

Logistics has been recognised as a core competitive strategy, as global and electronic markets expand the interconnection across the boundaries of enterprises. The challenge is to balance customers' expectations and cost expenditures in a manner that achieves business objectives. Logistics include all the activities to move product and information to, from and between members of supply chain networks. Serving the customer in the best, most efficient and effective manner has become critical, and information about issues such as order status, product availability, delivery schedules, and invoices has become a necessary part of the total customer service experience. Timely and accurate information is now more critical than ever before to reduce resource requirements to a competitive level. The proliferation of new communication and information technology enables reduction of inventory and lead-time, and improvement of customer service and responsiveness. Although these capabilities may materialise, it is not clear that organisations will be prepared to exploit them.

Organisations must be able to extend their internal information systems beyond their boundaries and include their suppliers, partners and customers. Logistics systems strategy is a consequence of the increased necessity for holistic (time-, functional-, analytical- and relationship-) considerations in, between and across companies' business activities and resources, in order to improve the overall performance towards the ultimate customer in global and electronic markets. The various logistics activities that take place within an

e-marketplace must be supported by Information Systems (IS) and Information and Communication Technology (ICT) that will enable the unproblematic flow of products and information and provide useful decision-support services to the companies that participate in a marketplace. Electronic markets utilise information and knowledge, compete on agility and speed, and view enterprise networks as a competitive strategic asset. To compete and survive in these global markets, a logistics-oriented organisation is required.

The special issue begins with the paper entitled, 'VMI modelling in global and electronic markets', by Chatzipanagioti, Theodori and Vlachos. This paper summarises the major quantitative research efforts on Vendor Managed Inventory (VMI) systems, presents the requirements of the appropriate technological infrastructure, and concludes by evaluating the performance of a two echelon supply chain (one vendor and  $N$  retailers) under a VMI logic. Extensive numerical experimentation provides useful managerial insights.

Lo and Chung introduced 'A study of outsourcing relationship in strategic partnership for production in China'. The authors have consolidated their experiences into a framework for managing business process outsourcing in China. They propose a business process outsourcing framework based on field experiences extracted to manage the essential tasks needed in setting up operations in China.

In the paper entitled 'Integrating supply chain operations in the internet era', Matopoulos *et al.* propose an overall framework of supply chain integration drawing on existing research. Based on this framework, the authors suggest a categorisation of the impact of the internet in the supply chain activities providing insights from four different sectors: the automotive, the computer, the food and the grocery industry.

Lumsden and Stefansson discuss and analyse the advantages and disadvantages of the different smart freight models in a study of 'Smart freight to enhance control of supply chains'. The results of this study show that smart freight systems will emerge in a near future and will be partially decentralised.

Wang highlights the benefits and the means of mass customisation, related to product design, as a competitive strategy. His paper entitled, 'An approach to initiating product design in mass customisation environments', constructs a possibilistic linear programming model to determine the optimal component combination on customer involvement in design and product modularity. According to the results of the empirical validation of the proposed model, production managers may obtain adequate information to proceed with stable supply/demand management decisions.

In the paper entitled, 'Decisive factor for the adoption of just in time in Greek SMEs: a probit model', Missopoulos and Dergiades suggest that investments in logistics information systems are imperative. They present a theoretical framework of JIT and then explore the Greek Business reality through the responses of Greek managers of SMEs.

Due to technological advances and consumer interests, product variety can become significantly high. In the paper, 'Analysing product complexity related to product variety in a manufacturing firm with a case study at an automobile assembly plant' by Ding, Sun and Kallaus, product variety refers to product complexity due to various customer choices within a product, while product complexity involves all factors that make a product complex. Product variety can be a major contributing factor to product complexity of a manufactured product. High product complexity can have a significant impact on many cost areas including material, manufacturing, inventory, and distribution.

Motivated by a desire to better understand its product complexity and to identify product complexity reduction opportunities in a US automobile plant, a number of tools are applied in this paper to analyse product complexity related to product variety and identify product complexity reduction opportunities associated with product attributes. Measures of product variety are discussed. Two Data Envelopment Analysis (DEA) models for comparing the relative product complexities related to product variety among similar products, and a DEA model for ranking various attributes of a product for complexity reduction consideration are proposed. An economic analysis template is suggested. A case study based on the considerations of a US automobile plant is also presented to illustrate the applications of these tools.

Sincere thanks must be expressed to all the authors whose contributions have been essential in creating the special issue. A great debt is also owed to those who worked long and hard to review all the submitted papers. Special thanks should also be given to Professor Lenny Koh for her help in the material collection and management, and to Professor Angappa Gunasekaran for his valuable assistance in contributing to the achievement of a high standard of this edited volume.