Editorial

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1 Introduction

In this global environment, there is no doubt that innovative analysis and understanding of the complexity in a supply chain are the key success factors for sustaining competitive advantages. With different level of complexity in supply networks and dedicated characteristics and constraints in specific types of enterprises and industries, it is essential to adopt new and adapted theories, reconfigurable models, frameworks and information systems for enterprises to compete and perform in such a dynamic, complex and evolving supply chain network. In addition, constant innovation in managing information and strategy is required for a sustainable enterprise as it responds to today's business demands in a much more dynamic environment. Enterprises need to manage their information and strategy effectively and innovatively for succeeding in an unpredictable competitive marketplace.

The purpose of this special issue of the *International Journal of Enterprise Network Management (IJENM)* is to align latest practice, innovation and case studies with academic frameworks and theories. It aims at covering the role of advanced enterprise and information systems for enhancing supply chain operations in the innovative age. Ten peer-reviewed papers are presented in this Special Issue. These papers tackle various types of advanced enterprise and information systems techniques. The development of a national electronic product code network, a Real-time Process Mining System (R-PMS), an information system architecture for Indian small and medium enterprise, a Strategic Customer Relationship Management System (SCRMS), the discussion of the integration of RFID technology in a supply chain, the development of an Intelligent Logistics Fleet Management System (ILFMS), the impacts of sharing information of demand patterns on supply chain performance, a Strategic Reference Model (SRM) for New Product

Development (NPD), the formulation of stock minimisation algorithm for inbound logistics management and a real-time shop floor control system are examined in this issue. A brief overview of this papers that appear in this issue is provided as follows.

This paper, 'Development of a national electronic product code network for the tracking of fast moving consumer goods', by Mo, reviews Radio Frequency Identification (RFID) have been widely adopted in recent years. With the use of global RFID standard – Electronic Product Code (EPC), a National EPC Network Demonstrator Project (NDP) is suggested to track and trace movement of goods within the entire supply chain in the Fast Moving Consumer Goods (FMCG) sector. The aims of the project are to simplify and reduce the operating costs of the Australian industry and to explore the benefits and readiness of the technology to the Australian business community.

Ho et al. in their paper, 'Real-time process mining system for supply chain network: OLAP based Fuzzy Approach' claims that gaining experience to modify the current processes in streamlining the integrated workflow is needed in the age of mass customisation. They design an R-PMS to discover the hidden relationship among processes and provide suggestions from vast amount of captured process data. R-PMS is developed by combining capabilities of the Online Analytical Processing (OLAP) and Fuzzy Logic (FL), to form a robust framework for highlighting the undesirable process setting and parameters for further improvement in a real-time manner. The OLAP based fuzzy approach results in higher flexibility on production process management with decision support ability by simulating in an electronic product manufacturer.

Sharma in his paper, 'Information system architecture: a framework for Indian small and medium enterprises', notes that the absence of proper Information System Architecture is the critical factors of receiving insufficient returns in terms of economic benefits by Indian Small and Medium Enterprises (SMEs) as mediators and brokers can easily take undue economic benefits. To tackle this issue, an information system architecture is proposed with the purpose of helping co-operation, co-ordination, integration and information sharing in SMEs. Through the proposed information system architecture, mediators and brokers can be avoided and right kind of information at right time can be provided in the supply chain management.

This paper, 'A strategic customer relationship management system: a hybrid OLAP-neural approach', by Kwok et al., presents a SCRMS. They argue that enterprises are needed to implement strategic customer relationship management programmes in responding quickly to customer demands in today's competitive business environment. They propose a SCRMS to collect, integrate and analyse various customer-related data from different operation systems in departments within an enterprise so as to establish a cost-effective strategic CRM solution. SCRMS is developed by integrating the data warehouse concept with two emerging technologies, OLAP and Artificial Neural Networks (ANNs), to support in the customer relation strategy. Through applying SCRMS in Ka Shui, a die-casting manufacturer, significant improvements are made in customer service efficiency and cost reduction.

Chan et al. in their paper, 'Is the RFID technology ready to integrate supply chain activities?' highlights that RFID will be integrated into the supply chains within next few years. They have conducted a review of the technology and supply chain-related RFID applications. It is suggested that actual testing and pilot run should be taken place during implementation of RFID in supply chain activities.

Choy et al. in their paper, 'Development of an intelligent logistics fleet management system - an integrated approach' suggests that time delays always occur for delivery and transportation due to the simple communication systems, such as the use of fax, mobile phone, etc. They present an ILFMS for third party logistics providers to determine the optimal delivery route and estimates the travel cost with respect to the delivery order and fleet detail. By applying ILFMS in Extrans International (HK) Limited, it is found that dispatching efficiency is greatly enhanced.

This paper, 'Impacts of sharing information of demand patterns on supply chain performance', by Huang et al., presents and analyses a simulation approach to verify the impacts of sharing information on supply chain performance. They discover that sharing information can improve supply chain agents performances, in terms of inventory and backlog; however, supply chain agents still do not accept information sharing policies due to the increase of total operating costs. This result is opposite to a common expectation of improvement in supply chain performances by sharing information and Huang et al. would like to conduct further studies on the values of sharing further order information such as more accurate forecasting models.

Li et al. in their paper, 'A strategic reference model for new product development', notes that NPD is a core function of any manufacturer. Enterprises think that there isn't any systematic approach required because there are too many uncertainties present in the process. However, they pointed out that if there is a process which could identify the trends and driving forces, possible futures could be envisaged and virtually experienced to overcome the uncertainties. This study is to design a SRM to create a practical reference model for practitioners. The feasibility of the model is verified through practical application in a manufacturing organisation. Managers in the organisation are provided with a continuous learning experience, which simulates their thinking and results in the further enhancement of future products.

This paper, 'Formulation of a stock minimization algorithm for the management of inbound logistics', by Chan and Tang, investigates the relationships between the demands of the orders, due dates and production schedules, with the purpose of minimising the stocking time of all products. A stock minimisation model is proposed to reduce raw material keeping cost. Thus, the material ordering time can be driven more closely towards a due date. In comparison with other popular scheduling techniques, the proposed model can save around 70% of the product stocking time.

Finally, this paper, 'A real time shop floor control system – an integrate RFID approach', by Poon et al. notes that the most revenue-producing activities of an enterprise usually take place on the shop floor. However, actual production status cannot be monitored in the absence of real time-based shop floor system. They design a RFID-based Decision Support System (RDSS) to support management in making decisions for solving unpredictable problems during production by collecting, storing and analysing real-time shop floor information. RDSS is developed by integrating Rule-Based Reasoning (RBR) with RFID automated data collection techniques and production mathematical algorithm. Through applying RDSS in a world-wide leading manufacturer of electronic dictionaries and other handheld information devices, the visibility on the shop floor has been increased, resulting in shortening the time of decision making and enhancing customer satisfaction.

The diversity of this papers in this Special Issue of IJENM on 'Advanced Enterprise and Information Systems for Enabling Supply Chain Operations in the Innovative Age' illustrates the breadth and depth of the contributions that RFID and the related

IT technologies can make to the field of enterprise network management. The wide range of types of concerned techniques presented here should serve the interests of a broad audience.

Acknowledgements