
Editorial

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Biographical notes: Hokey Min is James R. Good Chair in Global Supply Chain Strategy in the Department of Management at the Bowling Green State University. He was Distinguished University Scholar and Founding Director of the UPS Centre for World-wide Supply Chain Management and the Centre for Supply Chain Workforce Development at the University of Louisville. He earned his PhD in Management Sciences and Logistics from the Ohio State University. His research interests include global logistics strategy, e-synchronised supply chain, benchmarking, and supply chain modelling. He has published more than 110 papers in various refereed journals.

With the unprecedented growth of international trade, a growing number of multinational firms have coped with logistical challenges of shipping products to and from unfamiliar territories in foreign soils. These logistical challenges include cross-border transportation under different rules and regulations, selection of the optimal mode of transportation, backward movement of returned products, selection of ports of entry and departure, utilisation of foreign (free) trade zones and bonded warehouses, location of international warehouses/distribution centres, selection of international distribution/transportation hubs, establishment of global services standards, development of global transportation networks, design of global e-commerce, assurance of safe and secure transportation, assessment of potential supply chain risks in global environments, resolution of international contract disputes, and cross-cultural negotiations. In recognition of these challenges, this special issue of the *International Journal of Logistics Systems and Management (IJLSM)* aims to bring together the recent advances in research tools and their applications to various aspects of global logistics activities including global transportation network design, hub location, express courier services, container port management, supply chain flexibility measures, hazardous material transportation, and supply chain disruption management in global business environments. This special issue contains a total of seven selective, but diverse papers based on case studies, empirical work, or analytical framework that can add value to the global logistics knowledge base.

This special issue starts with a paper by Min and Guo who designs a bi-level equilibrium model that can not only minimise the total container transportation cost for a shipper, but can also maximise the total profit accrued from container transportation services offered by a carrier. The proposed model combines game theory with a genetic

algorithm to promote a compromise between the conflicting interests of the carrier and the shipper, while optimally balancing the shipper's desire to control cost against the carrier's desire to increase profit. Thus, it can reflect the inter-dependent behaviour of the carrier and the shipper in determining optimal container traffic volume, freight rate, and container service frequency. Also, it takes a critical look at whether the proposed model and solution procedure brought managerial benefits to the container port authorities in China.

The second paper by de Marcellis-Warin, Trépanier, and Favre proposes a bi-level representational model for transporting hazardous materials. The unique feature of this representational model is its graphical display mechanism that helps the decision maker visualise both physical and contractual flows of hazardous materials and highlights the responsibility interactions and risk transfers among multiple stakeholders (e.g., manufacturers, carriers, intermediaries, shippers) involved in the global supply chain. Through two case studies, the authors demonstrated the practicality and usefulness of their representational model.

The third paper by Hanna, Skipper, and Hall devises systematic ways to enhance organisation flexibility as a means of adapting to dynamic global supply chain environments fraught with risk and uncertainty. Through an empirical study of multinational US firms, the authors of this paper discovered that collaboration regarding contingency plans significantly affected an organisation's ability to be flexible, and that information technology use could significantly influence collaboration success. They also found that when an organisation does not have a high level of comprehensive planning, it is difficult to achieve much collaboration. Since a high level of comprehensive planning requires top management support and Information Technology (IT) use, proactive top management involvement in strategic planning and company employees' IT skills are essential for successfully managing supply chain disruptions.

The fourth paper by Lee, Jung, and Cho develops measures for assessing various supply chain flexibility:

- time flexibility
- quantity flexibility
- cash-flow flexibility.

In contrast with traditional single criterion, after-the-fact measures, the authors came up with innovative unilateral measures based on neural network theory that allowed multinational firms to evaluate the various flexibility of the entire supply chain and then forecast the future flexibility of the global supply chain.

The fifth paper by Kim analyses the strength and interdependence of supply chain relationships using Analytic Network Process (ANP). Similar to the Analytic Hierarchy Process (AHP), ANP was designed to deal with hierarchical multiple criteria and their inter-dependencies using the decision maker's feedback. Unlike AHP, however, ANP's hierarchy spreads out in all directions and its clusters of decision criteria/attributes are not arranged in any particular order. Though time-consuming for pair-wise comparisons of decision criteria and alternatives, ANP was proven to be useful for analysing the supply chain performance in terms of relationships among the supply chain partners.

In the paper presented by Lee, Ko, Sohn and Ko, the integer programming model and genetic algorithm are proposed to maximise incremental profits and productivity of express courier companies based in Korea. To validate the efficiency and sensitivity

of the proposed model and solution procedure, the authors conducted two case studies dealing with ground express courier services. In particular, they tested the proposed model and solution procedure using simulated experiments involving three levels of customer demands, two consolidation terminals, and 30 service centres with limited capacity. The model experiments revealed that the proposed model and solution procedure could reduce waiting time for courier truck drivers at the consolidation terminal and subsequently enhance productivity by optimally adjusting the time of courier trucks' departures from service centres.

Finally, Boontaveeyuwat and Hanoaka present a large-scale integer programming model to select the optimal location of a new hub port in Southeast Asia. This paper illustrates the structural shifts in traffic flows as a result of a hub location and how the global supply chain networks with carriers, shippers, and container terminals at the hub port were developed. The hub location scenario involving containerisation and feeder services similar to this Southeast Asian example can be applied to other port authorities encountering global supply chain challenges.

To summarise, I sincerely hope that these papers selected for the special issue of *International Journal of Logistics Systems and Management* can be valuable resources and guidelines for both academicians and practitioners alike who are interested in improving global logistics operations. The Guest Editor gratefully acknowledged the continued support, encouragement, and guidance provided by Editor-in-Chief, Dr. Angappa Gunasekaran, Inderscience Publishers, and the valuable suggestions made by anonymous referees who make this special issue 'really special'.