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# Transportation Research Part E

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## Editorial

## TRE Special Issue IAME 2015



This special issue on “*Operational and Financial Maritime Logistics Networks*” consists of selected papers that were presented at the International Association of Maritime Economists (IAME) conference in Kuala Lumpur, Malaysia, 24–26 August 2015. They cover issues of significant importance in the maritime sector and follow some of the latest advances and trends in shipping, ports and logistics with particular focus on operational and financial maritime logistics networks.

In the wake of the global economic crisis, and the ensuing volatility and unpredictability of commodity and seaborne transportation markets, resources for new projects are scarce. These conditions make the entire supply chain, from the producer to the end user, a risky and challenging network. Concepts like investment in and development of transport infrastructure, transportation cost and operational capacity, forecasting, maritime logistics network design and operational optimization, maritime supply chain performance, green supply chains and environmental policies, among others, are some of the high interest topics in the decision-making domain of economic agents in the maritime transportation and logistics sectors.

The aim of this special issue is twofold: first, to bring together some of the latest research advancements in the domain of maritime logistics in a single volume, and second, to provide a reference for the current theories, best practices and applications for the integration of operational and financial logistics networks in the maritime industry.

The first paper titled “*Operational Shadow Pricing in Back Haul Container Shipping*” aims at describing an approach that takes into account the factors affecting the marginal costs in the back haul market from inland locations. It is argued that as uncertainties and dynamic operations are some of the most significant factors in empty container movements, shadow prices can benefit carriers by enabling them to define minimum acceptable rates. The paper contributes to the literature, first, by demonstrating a novel shadow pricing and shadow credit approach to the back haul pricing problem, and secondly, by recommending that there is a positive relationship between the variability in the imbalance situation of laden containers in a particular trade route and the volatility of short-term back haul freight rates. The paper concludes that while carriers have traditionally focused on optimizing head haul volumes and routes to maximize profitability, there are clearly opportunities to improve financial performance in the back haul direction via operational pricing strategies.

The second paper titled “*A Quality Function Deployment Approach to Improve Maritime Supply Chain Resilience*” develops an original Quality Function Deployment (QFD) approach to improve maritime supply chains resilience. This approach takes both maritime risks and principal customer requirements into consideration. Following an empirical investigation of major shipping lines and shippers, the paper argues that: (i) the top three customer requirements are on-time and hassle-free shipment delivery, easy real-time shipment tracking, and professional and helpful staff; (ii) the top three risks are associated with IT systems, operations, and human resource management; and (iii) the top three resilience measures are contingency plan, monitoring and maintenance, and supply chain relationship management. The paper contributes to the literature in the following ways: (i) first by designing an original QFD approach to prioritize different resilience solutions for shipping lines; (ii) secondly, by suggesting a practical procedure for solving the ‘what’ and ‘how’ questions in the QFD model; and (iii) third, by having a practical significance for shipping companies to devise and implement a resilient maritime supply chain.

The third paper titled “*Capacity Retirement in the Dry Bulk Market: A Vessel Based Logit Model*” investigates the probability of a vessel scrapping based on vessel specific variables (size and age) and market variables (freight rates and volatility, bunker prices, interest rates and scrap steel prices). The results, from a logit model, indicate that age and vessel size as well as the deviation of freight rates from its long-run mean and of bunker prices from their long-run mean are important factors in the vessel scrapping probability. However, in the Capesize and Panamax sectors, the probability of scrapping seems to decrease for larger vessels, whereas the opposite is true for the Handysize sector. The study contributes to the literature as financiers and other external investors can evaluate the likelihood that the fleet they are investing in may be scrapped, based on vessel specific and market factors through the proposed model.

The fourth paper titled “*Combined Fleet Deployment and Inventory Management in Roll-on/Roll-off Shipping*” proposes a new Mixed Integer programming (MIP) model for addressing the integrated planning of inventory, cargo shipments and ship routing on various trade routes served by ro–ro shipping companies. The modeling approach in this paper combines inventory management at the ports of vendor managed cargo, served by the examined ro–ro shipping company, with optimal fleet deployment of available ships to the given voyages on various trade routes. The planning problem is a Fleet Deployment and Inventory Management Problem (FDIMP) and test instances are created from real planning problems of a ro–ro shipping company. The computational results indicate that the Rolling Horizon Heuristic (RHH) deliver good solutions in terms of quality within shorter run times and performed better than solving the problem by a commercial MIP solver for all instances of realistic size.

The final fifth paper titled “*A Fuzzy Approach for Container Positioning Considering Sustainable Profit Optimization*” argues that the container positioning problem can be treated with Fuzzy Linear Optimization (FLP), as many of the parameters are fuzzy or generally not fully known. The FLP approach is fast and accurate and the model-maker can use the advantages of both FLP (formulation) and linear programming (algorithm and solution). Moreover, along with the consideration of the FLP, the contribution of this paper extends also to revenue maximization from the flow of full and empty units simultaneously. The paper argues that the consideration of empty and full unit flow simultaneously suggests a holistic approach that deals with the repositioning of empty containers along with the dispatching of full units.

This special issue collates five papers from the IAME 2015 conference, contributing to the relevant literature as well as to shipping companies, port entities and logistics operations. The papers were independently and anonymously reviewed in a separate rigorous process following the presentation at the IAME 2015 conference. The authors are to be commended for the effort they have made during this process and we do hope that the process has contributed to the improvement of the papers. As guest editors of this special issue we are grateful to the Editor-in Chief of TRE for entrusting us with the management of this issue and we hope that the readers will both benefit and enjoy reading it.

Ilias D. Visvikis

*Professor and Director of Executive Education and Professional Development, World Maritime University, Sweden*

*E-mail address: [iv@wmu.se](mailto:iv@wmu.se)*

Photis M. Panayides

*Professor and Vice-rector of Economic Planning and Development, Cyprus University of Technology, Cyprus*

*E-mail address: [photis.panayides@cut.ac.cy](mailto:photis.panayides@cut.ac.cy)*

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