

GUEST EDITORIAL PREFACE

Special Issue on Technologies for E-Freight

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The freight transport sector needs to improve its competitiveness, whilst at the same time coping with increasing volumes and responding to the demands for sustainability. It will be necessary for the sector to better utilise available transport resources and infrastructure under the concept of “Co-modality”, a term coined to signify optimal use of all modes of transport singly and in combination.

A key determinant of efficiency in freight logistics is the capability to draw maximum benefit from information and communication technologies. In this context, *e-Freight* refers to the vision of a paper-free, electronic flow of information associating the physical flow of goods with a paperless trail built using information and communication technologies (Commission of the European Communities, 2007). Aspects of e-Freight include:

1. The ability to track and trace freight along its journey using technologies such as RFID, and to
2. Automate the exchange of cargo-related data and electronic documents for regulatory or commercial purposes.

Related to (2), a *Single Window* environment provides one entrance (either physical or electronic) for the submission and handling of

all data and documents related to the release and clearance of an international transaction. This entry point is managed by one agency which informs the appropriate agencies and/or performs combined controls.

This special issue of the International Journal of Applied Logistics reports key findings from research presented in the First International Conference on e-Freight that was held in Munich, Germany between 10 and 11 May 2011 (<http://www.efreightconference.com>). The papers presented in this Special Issue focus on aspects of e-Freight, investigated by research projects such as e-Freight (2011), that concern:

1. ICT for cargo tracking
2. Information Architectures for seamless exchange information in order to improve the efficiency and quality of freight transport logistics and to facilitate co-modality.

In their paper “A Concept for Improving the Security and Efficiency of Multimodal Supply Chains,” Scholliers *et al.* argue that although there are many tracking and tracing services on the market, they mainly concentrate on a single mode of transport, such as road vehicles, or transport units, such as containers. Their paper describes the development of a holistic framework for the management of the security and

efficiency of supply chains, which is the result of the Finnish national SCIE (Supply Chain Security and Integrity) project. The framework was used to develop a supply chain security and integrity service for multimodal supply chains.

Paper “RFID: From Closed Systems to Improving Visibility in the Manufacturing Supply Chain” by Permala *et al.* present research on RFID integration along the transport chain. The authors argue that in many industrial sectors, the use of RFID in closed systems is evolving. However, to be implemented in global supply chains, all aspects related to RFID, such as radio frequencies, data content, transmission protocols and message sets need to be standardised. By collecting, processing and distributing information efficiently organisations should be able to improve the efficiency of their transport logistics processes, lower their operational costs and improve their portfolio of logistics services. However, taking full advantage of RFID implementation requires the involvement of all partners in the supply chain and the integration of identification information into companies’ information systems.

The following two papers address the e-Freight interoperability aspect through the use of shared Information Architecture models.

Zunder *et al.*, in “Is it Possible to Manage and Plan Co-Modal Freight Transport Without a Centralised System?” present the *Freightwise Framework* for co-modal freight transport. The Framework divides the freight transport domain into manageable sub-domains and defines the main roles that need to interact as well as the necessary interactions in between these domains. In this paper, the authors explore the goal, context, methodologies utilised, results and validation in multiple business cases of the proposed framework.

Akhtar *et al.* in “Efficient and Reliable Transportation of Consignments (ERTOC),” describe an initiative to drive business improvement and sustainability throughout the supply chain from factory to point of sale. Their initiative aims to develop a standards based open architecture data hub, to deliver accurate information for transport operators and their customers, and to improve business efficiency and effectiveness. The paper presents the underlying architecture of a proposed system, which serves to integrate diverse resources, involving collection of data, storage and provision of it for further processing. Two main areas of research addressed in this paper include the use of an open-data hub and API for logistics applications and for carbon tracking.

Information Architectures for e-Freight, embedded in an Information and Communication (ICT) platform, is the theme of the paper “Towards an ICT Platform for the European Freight Transport Community” by Karakostas *et al.* The paper addresses amongst other the use of web services for achieving interoperability between transport chain participants, as well as an implementation of a *Single Window* environment, with the use of a Common Reporting Schema for reporting compliance.

REFERENCES

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