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Cecilia Temponi · Nico Vandaele (Eds.)

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Editorial

The objective of the International Conference on Information Systems, Logistics, and Supply Chain (ILS) is to bring together researchers, business leaders, and professionals from industry to share and exchange world-class research results related to supply chain design and management, information and decision-making systems, and innovative practices in logistics. The conference offers opportunities to identify new developments in industrial and societal issues as well as research on identified topics. The ILS conference takes place every two years.

The papers included in this volume draw upon the conference papers presented at the 6th International Conference on Information Systems, Logistics, and Supply Chain (ILS). The conference took place in Bordeaux, France, during June 1–4, 2016. The papers were selected from over 120 conference papers that were presented. A set of 30 papers were selected out of the 120 plus papers; this selection was based on a combination of factors that included: the review of each paper conducted during the conference paper selection process, the feedback from the session chair when each of the selected papers was presented, and the review of the conference scientific chairs for ILS 2016. From the preselected papers, an invitation was sent to the authors of all 30 papers. From the 30 papers invited, 18 papers were submitted for consideration for publication in the LNBIP series by Springer. The 18 submissions were sent to two reviewers for review. Comments and suggestions from the reviewers were sent to the authors. In total, we received 13 revised manuscripts with all of the revisions incorporated. The manuscripts were approved for publication by the editors of this LNBIP volume.

The papers are organized in four clusters: Transportation and Logistics; Supply Chain Planning; Collaboration and Operations in the Supply Chain; and Applications of Supply Chain Topics to Businesses Environments (Case Studies).

Transportation and Logistics

Determination of optimal railway routes for auxiliary fleets in emergency situations is a challenging problem. Such emergencies can occur when there is an unexpected failure in the planned schedule. For example, a large number of passengers may be stuck in remote origin locations. Ortega, Mesa, and Pozo approach the topic by presenting a model that balances user inconveniences in terms of their delay versus the operating costs to recover the disruption. Also addressed in this cluster is the subject of collaborative logistics, which assures all partners are better off in coalition; a partner may in turn be composed of different subunits. Gonzalez-Feliu presents a viable urban freight tramway system based on demand/supply modeling and a cost–benefit analysis. The author describes the main background elements together with a model that combines a

cost–benefit analysis with a freight catchment analysis. The model is illustrated with an application for freight tramway deployment scenarios in Paris, France.

Freight transportation has emerged as a key factor in the development and dynamicity of countries. However, it has had a considerable impact on urban areas due to environmental issues. Owing to this, several stakeholders have implemented City Logistics solutions in order to make freight transportation more sustainable and efficient. Perboli, Rosano, and Gobbaton propose a case study focused on a collaborative transportation system involving traditional and green couriers in the city of Turin (Italy). This freight pooling is sustained by a decision-support system that combines the ERP “Odoo” with an algorithm for route optimization planning. The GUEST methodology begins with the identification of the green courier’s needs and requirements and extends to the implementation of the overall solution.

Flisberg, Frisk, Guajardo, and Rönnqvist present the impact of collaborative logistics on the geographical location of sawmills in Sweden that engage with main organizations and suppliers. The negative impact was balanced by the development of a new allocation for the logistic costs. An optimization model implemented in a decision-support system computes the logistics costs perceived by the organization in the presence and absence of collaboration.

The transportation of forest biomass in Sweden is also addressed under this cluster. An integer programming model to this type of transportation was developed by Flisberg, Frisk, Guajardo, and Rönnqvist. Sweden is divided into different areas, and there are different coalitions forming in these different areas. A company’s membership may be to two or more coalitions. The results from their model use real-world data. The results reveal that, although the area division restricts supply points to fulfill only demand points within their corresponding area, it renders flexibility when there is a bound limiting the cardinality of the coalitions.

Supply Chain Planning

The importance of achieving a strategic fit between the actual planning environment and the production planning and control systems that are employed is critical to avoid suboptimal solutions that negatively affect production planning and control performance. Buer, Strandhagen, Strandhagen, and Alfnes develop a framework for analyzing the strategic fit between the planning environment and the production planning and control. Based on a literature review, they develop a comprehensive planning environment mapping framework. The framework was tested through five manufacturing companies. The results from their mapping frameworks can be used as a starting point for designing appropriate production planning and control solutions, to compare companies and to identify possible improvement areas.

An application of concepts of innovation in services and how these concepts can contribute to the operational efficiency gains in the supply network is presented by Jacintho, Marquiori, Perdigao, and Terra da Silva. Their model describes an operational feasibility study related to service innovations with a logistics operator and how these innovations can improve the food supply network efficiency. The focus is on the

upstream supply network where suppliers are served toward a logistics operator. The supply system illustrates the progression from receiving, with the model Cost, Insurance and Freight (CIF), to scheduling collection and milk runs with a model Free on Board (FOB). An important highlight of this planning model is how the concepts of innovation in services can influence the operational improvements in food service supply networks.

The scheduling of two types of renewable and non-renewable resources is considered in a framework for planning a set of multi-projects integrated with a closed-loop supply chain. Tayyar, Lamothe, Dupont, and Loustau report that the renewable resources are available in an initial quantity; nevertheless, the availability of renewable resources can increase by renting additional limited amounts. In order to satisfy the activities, demand for the non-renewable resources, management of waste produced at the worksites, and planning of a closed-loop supply chain are integrated with the scheduling of the projects. The application of the model is investigated on a case from a French project called CRIBA.

Collaboration and Operations in the Supply Chain

The incentives for a firm to provide non-truthful demand information under a two-company shipping collaboration is explored by Tinoco, Creemers, and Boute. The authors analyze how distorted demand reporting impacts the logistics costs of each individual company in the collaboration and how this impacts the stability of the collaboration agreement. Both ex-ante and ex-post cost allocation proportions based on reported and realized demands, respectively, were studied. The truth-telling strategy is dominant when the Shapley value or an allocation rule based on the demand or stand-alone cost is in place.

Collaboration in an electric power supplier needing to build a transmission line between two jurisdictions is studied by Zinchenko, Song, and Rosehart. The design of the new electric power line should maximize some user-defined utility function; however, due to reliability considerations, the power line developer has to install not just one, but two transmission lines, separated by a certain distance from one another so that even if one of the lines fails, the end user will still receive electricity along the second line. The analysis indicates that the optimal placement of the transmission lines corresponds to the topological design of specialized unorthodox “supply chains,” where multiple power lines serve toward the system’s resilience against catastrophic failures. Such a problem is modeled and solved to be efficient.

Applications of Supply Chain Topics to Businesses Environments (Case Studies)

The practice of order picking in a warehouse has proven to be a critical operation. Lenoble, Frein, and Hammami provide an optimization model for order batching, when items are stored in a Vertical Lift Module in order to minimize the total completion time. The Vertical Lift Module is an automated storage and retrieval system that is widely used in warehouses. Numerical results from real case studies were used to prove the efficiency of the model. The model performs much better than the actual batching method used by these companies.

Identifying prerequisites for achieving expected supply performance targets and thereby successful production transfers is the subject of the research by Mogos. A collection of 43 prerequisites were identified in the literature and structured according to the main production transfer phases. Two production transfers within the electronics industry were analyzed. The challenges identified in the analysis could have been avoided or minimized if some of the identified prerequisites would have been in place. Recommended activities and risk mitigation measures are highlighted along the transfer production process. The results represent the first step in configuring a project development model for systematic production transfer management.

Quality is one of the main drivers in pork production to guarantee food security and food safety in addition to reducing food losses along the supply chain. Machado, Naas, Mendes dos Reis, and Costa-Neto conducted a study of the Brazilian pork industry. A Pareto analysis conducted on data collected from 2010 through 2014 showed that considerable economic losses are attributed to quality issues.

The collection of papers presented in this special issue, LNBIP 262, of the ILS 2016 proceedings reflects the diverse challenges and opportunities experienced in the field of logistics, information, and supply chain management. We hope that this selection of manuscripts provides venues for additional research in cross-disciplinary areas of science and technology in the near future.

We would like to thank the authors of the manuscripts selected for these proceedings. The authors were diligent in expanding their papers and in incorporating the reviewers' suggestions. Also, our sincere appreciation goes to all the reviewers who took time from their busy schedule to provide feedback to the papers presented hereafter. The reviewers' thorough and thoughtful comments made the final manuscripts a collection of excellent reference papers for future developments in the area presented.

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Conference Program

The scientific program was established according to the following architecture:

- 1 doctoral session
- 4 academic plenary sessions
- 2 industrial plenary sessions and round tables
- 33 regular and thematic parallel sessions (3 to 5 oral presentations per session):
 - Facility Location
 - Forestry and Wood Transformation
 - Sustainability and Waste Management
 - Decision Support for Collaborative Urban Logistics Planning and Management
 - Integrated Supply Chain Network Design with Uncertainty
 - Robust sustainable Supply Chain Management
 - Advances in Collaborative Logistics
 - Data-intensive Analysis and Simulation in Supply Chains
 - Physical Internet - The Interconnected Era in Logistics
 - Demand Forecasting and estimation for smart sustainable urban logistics Systems
 - Building Resilient Supply Chains
 - Forecasting and Inventory Control
 - Last mile Distribution in large Metropolitan regions
 - Vehicle Routing with Transhipments
 - Design of Sustainable Supply Chains – Metrics and Integration
 - Enabling Supply Chain integration through effective Management and share Resources
 - Auction-based Mechanisms for Transportation Procurement
 - Supply Chain Quality Management
 - Global Risk Management in Supply Chains
 - Healthcare and humanitarian Supply Chain

- Operations Management
- Production and Operations
- Supply Chain Management

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