Chapter 1
Identifying the Key Success Factors in Strategic Alignment of Transport Collaboration Using a Hybrid Delphi-AHP

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ABSTRACT

Transport collaboration has emerged as a growing trend that creates opportunities and competitive advantages for supply chain partners by eliminating inefficiencies and thus reducing costs. As a result, it allows the more efficient utilization of available resources and mitigates greenhouse gas emissions. Ensuring a strategic alignment among different partners is necessary to sustain a long-term collaboration with respect to transport and logistics activities. This chapter studies strategic alignment within the context of supply chain partners. The 37 key criteria from the technical, risk, financial, organizational, and operational categories for the formation and maintenance of a strategic alignment for collaboration are identified by utilizing a hybrid Delphi-AHP. This methodology utilized the expertise of transport experts from different countries. Establishing such collaborative initiatives from raw materials procurement to finished products distribution throughout supply chain is important for creating an efficient and environmentally/socially sustainable transport strategy.

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INTRODUCTION

Inefficiencies in transport and logistics cause problems throughout an organization's supply chain including poor capacity utilization, empty-backhaul, high transport costs, low-profit margins, and harsh environmental impacts. To overcome these, collaborative initiatives have gained in popularity as a sustainable strategy over the last decade. In addition, the rise of digital technologies in transport and logistics (i.e., the Internet of Things and the Physical Internet) and open and interconnected logistics services enabled by Industry 4.0 (the fourth industrial revolution) have opened new possibilities to promote collaboration in transport as well as to monitor, analyze and manage the carbon footprints across the supply chain (Pan *et al.,* 2017). Building collaborative logistics networks with digital technologies offers a new degree of resiliency and responsiveness enabling companies to escalate the competition in an effort to provide customers with the most efficient and transparent delivery service (PWC, 2016). The use of an analytic technologies (e.g. hyperconnectivity, supercomputing, Big Data) allows for the collection and use of large-scale transport data and the application of complex algorithms on this data to help companies reduce costs, increase margins, operate more cost-effectively, and become more environmentally friendly.

Different terms such as *"logistics collaboration," "collaborative transportation management," "cooperative transportation," "supply chain collaboration"* and others, are used to refer to collaboration among the various entities with respect to transport and logistics activities (Gonzalez-Feliu and Morana, 2012; Daudi *et al.,* 2016). Transport collaboration is progressively considered an approach worthy of consideration for organizations who are rethinking and redesigning their global supply chains (Audy *et al.*, 2007; Audy *et al.*, 2010). The most important operational task for transport collaboration is to provide an integrated and coordinated structure for transport planning and vehicle scheduling. In order to accomplish this goal several transport service providers are involved in the main purchasing and distribution process for a certain the supply chain (Stadtler *et al.,* 2016). The overarching goal is to consolidate a large volume of shipment by an open, multimodal (transport by road, rail, ship and/or barge) system that utilizes real-time identification and coordinated routing in a geographically distributed area of operation. Such a system would also utilize shared warehousing and transport facilities to reduce the number of trucks needed and distance traveled in order to fulfill supply chain activities, thus saving time, fuel energy, costs and ultimately, the environment. A complete definition for transport collaboration is:

… an innovative holistic approach with socio-technical systems encompassing platform-based, automated, adaptive technologies, supporting business processes