

Chapter 2.19

Using Collaborative Transportation Management in Global Supply Chain

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INTRODUCTION

Due to escalating global competition and a decline in profit margins, most multinational corporations pursue global sourcing through a *global supply chain (GSC)* in order to secure market share and improve profits. The practice of e-commerce and the business trend of mass customization force both manufacturers and retailers to shorten cycle time by managing GSCs more effectively. Successful applications of GSCs, such as that by Dell Computer, have been widely discussed and publicized in the supply chain literature. However, the physical distribution of GSC execution is recognized as its weakest link and can result in inefficient and unreliable product delivery. The collaborative integration with global *third party logistics (3PL)* to execute physical distribution dictates the success of any GSC application. This article introduces an application of logistic col-

laboration, namely *collaborative transportation management (CTM)*, which is a new business model that includes the carrier as a strategic partner for information sharing and collaboration in a supply chain.

BACKGROUND

The key reasons for the globalization trend are overcapacity in highly industrialized countries, significant disadvantages with respect to labor costs, and the emergence of worldwide information networks that connect corporate information systems (Arnold, 1999). An increasing number of firms are combining domestic and international sourcing through GSCs as a means of achieving a sustainable competitive advantage (Bonarth, Handfield, & Das, 1998). A GSC is currently viewed as a strategic weapon in the quest for

improved performance and profitability through greater availability, quality, delivery and price advantage (Lee, 2000; Smith, 1999).

The principle and methodology of GSC management are similar to those of traditional *supply chain management (SCM)*, except that multiple countries are taken into consideration. Traditional SCM is the integration of functions from the procurement of raw materials to final customer delivery. The GSC model is more complex than SCM, as it includes different taxes and duties, differential exchange rates, trade barriers, customs clearance, and a sophisticated international transportation network (Vidal & Goetschalckx, 1997). Most companies establish a virtual integrated enterprise with their suppliers by implementing an e-business model in order to address the information and the finance flow of a GSC. However, the integration of physical distribution in a GSC appears to be the weakest link, due to the high level of investment required when construct in a global distribution network.

The traditional international shipping practice with extensive consolidation operations (Crainic, 2000) takes 8 to 14 business days, exclusive of manufacturing cycle time. The new economy calls for alliances to be made with 3PL providers in order to manage GSCs effectively by focusing on each player's core competencies (Lieb & Randall,

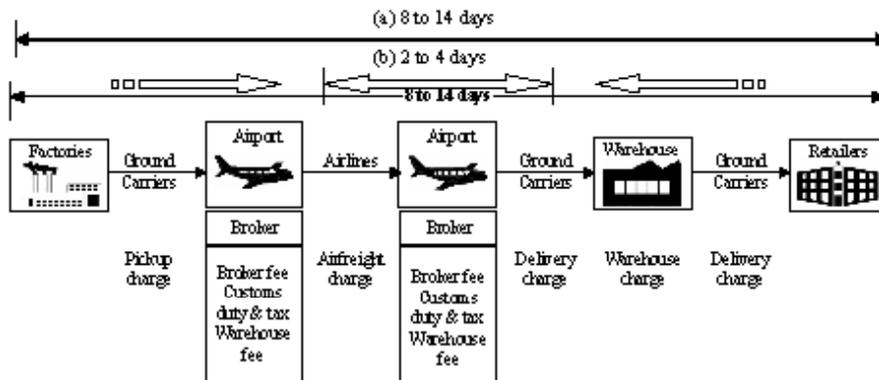
1999). Most high-tech companies select global door-to-door 3PL providers such as FedEx, UPS, and DHL in order to streamline logistic operations and to reduce delivery cycle times.

The typical benefits of a global *door-to-door delivery* service are shorter delivery cycle times, more reliable transit times, less complex customs clearance procedures, and real-time global tracking and tracing systems (Christopher, 1998). While the unit transportation cost is higher than that of traditional consolidated airfreight service, the total logistics cost is lower as a result of inventory and cycle time reduction throughout the GSC. The success of these integrated 3PL providers is determined by its global transportation network, warehousing network, and information network. Figure 1 depicts the international distribution cycle time by traditional consolidated airfreight model and a door-to-door service provided by a global 3PL provider can compress the distribution cycle from 8 to 14 days to 2 to 4 days.

DESCRIPTION OF COLLABORATIVE TRANSPORTATION MANAGEMENT

The level of collaboration amongst all players in the chain, determines the success of a GSC. Classic supply chain collaboration is found in

Figure 1. International distribution cycle time of (a) a traditional international consolidated airfreight model and (b) a global door-to-door service model



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