

Chapter 1

Understanding Supply Network Coordination

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ABSTRACT

The concept of a supply chain is expanding into that of a supply network, which includes a broader base of suppliers and partners connected physically and electronically. Accordingly, the scope and depth of management issues and research focuses have also expanded from the traditional supplier-buyer dyad and a linear sequence of suppliers into a collection of inter-related companies. The planning, operating, monitoring, and organizing of a supply network has become a super-complex problem. At the core of the management of a supply network lies the issue of coordination. However, both research on coordination and the concept of supply network are not yet sufficiently developed. Considering the importance and attractiveness of the issue this chapter is designed to present fundamental concepts, issues and perspectives related to supply network coordination.

INTRODUCTION

At the outset of the year 2010 the outbreak of the news about the world-best manufacturing powerhouse, Toyota, astonished scholars and students of management. Toyota is the mostly benchmarked and studied model of well-organized global manufacturing company (Pegels, 1984). Suddenly, this super excellent company faced a serious recall claim. The number of recall claim grew explosively since January of the year. By the end of March at least 3.8 million automobiles were subject to recall only in the United States. The number reached 2 million in Europe, making the total number of recall reach 8 million throughout all over the world. At the core of this disastrous experience lied the problem of the malfunctioning of parts used in the assembly of diverse models of automobile. As these parts are reported to be supplied

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from outsourcing partners in different countries, the management quality practices and processes of suppliers attracted attention from many industrial experts and scholars.

The problems in the management of supply chain faced by this world-class manufacturing powerhouse alerted many super players of virtually every industry in leading industrialized countries. While some analysts and scholars pointed out the drawback of the management practice of Toyota centered excessively around the target-pricing strategy and the overly aggressive expansion of the company, the company actually focused not only the price cut and cost saving, but showed excellence in the management of collaborative culture shared with its relatively tightly-coupled suppliers.

“Toyota outsources over 70% of the components of the vehicle. But is still wants to maintain internal competency even in components it outsources. ... Not only do they have the confidence that their keiretsu partners understand their systems and philosophy and can be trusted but they have the added insurance of equity ownership and are learning along with their suppliers to maintain their internal core competence.” (Ro, Liker & Fixson, 2007)

Toyota recall-case re-highlights the heightened complexity of the management of supply chain of today. It also reminds us that our understanding on the coordination of supply chain (SC) is still very limited. The number of factors to take care of seems much larger than we used to believe. Research on the design of transaction processes and optimal re-ordering decision turned out to be far from sufficient. The sharing of belief, culture and trust seems much more difficult than many companies perceived. Our focus on the efficiency of activities and cost reduction might simply be the result of a narrow definition of the goal of supply chain management (Melnik, Davis, Spekman & Sandor, 2010).

Supply chain (SC) refers to the “business processes that create and deliver a product or service, from concept through development and manufacturing or conversion, into a market for consumption” (Poirier & Bauer, 2000). And supply chain management (SCM) means “the methods, systems, and leadership that continuously improve an organization’s integrated processes for product and service design, sales forecasting, purchasing, inventory, management, manufacturing or production, order management, logistics, distribution, and customer satisfaction. SCM involves optimizing the creation and delivery of goods, services, and information from suppliers to business customers and consumers” (ibid).

The management of supply chain had become the focus of intensive academic interest during the middle of 1990s. Since then, the management of purchasing and procurement expanded its focus of interest from the design of optimal order quantity and cycle into inter-functional and inter-organizational collaboration. Facing fierce global competition in the market, organizations have been forced to economize broader span of resources than ever before. The scope of the SCM expanded accordingly from internal operations to external partner relations and activities, and is further expanding to include a wide spectrum of supplier network (Burgess, Sing & Koroglu, 2006).

At the core of the management of supply chain lies the issue of coordination, that is, the coordination of functions, teams, tasks, and external partners (Ballou, Gilbert, & Mukherjee, 2000). Coordination defined as “managing dependencies between activities (Malone & Crowston, 1994; Crowston, 1997)” has always been a touch challenge to business managers struggling to make different functions work jointly. Within each organization, the management of supply chain involves several business functions such as logistics, production, inventory, purchasing, procurement, marketing, order processing and sales. The difficulties come from the fact that these different functions are expected to collaborate to fulfill

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