

## Chapter 1.22

# Implementing Supply Chain Management in the New Era: A Replenishment Framework for the Supply Chain Operation Reference Model

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### ABSTRACT

Combining with the collaborations between business customers and suppliers, traditional purchasing and logistics functions have evolved into a broader concept of materials and distribution management, namely, supply chain management (SCM) (Tan, 2001). This chapter reviews the literature of SCM from several paths that can be the basis of a proposed framework for SCM within academic and managerial contexts. In addition, it includes the approaches of supply chain operations reference (SCOR) model, which was developed by the Supply Chain Council and is recognised as a

diagnostic tool for SCM worldwide. This chapter also summarises the literature of performance control and risk issues in SCM and the SCOR Model and discusses a proposed framework for the future research.

### INTRODUCTION

A supply chain is established when there is an integration of operations across its constituent entities, namely, the suppliers, partners, and business customers (Narasimhan & Mahapatra, 2004). It is an observation that individual firms compete

as integral parts of supply chains in the global markets. Moreover, the evolution of information technology (IT) has particularly generated growing attention on searching for ways to improve product quality, customer services, and operation efficiency and remaining competitive by supply chain collaboration. As noted by Strader, Lin, and Shaw (1999), “. . .there has been a general movement towards organizing as partnerships between more specialised firms or business units as IT enables the costs of coordination decrease” (p. 361), implying the impact of IT and potential advances of supply chain management (SCM). A number of researchers and practitioners have, therefore, devoted their efforts to various approaches to manage the constituents and activities of a supply chain since the early 1980s. Yet conceptually, the management of supply chains has not been well organised or understood. Academia has continuously highlighted the necessity for clear definitional constructs and frameworks on SCM (Croom, Romano, & Giannakis, 2000; New & Mitropoulos, 1995; Saunders, 1997).

However, SCM research, which draws on industrial economics, information systems, marketing, financing, logistics and interorganisational behaviour, has a fragmented nature and lacks a universal model. Hence, what we set out to construct in this chapter are the general theoretical and managerial domains of SCM, thereby, attempting to contribute to the development of such discipline. The literature is surveyed to identify the cognitive components of the current subject, as it is a key question for any applied social research that concerns the strategic approach taken to its mapping (Tranfield & Starkey, 1998).

Theoretical models are needed in order to inform the understanding of the supply chain phenomena. An illustration of industrial dynamics in Forrester’s (1958) model in fact instantiates the possibility of such applications that aid the comprehension of material flows along the supply chain. Further, it has remarkably laid the foundation for subsequent advancement of supply

chain analyses and understandings (e.g., Min & Zhou, 2002; New & Payne, 1995; Sterman, 1989; Towill, Naim, & Wilker, 1992). SCM is not only concerned with the extraction of raw materials to their end of useful life, it also focuses on how firms utilise their suppliers’ processes, technology, and capability to enhance sustainable competitive advantage (Farley, 1997). When all organisational entities along the supply chain act coherently, operation effectiveness is achieved throughout the systems of suppliers. Cooper, Ellram, Gardner, and Hawk (1997) advocate such a concept, and further indicate that much of SCM literature is predicated on the adoption and extension of extant theoretical concepts.

Our chapter is not so much a critical review of the literature as a taxonomy with which to map the subsequent research. In this context, it is our intention to try to provide a framework for conducting a project of supply chain management.

This chapter is organised into five sections corresponding to the initial idea of the book layout. In the first section, the supply chain operations reference (SCOR) model is introduced (SCC, 2001), underlying the common aspects and approaches, as it has gradually become a widely accepted standard of supply chain management in industry from its initial launch in 1996. One of the goals in this chapter is to identify the limitations of the SCOR Model and, therefore, to suggest a framework and supply chain implementation. Aligning with the SCOR model, we map the possible research areas by proposing a framework as a domain of research in supply chain design and for the managerial concerns in a project of supply chain management. The next section considers the bodies of literature associated with the stakeholder theory and network theory in organisational studies, which are applied to the interorganizational context (e.g., Premukumar, 2000; Rogers, 2004; Windsor, 1998). Then, we focus on the how to bridge the gaps towards the integration of the supply chain. We further explain the elements for facilitating transformation of the

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