

# Chapter 18

## Supply Chain Management: Developments, Theories and Models

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### ABSTRACT

*This chapter aims to develop a holistic framework of supply chain management (SCM) through extensive review of the pertinent literature. To this end, the chapter offers a detailed account of developments, dynamics and complexities of SCM through describing its history, theories and models. The chapter provides the reader with a navigation pane towards various theoretical and conceptual issues that encapsulate the essence of almost 30 years of research in the subject matter. Important implications for supply chain practitioners have also been explained.*

### INTRODUCTION

Despite the many advances in the Supply Chain Management (SCM) research and practice, there are still gaps in its knowledge base (Burgess, Singh, & Koroglu, 2006). As an interdisciplinary area of research (Chen & Paulraj, 2004), SCM entails many different functions within and between organisations. This is echoed in Burgess et al.'s (2006) remarks that suggest much of the knowledge in SCM still resides in its constituent parts such as purchasing, logistics, information technology, and marketing. The latter has given rise to functional silos that make successful implementation of SCM a complex and challenging task for managers. Moreover, one of the areas of attention in SCM relates to its definition and theoretical base. Some scholars question the theoretical coherence of SCM (Burgess et al., 2006; Chen & Paulraj, 2004; Croom, Romano, & Giannakis, 2000) and attribute it to the diversity of paradigms and theories applied in this area of research.

In light of the above, this chapter addresses gaps related to the conceptual structure of the SCM through extensive and critical review of its developments, theories and models discussed in the literature. The chapter begins by presenting the historical background of SCM, which not only portrays the

DOI: 10.4018/978-1-4666-9639-6.ch018

emergence and evolution of the discipline, but also sheds light on how SCM is perceived today. Next, key organisational theories used to inform supply chain investigations and models developed to understand supply chain operations are detailed. An integrated view of these theories and models is summarised in a framework which provides a holistic view of the SCM. The chapter concludes with a discussion of its practical implications.

## **EVALUATING DEVELOPMENTS OF SUPPLY CHAIN MANAGEMENT**

### **Definitions of Supply Chain Management**

The term ‘supply chain management’ was initially coined by consultants in the 1980s (Oliver & Webber, 1982); however, it is believed to originate from the physical distribution and transport, as well as total cost view, of the logistics process (Croom et al., 2000; Forrester, 1961; Lewis, 1957). Since then, SCM has been inspired by many fields and disciplines. For instance, Croom et al. (2000), when reviewing the extant SCM literature, placed the subject areas related to SCM in six categories: strategic management, relationships and partnerships, logistics, best practices, marketing and organisational behaviour. While this has made SCM an all-encompassing business topic, it has also caused its pertinent literature to become somewhat fragmented.

A number of SCM definitions can be found in the literature (see Table 1). The multidisciplinary and evolutionary nature of SCM underpins the diversity in its definitions (Ellram & Cooper, 2014). This can also be attributed to the functional perspective of SCM, which often identifies it as purchasing/supply management, logistics or transportation (Tan, 2001). Ho, Au and Newton (2002) argued that scholars have approached SCM from a restrictive functional view and operationally integrated linkages (between buyers and suppliers) to an end-to-end management of, for example, information and material flows, quality and design. To complicate matters, SCM has been occasionally referred to using terms such as ‘distribution channels’, ‘network sourcing’, ‘supply pipeline management’, ‘value chain management’ and ‘value stream management’ (Croom et al., 2000; Harland, Lamming, Zheng & Johnsen, 2001). This diversity stems from different ways of denoting the SCM concept because its pertinent definitions—while different in focus and articulation—are consistent across core aspects, such as cost, value-creation, and customer satisfaction.

In their investigations of SCM, scholars have focused on internal supply chains, dyadic relationships, external supply chains or the network of interconnected organisations (Harland, 1996). The network appears to be the ideal context in which the SCM focus should be centred. For example, Christopher (2005) maintained that SCM entails “management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole” (p. 5). In a similar way, Chen and Paulraj (2004) defined supply chains as a “network of materials, information, and services processing links with the characteristics of supply, transportation, and demand” (p. 119) (see Figure 1). These definitions reflect the importance of the network view to supply chain understanding, which can hint to managers to be cautious of the dynamics of contemporary, globalised supply chains.

Mentzer et al.’s (2001) analysis of SCM definitions resulted in grouping the definitions into three meaningful classes—management philosophy, management practices and management processes—to facilitate improved comprehension of the SCM concept. At the philosophy level, supply chain entails a whole, rather than a set of fragmented parts; focuses on the cooperative efforts within and between

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