Chapter 5
Supply Chain Integration and Port Competitiveness: A Network Approach

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ABSTRACT
The chapter addresses the issue of port value creation from a supply chain integration (SCI) perspective. Based on the concept of supply chain management (SCM), a theoretical model is proposed aimed at identifying the sources of value creation in port environment. The model views the port as a network of actors, resources and activities that co-produces value by promoting a number of interdependencies and assumes that the competitiveness of this port supply network increasingly depends on its “organisational component” as it affects the quality of services including range of logistics services, information and communication technology (ICT) solutions, know-how, and relationships in the port network itself. The final purpose of this model is the definition of a pro-active role of port in supply chain integration and therefore to support port authorities in defining their strategies in the context of growing complexity affecting both the port community and the external competitive arena.

INTRODUCTION
Supply chain management (SCM) literature has highlighted the benefits deriving from logistics integration, meant as the coordination and integration of activities devoted to planning, managing, and controlling the flow of goods, services and related information from the point of origin to destination (transportation, inventory management, order processing, etc.). Integration is the core concept of SCM and all definitions emphasize, to different extents, the need to integrate processes and flows between organisations within a supply chain through inter-organisational relationships,
with the aim of increasing value for the final customer. According to some authors, the higher the level of integration between actors of the chain, the more potential benefits for all the actors (including the final customer) and thus, the more competitive the whole supply chain (Hines et al., 2000; Lambert, 2001). From an empirical perspective, studies on SCM have analysed the effects of integration on three interdependent levels: (1) intra-organisational, i.e. among the different departments and company activities; (2) dyadic, i.e. among activities of the company and its suppliers or customers; and, (3) inter-organisational (the supply chain), i.e. among the activities of the company, its direct suppliers and its customers (Harland, 1996). The relatively recent incorporation of the term network into SCM research can be seen as an attempt to widen the concept so as to describe the complex reality more appropriately (Dubois et al., 2003). Obviously, the whole complexity cannot be captured but what particular structures and patterns are exploited for value generation and how these are managed by the organisations require consideration. This can be explained by the fact that most of SCM models emphasize the linear relationships between a focal firm, a supplier, and a customer. One of the major overlooked issues is that any focal organisation is normally part of several supply chains and, therefore, efforts to optimise individual supply chains without considering multiple interdependencies among chains may hamper the efficiency elsewhere in the network (Hakansson & Peerson, 2004).

The application of the network concept in the SCM literature has resulted in the definition of supply network, i.e. “the set of supply chains that describe the flow of goods and services from its original source to its end customer” (Lamming et al., 2000, p. 676). This concept considers the companies to be like open systems, influenced by the actors in the environment in which they operate and dependent on the resources supplied by other organisations; through different forms of interactions, the companies can have access to and make use of external resources owned by other network actors. The actors are defined by the activities they carry out and by the resources they control; they are connected to the other network actors through relationships. The identity of an actor is therefore made up of the unique combination of resources it owns and the activities it manages (Hakansson & Shenota, 1995).

The supply network structure is a field of study of considerable importance, as it includes the identification and description of relationships among actors in the same network and the process of creating value for the end customer, through different mechanisms of coordination (Lazzarini et al., 2001). Every company is a member of a set of supply chains with different roles and decision-making powers. In this environment, the inter-organisational relationships are considered to be the most relevant strategic resources and viewed as “bridges of value” (Hakansson, 1982) in that they give companies access to other actors’ resources in the network and strongly contribute to value co-production (Normann & Ramirez, 1993).

With reference to port competitiveness, some authors have referred recent contributions and conceptual categories within SCM literature to re-define strategic positioning and port strategies. Indeed, consistent with the spread of the new paradigm by which real competition is not company against company but rather supply chain against supply chain (Christopher, 1992), it has been stated that also for port, competition is between logistic chains (Huybrechts et al., 2002).

From a review of recent studies (Huybrechts et al., 2002; Robinson, 2002; Paixão & Marlow, 2003; Carbone & De Martino, 2003; Bichou & Gray, 2004; Tongzon et al., 2009), the role of ports in supply chains has been analysed by addressing the strategies and integration processes undertaken by terminal operators and shipping companies that undoubtedly play a key role in determining port competitiveness. Thus, these studies have mainly focused on the contribution of a single port actor