



# Supply chain management: an analytical framework for critical literature review

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## Abstract

There can be little dispute that supply chain management is an area of importance in the field of management research, yet there have been few literature reviews on this topic (Bechtel and Mulumudi, 1996, Proceedings of the 1996 NAPM Annual Academic Conference; Harland, 1996, British Journal of Management 7 (special issue), 63–80; Cooper et al., 1997). This paper sets out not to review the supply chain literature per se, but rather to contribute to a critical theory debate through the presentation and use of a framework for the categorisation of literature linked to supply chain management. The study is based on the analysis of a large number of publications on supply chain management (books, journal articles, and conference papers) using a Procite<sup>®</sup> database from which the literature has been classified according to two criteria: a content- and a methodology-oriented criterion. © 2000 Elsevier Science Ltd. All rights reserved.

*Keywords:* Supply chain management; Supply networks; Buyer–supplier relationships

## 1. Introduction

This paper is a ‘thought paper’ and arose from our discussions about the nature of the academic study of supply chain management, a conversation that has indeed been on going for a number of years (see Croom and Saunders, 1995). Our concern was with the nature of research in supply chain management, and more specifically with exactly what would constitute the domain of supply chain management as a management *discipline*. From these discussions this paper developed in order to present a basis for our debate and development around the field of supply chain management by attempting to consolidate current learning, identify possible gaps, and thereby pose possible future directions for development. Our contention that supply chain management should begin to be seen as a *discipline* in much the same way as marketing (Malhotra, 1999) has been seen as contentious, not least by early reviewers of the paper, yet we stand by this claim, citing Long and Dowells (1989) argument that “... disciplines are distinguished by the general (discipline) problem they address” (cited in Tranfield and Star-

key, 1998). What we set out to establish in this paper is in fact the *general problem domain* of supply chain management, thereby, we hope, contributing to the development of a discipline in supply chain management. Tranfield and Starkey also note the underlying “soft, applied, divergent and rural” nature of management research, and further argue that there is a real need in any field of social research to identify the cognitive components of the subject (Tranfield and Starkey, 1998). Their paper has been instrumental in our approach to the challenge of undertaking a critical literature review of the field of supply chain management, and this paper’s focus on mapping and classifying the area has been motivated by their claim that “... a key question for any applied field concerns the strategic approach taken to its mapping” (p. 349).

Supply chain management and other similar terms, such as network sourcing, supply pipeline management, value chain management, and value stream management have become subjects of increasing interest in recent years, to academics, consultants and business management (Christopher, 1992; Hines, 1994; Lamming, 1996; Saunders, 1995, 1998). It is recognised in some parts of the literature that the supply chain should be seen as the central unit of competitive analysis (Macbeth and

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Ferguson, 1994; Cox, 1997). Companies will not seek to achieve cost reductions or profit improvement at the expense of their supply chain partners, but rather seek to make the supply chain as a whole more competitive. In short, the contention that it is supply chains, and not single firms, that compete is a central tenet in the field of supply chain management (Christopher, 1992; Macbeth and Ferguson, 1994).

Supply chain management has received attention since the early 1980s, yet conceptually the management of supply chains is not particularly well-understood, and many authors have highlighted the necessity of clear definitional constructs and conceptual frameworks on supply chain management (Saunders, 1995, 1998; New, 1995; Cooper et al., 1997; Babbar and Prasad, 1998). Saunders (1995) warns that pursuit of a universal definition may “lead to unnecessary frustration and conflict”, and also highlights the fragmented nature of the field of supply chain management, drawing as it does on various antecedents including industrial economics, systems dynamics, marketing, purchasing and inter-organisational behaviour. The scientific development of a coherent supply chain management discipline requires that advancements be made in the development of theoretical models to inform our understanding of supply chain phenomena. As an illustration, the application of Forrester’s (1961) industrial dynamics model applied to supply chains (the ‘Forrester Effect’) exemplifies such a model. Its value lies in the ability to aid understanding of the actions of materials flows across a chain, and has provided a basis for further advancement of understanding supply chain dynamics (for example, see Sterman, 1989; Towill, 1992; Van Ackere et al., 1993; Lee et al., 1997). Cooper et al. (1997) support this view, pointing to the fact that whilst supply chain management as a concept is a recent development, much of the literature is predicated on the adoption and extension of older, established theoretical concepts.

In this paper our concern is not so much with advancing theory per se, but in providing a taxonomy with which to map and evaluate supply chain research. In the process, it is our contention that we also provide a topology of the field of supply chain management, which may provide a fruitful means of delineating or defining the subject domain. This is not necessarily a novel idea: Lamming (1993), for example, provides a map of antecedent literature for his development of the Lean Supply Model, which again supports our claim that there is a need for a topological approach to the development of supply chain theory. The paper presents the results of a literature survey in the field of supply chain management.

The main purposes of the survey are:

- to look at some major issues in supply chain management literature and to present a framework for classification and analysis;

- to describe and evaluate the methodologies used in supply chain management literature.

The paper is organised in five sections. In Section 1 some definitions of supply chain management are examined, underlining differences and common aspects, in order to better trace the boundaries of the concept and to highlight the difficulties of its definition. One of the reasons for the lack of a universal definition of supply chain management is the multidisciplinary origin and evolution of the concept. Section 2 considers the bodies of literature associated with supply chain management and discusses the different perspectives adopted by various authors. In Section 3 we explain the framework and the methodology used for classifying the literature analysed and we present the results of literature review. Section 4 presents a summary and some conclusions we can draw from the work in terms of moving towards a disciplinary approach to supply chain management.

## 2. The supply chain management landscape

In providing a topology of the supply chain landscape we support New (1995) and Saunders (1995) contention that within the supply chain management literature there is a confusing profusion of overlapping terminology and meanings. As a consequence, in the literature many labels can be found referring to supply chain and to practices for supply chain management, including: integrated purchasing strategy (Burt, 1984), supplier integration (Dyer et al., 1998), buyer–supplier partnership (Lamming, 1993), supply base management, strategic supplier alliances (Lewis, 1995), supply chain synchronisation (Tan et al., 1998), network supply chain (Nassimbeni, 1998), value-added chain (Lee and Billington, 1992), lean chain approach (New and Ramsay, 1995), supply pipeline management (Farmer and van Amstel, 1990), supply network (Nishiguchi, 1994), and value stream (Jones, 1995). As a first step, we set out in Table 1 to highlight a sample of definitions associated with the concept of supply chain management found in the literature analysed. This table is not intended to provide a comprehensive review of supply chain definitions (see, for example, Cooper et al., 1997), rather the purpose here is to highlight some of the contrasting approaches to supply chain management existing in the literature.

From these selected definitions we are able to partially confirm Saunders (1995) statement that most definitions of supply chain management share at least one thing in common with each other: “... they focus on the external environment of an organisation, with the boundaries of the latter defined conventionally in terms of an entity identified legally as a company or some other form of business unit ...” As such definitions are based on metaphors (chains, pipelines, etc.) or “ideal types” rather than “objective entities”, he concludes that “... attempts to

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