

Research papers

The scope of supply chain management research

Stephen J. New

The author

Stephen J. New is a Fellow in Management Studies at Hertford College, University of Oxford, UK.

Abstract

Advocates an expanded scope for supply chain management research which accounts for the social function and the political and economic implications of supply chain developments. Argues that the research agenda must not be driven by the notion of efficiency alone, but should also be developed around the concept of the *just* supply chain. Provides a framework which sets out the range of issues which may contribute to this approach. Believes that the objectives and ideological assumptions of research need to be open to challenge and debate.

Introduction

It is traditional in articles with titles such as this to launch into statements like: "Supply chain management is a subject whose time has come ..." In this case, such a cliché might be justified, but there are dangers which lurk in such declamations; it is almost to acknowledge the faddish nature of the topic at hand (see Brown, 1995). Here, I argue that supply chain management *is far too important* to be considered either a temporary fad or a parochial arena for a guild of specialist researchers. Instead, it is simply the most practically and intellectually significant theme within current managerial and economic research. It is not in any sense a new area; what is new is having a label (and journals such as this one) under which diverse research can be connected.

I have argued elsewhere (New and Payne, 1995) that research in supply chain management is suited to explanatory approaches which adopt multidisciplinary methodological pluralism. Here my concern is not with methodology *per se*, but with the problem of defining the conceptual boundaries of supply chain management as a field of study. This issue is important because it determines the type of questions that may be posed, the type of methodologies that are applied and the fundamental purpose of the research. Previous work relevant to supply chain management has arisen in many disciplines, such as systems engineering and economic geography. The *management* aspect of supply chain work, however, has largely drawn from the intellectual traditions of logistics and operations management. In my view, this presents problems for developing the field because of implicit assumptions about the role of research and its relationship to managerial practice, i.e. the ultimate purpose of research is to generate useful knowledge for managers. This position is illustrated by Steyn (1989) who comments:

Production and operations management is guided by the economic principle in its drive for higher productivity, which in turn leads to increased profits and growth. The economic principle is the foundation of the *entire* scope of production and operations management. Building on this foundation, production and operations management directs the production of goods and services for the benefit of society (p. 11, emphasis added).

The argument presented in this paper is that research in supply chain management must not be constrained by an assumed correspondence between the “economic principle” and the “benefit of society” in this way.

In the following section I explore the development of the supply chain motif and explain why definitional problems reflect a deeper dilemma. The section after this opens up the issue of the context of supply chain management and presents a rationale for a broader perspective. The penultimate section outlines the notion of the “just” supply chain and develops a framework for introducing ethical, social and political criteria into the formulation of the research agenda. The final section draws the discussion together and presents some simple conclusions,

The idea of the supply chain: twin dilemmas

The development of the idea of the supply chain owes much to the emergence from the 1950s onwards of systems theory, and the associated notion of *holism* (e.g. Cavinato, 1992). This may be summarized by the observation that the behaviour of a complex system cannot be understood completely by the segregated analysis of its constituent parts (see Boulding, 1956). However, the use of this idea in regard to supply chains is neither consistent nor straightforward. I have argued elsewhere that the supply chain metaphor is used in many ways, but three meanings dominate discussion:

- (1) the supply chain from the perspective of an individual firm (as in “ZipCo’s supply chain”);
- (2) a supply chain related to a particular product or item (such as the supply chain for beef, or cocaine, or oil); and
- (3) “supply chain” used as a handy synonym for purchasing, distribution and materials management (New, 1994).

Supply chain management can mean any one of these (indeed, there are a few more possibilities) and at this stage it would be foolish to attempt to tidy the mess by introducing yet more terminology. Many uses of the words “supply chain” (or “demand chain”, or “pipeline” – the choice of metaphor is relatively unimportant) display a profound ambiguity as to what exactly *is* being talked about, yet the various meanings do connect with one

another and in some cases overlap. The difficulty of definition reflects a daunting problem for those who wish to adopt the supply chain label as an identifier for research projects, or journals. On the one hand, too tight a definition of the supply chain concept artificially closes off productive avenues of development. On the other hand, too loose a definition allows the label to collapse into an amorphous study of everything.

A second dilemma is presented by the fact that the supply chain concept has never been a purely descriptive device. There is no doubting the degree of interest in the field from practitioners, and the pace of change in practice is impressive; it is almost impossible to use the term “supply chain” without implicit reference to the idea of “innovation” (Cooper *et al.*, 1994 provide a useful summary of recent developments). However, the field is complicated by what might be labelled the “normative tension” between the *is* and the *ought*: the rhetoric of managerial folklore tells managers to feel that they should take a broad, integrative approach and “manage the whole chain”, and this often clouds practitioner reports, with both overstatement and yet profound cynicism (AT Kearney, 1994). Academics too are often guilty of perpetuating a type of breathless hyperbole which Weir (1995) characterizes as “apocalyptic posturing”. So in addition to the dilemma of the general versus specific definitions of supply chain management, researchers must grapple with the fact that it exists in the netherworld of the imperative and the actual. When managers and businesses report supply chain developments, researchers must untangle complex language games of aspiration and propaganda.

The curious and persistent appeal of supply chain terminology rests with the in-built assumption that there are benefits in taking the wider view (Hall 1995; Saunders 1994, pp.114–15). Once it is conceded that the scope of both managerial action and inquiry extend beyond the boundaries of the single firm – which is indisputable – the question arises: “how far can you go?” There are at least two reasons why it is important to extend not only the *domain* of supply chain management research (such as how many links in the chain?), and the *range of methodologies* deployed, but also the *scope*. By this I mean the categories of questions and perspectives

from which research may be launched. These two reasons are:

- (1) the social/ideological constitution of supply chain innovations; and
- (2) their ethical and political implications, to which I now turn.

I shall argue that an exploration of these ideas goes some way to resolving the dilemma of definition and the normative/descriptive dichotomy.

Supply chain management in its context

The activities, processes and relationships which fall under the supply chain label are central to industrial modernity. To a very large extent, the details of life for all of us are deeply affected by supply chain phenomena. The material wellbeing of the West, and the parallel poverty of much of the so-called developing world are closely intertwined by the complex networks of global production and distribution: "...a web of connections which stretch from the corner shop to the Tokyo money market" (Scott, 1985, p. 13). The shape of cities and the evolution of the countryside are driven by the logistical and locational decision making of industrial capitalism (see, for example, Bromley and Thomas, 1995). The ways in which firms deal with suppliers and customers determine the contours of the economic terrain. The flow of goods through the supply chain is the life-blood of the modern world. It is also a key determinant in the constitution of identity and meaning for individual consumers. The international system of need-creation through mass-media advertising can only operate because supply chains allow the ever-faster flow of novelties and innovations at affordable prices.

It is worth noting in passing that recent years have seen a peculiar intellectual sleight-of-hand by some commentators and politicians, which has obscured the significance of supply chains. Talk of post-industrialism and service-based economies underplays the fact that western societies enjoy an ever-increasing abundance of material goods. Despite the undisputed importance of financial services, electronic communications and media industries, the economy still revolves around the making, moving, buying and selling of "stuff". Supply chain management is about the

mechanisms and processes by which these activities are organized.

Supply chain management, then, is integrally linked to the processes of *consumption* in society, the "practical ideology of capitalism" (Bocock, 1993, p.116). Consumer demand determines how organizations set their expectations and justify adaptation of their operations. The "cult of the customer" (du Gay and Salaman, 1992; Keat *et al.*, 1994; New and Ramsay, 1994; Walter, 1985) is closely associated with the emergence of the supply chain management mantras of time-compression, flexibility and increased responsiveness (Beesley, 1995). The key point here is that developments in supply chain practice do not spring from nowhere, but arise from a complex nexus of social developments. In their persuasive critique, Fine and Leopold (1993) argue that attempts to grapple with consumption have traditionally been limited by the tendency for either horizontal (by intellectual discipline) or vertical (by industry or commodity group) analyses. Thus, attempts have been made at generalizable (horizontal) theories of the particular features (e.g. the psychology of consumer behaviour) across sectors, but "each discipline necessarily overgeneralises the significance and uniformity of the role played by the factors that fall within its scope" (p. 7). Equally, "(s)ealing off individual commodities within the confines of self-contained theories denies not only the complexity of the factors involved in the consumption and production of goods, but also their relative weight and interaction" (p. 22). In other words, both horizontal and vertical analyses are by themselves inadequate.

The approach elaborated by Fine and Leopold (1993) is based on what they term "systems of provision", i.e. understanding each commodity or commodity group "in terms of a unity of economic and social processes which vary significantly from one commodity to another" (p. 22). This means consumption as a sociological and economic phenomenon needs to be understood in terms of the mechanisms and structures which enable it.

This is significant for the present argument because it places supply chain activities and processes against an analytical backdrop, and helps bring to the surface the fact that the rationales used to justify and explain managerial and technological developments in the

supply chain arise from specific social and economic contexts. Supply chain innovations in the clothing industry, for example, such as the late-dyeing of pre-manufactured sweaters, arise from a complex causal interplay which includes the evolution and structure of the fashion industry, the expectations and desires of consumers and the social implications of running manufacturing systems with massive swings in operating load, and the ownership and control of channels of distribution. The “need” for goods to be shipped from clothing manufacturers to retailers at ever-increasing frequency does not spring from nowhere, but emerges from a complex and contingent socio-economic and ideological milieu.

The connection also applies in the other direction. Just as it is necessary to understand the social and economic contexts which give rise to supply chain developments, it is impossible to make sense of the modern world without considering the impact of supply chain ideas. Supply chain management not only *reflects* the character of particular systems of provision, but is a continuing *co-determinant*. Research in consumption often focuses on the characteristics of products and the meanings with which they are imbued by advertising – what Haug (1986) calls the “aesthetic illusion”. This focus alone is inadequate in that it misses the role of choice and provision in mass consumption. Part of the aesthetic illusion is the combination of “instant gratification” and “unlimited choice” present in contemporary distributive systems. The well-publicized “Personal Production” initiative at Rover Group revolves around the concept that consumers will buy cars if offered the chance to combine bespoke customization with very short order cycles. The same idea of “mass customization” arises in other arenas. In short, supply chain innovations are increasingly allowing consumers to base their purchasing decisions and brand preferences on criteria such as instant availability and range of features. The ideas of supply chain management do not merely reflect modernity, but play a role in constituting it.

This is reflected in Cox’s (1993) analysis of chocolate consumption. It effectively highlights the interrelationship between industrial structures, commercial practices and the unique role that chocolate plays in Western societies (particularly the UK). The supply chain for chocolate products is one of the

most effective distributive systems – the UK’s network of newsagents, cornershops and other outlets means it is rare to find oneself in an urban area in which the opportunity to buy any mainstream confectionery product is more than a short walk away. Yet the task of understanding why this is so cannot stop with a bland “consumers demand it”: the demand has been carefully engineered by generations of systematic advertising and development of the industrial system. From the consumer’s point of view, the ability to instantly purchase chocolate on impulse is not an incidental feature but intrinsic to the nature of the product. It is futile to try to make sense of developments in the logistical and operational features of the manufacture and distribution of confectionery without acknowledging this (for example, the rapid introduction of luxury sub-brands – see Chambers, 1993).

This view of supply chain management allows research to proceed in ways which go beyond the merely technical or journalistic. Innovations in the supply chain are themselves social artefacts which convey particular meanings, ideologies and justifications; understanding how and why these arise are just as much a valid arena for research as the detail of techniques and developments themselves. Indeed, it is impossible to understand one aspect fully without the other. Further, this contextualization allows the further explanation of the ethical, political and social aspects of the supply chain idea.

Supply chain management – for whom?

The second element in the analysis also relates to the universality of supply chains in the contemporary world. It concerns questions of politics and ethics which have traditionally been side-lined in the academic development of the subject.

A useful comparison may be made between the development of management thinking in regard to the labour process and the supply chain. Stimulated by Braverman’s (1974) seminal work, a veritable industry of academic inquiry into Marxist critiques of the relationship between manager/worker and organization/employee has developed over the last 20 years, providing – even to those unsympathetic to its particular political assumptions – a stimulating intellectual framework for research, and a necessary foil to the bland managerialism which dominates

so much of the field. The influential work of Burrell and Morgan (1979) extended the debate by analysing the philosophical and paradigmatic choices which are available, renewing interest in combining the critical tradition of the Frankfurt School and Habermas with the detailed attention to the organization of work, and other managerial sub-disciplines (Alvesson and Willmott, 1992). To summarize, a critical tradition has emerged in which the framing of research questions, the choice of methodologies and the modes of analysis are profoundly connected to the question: whose side are you on?

Supply chain management, on the other hand, has hitherto lacked such a significant critical heritage. Instead, it has been typified by work which explores how corporations – and normally large and powerful ones, at that – can achieve their commercial objectives. However, as with analyses of work and employment, this is not the only viable perspective, and there are other constituencies of interest which have just as valid a claim on the research agenda. Three issues serve as examples of this:

- (1) the exploitation of poor producers of the so-called “developing world”;
- (2) the concentration and imbalances of economic power in the corporate economy; and
- (3) in a general sense, “the environment”, which includes everybody.

As for the first of these, the operation of many global supply chains is largely premised on the availability of cheap commodities and manufactured items from developing countries (Henson, 1996; Sylvester and Saumarez Smith, 1996). At one level, this may be seen as a triumph for world trade and a step for the producing countries towards industrialization: Ricardo’s economics of comparative advantage at work. Unfortunately, there is a darker side to the international system, which means that the chains of supply which provide western consumers with cheap T-shirts and instant coffee begin with exploited (sometimes child) labour and ecological devastation (see Coote, 1992; Lang and Hines, 1993; Madeley *et al.*, 1994). There is a direct connection between the design and operation of the supply chain and the social and economic experience of those with the least power. A good example is again provided by the fashion industry, with fast response/low inventory

systems often dependent on cheap labour willing to work long shifts to order. These concerns have recently prompted action by a number of organizations – in response to pressure groups – to revise their sourcing policy (Jury, 1996; Luesby, 1996).

Even in the developed world, the issue of relative power affects the interpretation and meaning of supply chain innovations. The experiences of weaker firms in the chain have received considerable attention in recent years, largely as a response to the rather over-egged “partnership” movement (AT Kearney, 1994; New and Burnes, 1994). Burnes and New (1996) explore how the costs and benefits of collaboration between supply chain partners are divided, and show how simple conceptions of “win-win” are inadequate to explain inter-firm behaviour; a survey of over 200 instances of collaborative projects highlighted a wide range of patterns of sharing costs and benefits. Furthermore, some researchers have argued that supply chain developments such as “networked production” may result in the radical re-configuration of market structures, although there is significant divergence as to whether these developments are to be welcomed or not. For some writers networks of collaboration offer an attractive synthesis of market and hierarchy; Harrison (1994), on the other hand, has described how the advent of “networked production” does not necessarily lead to the diminution of power of large corporations. A similar controversy exists in regard to the economic effects of electronic data interchange and inter-organizational information systems (see Bakos and Brynjolfsson, 1993; Hart and Estrin, 1991; Malone *et al.*, 1987).

On the global scale, recent research has begun to examine the impact of supply chain innovations on the environment. An excellent example of this is the recent report by Cooper *et al.* (1995) which highlights the interdependence of logistics and manufacturing strategies. A key challenge in this arena is that of finding costing and accounting systems which capture the appropriate costs, and this itself depends on the *perspective* taken (see New *et al.*, 1995). Analyses of environmental impact depend on where the system boundary is drawn, and that choice will reflect the purpose, ambitions and philosophical disposition of the research. Technical sophistication is necessary but not sufficient: as O’Connor (1994, p. 153) points out, the question of

“sustainability” is not primarily an ecological (or even economic) argument, but one of politics and ideology.

These perspectives on the social, political and ethical aspects of supply chain management confirm the importance of taking a wider view of the research challenge. However, they do not, by themselves, do much to illuminate the overall problem of constructing a framework for the future work. The next section presents an attempt to crystallize these concerns in terms of the “just” supply chain.

Justice and efficiency in the supply chain

The overarching logic of managerial and economic writing is that certain types of business behaviour, organizational design and strategic manoeuvre yield a comparative competitive advantage to firms. This is true of both normative and descriptive theorizing. The supply chain ideal is an example of this: the claimed (and, indeed, demonstrated) advantages of the associated practices include lower costs, improved quality, more effective technological development and reduced lead times. For the purpose of the debate here, I shall compress these advantages into the single label of “efficiency” – doing better with the same or less investment of resources. The driving logic of the supply chain is that the holistic approach is – in these terms – more efficient than alternatives. This is generally assumed to connect with an implicit notion of social welfare: the more whimsical sections of *The Machine that Changed the World* are a good example of this. This connection is commonly made via two distinct mechanisms:

- (1) *A local or partisan advantage.* Supply chain management is a good thing because it will help the West to reassert its economic superiority over the Japanese.
- (2) *An increase in net wealth.* Supply chain management is a good thing because the increased efficiency will lead to economic growth.

Both these models are used implicitly as a justification or rationale for supply chain management ideas, and, of course, there is something to be said for both of them (although see New and Ramsay, 1994). An important feature, however, is that the leap from increased efficiency to social benefit does not account for how the advantages are divided up: the overall benefit is either

assumed to be worthwhile regardless of the distribution, or to filter down to general benefit by some process.

Nevertheless it is possible to argue that there are other criteria – other than efficiency as described – by which supply chain issues may be evaluated. Here I will loosely group the alternatives under the heading “justice”, “the first virtue of social institutions” (Rawls, 1971, p. 4). Under this heading, it is not enough to argue that the net benefit of all relevant actors is increased in order to justify an action; a benefit to one does not permit an injustice to another. With efficiency, we can reap an overall advantage which may be seen to compensate a penalty incurred by a particular sub-component in the supply chain; from the perspective of justice, no such trade is allowable. (See Rawls, 1971 for a detailed defence of this interpretation.)

This division of criteria for the evaluation of supply chain management is illustrated in Table I. The diagram serves to highlight that this distinction is separable from the issue of normative versus descriptive analysis: both efficiency and justice may be considered from both these positions.

Table I Efficiency and justice

	Efficiency	Justice
	Example	Example
Normative	How should firms organize their relationships with customers and suppliers in order to achieve increased efficiency?	How should firms deal with the problem of child labour in the Indian textile industry?
Focus	Managerial action	Reforming action
Descriptive	How do firm's strategies in regard to vertical integration correlate to corporate performance?	How do firms evaluate the ethical and environmental performance of their suppliers?
Focus	Economic interpretation	Socio-political interpretation
Disposition	Corporatist	Radical

Conclusions

These observations argue in favour of research in supply chain management that accounts for the context of supply chain management in industrial society and explicitly considers ethical, political and economic implications. The argument raises the two

main issues for those who commission, conduct and “consume” research in the field:

- (1) *The objectives and implicit ideological assumptions of research need to be open to challenge and debate.* This is an important issue in management as a whole, where the lack of paradigmatic consensus means research may be challenged as much on the basis of its underlying philosophy as its substantive detail (Burrell and Morgan, 1979; Whitley 1984a; Whitley 1984b). It is not necessary that there be a convergence of approaches, but rather that the intellectual foundations of the work are acknowledged and explicit. The danger otherwise is that the research community adopts what Andreski (1972) calls “promiscuous crypto conservatism”. This is when intellectuals, through lack of clarity and/or conviction unthinkingly lend support to the dominant orthodoxy – whatever it might be.
This does not deny the value of research which is carried out with the explicit purpose of generating information or ideas useful to commercial interests, or for “management” in general. Unless one takes a radical view that leads to disengagement from or direct opposition to the corporate economy, it would be disingenuous to reject the idea of such work. However, the conclusions point to the possibility of constructing research with different objectives, and the differences need to be acknowledged. Genuine debate and disagreement are preferable to a tacit agreement to fudge on fundamental questions.
- (2) *The research agenda in supply chain management must not be driven by industrial interests alone.* This is because otherwise research would lose both its intellectual and ethical integrity. First, research about supply chain management as a conceptual “artefact” of the modern world is as important as managerialist research. Indeed, it is necessary to understand the broader context before robust prescription is possible. Second, supply chain practices and innovations affect many constituencies of interest, including the powerless and the exploited.

In the UK, recent years have seen a shift in emphasis in government funding for research towards the interests of “users” (who tend to

be identified as the business community), wealth creation and competitiveness (see ESRC 1995a; ESRC 1995b). This has happened in parallel with unprecedented financial constraints on universities and an increasing reliance on private sector funding. The implications of this squeeze on resources are that researchers in supply chain management have two key tasks. The first is to argue boldly for research which follows a genuinely academic agenda: the fact that supply chain management is important in practice does not mean that research in the field has to be of practical value to powerful “users”. The second is to develop theoretical frameworks that allow such new academic agendas to emerge. If practical utility is not the measure of the value, the coherent alternative intellectual missions are needed to prevent research fragmenting into obfuscation and sophistry. This must be the priority for all those who wish the field to develop in a manner appropriate to its impact on the world.

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