



2007-01-01

Re-engineering the Supply Chain: Making SCM Work for you

Edward Sweeney

Dublin Institute of Technology, edward.sweeney@dit.ie

Follow this and additional works at: <http://arrow.dit.ie/nitlbc>



Part of the [Business Administration, Management, and Operations Commons](#)

Recommended Citation

Sweeney, E.: Re-engineering the Supply Chain: Making SCM Work for You in Perspectives on Supply Chain Management and Logistics - *Creating Competitive Organisations in the 21st Century* (Sweeney, E. ed.), Dublin: Blackhall Publishers, 2007 Chapter 16, pp. 295-306,

This Book Chapter is brought to you for free and open access by the National Institute for Transport and Logistics at ARROW@DIT. It has been accepted for inclusion in Books/Book chapters by an authorized administrator of ARROW@DIT. For more information, please contact yvonne.desmond@dit.ie, arrow.admin@dit.ie, brian.widdis@dit.ie.



16

**Re-engineering the Supply Chain:
Making SCM Work for You**

E D W A R D S W E E N E Y

INTRODUCTION

The changing business environment has sharpened the focus on the need for robust approaches to supply chain improvement. This chapter sets out the key elements of traditional re-engineering processes. It goes on to outline some of the key characteristics of SCM excellence, based on the author's experience and on documented evidence in the literature. Based on the performance of firms in relation to these key characteristics, a number of critical success factors (CSFs) for effective supply chain re-engineering are identified and the key elements of a roadmap are proposed. Finally, a number of research and managerial conclusions are drawn.

ORGANISATIONAL RE-ENGINEERING

Companies have long realised the need for company-wide approaches to organisational design and redesign. The development of systems engineering approaches to manufacturing system redesign in the 1970s and 1980s (Hitomi 1996) was followed by the focus on organisational re-engineering, often based on business processes, in the 1980s and 1990s (Macdonald 1995). A common feature of all of these approaches is a recognition that 'the whole is greater than the sum of the parts'. In other words, optimising subsystems (whether those subsystems are functional departments, production sites or individual processes in the manufacturing cycle) can result in a sub-optimised total system. Lack of efficiency and/or effectiveness is often a result of the poorly designed interfaces between subsystems rather than any inherent subsystem weaknesses. There are numerous examples of companies who have generated significant improvements in competitive advantage as a result of the application of this 'total systems' thinking.

Perspectives on Supply Chain Management and Logistics

As noted in Chapter 3, it must be recognised that a product is delivered to the ultimate customer through a complex interaction of several companies on the way. The supplier's ability to give the customer what they want, when they want it, at the price and quality that they want is not just determined by the efficiency and effectiveness of the supplier's own operation. Inefficiencies anywhere in the supply chain will reduce the chances of the supplier competing successfully. Without a proper focus on 'total' (i.e. integrated) SCM, therefore, a company will never achieve its true competitive potential (Christopher 1992). The increasingly international nature of markets and companies has resulted in many companies becoming part of large and complex global supply chains. In addition, the potential benefits associated with emerging ICT solutions provide the opportunity to simultaneously improve customer service levels and to reduce supply chain costs. These factors have sharpened the focus on the need for improvements in all aspects of supply chain performance.

CHARACTERISTICS OF SCM EXCELLENCE

Identifying some of the characteristics in evidence in companies that might be regarded as world class provides a useful starting point for this discussion. 'World class' in this context means companies that have been successful in tough, competitive international markets over a sustained period of time. It is impossible to develop an exhaustive list of the characteristics of SCM excellence but the following four elements appear to be of critical importance for most companies in most sectors:

1. Identification and measurement of customer service *because* customer service 'sets the spec' for supply chain design.
2. Integration of supply chain activities and information *because* many supply chain NVAs are caused by fragmented supply chain configurations.
3. SCM is a senior management function *because* SCM is a strategic activity.
4. Establishment and measurement of supply chain key performance indicators (KPIs) *because* what gets measured gets done!

This is based on documented evidence of SCM 'best practice' and allies with the author's experience. These characteristics will be returned to later in the context of development of a roadmap for effective supply chain re-engineering. However, firstly it is worth exploring the performance of companies in Ireland in relation to these issues.

Re-engineering the Supply Chain

HOW DO COMPANIES MEASURE UP?

The foregoing raises fundamental questions about the extent to which companies understand and implement SCM concepts and practices. In Ireland, for example, research aimed at assessing the supply chain capability of companies is being carried out on an ongoing basis. NITL (2005) is a comprehensive study which covers a wide range of SCM activities based on over 1,000 companies, representing both the Republic of Ireland and Northern Ireland. A number of interesting facts emerge in relation to the four key characteristics of SCM excellence outlined in the previous section:

1. Approximately 50 per cent measure customer service formally and those have very limited measurements.
2. Companies score low in relation to having the latest supply chain information and communications technology (ICT) and having them integrated across the supply chain.
3. Less than 10 per cent have any formal SCM position.
4. Few companies had clearly defined SCM KPIs.

Overall, initial analysis of the survey findings appears to indicate that, whilst pockets of excellence undoubtedly do exist, there is significant room for improvement in these key areas. It is important, therefore, that any robust approach to supply chain improvement and re-engineering at least addresses these areas meaningfully. The next section explores these areas in the context of a systematic and holistic approach to supply chain re-engineering. A number of possible barriers to SCM excellence have been identified and will be explored as part of the ongoing research and associated analysis:

- Inefficiencies are often built into the supply chain.
- Communication structures are ineffective and exchange of information poor.
- Culture is inappropriate.
- There is an excessive reliance on forecasting and stockholding.
- Problems are often managed, rather than their causes eliminated.

These characteristics are in line with the prerequisites for effective SCM implementation and the *Four Fundamentals* as introduced in Chapter 3.

SUPPLY CHAIN RE-ENGINEERING

Improving supply chain performance through re-engineering involves: analysis of internal and external parameters using relevant data which has been collected; the identification and evaluation of possible alternative improvements and their detailed planning; and the implementation of planned improvements including the associated change management. In short,

$$\text{Re-engineering} = \text{Analysis} + \text{Planning} + \text{Implementation}$$

It is important to bear in mind that, in supply chain re-engineering, no panacea or 'magic solution' exists. Furthermore, as every company and every supply chain is unique in some respect, it is inappropriate to attempt to copy or imitate companies regarded as being exponents of good practice.¹ The uniqueness could be with respect to products or services supplied, processes, customer expectations, people and cultural issues, systems or any one of a number of other factors.

However, there is a logical and systematic way of addressing the re-engineering challenge. The *Systems Approach* is an example of such an approach. The following section identifies some of the key elements of such an approach, based on the characteristics of supply chain re-engineering discussed earlier.

ELEMENTS OF A SYSTEMATIC APPROACH TO SUPPLY CHAIN
RE-ENGINEERING***Understanding Customer Service***

As pointed out earlier, customer service 'sets the spec' for supply chain design. In other words, as shown in Figure 16.1 a market-driven customer service strategy provides the performance specification for integrated SCM.

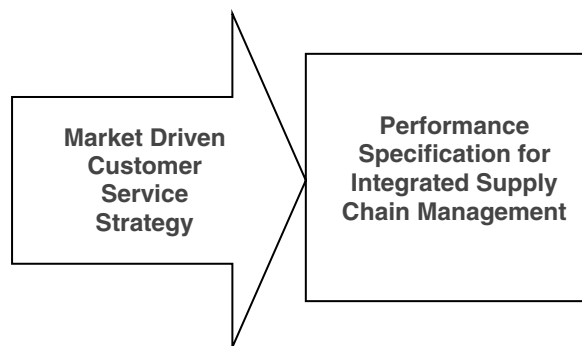
In short, understanding customer service requirements in targeted market segments forms the basis for any effective supply chain re-engineering and change process.

Supply Chain Organisation

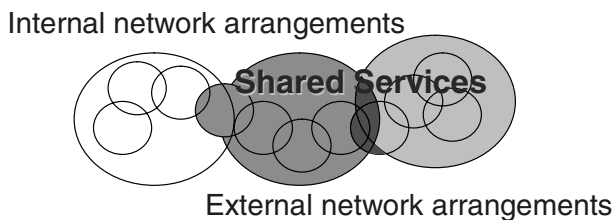
In many traditionally managed supply chains, individual supply chain functions (e.g. purchasing, production, transport and warehousing) are measured

¹As noted in Chapter 15, it is for this reason that the author is more comfortable with the concept of 'appropriate practice', as opposed to 'best practice'.

Re-engineering the Supply Chain

Figure 16.1: Customer Service 'Sets the Spec' for Integrated SCM

and managed in isolation from each other. The net result is that the overall supply chain fails to achieve its true competitive potential as the constituent elements operate at cross purposes. A key SCM objective relates to the replacement of this traditional, often highly fragmented, supply chain organisation with structures which are characterised by higher levels of integration. This has serious implications for approaches used to more effectively structure organisations. For example, it is the author's contention that future organisational structures are more likely to be described in terms of processes and networks (both internal and external) rather than functions and hierarchy. Figure 16.2 shows a possible future organisational shape based on internal and external networks, as well as shared services. In such structures, the boundaries between supply chain companies and between internal processes become more seamless. The focus is on organising around value-adding processes rather than on creating fragmented structures (often developed chiefly for internal administrative convenience). The latter often results in 'pseudo' efficiency, but poor levels of overall performance. The former focuses on customer value and effectiveness, and is more likely to lead to real efficiency.

Figure 16.2: The Organisational Shape of the Future

Technology: The Great Enabler?

There can be little doubt that ICT has the potential to have a serious positive impact on supply chain performance (see Chapter 12). This is largely due to its potential to facilitate higher levels of integration of supply chain activities and supply chain data. However, this potential has often been unfulfilled for a variety of reasons. These include a piecemeal approach to ICT planning and implementation, and tactical (as opposed to strategic) approaches to supply chain integration. These problems have often been exacerbated by legacy systems with multiple platforms and standards both internally and across the wider supply chain. The key to success in ICT terms is no longer likely to derive from the technology itself – most solutions are becoming essential order qualifiers and, in any case, are imitable and therefore unlikely to be a source of sustainable competitive advantage. In future, competitive advantage is more likely to originate from the development and implementation of creative ICT strategies. The focus needs to shift away from systems and hardware, and move towards processes (which add value) and people.

Supply Chain KPIs in World-Class Companies

In designing robust and integrated supply chain performance measurement systems, it is important to study and learn from organisations which are regarded as exemplars of best practice. Some of the features which tend to be incorporated into the performance measurement systems of successful companies were identified in Chapter 15.

The importance of performance measurement and KPIs in the re-engineering process cannot be overstated. It provides companies with a rational basis for continuous improvement. It is important that an integrated system of KPIs is designed as part of the process and that the measures become an integral part of the supply chain.

TOWARDS A SUPPLY CHAIN RE-ENGINEERING ROADMAP

A comprehensive supply chain re-engineering roadmap must incorporate the four key issues discussed in the previous section. Figure 16.3 shows a graphical representation of the proposed overall approach.

It starts with a market-driven customer service strategy which provides the performance specification for integrated SCM. In relation to supply chain organisation it requires a focus on processes and effectiveness, with a strong emphasis on network arrangements and shared services. ICT has the