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# Critical Success Factors in the Re-Engineering of 21st Century Supply Chains

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# Critical Success Factors in the Re-engineering of 21st Century Supply Chains

The changing business environment has sharpened the focus on the need for robust approaches to supply chain improvement.

This article 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.

## Organisational Re-engineering

Companies have long realised the need for company-wide approaches to organisation design and redesign. The development of systems engineering approaches to manufacturing system redesign in the 1970s and 1980s was followed by the focus on organisational re-engineering, often based on business processes, in the 1980s and 1990s. 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

**The increasingly international nature of markets and companies has resulted in many companies becoming part of large and complex global supply chains**

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. 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. 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

So what are the characteristics in evidence in companies that might be regarded as world class. "World Class" in this context means companies that have been successful in tough, competitive international



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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:

- ▶ Identification and measurement of customer service because customer service 'sets the spec' for supply chain design
- ▶ Integration of supply chain activities and information because many supply chain NVAs are caused by fragmented supply chain configurations
- ▶ SCM a senior management function because SCM is a strategic activity
- ▶ Establishment and measurement of supply chain key performance indicators (KPI's) 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 form the basis of a roadmap for effective supply chain re-engineering.

## 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, Re-engineering = Analysis + Planning + 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. 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. 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 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 of 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 and management 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 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.

**Technology – The Great Enabler?** There can be little doubt that ICT has the potential to have a serious positive impact on supply chain performance. 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.

**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. Table 1 shows some of the features which tend to be incorporated into the performance measurement systems of successful companies.

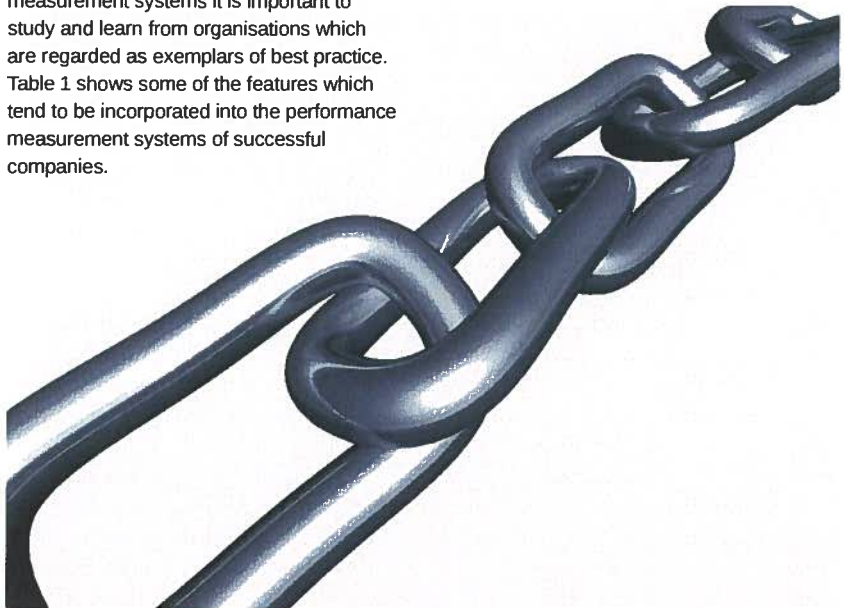


Figure 1: Customer service 'sets the spec' for integrated SCM

### TABLE 1: CHARACTERISTICS OF ROBUST PERFORMANCE MEASUREMENT SYSTEMS

- ▶ Measures should relate directly to company and business unit strategy
- ▶ An integrated approach should be adopted across the company and the supply chain
- ▶ Measures should change over time to reflect changing imperatives and priorities
- ▶ Measures should be as simple and easy to use as possible and should give fast feedback to staff
- ▶ Excessive numbers of measures should be avoided (if you try to measure too many things you may end up effectively measuring nothing!)
- ▶ Measures should aim to "teach" staff about their sphere of operation and as a basis for continuous improvement, rather than being purely for monitoring and control purposes

**The net result is that the overall supply chain fails to achieve its true competitive potential as the constituent elements operate at cross purposes**

The importance of performance measurement and KPIs in the re-engineering process can not 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.





December 2010

**Dear Colleagues,**

I am delighted to have the opportunity to greet my fellow SCLG Colleagues around the globe, the SCLG Management team in Dubai and most importantly our broad spectrum of members.

In this special edition of Link, the focus will take on a very Irish aspect with contributors from Ireland sharing their thoughts, viewpoints and experience on supply chain and logistics matters as they pertain to the market in Europe. The articles will provide an overview of the political, geographic social and economic demographics, which will influence the impacts on supply chain and logistics operations during 2011.

Regular readers will be familiar with a number of our contributors and we have added some new names and faces whom I trust will provide you with a broader range of views and opinions on SCM in Ireland.

I would like to thank Patrick Francis and his team at Link for their help in producing this issue. Thank you to all our contributors for their time and for sharing their expertise with us. A special note of thanks to our members for their continued support of SCLG.

As an industry we are facing into some very challenging times where creativity and innovation will be the differential between merely surviving or achieving sustainable growth. Within the SCLG we have the thought leaders, practical implementers and energy drivers to keep us at the forefront of the new economy in the new year.

With this mind may I wish you a very healthy and plenteous 2011.

Kind regards,  
**John Halpin**  
 President  
 SCLG - Ireland

**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. 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 potential to facilitate integration between supply chain processes. However, for this potential to be realised creative ICT strategies need to be developed and implemented. Again the focus needs to be on (value-adding) processes and on the people dimension. Finally, the integrated supply chain process KPIs provide organisations with a rational basis for continuous improvement. These measures feed back into the development of the customer service strategy thus closing the loop. This roadmap provides the basis for logical and systematic approaches to supply chain re-engineering. The Systems Approach is one such approach.

**Elements of The Systems Approach**

The systems approach to analysing supply chains and improving their performance recognises that the process of re-engineering supply chains needs to be carried out in a logical and systematic manner. The approach has been developed based on the experiences of a range of companies in a range of different business sectors. There are at least four distinct constituent elements of this systems approach.

The principles summarise the underlying thinking and concepts. If the supply chain under consideration is regarded as the system then the environment is the business environment in which that supply

chain operates. The methodology is the series of steps to be followed in analysing and improving a typical supply chain. The methodology helps to identify the most suitable solution for a particular supply chain but there are approaches which appear to exist in the majority of world-class companies. The guidelines on good practice summarise the main relevant elements of world class operating practice. Finally, the tools and techniques support the implementation of the methodology.

**Concluding Comments**

Re-engineering is, first and foremost, about change. The development of a supply chain change management capability is of paramount importance if the re-engineering process is to result in real change and sustainable performance improvement. The reality in today's competitive world is that standing still effectively means falling behind. Innovation in all aspects of SCM is the key to survival and success. It is also worth noting that in reality most innovation is a series of small incremental steps in line with the Japanese Kaizen principle. The approach to re-engineering outlined in this article focuses on the four key aspects of service delivery based on clearly understood market requirements, integration of supply chain activities and data, supply chain organisation and the measurement of performance.

The systems approach (to analysing supply chains and improving their performance) provides a basis for achieving world class standards for supply chains operating in all types of industry. The approach involves considering the whole supply chain and avoiding a situation where subsystems are optimised but the whole supply chain is sub-optimal. ■

