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SUPPLY CHAIN “MEGA-TRENDS”: CURRENT STATUS AND FUTURE TRENDS

BY DR. EDWARD SWEENEY FCILT, NITL

1. INTRODUCTION

The supply chain management (SCM) concept has become embedded in the thinking of many organisations in recent years. Originally introduced by management consultants in the early 1980s, SCM has a strong focus on integration of processes across functions within firms, as well as between the organisations that comprise the wider extended enterprise. There is a significant body of research to support the notion that the consistent delivery of value to customers is predicated on higher levels of intra-firm and inter-firm integration. Putting the supply chain integration (SCI) concept into practice is critically dependent on the ability of firms to manage material, money and information flows in a holistic manner. It also depends on the way in which relationships between key supply chain actors are managed. This article explores the “mega-trends” that are evident across most sectors and which have a potentially significant impact on the ability of organisations to put SCM theory into practice. The late Don Bowersox and his colleagues from Michigan State University introduced the idea of supply chain “mega-trends” over a decade ago in their widely cited article in the *Journal of Business Logistics* (Bowersox et al., 2000). This article explores the current status of these “mega-trends” in an Irish context based on research being undertaken at the National Institute for Transport and Logistics (NITL). It also identifies some key factors that are likely to impact upon progress in these key areas in the medium term. Before summarising the “mega-trends” it is appropriate to provide an overview of some of the key drivers of 21st century SCM.

2. 21ST CENTURY DRIVERS OF SUPPLY CHAIN INNOVATION

A large number of factors are influencing the way in which we think about contemporary supply chains. In this context, it is important to recognise that all companies and all supply chains have their own unique characteristics in terms of products, markets, customers, people and culture. Each organisation will, therefore, have its own particular strategic imperatives and supply chain drivers. Developing an exhaustive list of generic drivers is impossible and would, in any event, be unlikely to add much real value. However, the author’s experience suggests that the following are amongst the most critical for many organisations across a range of sectors.

Internationalisation - Structural changes in the global economy have resulted in many of the barriers that traditionally existed to the movement of products, services, people, capital and information across international borders being reduced or eliminated. As a consequence, global procurement of products and services and access to new international markets have become the reality for many firms. In this context, supply chains have become much more international (or even global) in complexion.

Vertical Disintegration - Recent years have seen a strong focus on the identification and development of core competencies as firms attempt to identify appropriate strategic responses to 21st century challenges. The corollary of this is that many supply chain activities that are deemed to be “non-core” have been outsourced. This process of vertical disintegration has resulted in the development of supply chain architectures that are much more “virtual” than in the past. In this context, the old logic of Henry Ford that “you must own it to control it” has been replaced by a strong focus on the management

of relationships with key suppliers of products and services. It has also resulted in third-party logistics providers (3PLs) playing a more strategically important role – often that of a designer and/or orchestrator – in many supply chains.

Complexity - Products and service offerings have become more complex with their development often mirroring the rapid rate of technological development that has been a feature of recent years. The shortening of product life-cycles that has been a feature in many sectors is related to this. This is compounded by the increasing complexity of the international markets and the business environments in which companies operate. Technological developments have also resulted in the development of quite sophisticated and relatively complex supply chain planning and execution systems.

Customers - Customers have become more discerning and markets have become more sophisticated as a result. Customers are demanding more and more in terms of product quality and service levels at ever more competitive prices. In short, customers are demanding better value for money – a trend that has been accentuated by the recent economic downturn.

Competition - Finally, the 21st century is one that is characterised by intense competition between rival firms in most sectors. The term “hypercompetition” has been used to describe this scenario. This has arguably been the single biggest driver of innovation in all aspects of business in recent years. Nowhere is this need for innovation more evident than in the design, planning and execution of supply chains.

3. SUPPLY CHAIN “MEGA-TRENDS”

Developing the appropriate strategic response to the drivers outlined above requires many firms to embrace fresh perspectives. For example, Professor Martin Christopher of Cranfield University is associated with the idea of “paradigm shifts” in supply chain thinking and the resultant need for various “business transformations” (see, for example, Christopher, 2010). In a similar vein, the work of Storey et al. (2006) clearly demonstrated some of the fundamental differences between “conventional management” and SCM, thus elucidating the main constructs of contemporary SCM. This in turn builds on



<u>Industrial Society</u>	<u>Information Society</u>	<u>Rank¹</u>
Customer Service	Customer Relationship Management	5-6
Adversarial Relationships	Collaborative Relationships	2-3
Forecast	Endcast	3-4
Experience Strategy	Transition Strategy	3-4
Absolute Value	Relative Value	1-2
Functional Integration	Process Integration	4-5
Vertical Integration	Virtual Integration	4-5
Information Hoarding	Information Sharing	3-4
Training	Knowledge-based Learning	1-2
Management Accounting	Value-based Management	1-2

¹In each of the categories, the authors offer an assessment of an average North American firm's realization of each mega-trend using a scale of 1 to 10, with 10 being total implementation and 1 representing no meaningful transition.

has elapsed since this work was published and our thinking has evolved significantly over that period. Nonetheless, the ten "mega-trends" still represent a useful template that can be used to understand how firms are performing in terms of implementing key elements of 21st century SCM thinking. The author has developed an assessment of the SCM capability and performance of Irish firms using a slightly refined version of the original construct of Bowersox et al. (2000) as shown in Figure 1 (below).

Figure 1 below: SCM Capability and Performance in Ireland. The following sections describe each element in turn, including the author's assessment of the average Irish

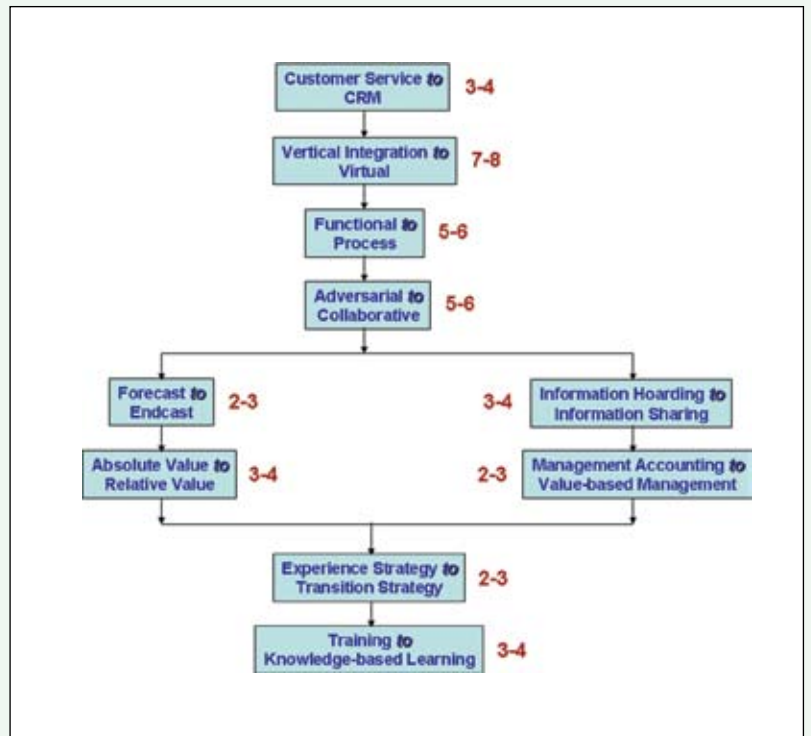
Table 1 above: "Mega-trends" in Supply Chain Logistics (Based on Bowersox et al., 2000) the concept of supply chain "mega-trends" introduced by Bowersox et al. (2000).

The work of Bowersox et al. (2000), based on research carried out over many years into the SCM practices of global companies, resulted in the identification of ten "mega-trends which will revolutionize supply chain logistics". They reflect the shift from the industrial society of the 20th century to an information technology driven society in this century. These are listed in Table 1 (above) along with an assessment by Bowersox et al. (2000) of an "average North American firm's realization of each 'mega-trend'".

It is interesting to note that the authors' assessment of the extent to which these trends have been realised in North American firms is quite low. Just one of the trends ("from customer service to customer relationship management") is assessed above 5 (using a 1-10 scale). Several of the trends ("from absolute to relative value", "from training to knowledge-based learning" and "from management accounting to value-based management") are rated as low as 1-2.

4. SCM CAPABILITY AND PERFORMANCE IN IRELAND

Notwithstanding the subjective nature of the rankings of American firms by Bowersox et al. (2000), they indicated that there was much work to be done by firms in realising the "mega-trends" in practice. Over a decade



firm's realisation of each trend on a scale of 1 to 10, with – in line with Bowersox et al. (2000) – 10 being total implementation and 1 representing no meaningful transition. These assessments are somewhat subjective but are informed by: (i) NITL's recent survey of SCM capability and performance in Ireland; (ii) other recently conducted qualitative research that involved consultation with almost 50 key informants from the Irish supply chain community using semi-structured interviews and focus groups; and, (iii) the author's ongoing interaction with indigenous and multinational firms based in Ireland.

Customer Service to CRM - Traditional approaches emphasised the development of standardised sets of key performance indicators

(KPIs) to measure customer service performance. However, the 21st century requirement for mass customisation means that the traditional “one size fits all approach” has become redundant. Different customers have different requirements – including in relation to service parameters such as order-to-fulfilment cycle times and delivery reliability – and successful companies have a strong focus on understanding and responding to the evolving demands of their customers. This depends above all on effective customer relationship management (CRM). The author’s assessment of 3-4 indicates a mixed picture in relation to this transition in an Irish context. Some firms have long recognised the need for segmentation based on customer service requirements and the concomitant need for strong relationships with customers. However, there still appears to be significant room for improvement in many firms, particularly in some of the more traditional sectors.

Vertical Integration to Virtual - The process of vertical disintegration alluded to in section 2 (above) has required firms to adopt radically different approaches in the quest for higher levels of SCI. This process has moved quite quickly and much has been achieved in relation to the so-called “hard-wiring” (e.g. higher levels of information connectivity between organisations). This is reflected in the relatively high ranking of 7-8 for the average firm in Ireland. However, much remains to be achieved in terms of the development of shared goals and values, as well as in relation to trust and transparency (i.e. the so-called “soft-wiring”).

Functional to Process - It has long been recognised that shifting away from a traditional functional-orientation is one of the keys to putting SCM theory into practice. The traditional approach had a strong internal focus and was driven primarily by the need for administrative efficiency. SCM’s strong focus on the creation of customer value requires a rather different orientation, i.e. one which recognises that real value is created by business processes that often cut across traditional functional and firm boundaries. The business process re-engineering (BPR) improvement initiatives that were undertaken by many firms in the 1990s were aimed directly at facilitating this transition. The author’s ranking of 5-6 acknowledges that, while this thinking appears to be quite well understood by Irish supply chain managers, its actual application is more limited, particular in an inter-organisational context.

Adversarial to Collaborative - The emphasis on integration in SCM philosophy is based on a recognition that the supply chain is only as strong as its weakest link. The achievement of higher levels of SCI is dependent upon the development of stronger relationships between customers and suppliers internally and externally. SCM is not a “zero-sum” game based on adversarial relationships; rather, its emphasis is on the development of appropriate “win-win” relationships with key internal and external customers and suppliers. The latter are collaborative in nature and are based on principles such as trust and transparency. The author’s work suggests that these principles are widely understood but that they sometimes fall into the “lip service trap”, i.e. “if we talk about collaboration for long enough we begin to believe that we are actually doing it!” The assessment of 5-6 in terms of transition in this regard in Ireland reflects these factors. The following two “mega-trends” are in many ways predicated upon meaningful progress in relation to the adversarial to collaborative transition.

Forecast to Endcast - As succinctly noted by Bowersox et al. (2000): “many firms continue to forecast activity levels and events that other participants in the supply chain already know”. This “mega-trend” requires a strong focus on the requirements of the end customer in line with the “end-to-end” orientation of contemporary SCM. Making this transition is fundamentally dependent on upstream and downstream collaboration and the effective management and sharing of information. Despite the adoption of collaborative planning, forecasting and

replenishment (CPFR) in some sectors, progress in relation to this transition in Ireland has been limited (as reflected in the 2-3 ranking).

Information Hoarding to Information Sharing -

The efficient and effective management of both material and financial flows in supply chains is in many ways in turn dependent upon the efficient and effective management of associated information flows. As alluded to in the context of the “Forecast to Endcast” transition (above), information sharing between upstream and downstream actors in the supply chain is critical in this regard. The recent rapid rate of development in information and communications technology (ICT) has facilitated this information sharing. Significant investment by many Irish firms in these tools contributes to the ranking of 3-4. However, the effective use of these tools in the sharing of information between supply chain partners is predicated upon the level of mutual trust that exists, as well as on other “soft-wiring” parameters.

Absolute Value to Relative Value -

This is the first of two “mega-trends” that relate directly to the financial dimension of the supply chain and, in particular, to how financial parameters are measured and reported in firms. The traditional focus on “absolute value” had a strong emphasis on turnover or gross sales. The ultimate objective of most businesses is profitable growth. This requires: (i) a focus on profit and not just on volume; and, (ii) that attention be paid to the development of sustainable competitive advantage and not just to short-term outcomes. The former raises issues in relation to the profitability of different customers with “margin-to-serve” (M2S) models offering huge potential in terms of identifying the relative value of different customers to a firm. This in turn raises issues about the appropriateness of alternative supply chain models in meeting the varying requirements of different customers in targeted market segments. Whilst there appears to be a growing recognition of the principle of relative value, little progress has been made by most firms by way of operationalising this principle. This is the basis of the ranking of this trend at 3-4.

Management Accounting to Value-based Management -

Traditional systems of management accounting are very limited in terms of providing the key financial information required by supply chain managers to make robust strategic and tactical decisions. Of particular concern is the direct linking of supply chain performance to overall financial performance as traditionally measured using a suite of widely used and understood metrics and ratios. The apparently very limited use of enterprise-wide or inter-organisation



approaches in this context compounds the problem in many supply chains. Bowersox et al. (2000) suggested that “value-based management remains in its infancy”. More than a decade later the same appears to be largely the case in Ireland with the average firm scoring just 2-3.

Experience Strategy to Transition

Strategy - All of the above trends have a profound impact on the way in which firms formulate and implement business and supply chain strategy. Bowersox et al. (2000) noted that firms had traditionally “based their strategies on what had achieved past success”. However, the business landscape has altered so radically that such approaches are unlikely to be sufficiently robust in the 21st century. Companies are now faced with scenarios about which they have little, if any, experience. In this environment, the ability of firms to develop a dynamic strategic capability is of paramount importance. This is primarily concerned with pro-actively building the necessary capability to manage rapid and continuous transition in markets and the wider business environment. The work of recognised supply chain thought leader John Gattorna in the area of dynamic supply chain alignment is particularly instructive in terms of how this can be achieved in practice (see, for example: Gattorna and friends, 2009). The evidence suggests that few firms in Ireland have meaningfully embraced this notion with the average firm ranked at just 2-3.

Training to Knowledge-based

Learning - All of the above also have implications in terms of the knowledge, skills and competencies required by supply chain designers and managers, as well as by everyone involved in the operational execution of supply chain plans. The increasing complexity of supply chains and their operating environments, as well as the sophistication required in 21st century supply chain design, planning and execution, requires individuals who are equipped with a high level of knowledge across a range of domains. The growth in recent years in postgraduate education and other advanced learning programmes in SCM is a reflection of this. In parallel, developments in supply chain learning – leveraging the supply chain as a mechanism for inter-firm competency development – offer some promise but still appear to be in their infancy in most firms (see, for example, Sweeney et al., 2005). The author’s work suggests that while many large multinational companies in Ireland have successfully embraced many of these ideas, huge room for improvements exists in the great majority of firms (hence the 3-4 ranking).

5. CONCLUSIONS

The “mega-trends” posited by Bowersox et al. (2000) raise questions about: (i) the extent to which organisations have meaningfully addressed the various transitions required to compete successfully in the challenging environment of the 21st century; and, (ii) the critical success factors in addressing these transitions in the coming years. Section 4 of this article has offered some reflections on the former in an Irish context. In relation to the latter, there are many issues that require a strong focus if the necessary supply chain capability is to be put into place. These will vary significantly across companies and sectors. However, the author’s experience highlights the specific importance of three dimensions. Firstly, effective leadership is vital if appropriate business and supply chain strategies are to be formulated and implemented. Creating an organisational culture in which change can be effectively managed represents a particular challenge for supply chain leaders. Secondly, the implementation of change requires a strong focus on teamwork that spans the boundaries of firms and of traditional functional departments. This is fully in line with the emphasis of Bowersox et al. (2000) on the integration of business processes in a highly virtual and global supply chain context. Thirdly, and as discussed specifically in the context of the “Training to Knowledge-based Learning” transition, all of the above is in many ways predicated on the knowledge, skills and competencies of supply chain professionals. Companies can have the most advanced methodologies and technologies, and the most sophisticated processes and systems, but these can never achieve their true potential without the right people – i.e. people with the appropriate knowledge, skills and competencies. This in turn has serious implications for firms in terms of what Bowersox et al. (2000) referred to as “knowledge-based learning” across the supply chain.

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Dr. Edward Sweeney is Director of Learning at the National Institute for Transport and Logistics (NITL), based in the Dublin Institute of Technology (DIT). He is well known in the Irish logistics and supply chain community for his work as an educator, researcher, consultant and author. NITL offers a range of knowledge-based learning programmes of the kind alluded to in this article (for further information visit www.nitl.ie).