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SUPPLY CHAIN MANAGEMENT DIFFUSION AMONG FIRMS IN THE REPUBLIC OF IRELAND

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Abstract

The changing business environment has sharpened the focus on the need for robust approaches to supply chain management (SCM). This is particularly the case for Ireland which has a natural disadvantage of a location peripheral to significant markets and sources of raw material which result in higher transport costs. Therefore, in order to gain unique insights of current levels of awareness / diffusion of SCM and the potential impact SCM could have on the competitiveness, a survey was conducted among 776 firms in the Republic of Ireland. The empirical results suggest that there is a need for more widespread adoption of supply chain management among Irish firms. Many firms in Ireland pay lip service to the importance of SCM elements and objectives but the majority of firms, about two thirds, have only a passing understanding of what constitutes SCM. Only 25% adopt SCM programmes and only 9% of Irish companies have a specialised SCM or logistics manager. Also worrying is the belief by many firms that commonly accepted elements of supply chain management have nothing to do with SCM. The results suggest that SCM integration has still a lot of potential in particular for Irish-owned small and medium sized enterprises to enhance their competitiveness. While there are supply chain management adopters in Ireland that are already well up the s-curve of innovation transfer, it is with the larger group of less aware companies that must become better at how they manage their supply chains.

Keywords: Supply chain management, logistics, awareness, diffusion, competitiveness, Ireland.

Introduction

The changing business environment has sharpened the focus on the need for robust approaches to supply chain improvement. Christopher (1992) states that "leading edge companies have realised the real competition is not company against company, but rather supply chain against supply chain." SCM is widely recognised to be important to business in general, and to business in Ireland in particular.

Ireland has a natural disadvantage by its peripheral location which results in higher transport costs. Fortunately, transport is only one element, and often not the most significant element, in the total cost of moving product through the supply chain, i.e. the chain that starts with the purchasing of raw materials or products for resale, through production, warehousing and finally, distribution to the customer. Higher transport costs can be traded off against lower levels of inventory, or better customer service. In this way the total costs of the supply chain are optimised rather than any one single cost element e.g. transport, being optimised.

Excellence in SCM can therefore offset the physical disadvantage posed by Ireland's geographic location by securing savings elsewhere in the wider supply chain. Irish companies have to demonstrate greater capability in supply chain management than their competitors in more favourable market locations. Therefore, in order to gain unique insights of current levels of awareness of SCM and the potential impact SCM could have on the competitiveness of Irish business, NITL undertook a comprehensive survey, where 776 Irish firms participated, which were randomly selected from established industrial databases across all sectors in the Republic of Ireland (see NITL, 2005).

This paper reports the findings and is structured as follows: The following section provides a literature overview on SCM excellence and its relevance to Irish industry. Based on this literature review, details to the methodology and the data collection are presented. The paper concludes with a discussion of the findings and further research implications.

Excellence in Supply Chain Management and its Relevance to Irish Industry

It is appropriate to refer to the seminal article by Mentzer et al. (2001), in particular to two constructs proposed by the authors. Firstly, they suggest that many definitions of SCM are trying to define two interdependent but different concepts in one term. The first is referred to as supply chain orientation (SCO) and is defined as 'the recognition by an organisation of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain'. However, SCM requires that SCO exists in several linked companies across a supply chain. In other words, SCO is a prerequisite for SCM. Secondly, the definition of SCM proposed by the authors based on their analysis of the literature is: the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.

This definition amalgamates a variety of concepts and philosophies into a single sentence. Its authors claim that their work 'should help practitioners as well as researchers to understand SCM, to give guidance to what SCM is, its prerequisites, and its potential effects on business and supply chain performance'.

It is worth noting that SCM is not new. The term may be relatively new but supply chains have existed for a very long time – in fact they have probably always existed! For example, Forrester's often cited article from the Harvard Business Review in 1958 (Forrester, 1958) states that:

Management is on the verge of a major breakthrough in understanding how industrial company success depends on the interactions between the flows of information, materials, money, manpower, and capital equipment. The way these five flow systems interlock to amplify one another and to cause change and fluctuation will form the basis for anticipating the effects of decisions, policies, organisational forms, and investment choices.

His article introduced the demand amplification concept using a computer simulation model. If, as Forrester suggested, management was on 'the verge of a major breakthrough' almost half a century ago, it seems pertinent to raise questions concerning how this breakthrough – mainly in relation to managing relationships between supply chain companies – has impacted on companies in reality. In fact over 40 years after Forrester's article first appeared, Mentzer et al. (2001), in concluding their paper, ask the specific question: 'How prevalent is SCM?' This is a key question to which ongoing research needs provide some answers. This paper does so in the specific context of the adoption of 'World Class' SCM practices by firms in the Republic of Ireland.

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 (see, for example, Korpela et al., 2001).
2. Integration of supply chain activities and information because many supply chain non value adding activities (NVAs) are caused by fragmented supply chain configurations. In this context the authors define an NVA as 'any activity (or resource or asset) that adds cost (or time) to any supply chain process without adding value from a customer perspective' (based on Jones et al., 1997; Goldrat and Cox, 1992; Womack and Jones, 2003; and others).
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.

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. However, there is a logical and systematic way of addressing the re-engineering challenge. Any meaningful approach needs to be based on the characteristics of SCM excellence outlined above.

Methodology

In order to gain unique insights of current levels of awareness of SCM and the potential impact SCM could have on the competitiveness of Irish business, a pre-tested survey instrument was sent to the sample frame of 1,655 companies (both multinationals as well as small and medium sized companies), randomly selected from established industrial databases across all sectors in Ireland (see NITL, 2005).

'Warming letters' were sent to potential respondents offering the summary of the results by way of an incentive. After several follow-ups by phone, the response set could be increased to 766 organisations (i.e. a response rate of 47%). The response rate can be considered as very satisfactory in comparison to other survey research. The surveys were tested for statistically significant differences in the responses of early and late returned surveys. No significant differences were found, suggesting that the sample is representative for the population.

Table 1 shows the characteristics of the sample frame. 85% of the sample are small and medium size enterprises and 70% indigenous firms. The food and consumer sector represents 26% of the total sample, industrial products represent 45%, and international services 28%.

| <u>Number of Employees by Firm</u> | <u>Number</u> | <u>Percent</u> |
|--------------------------------------------------|---------------|----------------|
| Less than 10 | 105 | 13.6% |
| From 10 to 19 | 134 | 17.4% |
| From 20 to 49 | 192 | 24.9% |
| From 50 to 249 | 223 | 28.9% |
| 250 and more | 117 | 15.2% |
| <u>Company Ownership</u> | | |
| Irish company | 540 | 69.6 |
| Subsidiary of company with HQ outside of Ireland | 212 | 27.3% |
| Semi-state/government/co-op | 21 | 2.7% |
| Other | 3 | 0.4% |
| <u>Business Sector</u> | | |
| Food and Consumer | 198 | 25.5% |
| Industrial Products | 346 | 44.6% |
| (International) Services | 215 | 27.7% |
| Other | 17 | 2.2% |

Table 1: Sample Characteristics

Discussion of Results

Approximately one in four businesses have taken on board SCM but some have done so in a piecemeal manner, are not fully aware of the scope of SCM and have not been able to integrate it into their everyday practice. This is against the background that only 9% of Irish companies have a specialised SCM or logistics manager to date. Most of the firms pay lip service to the importance of SCM elements and objectives but do not put in place the organisational structure to support the implementation.

The research reveals that a majority of firms in Ireland, about two thirds, have only a passing understanding of what constitutes SCM. As a consequence they apply it in a haphazard way (see Figure 1). The lower level of effectiveness in inventory management and demand forecasting may be for example partly explained by the low extent of customer involvement (see Figure 2). A fundamental principle of SCM is the development of collaborative and partnership relationships throughout the supply chain, including with customers and suppliers.

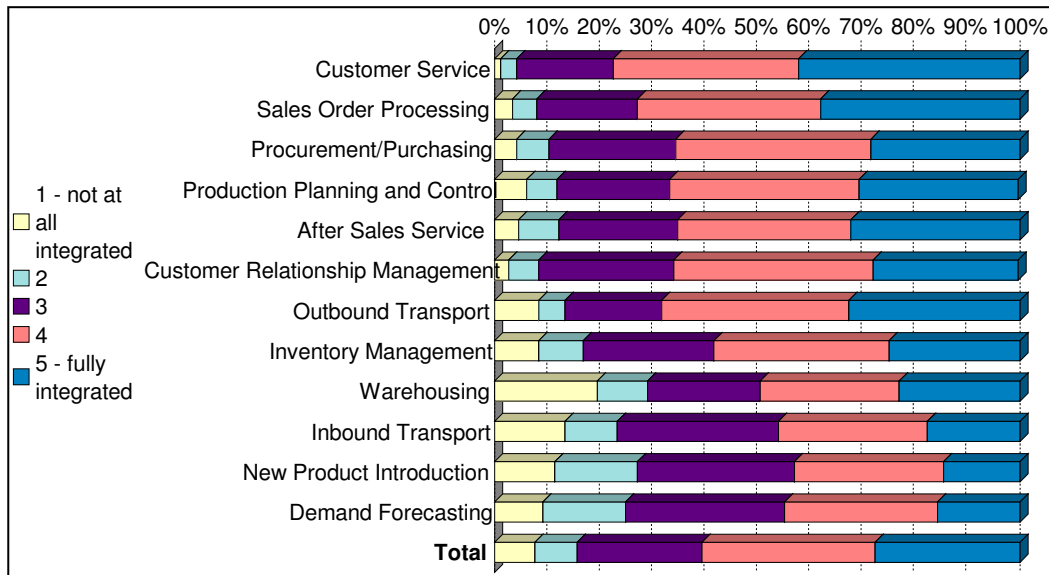


Figure 1: Perceived Integration of Supply Chain Activities

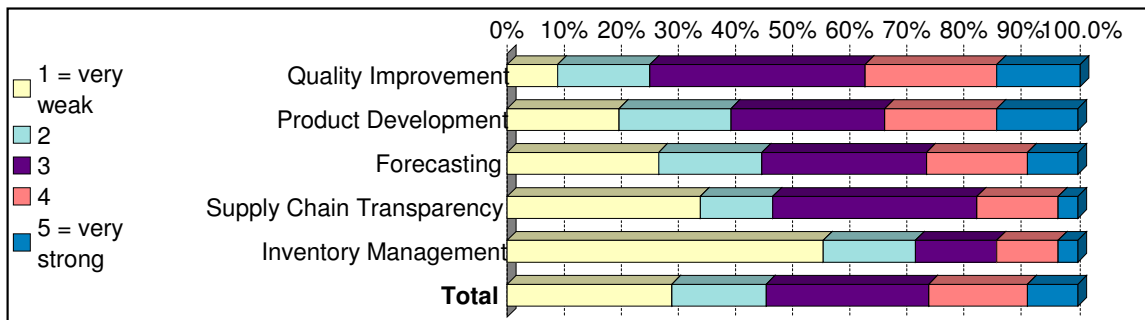


Figure 2: Reported Extent of Customer Involvement in Supply Chain Activities

Also worrying is the belief by many firms that commonly accepted elements of supply chain management have nothing to do with SCM. The gaps in their understanding of SCM are matched by the gaps in their awareness of key costs. Management should not restrict its involvement to the formulation of strategy. There is a clear need for engagement in all key aspects of SCM. In particular top management needs to be directly involved in the process of ensuring that the targets that have been set are being met. However, few companies have clearly defined SCM key performance indicators (KPIs), e.g.

- 46% of companies do not have key performance indicators for customer service to date.
- 59% of companies do not know their total supply chain costs.
- 82% of companies do not formally measure warehousing in terms of key performance indicators

Good SCM practice implies that the way it performs for a company has to be monitored by management in a consistent way. While the majority of survey respondents saw transport and distribution as a key element of SCM, the integration of KPIs and formal measurement of this supply chain function is very low. Only 30% of Irish firms employ KPIs for transport management. The main KPIs used are on time order deliveries and total transport costs as a percentage of net sales value. 41% of Irish firms do not know their transport costs, while transport costs are on average approx. 7% of turnover.

Another example is procurement. 71% of companies do not participate in supplier development programmes and 39% of companies do not use supplier evaluation. Clearly, this finding suggests room for improvement. How can procurement be integrated into supply chain management when suppliers are not regularly reviewed? In terms of Information Technology, one in five companies accepts their IT systems are not well integrated across the company or the supply chain. 27% of companies would not use the latest systems technology.

The results suggest that SCM integration has still a lot of potential in particular for Irish-owned small and medium sized enterprises to enhance their competitiveness. While there are supply chain management adopters in Ireland that are already well up the s-curve of innovation transfer, it is with the larger group of less aware companies that must become better at how they manage their supply chains. The results also reveal that excellence in Supply Chain Management is a key determinant of overall company performance i.e. firms employing best practice in SCM are more competitive, those that do not are at a competitive disadvantage.

Conclusions: The Need for Wider SCM Diffusion

The pressures imposed and opportunities afforded by globalisation, the open nature of the Irish economy and recent developments in IT mean that SCM has a critical role to play in both the medium and long term. Looking over the horizon, one of the keys to industrial success for any country will be its managerial competence in advanced SCM skills. This is especially true of developed economies such as Ireland where there is an increasing trend to outsource lower function manufacturing processes to lower cost locations but to retain high skill functions – such as research, design, marketing and sales – at the primary base.

Any robust approach must focus on closing the gap between the relatively small group of typically large and foreign owned firms, which display excellence in SCM, and the much larger group of indigenous small and medium size businesses, which do not. The design of supply chain solutions is a highly skilled, knowledge-intensive and complex activity, reflected in a shift from “box moving” to the design and implementation of “supply chain solutions” developments. Education and training needs to be addressed by stimulating the development of industry-relevant logistics and SCM resources and skills.

Making these companies aware of SCM and developing the necessary internal capability is essential for Ireland's industrial base in order to:

- Minimise the impact of peripherality;
- Enable small firms to take advantage of global supply chains;
- Exploit opportunities to manage Virtual Supply Chains from Ireland.

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