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Preface to Perspectives on Supply Chain Management and Logistics :Creating Competitive Organisations in the 21st Century

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Preface

Like many people, I have been involved in logistics and supply chains for most of my life, without always necessarily being aware of it.

My first vacation job as a student was in the office of a ferry company in the Port of Rosslare in Ireland where my main responsibilities related to stock control. What was at the time a mechanical task of comparing closing stock of duty-free goods after a voyage to pre-voyage opening stock minus recorded sales, I now realise was an exercise in ensuring inventory data accuracy. I now also realise that inventory management is really a microcosm of the whole of supply chain management (SCM) in that it is essentially concerned with achieving the customer service levels demanded by the market, while at the same time optimising supply chain costs.

My second vacation job was in the post office in Wexford in the south-east of Ireland. During my time there I never heard the word 'logistics' used but the logistical and supply chain issues associated with mail collection and delivery continue to present challenges to staff in the postal service throughout the world. In many ways, the postal system is the most global supply chain of them all and it has been for centuries. The organisation, planning, implementation and control of the system is a complex task, now largely enabled by quite sophisticated information and communications technology (ICT) tools.

During my engineering undergraduate studies – largely focused on mechanical design aspects of the subject – the concept of a supply chain never really crossed my mind. My job as a designer would be to design products that were characterised by high levels of specification and performance. That parts for these products had to be sourced, components and sub-assemblies manufactured, finished products distributed, and that these products were to be sold to customers in a manner which contributed to shareholder value, were all of little or no concern to me as a design engineer. My first foray into the real world of manufacturing indicated to me that these issues were also of little or no concern to the numerous functional departments which comprised large manufacturing enterprises.

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As a design engineer in industry, a peculiar *modus operandi* began to emerge before me. It went something like this. We – the designers – designed components, sub-assemblies and even complete products. We used all the latest ICT tools such as computer aided design (CAD) and finite element stress analysis. We typically ended up with a design of which we were very proud in terms of performance, functionality and aesthetics. The engineering manager then passed the design ‘over the wall’ to our colleagues in the manufacturing engineering department. Their job was to ‘massage’ the design so that it was capable of being manufactured, given the level of manufacturing process technology available. There usually followed a series of exchanges between ‘us’ – the engineering designers – and ‘them’ – the manufacturing engineers – with the design coming and going back and forward over the ‘wall’ many times until some form of agreement and compromise was reached. This typically involved ‘us’ making what were euphemistically referred to as ‘concessions’ to ‘them’. A ‘concession’ was a recognition that a design change would not fundamentally interfere with the product’s functionality. More often than not, product performance would be compromised but not its core functionality – it would still work! This process – which typically took several months – usually resulted in a final design with which we were not 100 per cent happy but which we knew would work, and which the manufacturing engineers knew they could make. A further series of similar interactions then took place involving purchasing and procurement personnel (and key suppliers), finance staff, and sales and marketing personnel. Eventually, a final specification was agreed (in most but by no means all cases) and the actual planning of purchasing, production, distribution and sales could begin. Several months, even years, would be consumed by this highly sequential process. The net result was often commercially disastrous, with products being introduced to markets much later than was really necessary. There must have been a better way!

Of course there was a better way. The better way was originally referred to as design for manufacture, where design and manufacturing engineers and managers worked together as a *team* to design new products. This was good insofar as it went but was subsequently expanded to include other functional departments within the organisation (e.g. purchasing, sales and marketing, distribution and logistics, finance, IT). This was the essence of what became known as simultaneous or concurrent engineering. It involved the replacement of the old approach, characterised by sequentiality and fragmentation, with a new one, characterised by parallelism and *integration*. I have italicised *team* and *integration* because these words, in my view, capture the essence of a supply chain approach to new product development (NPD) and new product introduction (NPI). At the time, the phrase ‘supply chain’ was not used to describe the approach but that’s what it was in reality. *Teams*

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comprised designers, manufacturing engineers, production floor staff, purchasing and procurement professionals, sales and marketing personnel and finance and other specialist staff, as well as external stakeholders such as key suppliers and customers, and worked in an *integrated* manner with a shared vision and common goals. It really was ‘design for total supply chain management’. This was my first real professional introduction to the potential of SCM but I still didn’t realise it.

I began my academic career in Dublin in the 1980s – not a good time to begin an academic (or any other) career in Ireland. The economy of the nation was on the verge of collapse with mass unemployment and a Government running a recklessly high current budget deficit. In short, there was not a lot of time for the niceties of SCM. We struggled on as best we could, largely continuing to do things in the traditionally wasteful and fragmented ways to which we had become accustomed and with which we had become comfortable. Indeed, the educational system was accentuating the problem by teaching students about outmoded practices and by failing to recognise that innovative methods, emerging mainly from the Japanese automotive and consumer electronics sectors, existed and might offer some respite from the prevailing problems if understood and implemented appropriately.

In the late 1980s, I moved to the Warwick Manufacturing Group (WMG) – part of the University of Warwick. WMG was founded by Professor (now Lord) S.K. Bhattacharyya with a view to transforming UK industry through applied research, technology transfer and high quality vocational education and training. It worked with most leading technological and engineering companies in the UK and beyond, particularly in the automotive and aerospace sectors. It is easy to see in hindsight that there were many weaknesses in the practices being adopted by industry at the time. Nonetheless, I began to see, not just the potential of supply chain thinking, but also how it could make a real difference to the capability and performance of individuals, teams and organisations as a whole. Companies had by then largely come to realise 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 late 1980s and early 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 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

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examples of companies that have generated significant improvements in competitive advantage as a result of the application of this *integrated team-work*-based 'total systems' thinking. We're back to *teams* and *integration* again.

By the time of my departure to the Far-East in the mid-1990s, SCM had become respectable in academic and commercial circles. It had grown out of a large number of traditional disciplines including logistics, purchasing, manufacturing systems engineering and operations management, but had a strong focus on multi-disciplinary *teams* working in an *integrated* manner throughout enterprises. By this time, several new dimensions were being added to the supply chain mix. Firstly, globalisation of business was becoming a reality, with the result that supply chain architectures had become more international in complexion. Secondly, many companies were beginning to realise that, without the right companies to work with up and down the supply chain, they could never realise their true competitive potential. Thirdly, ICT was developing at a rapid rate with the result that higher levels of integration within and between organisations was becoming a more realistic aspiration. These all combined to force SCM further up the list of strategic imperatives for organisations everywhere. Sectors such as mobile telecommunications and computers began to set new supply chain performance benchmarks. The rapidly growing 'tiger' economies of East Asia arguably saw these trends more starkly than anywhere else in the world. It was certainly an exciting place to be in the mid- to late 1990s.

I returned to Ireland to join the National Institute for Transport and Logistics (NITL) in 1998. There had been an incredible economic transformation since my departure, with the result that I ended up moving from one 'tiger' to another (see Appendix to Chapter 2). Indeed, it was this transformation which facilitated the return home of thousands of emigrants such as myself. NITL was established in 1998 by the Irish Government as Ireland's SCM 'Centre of Excellence', in recognition of the key role of SCM in creating competitive advantage for Irish business. NITL's mission was – and continues to be – to promote the development of supply chain excellence in Irish organisations, both private and public, for the benefit of the Irish economy. NITL offers a range of SCM services, including advice and consultancy, research, and training and education. NITL's mission reflects its strongly held belief that SCM is an increasingly important determinant of competitive advantage and is a key business process for companies. This is in line with NITL's 'Business Model of the 21st Century' (see Chapter 17), which recognises that world class companies are increasingly focusing their efforts and therefore their resources on new product introduction (with R&D and design management at its core), marketing (with brand management at its core) and SCM. Robust NPI and marketing processes ensure that

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good products with strong brands are introduced and maintained in markets in a timely and cost-effective manner. This can only bring competitive advantage if companies can consistently deliver high levels of customer service at the optimum total supply chain cost – this is where SCM plays a fundamental role. Again, the key lies in joined-up (i.e. *integrated*) thinking by *teams* across all parts of the supply chain.

Since its foundation in 1998, NITL has advised hundreds of organisations in its consultancy and advisory capacity, has delivered hundreds of training and education modules for thousands of individuals, and has contributed to the development of new leading edge thinking through its research programme. It has worked in all major sectors of the Irish economy, including food, biotechnology and pharmaceuticals, ICT and logistics service provision, as well as in many parts of the public sector. In the process, its staff have developed a unique and unrivalled experience of SCM and, in particular, its role in improving competitive capability in a rapidly changing economic and business environment. This book represents an attempt to share some of this experience.

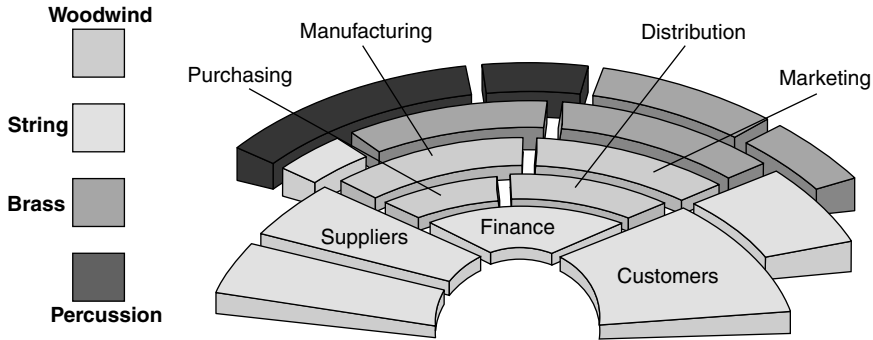
Finally, those of you interested in music or sport (most of you and definitely me) will understand the essence of the core SCM concepts of integration and teamworking with reference to these pursuits. Take music as a case in point. If the various sections of a symphony orchestra were to play in isolation from each other, irrespective of the virtuosity of the individual players and section leaders, the result would likely be noise to most ears. However, with the aid of sheet music and a conductor, harmony can be added resulting in music to our ears¹ (see Figure 1). The sheet music is analogous to the supply chain plan, and the conductor to the supply chain manager. They ensure that the players operate as a *team* and perform in an *integrated* manner. Like all analogies, this one collapses if we try to extend it too far, but I hope that it reiterates the centrality of teams and integration to the SCM concept.

Similarly, the history of team sports is littered with examples of ‘over-achievers’ – teams that perform better on the field of play than they apparently have any right to, based on the prowess of individual team members. A common feature of such teams is that they have strong leadership, a clear strategy based on competitor knowledge, tactics which they have the capability to implement in practice, a single-mindedness of purpose, and a strong work ethic. The corollary of this is, of course, that sports history is also full

¹With acknowledgement to Benjamin Britten’s *Young Person’s Guide to the Orchestra* for this concept.

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The Standard Arrangement of a Modern Symphony Orchestra



of examples of ‘under-achievers’ – teams full of prima donnas working in isolation from each other and with no clear purpose or strategy. I hope that the message is clear – it’s all about individuals working as *teams* in an *integrated* and holistic manner.

This book is written by a mix of academics, consultants and practitioners, all of whom have significant theoretical and practical experience. They have tried to adopt the SCM approach and have worked as a *team* and in an *integrated* manner in the finalisation of the manuscript! Inevitably, there is some overlap between sections and chapters. This is a product of the fact that no individual link or element in a supply chain can be dealt with in isolation – it is the total supply chain performance which matters. The book was conceived with the many supply chain and logistics professionals, who are following formal learning programmes at all levels (certificate, diploma, degree and masters) in the subject, in mind. However, our intention is that it will be read equally profitably by students, researchers and practicing SCM and logistics professionals.

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