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Towards the Sustainable Packaging Supply Chain

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TOWARDS THE SUSTAINABLE PACKAGING SUPPLY CHAIN

Edward Sweeney, NITL, introduces the role of Supply Chain Management as a means of eliminating waste in supply chains and examines the implications of the increased focus on sustainable packaging for the design and management of packaging supply chains.

Supply Chain Management (SCM) is the integrated management of all activities from the source of raw materials through to delivery of the product or service to the final customer. It is concerned with ensuring that traditional approaches to managing companies – often characterised by fragmentation – is replaced by more integrated and holistic approaches. This means thinking beyond traditional functional and company boundaries and focusing on those processes that genuinely add value from a customer point of view. Most companies have a relatively small number of high level core business processes that create customer value and enhance shareholder value as a consequence.

Traditionally, SCM has been concerned with the achievement of two main objectives:

- Meeting (or exceeding) customer service requirements in targeted markets or market segments;
- Optimising total supply chain investment and cost.

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Through the achievement of these objectives, customers can be satisfied in a manner which creates profit and shareholder value. The focus of SCM on the creation and delivery of value is aimed at ensuring that market requirements are met in a consistent manner. Thus, understanding customer service requirements in targeted markets or market segments "sets the spec" for integrated SCM.

ELIMINATING WASTE THROUGHOUT THE SUPPLY CHAIN

In relation to the financial dimension, the optimisation of supply chain costs requires that waste be eliminated throughout the chain. For example, the well known Toyota Production System (TPS), and the associated just-in-time (JIT) paradigm, is fundamentally concerned with the elimination of "muda" (the Japanese word for waste). However, SCM's focus on value creation suggests that a focus on non value-adding activities (NVAs) might be instructive.

An NVA may be defined as any activity (or resource or asset) anywhere in the supply chain which is adding cost but not necessarily adding value from a customer perspective. Given its central focus on the optimisation of total supply chain costs, the identification and minimisation of these NVAs is a key SCM issue.

Another approach to defining an NVA is that it is any activity (or resource or asset) anywhere in the supply chain which is adding time but not necessarily adding value from a customer perspective. Many world class companies have recognised that defining an NVA is this way facilitates the simultaneous achievement of the customer service and financial objectives set out earlier. This is important, as these objectives were often seen as mutually exclusive, in that:

- Increased costs and/or up-front investment were regarded as essential if customer service performance was to be improved;
- Reducing costs was deemed to impact negatively on customer service performance.

By using time-based approaches to managing the supply chain, and by focusing on the development and implementation of appropriate time compression strategies throughout the supply chain, customer service per-

formance can be improved (e.g. through shorter order to delivery cycle times) and costs reduced (*as time is money!*) at the same time.

A NEW ERA

However, whilst the foregoing has been adopted and implemented in many leading edge organisations in recent decades, we are now living in a new era as a result of a variety of separate but interrelated factors, including:

- The growth of international (and even global) business and the concomitant globalisation of supply chains;
- The development of highly virtual supply chain architectures as a consequence of the outsourcing of supply chain activities deemed to be "non-core";
- Increasing awareness of the impact of business activity on environmental degradation.

The latter has sharpened the focus of firms on the need for more sustainable business models and more sustainable supply chain practices. It is the focus of the remainder of this article.

SUSTAINABILITY

In recent years, a growing acceptance has developed that society is facing a number of critical environmental challenges that require major changes in the way in which societies and their national economies, as well as individual firms and their supply chains, are organised. In some cases the environment is degraded by various business activities in the supply chain, while with other supply chain processes there is a growing sense that we are reaching the limits of the natural environment's ability to sustain its people and their activities.

A widely cited definition of sustainability is incorporated into the 1987 Brundtland Commission definition of sustainable development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

This focus on meeting present needs without compromising the future is in essence what the concept of sustainability is about. Adapting this definition slightly provides a useful definition of a sustainable supply chain: "A sustainable supply chain is a supply chain that meets the needs of the present without compromising the ability of future generations to meet their own needs."

This definition recognises the fact that business activities can have detrimental effects on the planet's natural systems and encourages all actors in the wider supply chain to adopt policies and practices that promote environmental protection.

It can be argued that SCM practitioners have long been at the vanguard in relation to sustainability, given SCM's strong focus on the elimination of waste (or "muda" or "NVAs") throughout the supply chain. However, the sustainability dimension of SCM needs to be deepened and broadened, given the now widely accepted scientific evidence in relation to environmental degradation and its causes.

For example, there is a need to more specifically and explicitly acknowledge that sustainability, along with the customer service and financial issues discussed earlier, is in itself a key objective of SCM. This is analogous to the so-called "triple bottom line" approach focused on people, planet, and profit. Similarly, the "blitzes" on waste that have long been a feature of lean philosophy and the Japanese "Kaizen" concept need to be adopted as a means of ensuring that waste in all its forms is eliminated throughout the supply chain, thus improving environmental sustainability. In short, throughout the supply chain, businesses need to factor in the environmental implications of their decision-making processes

AN ENVIRONMENTALLY FRIENDLY APPROACH TO PACKAGING

There are clear messages from all of the above in relation specifically to packaging and the packaging supply chain. For many years now, the need for more environmentally-friendly approaches to packaging has been acknowledged, with the phrase 'sustainable packaging' now very much part of the industry lexicon. Based on the Brundtland Commission concept, this phrase may usefully be defined as:

"Sustainable packaging is packaging that meets the needs of the present without compromising the ability of future generations to meet their own needs."

This is easily said but to put it into practice in a meaningful way requires a mindset shift, as well as the adoption of a range of innovative processes and practices throughout the supply chain. More specifically, the Sustainable Packaging Coalition defines the concept in terms of packaging being:

- Beneficial, safe and healthy for individuals and communities throughout its product life cycle;
- Able to meet market criteria for performance and cost;

- Sourced, manufactured, transported and recycled using renewable energy;
- Able to maximise the use of renewable and recyclable resources;
- Manufactured using clean production technologies and best practices;
- Made from materials healthy in all probable end-of-life scenarios;
- Physically designed to optimise materials and energy;
- Effectively recovered and utilised in biological and/or industrial closed loop cycles.

Interestingly, most of these requirements are supply chain and SCM issues to a greater or lesser extent. For example, "sourced", "manufactured" and "transported" in point three refer respectively to the so-called "buy", "make" and "move" links in the supply chain. Point five has implications for the design and management of production links in all packaging supply chains. Points six and seven emphasise new product development (NPD) and design for manufacture (DFM) concepts, both of which are important dimensions in the design and management of packaging supply chains. Finally, there is both implicit and explicit reference throughout the definition on re-use and re-cycling issues: this has significant implications for the growing area of reverse logistics and the reverse supply chain.

A recent report by Pike Research estimated that sustainable packaging will represent about one third of the total global packaging market by 2014. This trend has significant implications in terms of the design and management of packaging supply chains. Embracing the philosophy of economic sustainability has the potential to be commercially and economically advantageous, thus building on the traditional sustainability-oriented role of SCM in the elimination of waste.

About the Author

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