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Abstract

The paper establishes the necessity for collaboration for effective supply chain management. We briefly explore some enablers and obstacles and propose the basic components of a strategy for enabling and overcoming these obstacles. Supporting technology for collaboration involves Supply Chain Management Software, Enterprise Resource Planning systems as well as the Internet for the communication platform. A brief discussion of the benefits that go beyond the bottom line, including customer demands and personalisation are noted.
Key words: Collaboration, Supply Chain Management, e-Supply.

1. Introduction

Many definitions of a supply chain exist, of particular relevance here because it illustrates the end-to-end processes within the supply chain, is (Graneshan et al 1995) definition:

"A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers"

Traditionally, supply chains have existed in both service and manufacturing organisations and the processes within it are marketing, distribution, planning, manufacturing, and the purchasing, and they have operated independently having their own objectives which were often conflicting. For example, marketing's objective could be based upon high customer service and maximum sales which could directly conflict with manufacturing operations/objectives, which are designed to maximise throughput and lower costs, with little consideration given to inventory levels and distribution capabilities. As a result of this, organisations have had no single integrated plan, creating a specific need for a mechanism through which different functions can be integrated together. The mechanism for this is supply chain management and this paper presents a case for collaboration as a necessary component for effective supply chain management.

2. The role of collaboration in supply chain management.

2.1 Supply Chain Management

The managing of the supply chain is nothing new, originating in the manufacturing and retailing sectors, with products like EDI being used for the sending of orders, production schedules and other information across private networks. In contrast the concept of "Supply Chain Management", is indeed relatively new, and is applied to business in a much wider sense than that relating to the simple flow of goods used in the manufacturing process. There is not a widely accepted definition of SCM, however, two suitable definitions are as follows:

"The management of materials, information and financial flows in a network consisting of suppliers, manufacturers, distributors and customers" (Youngman 2000a)

"Supply chain management is a collaborative-based strategy to link cross-enterprise business operations to achieve a shared vision of market opportunity"…"It is a comprehensive arrangement that can span from raw material sourcing to end consumer purchase" Quinn (1998)

These definitions underline two important points: firstly, the presence of a multi-party network of processes and secondly that it is a collaborative effort, which embraces all parties across the full length of the chain.

Keeme and Hafeez have explicitly noted the importance of co-ordination and collaboration: "Collaborative relationships have gained significant importance in recent years", furthermore, "while engaged in a collaborative relationship organisations must be aware that they enter into a complex set of interdependencies.." Keeme and Hafeez [2001]

Therefore, our view of supply chain management embraces the various types of supply chains that lie between a fully vertically integrated firm, where it owns the entire material flow, and that where each channel member operates independently. As a consequence of this, coordination and collaboration between the various players in the chain is key to effective management of the supply chain (Warren 2001).

2.2 Collaboration: Enablers, Obstacles and Strategy

Following Uchneat [2001] collaboration in supply chain management means that all parties are working together toward common objectives; the process is characterised by the sharing of information, knowledge, risk, and profits, however before this can happen a culture change needs to take place, in order to redress the guiding philosophy from an "I win" to a "we win" approach.

Supply chain professionals have long suspected that true collaboration requires more than latest technology and that the key factors are people related. In order to expand on these factors that can deliver a host of competitive benefits we follow Anthony [2001] by considering the enablers that are required to be in place and how the obstacles, internally and externally, can be overcome.

Therefore not surprisingly, these enablers and obstacles have more to do with management style and interpersonal relationships than with technology. Indeed the enablers focus on collective co-operation whilst obstacles focus on the resistance to change. The difference is because people working within organisations reach a certain comfort level in their work and collaboration initiative disrupts that comfort level and requires a lot more effort (Quinn 2001). Examples of some key collaboration enablers and impediments are listed below.

Enablers:
- Common interest, clear expectations and good communications
- Mutual openness, trust and benefit sharing.
- Recognition of push and pull principles
- Leadership through co-operation, not punishment.

Obstacles:

- Limited view of the supply chain.
- Lack of Co-ordination in intra-organizational of resources
- Conventional accounting practices.
- Inconsistency of standards

Our Strategy builds on and enhances, Japuchi [3], the basic activities of a strategy for overcoming the obstacles and enabling the collaboration is as follows:

- **Planning** - the strategic portion of supply chain management. It requires a strategy for managing all the resources that go toward meeting customer demand for your product or service. A big piece of planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

- **Choosing the best source** of suppliers that will deliver the goods and services you need to create your product or service. This is achieved by developing a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships.

- **Scheduling** the activities necessary for production, testing, packaging and preparation for delivery. This is the most metric-intensive portion of the supply chain because it measures quality levels, production output and worker productivity.

- **Logistics** coordinating the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

- **Customer/Supplier Management Relationship** The problem part of the supply chain. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered services.

2.3 Technology for enabling collaboration.

Without doubt, technology is a critical component of collaboration and the ability to exchange data among the supply chain partners and to gain visibility over product movement is fundamental to strategic supply chain management.

Many new technologies now exist to help companies in their collaborative efforts, with supply chain software solutions now able to promise trading partners instant connectivity and product availability across the pipeline (Cookson 2001). Recent advances in supply chain management software, coupled with the ease and cheapness associated with connecting to the Internet, now allow for streamlining of order management, manufacturing and logistics. These changes have been brought about as a result of three major issues of evolving supply chain management (Anthony 2000):

- The need to reduce the impact of time on supply chains.
- The creation of supply chain communities
- Cultivating customer and consumer intimacy (customer-centric supply chain)

Supply chain management solutions have become the logical extension from ERP, due to their increased flexibility and information flow on which to base-critical decisions. According to a July 1997 study by the Gartner Group, key benefits stated include that, Whilst ERP systems provide a great deal of planning capabilities, the material, capacity, and demand constraints are all considered separately, in relative isolation of each other. In contrast to this the more leading edge SCM products are able to consider all the relevant constraints simultaneously, and to perform real-time simulations of adjustments on them. It concludes that ERP systems have a harder time adding increased dynamic functionality because they are chiefly concerned with transaction processing, and have many more jobs to do than just SCM packages, whose leading products contain more enhancements such as visible maps of the entire supply chain, showing where problems are in contrast to ERP packages .

Despite considerable investments in ERP and supply chain planning systems, companies have realised that these systems are focused on internal processes, and that they now require solutions that are focused on inter-enterprise business processes. Today's SCM systems now encompass the entire production and sales cycle in a collaborative process with both customers and suppliers now incorporating such aspects as:

- Match the demand to supply.
- Allocate the supply to customers.
- Commit the supply and promise orders.
- Deliver to customers.
- Collaborate with customers to forecast the next round of demand.
- Collaborate with customers to focus demand.
- Prepare a demand plan.

The communication platform for enabling collaboration is clearly the Internet which has had major implications on the way in which businesses now conduct business with one another and the consumer. Common terms such as e-commerce have arisen as a direct result of the innovation and change in supply chain management brought about by the latest technologies.

The Internet vastly changes the way in which businesses can procure products and services, in real-time and on a global basis. Riding on the back of the Internet we have seen the advent of "hubs" or "e-hubs", which are simply electronic market places. Technology provides a replacement for the middleman, becoming the mediator between the buyer and the seller, and it is these eMediaries that will add tremendous value, particularly in the B2B marketplace (Fontanella 2001). The core benefits of hubs include cost savings through streamlining fax, phone and paper-based trade, and dynamic pricing as multiple suppliers negotiate cheaper prices, however many also incorporate supply chain management software providing transparency through the chain, allowing decisions to be made in real time (Anderson 2001).

3 Discussion

Therefore, we can see that this e-enabled Supply Chain Management now links all members of the supply chain to the information network, which improves effectiveness, reduces paperwork and pushes costs down (Fontanella 2001).

Whilst the biggest anticipated benefits will be financial, others will be achieved from the breaking down of functional barriers and less "fire fighting", however for the benefits of collaboration to be achieved enablers must be implemented aggressively and obstacles should be addressed head on (Harreld 2001). The benefits of ESCM have been summarised by Quinn as shown in the Table 1 below. E-supply chain management enhances supply chain performance because tight coordination between business partners will result in all critical supply chain elements, such as information, transactions, and decisions becoming synchronized. The increased need for this change has been brought about due to the customers ever increasing

demands. They now look beyond cost as the sole arbiter of value, demanding innovation and personalisation of not only the products but also the associated services and delivery (Johnson 2001). By fully integrating your SCM functionality with your ERP systems this will provide three key benefits, quicker to market, cheaper and more flexible (Gossieux 2001).

Table 1: The Benefits Of Collaboration: (Quinn, 2001)

Benefits	
Reduced inventory	Faster speed to market of new products
Improved customer service	Stronger focus on core competences
More efficient use of human resources	Enhanced public image
Better delivery through reduced cycle times	Greater trust and interdependence
Increased sharing of information and technology	Improved shareholder value
Stronger emphasis on supply chain whole	Competitive advantage over other supply chains

E-supply chain management provides companies with the unique ability to tap into performance and cost benefits and regardless of the type of marketplace, the benefits are many: lower product acquisition costs, lower procurement transaction costs, that ability to tap into almost unlimited supply sources to respond to changing market needs, and a means to profitably dispose of unused excess inventory (Anderson 2000).

The bottom line of the financial oriented benefits is expected to improve returns and increased shareholder value, whilst the non-financial benefits would be aspects such as increased trust, resulting in the sharing of information, ideas and technology. In short one benefit seems to compound another (Quinn 2001).

As for the future a recent report conducted by Jupiter Research predicts that "e-supply chain management will continue to stay one of the hottest B2B technology fields".

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