Factors for Effective E–Collaboration in the Supply Chain

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INTRODUCTION

The exchange of information is recognised as a major enabler of effective supply chain management. The potential business benefits of using technology to improve communication between trading partners are dependent upon two main factors. Firstly, the information sent must be timely and accurate as this determines the speed and efficiency with which customer orders are fulfilled (Gattorna & Walters, 1996). Secondly, business processes must be in place to respond efficiently to the information received.

This article examines the transition from cooperation to collaboration in the supply chain. The manufacturer-retail supply chain is analysed from three perspectives: strategic policy, process integration and community practice. Critical success factors for implementing effective e-collaboration in the supply chain are defined from the authors experience of action research (Perkins & Dingley, 2001; Cox, Krasniewicz, Perkins, & Cox, 2006). The article concludes by considering the future trends and challenges of e-collaboration in the supply chain.

BACKGROUND

A supply chain is defined as two or more organisations working together to create a competitive advantage through the sharing of information, making joint decisions, and sharing benefits (Simatupang & Sridharan, 2005). The supply chain incorporates functions of purchasing, order fulfilment and inventory but supply chain management extends beyond these functions (Croom, 2005). Supply chain management focuses on the external links, feedback linkages and collective learning between organisations (Saad & Patel, 2006). It is characterized by control across functional,

organisational and geographical boundaries (van Hoek, 1998).

The supply chain focuses on the co-ordination of supplying goods and services in a reliable and timely manner. Organisations in the supply chain cooperate for the mutual benefit of the chain (Sahay, 2003). Benefits of supply chain cooperation may include improvements in customer service (Tan, 2001); understanding of future product demand (Sahay, 2003); reduced transaction costs at the customer-supplier interface (Burnes & New, 1998); reduced time to market (Graham & Hardaker, 2000); revenue enhancements, operational flexibility (Simatupang & Sridharan, 2005); and efficiency improvements (Dingley & Perkins, 1999).

Interorganisational cooperation required for supply chain management can take many forms with different degrees of cooperation and commitment. As supply chains evolve, product and process innovation is needed in order to remain competitive (Cassivi, 2006). This requires a move from supply chain cooperation to supply chain collaboration.

Supply chain cooperation requires the co-ordination and alignment of activities of two or more separate organisations in the supply chain. Supply chain collaboration goes beyond cooperation; it involves the collective contribution of organisations to a deeper committed relationship through the integration and embedding of activities, resources and processes to form a jointly-owned emerging system. Collaboration enables organisations to provide greater value to customers than if the organisations acted alone (Simatupang & Sridharan, 2002) and enables competitive advantage to be gained over rival value chains (Archer & Yuan, 2000).

Internet technologies are the major enabler of improvements in supply chain management (Kirchmer, 2004). Dingley and Perkins (1999) propose a distinction between *forging* links and *tempering* links in the

supply chain. Forging links refers to the establishment of co-operative partnerships; tempering links secures and strengthens the relationship making it more difficult for the collaboration to breakdown as a result of brittleness in the join between partners. E-collaborative systems temper supply chain relationships.

E-collaborative systems can improve relationships between manufacturers and retailers in the supply chain by distributing product information, automating order entry, tracking order status and attaining customer feedback (Bhatt & Emdad, 2001). Integrating business processes through collaboration improves the quality of customer service by improving corporate decision making (Agarwal & Shankar, 2003) which increases the speed of service delivery, improving responsiveness to the market demand and reducing time to market (Favilla & Fearne, 2005). Internet technology enables data to be shared between partners in the supply chain, creating a virtual supply chain, which is information based rather than inventory based. However, shared information can only be leveraged through collaboration, integrating processes and using common systems (Barratt, 2004). E-collaboration is not just about developing mechanisms with which to exchange information at the operational level, but also needs to implemented at the tactical and strategic levels in organisations across the supply chain (Barratt, 2004).

IMPLEMENTING E-COLLABORATION IN THE SUPPLY CHAIN

E-collaboration changes trading relationships and requires business models to change to enable and facilitate the collaboration. Pateli and Giaglis (2005) suggest that the transformation of new business models initiated by technological change should be modelled within seven categories. The authors (Cox et al., 2006) conducted action research in a manufacturer-retailer supply chain. Previously, major UK supermarket chains used electronic data interchange (EDI) to exchange information enabling supply chain cooperation with manufacturers. E-collaborative systems were developed to initiate supply chain collaboration. The systems provided process integration at the manufacturer-retailer interface (order processing and promotion management) that became embedded within internal value chains. From this experience, the categories proposed by Pateli and Giaglis (2005) can be examined from three perspectives.

The first perspective is the *strategic* view of collaboration which defines the rationale for engaging in and committing to the collaborative partnership (incorporating Pateli & Giaglis, 2005, categories of business objectives, core competencies, market scope, critical success factors). Secondly, the *integration* view of collaboration considers what form the collaboration takes and the value that emerges from the collaboration (relationship model and value exchange of Pateli & Giaglis, 2005). Finally, the *community* perspective of collaboration examines communities of practice (involving actors, roles and responsibilities of Pateli & Giaglis, 2005).

The three perspectives emphasise that e-collaboration in the supply chain, extends beyond the operational integration of IT systems and encourages organisations to consider the wider issues of business transformation, whilst retaining a focus on business process and practice. These perspectives are discussed in the following sections.

Strategic Policy Perspective

At the strategic level, the fundamental decisions for an organisation relate to issues of with whom to collaborate, why and how (Barratt, 2004). The high investment needed to develop and sustain e-collaboration means that organisations cannot collaborate with all their partners in the supply chain and one supply chain strategy cannot meet the different needs of each chain within which an organisation participates (Barratt, 2004). Opportunities and challenges arise from both participating and not participating in a collaborative relationship. For example, fiercer price negotiations can be fuelled by the imbalance of power within a collaborative relationship (Perkins & Dingley, 2001).

Collaborating organisations need to share common goals in terms of, for example, service, quality, technological innovation, time to market and cost drivers (Hughes, Ralf, & Michels, 1998). Organisations also need to understand their own role in the collaboration (Hibbert & Huxham, 2005) and supply chain transformation should be aligned with the strategic direction of the organisation (Favilla & Fearne, 2005). Individual collaborating organisations may have different expectations of the distribution of benefits to which the relationship may lead. These expectations need to be understood so partners can work together to achieve the benefits that they mutually identify (Hughes et al.,

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