Chapter 3.20
Supply Chain Management and Portal Technology

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INTRODUCTION

The role of corporate portals as tools for managing organizational knowledge has been constantly changing throughout their short lifetime. An important recent advancement in the functionality of portals is their ability to connect companies together, joining internal and external knowledge sources to assist in the creation of valuable knowledge. Nowhere is this increased functionality and utility more evident than in the use of portals to manage the supply chain.

A common trend in supply chain management (SCM) is the formation of one central strategy for the entire production network, which involves going beyond an organization's external boundary. This represents a shift from a commodity-based approach to SCM to a more collaborative and relationship-building strategy. As this "extended enterprise" comes into being, an extended IT infrastructure is needed. Systems, such as portals, that assist in spanning organizational boundaries and ensuring a timely information exchange can help support this strategy. Portal technology allows the IT infrastructure of one firm to span multiple organizations and be utilized by many (Dyer, 2000). The globalization of supply chains also presents an opportunity for the utilization of portal technology (Tan, Shaw, & Fulkerson, 2000). Geographically dispersed organizations have an increasingly greater need to share information, even though they experience issues with systems spanning different processes, cultures, and vast distances. A portal's ability to utilize the Internet can assist in the networking of such distributed firms.

The fundamental resource required for these extended organizations is knowledge, whether it is knowledge of markets, supply conditions, manufacturing, and logistical strategies, or of

a supply partner's needs and capabilities. As knowledge is a resource characterized by "perfectly increasing returns" (Dyer, 2000, p. 61), knowledge can flow within a supply network and dramatically add value for all members. A small innovation at one end can often have a ripple effect through the supply chain, and result in a significant development at the other end. All forms of supplier networks require supporting technology to facilitate the creation and utilization of supply knowledge, and portal technology is often fulfilling this need.

BACKGROUND

Supply chain management can be defined as " … a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements" (Mak & Ramaprasad, 2003, p. 175). This, in essence, states that SCM must create an infrastructure of knowledge and information that facilitates the integrated operations of supply chains. Knowledge supply chains emerge that are "… integrated sets of manufacturing and distribution competence, engineering and technology deployment competence, and marketing and customer service competence that work together to market, design, and deliver end products and services to markets" (Mak & Ramaprasad, 2003, p. 175).

Handfield and Nichols (2002) stress the importance of relationships in a supply chain, which they define as " … the integration and management of supply chain organizations and activities through cooperative organizational relationships, effective business processes and high levels of information sharing to create high-performing value systems…" (Handfield & Nichols, 2002, p. 8). In this view, the supply chain should encompass the management of information and knowledge systems in order to be successful.

Simply, a supply chain consists of the following processes within the network: buying raw materials, making and designing products, inventory management, selling to customers, and delivery of products (Poirier & Bauer, 2001). Whether done by one stand-alone firm (known as a vertically integrated firm), or a network of firms (dispersed in their business functions), each of these processes contributes to the product design, manufacturing, selling, and delivery to the customer. Portals, through their unique enterprise-wide architecture, contribute to the information and knowledge-sharing needs of each process. The following sections will examine the potential contribution of portal technology.

THE DEVELOPMENT OF SUPPLY CHAIN PORTAL TECHNOLOGY

Portal technology has emerged as an enabler of supply chain strategies, offering increased distributed access to partners through standard technology applications and processes. Initially, many larger organizations adopted electronic data interchange (EDI), an electronic messaging standard defining the data formats for the exchange of key business documents across private networks or the Internet. The Internet became important during the mid 1990s with the emergence of the World Wide Web and the adoption of HTML. Companies began to convert their EDI information exchange technologies to HTML, and later standardized XML formats in order to take advantage of greater selection of business applications, and the increased availability to all partners offered by the Internet. But for many organizations, the Web connection has become a strategic tool that strengthens the buyer-supplier relationship through establishing broad information connections that have a major impact on the overall supply strategy (Zank & Vokurka, 2003).