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Can e-enabled market exchanges be applied to your business?

Business-to-business e-commerce, or e-business, has become an entrenched term in the corporate lexicon. One development has been the formation of e-enabled market exchanges - business-to-business electronic marketplaces that allow multiple buyers and sellers to carry out procurement and sales activities over the Internet. Here we use an example to illustrate the management challenges involved in the design and implementation of the e-fulfillment processes required to support a successful market exchange. Additionally, consideration is given to the utility and viability of such exchanges in specific industries.

Market Exchanges

The touted benefits of e-business have attracted the interest of many corporate executives, and consultants/analysts expect e-business trade to reach US$5-7 trillion by 2004. How will the prolific growth of electronic marketplaces in many industries impact not only the supply chain management practices of such industries, but also those associated with the old economy in general? Our research suggests that the existence or development of a lingua franca within the industry is a prerequisite for the acceptance of such marketplaces, while their viability is dependent upon achieving appropriate levels of liquidity through the provision of the necessary e-fulfillment processes.

Over the past several years, supply chain management practice has focused on the changing nature of manufacturer-supplier interaction - “doing better things”, the joint responsibility for transformation of both supplier and manufacturer in the building and nurturing of partnerships, and the critical importance of information management and the appropriate information technology infrastructure to support it. E-enabled market exchanges provide the possibility for trading on-line. However, they may or may not offer the e-fulfillment processes necessary to ensure payment for and delivery of the goods traded.

Clearly a parallel exists between the services provided by such exchanges and those provided by the traditional trader/broker system in some industries. Herein lies their attraction, namely the opportunity for dis-intermediation within the supply chain as buyers and sellers are brought together in a virtual marketplace to exchange goods and services.

Established companies are not only participating in such exchanges as buyers and/or sellers but are also investing millions in dot.com start-ups. Covisint, a supplier exchange developed by Ford, GM, Daimler Chrysler, Renault and Nissan, conducted its first transaction on October 3, 2000 and has spawned others in the automotive industry. VW built its private marketplace with help from i2, IBM and Ariba Inc, and went online in September 2000. Some suppliers have also announced plans to launch their own exchanges. Seven suppliers, Dana, Delphi, Eaton, TRW, Valeo, Timken and Tenneco, have formed a group known as S7. In September 2000, S7 announced that it was researching how business-to-business Internet tools, including an electronic exchange, could help streamline the distribution of aftermarket parts, shifting focus away from the original equipment market.

In the chemical industry, ChemConnect, founded in 1995, is one of the largest market exchanges for chemicals and plastics. Chemical companies hold 33% of its equity. The e-commerce registry lists many other exchanges specializing in this industry - Chemunity, a European-based exchange dedicated to the trading of full truck-load quantities of commodity products, is a recent addition.

While market exchanges have proliferated, not all are successful. Efdex, an online exchange for food and beverages, collapsed in September 2000 and was followed by chemdex.com, serving the chemical industry, in December 2000. Worldoffruit.com, trading fresh produce, scaled back operations in January 2001.

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The touted benefits of market exchanges include increased access to both buyers and sellers, the potential for lower prices through competitive bidding and greater transparency of information and lower transactions costs. However, recent experience suggests that care should be exercised in accepting these benefits as collectively applicable. The law of supply and demand will still apply, while the euphoria of market access for sellers might well be tempered by increased competition. Also, while lower transaction costs might be possible, the on-time, in-full delivery of goods meeting exacting specifications are also criteria on which transaction effectiveness will be evaluated.

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If these benefits are to be realized, market exchanges might learn from the experience of those firms that have developed customer-centric e-business activities. It has been suggested that these firms have moved through three generations of e-enabled business activities. The first is marked by a web presence when marketing is of paramount importance. The focus is on customer education. In the second generation, firms provide an opportunity for the customer to place an order on the web, but the old economy supply chain utilized to support such transactions remains essentially the same, with e-fulfillment limited to processing the financial transaction. In the third generation, or customer-centric e-business, the fulfillment process is e-enabled. There is a one-to-one relationship with the customer, and the supply chain is re-engineered to facilitate the integration of the material, information and funds flow processes required to achieve flawless execution.

An informal poll of executives attending several IMD management development programs revealed that the majority of their companies are invariably struggling to make the transition from first to second generation e-business. A lesser number are confronting the challenges of moving from second to third generation, and only a very few have effected a customer-centric e-business, with consequent supply chain integration.

Pefa.com - A Virtual Marketplace

Pefa.com is a virtual marketplace that is transforming the fresh fish supply chain in Europe. Based in Zeebrugge, it links eleven member auction sites in Belgium, England, Holland, Northern Ireland, Scotland and Wales. An additional two sites are to be linked to the system in 2001, and a further 9 are negotiating to join the network.

This marketplace facilitates the procurement of fresh fish by fish processors, food processors, retail chains, fishmongers and restaurants through the aggregation of the geographically dispersed supply and demand. Buyers can access any auction and purchase fresh fish guaranteed to meet the industry-wide Pefa.com standards. Furthermore, buyers do not need to be physically present at any one market but can widen their procurement activities to several locations, thereby making their purchasing more efficient.

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From the launch of its pilot activity in Zeebrugge in July 1998, Pefa.com has grown to 2000 transactions per auction day and a turnover approaching € 200 million. In February 2001, Jupiter Communications ranked it among Europe's top 10 B2B sites. Pefa.com's IT infrastructure enables remote buyers to enjoy the same market presence as local buyers. In addition, Pefa.com provides transparency through the dissemination of information concerning species, quantities available and quality, as well as vessel-specific data such as days at sea, fishing grounds, etc.

The sellers also benefit from remote buying through access to a larger market. Local supply/demand imbalances can be alleviated, resulting in a larger proportion of the catch being sold. Concomitantly, this reduces EU subsidies for fish failing to reach a predetermined withdrawal price. By re-engineering supply chains to meet the needs of remote buyers, Pefa.com cooperated not only with independent local auctions, but also with a number of third party service providers. Critical in this endeavor was Pefa.com's relationship with the Dutch National Institute for Quality (RIVO), the Sea Fish Industry Authority, Bureau Véritas and the European Commission in the development and application of the quality standards and assurance mechanisms necessary to achieve credibility and acceptance.

Lessons Learned

In moving to customer-centric e-business, Pefa.com achieved the supply chain integration required to support the virtual marketplace. Old economy supply chains were inappropriate to meet the needs of the aggregated marketplace. Information flow, material flow and funds flow processes have been re-engineered accordingly. Furthermore, the unambiguous specification of the products to be exchanged in the form of easily communicated and accepted standards, the lingua franca of the industry, proved indispensable in achieving credibility and trust amongst participants. Partnership with third party service providers was necessary in order to access the competencies required to complement the service offering and guarantee flawless execution.

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Apart from these competencies, there appear to be four industry factors that are contributing to the development and viability of Pefa.com as a market exchange. One, the European fresh fish industry has a fragmented supply and buyer base. Two, the volume of product is considerable. Three, due to current market inefficiencies, e.g. local supply/demand imbalance and intermediation, there is an opportunity to add value in the supply chain and reduce transaction costs. Four, there exists within the supply chain either a degree of IT literacy or, alternatively, a willingness to adapt to the new technology. The psychological costs of switching from the local auction requiring buyer presence to participation in a remote auction are perceived to be minimal.

Applying the Lessons Learned to Other Industries

It is instructive to consider the emergence of e-enabled market exchanges in other industries and speculate upon both their utility and viability. Over the years, the automotive supply industry has undergone both consolidation and restructuring. Automotive manufacturers source modules or systems from first tier suppliers, who invariably have responsibility for aspects of the design, parts manufacturing or sourcing and assembly of the module or system to be supplied. They are also expected to manage their own supply bases consisting of lower level tiers of suppliers. The relationship between the automotive manufacturer and first tier supplier is characterized as one of partnership and typically lasts for at least the life of the vehicle model being assembled.

Covisint is principally being promoted as a market exchange through which a number of buyers will achieve significant price and transaction cost reductions through attracting sellers and having them bid, in the form of a reverse auction, on required parts. Of immediate concern is what might be traded on such an exchange. Systems and modules sourced from first tier suppliers have specifications unique to a specific manufacturer and vehicle model. They are invariably sole-sourced, at least for the life of the model. The procurement process involves complex business-to-business interaction, as distinct from a relationship managed by sales representatives on one side and purchasing professionals on the other. As one moves to lower tiers, commodities and build-to-print parts are more in evidence. These are common to several manufacturers and/or models, and thus the lingua franca exists at this level, since parts and components can be specified through the use of industry-wide standards and norms. Unit volumes are significant, while the supply base becomes more fragmented. It is these items that might be considered appropriate for trading on such an exchange. The only difficulty is that the responsibility for the procurement of these parts currently rests with the lower tier suppliers constituting the supply base of the first tier supplier for the outsourced system or module. These factors may well limit the volume of business conducted on such auto manufacturer-supported supplier exchanges. Additionally, as mentioned previously, first tier auto suppliers have announced their intent to establish their own supply exchanges, perhaps in retaliation.

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Automotive manufacturers find themselves in a difficult position. On the one hand, they are justifying the establishment of such exchanges as a basis for price reductions and transaction cost savings - indeed they are taking an equity position in them, while on the other they extol the virtues of long-term supplier partnerships with first tier suppliers that involve complex business-to-business interaction. The trust inherent in such relationships is being put at risk.

"In the chemical industry the environment is conducive to spawning market exchanges, yet liquidity is likely to be the ultimate determinant of longevity."

In the chemical industry, factors contributing to the proliferation of market exchanges stem from its fragmented nature. Chemicals are uniquely described by a formula and associated physical properties, while a grade of a particular chemical is defined in terms of a specified level of impurities or contaminants. A lingua franca exists and is prevalent within the industry. Additionally, procurement of many chemical compounds has traditionally been based on multiple sourcing or reliance on spot markets. A sophisticated logistics network of specialized maritime and land-based facilities as well as transport serves to meet fulfillment requirements. The focus of the exchange is on the reduction of transaction costs and dis-intermediation. Sustainable competitive advantage lies in executing transactions in an effective and efficient fashion - flawless execution - and in liquidity through an increasing number of buyers and sellers using the exchange. In the chemical industry the environment is conducive to spawning market exchanges, yet liquidity is likely to be the ultimate determinant of longevity.

In the electronics industry, short product life cycles have influenced supply chain design. E-enabled supply chain integration has been the name of the game for companies such as Cisco, Dell, Intel and Nokia in their efforts to achieve end-to-end supply chain transparency and e-fulfillment reliability. It was in October 2000 that Siemens announced the launching of a € 1 billion investment program to put all of its operations, from procurement to marketing, on a digital platform.

In the electronics industry, e-enabled market exchanges are a small part of a much bigger picture and appear to be limited to the trading of electronic parts and components, activities that are exemplified by ChipCenter.com and FastParts.com. Again, the importance of a lingua franca, aggregated volumes and access to a broader supply base is apparent.

Conclusions

Some tentative conclusions can be drawn from the Pefa.com experience and the industry examples cited. Most importantly, industry structure and dynamics, as well as product characteristics, are likely to be critical for the utility and viability of market exchanges. The existence of a lingua franca within the industry is a pre-requisite for the unambiguous communication of product attributes between buyers and sellers, thereby establishing a foundation of credibility and trust. For buyers, the existence of a market exchange to facilitate procurement may only represent a small part of their supply chain integration challenge. However, for sellers, the existence of an integrated supply chain to ensure flawless execution is of paramount importance. In the absence of such e-fulfilment processes, the goal of e-marketplace liquidity will be illusory.

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