Some Thoughts on eCommerce in the US Paper Industry

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April 6, 2002

Introduction

The e-business revolution is impossible to ignore. It is transforming businesses in virtually every industry and reshaping the global economy. E-commerce has revolutionized the way companies buy and sell goods and services in addition to transforming the way companies interact with customers, partners and employees (Timmers, 1998).

Electronic commerce, or e-commerce, can be defined loosely as "doing business electronically" as the European Union defined it in 1997. Specifically, e-commerce is electronic facilitation of the trading of physical or intangible goods. This includes all the trading steps from on-line marketing, ordering, and payment to support for delivery. E-commerce typically includes also electronic support for collaboration between companies (Timmers, 1998). Kalakota and Whinston (1996) defined e-commerce from four perspectives:

1. *Communications perspective*, e-commerce is the delivery of information, products/services, or payments over telephone lines, computer networks, or any other electronic means.

2. *Business process perspective*, e-commerce is the application of technology toward the automation of business transactions and workflow.

3. *Service perspective*, e-commerce is a tool that addresses the desire of firm, consumers, and management to cut service costs while improving the quality of goods and increasing the speed of service delivery.

4. *Online perspective*, e-commerce provides the capability of buying and selling products and information on the Internet and other online services. (Turban et. al, 2000)

Internet based technologies offer numerous applications in order to increase efficiency and productivity, such as linking employees, offices, customers, and partners from remote locations regardless of time or place, distributing sales information more promptly and efficiently, and reducing operational costs (Vlosky and Fontenot, 1997).

Thirty-six percent of all US business-to-business spending will occur online by 2006, according to a new report from Jupiter Media Metrix. Jupiter Media Matrix also forecasts online business-to-business spending to be USD 5.4 trillion by 2006. In addition, globally, 513.4 million people were estimated to be using the Internet in October 2001 with the US and Canada estimated to have 180.7 million users (Nua Internet Surveys, 2001).

E-commerce applications offer another option for business transactions and communication beyond use of traditional phone and fax. Business transaction data can be transmitted from supplier to customer through e-marketplaces, hubs, traditional or point-to-point connections, or Internet facilitated point-to-point connections.

E-solutions can offer value to customers and sales representatives by allowing them both to concentrate on the real business and customer relationship instead of dealing with routine paperwork. When transaction data is in electronic form, it can be collected, transmitted, stored, retrieved, processed and analyzed more readily than if it would be in

paper form. Errors associated with keying in supplier data and the re-keying in the same data into customer systems can be virtually eliminated by using e-commerce applications. E-commerce applications speed the transmission of data between organizations, enabling just-in-time processes and help a company's marketing efforts by controlling costs and providing better customer service.

What interface is appropriate to particular customer depends on the customer's IT capabilities, the customer's trading partners. Traditional point-to-point connections are suitable for system-equipped, long-time customers with limited amount of suppliers and large number of transactions. Internet facilitated point-to-point connections serve customers who require value-added services with limited number of transactions and suppliers.

E-commerce and the U.S. Pulp and Paper Industry

Overall the paper and solid wood sectors of the forest products industry have been slower than other bulk producers to develop Internet based electronic trading platforms. These sectors typically utilize the Internet to find information rather than to execute transactions. However, many forest companies have announced their intention to develop Internet e-business capabilities (Raisanen, 2001). Vlosky (2001) found that expected benefits from using the Internet in the U.S. forest products industry are timeliness of information exchange, greater exposure and access to customers, and enhanced corporate image.

Goldman Sachs determined that in 2000 e-business in the paper industry was at $5 billion and was expected to grow to $45 billion annually by 2004 (Thompson, 2001). There is a wide spectrum of e-enabled business activities and opportunities in the pulp and paper industry. Some companies in the industry use fairly sophisticated Internet applications in operations, while on the other end of the spectrum; some executives are still trying tackle the challenge of using e-mail. For example, in a PricewaterhouseCoopers survey of websites of the top 100 global forest and paper companies, only 5 websites were considered to be 'best in class' when judged on functionality, overall strategy, and visual impact. Thirty-seven companies received scores less than 50 out of 100 possible points (Cambell, 2001).

Companies trying to sell Internet solutions to pulp and paper companies face a major challenge as "The pulp and paper industry is part of the 'old economy' and slow to change. It is a very conservative industry. Internet maturity is also lower in pulp/paper companies because of the high average age of managers, which may slow down the process change." (Colclough, 2000).

According to Vlosky (2001), 92 percent of U.S. pulp and paper industry companies used the Internet to conduct business in 1998. This figure includes using e-mail. Eighty two percent of respondents had implemented their Internet capabilities in the three years previous to the study being conducted. Over three-quarter of respondents had spent less than $1 million on Internet based e-commerce technologies. Nearly 71 percent of respondents stated that they were not where they wanted to be in implementing Internet capabilities. The general concerns about conducting e-business were security, lack of capable personnel, and the need to change established business procedures.

- In addition, in 2000 PricewaterhouseCoopers found that 82 percent of US paper companies have an Internet presence, but only 6 percent of companies have product availability data online, and only 5 percent sell products through their Web pages (Cubine and Smith, 2001) PricewaterhouseCoopers says that the three most serious challenges to pulp and paper industry companies implementing e-business are:
- Integrating legacy systems
- Managing change in business culture
- Establishing business processes and industry standards.

E-Marketplaces and the pulp and paper industry

Establishing supplier-specific point-to-point connections to facilitate e-business transaction messaging can become a challenge when there are many suppliers. E-marketplaces offer a smooth option to route those messages through their hubs. Customer can thus build only one interface with a marketplace and the hub will take care of the rest. Thus, e-marketplaces are particularly suitable for customers who have several suppliers and who seek for supply chain optimization. If inventory management forms an elementary part of the business process, e-marketplaces have a lot to offer. Particularly those customers with large number of transactions and ambition to decrease hassle, errors and increase efficiency benefit the most from e-marketplaces. E-marketplaces are beneficial for customers with multiple suppliers, or who are looking for spot purchases (Dipoli Media, 2001; UPM-Kymmene, 2001). There are a number of potential benefits of using e-marketplaces including (Dipoli Media, 2001; UPM-Kymmene, 2001):

- If supported by leading producers, they can offer a gateway to the industry creating visibility among a spectrum of manufacturers representing a multitude of products available in the market.
- Product choice becomes easier by an ability for customers to browse an aggregated product catalogue.
- E-marketplaces decrease the need of IT resources when establishing and maintaining point-to-point connections.
- By improving better supply chain visibility e-marketplaces can create savings in inventory and procurement costs. Users are able to browse suppliers' inventories and production schedule enabling optimization in procurement.
- Quick RFQ (Request for Quote) can be sent based on the search result in catalogue or inventory and production schedule.
- Through an e-marketplace customer can reach multiple suppliers at the same time, with one enquiry.

The pulp and paper industry has experienced the emergence of a number of e-marketplaces over the past few years. These e-marketplaces can be industry verticals (spin-offs of paper companies), nonaligned dot.coms that target the forest and paper industry, or horizontally diversified entities that operate e-marketplaces across many industries. Some e-marketplaces are independent companies, and some are part if the focal industry itself. Examples of the latter are ForestExpress in the US and the European initiative Expresso.

ForestExpress is a joint venture of North American forest industry companies formed to develop an independent global, business-to-business marketplace that will bring forest products buyers and sellers together online. Its goal is to simplify transaction processes, improve information flow and increase the speed of delivery (Hayhurst, 2001).

Expresso is an independent, consortia based platform for facilitating e-business. It is a joint venture of the European paper manufacturing industry and merchants, but the platform is open for all users who want to use its services. Founding members of Expresso are UPM-Kymmene, StoraEnso, IP Europe, M-real, Sappi, Soporcel, Antalis, Buhrmann, and New Merchanting Force (NMF). Espresso is not built for "trading" in usual marketplace manner, but rather accelerating electronic transactions and supply chain efficiency between the paper industry and its customers. It is intended to create value for all participants in the supply chain. Expresso uses the papiNet standard in messaging, thus supporting the industry's own transaction document standard (Dipoli Media, 2001; UPM-Kymmene, 2001).

At the present time, there are more than 50 dot.com entities trying to capture market share in the paper e-commerce business market space. However, when the hype of the early part of the decade dissipates, there will most likely be only a few paper e-marketplaces remaining. Major paper customers may also enter this arena and form their own buy-side marketplaces (Hayhurst, 2001).

papiNet

In essence, papiNet is a messaging standard for business transactions. The purpose of papiNet is to develop, maintain, and support the implementation of global electronic business transaction standards for parties engaged in the buying, selling, and distribution of paper products. PapiNet messages are transferable via Internet instead of tailor-made point-to-point connections, like EDI (Electronic Data Interchange). As mentioned earlier, companies such as ForestExpress and Expresso use papiNet standard in messaging thus supporting industry's own transaction document standard.

In 1999, the papiNet standards effort was formed by a group of European forest product manufacturers. In autumn 2000 papiNet Europe and forest industry companies from North America united their efforts, realizing that the standards would need to be global in order to maximize benefits. The goal of papiNet is to be a single set of unified, international XML-based e-business standards designed to improve the efficiency and accuracy of transactions throughout the supply chain, while reducing the cost of operations. Development of industry standards is a critical part of the foundation for e-business and will allow the forest products industry to realize much of the potential efficiencies (papiNet, 2001).

PapiNet standard development work has been generative; by the end of December 2000, the following five transactions were covered by papiNet standards: purchase order, order confirmation, call off, delivery message, and invoice. The second phase of papiNet development, which includes the following messages, was released on January 31, 2002: request for quote and confirmation, goods receipt, and debit/credit memo. The standardization work on the last half of 2001 was focused on the development of messages that will support supply chain cooperation between customers and suppliers in the paper value chain. This means that the concept of Vendor Managed Inventory (VMI) and other replenishment operations will be supported. The following messages will be published as

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production releases by the summer 2002: forecast, usage, inventory status and inventory change, information request and order status, and also a preliminary catalogue message (papiNet, 2002).

The most significant benefits papiNet provides are for customers with a high volume of transactions. In addition, for customers currently using EDI, papiNet would be an easier and more efficient way to communicate. For customers who do not yet have e-business connections and IT competent resources, papiNet makes it easier to establish system-to-system connections with paper suppliers. Benefits of using papiNet also include all the benefits achieved by using EDI, such as: speeding the transmission of data between organizations, enabling just-in-time processes, eliminating labor-intensive tasks of document processing, and data keying errors.

PapiNet enables inclusion of smaller or less technically sophisticated partners in the electronic trading base than EDI and also allows buyers to simplify in-house procedures to interact with different suppliers using one common standard. The major impediment of papiNet is that only limited number of transactions has been standardized so far.

Conclusion

The paper industry is aware of the potential gains to be made by creating an effective supply chain management systems communicating through the Internet. E-commerce has provided new applications for use in the paper industry customer interface including e-marketplaces, EDI connections and papiNet. The greatest challenge in implementing e-commerce in the paper industry seems to be a resistance to change. Because pulp and paper industry is a very conservative industry, it faces internal resistance towards implementing e-commerce applications in the customer interface. Traditional business communication by phone, fax, and mail will always continue but e-commerce applications will continue to be adopted as time passes.

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