BUSINESS-TO-BUSINESS E-COMMERCE ADOPTION: A CASE STUDY APPROACH

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Abstract: This case study research presents the preliminary findings from an explorative study concerning challenges, benefits and problems in adoption of business-to-business e-commerce. In this case study research two United States (U.S.) organizations are analyzed. Case one is a sporting goods company that has been doing Business to Business (B2B) based transactions since 1970s. Case two is a shipping and transportation company doing B2B transactions for over 3 decades. Both cases have gone through B2B transaction stages of growth; however management is still faced with tasks of understanding the drivers of B2B adoption.

1 INTRODUCTION

The value of business to business (B2B) e-commerce technology as a solution to cutting costs and maximizing profits is appreciated by most firms in this digital economy. Traditional supply chains with their inefficiencies have been responsible for the recurrent need for firms to find better options and hence the great keen interest in the B2B e-commerce model that works at addressing these problems. (Cox and Ghoneim, 1996; Archer, and Yuan, 2000)

Despite the predictions and promises of B2B e-commerce the road to B2B e-commerce adoption is littered with failures (Teo and Ranganathan, 2004). Hence understanding B2B e-commerce adoption has become of paramount importance. Past failures has been attributed with focusing only on operational and implementation issues in some instances and ignoring the strategic aspects (McEwan, 2001; Yau, 2001; Chan and Swatman 2004). Aspects would include the people requirements as far as B2B e-commerce adoption is concerned, key points of strategic planning, where is the company, where do you want to be and how the organisation competes in relation to sector standard technologies, proven methodologies, finding B2B collaborating business partners and the process requirements as far as B2B e-commerce adoption is concerned (Niwe, 2006). Underlying this is a fact that the B2B sector is faced by lack of common protocols and standardized platforms, for communication of business messages (McGann, et al 2005). Although XML is gaining increasing use in today's world, its extensibility is causing some interoperability issues (Nelson, and Shaw, 2005). Hence in this study we address the problems pertaining to the adoption process and strategy.

In previous work (Niwe, 2006), diffusion of innovation theory by (Rogers, 1995) is proposed to understand the adoption process. This theory broken down in five stages starts with the awareness stage, where the individual or organization learns about the innovation; second, they must be persuaded of the value of the innovation; then they must decide to adopt it; the innovation must then be implemented; and finally, the decision must be reaffirmed or rejected.

With this background, the principal objective of this paper is to examine the issues and challenges faced by firms in adopting B2B e-commerce. To understand the solutions qualitatively, we examine cases from different industries namely a sporting goods company plus a shipping and transportation company. The data was collected through electronic mail correspondences and company documentation. The cases selected were largely due to their willingness to participate in this study. From previous work, (Niwe, 2006; 2007), the organization adoption of X12 standard as the widely accepted

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U.S. B2B e-commerce standard in the last 20 years was used as the unit of analysis.

2 CASES

Case one is a leading manufacturer and distributor of sporting firearms. This company has been in business for over 200 years. Today they have multinational presence and face the urgent need to keep business partners abreast of important information and responding to them accurately, consistently and quickly. It has been using B2B based transactions since 1970s.

Case two is a shipping and transportation company. They have been doing B2B transactions in form of Electronic Data Interchange (EDI) for over 3 decades. They have thousands of suppliers and they use B2B technology to do their purchasing and to sell products.

3 CASE EXAMINATION

The cases in point were examined on what model of business to business works best for them. Case one started with a transaction based model (main mode of communication between the two businesses is based on the transactions) but they believe that the strategic relationship based model (two or more organisations join with an aim of achieving strategic advantage).works best for them. Strategic relationship is more approriate because it is more integrated enhances building particpation. This in turn makes it more accomodating and also flexible. Case two works with the transaction based model.

Item 2, examines where things normally go wrong in the B2B e-commerce supply chain with the business partners for the organization. Case one cited third parties (such as a VAN) that perform the translation as the main point of problems in the supply chain with business partners. Case Two; identified changes along the way which are forced by changes in marketing, ways to differentiate products/service.

Item 3 examines the most significant opportunities with usage of B2B e-commerce. Case one; they believe that coordinating internal systems with the external environment would be the most significant opportunities with the usage of B2B e-commerce. In this case link their enterprise resource planning (ERP) system-- SAP R/3--of the firm, to include the firm's major suppliers. Case two; the most significant opportunities include enhancing or replacing traditional linkages between supply chain participants (e.g. e-procurement); streamlining internal processes (e.g. reducing costs); coordinating internal systems with the external environment; However cost avoidance and increased productivity is the most visible (and appreciated) by management.

Item 4 examines the level of B2B e-commerce usage. Both cases exchange structured documents with minimum human interference. Key data is transmitted to receiver electronically.

Item 5 deals with stage of B2B e-commerce adoption. In this section we examine the progress in B2B usage. Case one; use standard based EDI for supply chain execution or management. Case two; processes and logistics are largely automated using Internet technology, creating a seamless chain of communication and management. However most is data transferred by EDI via mainframe processes or Value Added Networks (VANs). They do some secure File Transfer Protocol (FTP) transfers via internet or by web-portals in their applications, but most communication such as mail boxing, protocol conversion, standard conversion, and other value-added services like reliability, security, administration, implementation assistance, auditing, is via VANs.

Item 6, addresses Internet use; case one; the Internet usage is still in terms of a basic website in terms of e-commerce activities. Case two; uses Internet for technical data exchange, interactive website, web based customer service, website payment systems, extranet – supply chain management, Internet EDI, Inventory/stock management, supply chain logistics, and B2B trade exchanges.

Item 7, addresses application areas; case one; the applications area in the B2B e-commerce practise includes order receiving; logistics; invoicing and payment. Case two; application areas in their B2B ecommerce practice vary from e-procurement, to office banking. Just about everything done is at some point conveyed via EDI, from transportation tender from shipper, to inter-carrier movement instructions, to interchange advise to billing of customer.

Item 8, deals with how the organization rates the benefits in their B2B technology usage, case one; B2B technology usage has been used to eliminate clerical tasks, speed information transfer, reducing data errors, and eliminate business processes. Case two; the Internet is allowing the company to save money in the buying process. They post what we

they need done, and contractors that are qualified to do that kind of work respond.

Item 9, examines the main incentives to increasing the use of B2B e-commerce within the company. Case one; the main incentive to increase the use of B2B e-commerce within the company includes maximizing supply chain economics. Case two; cost avoidance and increase productivity. Doing it faster, easier, and cheaper are the main triggers to increasing the use of B2B e-commerce within the company.

Item 10 deals with the main barriers to increasing the use of B2B e-commerce within the company. Case one; Lack of understanding of supply chain concepts are concerned as barriers in increasing B2B usage in the organisation. Case two; the main barriers to increasing the use of B2B e-commerce within the company were identified as implementation with major partners, probably working around the implementation costs for the small and medium enterprises. They are increasingly pushing these to web-portals for input which feeds into current EDI processes rather than pushing to do conventional EDI.

Item 11, deals with how the company is planning for the future in terms of utilizing B2B e-commerce tools. Case one; as for the future they plan to have B2B e-commerce tools incorporated in the overall strategic plan. Case two; the organization is planning for the future in terms of utilizing B2B e-commerce tools by cost avoidance of VAN charges, and direct transfer options via Internet.

Item 12 addresses the motivation for adoption in terms of benefits that can be seen from effective use of B2B e-commerce i.e. in day to day operations, administration, internal communication etc. And subsection to that the main external incentives in relationships with customers and suppliers, when conducting research or marketing, etc. Case one; lowering costs of the supply chain were identified as the main motivation behind internal incentives for effective use of B2B e-commerce. While external incentives include increasing sales and closer relationships with customers. Case two; cost avoidance and increase productivy for them too, allows transfer of information in a usable format without human intervention.

And final Item 13 examines the major obstacles presented for the business in the transition from the traditional methods of communication (mail, email, fax, etc). Case one; the major obstacles presented for the business in the transition to B2B e-commerce include lack of understanding by business personnel of e-commerce supply chain best practices. Case two; obstacles include implementation costs and lack of data collection within the implementation process.

4 DICUSSION

The initial perception of case two was to act as an individual or with industry competitors through creating its own network in an attempt to leverage buying power more successfully. Hence they had to deal with numerous interoperability issues and struggling financially to meet the heavy costs involved in the private network VANs. With time the company addressed these problems though using internet-based applications. For example sending out requests for service contractor bids via Internet; with repairs needed to be done on something, such as a bridge, contractors are able to submit proposals over the Internet. They also use Internet based B2B e-commerce to auction scrap and surplus materials. Qualified scrap buyers submit bids into the company mainframe. Buyers are then given instant feedback as to the status of their bids. Whoever has the highest bid at the specified closing time is awarded the material and given a quote for transportation costs. The company uses the Internet frequently to find competitive prices. For example, when they were not happy with a vendor's quoted prices for communication equipment, a new qualified source was found on the Internet, and money was saved. While case one like many other organizations was pressured into adopting by the Industry rather than seeing the benefits. Global market and industry pressure coming from trading partners (distributors, suppliers, and customers) that invest heavily in introducing systems for business-to-business transactions are responsible for pressuring organizations into joining to cut their trading costs. The problem is most companies do EDI because they have been forced into it and it is not because they see the value. The industry pressure forces firms that want to keep the business relationships going, to do this. Hence failure rates attributed to failure to change the internal procedures. Therefore case one sees the urgent need to map strategic Business Process Reengineering (BPR) plans for their B2B technology to be taken to another level.

All this said and done, Internet based B2B does not necessary buy you anything. B2B is a very complex heavy set of message standards, with so many variations that they differ from VAN to VAN, from Industry to Industry, and are quite expensive to interface with all its variations. They have generally

been designed for batch transmission and processing. As case two has proved over the years of their Internet B2B applications, that just adding their EDI to the Internet doesn't really do much to solve the problem, or to add any real benefit. It has been like saddling the Internet with a heavily laden paper-based system - e.g. sending faxes to people rather than emails. We infer that adopters need to learn how to extend their core applications such as customer relationship management, with their business partners. Recognize the role and impacts of collaboration, in the implementation of B2B e-commerce solutions. Strategic alliances still deliver results such as leading B2B e-commerce solution providers, Commerce One and Microsoft were reported to form a strategic alliance to address technical barriers to adoption.

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