B2B E-MARKETPLACES: A FORMULA FOR COST SAVINGS

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ABSTRACT

Business-to-business e-commerce has become an important issue, and the emergence of B2B e-marketplaces has been very fast paced. More that 1000 B2B e-marketplaces have been created and many companies try to take advantage of from such marketplaces. Therefore, this paper provides a comprehensive review of e-procurement practice and discusses the fundamental issues that directly and indirectly affect the adoption of e-procurement.

Keywords: Business-to-business e-commerce, B2B e-marketplaces, e-procurement

INTRODUCTION

The emergence of business-to-business (B2B) marketplaces has been very fast-paced. Suddenly, in the second half of 1999, B2B electronic commerce began to mean much more than end-consumer-oriented online auctions and digital versions of product catalogs. Despite the recent slowdown in the economy, the worldwide B2B Internet commerce market is on pace to total $8.5 trillion in 2005, according to Gartner, Inc. (10). In 2000, the value of worldwide B2B Internet commerce sales transactions surpassed $433 billion, a 189 percent increase over 1999 sales transactions. Gartner projected worldwide B2B Internet commerce to reach $3.6 trillion in 2003 and $6 trillion in 2004. Over half of that will be conducted through e-marketplaces.

B2B e-marketplaces, or e-procurement sites, are essentially web-based procurement networks where goods and services can be bought from a wide range of suppliers. B2B systems help the companies to source input products and services at the lowest cost ensuring, at the same time, that those inputs meet technical and other specifications. By making this process web-based, B2B solution providers are changing it in ways that go far beyond its mere computerization and automation. The most successful exchanges will provide robust collaborative services: planning/forecasting, product design, project management, business intelligence, financial services and logistics. Attracted by huge market potential, nearly 1,800 public e-marketplaces have been created, most of them between mid-1998 and mid-2000 (Deloitte Research 2001). Countless private e-marketplaces have also been formed more recently.

This paper provides a comprehensive review of e-procurement practice and discusses the fundamental issues that directly and indirectly affect the adoption of e-procurement. This paper also investigates how company like IBM adopted the e-procurement system.

Features of E-Procurement... Why E-procurement?

The most often quoted trait of e-procurement is a potential to cut costs of purchased goods and services. The phenomenon of cost saving allowed by e-procurement is based on the new processes that cut all costs associated with purchasing, i.e. the cost of goods and services
purchased, the ordering cost, and the holding costs. Secondly, reduction of ordering costs are associated primarily with the technological advantages of online B2B marketplaces. The process of ordering, as shown in Figure 1, contains four key stages, each with four sub-stages. Costs associated with each of those purchasing process stages are effectively reduced when B2B systems are implemented (2). Further, e-procurement, as well as other Internet technologies, provides recently unthinkable opportunities for efficient integration of supply chains (3). Supply chains create conditions stimulating the implementation of modern just-in-time, lean manufacturing technologies, which consequently result in lower inventory costs.

![Figure 1: Operations Included in the Process of Purchasing](image-url)

**Managerial Accounting and Financial Accounting**

The main difference between two accounting methods is that financial accounting mainly supplies historical information for those outside the organization to use, (e.g. financial analysts, creditors, and suppliers,) while managerial accounting provides information needed by a company’s department heads, who then use it to perform the five managerial activities of organizing, planning, controlling, directing, and staffing. These five managerial functions were identified by Henri Fayol, a key figure in the turn-of-the-century classical school of management theory (9). It should be pointed out that Fayol’s view is very task-oriented, rather than people-oriented, that is, the traditional point of view as opposed to a more modern one.

International Business Machine (IBM)’s e-procurement program uses two of Henri Fayol’s five functions, controlling and directing. In trying to obtain the best prices for its supplies, IBM’s purchasing department tries to insure that the buying process runs the way it is intended. IBM’s purchasing department’s decisions direct what the organization buys. IBM also uses the third
and fourth of Fayol’s managerial functions, planning and organizing, which leads into the next subject heading.

**Collaborative Sourcing: Distinguishing between E-Procurement and E-Sourcing**

Collaborative sourcing is the interaction among an organization’s engineering, manufacturing, and procurement departments. Jim Ericson (5) cites a business axiom stating that 80% of the cost of a good is locked in during the design phase. Therefore, he says that it is everyone’s best interest to drive collaborative design and sourcing as far back into the process as possible. Driving back collaborative efforts requires organizational planning (developing production details) and organizing (unifying operational activities). Success requires that engineering, manufacturing, and procurement personnel work together because any solution that doesn’t help all three is doomed. However, there is natural friction among groups because engineering wants to design the part and specify a maker, procurement wants to stick with its list of preferred suppliers, and manufacturing wants to be involved so assembly goes smoothly. IBM, for example, solves this potential problem by inserting the sourcing team directly into the design process for better alignment.

What is the difference between e-procurement and e-sourcing, or are they the same thing? The two are closely related but they are distinct activities. Sourcing includes the duties of qualifying, selecting, and managing suppliers, while e-procurement facilitates the actual purchasing process by conducting the reverse auctions and insuring the execution against contracts. A reverse auction is just that, suppliers bidding for the business bid prices down rather than up. As far as cost minimization goes, the company doing the procuring is in a no-lose situation; it just stands back and lets the bidders chip away at the price until there is only one bidder left. Execution against contracts, the other task the procurement department handles, makes sure that other specifications included in the agreement are properly fulfilled.

The primary benefit from e-procurement is the cost reduction associated with less paperwork, which translates into fewer mistakes and a more efficient purchasing process. However, e-procurement shouldn’t rely solely on price as the determining factor among supplier bids. Acceptable quality levels and delivery variables need to be factored in as well (4).

The source of savings in B2B auctions comes from accessing a broader base of suppliers bidding for the buying needs of the organization (8). Using the Internet as the platform for the procurement process potentially turns the supplier network from a small, relatively locally based one into one that can have dozens or even hundreds of would-be vendors bidding on business from locations spread throughout the globe. But using a large group of suppliers also raises a question that the e-procurement process, by definition, causes conflict with the just-in-time (JIT) theory of inventory control. JIT philosophy favors close working relationships with a small number of vendors who have signed on as long-term business partners (4). There doesn’t seem to be a clear-cut answer; on the one hand the company wants the minimized cost provided by lots of suppliers trying to underbid each other; on the other, the close working relationship developed when one, or a few, vendors work as part of the production process falls away when an organization switches over to e-procurement.
E-Procurement Improves Benchmarking Tasks

Benchmarking can be defined as the continual search for the most effective way of accomplishing a task by comparing existing methods with those of other organizations. That is, finding out which corporation has the current best practices and either emulating that competitor’s method or using that firm’s method as a basis for improving its own production standards.

Modern day procurement systems use a “3C” approach. They “collect, compare, and collaborate” data and then select the most appropriate choice. The 3Cs method is self evident but the cycle time from start to finish is quite streamlined using the Internet. The time savings are significant. The auction condenses the negotiating process two to three months to 90 minutes (7).

In addition, the successful e-procurement system will provide benefits in three distinct areas: measurement, comparison, and improvement. E-procurement software can measure the vendor performance on price/quality/delivery data on an ongoing basis; keep track of relevant industry comparisons; and provide for continuous improvement goals by enabling new and existing users to understand global best practices in the e-procurement and incorporate them into their own plans (8). The “3Cs” combined with the measurement/comparison/improvement benefits provided by an in place e-procurement system work to minimize purchasing costs, but current managerial accounting emphasis is evolving from just attempting to keep expenses down towards striving to improve quality levels, and that leads into the next topic heading.

E-Procurement Increases Time Available for Value Added Activities

The key objective in the new manufacturing environment is to increase quality. Therefore, an overemphasis on cost minimization may result in lower quality. Further, the reverse auction method that puts the purchasers in such a good position, forces the sellers (the vendors) into a losing position that leaves them little or no leftover profit. This will have a negative effect on the vendor’s ability to continue to maintain his own quality levels. So the e-procurement process’ seemingly clear-cut cost minimization benefit can eventually become a quality maintenance risk.

Defenders of e-procurement argue, however, that it provides an organization the ability to allot more production time towards value added activities. It frees purchasing to focus on strategic issues that can drive more costs out of the system. At least two value adding activities, supplier performance review and having additional time to spend on product development, gain by e-procurement’s time savings. Both arguments seem valid but putting in place a procurement method that bases the winning bid upon price and quality would seem to solve the problem.

Other E-Procurement Risks and Benefits

That using the Internet to facilitate an e-procurement system improves an organization’s purchasing efficiency seems obvious; it provides real-time access to a larger, potentially worldwide supplier base. But certain risks still exists, both within and outside to the organization. Duvila, Gupta, and Palmer (4) identified the successful implementation as an e-procurement
When a company switches its purchasing method to the Internet it has to make sure the new system meshes completely with the one that was in place before the change over. Failure to integrate creates duplicate work steps and jeopardizes the reliability of organizational information. The external risk an e-proc system faces is failure of its communication technology. To get an e-procurement system up and running, substantial investment in time and dollars is required by all members of the e-procurement network, the customer and its suppliers. Communication difficulties among participants have to be solved, which requires reliable technologies. This is where the IBM seems to have developed a competitive advantage.

**IBM’s E-Procurement System**

IBM solves this potential communication breakdown problem by providing its own e-procurement software solution. Having developed its own e-procurement system management technology allows IBM to benefit two ways. First, like all companies using an e-procurement system, its purchasing costs go down. Second, since IBM also supplies the software for other companies, IBM earns additional revenue from being an e-procurement software system provider. IBM has participated in the e-procurement development from its earliest stages, and its latest e-proc software management system is called, IBM DB2 Information Integrator.

State of the art e-procurement technology today has three key characteristics (4). It provides software infrastructure, not just software application; improves upon a point-to-point link between database files by allowing many-to-one-to-many links; and provides enterprise-scale integration database setup which seems to be a fancy way of saying that the e-proc system can be viewed and used not just by purchasing, but by all departments within the company.

The preceding paragraph seems to be more about computers than managerial accounting, but it points out the Internet’s effect on organizations’ operations; and also that a company’s switch over to e-procurement requires significant initial and ongoing investment. But IBM appears in position to take advantage of e-procurement as it gains business place acceptance. In a research report reviewing a half dozen e-proc system management program providers, Aberdeen Group wrote that IBM’s e-procurement product is a solid solution that should be on every major enterprise’s short list of potential e-proc site management systems. IBM appears to be in a strong position as e-procurement continues to become more and more commonplace in the business world. When it comes to benchmarking itself against the rest of the industry, IBM relies on its research teams to keep up to speed on what other companies are doing, as well as its customer interactions in selling IT services.

The majority of IBM's sourcing tools are developed internally. The cornerstone of IBM's online spend tracking is its business data warehouse (BDW). This is the repository where all of IBM's spend data is housed and easily accessed by users. One of the biggest improvements IBM has seen since implementing this warehouse several years ago is the company's ability to adhere to its previously negotiated contracts. IBM admits that when it began its e-procurement efforts, one of the things third-party suppliers said on their surveys was that IBM was terrible in upholding...
its contracts. And suppliers soon realized that if they weren't getting the contracted business, their competition probably was. With spend data flowing into the BDW, changes in procurement practices can be made on the fly and individual locations can be alerted when contracts should be adhered to more closely.

Streamlined access to spend data at one of the largest corporations on the planet can come in handy during crunch times. When supply abounds, IBM adheres to its contracts, because most likely it will not be long until the tables turn and supply is limited again. And when IBM needs precious parts from a supplier on an expedited basis, it doesn't hurt to have proof of IBM's commitment to that supplier available in black and white.

Processes Improvements with E-procurement

According to Business Week, IBM is pushing a new strategy called e-business on demand that could cut tech users costs by 50% (1). Getting there could take a decade of rolling out new technologies and new ways of doing business. The first step is to SIMPLIFY, i.e. to create a unified network. That means getting the hundreds of servers down to a dozen or so, and using open standards so all the pieces of gear speak to one another. Next, EFFICIENCY, servers run idle and software sits on shelves. Through virtualization, a process by which many machines appear to be one, if one server is busy, software automatically farms out work to the others. Third, GRIDS, technology is supersize. Corporations will be able to link networks and data centers to create accessibility of information and computer power whenever it is needed. The fourth stage, UTILITY, deals with capacity. Instead of building a new data center, the customer can buy computing power from a supplier on an as-needed basis. Stage five is EXPERTISE. This occurs when customers buy a new generation of Web services that speed up tasks.

The key strategy in IBM is to function as an e-business on demand enterprise. The supervision of IBM’s supply chain is an imposing job. It is equal to piling $44 billion of purchases into a single system. It means pushing IBM engineers to switch to company-approved suppliers. Then a procurement representative is assigned to each development team, to make sure that they all use industry standard parts. This focuses the company onto a single effort with huge expected dividends. It is believed that the entire initiative will yield 5% productivity gains, worth from $2 to $3 billion a year for the next 10 years.

IBM has waged a successful campaign within its organization. Big Blue's e-buying offensive has been thorough and bold, putting more than $40 billion of its spend online to date (6). But despite the breadth and depth of their forays into e-procurement, IBM execs maintain a simple battle cry: start with a strategy, end with a technology. This means having a long-term business plan in place before you start choosing your weapons in the e-procurement revolution, regardless of your company size or industry.

CONCLUSION

B2B e-commerce offers cost-effective ways to manage inter-firm relationships and conduct business transactions. Let us now think year 2010 and e-procurement - chances are you won't find many professionals with titles like "buyer" or "purchasing agent," etc. The reason is that
most of the activities that occur in traditional buying processes - requisitioning, research, qualification, shopping, quoting, PO writing, releasing, supplier performance tracking, certification, expediting, "fire fighting," even negotiating - will be eliminated, automated, transferred to internal customers, or outsourced to suppliers. Much of what purchasing does today will go away in the future. Over time, e-procurement packages will be customized with increasingly complex business rules, requiring human intervention on an exceptions-only basis.

Also a second wave of purchasing process automation is currently under way. This second wave tackles more complex processes such as supplier selection, compliance and performance tracking, even negotiations. In the future, as decision support is built and expanded, these activities will be handled through advanced trading communities. While e-procurement may threaten the livelihoods of traditional buyers and may harbor dangers for undisciplined supply management organizations, its potential for creating quantum leaps in supply web effectiveness and efficiency is certainly very large. This potential will grow larger and larger and become more apparent as certain changes begin to occur in the industry for B2B e-commerce. Remaining on the sidelines, adopting a wait-and-watch approach, could prove to be a costly mistake.

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