

# **Choosing Auction Strategies as a Component of E-Commerce Strategies Based on Organizational Characteristics of Brick-and-Mortar Firms**

**Track: Electronic Commerce Applications**

## **ABSTRACT**

This paper provides a conceptual basis for choosing electronic auction strategies as part of an electronic commerce strategy and discusses auction strategy impact on the operations of brick and mortar firms. The concepts of sustaining/disruptive technological change and information intensity are used to make the case for the development of company specific strategies to achieve competitive advantage. Three auction strategies are identified and described using Porter's value chain model to provide an understanding of the impact of the auction strategies on the organization's activities and to identify important linkages between operational activities that each organization should consider carefully.

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# **Choosing Auction Strategies as a Component of E-Commerce Strategies Based on Organizational Characteristics of Brick-and-Mortar Firms**

## ***Abstract***

This paper provides a conceptual basis for choosing electronic auction strategies as part of an electronic commerce strategy and discusses auction strategy impact on the operations of brick and mortar firms. The concepts of sustaining/disruptive technological change and information intensity are used to make the case for the development of company specific strategies to achieve competitive advantage. Three auction strategies are identified and described using Porter's value chain model to provide an understanding of the impact of the auction strategies on the organization's activities and to identify important linkages between operational activities that each organization should consider carefully.

## ***Introduction***

Electronic auctions are a subset of the rapidly growing area of electronic commerce. E-commerce is generally defined broadly to include electronic data interchange (EDI), proprietary on-line services (i.e. Microsoft Network), the World Wide Web, and electronic classified advertisements (Berthon, Pitt and Watson, 1996).

Organizations use Web sites for a variety of purposes including the creation of a presence to provide company and product information, increasing customer awareness by providing product/service samples, gathering database information for customer research, handling customer complaints, questions and suggestions and selling products or services to retail customers and businesses (Hoffman and Novak, 1996; Berthon, Pitt, and Watson, 1996).

On-line shopping has been characterized as the future of retailing. However, on-line sales currently represent only a small fraction of total sales. In the first quarter 2000 retail sales totaled \$5.26 billion and on-line retail sales only accounted for about .7% of that total (Blackmon, 2000). It is estimated that business-to-business on-line sales are probably also less than 1% of total business-to-business sales (Blackmon, 2000). A breakdown of on-line retail sales by category identifies most sales as travel (projection of \$14.6 billion for 2000) followed by financial brokerage (\$11.1 billion projection) and computer hardware/software (\$9.2 billion projected sales) (Bulkeley, 2000). In terms of market penetration, online financial brokerage is projected to have a 28.9% penetration of that market in 2000, followed by computer hardware/software (at 23.4% and books at 11.4% and music at 9.9% (Bulkeley, 2000).

Potential advantages provided by e-commerce include economies of scale due to centralized inventories and demands for products, reduced retail facilities costs, reduced employee time per sale, increased employee specialization (Boyer, 2001). Start-up companies having only an Internet presence, realizing the possibilities, launched sites at rapid rates and early successes. It appeared that those companies might have an advantage over brick and mortar stores because they were more aggressive in entering the Internet sales markets. Brick and mortar retail firms tended to encounter difficulties in developing the Internet as another channel of distribution even though they had run successful retail operations for years. For example, Toys R Us, a leader in the toy industry, has had numerous difficulties in setting up and maintaining an Internet operation (Anders, 2000). Those brick and mortar firms who had

experience running successful catalog operations seemed to have made the transition with greater ease (Sullivan, 2000). A number of factors may have played a role in their early successes. Catalog retailers already had distribution and delivery systems in place, provided greater “consistency in clothing sizes and style”, and were able to use their extensive catalog distribution network to advertise on-line retail services (Sullivan, 2000). In fact, catalog shoppers were among the “fastest to shift to Internet purchases” (Sullivan, 2000).

One problem area for brick and mortar retailers is the fact that developing a multi-channel strategy, defined as “selling through catalogs, over the Internet and, for some, out of stores as well” can be problematic (Sullivan, 2000). In many instances, the retailers have found that they are competing against themselves for sales and company resources (Anders, 2000).

Brick and mortar firms need clear strategies in order to take advantage of the future growth opportunities the Internet will provide. This paper examines one e-commerce strategy, the use of electronic auctions. The types of firms that might benefit as well as the possible impact of electronic auctions on the firm and its electronic commerce strategy will be discussed.

### ***Estimating the Impact of E-Commerce on Brick and Mortar Firms***

Strategic theory literature provides several methods of evaluating the impact of e-commerce on the firm. Porter’s model of the firm as a value chain provides a means of conceptualizing which parts of the firm will be impacted by various e-commerce choices. The literature on sustaining and disruptive change and information intensity provides a means of evaluating the overall impact of e-commerce on different types of companies.

#### ***Value Chain***

Porter conceptualized the notion of a value-chain as a “collection of discrete but related production functions, if production functions are defined as activities” (Porter, 1985, p. 39). Primary activities are identified as the set of interdependent activities that result in the finished product/service at its final destination (Porter, 1985, p. 48). Primary activities generally include inbound logistics, operations, outbound logistics, marketing and sales, and service (Porter, 1985, p. 39). The activities are linked so that one affects the cost and performance of others and the linkages have to be identified and exploited by the organization (Porter, 1985, p. 48). A firm may accomplish this by either making tradeoffs between the activities or by coordinating the activities (Porter, 1985, p. 48). The strength and impact of the linkages between the various activities varies depending on the particular firm (Porter, 1985, p. 40). For example, a retail store may find that their logistics functions are the key to competitive advantage and other activities may be used to support these. A manufacturing firm may find that its operations are key and the other activities may be used to support operations.

#### ***Sustaining vs. Disruptive Technological Change***

Bower and Christensen (1995) first categorized technological changes as either sustaining or disruptive and articles have been written since that provide further examples and prescriptions for ways in which companies can identify whether the change is sustaining or disruptive and best handle the change. (for example, Christensen & Tedlow, 2000; Kaplan, 1999; Christensen, 1998; Christensen, 1997). Sustaining technologies are ones that lead to improved product performance of established products in the marketplace while disruptive technological changes lead to the development of new products that might be “cheaper, simpler, smaller. . . and. . . more convenient to use” (Christensen, 1998).

Brick and mortar retailers must determine whether electronic commerce will create sustaining or disruptive change in the way that products are sold to customers. Firms that determine the change to be disruptive may opt to use electronic auctions instead of other e-commerce initiatives because they may fit better with the firm's information intensity and are therefore a more sustaining technology than company maintained Web pages where products are sold continuously. Even those firms that decide the change is sustaining may find electronic auctions offer additional benefits and complete an e-commerce strategy.

### ***Information Intensity***

Porter and Millar (1985) examined the concept of a firm's information intensity in the value chain and in the product or service offerings. High value chain information intensity is defined as having "a large number of suppliers or customers with whom the company deals directly, a product requiring a large quantity of information in selling, a product line with many distinct product varieties, a product composed of many parts, a large number of steps in a company's manufacturing process, a long cycle time from the initial order to the delivered product" (Porter and Millar, 1985, p. 158). High product information intensity is defined as "a product that mainly provides information, a product whose operation involves substantial information processing, a product whose use requires especially high costs for buyer training, a product that has many alternative users or is sold to a buyer with high information intensity in his or her own business" (Porter and Millar, 1985).

High information intensity usually means that generally information technology has high strategic importance suggesting that those firms with high information intensity may find that e-commerce may provide a means of achieving competitive advantage organization (Porter and Millar, 1985). Those firms with high information intensity who are unable to successfully use e-commerce may also find themselves at great risk from competitors who are able to use the new technology.

Those companies having low information intensity in product/service or in the value chain may make improvements in operating efficiency by using information technology but may not gain competitive advantages. Some services may not be available at any other location other than that of the business.

Information intensity has been described as consisting of three areas: measures of the how much information is required to develop new product or services, how much information is required for consumers to use the product or service and, finally, how much information is required in the value chain to develop and deliver the product or service (Palmer and Griffith, 1998). Information intensive organizations, those providing intangibles (core benefits to customers derive from a vendor that processes transactions or provides information) will find themselves with greater opportunities to utilize electronic commerce to gain competitive advantages in the marketplace (and inversely face greater risks if they are unable to fully use electronic commerce) (Shankin and Griffith, 1996). Those companies that have low information intensive operations (manufacture physical products or provide services not dependent on information technology) will find that they may make improvements in operating efficiency but that electronic commerce will probably not become a means for competitive advantage (Shankin and Griffith, 1996).

Electronic commerce can be viewed as a sustaining or disruptive technology depending in part on the firm's information intensity. For example, financial firms such as brokerages have high product information intensity and in situations where consumers are willing to take on responsibility for their accounts in return for lower costs may find that e-commerce can be a

sustaining technology. At the other extreme, a retailer specializing in appliance sales may find that they have relatively low product information intensity but high information intensity of the supply chain may create a situation where electronic commerce is disruptive. Catalog retailers have tended to sell products having low product information intensity and have developed systems to lower supply chain information intensity. E-commerce is a natural fit.

The implementation of the e-commerce effort impacts the overall success of the strategy. The decision to utilize e-commerce as a sales method requires careful planning at both the business and operational levels and involves the development customer-facing processes such as cataloging, order entry, customer support, overall customer relationship management processes (Fingar, et al., 2000, p. 55).

### ***Electronic Auction Strategies***

Brick and mortar firms that want to invest in e-commerce may choose from a number of possible strategies including (1) web presence with no sales – informational only (2) web presence with sales on web site (3) web presence with no sales – auctions using third party (4) web presence with sales – auctions using third party (5) web presence with sales – auctions run on web site.

There are many reasons to utilize electronic auctions as part of an e-commerce strategy. One emerging technology is to sell products using electronic auctions, either at company maintained sites or at third party auction sites. Growth has been rapid. Online person-to-person auctions were reported only under collectibles and showed an increase from \$3.1 billion in 1999 to a projection of \$6.0 billion for 2000 (Bulkeley, 2000). This increase in dollar sales represented only a 4.9% share of the market (Bulkeley, 2000). Estimates are that auctions are expected to approach \$52.6 billion by 2002 (Fingar, et al., p. 39). The opportunity is present but companies must decide which auction strategies will best support their overall e-commerce strategies.

The interactive nature of the Internet lends itself to auctions (Fingar, et al., 2000, p. 40). Firms who find that electronic commerce in the form of selling products via a web site is not a sustaining technology can use third party auctions. Third party auctions can be used to increase company exposure. In order for a customer to take advantage of a company's Web site to make purchases, they must first find the company's Web page. There are a variety of listings and search engines that may provide a link to the Web page of the particular business, but they all require time and effort on the part of the customer and do not always find all available sites. Third party auctions offer the convenience of product groupings (i.e. on eBay there is a category for computers and numerous sub-categories such as CPUs) and many offer special listings on the site's opening page that may draw customers to a particular auction.

Third party auctions can be a cost saver. A Web site may be a bigger investment than many companies anticipate. The average cost of site construction may run up to \$1.5 million and the sites require considerable maintenance (Rosen & Howard, 2000). In order to keep the site current, the business must either have in-house resources or hire someone from outside the organization to keep the site updated. Even if this is outsourced, the business still incurs the cost of gathering new data for the site. The effects on small businesses can be especially intense.

Third party auction sites provide known costs and require no auction expertise and minimal investment in electronic commerce. A firm choosing to host its own auctions at the company Web page must have the auction expertise in-house or hire someone to setup the auction at the company site (for example, Egghead.com). The primary advantage to hosting

electronic auctions at the company Web site would include control of the auctions, perhaps lower costs once a break-even point is reached, and the possibility of increasing interest in the company Web site.

Electronic auctions allow the company to accomplish specific goals including the sale of small quantities or reductions of excess inventories. These goals may be accomplished with a degree of assurance that the company will not lose money because established auction sites allow the seller to set a starting price for the item and/or set an unknown (to bidder) reserve price.

### ***Electronic Auction Impact on Operational Activities***

If the company chooses to use auctions, it must then decide how auctions will be used to support the firm's strategies. There are three possible strategies: substitute, selective, and access.

A substitute strategy uses electronic auctions as a routine (defined as recurring and permanent) sales channel. The new sales channel either replaces a current channel or provides an additional channel for product sales. Companies having similar channels (i.e. sell directly to customer in small quantities) should have the expertise to switch or add this new channel with a minimum of organizational changes. Egghead is an example of a company that has operated successfully selling products by phone order. They currently offer products for sale at their Web page and have added an on-site auction feature. Since the company was a successful phone retailer, they had the customer service and warehouse operations to support the new auction channel.

The selective and access strategies are somewhat similar because both are used for non-routine sales (defined as non-recurring and perhaps temporary) of products. The selective strategy is used to sell products at auction only to accomplish specific goals, such as selling off unwanted inventories. The access strategy would use electronic auctions as a marketing tool. The company could sell products through off-site auction houses, including information about the company (and perhaps a link to the company Web page). The access strategy could be used to provide exposure to customers who might not otherwise come in contact with the company's products. Small or new companies might find this a good entry strategy.

The decision on whether to use third party off-site auctions or to develop and run on-site auctions limits which strategy the firm could use. The substitute strategy would work with either off-site and/or on-site auctions. An access strategy would only accomplish its goal of reaching additional customers by using third party off-site auctions. The selective strategy would probably be easiest (and perhaps cheapest) with off-site auctions. On-site auctions would only work if the company regularly sold items at auction. Any of these strategies would work with a third party off-site auction but a substitute strategy is best suited for company-run on-site auctions.

The three different auction strategies impact the firm's operations to different extents. The sale of products impacts into the firm's operations in a predictable order: selection of delivery channel followed by order fulfillment followed by inventory followed by production scheduling and control followed by production planning. As the sales increase these changes move beyond operations into the sales and operations planning process and back into business planning. As the changes back further into the operations of the firm, the impact on operations increases which means that there are an increasing number of adjustments or changes that must be made.

The on-line auction strategy of selective auctions would impact the firm's operations to the least extent because the product/service is already in inventory and just needs order

fulfillment and selection of a delivery channel. It is unlikely that any firm would use this strategy unless the inventories were already stockpiled and the company needed to liquidate them.

A substitute strategy would have the potential to have the most impact because the company is creating a new distribution and order fulfillment function. If selling through the new channel increases total sales of the product/service, then the firm's operations may be impacted through inventory control, production scheduling and control and back to production planning. Extreme increases in total sales will impact beyond the operations function to the firm's sales and operations planning and back to the business planning. In the case where the substitute strategy does not increase total sales (the current customers just switch from the prior channel to the new channel), the impact would be limited.

Access auction strategies would vary in impact depending on how often the firm placed items at auction and how much additional business the auctions generated. The firm could control the impact by recognizing the tradeoff between increased exposure and increased changes in operations.

The potential impact of a particular auction strategy should be considered along with the firm's assessment of their products' information intensity and whether the use of electronic auctions is disruptive or sustaining. These considerations will determine if electronic auctions are a good choice or not. The rapid growth of electronic commerce opportunities is forcing existing businesses into electronic commerce and electronic auctions may provide an opportunity for a firm that is not ready to commit to a full fledged electronic commerce effort to reap some of the benefits of electronic commerce with less risk. Companies with established Web pages can choose to use electronic auctions to provide another sales channel, to sell excess inventories, or to contact potential customers.

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