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The adoption and utilization of online auctions by supply chain managers

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ABSTRACT

This study contributes to the online auction literature by empirically examining the differences across three groups (current users, past users, and nonusers) in terms of their emphasis on supplier collaboration, cost management, and sales revenue and profit enhancement. The paper further compares the online auction usages for maintenance/repair/operations and shipping and transportation services across high and low groups in supplier collaboration and cost management. A survey of supply chain professionals coupled with appropriate statistical analysis was employed to investigate adoption and utilization of online auctions. Study findings indicate significant differences between users and nonusers. Study findings specifically indicate that current online auction users have a greater belief in the auctions as a cost containment tool than past or nonusers. It was also found that nonusers place a greater level of importance on supplier collaboration and sales revenue and profit enhancement than either current or past users.

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1. Introduction

The role supply management plays in organizations can have a direct impact on firm performance, especially in the area of cost reduction. Advances in information technology, namely the Internet, have made it possible for the supply management function in many companies to be transformed. This transformation has been referred to as e-procurement. E-procurement is defined as the use of Internet technologies for supply management and includes many activities including enterprise resource planning applications, online sourcing, and e-auctions (Hartley et al., 2004). This study utilizes data from an online survey administered to the Council for Supply Chain Management Professionals (CSCMP) and the Institute for Supply Management (ISM) professionals. The purpose of this study is to assess the extent to which supply chain managers use online auctions to manage costs and profitability and how the use of online auctions impacts collaborative relationships with suppliers. The paper is organized as follows. First, relevant literature on online auctions in the supply chain context is reviewed and discussed. Next, hypothesis development is presented, followed by methodology. Finally, we discuss the limitations and implications of this study.

2. Literature review

2.1. The rise of online auctions for the supply chain

Auctions have been employed to establish the market values of goods and to facilitate the transfer of goods in a cost effective manner for many years (Gallien and Wein, 2005; Sanders and Manfredo, 2002; Segev et al., 2001). Auctions in general

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have been defined as the public sale of something to the highest bidder. The use, number, and types of auctions increased greatly with the advent of the Internet. In the early twenty-first century, some researchers purported that within a few years most business-to-business transactions would be auction based (Ellram and Zsidisin, 2002).

B2B online auctions were established in the mid to late 1990s by firms such as FreeMarkets Inc., ITOI, and Commerce One, to name a few. Since that time much has been written about the ascendancy of online auctions into the supply chain and procurement landscape (Baatz, 1998; Jap, 2002; Kaufmann and Carter, 2004; Turban, 1997; Vigoroso, 1999). The vast majority of research was in the area of reverse online auctions (see Carter et al., 2004; Carter and Kaufman, 2007; Carter and Stevens, 2007; Emiliani and Stec, 2002; Gattiker et al., 2007; Jap, 2002; Jap, 2003, 2007; Losch, 2007; Mabert and Skeels, 2002; Percy et al., 2007; Smart and Harrison, 2003; Turban et al., 2000). Reverse auctions, also referred to as procurement auctions literally reverse the roles of the buyer and the seller. Sellers compete to obtain buyers' business with the primary objective of the reverse auction to drive purchase price downward for the buyer. As of late, reverse auction use has become prevalent in many major industries (Carter and Kaufman, 2007; Jap, 2002). Many studies espoused the use of auctions and stated that companies such as Boeing, SPX/Eaton, United Technologies, Nestle, Dell, and Intel have employed auctions to reduce procurement costs (Jap, 2002). There was also much written about the magnitude of these cost reductions. Tully (2000) reported that cost savings could be anywhere from 5% to 40%, while others reported 15% as typical (Cohn, 2000).

In addition to widely discussed cost savings resulting from online auctions, researchers have also suggested that when appropriately utilized, online auctions can also have significant strategic implications. For example, studies have identified strategic benefits such as significant time savings for the buying firm (which will greatly improve the firm's efficiency), faster and more effective information transmitting, much increased supplier pool (can easily draw suppliers all over the world), and increased competition among suppliers that works to the buyer's favor (Kumar and Maher, 2008; Leong, 2008).

2.2. Online auction growing pains

Unfortunately, as quickly as online auctions rose in stature, cracks began to appear in their façade. Two items led to a re-evaluation of online auctions. The first was the outcome of critical analyses of the most popular online auction type, reverse auctions, and its overall impact on supplier relationships (Jap, 2000, 2002; Smeltzer and Carr, 2003). Many researchers provided discourse on the stress that reverse online auctions put on supplier trust and noted numerous claims from procurement managers of being "burnt" by auctions and their reluctance to return to participate in the future (Emiliani and Stec, 2002). Pavlou and Gefen (2005) suggested that some of the most common problems associated with online auction use include: product misrepresentation, contract default, delivery delays, non-enforceable warranties, and payment problems.

The second was that many of those auction portals that were touted as new institutes for saving the supply chain huge sums of money collapsed. There are also multiple cases of online auctions sites that went from high flying dot-com status to liquidation bankruptcy or in a very limited number of cases to buyouts in a few short years (e.g., MetalSite, CommerceOne.net, Promedix.com, Verticalnet.com, Ventro.com, or Partsbase.com). In short, many of the online auction sites were built on weak business models or lacked sufficient capital to withstand the dotcom bust. It has also been reported that some online auction failures resulted from insufficient control mechanisms to necessary to ensure user satisfaction or did not offer customers the value that they were looking for (Finch and Huang, 2009; Smeltzer and Carr, 2003). Consequently, much of the research that was conducted on the use of online auctions must, like all past research, be re-evaluated periodically as it may be no longer relevant because the models that those businesses were built on and in some cases the businesses themselves either no longer exist or have been significantly modified. Given the consolidation and growth that has occurred within this industry, it is of the utmost importance to revisit this important business tool in order to empirically assess if and how businesses are employing online auctions, the extent to which auctions are used, and for what purposes they are used. This study attempts to contribute to the knowledge base of online auction by analyzing a current survey data and identifying possible differences in current, past, and nonusers of online auctions.

In today's ever-changing business environment few things remain the same. One of the few exceptions to this rule is the use of auctions to facilitate the transfer of market sensitive goods in a cost effective manner (Gallien and Wein, 2005; Sanders and Manfredo, 2002; Segev et al., 2001). Auctions are commonly used to assist in the sale of commodities with commonly accepted grades, such as livestock, petroleum based products, minerals, and grain products (Feldman and Mehra, 1993). Governments use auctions to allocate controlled assets such as exploration rights for oil and mining, airwave bandwidth, securities, and for the sale of land and timber in a transparent and equitable manner (Emiliani and Stec, 2004; Pecec and Rothkopf, 2003; Rothkopf and Park, 2001). From a business perspective many companies use auctions to dispose of excess inventory and equipment (Bapna et al., 2001) and to help reduce supply risk through the use of hedging (Zsidisin, 2003). At the retail level of the supply chain automobile dealers, some fresh seafood restaurants, and a variety of small retailers rely on auctions as a means of acquiring or disposing of inventory. With the advent of more auction venues, auctions themselves and more importantly online auctions have gained rapidly in popularity and importance (Wilson, 2002). In addition, a significant portion of the US consumer market has become familiar with online auctions thanks to consumer auction sites such as eBay (Pecec and Rothkopf, 2003; Stern and Stafford, 2006).

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