



Suppliers' behavior on the post-adoption stage of business-to-business e-reverse auctions: An empirical study

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ABSTRACT

Reverse e-auctions are increasingly being used as an alternative business-to-business e-procurement model to exchange products and services among enterprises. Despite their high interest from the academic community, there has been limited empirical study focusing on their post-adoption stage. Based on extant literature dealing with their e-business model and building on emerging concepts in B2B e-commerce, this paper intends to investigate the impact of various factors on suppliers' level of use of e-reverse auctions by examining their internal and external environment. A relevant conceptual framework is developed and examined on data collected from 60 supplying firms that currently utilize e-reverse auctions. These are analyzed through factor analysis and multiple discriminant analysis. Findings show that firms get influenced to a greater extent by their top management strategic practices and competitors' business actions. The results also provide interesting insights and useful hints to both researchers and practitioners.

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1. Introduction

Business-to-business (B2B) electronic reverse auctions, also called “e-reverse auctions” (e-RAs) or downward price e-auctions, originated in the mid-1990s and since then have dramatically changed corporate sourcing practices. Specifically, they have become an alternative way to procure goods and services among firms representing a widely applied business model for conducting B2B e-commerce (Emiliani, 2006; Schoenherr, 2008). In e-RAs, a buyer usually invites pre-qualified suppliers via a request for quotation (RFQ) who will then directly compete against each other online, in real-time, by submitting e-bids for a specified good or service (Hackney et al., 2007; Hartley et al., 2006). Suppliers can propose several bids, but each must be lower than the most recent one. According to Schoenherr (2008), the competitive nature of this procedure can result in the ultimate detection of the true market price for the participating suppliers. Commodities such as bulk materials, stock commercial goods, or non-technical services; that can be easily specified and their switching costs are negligible, are mostly preferred (Smart and Harrison, 2003).

With the recent advances in e-procurement, there is an increasing interest in e-reverse auctions and many firms worldwide use them for sourcing, whereas supply managers expect continuous expansion in the future (Hartley et al., 2006). Furthermore, their utilization is taking place in a period of globalized competition and decreased governmental regulation that has created an environment no longer favoring individual firms and dyads (Tan, 2001).

Even though the nature of this e-bidding model favors to a great extent buying firms due to their bargaining power, e-RAs seem to benefit suppliers, as well. It is generally accepted that without both parties being benefited such a procedure has no chance of longevity (Emiliani, 2000; Lee and Corbitt, 2001). Specifically, suppliers have the opportunity to view market prices

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and validate their competitiveness (Emiliani, 2000) and ultimately grow their pricing market intelligence (Emiliani and Stec, 2004), as well as having access to new customers and markets because of geographic boundaries' dissipation (Carter et al., 2004; Emiliani, 2004; Hartley et al., 2004; Kumar and Maher, 2008; Mabert and Skeels, 2002; Smeltzer and Carr, 2002, 2003). Furthermore, they may have lower inventory levels, better information transparency (Beall et al., 2003; Mabert and Skeels, 2002; Smart and Harrison, 2003; Smeltzer and Carr, 2002); and considerable reduction of administrative costs and procurement cycle times (Beall et al., 2003; Smeltzer and Carr, 2002, 2003; Carter et al., 2004; Dai and Kauffman, 2002; Emiliani, 2004; Horlen et al., 2005; Meij and Pau, 2006; Pinker et al., 2003; Presutti, 2003; Smart and Harrison, 2003; Smeltzer and Carr, 2002, 2003). In particular, suppliers can gain substantial profit from this e-procurement business model if they participate in analogous auctions which are beneficial for their profile. For example, according to Kumar and Maher (2008) and Wyld and Settoon (2003), a firm with surplus inventory or manufacturing capacity could win work at lower prices that ultimately offer supplier cost savings as carrying costs are reduced.

Given the continuing growth of this particular type of e-procurement model, a comprehensive understanding of e-RAs has become a pursuit of various researchers, as well as many practitioners. Until today, though, their examination is still in the early stages and there remains a dearth of substantial empirical research and much more to uncover. Additionally, while a considerable number of studies exploring rationales for the adoption or non-adoption of e-RAs have been published, there is a significant gap in their post-adoption stage (Hartley et al., 2004; Schoenherr, 2008). The scope of this study is to target on this gap and investigate the internal and external factors that influence the level of use of this type of e-procurement model focusing on suppliers that currently utilize them.

The rest of the paper is organized in other five sections. In session 2, the extant literature review regarding e-RAs is presented. This is followed by the description of the variables and their relevant hypotheses that are investigated in this empirical research. In Sections 4 and 5, the applied methodology and the survey's results are presented correspondingly. The last section concludes with a discussion commenting on the data gathered, paper's contribution, its limitations and provides directions for future research.

2. Literature review

Electronic reverse auctions have been principally investigated in the fields of economics, operations research and consumer behavior (Hur et al., 2007). As their utilization has become an increasing commonplace, their exchange mechanism has been studied from a number of different perspectives (Nadler and Kros, 2010). However, some of these views, from both academics and practitioners, are variously in support of and against the implementation and use of e-RAs (Tassabehji, 2010).

In specific, according to Schoenherr (2008), first research studies focused on how these e-bidding events are implemented and conducted (Mabert and Schoenherr, 2001), what products or services appear to be appropriate for e-RAs (Mabert and Skeels, 2002), and on issues concerning the anticipated savings and implications of their adoption (Kinney, 2000). Reports that followed focused on conditions for success and performance evaluation (Jap, 2002), as well as on the risks, failures and motivations of their application (Smeltzer and Carr, 2003; Sahay et al., 2006). For example, purchase characteristics, buyer's resistance, supply market structure and lack of firms' cooperation have been cited as impediment factors to e-RAs' success (Beall et al., 2003; Carter et al., 2004; Emiliani, 2000, 2004; Handfield et al., 2002; Jap, 2003; Smeltzer and Carr, 2002, 2003). Additionally, Carter et al. (2004), Jap (2002), Kaufmann and Carter (2004), Mabert and Skeels (2002), Smeltzer and Carr (2002, 2003), and Wagner and Schwab (2004) explored the characteristics of thriving e-bidding events, whereas Arnold et al. (2005) stressed that the success of an e-RA primarily depends on whether it is conducted under the right conditions.

More recent studies have focused on techniques, opportunities and problems associated with e-RAs (Schrader et al., 2004), dispelled myths surrounding their utilization (Schoenherr and Maber, 2007) or explored specific features (Nadler and Kros, 2010). For example, Căniels and van Raaij (2009) found that the strongest predictor of a supplier's opinion of e-reverse auctions is the buyer's country of origin, with those from developing countries having a more positive attitude to e-RAs than those from developed ones.

Another group of researchers has widely investigated the perceived benefits (Beall et al., 2003; Carter et al., 2004; Emiliani, 2000, 2004; Hartley et al., 2004; Horlen et al., 2005; Kumar and Maher, 2008; Meij and Pau, 2006; Wyld and Settoon, 2003) and drawbacks (Emiliani and Stec, 2004, 2005; Giampetro and Emiliani, 2007; Jap, 2003, 2007; Smeltzer and Carr, 2002, 2003; Tassabehji et al., 2006; van Tulder and Mol, 2002) concerning e-RAs' adoption. For instance, it has been stated that e-RAs provide better information transparency (Beall et al., 2003; Mabert and Skeels, 2002; Smart and Harrison, 2003; Smeltzer and Carr, 2002) and offer access to new customers and markets (Carter et al., 2004; Emiliani, 2004; Hartley et al., 2004; Kumar and Maher, 2008; Mabert and Skeels, 2002; Smeltzer and Carr, 2002, 2003). On the contrary, they can lead to unethical behavior (Tassabehji et al., 2006), opportunism (Jap, 2007) and may damage buyer-supplier relationships (Carter and Kaufmann, 2006; Daly and Nath, 2005; Emiliani, 2005; Gattiker et al., 2007; Smart and Harrison, 2003; Tassabehji et al., 2006).

Up till now, though, the vast majority of e-reverse auctions' research has been focused on the adoption stage of the assimilation process, where enterprises make the decision whether to accept them or not; and on firms' anticipated savings and implications of a future application (Hartley et al., 2004; Kinney, 2000). For instance, Tassabehji (2010) explored the factors that influence motivation to use e-RAs and procurement professionals' attitudes towards their utilization, Hartley et al.

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