Electronic Reverse Auctions: Changing the Balance of Power from Suppliers to Buyers?

Donna Charlesworth  
Coventry University  

Brian Jeffery  
Coventry University  

Gerry Urwin  
Coventry University  

Follow this and additional works at: http://aisel.aisnet.org/acis2005  

Recommended Citation  
http://aisel.aisnet.org/acis2005/38  

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2005 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.
Electronic Reverse Auctions: Changing the Balance of Power from Suppliers to Buyers?

Donna M. Charlesworth  
Brian Jeffery  
Dr. Gerry Urwin

Coventry Business School  
Coventry University  
Coventry CV1 5FB  
United Kingdom  
G.Urwin@coventry.ac.uk

ABSTRACT

This exploratory study investigates whether Electronic Reverse Auctions (ERAs) cause a ‘power shift’ from suppliers to buyers. It is important to develop greater understanding of this emerging issue in ERA literature in order that procurement professionals can benefit from ERA application.

A review of the literature identifies bargaining power determinants, forming the basis of a conceptual model. The research explores the balance of power in sourcing processes that utilise ERAs and evaluates the degree to which the power balance is attributable to ERA. Two contrasting case studies, are developed these suggest that ERAs have the potential to increase the power of buying organisations, relative to suppliers, in the sourcing process.

Keywords: Electronic Reverse Auctions; Procurement

INTRODUCTION

Since the first model for business to business online reverse auctions, pioneered by FreeMarkets in 1995 (Emiliani, 2000), ERAs have developed the profile of Purchasing (Supply Management, 2002; Arminas, 2003) and additional e-Procurement tools (Arminas, 2003). A report by I-Adapt (2003) followed by Beall et al (2003) focussed on ERA impact on buyer-supplier relationships. I-Adapt (2003) suggested “more than half [of suppliers] felt confident that they gave buyers no more power over them” (Parker, 2003a: 10), yet, suppliers also cited that “the buyer becomes too dominant” (I-Adapt, 2003: 4). Since Beall et al (2003: 54) enquire “Do E-RA’ Result in a Shift in Power from Suppliers to Buyers?” and Emiliani (2000: 184) asks “Are online auctions a truly new method of procurement, or do they simply facilitate traditional heavy-handed procurement methods?”, it is important to establish if ERAs are perpetuating traditional power-based bargaining by ‘electronic coercion’ (Emiliani and Stec, 2002a).

This paper has three objectives: first, a synthesis of the relevant literature will allow the development of a conceptual model, developing understanding of the factors that determine the bargaining power of buyers and suppliers; secondly, two case studies will be used to investigate the impact of ERAs on power determinants; and to evaluate the degree to which power balance is attributable to ERA; third, a discussion of the implications of the findings will lead to recommendations for future research. The scope of this study is limited to organisational power, as opposed to social power and power bases (French and Raven; cited in Huczynski. & Buchanan, 2001).

LITERATURE REVIEW

ERAs are coordinating mechanisms (Janssen and Sol, 2000) that connect one buying organisation and many selling organisations in real-time, with online negotiation using proprietary software. Unlike other auction typologies, sellers place multiple bids against visible competitor offers, enabling price descent and dynamic pricing. Multi-attribute formats are also available (Porter, A, 2000) that consider non-price variables e.g. continuous improvement rates (Contract Journal, 2004), for which Talluri and Ragatz (2004) have developed a useful framework.
These are commonly implemented using Application Service Providers (ASPs) (Smith and Rupp, 2002) or ‘market makers’ (Emiliani and Stec, 2002b), which fulfill ‘trust’; ‘aggregation’; ‘matching’ and ‘facilitating’ roles (Bailey and Bakos, 1997; cited in Janssen and Sol, 2000) and additional services e.g. Request For Proposal (RFP) development and market advice, excluding implementation support. Some ‘power users’ conduct ERAs in-house, whilst others have developed marketplaces, like Covisint (Wyld, 2002), ChemConnect (Hannon, 2003) and Exostar (Flynn, 2003), for the Automobile, Chemical and Aerospace and Defence industries, respectively.

ERA application is appropriate when:-

- An adequate number of qualified suppliers exist, with spare capacity (John, 2002; Mabert and Schoenherr, 2001).
- Supply exceeds demand (Mabert and Schoenherr, 2001).
- The product or service is unequivocally specified (Beall et al, 2003; John, 2002; Emiliani, 2000).
- No constraints exist e.g. long-term partnerships (Mabert and Schoenherr, 2001).
- The Buying organisation is willing to change suppliers with acceptable switching costs (Beall et al, 2003; Mabert and Schoenherr, 2001).
- Contract value/volumes are high/attractive to suppliers (John, 2002).
- Probability that current prices exceed market prices, is high (Beall et al, 2003)
- Suppliers are willing to participate in the ERA (Beall et al, 2003).

The Supply Positioning model counsels that ERAs should only be used for purchasing tactical goods, though ERAs have been used for strategic purchases (Beall et al, 2003). Tactical profit, buyer-centric markets, meet the above requirements. Buyers are more price focussed and likely to exercise buyer power in perfect competition markets. Emiliani (2000: 178) suggests that ERAs “work best when… the buyer has leverage or otherwise dominates the relationship”, supported by other literature (Supply Management, 2003a; Supplier Selection and Management Report, 2003). Therefore, even at this early stage, it could be suggested that buyer power is more of a prerequisite than an effect of ERAs. This will be explored later.

The Supplier Preferencing model suggests that suppliers will only participate in ERAs if the account is attractive with high revenues. Using Supply Positioning and Supplier Preferencing theories together, indicates that ERAs will be unsuccessful in Tactical Profit markets, when suppliers view the contract as unattractive. Therefore Tactical Profit markets do not necessarily afford buyers the balance of power.

**IMPACT OF ERAS ON THE SOURCING PROCESS**

ERAs replace price negotiations. The traditional sourcing process structure is maintained (Smeltzer and Ruzicka, 2000), illustrated in Figures 1 and 2, yet, the requirements and duration of each stage are modified. For example, upstream preparation increases, e.g. detailed RFPs (Emiliani and Stec, 2002b) but negotiation time decreases from days/weeks to minutes. This raises some important questions. How has this time reduction affected suppliers’ propensity to take risks? Stein and Wyld (2003) explain that suppliers experience a frantic ‘end game’; illustrated by ERA screenshots, encouraging “suppliers to act like desperate Las Vegas gambler” (New Civil Engineer 2002: 6).

![Figure 1. Traditional sourcing process](image-url)
suppliers withhold information e.g. price breakdowns. Instead, suppliers gain a better understanding of their competitive position (Supplier Selection and Management Report, 2002; Emiliani, 2000) benefiting current and subsequent ERAs (Stein and Wyld, 2003).

Yet, the ‘rules of the game’ are in the buyers’ favour (Emiliani and Stec, 2002a). Prior to the auction, buyers establish a reserve price and minimum bid increments reducing suppliers’ pricing freedom. Price secrecy policies create supplier information inefficiencies, forcing suppliers to rely on ‘fuzzy information’ and risk averse sellers to trade lower profit for greater certainty of contract award (Hallwood, 1996). Additionally, buyer literature and ERA pilot programmes have enabled buyers to better understand the ‘rules of the game’ and ERA processes. New consultancy services like ‘ForeSource’ (Parker, 2003b) and ‘e-Three’ (Arminas, 2004a), offering supplier advice and training, are only just redressing the balance of information.

Figure 2. ERA sourcing process

Adapted from: e-Auctions: Click to procure; Beall et al, (2003: 30)

Do ERAs affect the number of players? ASPs improve awareness of qualified suppliers (John, 2002; Supply Management, 2003b; Institute of Management and Administration, 2002) e.g. Freemarkets use ‘domain experts’ (Dupin and Saccomano, 2003; Emiliani, 2000). Though “e-tools... should never be seen as a replacement for the market knowledge of buyers” (Boulby, 2003: 18). Real time price bidding enables consideration of “up to 50-60 suppliers” (Emiliani, 2000: 179), though sourcing time constraints can limit the number of suppliers qualified (Porter, A, 2000; Tucker and Jones, 2000). Yet, buyers have a tradition of inviting incumbent, or approved suppliers with proven competence (Tucker and Jones, 2000), or trade secret confidentiality dependence (Kisiel, 2000). Moreover, an increasing number of suppliers are refusing to participate (Institute of Management and Administration, 2002; John, 2002; Trecha, 2003; Hunt, 2003), notoriously in the construction industry (Arminas, 2004b).

IMPACT OF ERAS ON SOURCING PROCESS OUTCOMES

Stein and Wyld (2003) suggest buyers are the ERA winners, achieving high price savings. Average savings range from 16% (Settoon and Wyld, 2003), 20% (LeSueur, 2001), to 20-50% (Carbone, 2003). DaimlerChrysler famously saved “estimated tens of millions of dollars” (Wyld, 2002: 38). Yet, most published savings do not account for direct and indirect losses (Emiliani and Stec, 2002b) and only 40% of lowest bidders are successful (Carbone, 2003). Emiliani (2000) and Trech (2003) suggest that savings depend on the buying organisations’ ‘starting point’ and practices. Do buyers have more power in ERAs than in traditional negotiations? IBM suggests not (Carbone, 2003) supported by 43% of ERA buyers (Hunt, 2003).
However, technology alone is not enough, “the auction is a passive tool; It is how you use it that determines its success” (Supply Management, 2003b: 41). Research by PMMS Consultants suggests that technology, without purchasing excellence, will deliver 1.2% instead of a 14% saving. ERAs are not a substitute for best practice procurement.

Terms and Conditions in resulting contracts are also buyer weighted. Emiliani and Stec (2001) found buyers lacked commitment to purchase volumes and financially punished suppliers for poor quality, though these were also used in traditional processes. As a result, many small suppliers (fewer than 200 employees) were prevented from participating in ERAs. It is important therefore, that buyers are aware of their long-term enlightened self-interest.

**IMPACT OF ERAS ON BUYER–SUPPLIER RELATIONS**

Previously, Knudsen (2003) suggested that e-Procurement tools resulted in arms’ length supplier relationships, though PMMS Consultants advise that this is the desired relationship when operating in Tactical Profit markets. Recent research (I-Adapt, 2003, Beall et al, 2003) however, suggests that ERAs have no detrimental influence on sustainable supplier-buyer relationships (Beall et al, 2003; Parker, 2002) but actually improve supplier performance against service levels (Beall et al, 2003) and five key variables from 8 – 22% (I-Adapt, 2003).

Trust between buyer and supplier has always been an industry ‘pain-point’ (Raisch, 2001; cited in Stein and Wyld, 2003). Griffiths (2003) believes ERAs promote trust, by reducing doubt in price validity. However, it is hard to see how driving prices down as low as possible can create any trust (Bartholomew, 2001; cited in Stein and Wyld, 2003), especially when buying organisations take a duplicitous approach (Emiliani, 2000).

Again, ERA impact on supply-chain relationships depends on buyer conduct. “Online Reverse auctions are a powerful tool. Consistent with any other tool, the more powerful it is, the greater can be the damage if misused” (Griffiths, 2003: 194). Beall et al (2003) found that ERAs improve the state of ethics. Yet, compared to other e-Procurement tools, ASP’s have made less ethical information available on ERAs (Abbiati, 2003). Only recently have ERA codes of conduct, like ‘e-Three Integrity’ (Supply Management, 2003c) and the ‘CIC Briefing note’ (Parker, 2004) been developed.

No direct study of the impact of ERA on the buyer-supplier power balance has been conducted, though many have the ‘opinion’ that buyers possess power therein (Draper, 2004; Beall et al, 2003; Carbone, 2003). Others suggest the balance of power depends on relative economic conditions (Beall et al, 2003; Carbone, 2003). Wyld’s e-Procurement model (2000; cited in Stein and Wyld, 2003) suggests that e-Procurement generally shifts power to buyers.

Key themes in the literature (illustrated on the left side in Figure 3, below) indicate that ERAs have changed the power game between buyers and suppliers, in the buyers’ favour, yet, the extent of this ‘power shift’ remains uncertain, since there is also evidence of supplier benefits. Space restrictions limit the detail of exposition in this paper, however a look at the determinants of power will further this debate, and some of the key elements are summarised on the right side of Figure 3 below.

Power is predominantly defined as the ability of one entity to cause changes in the behaviour of another entity, to achieve the desired objective (Farrell and Schroder, 1999; Pfeffer, 1981; Shamdasani et al, 2001). Inherent in all definitions of power is the idea of control and influence of one party’s behaviour by another (Cartwright, 1959; cited by Dapiran and Hogarth-Scott, 2003). If buyer power exists, the buyer must be able to change supplier behaviour, to achieve the buyer’s objectives.

Furthermore, the actions of the seller must represent an extension from the status quo. The buying organisation must be “able to obtain from a supplier more favourable terms than those already available to other buyers” (OECD, 1981; cited by Clarke et al, 2002: 27). Moreover, the control of the buyer “should be different from the influenced member’s [sellers] original level of control over his own marketing strategy” (El-Ansary and Stern, 1972; cited in Shamdasani et al, 2001: 22).

Power exists in industry structure. Porter, M (1980) suggests the strength of five competitive forces, including buyer and supplier bargaining power, determine an industry’s economic structure, level of competition and profits. This
dictates the strategic choices available to, and chosen by firms operating therein. It could be argued that ERAs cause industries to evolve, increasing competitive rivalry between suppliers. Moreover, as stated earlier, ERA application is partly entrenched in industry characteristics; therefore, the buyer-supplier power balance can be a determinant, rather than an effect of ERA application.

Porter, M (1980) further differentiates between the above intrinsic power and the propensity to exercise power: having power and using power (Porter, M, 1980; Clarke et al, 2002). Propensity to exercise bargaining power correlates positively with increased price sensitivity and is linked to organisational factors in the context of the external environment (Porter, M, 1980). ERA may not be increasing buyer power but encouraging buyers to utilise their existing intrinsic power, creating the illusion of an intrinsic power shift. Do ERAs develop or attract price sensitive buyers? It is naïve to imply that organisations have not previously exercised bargaining power because technological applications did not exist.

The first objective for this paper was to develop understanding of the factors that determine the bargaining power of buyers and suppliers. It is evident that key themes extracted from ERA literature and Power literature (left and right of Figure 3) overlap. From this synthesis, it can be argued that ERAs may influence the buyer-supplier power balance. It is the attempt to understand this proposed relationship further which drives the research described in the methodology section below.

**METHODOLOGY**

Variation in ERA contexts, processes, formats and buyer ethics, discussed in the literature review complicate generalisation of ERAs. The use of power is considered negatively, equated with ‘fear and intimidation’ (Kumar, 1996; cited in Dapiran and Hogarth-Scott, 2003), hence respondents may be reluctant to admit its existence. Commercially sensitive information was also required. These considerations meant trust and credibility were critical to the primary research. Research methods needed to allow exploration of ERA variables and organisational context and gain the respondents’ trust, to accurately demonstrate the affect of ERA on buyer/supplier bargaining power. An interpretivist approach was appropriate given the above considerations. This enabled discovery of the “details of the situation to understand the reality” (Remenyi, 1998) e.g. ERA variations and respondents’ perceptions of ERA.

This research adopted a case study approach (Riley et al, 2000), “an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Robson, 2002; cited in Saunders et al, 2003: 93). This was suited to the ‘what’ and ‘how’ questions proposed and enabled investigation of the context complexity, given its detailed, qualitative and interactive nature and high validity level (Yin, 1994). Each case study considered the buyer, supplier and ASP perspective. Only direct participants responsible for the sourcing process provided data. Such persons had necessary detail and competence to provide information. Sample selection criteria included auctioned product/service; organisational type of ownership; characteristics of Purchasing department (structure, experience, size and professionalism); and ASP. Successful suppliers were the most accessible given incumbent relationship with buyers, though this may create bias in the research.

Case 1: This buying organisation, in the utilities sector, tendered three products, stationery, copier paper and computer consumables, simultaneously, using three separate ERAs in January 2003. At the time of the sourcing process, the centralised Purchasing department employed around 30 professional buyers - this was their second ERA experience. The successful supplier for stationery and copier paper was the leading independent stationer and fourth largest stationery supplier in the UK at the time. The ASP was experienced in the utilities and public procurement sectors.
Case 2: The buying organisation, a Metropolitan Borough Council, tendered a contract for copier paper, using one ERA, for the first time, in February 2003. This organisation was highly decentralised with only 2.5 FTEs with purchasing experience. The successful supplier was a local independent paper merchant, £14 million annual turnover. The ASP had not previously conducted ERAs in UK public sector. In-depth interviews generated qualitative explanatory insights (Riley et al., 2000). Semi-structured interviews, consistent with the research considerations, enabled exploration with regard to the identified power determinants and ERA effects therein.

RESULTS AND DISCUSSION

The findings are presented in two sections, corresponding with the research questions. The first determines the buyer-supplier power balance during the investigated sourcing processes. The second analyses the extent to which this diagnosis is the result of ERA. Both sections are divided into three subsections as outlined in Figure 3.; Intrinsic Power, Propensity to Exercise Power and Evidence of Power in the Sourcing Process. These results are illustrated in Appendix 1 Case Study Analysis.

This study aimed to identify and develop understanding of the factors that determine the bargaining power of buyers and suppliers, and this was achieved through the synthesis of the academic literature in this field, resulting in the conceptual model illustrated in figure 3. Further, two case studies offered evidence of power determinants and some evaluation of the degree to which the power balance is attributable to ERA’s (appendix 1). These factors were divided into three categories; intrinsic power, propensity to exercise power and evidence of power throughout the
sourcing process. No evidence of significant intrinsic buyer power was found. However, supplier power was less obvious than that of the buyers, who were very willing to exercise any power they had, or perceived they had. This suggests that, in relative terms, buyers had power. Yet, evidence throughout the sourcing process indicated both buyer and supplier power, again suggesting that the ‘power-shift’ was not absolute. Interestingly, the highest intrinsic power, and propensity to exercise power in case 1 was moderated by trust in the buyer-supplier relationship, thus power may not necessarily be a factor in all ERA processes.

The degree to which this power balance was attributable to ERA, was evaluated by investigating the impact of ERAs on bargaining power determinants. The Secondary Literature Review also established that ERAs are mainly applicable in buyer-centric supply markets and questioned whether the perceived power-shift was ‘reality’ or ‘illusion’.

The ‘reality’ was explored by investigating changes made by ERAs to power determinants. The effects of ERA on intrinsic power and propensity to exercise buyer power were found to be more extensive in case 2, than case 1, highlighting the importance of ‘starting points’. Buying organisations with less procurement resources and experience have more scope to realise ERA potential; to increase the number of suppliers willing to participate in the sourcing process, decrease process costs and gain additional information resources, thus increase buyer power. When ASPs are selected and used as consultants as opposed to ERA software providers, power factors are affected more, in the buyers’ favour. To implement successful ERAs buyers must also have detailed specifications and contract information. Therefore, to some extent, ERAs are demanding and implementing best practice procurement, which places the buyer in a relatively more powerful position.

However, best practice also entails the development of open and honest buyer-supplier relationships, to which ERAs have been found to contribute. ERAs require a ‘level playing field’, increased trust and facilitate face-to-face discussion. Thus for organisations with high ‘starting points’, power may not be an issue. Yet, suppliers’ reaction to the word ‘e-auction’ indicates mistrust of ERA application, thus, power was a factor in the investigated ERA processes. As suppliers perceive cost motivation due to ERA use, perhaps ERAs increase buyer power irrelevant of ‘starting points’.

The ‘illusion’ was explored by researching ERA application determinants, which exceeded the number of ERA effects. The number of qualified alternatives, the main application factor, was one of the two main intrinsic power determinants that generated buyer power in most cases. Additionally, the importance of the product to the purchaser, product differentiation, and product specification were key reasons why products were chosen for ERA and key areas in which propensity to exercise power was high. ERAs are used in buyer-centric markets, by the price sensitive buyer.

This study has found that whilst ERAs do increase buyer power slightly, depending on the buying organisations’ ‘starting point’, the experience of the ASP and the extent to which ERA increases face-to-face discussion, ERAs do not cause a ‘power-shift’, since they are applied in buyer-centric supply markets only when the buyer has high propensity to exercise power. In the investigated copier paper and stationery markets power did not move from supplier to buyer because the buyer already had the balance of power. In the computer consumables market, power remained with the seller despite ERA application. It can therefore be argued that the perceived shift in power from supplier to buyer is more ‘illusion’, than ‘reality’.

Exploratory case research such as that conducted here obviously raises issues that form the basis for future research, not least that such findings are not of themselves generalisable, and therefore need confirming. In addition such issues as: variation through frequent use of ERA’s; ERA use in the private sector; and the sustainability of any change in the balance of power would provide interesting topics for future research.

REFERENCES


New Civil Engineer (2002) ‘Suppliers slam Las Vegas style reverse auction’, *New Civil Engineer*, 5 December, p6


Parker, R (2003a) ‘Suppliers back e-auctions for better long-term deals’, *Supply Management*, 10 April, p10


Supply Management (2003b) ‘E-auctions are only a tool, branch told’, *Supply Management*, 27 March, p41


Trecha, S (2003) ‘E-technology should enable, not drive, efforts to reduce costs with suppliers’, *Pulp and Paper*, 77, 2, pp36-40


**COPYRIGHT**

Charlesworth, Jeffery & Urwin © 2005. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.
Throughout the sourcing process, evidence of both buyer and supplier power was found. Process outcomes indicated buyer power; yet, incomplete seller information suggested seller power. Limited information provided by buying organisation 2 and low trust indicated higher buyer power. Moreover, high levels of trust and cooperation in case 1 indicated that power may not have been a factor.
Electronic Reverse Auctions
Donna Charlesworth