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Online Reverse Auctions: who benefits?

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Abstract

The use of auctions as a tool for procurement by businesses existed well before the advent of the Internet. Initially the Internet was used to duplicate existing offline auction facilities. In the late 1990's online B2B auctions were proliferating and were being adopted in a wide variety of circumstances. The reverse auction tool has evolved to take advantage of Internet technology and online auctions have been identified by many large organisations as a tool to achieve procurement savings. As companies adopt this technology it is important for them to understand the implications of this type of procurement. This paper adopts a case study approach to identify the issues for both buyers and sellers using this type of B2B application. It describes the conduct of a reverse auction, from the preliminary steps all the way to the final awarding of the contract. The case study is viewed through the eyes of a supplier undertaking a reverse auction for the first time. The main outcomes show that the auction vendor and buyer were major winners with the supplier expending considerable time and effort to participate in the auction only to realise that the auction places cost above all other factors in awarding the contract. The importance of cost over service delivery, customer support and buyer-supplier relationship was the bitter pill the supplier had to swallow.

Keywords

B2B e-Commerce, procurement, Online Auctions, e-Procurement

INTRODUCTION

As organisations extend the reach of their information systems into the supply chain e-procurement has become a driving force for achieving substantial cost savings. One mechanism that facilitates e-procurement is the reverse online auction. Reverse online auction are delivered by intermediaries and promise to deliver savings up to 20% for the buying organisations. The rhetoric of B2B collaboration has 'win-win' scenarios for all who participate in online auctions. Is this true? This paper will present a case study of an Australian reverse online auction asking the basic question, who wins? It will analyse the online auction from the supplier's viewpoint and question the value proposition of the reverse online auction as a tool in B2B e-commerce.

THE AUCTION MODEL

Electronic commerce has increasingly adopted a wider and wider definition as innovative applications are developed. One recent application that has sought the 'e' treatment is procurement. Activities that could be applied to the e-Procurement (Minahan, 2001) process include: advertising tenders; electronic submission of tenders; electronic ordering; internet sourcing via third parties; electronic mail between buyers and sellers; electronic mail in contract management; research into supplier markets and integration of procurement within the financial and inventory systems. Accordingly there are a plethora of tools that have been developed to support these business activities.

Procurement And The Auction Model

Many research organisations predict massive growth in the B2B market. Bowles (2000) sees the global B2B market growing to US\$968 million in 2002 and then US\$1551 million in 2004 but these figures pale into insignificance when considering other market analysts predictions; Gartner: US\$2.9 trillion by 2003 AMR: US\$5.7 trillion by 2004, Forrester:

US\$7.29 trillion by 2004 (Regan, 2001; Hersch, 2000; Diba, 2001). Whilst these predictions should be accepted with caution there does seem to be a 'sea change' in how procurement is conducted in organisations. B2B promises (McGarvey, 2000) to drive costs down and streamline procurement operations. Metcalfe *et al.* (2001) predict that European companies could achieve a 50% productivity through internet enabled B2B processes by 2010.

O'Malley (1998) saw the Web being "a giant bidding war" and Queree (2000) commented that online auctions were becoming a mainstream business model. The auction model has settled into the B2B marketplace and also was developed for various e-Government (NSW, 2001) applications. Wyld (2001) saw the auction model being used in procurement, disposition of used assets and internal management. Batsone (1999) asked the question whether the price of everything is negotiable? At the heart of the auction economy is the concept of pricing and more importantly dynamic pricing. Dynamic pricing simply means that a good or service is priced according to what the market determines. Opensite(1999) provides a model to clarify the dynamic pricing categories (Figure 1).

BUYERS	Many	Auction (1 seller many buyers)	Exchange (Many buyers Many Sellers)
	One	Haggle (1 buyer bargaining 1 seller)	Bidding (1 Buyer Many Sellers)
		One	Many
		SELLERS	

Figure 1: Dynamic Pricing Categories

The Web introduces the element of real-time pricing and further elevates the importance of personal price elasticity. Customers will determine the price depending upon the price/value trade-off. No longer is the supply/demand model (Batsone, 1999) determining price, a more complicated customer centric price/value trade-off determines pricing. Airlines use this principle when they have multiple price points for the one product.

E-Procurement Model

David Wyld (2001) developed an e-Procurement model that looked at the e-Procurement process from drivers through impact to imperatives. The model is presented below (Figure 4). The model above demonstrates some of the changes that are affecting the e-procurement value chain. Organisations on the buying and selling side will need to address these challenges to capture both the tactical cost control and the more strategic market developments.

Online Auctions

There are several differing auction formats used in online auctions (Wyld, 2001). English, Yankee, Dutch, Sealed bid, Vickrey and Reverse auctions are some formats used. Kafka *et al.* (2000) predicted that by 2004, US\$746 billion of business will be conducted through online auction models based on dynamic pricing. Many of the Fortune 1000 companies have used online auctions as a tool to reduce prices for goods and services (Emiliani, 2000).

One of the pioneers of online B2B auctions is Freemarkets, which was established in 1995 and launched their online auction site in 1999. To date they have conducted auctions involving more than 19,000 suppliers from more than 70 countries worth US\$30 billion (Freemarkets, 2002). In the first quarter of 2000, they conducted auctions involving 47 Fortune 500 buyers and 4000 suppliers (Jan and Wu, 2000). Mayne Group, one of Australia's leading companies with major interests in health-care and logistics signed a three-year deal in 2000 with Freemarkets to manage their procurement and operate online auctions. Other major B2B auction facilitators include Ariba, CommerceOne, Andale, Elcom.com and Verticalnet. The B2B auction facilitators usually work with buyers to select bidders to participate in each auction, develop specifications in detail, and tailor the bidding process to the situation. This service is billed to buyers accordingly. There could be additional costs based on a percentage of the anticipated savings (Messmer, 2000). Freemarkets (2002) promote the ability of their auction format to decrease services prices by

16-18% and goods by 2-3%. The reverse auction process involves intensive work on behalf of the buyer and market maker to structure the bidding process and prepare suppliers for qualification. The process is represented below (Table 1) (Buyers.gov, 2001).

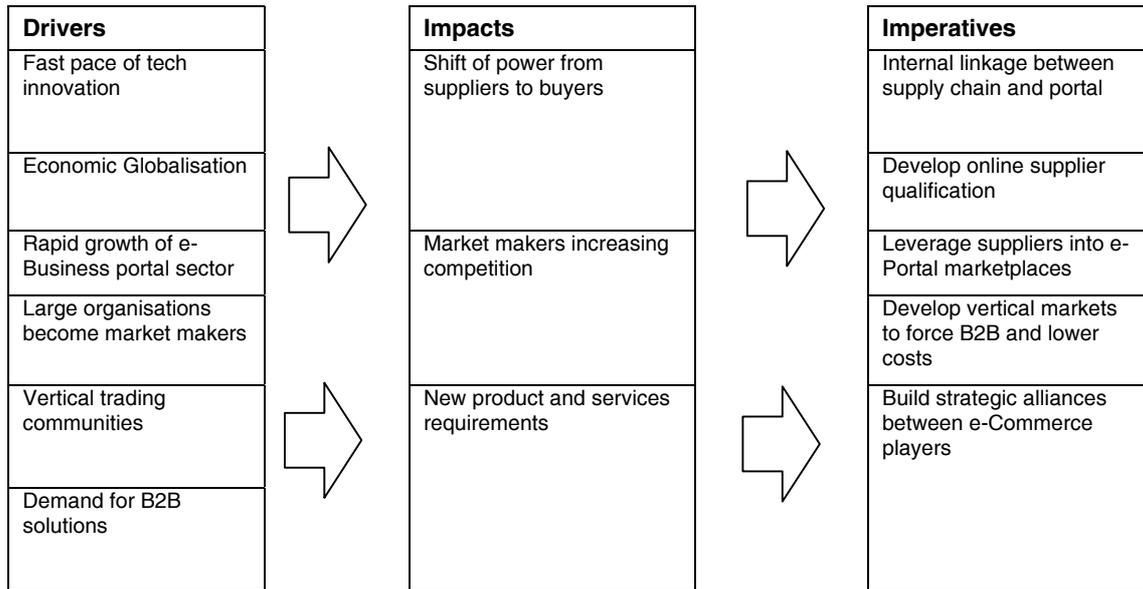


Figure 2: e-Procurement Model (Wyld, 2000:4)

1) Market Made (Client focus)	Make market (specifications)
	Identify Suppliers
2) Pre-Qualification (Supplier Focus)	Pre-Award Review
	Contract/schedule, Specifications
	Ability to deliver, Quality assurance
	Past performance, Responsibilities
	Set-up technicals
	Approved suppliers listing
	Identify specific terms and conditions
	Invite suppliers
3) Pre Auction Planning (Client/ Supplier)	Set up Auction
	Create auction content, Set-up security
	Register bidders, Ensure readiness
	Contingency planning
	Supplier Auction Strategy
4) Auction Activity (Supplier)	Conduct Auction
	Suppliers bid real-time, Buyers monitors auction
	Winners selected, Contingencies ready
5) Post Auction (Client)	Contract write-up

Table 1: Reverse Auction Format. (Adapted from Buyers.gov, 2000)

Research Questions

The primary objective of the study was to analyse an Australian example of reverse auction procurement and analyse the auction process and outcomes in view of the dynamic pricing model presented in Figure 1 and the drivers and impacts e-procurement presented in figure 2. The viewpoint of the supplier will be presented, as there is a dearth of literature detailing the impacts upon a supplier participating in an online auction. This will be presented in a case study. More specifically the research questions of the paper are:

RQ1. How is an online auction conducted?

RQ2. What are the business impacts of the online auction?

RQ3. Does the reverse auction have a future?

Methodology

Case study research methodology was used as this paper presented an exploratory look at implications of reverse online auctions. Yin(1994:35) emphasises the importance of asking 'what' when analysing information systems. Yin goes further and emphasises the need to study contemporary phenomena within real life contexts. Walsham (2000:204) supports case study methodology and sees a need for a move away from traditional information systems research methods such as survey toward more interpretative case studies, ethnographies and action research projects. Several works have used case studies (Chan, 2001; Lee, 1989; Benbasat *et al.*, 1987) in presenting information systems case-study research. Cavaye (1995) used case study research to analyse inter-organisational systems and the complexity of information systems. The data collection process included examination of existing documentation, content analysis of email, interview of actors and direct observations. The auction event was analysed from the supplier organisation viewpoint with particular emphasis on the participants and outcomes of the event.

In April 2001 AusBuyer commissioned Auction.Com to make a market for the logistics component of their manufacturing activities. The market was broken down into 19 channels both state and nationally based. AusSupplier received notification that a contract that it had partially carried out for three years was to be auctioned on the Internet. AusSupplier started a six-month exploration into online auctions and B2B procurement. Considerable time and financial resources were expended in firstly learning and then secondly participating in the reverse online auction. The three participants in the auction event were AusSupplier, Auction.Com and AusBuyer.

CASE STUDY

RQ1. How is an online auction conducted?

AusSupplier is a micro-business with 2 full time and 5 part time consultants. It is an 'infomediary' or in older language a 'middleman'. AusSupplier turns over A\$10 million and has a small client base. The role of the 'infomediary' is to win a contract for packing and exporting commodities into the Asian marketplace. AusSupplier wins a contract from a large manufacturer (AusBuyer) and then negotiates transport and shipping rates. The commodity that was to be auctioned was worth about A\$1.6 million per year. Currently AusSupplier was responsible for about 20% of the contract and a major transport company was responsible for the remaining 80%. AusAuction.Com is a multi-national market leading e-Commerce company specialising in e-Procurement and auctions. They have about 1000 employees worldwide and operate for about 140 large multi-national clients. They have conducted about US\$21 billion in auctions resulting in savings of about US\$6 billion. It is obvious when looking at Auction.Com and AusSupplier the difference in size, technology and more importantly the chasm in understanding e-Business. AusBuyer is an Australian manufacturer that is part of a global organisation based in US. The global organisation was undergoing financial strain due to the poor commodities market worldwide. In order to reduce costs AusBuyer turned to Auction.Com to conduct a number of auction events. This case study outlines just one of the 19 auction events conducted for different services. Once again we see a major difference between the globally based Auction.Com and AusBuyer and the micro-business AusSupplier.

The Auction Process

The auction event was an Australia wide procurement exercise focussing on logistics and transport. The entire procurement operation of AusBuyer was placed in 19 lots with each lot undergoing a 1.5 hr auction. For AusSupplier the auction event went through 5 stages;

- Market-made (client),
- Pre-qualification (supplier),

- Pre-auction planning and Strategy (client/supplier),
- Conduct Auction (supplier),
- Post auction (client).

In stage 1 (Market-made), AusSupplier undertook research into the reverse auction process, then received a CD containing web based bidding software and documentation from the manufacturer. This documentation consisted of over 50 files including tender documents, quote spreadsheets, specifications and information. It was updated four times before the final auction. Initially the deluge of information was overwhelming.

I have hours retrieving, printing, reading and just trying to make sense of the process.

Managing Director, AusSupplier, May 2001

At this stage considerable effort was expended in determining if AusSupplier could participate in more than one channel (auction). It was felt that other channels, including some interstate, could be bid for but a more conservative approach was adopted due to uncertainty in the online auction process.

Stage 2, (Pre-qualification), involves Auction.Com and AusBuyer weeding out non-performing suppliers but at the same time try to ensure an adequate number of bidders to be able to create the auction dynamic. AusSupplier had no idea how many other companies had pre-qualified, it only learnt of the number at the auction event. Pre-qualification also introduces some financial parameters for the event. Auction.Com set the switching price at A\$1.3million, that is, the price when AusBuyer would consider awarding the contracting away from the existing supplier. Market research by AusSupplier showed the existing contract was worth A\$1.6million. The difference between the price of switching to a new supplier and the existing contract price was about 18%. This figure is similar to the figure quoted in the advertising material by Auction.Com that quotes savings of 18%. AusSupplier again had expended considerable resources at this stage; two site visits, 4 sub-contractor meetings, 200 phone calls, 45 emails out, 15 emails in, 30 hours of managing director time and 20 hours of consultants time. The bill for participating in the reverse auction was climbing.

Summarising the financial details thus far:

AusSuppliers market entry price	A\$ 2 million
Existing contract price	A\$ 1.6 million
Reserve (Switching) price	A\$ 1.3 million

The AusSupplier's high market entry price (A\$2 million) was formulated on the basis of entry into an unknown scenario. It was formulated on the rate of moving the commodity by the tonnages quoted by AusBuyer with a margin built in. At this stage it became apparent that the auction format was introducing an element of incredulity to the quoting process.

We are flying in the dark, some cowboy could underbid us and have no real idea of what is involved in the job...

Managing Director, AusSupplier, June 2001

No idea of how many others bidders, no idea of their market entry point and only one Auction.Com tutorial on a simulated auction. Being pre-qualified and waiting for the auction became quite stressful for the AusSupplier. Questions were raised in regard to; what strategy should be adopted? what would happen if the power failed, or the ISP went down? what would be the 'bottom-line' position, would AusSupplier be swept up in the auction dynamic? Who would press the buttons, would they be able to keep their nerve? Auction.Com conducted a training session from their Asian headquarters and AusSupplier personnel had soon mastered the auction interface.

In Stage 3 (Auction Strategy), AusSupplier developed three strategies for the auction; entry, middle and end strategy. The entry strategy was to come in at the high pre-qualification bid after about 3 minutes and then watch the market develop. The middle strategy was to

maintain control on the screen and drive the bids down in a controlled manner. During the auction event AusSupplier would not know who were responsible for the other bids. The only strategy for the end was to be in the 'end game' and if they did not have the lowest bid then at least they would be under the switching cost at the end. This was felt would show AusBuyer that AusSupplier was a serious bidder. It was stated that AusBuyer was not under any obligation to accept the lowest bid. AusSupplier had seen sample auction events and knew the 'end game' was frantic.

Stage 4, (Auction), was delayed a week with a late flurry of updates and clarifications. Finally the day of the auction arrived and AusSupplier at 10:33am pressed the bid accept button to indicate they were part of the event. Within 5 seconds AusSupplier's early and middle strategies were destroyed. They now saw three other bidders with one bidder right on the switching price (A\$1.3 million). This was felt to be a ploy to scare off other bidders and they were confident that this was the existing contractor who had 80% of the existing contract. After about half an hour another bidder entered and soon started to drive the bidding price down further. Aus Supplier's strategy was to drive down the bids to the reserve price. As the scheduled auction time was nearing completion the bidding intensified and AusSupplier's phones were put on hold. A bid in the last minute extends the auction by minute. There were three bidders left. There was tension in AusSupplier personnel as the low price previously agreed upon was passed. This resulted in the staff member in front of the computer handing over control to the managing director. The auction entered the phase that Auction.Com refer to as the 'auction dynamic', the dynamic that drives the price down even further. The reserve was driven down \$90,000 in 7 minutes. The number of bids in the last 7 minutes tripled all bids in the previous 1.5 hours. The managing director became caught up in the auction dynamic as he did not want to lose to the other bidders. AusSupplier's lowest bid was based on an agreed margin of 12% was reduced to 5% towards the end of the auction. AusSupplier did not win the auction but that did not mean that they had not won the contract. They were in the game at the end and were determined to drive the market down to inflict some pain on the other bidders.

In Stage 5, (Post Auction), AusSupplier was told that they would have to wait 5 weeks for the result, however it came much earlier. AusSupplier were unsuccessful, they had lost the 20% of the contract that they had owned previously. The managing director took about two weeks to get over losing to the competition. There are several issues that need to be discussed concerning the winners and losers of reverse auction e-Procurement.

DISCUSSION

RQ2. What are the business impacts of the online auction?

So who really benefited from the auction event? Auction.com was the big winner by gaining their initial consulting fees for setting up the auction event and also gaining a percentage of the savings from AusBuyer. They can also use this auction event to demonstrate their auction technology to other large Australian companies. AusBuyer appeared to be the next big winner with a tangible savings of a 20% reduction in the cost of the contract. There were minimal switching costs as they awarded the contract to the company who held the majority (80%) of the contract previously. However from this Auction.com costs need to be subtracted. An intangible benefit was the pre-qualifying process that identified future suitable suppliers. It appears the pre-qualifying process was flawed in one of the other auction events conducted on the same day when only one supplier was identified and this was the existing contractor. The auction event still went ahead and resulted in a 5% increase in the contract cost. In this case the auction dynamic was missing and therefore no savings were made. AusBuyer can also use the auction event to determine how low different suppliers can go which can be the basis for future negotiations. AusSupplier has prided itself on providing a service second to none. Any glitches in the supply of the commodity, any problems in logistics or shipping never presented a problem. In this case AusBuyer may have been under global pressure to drive down prices, but will there be a price to pay when the contract lapses and a premium needs to be paid to bring in another supplier to complete the contract. This scenario occurred three year prior to the online auction being adopted.

Another winner appears to be the supplier who won the contract. However prior to the auction they had 80% of the contract at a price of A\$1.28 million. They now have the full contract at approximately the same price. Twenty percent more work for minimal extra money. Two impacts from the Wyld Model (Figure 2.) seem to be supported in this case study. There was a considerable shift of power from the supplier to buyer as evidenced by the dramatic drop in contract spend and the market makers did increase competition within the marketplace as evidenced by the increase in bidders in the auction format. The imperatives for the buyer in the Wyld model (Figure 2) were supported. Suppliers were leveraged into the auction portal, a strategic alliance was formed between the buyer and auction vendor and finally an internal linkage was created between the supply chain and then auction portal.

RQ3. Does the reverse auction have a future?

Smeltzer and Carr (2000) after conducting a number of interviews with companies involved in reverse auctions found that buyers were initially attracted to online auctions due to the promise of a reduced purchase price and believed that the suppliers were motivated by an improvement in communication about the market and the opportunity to obtain increased sales. Reverse online auctions appear to be an essential tool for procurement needs. However many of the companies who use online auctions as buyers are reluctant to participate in them when they become a supplier (Manufacturingnews.com, 2001). The online auction is based on the premise that the buyer is being overcharged by its current suppliers, and the online reverse auction will achieve the lowest price. But where does the price reduction come from? The supplier who eventually won the contract has to provide more services for roughly the same amount of money. Emiliani and Stec (2001) believe that the risk of losing current business coerces suppliers to participate in the auction event. They are electronically coerced by watching other suppliers bids in real time compelling them to bid which was the case with AusSupplier when they went below their agreed price. Many analysts (Wyld, 2000; Deise *et al.*, 2000) believe that the use of the Internet as a medium for business provides the opportunity for companies to restructure their supply chains in collaboration with the other supply chain partners. One of the imperatives in the e-procurement model proposed by Wyld (2000) was to build strategic alliance between business partners. This involves both buyers and vendors working collaboratively to provide cost efficiencies and add value to products and services. Many believe that this strategic collaboration is essential to survive in the e-world. The premise of the Value Trust Network (VTN) (Raisch, 2001) sees the supply chain being enhanced by the established relationships between buyers and suppliers, not only by the adoption of Internet technology. If reverse auction e-procurement is to enhance enterprise competitiveness then value must be delivered to ease industry pain points (Raisch, 2001; Emiliani, 2002; Jap, 2000) with trust being enhanced between suppliers and buyer. The question needs to be asked to what extent do reverse online auctions contribute to this value and trust? The whole issue of driving costs down to the lowest possible level would provide a serious impediment to any creation of value (Bartholomew, 2001) and trust. The attributes and skills that buyers would like to foster in their suppliers are placed at a lower priority to price. Do companies really want business only run on lowest price? Rapport (1998) believes that a reverse online auction is only a 'quick fix' to satisfy management objectives of increased shareholder value.

CONCLUSION

There is much hype surrounding e-procurement and its associated tools. Many companies are drawn to reverse online auctions as a means of reducing costs, as a 20% margin organisation will render a \$5 saving for every \$1 saved in procurement. But these companies need to weigh up the initial savings against the possible detrimental impact these auctions could have on their supplier relationships. Reverse auctions do not teach buyers and sellers how to jointly solve supply chain problems and collaboratively develop new products and services. Emiliani posed several unresolved question in his study of reverse auction (Emiliani, 2002); where does the cost saving come from? Are reverse auctions one-time events, will online auction vendors replace the in-house buying function? Is there a conflict between supply chain management and online auctions and finally do online auctions actually increase productivity. In this case the reverse auction did render massive

cost savings, did replace existing in-house procurement and finally did increase supplier distrust. The fundamental question of how much value was added through the reverse online auction will need to be analysed over the length of the contract. Will we see another online auction with a 20% savings in the procurement function in two years? The managing director of AusSupplier commented; "20% now, 20% next time, if we are still in business". AusSupplier had expended considerable resources to prepare for the auction event and ended up losing the contract. But a greater risk was that they got caught up in emotion associated with the competitive nature of auctions and were getting close to bidding unreasonably low prices. Since the auction event AusSupplier has been approached to participate in another auction that has the potential to increase their business. They are reluctant.

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