Identifying the Value Contributions of e-Marketplaces at Various Stages of the Organisational Procurement Process

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Abstract

E-marketplace platforms can be used to improve upon the procurement performance in an organization and offer key benefits such as reduced purchasing costs, better information, and better collaboration. While there are various studies discuss the benefits or value contributions that organisations can obtain from e-marketplaces, many organisations are reluctant to participate in e-marketplaces due to the mismatch between the value expected and the actual value experienced by organisations from e-marketplaces. Employing an in-depth case study approach, this study systematically identifies the value contributions of e-marketplaces used by the case organisations at the various stages of the procurement process for purchasing indirect goods. Our study findings demonstrate that e-marketplaces value contributions can be experienced by organisations in various stages of the procurement process, while each value can be experienced in multiple stages and each stage can experience multiple values. This study offers additional insights for both practitioners and researchers into the importance of e-marketplaces in supporting the procurement process and the values that can be expected at different stages of the procurement process.

Keywords

E-marketplace, Procurement, Value Contributions

1. INTRODUCTION

Procurement represents an important function for organizations as it accounts for a large portion of organisational spending - organisations even spend up to 70% of their revenue/operational budget on purchasing goods and services (Gebauer and Segev 1998). The procurement function is described as the identification, sourcing, access and management of external resources that an organisation requires to achieve its objectives (Chandrashekar 2007). Its role is to explore supply market opportunities, locate and manage a more potentially global current supply-base (Davila 2003), and use sourcing strategies to achieve optimal supply outcomes for an organisation, its stakeholders and customers (Elmaghraby 2007). Despite such importance, procurement function still suffers from two chronic inefficiency problems: a) its labor-intensive nature may result in managers spending considerable time on ‘non-value-added activities’ (Puschmann and Alt, 2005); b) the traditional procurement process permits maverick buying practice where employees make unplanned purchases from non-preferred suppliers at a higher prices (Turban et al., 2008). These problems can be effectively addressed by e-marketplaces which can offer considerable value contributions to buying organisations.

There exists a rich body of literature on how a typical e-marketplace can provide value contributions to the buying organisations (Kioses et al., 2006). However, much of existing literature includes claims based on e-business trade reports which lack scientific rigour and therefore there has been a mismatch between the expected and the actual value contribution experienced by organisations (Grey et al. 2005; White et al. 2007). In addition, there is still a disagreement about what and how value contributions are actually received by buying organisations from procuring through e-marketplaces. For example, some studies have reported varying degrees of value contributions from e-marketplaces to the procurement function of buying organisations (Ash, 2005). Additionally, it has been reported that some large organisations have shelved their e-procurement projects after failing to receive the initially expected value contributions from e-marketplaces (Abery, 2002). Kauffman (1998) suggests that when examining the value contributions of information technology, it is important for organizations to look at the focal point where the technology has greatly impacted i.e. the business process. Current literature does not report any empirical study which has systematically analysed how organisations have received such value contributions at various stages of their procurement process.
In order to better understand the actual value contributions of e-marketplaces, we seek to systematically explore how e-marketplaces can provide value contributions to the various stages of the procurement process of organisations. For this purpose, we first identify and classify various value contributions that e-marketplaces can offer to procurement functions of organisations, identified from the literature. Then, we conducted an in-depth case study with a major airline company to assess which value contributions are experienced in each stage of procurement and draw a number of lessons from the experience of the case organisation.

Our study findings indicate that e-marketplaces value contributions can be experienced by organisations in various stages of the procurement process, while each value can be experienced in multiple stages and each stage can experience multiple value contributions. However, interestingly, the use of e-marketplaces has not necessarily led to more competitive prices over a long term especially when dealing with items that have been purchased through the electronic markets in the past. In addition, there is no evidence to suggest that the use of e-markets has reduced the time and effort in locating suppliers. Thus, by exploring how the case organisation achieves value contributions from the e-marketplaces as part of its effort towards adopting a complete electronic procurement function, our study helps increase the awareness of other organisations of the potential benefits of internet-based procurement technologies.

The rest of the paper is structured as follows. The value contributions from e-marketplaces reported in the literature are discussed. Then, the research approach is described, followed by an overview of the participating airline company and its procurement process. The case study data is analysed and various implications of the findings are presented. Finally, the paper concludes by outlining the contributions, some limitations, and future research possibilities.

2. LITERATURE REVIEW

An analysis of the existing e-procurement literature identifies four major value contributions of e-marketplaces to an organisation’s procurement process: cost value, efficiency value, search value and information value. Firstly, B2B e-marketplace platforms can reduce cost via lowering transaction costs, generating competitive price for buying organisations, lowering human resource costs through the automation of various procurement processes and reducing the effort and lowering time required for searching for competitive suppliers (Brunelli 2000; Moozakis 2001). Secondly, B2B e-marketplace platforms improve the efficiency of procurement processes through reduction in the time required to process and complete transactions (DeVaraj; Melville 2004; Mukhopadhyay 2002; Subramani 2004). Thirdly, they enhance the search for suppliers/buyers by increasing the number of potential suppliers/buyers that can be accessed and reached as well as matching buyers and sellers (Hartley 2004; O’Leary 2002; Subramaniam 2004; Kajewski 2004; Anderson 2001). Finally, e-marketplaces improve the visibility and the flow of information related to market price and other procurement related information (Golicic 2002; Lee 1999; Mukhopadhyay 2002).

2.1 Cost Value Contribution

Cost can be defined as the total amount of “money, time and resources associated with a purchase or activity” (Becken 2005, pg 9). A typical e-marketplace can deliver cost value through lowering transaction costs, generating competitive price for buying organisations, reducing human resource costs through the automation of various procurement processes and minimising the effort and time required for searching for competitive suppliers.

Lower Transaction Costs: Procurement personnel can substitute the use of paper procurement documents with electronic document to coordinate and communicate with suppliers on a regular basis (Prins 2004). This exchange of documents can be facilitated over the Internet instead of fax and traditional mail and dramatically reduces coordination and communication costs associated with printing, paper, mailing, fax and phone bills (Brunelli 2000; Moozakis 2001).

Competitive Purchase Price: The use of e-marketplaces in the procurement process can generate a competitive purchase price for goods and services for buying organisations (Brunelli 2000; Moozakis 2001; O’Leary 2002). Online auctions provide a structured platform for competitive bidding (Engelbrecht-Wiggans 2006) whereby the visible price bids submitted in real time can increase competitive bidding behaviour among suppliers (Hartley 2004). In addition, the use of online auctions allows buying organisations to leverage volume by combining purchase from all functional areas (O’Leary 2002; Subramaniam 2003) and to allow bundle bidding for products with similar product attributes. This in turn will generally result in a volume discounts leading to more competitive purchase price (Rothkopf 2007).

Human Resource Costs: E-marketplaces can automate certain procurement tasks and allow procurement personnel less time and effort to perform a particular task, thus reducing administration costs and human resource costs. Additionally, the reduction in manual data entry, errors and process cycle time can reduce the complexity of the procurement process and time spent on administration work (Kajewski 2004; Davila 2002). Thus, organisations can manage their human resources better by either reducing the headcount required in the procurement process (Davila 2002) or by enabling procurement personnel to concentrate on more rewarding tasks such as post bid analysis (Mosser 2002).

Search Costs: The use of e-marketplaces can reduce the level of effort and time required by procurement personnel to search for suppliers and thus reduce administration and human resource costs (Subramaniam 2004).
2.2 Efficiency Value Contribution

Efficiency refers to the generation of “the maximum output for given inputs with available technology” (Essig 2001, pg 3). A typical e-marketplace can deliver efficiency value in the following manner:

*Reduced Transaction Time:* E-marketplaces can provide greater transmission speeds (DeVaraj; Melville 2004; Mukhopadhyay 2002; Subramani 2004) and facilitate exchange of procurement related documents on a real time basis which suppliers can easily access and receive in a secure end-to-end environment (Kajewski 2004). This electronic exchange of documents can thus reduce transaction time.

*Reduced Processing Time:* E-marketplaces can host online auctions and electronically receive bids from suppliers and reduce the cycle time required for the negotiation process compared to traditional competitive bidding process which involves mailing and receipt of sealed bids (Hartley 2004). Automation can also minimise the number of errors that can occur by reducing the amount of manual data entry and human intervention needed in the procurement process (Gonsalves 2003) and can shorten the staff time required to process procurement transactions (Shaw and Subramaniam 2003).

2.3 Search Value Contribution

A typical e-marketplace platform can deliver search value by: a) increasing the number of potential suppliers that can be reached, and b) matching buyers with sellers.

*Improved Reach:* Organisations can use e-marketplaces to post and advertise procurement information such as product specifications via electronic RFP/RFQ documents on a B2B e-marketplace over the Internet (Anderson 2001). The browser-based-interface of internet based e-marketplaces can extend the reach of the buying organisations over geographic boundaries and can help identify and invite a greater number of suppliers who can potentially participate in the bidding process (Kajewski 2004; Anderson 2001).

*Improved Matching:* E-marketplaces can produce an electronic brokerage effect (Malone 1987) and improve the search for new suppliers who can meet the buying needs of the organisation (Anderson 2001; Hartley 2004; Ross 2007; Kajewski 2004; Davila 2002). The growing number of alternative suppliers in turn helps increase competition among the supplier base and consequently improving the quality of the supplier eventually selected (Malone 1987).

2.4 Information Value Contribution

Information is described as “the result of processing, manipulating and organizing data in a way that adds to the knowledge of the person receiving it” (Glaser 2008, pg 4). E-marketplaces improve the visibility and the flow of information related to market price and other procurement related activities. The details are explained below:

*Information Flow:* E-marketplaces improve information exchange via the coordination of information flows and exchange between procurement personnel and suppliers (Ross 2007). The use of information technology to decouple physical materials flow and to facilitate information flow between buying organisations and suppliers can affect the structure of the supply chain and enhance the responsiveness at all levels of the supply chain (Demkes 1999).

*Market Price Visibility:* The use of e-marketplace hosted services such as online auctions can help buying organisations and suppliers to discover the “true” market price of products. The visibility of bidding prices in online auctions can allow buyers and supplier participants to compare bid prices in real time (Essig 2001). This gives buyers greater awareness of the market price (Golicic 2002; Lee 1999; Hartley 2004; Mukhopadhyay 2002) while allowing suppliers to better understand the financial goals of the buyers, gain valuable information about the market price (Hartley 2004), and comprehend their competitor’s cost structures and thus increase their long run competitiveness (Dyer 1996).

*Procurement Information Visibility:* For a buying organisation to make quality sourcing decisions (i.e. awarding of contract to supplier), it is crucial to have access to key information about suppliers. Williamson (1985b) mentioned that when there is limited information about suppliers, there is an increased likelihood of selecting suppliers that are not able to conform to the terms and conditions of the supply contract. E-marketplaces can be used in tandem with internal ERP systems to track supplier performance (e.g. tracking purchase orders and delivery performance) (Essig 2001).

3. RESEARCH APPROACH

An exploratory case study research approach was chosen based on the following arguments: a) procurement practice through online marketplaces represents a contemporary phenomenon which takes place in a real world context; b) to understand this real-life phenomenon, actions of the key participants and the contextual aspects need to be carefully identified. The case study approach is suitable to study contemporary phenomenon because it helps to uncover any real world variables which were not addressed during the initial planning stages of the research (Cavaye 1996, Yin 2003, Neuman 2006) and allows a detailed comprehension and awareness of the key IS/IT-related aspects and the exploration of the context surrounding those aspects (Shanks et al, 1993; Cavaye, 1996). A major airline company (known as Fly Safe Airline – a Pseudonym) was selected as the case organisation and considered appropriate for this research because it serves as a revelatory case site by illustrating the use of e-marketplaces in support of the various stages of the procurement process. Moreover, the company...
was willing to share its rich experience with us. The unit of analysis is an individual organisation because we are concerned with the e-marketplace value contributions perceived at an organisational level.

Data were collected from multiple sources, including formal interviews with key informants, internal documents (e.g. organisation policies, frameworks and training documents) and unobtrusive observations by one of the researchers at the natural settings of the airline’s purchasing department. To obtain in-depth information explaining how the value contributions from e-marketplaces for the airline’s procurement function were perceived, we used the key informant technique which is well suited to gather qualitative and descriptive data that are otherwise difficult to collect through structured data-collection techniques (Tremblay 1957). Additionally, we used two criteria as suggested by Campbell (1955) to identify key informants. They are i) the roles of key informants and their level of knowledge about the issues being examined; ii) the informants must be willing to share their experience and views with the researchers. Based on Campbell’s criteria, two senior managers were considered as key informants and were subsequently interviewed. These managers include a procurement manager and a supply chain manager; they both have intimate knowledge about the procurement activities of the airline and were involved with pre and post implementation of e-marketplace and its interactions with the airline’s procurement function and also had intimate knowledge on how the airline’s processes was automated to facilitate establishment of electronic connectivity between the airline and the e-marketplace. While the informants were involved in the decision making process of the airline’s selection of e-marketplace, they were not however involved in the establishment or daily operations of the e-marketplace that is investigated in this study.

Based on the suggestions of Yin (2003), the reliability of the case study data was addressed by developing a detailed case study protocol and a summary of definitions concerning the value contributions of e-marketplaces to procurement function. The protocol and the summary of definitions were both sent to the key informants prior to actual interviews. On the other hand, validity was addressed using data collected from multiple sources and having key informants reviewed their interview transcripts. Data collected from the key informants, documents review, observations and other field notes were analysed using the pattern matching logic described by Yin (2003). This technique compares an empirically derived pattern (of themes and sub-themes constructed through coding) with the predicted one.

4. THE CASE ORGANISATION

The participating case organisation is an airline company operating from Asia. To protect its anonymity, we have used a pseudonym Fly Safe Airline. Leveraged Purchasing Department is one of the purchasing authorities in Fly Safe Airline and is responsible for the procurement of indirect materials (e.g. commercial in-flight items, office supplies). Leveraged Purchasing Department categorizes these commercial items by grouping similar products into specific product categories. For example, office stationeries such as paper and pens are categorized as “office supplies”. Each category of items may require specific procedures such as in the case of wines, wine tasting may be required, and thus specific procedures and policies can be established for each product category. Not all product categories are sourced according to the generic procurement process and some product categories may require extra or less procedures.

Leveraged Purchasing Department has a procurement manager (who reports to the chief procurement officer) who is in charge of six procurement executives. Each procurement executive handles a portfolio of similar product categories grouped together. The procurement executive is responsible for handling the product specifications for the item requested, sourcing and evaluating potential suppliers, conducting quotations, tenders and online negotiation events to negotiate product price and supply contract, the management and administration of contracts including ensuring that items delivered meet the specifications specified and that items are delivered on time as scheduled and evaluation of supplier performance. Each procurement executive is assisted by a few procurement personnel.

Fly Safe Airline has established cooperative partnerships with two e-marketplaces. E-marketplace A is a consortium marketplace and E-marketplace B is a private e-marketplace. E-marketplace A is used by departments other than the participating Leveraged department for the direct purchasing of aircraft parts materials and the procurement process is different than that followed for E-marketplace B. Leveraged Purchasing Department is responsible for the procurement of indirect materials and uses the e-marketplace tools available in E-marketplace B for the procurement of lower complexity items which requires a less number of procedures. E-marketplace B provides the following capabilities to support Leveraged Purchasing Department’s procurement processes:

- Online negotiations enabled by request for proposal (RFP), request for quote (RFQ), and request for information (RFI), and reverse auction capabilities
- Collaboration tools that support interaction with suppliers
- Project management capabilities that establish, administer, and monitor sourcing processes
- Document management functionality that supports the exchange, modification, and recovery of sourcing-related documents and schematics
5.0 CASE STUDY FINDINGS

5.1 The Procurement Process

The procurement process followed by the Leveraged Purchasing Department of the airline company consists of eight distinct stages. We now describe the details of each stage below:

Stage 1: Development of Product Specifications: The procurement process is triggered when an internal user (another department in Fly Safe Airline) submits a formal request for a particular item to be procured or when an existing supply contract is expiring and a new supply contract is needed. The item to be procured may be specific to the department or it may be used in multiple departments across the airline. A procurement executive discuss with the internal user to gather and finalize the product specifications for the item to be procured. If the item has been procured before, the procurement executive can gain better awareness and comprehension of the item by reviewing and assessing previous procurement details about the item.

Stage 2: Post e-RFQ: The procurement executive prepares and drafts an electronic – Request for Quotation (e-RFQ) document which contains information about the item to be procured (e.g. product specifications, supply contract details). Upon approval from the chief procurement officer, the e-RFQ is posted on Fly Safe Airline’s website informing potential and existing suppliers about the supplier qualification event. Interested suppliers are required to sign up with the e-marketplace where they can access detailed product specifications and the terms and conditions of the supply contract. Suppliers can evaluate the details of the e-RFQ and develop their pricing while taking into account factors such as the product type and supply quantity. The suppliers then access the e-RFQ event on the e-marketplace and submit a preliminary bid price for the item (i.e. the price that the supplier is willing to supply the item to Fly Safe Airline). Suppliers will be required to submit company details to Leveraged Purchasing Department before the event deadline for due diligence purposes.

Stage 3: Pre-Qualification: After the e-RFQ has ended, the procurement manager and the procurement executive are able to access the bids submitted by the suppliers and take into consideration the supplier background information and their capacity to supply. After analysing this information, they identify and create a shortlist of suppliers who are capable of supplying the item at the quantities specified. The procurement executive contacts the short-listed suppliers and requests for a sample of the item which is then presented to the internal users who initiated the request. The internal users assess the product quality of the item and select the samples which meet their requirements. Corresponding suppliers who provided samples that meet the internal user’s requirements are then contacted by the procurement manager and are invited to participate in the final event.

Stage 4: Online Negotiation Event: The procurement manager and procurement executive consider and decide upon the type of online negotiation event (e-RFQ or online reverse auction) to be conducted. Upon approval from the chief procurement officer, the procurement executive proceeds to organize the online negotiation event. Suppliers who are short-listed to participate in the final event are informed about the event details and the event date and provided with instructions on how to participate in the online negotiation event. Suppliers who have not participated in prior online negotiation events can opt to participate in training (e.g. mock auction), learn the controls and functions of the e-marketplace and to familiarize themselves on how to submit a bid. On the day and at the specified time of the online negotiation event, invited suppliers logon to the e-marketplace and submit their bids before the event closes. If the online negotiation event is an e-RFQ, suppliers only submit one bid each. If the online negotiation event is an online reverse auction, suppliers can submit bids against each other in real time for a specific amount of time (e.g. 1 hour). The e-RFQ is a sealed bid event meaning that suppliers are unable to see the other bids that other supplier participants submitted while the online reverse auction is price-visible event where suppliers can view the bid prices submitted by other suppliers in real time during the event.

Stage 5: Post Bid Evaluation: After the online negotiation event has ended, all bids submitted by supplier participants during the event are evaluated by chief procurement officer, the procurement manager, the procurement executive and the internal user. It is not always the case that the lowest submitted price wins the contract. Many other factors (e.g. product quality) are taken into consideration prior to selecting a supplier and awarding a contract.

Stage 6: Contract Administration: Upon choosing a supplier (subject to top management approval) the Leveraged Purchasing Department enters into contract administration with that supplier. The supply contract generally contains contractual information such as pricing information, delivery details and other related terms and conditions. Upon agreement of contracted terms, the supplier is now contracted to supply to Fly Safe Airline.

Stage 7: Order Fulfillment: When an internal user requires a consignment of a particular item, a purchase order is raised through the e-procurement module of the Fly Safe Airline’s ERP system. This purchase order reaches the purchasing executive who verifies and approves the purchase order via the in-house ERP system. For purchase orders of substantially high value, the chief procurement officer is required to verify and approve the purchase order via the ERP system. Approved purchase orders are then routed from the ERP system to the contracted supplier via E-marketplace B in the form of an electronic document. The supplier can access E-marketplace B to receive the purchase order. The supplier then fulfills the order and issues an invoice in the form of an electronic document through E-marketplace B, and this invoice is then routed back through the ERP system to Leveraged Purchasing Department’s accounts executive who is responsible for the
settlement of invoices. When the consignment is received, the good receipt number is entered into the ERP system. Purchase orders, invoices and goods receipts are matched via the in-house ERP system. Arrangement will be then be made to pay successfully matched invoices.

**Stage 8: Monitoring Supplier Performance:** Over the duration of the supply contract, the procurement executive will monitor the supplier’s performance i.e. how well the supplier has been able to deliver specified goods and service as required. Supplies are vital to any organisation’s operations and failure to comply with contracted terms and conditions may result in the termination of a supply contract or result in penalties. Monitoring supplier performance is essential in enforcing supply contract compliance and deal with any problems related to product quality and delivery performance.

### 5.2 Value Contribution of e-Marketplace B to the Procurement Process

We now describe the details of how the E-marketplace B makes value contributions to each of the eight stages of the procurement process of the Leveraged Purchasing Department of the case organisation.

**Stage 1: Development of Product Specifications Value Contribution**

**Procurement Information Visibility:** The main contributor of value from e-marketplace platforms at this stage of the procurement process is procurement information visibility. If the item has been procured before, the procurement executive can extract additional information (such as current and preceding cost prices, the current supply market details, existing supplier information e.g. supplier performance) which can assist in the preparation and planning for the procurement of the item. This involves the drafting of an e-RFQ document which includes the product specifications and supply contract details. Based on past negotiation events, the procurement executive can also create a shortlist of potential suppliers who have the capability and capacity to supply the item and who would be interested to supply the item to Fly Safe Airline and invite this list of suppliers to participate in the pre-qualification of the item.

**Stage 2: Post e-RFQ Value Contribution**

**Lower Transaction (Communication) Costs:** The use of the internet to facilitate the exchange of e-RFQ documents reduces the transaction costs for Fly Safe Airline. RFQ documents were previously distributed via fax or traditional mail. Facilitating the exchange of e-RFQ documents over the internet reduces the coordination and communication costs that are associated with printing, paper, mailing and fax bills. The procurement manager asserts: “With the use of the e-marketplace, we have better automation. You remove all these processes where previously suppliers had to fax to an independent number and for local suppliers, to physically go to this (particular) post box to drop a particular document or to pick up documents (in person). Which is a waste of time from our perspective and the supplier’s perspective doing that (the prior manual processes).”

**Lower Human Resource Costs:** The use of the Internet to facilitate the exchange of e-RFQ documents also reduces the human resource costs for Fly Safe Airline. Using the internet to facilitate the exchange of e-RFQ documents between Fly Safe Airline and suppliers no longer requires RFQ documents to be faxed or sent by traditional mail and thus reduces the administration work for procurement personnel. The reduction in administration work allows the Leveraged Purchasing Department to better manage available human resources in the department by reducing the headcount required in the procurement process or by allocating procurement personnel to concentrate on more significant procurement activities such as post bid evaluation. This is reflected in the following interview excerpt: “On the purchasing side, we restructured our staff. We had to improve the skill set so we hired higher level staffs who are more capable of running the events (on the e-marketplace). Overall, we were able to reduce the total number of staff.”

**Faster Transaction Time:** The exchange of procurement documents over the internet reduces the transaction time of exchanging procurement documents (i.e. e-RFQ documents between Fly Safe Airline and suppliers). Suppliers can access and download e-RFQ documents from Fly Safe Airline’s website and the e-marketplace in real-time over the internet and this allows faster transmission and exchange of documents than fax or traditional mail.

**Extended Reach:** The posting of e-RFQ documents on the internet via Fly Safe Airline’s website and the e-marketplace extends the reach of Leveraged Purchasing Department over geographic borders and can reach out to a greater number of suppliers who can potentially supply Fly Safe Airline and participate in the supplier qualification event. According to the procurement manager: “We have received more bids from suppliers around the world that we have not previously had any contact with.” However, reaching out to more potential suppliers has not necessarily increased the number of new suppliers who had successfully landed a supply contract and there is no evidence to suggest there is a reduction of the time and effort spent by procurement personnel to locate new suppliers who can supply the specified item.

**Stage 3: Pre-Qualification Value Contribution**

**Lower Human Resource Costs:** Previously, procurement personnel had to collect faxes, mails and pick up bid documents that are dropped off in the box by potential suppliers. Accepting bids from suppliers via the e-marketplace reduces the...
amount of administration work for procurement personnel and can lead to better management of human resources and thus lower human resource costs.

*Procurement Information Visibility:* If the item has been procured before, the procurement executive can retrieve information about previous negotiation events and compare information about previous costs and current costs with the preliminary bid prices submitted by the suppliers. If a supplier has a record of supplying the airline before, the procurement executive can retrieve information about the supplier performance. These are two important factors considered by the procurement executive when deciding upon the shortlist of suppliers.

**Stage 4: Online Negotiation Event Value Contribution**

*Competitive Purchase Price:* Fly Safe Airline prohibits employees from direct face-to-face price negotiations with suppliers. The supply chain manager asserts: “The first online reverse auction actually revealed how prices can actually be negotiated, not directly by us but between them (suppliers).” The online reverse auction provides a structured platform where supplier participants can competitively bid and submit visible price bids against each other in real time and uses a Leverage Purchasing Department to obtain competitive purchase price for items to be procured. The procurement manager estimates that product prices are about 20-30% lower from the previous price attained where the previous price attained is the online price paid for the same item. The supply chain manager added: “it is difficult to obtain a 20-30% reduction in prices all the time and in some cases, the price reduction is less than 20% especially if it is the second or third time that an online reverse auction had been conducted for the item on the e-marketplace”. Leverage Purchasing Department has also allowed bidding for a bundle of products with similar product attributes (bundle bidding) to encourage a more competitive purchase price.

*Lower Human Resource Costs:* The online negotiation event is normally held for between 1-2 hours compared to traditional negotiations (manual tenders or quotations) which can take up to weeks to complete. Accepting bids from suppliers via the e-marketplace reduces administration work for procurement personnel associated with collecting bids and can lead to better management of human resources and thus lower human resource costs.

*Faster Transaction Time:* Suppliers can participate in the online negotiation event conducted on the e-marketplace in real-time over the internet and this allow faster transmission and submission of bids, previously submitted by fax or traditional mail. The supply chain manager also pointed out the benefit for the suppliers: “this buys suppliers more time to prepare their bids since they can wait till 1 minute before the online negotiation event ends to submit their bids”.

*Market Price Information:* The visibility of bidding prices in online reverse auctions can allow the procurement executive to view and compare price bids submitted by suppliers in real time and gain valuable information and awareness about the market price of the item to be procured.

**Stage 5: Post Bid Evaluation Value Contribution**

*Procurement Information Visibility:* The post bid evaluation can take into account supplier performance when deciding upon the supplier to award the supply contract to. The information about suppliers’ performance can be obtained from the e-marketplaces if the supplier has won a contract in the past.

**Stage 6: Contract Administration Value Contribution**

This stage involves offline contract negotiation between the supplier and Fly Safe Airline. There is no use of e-marketplace platforms involved in this stage.

**Stage 7: Order Fulfillment Value Contribution**

*Lower Human Resource Costs:* Procurement personnel previously sent purchase order and invoice documents to suppliers through fax or traditional mail. Using the internet to facilitate the exchange of purchase order and invoice documents over the e-marketplace between Fly Safe Airline and suppliers reduces the administration work for procurement personnel by reducing the amount of purchase order and invoice documents sent via fax and traditional mail and thus leads to better management of human resources and thus lower human resource costs.

*Shortened Transaction Time:* The use of the internet to facilitate the exchange of purchase order and invoice documents over the e-marketplace enables the suppliers to access the purchase order in real time, process the order timely and send electronic invoice, which will result in shortened transaction time.

*Processing Time:* Exchanging purchase order and invoice documents via the e-marketplace over the internet can improve the overall document processing time by reducing the number of errors that can occur by reducing the amount of manual data entry and human intervention involved in the processing of purchase order and invoice documents.

*Information Value:* The use of e-marketplace improves the information flow between Fly Safe Airline and the suppliers as various business documents are exchanged electronically and allows Fly Safe Airline to keep track of and monitor supplier’s performance in order fulfilment.

**Stage 8: Monitoring Supplier Performance Value Contribution**
**Procurement Information Visibility:** By tracking down the electronic records of purchase orders, goods receipt and invoices, the procurement personnel can assess the supplier performance easily. A consignment of goods is inspected before a goods receipt is acknowledged. If goods delivered are faulty, the goods are rejected immediately and the goods receipt is not acknowledged and a record is kept. Therefore, the procurement personnel can keep track of how well the supplier has delivered the goods and services in terms of punctuality of delivery times and product quality.

Table 1 below summarises the value contribution of e-marketplaces identified in each stage of the procurement process.

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<th>Table 1: E-marketplace value contributions in each stage of the Fly Safe Airline procurement process</th>
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### 6.0 DISCUSSION AND CONCLUSION

In this paper, drawing on the existing literature we have synthesised the value contributions of e-marketplaces to the procurement process of buying organisations. We have then analysed the online procurement experience of a large airline company to determine how an e-marketplace (with which the e-procurement module of the company’s ERP system is connected over the Internet) provides these value contributions to each stage of the procurement process of the company. Overall, the case study analysis confirms various value contributions of e-marketplaces as identified in the literature as indicated in Table 1. Furthermore, our case study findings demonstrate that for each stage of the procurement process of the airline company, it has received several (but not all) value contributions from e-marketplace. Our study also shows that the use of e-marketplaces contributes value contributions to each of the procurement stage except for the Contract Administration stage that involves off-line activities. Specifically, information value appears to be the most significant value that supports almost all stages of the procurement while the search value only supports one procurement stage.

Interestingly, the case study indicates that although the use e-marketplaces may lead to more competitive purchase prices for the buying organisations, this is not always the case especially for the items that have been purchased in the past through the e-marketplaces. This implies that as buying organisations gain information value from the e-marketplaces, selling organisations (suppliers) obtain the same advantage and therefore would be able to maintain the price in a long run. The claim in various studies (see for example Kaplan and Sawhney 2000) conducted at the early stage of e-marketplace introduction that e-marketplaces tend to favour the buyers may need to be revisited.

Furthermore, although the use of e-marketplaces by the case organisation enables the organisation to reach out to more potential suppliers and there is an increased level of communication with newer suppliers, intriguingly the number of new suppliers that has successfully landed a supply contract has not significantly increased as expected. A possible explanation is because the adoption rate of e-marketplaces is still low among selling organisations. This situation may however change as E-marketplace B attracts popularity among suppliers community over time. In addition, as no evidence found in this study that the use of e-marketplaces has led to a reduction of the time and effort spent by procurement personnel to locate suppliers who can supply the specified item, a further investigation is needed to explore the likely issues in using the e-marketplaces by the case organisation which could be due to the level of proficiency in using the system. Thus these observations confirm the previous studies (see for example Standing et al. 2007) that education and training of the suppliers and staff involved the procurement process to use e-marketplaces effectively are necessary to further encourage the adoption and promote the usefulness of e-marketplaces.

Our research makes contributions to theory and practice alike. For theory, we provide a systematic synthesis of value contributions from e-marketplace platforms and identify how they contributed value at each stage of the procurement process in a real life organisational setting or practice, the findings of our study help increase the awareness of practitioners about what value contributions can be expected from e-marketplaces and how to achieve those value contributions. Therefore, managers can set more realistic expectations. As a result, less disappointment from the use of e-marketplaces is expected to occur and its adoption rate is likely to increase over time. The findings of our study are thus useful for any organisations that are contemplating to join e-marketplaces to improve their procurement processes.
As this study is based on one single case which is from a buying organisation perspective, the generalisation of the findings may be affected. Nonetheless, as the procurement activities of organisations are expected to be similar, the understanding developed through our study is still relevant for other organisations, particularly for buying organisations. To complement this study, future studies that include more organisations, both buying and selling organisations, of different sizes could be performed. Such studies would examine the experience of the participating organisations in achieving the value contributions of the e-marketplace and could identify the influence of contextual factors in the achievement of e-marketplace value contributions. Finally, as adequate in-depth understanding has been obtained from various case studies, a survey study would further enhance the generalisability of the findings regarding the value contributions e-marketplaces offer to each stage of the procurement function of organisations.

REFERENCES


Identifying the Value Contributions of e-Marketplaces

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