E-procurement Beyond the Buyer Cost Perspective

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ABSTRACT

Purpose – The objective of this paper is to provide and argue for a comprehensive view of e-procurement that involves both the buyer and suppliers and that goes beyond looking at mere cost reductions on the buyer side. More specifically, the paper describes benefits and barriers of implementing e-procurement solutions for both buyers and suppliers.

Design/methodology/approach – This paper reports on a literature review combined with a case study. The case is a public organization in Sweden, which prepares to implement an e-procurement solution. Interviews were also conducted with a selection of suppliers to the case organization.

Findings – In e-procurement literature, drivers and barriers are often viewed only from the perspective of a buying organization. Benefits are mainly cost-related for the buying organization, while barriers often include suppliers. It is proposed that benefits and barriers should include both buyers and suppliers. The literature review and the case study findings form the basis for further investigation into this problem area.

Research limitations/implications – This study focuses on a public organization in Sweden. Yet, it could have implications for many public or private organizations considering implementing e-procurement systems.

Practical implications – This research suggest that organizations to a greater extent should take the supplier´s side into account when implementing e-procurement solutions.

Originality/Value – The study highlights a full cycle view on e-procurement taking both buyer and supplier into account.

Keywords – E-procurement, Cost perspective, Benefits and Barriers, Buyer-Supplier, Supply Chain Management

INTRODUCTION

In many organizations, a main objective for using e-procurement systems is cost reduction, as it e.g. reduces paperwork, lowers administrative work, allows a wider choice of suppliers and reduces inventory (Teo *et al.*, 2009). Furthermore, many organizations associate e-procurement with high leverage opportunities, as purchases can be consolidated resulting in increased contract sizes and enhanced bargaining power. This in turn can lead to negotiated unit cost reductions (Attaran, 2001; Hawking *et al.*, 2004). However, according to Bowersox *et al.* (2010), there is a potential downside to this lowest-price approach. Many suppliers fear that the use of e.g. exchanges and e-auctions will become a mechanism that ultimately will reinforce a past practice of buyers to focus strictly on unit cost.

Another consequence of buyers focusing too much on lowest price could be that supplier loyalty and commitment is damaged. According to a study by Tassabehji *et al.* (2006) many suppliers indicate a reluctance to share future cost-saving technological developments with their customers. Also, suppliers provide services and products consistent with the enforced low price, giving buyers what they paid for rather than "a bargain". It could be argued that for example e-auctions are only useful for buyers to identify the price-floor, but when prices have leveled out, suppliers have no further cost reductions to offer. Suppliers are then forced to take every opportunity to cheapen the products, which could have a negative effect on e.g. product quality. Furthermore, by using e.g. e-auctions, buyers can reap significant short-term price reductions, but the benefits to suppliers are less obvious. Other examples show that suppliers simply refuse to take part in "pricing exercises", because there is already an extreme price pressure or the chance of winning the contract is too little (Jap, 2007; Tassabehji *et al.*, 2006).

Cousins *et al.* (2008) argue that organizations tend not to be aware of the true costs of procurement, which could be divided in three main types: 1) *Operational*: Costs of running the day-to-day relationship, e.g. costs of producing the purchase order, expediting etc. 2) *Managerial/Tactical*: Costs of managing the relationship, e.g. selecting suppliers, negotiating, contracting, problem solving, supplier conferences etc. 3) *Strategic:* Costs of executing strategic activities such as developing purchasing policies, conducting spend analysis, and costs associated with strategic risks, i.e. the ability for a supplier to act opportunistically.

Nevertheless, many organizations only measure operational costs, and do not take into account that the tactical and strategic costs may rise as a result of changed relationship to suppliers (Cousins *et al.*, 2008). Hence, if e-procurement is seen primarily as a price-cutting instrument, there is a risk that buyers reduce operational cost (transaction cost and purchasing price), but on a longer-term increase managerial and strategic costs. Furthermore, many suppliers are trying to move away from being commodity suppliers. Instead, in an effort to escape price competition that tend to end in reduced profit margins, many suppliers seek to differentiate themselves by expanding product range and variety, developing and introducing new products faster, and increasing the level of customization (Hilletofth *et al.*, 2009).

It appears that there is a risk that e-procurement solutions are used to reinforce past practice of buyers to focus strictly on purchase price. For example reversed e-auctions have been criticized for damaging supplier-buyer relationships and for being adverse to what is currently regarded as good supply chain management (Jap, 2007; Tassabehji *et al.*, 2006; Yu *et al.*, 2008). This risk is probably most distinguishable in the segment of leverage products, where there is little to differentiate suppliers other than price and delivery date.

According to Wheatley (2003) it is important not only to focus on using e-procurement solutions for achieving price reductions and operational savings. Benefits such as faster processing, greater visibility, elimination of maverick, or unplanned, ad hoc buying can have a much higher impact on profit than what can be achieved by lowering purchasing prices (Teo *et al.*, 2009; Wheatley, 2003). In fact, a great deal of the return will come from efficiency improvements within the purchasing process. Therefore, it is important that buyers understand how e-procurement solutions can be designed to minimize potentially adverse effects on their supply relationships and evaluate the impacts of their decisions from the suppliers' perspective (Jap, 2007).

The objective of this paper is to provide and argue for a comprehensive view of e-procurement that involves both buyers and suppliers and goes beyond looking at mere cost reductions on the buyer side. More specifically, the paper describes both benefits and barriers of implementing e-procurement solutions.

This paper is organized as follows: The research approach is presented in section 2, and in section 3 we discuss the procurement process from a full cycle view and consider literature on benefits and barriers of e-procurement. In section 4 our study of suppliers' experiences from the procurement process of a public organization in Sweden is presented. The paper concludes with a discussion of key findings and implications for further research in section 5.

2. RESEARCH APPROACH

The research approach adopted has two main components:

1) A literature review targeting benefits and barriers from both a buyer and supplier perspective.

2) An initial case study in which a buyer organization and its supplier relationships is assessed before implementing e-procurement solutions, taking into account the main findings from the literature review.

First, we present the result from a *literature review* to obtain an overview of the procurement process together with different forms of e-procurement solutions. Subsequently, an outline of what is perceived as e-procurement benefits and barriers is presented. Mainly journal articles on e-procurement have been used, where drivers and barriers are the main focus.

Second, in order to place the results of the literature review in an empirical context, and to illustrate the literature findings, a qualitative *case study* was conducted. The case study organization is a public organization in Sweden, which in effect often has to award contracts based on the lowest price criteria. The organization has decided to implement an integrated e-procurement solution to obtain a safe, secure and more efficient purchasing process. On a detailed level there are large differences between buying for the public authority and buying for the private enterprise, since governmental agencies are not free in choosing their purchasing procedures. However, studying the procurement process in general, the purchasing procedures are congruent (van Weele, 2005). Therefore, in this study we choose not to separate public procurement from private, as we mainly focus on the general process level.

Moreover, we conducted in-depth interviews with six suppliers, to elicit their opinions of being suppliers to a customer with substantial bargaining power, competing mainly in terms of price. The suppliers were both current and former suppliers to the customer, and were chosen from different industries and from different sizes, to obtain a reasonably representative

selection. A more detailed description of the case study is presented in section 4. Future research will make in-depth studies of more organizations.

3. LITERATURE REVIEW

The literature review includes a description of the procurement process from a full cycle view, and possible forms of e-procurement supporting one or many stages of the process. Thereafter, an overview of benefits and barriers of e-procurement for both buyers and suppliers is presented.

3.1. The procurement process – a full cycle view

The explosion of technology and information systems has a major impact on the procurement process in most organizations (Bowersox *et al.*, 2010). E-procurement refers to the use of integrated information systems for procurement activities, including sourcing, negotiating, ordering, receipt and post-purchase review (Croom and Brandon-Jones, 2007). A definition is given by Tatsis *et al.* (2006, p. 64): *"the integration, management, automation, optimization, and enablement of an organization's procurement process, using electronic tools and technologies, and web-based applications"*. Organizations use various e-procurement technologies and systems to standardize and automate procurement processes (Bowersox *et al.*, 2010; Gunasekaran *et al.*, 2009). There are also previous efforts made by for instance van Weele (2005) to take a portfolio approach to e-procurement, adapting Kraljic's model. He argues that differentiation in e-procurement solutions chosen by organizations is necessary, and for each of the categories, different supplier strategies and different e-solutions can be developed (Figure 3.1).
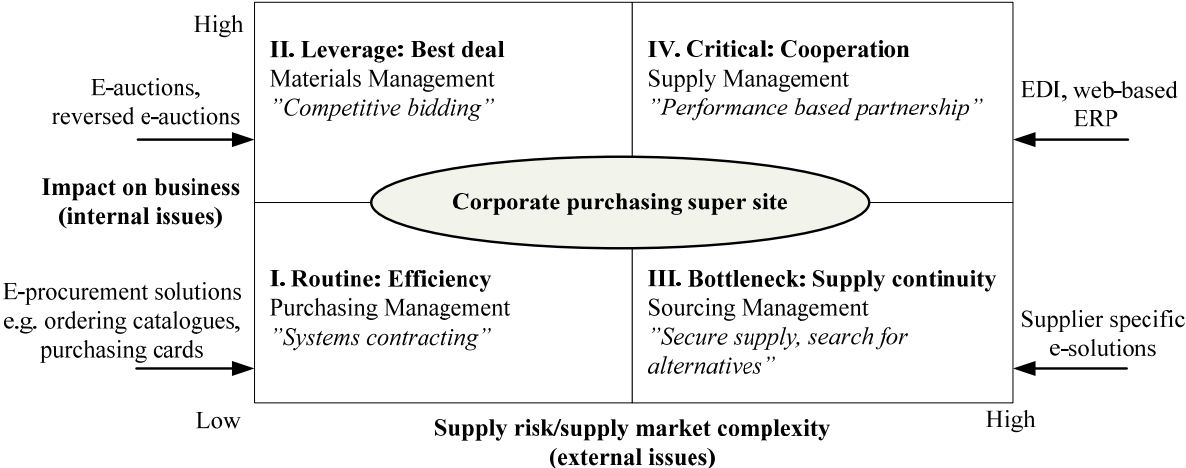
High

E-auctions,
reversed e-auctions

II. Leverage: Best deal
Materials Management
"Competitive bidding"

IV. Critical: Cooperation
Supply Management
"Performance based partnership"

EDI, web-based
ERP

**Impact on business
(internal issues)**

Corporate purchasing super site

E-procurement solutions
e.g. ordering catalogues,
purchasing cards

I. Routine: Efficiency
Purchasing Management
"Systems contracting"

III. Bottleneck: Supply continuity
Sourcing Management
"Secure supply, search for alternatives"

Supplier specific
e-solutions

Low

**Supply risk/supply market complexity
(external issues)**

High

Figure 3.1 Different electronic solutions for different purchasing purposes (van Weele, 2005).

However, while there are various forms of e-procurement that concentrate on one or many stages of the procurement process or on different segments in the portfolio model, e-procurement can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization. An overview of the typical purchasing process with useful forms of e-procurement is shown in Figure 3.2.

The process begins with the determination of purchasing requirements (van Weele, 2005). In this phase, the concept of e-design has emerged, which means that buyer and seller share information in real time to build specifications that add value to the resulting product (Presutti, 2003). When the specifications have been developed, supplier selection begins, often referred to as the tendering process (Cousins *et al.*, 2008; van Weele, 2005). E-sourcing can be used for identifying new suppliers for a specific category of purchasing requirements. E-tendering concerns the process of sending requests for information (RFI) or requests for quotation (RFQ) to suppliers (de Boer *et al.*, 2002). A reversed e-auction enables an organization to buy goods and services needed from a number of known or unknown suppliers (van Weele, 2005). The term "reversed" auctions reflects that the sellers rather than the buyers bid, and that the goal of the auction is to drive price down (Jap, 2007).
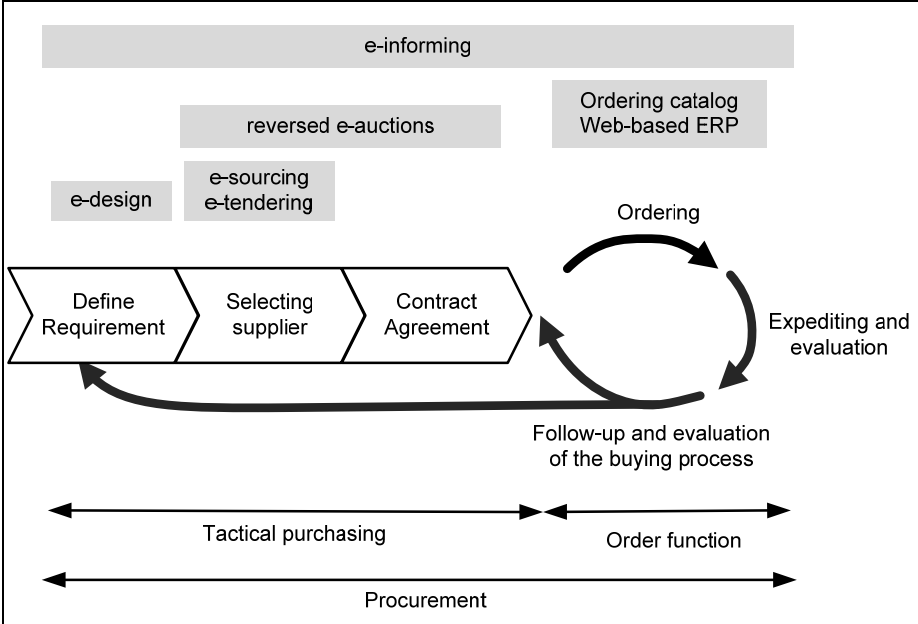

Figure 3.2 Procurement process model (Modified from van Weele, 2005)

Based on the established selection criteria, a supplier is selected and a contract will have to be drawn up (van Weele, 2005). The ordering catalog and web-based ERP facilitates the process of creating and approving purchasing requisitions, placing purchase orders and receiving goods and services, hence the operational activities of the order function.

Finally, it is recommended that buyers keep track of suppliers' quality and delivery record, competitiveness and innovativeness, and it is important to have an up-to-date record of the actual capabilities of each supplier. Reporting this kind of information is one major source of added value by the buyer, and this information can be used in a subsequent purchasing cycle. This step in the process is critical for assuring that an effective supplier base is in place, a key contributor to the firm's competitive position (Presutti, 2003).

There is a form of e-procurement that is not directly associated with a step in the basic procurement process. That is e-informing, which is the process of gathering and distributing purchasing information both from and to internal and external parties. It could be for example publishing purchasing management information on an extranet that can be accessed by internal clients and suppliers (de Boer *et al.*, 2002).

3.2.   Benefits of e-procurement

The benefits of e-procurement are comprehensively described in literature. The benefits or drivers of e-procurement focus on different aspects, and could be divided into four subsets: cost, strategic, internal and supplier relationship. *Cost* refers to a cost focus, where cost reduction is the main topic. By *strategic,* benefits related to managerial issues are considered, such as strategic decision making. The *internal* focus refers to the internal organization and processes, while *supplier relationship* concerns improvement in supplier management.

Cost reductions: Benefits frequently mentioned are reduced transaction costs (Attaran, 2001; de Boer *et al.*, 2002; Harrigan *et al.*, 2008; Presutti, 2003; Wu *et al.*, 2007; Yu *et al.*, 2008). The transaction costs are often associated with operational purchasing activities, such as ordering, expediting, invoicing etc. (Hawking *et al*., 2004). Reduced administration costs through eliminated paperwork can result in great savings (Attaran, 2001; Tatsis *et al.*, 2006). This is particularly relevant for low value items, where procurement cost often can be higher than the item cost. Furthermore, automation of the procurement process can also reduce costs associated with data errors and inaccuracies inherent to manual processes (Smart and Harrison, 2003). Reduced cost associated with inventory is often mentioned as a consequence of e-procurement, as shorter cycle-times reduce stocking requirements, bringing with it a reduction in inventory levels (Attaran, 2001; Min and Galle, 2003; Tatsis *et al.*, 2006).

E-procurement can also facilitate leverage opportunities, resulting in negotiated unit cost reductions (Attaran, 2001; Bartezzaghi and Ronchi, 2004; de Boer *et al.*, 2002; Presutti, 2003; Smeltzer and Carr, 2003; Subramaniam and Shaw, 2004; Tatsis *et al.*, 2006; Yu *et al.*, 2008). If maverick buying is reduced, the bargaining power can be increased as purchasing is directed towards contracted suppliers (Smart and Harrison, 2003). Furthermore, e-procurement might also facilitate the reach of a wider supplier base, which promotes price reductions.

Strategic focus: E-procurement could result in a market advantage through improved market intelligence and increased visibility of customer demand (Attaran, 2001; Hawking *et al.*, 2004). Other strategic benefits are increased managerial efficiency and decision making as e-procurement increases the support for strategic functions (Hawking *et al.*, 2004; Puschmann and Alt, 2005; Yu *et al.*, 2008). E-procurement solutions also make improved planning and control possible, as they provide consolidated details of actual spend with each supplier and in each product category (Croom and Brandon-Jones, 2007; Presutti, 2003; Tatsis *et al.*, 2006)

Internal efficiency/Internal organization: The automation of e-procurement processes leads to reduced procurement cycle times as well as shortened administrative lead-times (Attaran, 2001; Croom and Brandon-Jones, 2007; Hawking *et al.*, 2004; Presutti, 2003; Tatsis *et al.*, 2006; Yu *et al.*, 2008). Also, it could improve the overall flexibility and responsiveness. Furthermore, studies have shown that in companies utilizing e-procurement, purchasing staff spend less time on operative tasks and more time on strategic issues. Purchasing activities can easier be divided in operational and strategic (Presutti, 2003; Puschmann and Alt, 2005; Tatsis *et al.*, 2006). Thus, utilization of resources is enhanced.

Supplier relationship: Improved relationships with existing suppliers could be achieved through the constant exchange of tactical and strategic information between buyer and suppliers (Wu *et al*., 2007). The exchange of information and enhanced transparency is often facilitated via e-procurement applications that promote inter-organizational collaboration (Tatsis *et al.*, 2006; Yu *et al.*, 2008). E-procurement systems also give the opportunity to

explore relationships with new suppliers (Attaran, 2001; Panayiotou *et al.*, 2004; Smeltzer and Carr, 2003; Subramaniam and Shaw, 2004; Yu *et al.*, 2008).

3.3. Barriers of e-procurement

There is a rich body of literature that has investigated various barriers of e-procurement. The barriers or challenges of e-procurement could be divided into five subsets: technological, internal organization, supplier relationship, cost, and external factors. *Technological focus* refers to technological matters, spanning from security issues to lack of skilled personnel. The *internal organization* implies organizational changes in management and processes. *Supplier relationship* focuses on integration issues with suppliers and *cost* refers to cost for e-procurement implementation. Finally, there are *external factors* to consider, such as regulatory and legal controls.

Technological focus: Immaturity of technology is a commonly quoted impediment (Chaffey, 2009; Tatsis *et al.*, 2006). This is reflected in a number of concerns such as security, reliability, interoperability and integration with other systems (Harrigan *et al.*, 2008). Furthermore, the technological infrastructure might be inadequate either internally or with partners (Hawking *et al.*, 2004). Integration issues system-to-system within and between organizations could present major challenges to e-procurement implementation, given the variety of systems and technology platforms involved (Attaran, 2001; Harrigan *et al.*, 2008; Hawking *et al.*, 2004). A barrier could be the lack of system standards (Yu *et al.*, 2008) and standards for data exchanges (Gunasekaran *et al.*, 2009).

Security concerns are also important to consider, otherwise online business could be undermined. One particularly critical issue is the authentication of identity (Harrigan *et al.*, 2008; Hawking *et al.*, 2004; Min and Galle, 2003; Tatsis *et al.*, 2006). Another risk is the lack of technical expertise and skilled personnel (Gunasekaran *et al.*, 2009; Hawking *et al.*, 2004).

Internal organization: A barrier to the successful implementation of e-procurement is lack of management commitment. The absence of upper management support and commitment may lead to poor understanding of what the e-procurement project hopes to achieve, how employees will be affected, and how the project will benefit the organization as a whole (Hawking *et al.*, 2004; Tatsis *et al.*, 2006)

Sometimes, the business processes to support e-procurement are inadequate (Hawking *et al.*, 2004). Rather than automating traditional procurement processes, organizations should focus on simplifying and improving these. However, this requires time and resources, which might not always be available (Chaffey, 2009; Tatsis *et al.*, 2006). Furthermore, successful implementation of e-procurement will probably require that both business processes and attitudes change. In particular, changes in organizational culture can be difficult to accomplish, and therefore the deployment of e-procurement can encounter various degrees of resistance (Chaffey, 2009; Hawking *et al.*, 2004; Tatsis *et al.*, 2006).

Supplier relationship: In some cases, e-procurement alters the relationship between the buyer and seller. For instance, if the purchase decision is based on lowest price, the buyer might no longer feel loyal to the seller, and there may be a corresponding decrease in trust between the parties. E-procurement could damage or destroy long-time partnerships (Jap, 2007; Tassabehji *et al.*, 2006; Yu *et al.*, 2008). Moreover, there is a correlation between successful implementation of e-procurement and strong business relationships with suppliers. Implementing e-procurement successfully can be more difficult for organizations lacking these relationships. (Hawking *et al.*, 2004)

Cost and external focus: Cost of implementation and lack of capital are two barriers to e-procurement (Gunasekaran *et al.*, 2009; Hawking *et al.*, 2004) It is important that benefits exceed the cost associated with e-procurement. In addition, there are external factors to consider before implementing e-procurement systems, such as regulatory and legal controls. If trade is international, there are issues such as language, culture, and regulations barriers that might prevent some organizations from obtaining benefits of e-procurement. (Hawking *et al.*, 2004; Tatsis *et al.*, 2006)

3.4. Summary of literature review

In Table 3.1 we try to illustrate findings from the literature review on benefits and barriers.

Table 3.1 E-procurement benefits and barriers

Benefits	Buyer	Supplier
Cost reduction		
- Administration and transaction costs	●	◐
- Inventory carrying costs	●	-
- Unit cost/Price reductions	●	-
Strategic focus		
- Improved market intelligence	●	-
- Enhanced decision making	●	-
- Improved follow up and evaluation	●	-
Internal focus		
- Reduced lead-times	●	◐
- Improved flexibility and responsiveness	●	-
- Better utilization of resources	●	-
Supplier relationship		
- Improved exchange of information	●	●
- Relationships with new suppliers	●	●

Barriers	Buyer	Supplier
Technological focus		
- Technological infrastructure/standards	●	●
- Integration issues	●	●
- Security concerns	●	●
Internal organization		
- Lack of management commitment	●	-
- Inadequate business processes	●	-
Supplier relationship		
- Decreased trust and co-operation	●	●
- Weak relationship with suppliers	●	-
Cost		
- Cost of implementation	●	●
External issues		
- Language, regulations, culture etc.	●	●

Legend: ● Major focus   ◐ Minor focus   - Not mentioned

The "dots" in Table 3.1 represent to what extent literature discusses e-procurement benefits and barriers from a buyer and supplier perspective. Benefits and barriers derived from literature focus mainly on the buyer. However, they also have an impact on or involve suppliers to some extent, as the procurement process is an inter-organizational process.

The conclusion from reviewing literature on benefits and barriers of e-procurement is that cost is the primary focus of drivers, while integration issues are the main focus of barriers (Hawking *et al*., 2004). Integration issues refer to technological integration, internal integration and integration with suppliers. However, in e-procurement literature, drivers and barriers are often viewed only from the perspective of the buying organization. Maybe this is in the nature of things, when choosing literature on e-procurement, which naturally has a

strong buyer focus. At the same time, it is interesting to notice that benefits mainly are identified for the buying organization, while barriers often include suppliers.

If the procurement process is seen as a project, with a beginning and an end, then the relation to a supplier could be seen as a transaction-by-transaction relation. However, in many cases procurement is an ongoing process, with tactical and operational activities (see Figure 3.2). If the relation is viewed from a recurring full cycle perspective, then it could be argued that a buying organization should have a supplier focus as well. Otherwise, it may be difficult to realize the potential benefits of e-procurement.

The procurement process model shows that no single e-procurement solution can adequately address the need of an organization to purchase different types of goods and services. Solutions could be quite different depending on the product or service to be purchased as well as the supplier relationship. Also, different solutions could be more supportive during a certain part of the procurement process resulting in direct and indirect effects. But in the end, they all have to be cost-efficient and buyer organizations should expect savings in their purchasing function. This is perhaps the key issue facing both corporate executives and public sector leaders as they are looking at various ways of making their own procurement more electronic. In the following case study, the case organization is, in fact, planning to implement an integrated e-procurement solution.

4. CASE STUDY FINDINGS

The Region of Västra Götaland is one of 20 county councils in Sweden, responsible for healthcare, dental care, growth and development matters in the region. The region has approximately 50,000 employees and is one of Sweden's biggest employers. As the Region of Västra Götaland is a public authority in the EU, it has to follow the EC Directives on Public Procurement[1], which has been designed to structure the tender procedures for governmental institutions. Tenders have to be evaluated in one of two ways: either the one with the lowest price or the tender that is the most economically advantageous on the basis of the evaluation criteria stated, such as price, operating costs, quality, aesthetic and functional qualities, service and maintenance, environmental impact (Cousins *et al.*, 2008; van Weele, 2005)

Recent studies show that the number of tenders per procurement has decreased, which could be a signal for public authorities to act (Swedish Competition Authority, 2009). To fully use competition in the marketplace, and to obtain the best deal, it is important that contracting authorities design their award procedures in such a way that organizations can compete on equal terms (Cousins *et al.*, 2008; European Commission, 2008).

Each year, the region purchases goods and services for approximately 1.4 billion EUR from external suppliers. The organization is currently preparing to implement an e-procurement solution, with the intention of obtaining a safe, secure and more efficient purchasing process.

From reading project documents, six goals or benefits with the e-procurement solution can be identified: 1) visible, more efficient processes; 2) reduced lead-times; 3) better resource usage; 4) reduced maverick buying; 5) improved follow-up and 6) enhanced management. At the core of the solution will be an electronic ordering catalog, not only for routine items, but also for leverage products and services. Due to the dissemination of the region the potential

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[1] http://ec.europa.eu/internal_market/publicprocurement/legislation_en.htm

savings with this distributed ordering catalog are estimated high. The catalog will facilitate central control of contracts, product data, and price updates. It will also reduce maverick buying, and will make it possible to pursue the leverage strategy, as the control of purchases will be improved.

The expected benefits of the e-procurement solution in general correspond to the benefits identified in the literature review. More efficient processes could be attained through reduced lead-times and better resource usage, as less manual activities and less time to perform activities will be required. Furthermore, reduced maverick buying could increase bargaining power and leveraging opportunities, which can result in negotiated unit cost reductions. This also corresponds to the benefit of price reductions from the literature review. By using the e-procurement solution, there are also expected benefits from improved follow-up, and improved follow-up is a prerequisite for improved management. This could be compared to strategic benefits from the literature review. However, potential barriers were not identified in the project documents, and nothing regarding supplier relationship.

The anticipated benefits for the region of Västra Götaland are described, but we are also interested in investigating if the planned e-procurement solution could be beneficial to suppliers as well. From this, it is interesting to enhance current knowledge of being a supplier of leveraged products from the supplier perspective. We conducted in-depth interviews with six suppliers, to elicit their opinions of being a supplier to the region of Västra Götaland; a customer with substantial bargaining power, competing mainly in terms of price. Interviews were followed by a workshop with participants from two supplying organizations, aiming at describing requirements on the e-procurement solution from a supplier view.

Suppliers were chosen from different industries and of different sizes to obtain a reasonably representative selection (Table 4.1). We interviewed representatives from upper management in each company, or persons responsible for sales and customer relations.

Table 4.1 Case companies

#	Company	Area	Employees
1	Tissue paper	Manufacturer of tissue paper products and related solutions for hygiene; baking and cooking paper products.	3,200
2	Paper and plastic	Manufacturer of paper sacks; on-site extrusion of polyethylene for plastic sacks and other plastic packaging.	45
3	Catering	Food and catering services	13
4	Printing plant	Delivers printing matters, advertising matters etc.	12
5	Mail services	Mail delivery services	6
6	Gardening	Services in gardening	1

The interviews revealed problems when tendering for a contract and during the contractual period. Based on the problems described, we tried to focus on reducing or eliminating problems and to find new opportunities with the planned e-procurement solution.

The SMEs in our study (company 2-6) experienced difficulties in monitoring when relevant requests for offers (RFQ) were released – even companies paying for a subscription for these services. They sometimes had difficulties in obtaining information as they were unable to allocate sufficient resources to collect relevant information. Furthermore, lack of knowledge about tendering procedures could also be a preventing factor. Some SMEs indicated that it was not worth the effort to engage in the bidding procedures at all, owing to the complexity, high administrative burden and little chance of winning the contract. Therefore, it should be easier to be notified when there is a relevant RFQ coming up, possibly by e-mail or SMS.

Also, if the benefit of reduced administrative burden also included the supplier, perhaps more suppliers would engage in the tendering process. On occasion, the request for quotation was considered unstructured and it was sometimes difficult to understand what was actually requested as similar products could occur in different categories. Preferably, instructions could be clearer to facilitate correct quotations. An automated check-list could prevent incorrect RFQs to be tendered. Furthermore, a FAQ-function could be helpful when providing information electronically.

Contracts are sometimes considered very large, with disparate products. This is another reason why mainly SMEs have difficulties tendering. One interviewee claimed: "*We might be cheapest delivering all kinds of pencils, but if the contract regards pencils AND papers, then we are not qualified to give an offer. It should be possible to sub-divide contracts into lots*". Moreover, sub-dividing contracts into lots should concern both qualitatively (range of products) and quantitatively (production capacity). In summary, sub-dividing contracts into lots, reduced administrative burden, and clearer instructions could be a way to attract more companies to participate, and thus broaden competition.

Another opinion was that the Region of Västra Götaland puts too much emphasize on price rather than value for money. Especially SMEs compete on flexibility, quality, personal relations, innovation etc. rather than on price. Therefore, it could be an incentive for suppliers to develop better and more sustainable products, if the life-cycle costs are taken into account. Furthermore, there was a suspicion that tenderers lower the price on requested products, only to be awarded the contact. Once they are a contracted supplier, they assume to recover potential losses by selling other products with more advantageous margins. This could be prevented if the buying organization only purchase contracted products, which is preferred in the long run. It is important that the customer purchases take place under the umbrella of the negotiated contract; otherwise it loses relevance to suppliers. This could also promote trust and strengthen the buyer-supplier relation, which otherwise is a potential barrier according to the literature review. The general opinion from suppliers in our study was that the contracting authority could offer the possibility to make a framework agreement with several suppliers, and to organize "mini-competitions". In a traditional tendering agreement, the contracting authority advertises for one supplier to deliver all the products for a given period (European Commission, 2008). These so-called "mini-competitions" could promote leveraging opportunities for the Region of Västra Götaland.

Switching between suppliers could also be quite troublesome. In public procurement, suppliers not awarded a contract have the opportunity to appeal. If the supplier is an incumbent supplier, this can prolong the contract, which could be worth a large sum of money. If the RFQ specifications are incorrect, then it is easy to appeal, and in some cases the tendering procedures have to be started all over again. Costs associated with appeals are estimated to be high for the region. If contract sizes are smaller, there is potentially a limited risk of errors in the RFQ specifications. Furthermore, clearer instructions and an automated check-list could also prevent errors in tenders, and thus prevent appeals.

During the contractual period, it was sometimes difficult to contact the responsible purchaser. There should be a contact person, preferably the same individual responsible for tendering and through the whole lifespan of a contract. This could be a way of developing trust and co-operation in the relationship. Additionally, suppliers in our case study were not against administrating their own products electronically, e.g. product updates, price adjustments etc. Furthermore, it should be possible for each supplier to see follow-up information and statistics for his contracts. This could be a way of enhancing management and improving market intelligence for the supplier.

Finally, it was stressed by the interviewed supplier representatives, that the intended e-procurement solution should preferably not complicate the tendering procedures. There was a request to make the process more efficient, not just for the Region of Västra Götaland, but also for tendering suppliers. Therefore, it was considered important to have a flexible, web-based e-procurement solution, easy to integrate with other systems of the suppliers.

4.1. Summary of case study findings

In Table 4.2 the case-study findings are illustrated in a similar way as the benefits and barriers of e-procurement in section 3.4. As we could not find barriers identified by the case organization, we only present the expected or suggested benefits of the planned e-procurement solution.

The conclusions from the case study findings are that the case organisation has identified expected benefits, which in general corresponds to the benefits in the literature review. However, no barriers were found in the project documents, which perhaps is a bit unexpected. This does not mean that the case organization is not aware of them, and as the project is ongoing, the barriers might be recognized in a subsequent stage.

From interviewing suppliers, we found that they were not against an e-procurement solution, as long as it is feasible for them. There were several ideas on how the planned e-procurement solution could be beneficial for suppliers, and three key-words could perhaps summarize the supplier interviews: process visibility, simplicity and e-informing. One example of process visibility is the need to define what happens after the contract has been signed. There has to be a clear interface between the tactical purchasing and the order function.

Simplicity refers to e.g. decreased administrative burden. The e-procurement solution could for instance facilitate by automated checklists and FAQ-functions. Simplicity could also be achieved by subdividing contracts into lots. However, this requires an e-procurement solution, as it would be very difficult to manage an increased number of contracts. Thus, subdividing contracts is not an e-procurement solution, but e-procurement is a prerequisite for managing more contracts without increasing costs.

The third key-word is e-informing, which means gathering and distributing purchasing information both from and to internal and external parties. It is not only the buying organization that is interested in improved follow-up and management. This is true for suppliers as well, and therefore suppliers might have access to purchasing management information.

Table 4.2 Examples of expected or suggested benefits of e-procurement for the buyer and supplier in the case study

Benefits	Buyer	Supplier
Cost reduction	Reduced maverick buying could result in negotiated unit cost reductions. Suppliers administrating their own products electronically reduce administrative work. Less manual activities and less time to perform activities will be required.	Reduced complexity and administrative burden.
Strategic focus	Improved follow-up and management.	Improved follow-up and management.
Internal focus	Efficient processes through reduced lead-times and better resource usage. Improved visibility.	If the purchasing process is visible, it is also easier for the supplier to understand the process. The steps should be communicated externally.
Supplier relationship	Clearer instructions and an automated check-list could also prevent errors in tenders, and thus prevent appeals.	One person responsible for tendering and through the whole lifespan of a contract, which could develop trust and co-operation in the relationship. Suppliers administrating their own products electronically. Access to purchasing management information.

5. DISCUSSION AND CONCLUSIONS

The objective of this research is to provide a view of e-procurement that goes beyond mere cost reductions on the buyer side. Both benefits and barriers are described of implementing e-procurement solutions. We have done this by a literature review complemented by a case study. The main findings of the research are as follows:

From the **buyer perspective**, the first question that arises is if it is possible to realize the potential benefits of e-procurement without taking the supply side into account? As could be seen from the literature review, benefits were rarely discussed from the supplier viewpoint. On the other hand, barriers often included suppliers.

Indicated in literature and in the case study, is the benefit of reduced maverick buying, which could also enable leveraging opportunities. However, if potential suppliers do not attend the tendering process, then the impact of leveraging will not be as significant as anticipated. The e-procurement solution should thus be designed to broaden competition, e.g. by lowering the administrative burden for suppliers, facilitate correct tenders and sub-dividing large contracts

into lots. One objection to having many suppliers is that supplier relationships are cost-driving. However, if the e-procurement solution reduces transaction costs and facilitate for suppliers to administrate their own products electronically, e.g. product updates, price adjustments etc., then suppliers could add other values than just reduced price. Furthermore, using a single supplier may expose the organization to a greater supply risk, causing a transition from leverage to the critical segment in the Kraljic matrix.

When assessing the suitability of different e-procurement solutions, it is important not only to focus on the operational cost savings. Organizations implementing e-procurement solutions need to see the overall effect, not always in terms of cost. It is a 'summation' of several effects – operational, tactical and strategic.

From the **supplier perspective**, it is important that the e-procurement solution adds value. However, value adding is not always directly cost related. Examples of this type of value are simplicity, visibility and information sharing. For instance, the e-procurement solution should simplify the tendering process as well as the orderfulfillment process (from customer order to delivery). In a report from the European Commission (2008) difficulties in accessing public procurement encountered by SMEs are for example: (a) the size of contracts, (b) access to relevant information, (c) quality and understanding of the information provided, (d) high administrative burden, (e) too much emphasis on price rather than 'value for money', and (f) disproportionate qualification levels. This corresponds well with the results from interviewing suppliers in our case study. Remarkably, this criticism is often also found by suppliers engaged in reversed e-auctions, which are often used for purchasing leveraged products where low purchase price in general is a main target for the buyer (Tassabehji et al., 2006).

From this discussion, we conclude that it is important to have both a buyer and a supplier focus when implementing an e-procurement solution.

This study applies a buyer perspective, but within this the suppliers' side has to be taken seriously into account. We identified a number of barriers and drivers of e-procurement and implicated that drivers mainly are identified for buying organizations, while barriers often include suppliers. These findings are also partly demonstrated by the case study. However, interviews with suppliers show that e-procurement solutions could be beneficial for them as well. This could probably be accomplished without too much effort from the buyer, and includes things like simplifying and visualizing the procurement process. Furthermore, there are many different e-procurement solutions available, and further analysis should endeavor to elicit how they support different stages of the procurement process or different segments in the portfolio model. It sets the stage for a wider program of research on e-procurement. Some issues for further research include:

1) *how public and private organizations can extend the scope of e-procurement to include more than cost reduction dimensions,*

2) *the opportunities and requirements to succeed in extending the scope.*

3) *how to improve the implementation of e-procurement solutions for the mutual benefit of both buyers and suppliers, and*

4) *requirements on the e-procurement solution in order to achieve mutual benefits.*

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