The diffusion and context of e-commerce and e-procurement

Some corporate findings

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Abstract — More than 80% of Fortune 1000 has adopted e-procurement and e-Sourcing technologies according to Aberdeen Group. Focus has been on integration and automation of the extended sourcing lifecycle. The technology associated with Internet has increased the possibilities to do e-business, e-commerce, and e-procurement. [1] This paper describes and discusses the evolution and created benefits at Ericsson, the Swedish telecom company. A proposed new approach to discuss the procurement context, based on what to buy and how to do it, is also presented together with Swedish government cases. Tools in the presented cases have had a great effect on e-business and e-procurement processes and a lot of benefits have been created.

Keywords: e-commerce, e-procurement, procurement context, case benefits

I. FROM E-BUSINESS TO E-COMMERCE AND E-PROCUREMENT

Many terms are floating around for Internet-based on-line business, e-business, e-commerce, e-services, Internet commerce or just “the Internet”. Alter [2] gives a broad definition of the e-business concept: “E-business is the practice of performing and coordinating critical business processes such as designing products, obtaining supplies, manufacturing, selling, fulfilling orders, and providing services through the extensive use of computer and communication technologies and computerized data”. E-business and e-commerce are sometimes used interchangeably. Viewed in this way makes e-commerce just a part of e-business. E-commerce is often thought of simply as buying and selling using the Internet.

The usage of the term e-commerce can be preferred for three reasons. First, it is a reminder of what really matters. The commerce and its correlated commercial relations. Second, it downplays the notion of this being electronic while still keeping the “e” as what distinguishes it from the previous modes of commerce. Third, e-commerce signals that while the internet is the core enabler of this era of business normally it includes many other information technology (IT) components, such as data base management systems, corporate telecommunication networks, enterprise resource planning systems, personal computers etc. Therefore, IT should not be considered a support function in e-commerce but as its operational core. E-commerce is first and foremost about exchange, value, and relationships. Exchange creates the transaction relationship between the buyer and the seller. The value opens up the possibility of relationships beyond the transaction. Continues interaction, new forms of collaboration, repeat business, personal services, long-term contracts, accounts, and account management are examples of this. E-procurement can then be viewed as e-processes within e-commerce. The processes define the priorities, rules, interfaces, and sourcing of these processes, from routine to exceptional. The issue commerce than rests on interaction that rests on relationships which rests on processes that rests on prioritization and sourcing. [3]

The strategic impact of e-commerce can be evaluated from a seller or a buyer perspective. In this paper, we are focusing on the business-to-business buying-side. The buy-side of e-commerce could be defined as “e-commerce transactions between a purchasing organization and its suppliers”. [4]

Procurement and purchasing are then part of commerce. Purchasing refers to activities associated with the buying process of materials and services but e-purchasing addresses only one relatively minor aspect of the procurement problems companies’ face. Procurement, on the other hand, is broadly defined to include a company’s requisitioning, purchasing, transportation, warehousing, and in-bound receiving processes. Procurement is a closed-loop process that begins with the product requisition and ends once the invoice for the product is paid. E-procurement can then be described as the electronic integration and management of all procurement activities including purchase request, authorization, order, delivery and payment between a purchaser and a supplier. [5]

II. DRIVERS FOR E-PROCUREMENT

There are many reasons why companies are using e-procurement. The primary driver is cost reduction. Kluge (1997) and Kalakota and Robinson (2001) considered procurement to be a strategic issue since the significant savings can be can result in greater profitability. Direct cost reductions are primary achieved through efficiencies in the processes. Less staff time is spent in searching and ordering products and reconciling deliveries with invoices. Savings also occur due to automated validation of pre-approved spending budgets for
individuals and departments leading fewer people processing each order, and in less time. It is also possible to reduce the cost of physical materials such as printed order forms and invoices that are important to the process. Indirect benefits can also be reached from e-procurement processes such as the cycle time between order and use of supplies. Greater flexibility in ordering of goods from different suppliers according to best value is another potential benefit. The changing role of the buyer in the procurement department by removing administrative tasks and focusing more time on value-adding activities are also important. Other reported benefits are that processes can change to activities that include more time spent with key suppliers to improve delivery and costs analysis and control of purchasing behaviour. [4]

III. DIFFUSION OF E-PROCUREMENT

Aberdeen Group [1] shows that e-procurement and e-sourcing has become a worldwide mature and well-adopted technology. Big companies have taken the lead. E-Auction is the most mature part but is just one component of e-Sourcing. Focus is on integration and automation of the extended sourcing lifecycle. Aberdeen surveyed chief procurement officers (CPOs), vice presidents, directors of procurement and supply management at nearly 100 global enterprises. They summarized their more general findings in the following points:

- Globalization, outsourcing, regulatory compliance, and shifting market dynamics have advanced sourcing as a discipline and a contributor to enterprise value.
- In addition to cost and supply control, sourcing is increasingly playing key roles in market expansion, product innovation, and compliance.
- Standardizing sourcing procedures and systems, managing supply risk, maintaining top talent, and driving compliance are chief challenges to sourcing transformation.

Conspexitus [6] research showed that many UK organisations have invested in web-enabled e-procurement. But, a mix of systems is used, with 92% using the web for some aspects of procurement, but with 85% still using fax and 65% traditional EDI. The main benefits reported were reduced costs, along with improved service, greater responsiveness, improved supplier relationship and better collaboration with suppliers.

IV. WHAT AND HOW

Procurement can be seen as a ‘hard’ problem if the goods or services to acquire are very well defined and commonly recognised, but will become ‘softer’ the more complex the situation is. The trend seems to be that more needs to be taken into account like corporate social responsibility and environmental requirements. Therefore, to get a deeper understanding of sourcing and procurement it is important to focus more on what you are going to buy and then how you are going to do it in a secure way. That also means that the specification of what you are going to buy is strongly influencing how you are going to do your buying. One-way to get a better understanding of the relation and linkage between what and how is to start with a discussion of the procurement context.

V. PROCUREMENT CONTEXT

The strategy and process of procurement is influenced by factors such as the market available, whether it is a commodity or a complex object or system to acquire, and if the organisation is private or public.

In many countries, the last factor is defining how the procurement is carried out and how tenders are handled. Public organisations normally have to follow the laws of public procurement. Private corporations can procure more freely, but if the legislator defines the business as of special importance for the country, then the rules are very similar. This does not mean that public procurements are more complex than private, but public organisations have a more fixed set of rules to follow.

Traditionally, the markets of suppliers are divided into mass-market and monopoly.

- Mass-market is characterized by many suppliers and standardised products. Usually with a common understanding of what the delivery contains. Therefore, focus is on sourcing, who to buy from with the necessary capacity and quality.
- Monopoly market has the character of one or a couple of dominate suppliers (the later sometimes called an oligopoly). Normally, the procurer has to accept the products and services as they are. Therefore, focus in this case is on price and the possibility to get something extra, e.g. bundling and support. Monopoly markets often have distributors. The competition among those can give lower price.

In today’s globalised market, a more or less easily accessed market can be found in between these markets and we call it the mid-range market.

- In Mid-range markets the numbers of suppliers vary – for complex objects, just a few or a limited number. Typical for this segment is that the delivery is more or less unique. A balance between price and quality is in focus.

By tradition, the object to be procured is classified as direct or indirect material. The first being things that are part of a product. The other one is the rest that is needed to produce the final product. It can be argued that the object to procure need to be classified in new ways, for instance, the degree of commodities or systems, and of complexity. The main reason for this is that the boundaries between production and other process types are becoming more and more unclear. To do a “correct” procurement, it is more likely that a procurement of a system need a more complex specification than a procurement of a commodity. On the other hand, some commodities are not enough specified since their complexity is underestimated. E.g., services are often not very well defined since it is assumed that all parties understand what the service shall contain. Too simple assessment models are then used and they are more or less focusing on the price. Instead, a deep-going discussion is needed to find out what object-type and specification with its related complexity the procurement must focus on. The discussion will

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1 This section was inspired by B Risinger, consultant, Risinger Consulting.
then determine the specification and assessment model to be used. The next step, how to find and source the potential suppliers, will then decide the processes how to do it.

![Figure 1. Procurement context.](image)

These three dimensions in figure 1 can have many combinations. For instance, procurement can have the following properties: a commodity with many suppliers and a simple specification, or a system, with few suppliers and a very comprehensive and complex specification. The procurement processes will therefore differ from situation to situation. Methods and tools to support the process are also different, especially IT-based ones. It is of interest to find out which parts of the process that are complex and therefore use tools to make it possible to handle the needed complexity. The complexity in the procurement process can be measured in terms of the number of suppliers, tenders, requirements in the specification, the complexity in the assessment, and in administration. For instance, a huge number of tenders and a simple specification can be as complex as few tenders and a complex specification. Actually, not using tools can make it impossible to handle the required variety to make a well-accomplished procurement. Procurement without e-procurement tools also makes it much more difficult to assess should requirements. Many traditional buying processes assess only a few should-requirements and consequently the shall-requirements are dominating.

VI. CASES AND FINDINGS

The cases presented here are primarily discussing how e-sourcing and e-procurement have been done. Implementing state-of-the-art IT-tools have been an important key to the success in both cases.

A. The Ericsson evolution and some findings

The more specific e-procurement drivers for Ericsson can be related to the four goals that is guiding their operations: (1) Operational excellence, (2) Excellence in processes, (3) Inspired, responsive employees and, (4) Excellence in supply chain. The fulfilments of these goals are greatly influenced and enabled by e-sourcing and e-procurement. There have been three evolution steps at Ericsson. First, they established e-procurement including marketplace catalogue and transaction routing. Then, complete e-procurement with e-invoicing and after that introducing e-sourcing processes and tools. Ericsson is now one of the leading users of SAP/SRM/eProcurement worldwide. More than 40,000 users can access the system within 130 companies in 70 countries. 27,000 purchase orders are created each month and the total order value on a yearly basis is 7 billion Euros. The total number of sourcing people has been reduced from 1000 to 600 worldwide, although sourcing has increased from 40 to 60% of business turnover. Management and measurement have also been influenced and re-shaped in many ways. Some important strategic achievements are; complete electronic “purchase-to-pay” process with e-invoicing, improved vendor base with fewer suppliers, mandatory purchase order, “automatic” authorization routine and new role of buyer with more strategic focus. The Ericsson e-Sourcing program started in 2004 and is now implemented globally. The target for 2010 is to reach 50% of Ericsson’s total spend. Savings so far are more than 15% and the timesavings close to 50%. More than 10,000 of the potential suppliers participate in e-sourcing events.

B. Public Procurement

The procurement situation at Ericsson is very much in order and with centralized control. The diffusion of e-commerce and e-procurement in the Swedish public sector, on the other hand, is difficult to grasp. The public sector procures for more than 50 billion euro every year. The procurement is split up between local, regional and central government with very little coordination. There are only a few reports presented despite the size of the total procurement amount. Some of the main results that have been presented are the following:

- There are 11 central agencies that are using procured framework agreements divided into more than 190 areas where the centralised IT-procurement is just one with an annual amount of 400 million euro.
- The split procurement situation has lead to insufficient statistics and control, and a need for a specific agency that could coordinate procurement for the central government.
- Only one third of the local and half of the regional authorities use e-commerce.
- By using electronic public procurement systems, there are benefits for all parties involved in public procurement. Better structured and more concise call for tenders are leading to substantial timesavings.
- A better balance between quantitative and qualitative measures is needed together with improved assessment methods. [8] [9] [10]

A good example of the last point above is two procurement cases from one of the biggest Swedish central agencies. They procure advanced technology systems often with an expected lifetime of 15 – 30 years. The procurements had the characteristics of being systems with high complexity and potential suppliers from the mid-range market.

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2 This section was made possible by cooperation with A. Paulsson, Director and Senior Sourcing Adviser at Ericsson.

3 This section was partly possible by the cooperation with Jan Karlsson, consultant, Secure State AB.
The first project started as a traditional procurement project with limited IT-support. The enquiry contained approx. 900 requirements. Less than 1% was should requirements and all the rest was shall requirements. The specification was complex. The assessment model was a traditional summing of scores.

The tool-based experiences in the first project show that an even more complex what-specification could be handled. In the second project the enquiry contained approx 1100 requirements, and 24% of them were should requirements. A more complex assessment model was also used. Assessment scenarios were used to simulate the outcome of the model. This was in line with the result of the procurement. The project has reported at least 30% less work hours and a new possibility to handle complexity. Moreover, the procured system was of higher quality and lower cost compared with a traditional approach.

VII. DISCUSSION AND CONCLUSIONS

Companies using e-commerce and e-procurement report many benefits. They differ slightly but reduced purchasing cycle time and cost are among the most reported. [4] [5] [7]

Ericsson found a lot of positive results with e-procurement and e-sourcing processes compared with the traditional approach. The main benefits can be related to the quadrants in figure 2.

![Figure 2. e-procurement and four common success factors.](image)

More fact based and better decisions could be made where one format made it easier and quicker to compare supplier responses and score the evaluation. The overall process efficiency has increased with shortened procurement cycles. Increased process efficiency with one format also decreased the time spent on evaluation. The created tool-based competitive alternatives with easier and quicker evaluation of suppliers’ responses have given the possibility to invite a larger supplier base. The larger supplier base has also made it easier to find responses and score the evaluation. The overall process efficiency has increased with shortened procurement cycles. In-process approaches have reduced costs and Ericsson can handle more supplier qualifications, initial negotiations, and final negotiations.

The two reported public projects were similar in their complexity but the second one used a tool throughout the procurement. The later assessed more quality measures and used simulations to ensure the desired outcome of the assessment. Half-way through the assessment, the number of competitive alternatives was reduced due to the tool-based approach and less tenderer visits were needed. Price, functionality and quality aspects were the base for the decision. This made it easier and apparent which tenderer to choose. The process efficiency was significant improved, by both quality and time. All this led to savings in many respects. The most profound was that chosen system contains more functionalities to the budgeted cost than a traditional procurement would have done.

Conclusions:

- There is a tendency to think first in how to do it and later what to do when organisations develop e-commerce and e-procurement.
- IT is an enabler that gives organisations better possibility to handle complex what-specifications and better processes how to do it.
- IT should not be considered a support function in e-commerce and e-procurement but as its operational core.

The cases described here stresses: First, think what to buy, then how to buy it, enabled by which processes and tools. This is in principal not new. Wiener expressed the relationship between what and how long before e-commerce and e-procurement were ever heard of when he stated, “There is one quality more important than “know-how”… this is “know-what” by which we determine not only how to accomplish our purposes, but what our purposes are to be”. [11]

REFERENCES