Abstract
This paper presents results from a longitudinal study on the use of ICT for B2B-related business processes in large Swiss companies. In an empirical survey, 68 questionnaires were personally collected from procurement heads and subsequently analysed. The study was initiated by industry partners who wanted to gain more detailed knowledge about the maturity of e-procurement in the Swiss market. Based on an extensive literature review and previous empirical studies, we developed a research framework addressing strategic as well as operational issues. The findings show that reduction of purchase prices is the top priority when setting procurement goals. For 78.2% of the respondents IT makes an important contribution to successfully carrying out the procurement function. Nevertheless, these companies are striving for further optimization and improved process integration. Electronic exchange of invoices (e-invoicing) is a current key topic for over 70% of the companies. Procurement heads sense a lack of supplier involvement, which makes the realization of balanced B2B solution scenarios difficult. The study shows that IT, without doubt, plays a significant role in everyday procurement, but that the expectations of IT are rarely completely fulfilled.

Keywords: empirical study, survey, SME, e-procurement, B2B e-commerce

Authors
Christian Tanner (christian.tanner@fhnw.ch) is Professor for IT Management and e-Business at the University of Applied Sciences Northwestern Switzerland, School of Business in Basel, at the Institute for Information Systems. His research focuses on the management and design of inter-organizational systems and business processes (e-Procurement, B2B e-Commerce, Electronic Markets).
Ralf Wölfe (ralf.woelfle@fhnw.ch) is Professor for IT Management and e-Business at the University of Applied Sciences Northwestern Switzerland, School of Business in Basel, at the Institute for Information Systems. He is head of the Competence Centre e-Business, Basel. His research focuses on the management and design of e-business concepts and the dissemination of ICT and e-business knowledge.

INTRODUCTION
E-procurement, the electronic support of the professional buying process, which addresses the relationships of a business with its suppliers, has gained increased attention in academic work in recent years (Carter and Monczka 2005, Crossgate 2007, Nagle et al. 2007, Palma dos Reis and Soares Aguiar 2006, Williams and Hardy 2007). Around the year 2000 and in the following years, online marketplaces, reverse auctions and desktop procurement systems were among the various e-procurement-related topics of interest (Eyholzer 2002, Segev et al. 2000). Now that the euphoria surrounding e-business has abated, more research is needed on the successful use of e-procurement systems (Knudsen 2003).

This study addresses the role of information technology in the procurement function of the Top 200 companies in Switzerland today. For years, the research group behind this paper has been conducting a long-term study of the use of ICT for B2B-related business processes. In 2003, an initial, small scale e-procurement study was carried out (Tanner 2003). It was embedded in the so-called ‘E-Supplier Initiative’ and showed the need for action in the area of electronic invoice
LITERATURE REVIEW AND OBJECTIVES OF THE STUDY

This section presents an overview of basic concepts and previous research in the area of electronic procurement, and it outlines the objectives of the study. The number of academic publications on e-procurement has increased in the past two years. This increase made it possible to review previous results from four different countries: Portugal (Palma dos Reis and Soares Aguiar 2006); Ireland (Nagle et al. 2007); Germany (Crossgate 2007, Kutschera and Tittel 2005); and Australia (Williams and Hardy 2007).

Current research in e-procurement

There are two different types of procurement processes, the first and most often discussed being Material Requirements Planning (MRP) and the second referring to products for Maintenance, Repair and Operations (MRO). MRP, the procurement of direct goods needed for the company’s own production process, is usually characterized by standardized processes and was traditionally supported by systems for enterprise resource planning (ERP). With the advent of Internet technology, the area of MRO, the procurement of indirect material such as office supplies and services, also became feasible for electronic support.

Direct procurement is often characterized by long-term supplier relationships, defined purchasing processes, rather unmodified material master data, call-off orders and planned quantities. Indirect procurement, on the other hand, is based on ad-hoc activities which are difficult to put into an electronically supported workflow. Since the products needed in this area are less frequently bought and usually of low value, companies shy away from maintaining material master data for indirect products. The study of Subramaniam and Shaw (2004: 15) showed that indirect procurement especially can benefit from electronic support: ‘From our analysis, it is clear that the use of Web is beneficial for unstructured procurement, such as unplanned purchases.’

The term e-procurement gained popularity around the year 2000 with the emergence of the two competitors Ariba and Commerce One, companies that specialized in the support of electronic procurement for MRO products (Segev et al. 2000). With the help of so-called ‘buy-side solutions’ large companies started to build up their own electronic multi-vendor catalogues. The introduction of Internet-based procurement applications induced a shift from a centrally organized procurement (central buying) department to a so-called ‘desktop procurement’ environment, where the employee in need of a product would initiate the purchase transaction electronically. With these two trends, ‘decentralized purchasing’ and ‘multi-vendor catalogues’, the path toward increased electronic support of the MRO buying process was paved.

In our study, we analyse procurement for direct as well as indirect products. Figure 1 shows the different levels (strategic and operational) and the processes and functions on which we focus our discussion (Schubert et al. 2002). At the strategic procurement level we explore the relevance of IT for identifying the right suppliers and supporting the subsequent negotiation process. Once the basic conditions of purchasing are settled they need to be managed by the system. The aim is to control the supplier’s compliance with the contract and to avoid purchasing transactions, by employees, outside the contracts (maverick buying). On the operational procurement level we explore the utilization of IT for functions and processes supporting the day-to-day operations of procurement departments. They include collaboration with suppliers in terms of planning and forecasting but also in the field of product

Figure 1. Research framework: procurement levels and activities
development. We put a special focus on the electronic exchange of business documents (EDI) between companies from the placement of an order to the final settlement of an invoice. In this context, we refer to Supplier Relationship Management as the closed-loop within a buying organization that deals with relationships and processes with suppliers (Wölfle and Schubert 2006). In doing this, we are in accordance with the main vendors of IT procurement solutions which use this term for broad electronic support of the buyer–supplier relationship including strategic as well as operational processes.

As for many other areas of electronic business, the early literature especially points to the fact that electronic procurement systems are likely to lead to cost reduction (Bakos 1997, Williamson 1996) and increased efficiency on inbound logistics (Subramaniam and Shaw 2004). As a core function procurement is, however, subjected to the mega trends of the market. Its day to day existence is very much defined by growing procurement volumes due to greater concentration of business on core competences, globalization of procurement markets, growing market dynamics as well as the ever shorter product lifecycle (Belz and Mühlemeyer 2001, European Commission 2007).

For a procurement organization to operate both efficiently and effectively in such a complex environment useful structures need to be created and suitable instruments put to use (Eichler 2003, Möhrstädt et al. 2001). Information technology can have an important function in this regard (Segev et al. 2000, Kearney 2004). Used appropriately it can offer:

- smoother and faster process flow;
- efficient distribution of information;
- decentralization of tasks and decisions; and
- increased transparency and better control.

In addition, information technology helps not only to support internal processes, but also those involving business partners (Minahan 2005). In this way information technology grows in importance in the daily business of procurement managers (Aberdeen Group 2003, 2005).

In a recent survey, Palma dos Reis and Soeares Aguiar (2006) studied the factors leading to the adoption of electronic procurement systems in Portugal. Their respondents were people in management positions from 240 large companies in manufacturing, commerce and services. The authors built their hypotheses on the framework of Tornatzky and Fleischer (1990), which describes three aspects of a firm’s context that can influence the adoption of technological innovations: organizational context; technological context; and environmental context. The authors found positive relationships among firm size (organizational context), technological capabilities (technological context), the extent of adoption among competitors, and trading partner readiness (environmental context).

In a field study in Ireland, Nagle et al. (2007) explored the effects that B2B relationships have on e-procurement systems. The authors performed an in-depth field study in six selected companies and successfully showed that adversarial type relationships influence e-procurement systems around the sourcing phases (information gathering, supplier contact, background review and negotiation). They demonstrated that in comparison, collaborative relationships tend to affect the fulfilment and consumption phases more than other procurement activities.

Electronic Data Interchange (EDI), applications can be seen as the first wave of e-procurement systems (Chaffey 2002, Schubert et al. 2002). EDI, and with it the streamlining of the purchasing process, has been a research topic for almost 20 years. Many studies of the effects of the electronic support in business processes have been published in leading journals (e.g., Beck et al. 2005, Dai and Kauffman 2002, Iacovou et al. 1995, Lee et al. 2004, Lim and Palvia 2001). Due to the significant investments required for building up an EDI system (converter, contacts, VAN setup), many ‘old-fashioned’ EDI software interfaces are still in use and have not been replaced with XML-based technology. A recent EDI survey performed in Germany (Crossgate 2007) addressed 5,000 companies from different industries. Of the 891 respondents 50% reported that EDI still has a high priority in their procurement processes. This is also reflected in the fact that the order is the number one business document exchanged electronically by 76% of the responding companies.

A survey on e-procurement in Australia (Williams and Hardy 2007) showed that e-procurement has become an increasingly strategic topic in companies. Like the others, this study addressed top management and is based on responses from 139 organizations in different industries across the public and private sector. Compared to a similar survey conducted two years before, e-procurement implementations had increased in both reach and scope. More companies were investing in the electronic support of procurement functions and processes. However, none of the respondents who had implemented e-procurement reported major or significant benefits. This is in line with findings from Germany (Crossgate 2007, Kutschera and Tittel 2005) and our own results from Switzerland (Tanner et al. 2007).

Research objectives

The study presented in this paper was initiated by industry partners who had specific questions regarding the e-procurement maturity of the Swiss market. Based on the situation described above, the study had the following objectives:
Describing the significance and the current status of the use of IT in procurement;
Identifying the challenges involved in using IT in procurement; and
Identifying priorities in the further development of IT for procurement.

Four topics are covered in depth: (1) trends and challenges in procurement; (2) challenges in the utilization of IT for procurement; (3) further development of the use of IT in procurement; and (4) hot topics for the future.

RESEARCH DESIGN AND CHARACTERISTIC OF CONTROL SAMPLE

The following section explains the method of investigation and shows the response and characterization of the respondents.

Method of investigation

The population for this study consists of the 200 privately owned companies that are the major employers in Switzerland according to the listing entitled ‘Top 2004 – the largest companies in Switzerland,’ published by the Swiss business magazine *Handelszeitung* (*Handelszeitung* 2004). The company names were taken from the corresponding database. We first telephoned the companies and identified the people in charge of procurement in the company or group. Once we had the name of the responsible person, we sent a personal letter explaining the study objectives and the link to the online questionnaire. The questionnaire was available in German and English. After a pre-test with five procurement professionals the collection of data was carried out in November 2005. Following this, the results were evaluated and analysed.

Response and characterization of the participants

The return rate from the 68 companies, who took part in the study, was 34%. Four of the questionnaires had to be discarded, these had been completed by small group companies whose procurement function did not exhibit the characteristics of a large company procurement department and did not play a major role within the group. The participants in the study were categorized by the size of their company, their sector and their procurement volume and job function. As the study focuses on the large companies that are believed to be e-procurement leaders, the study cannot be considered representative for Switzerland as a whole.

Company size. Of the participating companies, 76.6% employed more than 1,000 staff (calculated as full-time equivalents). Companies with fewer than 500 employees were subsidiaries of groups of companies that were either responsible for most of the company’s purchasing or else had the highest procurement volume in the group. In total, 28% of the respondents indicated that they were answering from the perspective of a subsidiary. The remainder answered the question from the perspective of the procurement organization of an independent company or from the perspective of the corporate group.

Sector affiliation. The distribution of participating companies with more than 500 employees by sector was compared with data from the latest Industry Census of 2001 of the Swiss Federal Statistical Office. The trade sector was underrepresented in our study while the machine industry was overrepresented.

Job function of the respondents. People with a leading role in the procurement organization provided 85.9% of the responses. In five cases the questionnaire was completed by respondents in charge of IT and in a further four cases by respondents who had a supporting role in procurement.

E-PROCUREMENT: TRENDS AND CHALLENGES

Before the use and role of IT in procurement can be examined, the respondents’ main procurement goals should be highlighted. The major emphasis in the utilization of IT in procurement is very much dependent on procurement objectives, the particular sector and the core business. The latter two criteria influence to a large extent the volume of procurement and the requirements of a company.

Main goals in procurement

Reduction of purchase prices is the top priority when setting goals for procurement (see Figure 2). This traditional goal is given very high priority, with 56.3% of responses. Reduction of prices was also the number one factor for adoption of e-procurement systems in the Australian study (Williams and Hardy 2007). This contrasts with the more comprehensive management approaches that should be adopted by the procurement function to deal with the increasing market dynamics (Boutellier 2003). The broad objective of optimizing the total costs of procurement is, with the exception of four companies, ranked as rather high or very high priority.

The internal optimization of processes plays an important role in the total optimization of purchasing costs, 48.4% of participants granted it very high priority,
and they seem to identify untapped potential. In contrast, B2B process optimization was only given high priority by 17.2%. Outsourcing of strategic or operational processes did not seem to be an important issue from the procurement perspective.

Electronic data interchange with suppliers

Much of the purchasing potential of information technology lies in the design of processes beyond the company’s borders (CAPS Research 2003, Carter and Monczka 2005). Therefore, the investigation examined the extent to which the Top 200 companies in Switzerland exchanged structured, electronic business documents, such as orders, despatch advice or invoices, with their suppliers.

Low penetration – greatest volume with electronic orders and invoices. Of the companies, in the study, 53.2% reported exchanging business documents completely electronically with their suppliers (i.e. transmission or receipt of documents takes place in structured form without renewed manual data entry) and only 14.6% reached a penetration of more than 100 suppliers. It seems that only a few companies achieve a widespread roll-out integrating their suppliers into their electronic processes. In addition it can be ascertained that few companies consistently use the electronic route. The majority of respondents exchange less than 20% of all types of documents electronically with suppliers. This is confirmed by the German study (Crossgate 2007) which shows that on average only half of the respondents exchange between 100 and 5,000 transactions per month electronically – a mere fraction of the total amount of transactions. The level of ‘electronification’ is still very low.

The following listing shows the extent to which the electronic exchange of specific business documents is supported by the respondents. The values in parentheses show the corresponding values from the German EDI study mentioned above (Crossgate 2007).

1. Purchase order 84.8% (76%, no. 1)
2. Invoice 57.6% (73%, no. 2)
3. Order confirmation 57.6% (45%, no. 5)
4. Request for quote and bid 57.6% (–)
5. Despatch advice 48.5% (65%, no. 3)

As can be seen in the comparison, the purchase order is the most electronically exchanged business document. Whereas in Switzerland the electronic purchase order reaches a higher penetration the electronic invoice lags somewhat behind the German figures.

Lack of supplier involvement and balanced B2B solution scenarios. In order to get to the root of why integrated B2B solutions have only penetrated to a small extent with suppliers, study participants were confronted with a variety of statements and asked to what extent they agreed (see Figure 3).

Figure 2. Reduction of purchasing price has highest priority

![Figure 2](image.png)

Over 60% of procurement organizations judge suppliers’ lack of awareness and infrastructure to optimize B2B processes as a hindrance to integrated B2B solution scenarios. Again, the Australian study showed a similar picture. ‘Lack of
supplier readiness’ was mentioned as the number one inhibitor to adoption of e-procurement systems (Williams and Hardy 2007). However, 48.4% of the respondents in the Swiss study admitted that suppliers are not always offered appropriate or affordable integration solutions. ‘Systems integration issues’ was also the number two inhibitor in Australia (Williams and Hardy 2007). In addition, the majority of the companies agree with the statement that the current B2B scenarios are not balanced and the position of the suppliers is insufficiently considered, although only 4.7% of respondents agree completely with the latter.

Over 40% of the companies see the varying requirements of the procurement organization to their suppliers as a hindrance. Almost as many lack accepted and widespread B2B standards for business documents and processes. B2B marketplaces could accelerate the integration of suppliers with the procurement system of companies. In the study 57.8% of the participants tend to agree or agree completely with this statement.

Noteworthy in Figure 3 is the high proportion of companies who did not comment on the statements. The proportion of companies who did not respond to the statement about the balance of current B2B integration scenarios was just over 20%. This may reflect a lack of knowledge on the part of procurement executives about the available integration options.

Overall, these answers do not provide a clear picture of the views of the Top 200 companies. This area requires additional investigation.

**Challenges in the utilization of IT for procurement**

The study shows without doubt that IT plays a significant role in everyday procurement, but it also shows that the expectations of IT are rarely completely fulfilled. We investigated what procurement managers see as the most significant current challenges.

**High costs, few suppliers and deficient master data.** One of the biggest difficulties seems to be the high introduction costs for new IT solutions for supporting e-procurement (see Figure 4). This point was named by 61.3% of the study participants. Closely connected is the statement of 48.4% of the companies that the benefit and the potential of new IT solutions are difficult to appraise. The Australian study similarly revealed that managers’ inability to justify cost and benefits was the number three inhibitor (Williams and Hardy 2007). This should lead solution providers to give high priority to cost and benefit considerations and, in relation to this, to transparent, open communication.
As shown earlier, it was ascertained that EDI with suppliers is only at an advanced stage in a few companies. One of the main difficulties described by 54.8% of respondents was the slow integration of suppliers to the procurement system as in effectively using appropriate IT solutions. Poor quality of master data remains an ongoing issue (Leukel 2004) with 51.6% of companies still seeing a problem here. Four out of ten study participants see a further difficulty in the use of IT in the lack of user-friendliness and user acceptance.

In the responses 38.6% of companies assess problems in process support, because only some of the procurement processes can be covered by IT solutions, and 30.6% believe that IT solutions do not address the complexity of purchasing processes. However, only 22.6% of respondents are of the opinion that a major difficulty lies in the lack of fully integrated software solutions.

The lack of qualified staff is (fortunately) a problem for only few of the Top 200 companies in Switzerland. Only 14.5% of the respondents see a problem here. This contrasts with the results of an international study by the Economist (Economist 2005: 23) commissioned by SAP, which was conducted with 350 management board members. Of the participant 58% reported that the lack of qualified staff and training was the greatest challenge to achieving maximum efficiency in procurement. It is quite possible that, in comparison, companies in Switzerland can rely on better educated staff.

Consultant expertise does not seem to cause a bottleneck for further development of IT for procurement, as only 6.5% see any difficulty in this area. The study participants were also asked to what extent they agree that the quality of data on expenditure in the company is insufficient, 39.1% agreed completely or tended to agree. 28.1% of companies reported in addition that many orders were placed outside the negotiated contracts, described as maverick buying (Hartmann 1999: 47, Neef 2001).

Further development of the use of IT in procurement

Lastly, the procurement heads were asked: 1) how they estimated the prospects for their further utilization of IT; 2) who the driving force in the company was in this regard; 3) what the main focus of future IT use would be. They were also asked to make statements regarding their planned expenditure for the next two years.

Strategic level: optimization of transparency and reporting in focus. The companies were asked where their priorities lie in the enhancement of IT in their own company to support strategic and also operational procurement processes (see Figure 5).

In the case of strategic processes it is striking that the main focus is on reporting and analysis functions. Nearly 70% of the companies give high or very high priority to optimizing the analysis of expenditure. IT support of supplier assessment is also given above average priority, mentioned by over 60% of respondents.

It may come as a surprise to find that further development of IT in the areas of sourcing processes (supplier identification, negotiation) does not receive higher priority. In view of the efforts made to reduce prices and the low usage of online auctions and invitations to tender (sourcing tools), higher values would have been expected here. It would be interesting
to test the results reported in the Irish study by Nagle et al. (2007) on this phenomenon. Following Nagle et al., we would expect to find that Swiss B2B relationships in the Top 200 companies are characterized by collaborative rather than adversarial relationships. This would explain the lack of interest in electronic support of sourcing activities.

The potential of electronic sourcing remains to be realized. Only 30% of the Top 200 companies reported currently using online sourcing tools. As shown in the latest e-business W@tch report (European Commission 2007), use of online sourcing tools in Europe is far behind other e-procurement tools.

Operational level: Optimization of order and invoice processing in focus. In the further development of IT support for operational processes, order and invoice processing are at the top of the list of priorities (see Figure 6). The optimization of order processing of direct goods takes priority over indirect goods, services and investment goods. If the answers with high priority and fairly high priority are added together, the introduction or enhancement of automated invoice entry processing attains the highest value with 68.8%.

With regard to the exchange of electronically structured business documents such as orders, invoices and dispatch advices, the companies tend to be less enthusiastic. In only 8.1% of the responding companies is the this issue given high priority. Considering that cooperational disposition and planning with suppliers is not important to all companies and sectors, 42.2% of companies still attach fairly or very high priority to

Figure 5. Further development of IT to support strategic procurement processes

Figure 6. Further development of IT to support operational procurement processes
developing this area. This corresponds with findings about unfulfilled expectations in the use of these IT tools.

Hot topics: SRM and e-invoicing

Finally, survey participants were asked to estimate the importance of nine pre-selected topics in the coming years (see Figure 7). The broadly diversified potential of the comprehensive ‘Supplier Relationship Management’ concept (SRM) will make it the main topic of attention in the years ahead. Of the companies surveyed, 30.1% rate SRM as very important, a further 32.4% as fairly important. This shows that buying organizations are striving for holistic solutions, but we feel that this result may be influenced by leading software vendors who are strongly promoting SRM. The question as to whether strategic or operational functions are more in the foreground is not answered.

Electronic exchange of invoices (e-invoicing) is a topic for the future in over 70% of the companies. Almost 30% rate it as very important. This may be due, on the one hand, to the potential for optimization of these administrative processes, but on the other hand it could be due to the Swiss ordinance on e-invoicing that became effective in 2002. With the application of this ordinance, the validity of electronic invoices is put on par with paper-based invoices, which could have led to the increase in acceptance of electronic invoicing as well as advanced offers of provision of services. A similar situation can be observed within the European Community where numerous initiatives aim for a stronger dissemination of electronic invoicing (European Commission 2007).

The optimization of the Product Supply Chain is judged as slightly more important than that of the Financial Supply Chain. Along with the highly rated importance of SRM, this underlines the intention of the companies to tackle process improvements comprehensively and beyond company borders. Although batch tracing is primarily a central requirement in process industries (e.g., for consumer goods and pharmaceuticals), this topic was also rated as important or very important by companies in other sectors. It is to be assumed that some study participants equated this with the tracing of orders.

B2B marketplaces were rated as a very important or fairly important topic for the coming years by 45.3% of procurement organizations. The topic of outsourcing of procurement applications receives little attention from the study participants. It could be assumed that the supply of supported processes is not consolidated enough to delegate them to a third party (Carr 2005). Again, this is in line with another earlier Swiss study (Tanner 2003). Only 12.5% of respondents classify it as fairly important or very important.

RFID as a new technology for identification of goods is a focal point for providers, science and media. However, the survey shows that in procurement organizations the topic is only judged very important by 6.7% and quite important by a further 23% for the coming years. In the questionnaire, we did not ask for reasons for not using RFID. However, discussions with managers revealed that their current (bar code, EAN) systems work fine and that they do not see how a large investment in RFID technology could be economically feasible from today’s point of view. Their focus for procurement is on cost reduction and smooth business processes and not on the use of latest technology.
DISCUSSION OF RESULTS

The past few years have been rather quiet in the area of e-procurement. Online marketplaces, auctions and Internet-based tendering have not revolutionized procurement, at least in Switzerland. (Editor’s note: See Smits and Janssen, this issue, for a highly innovative use of auction mechanisms in health care.) As in other fields of application of e-business, however, one should not assume that nothing is happening in the procurement departments in the IT field. Over the past five years, half of the responding companies have invested more than a quarter of a million Swiss francs in the further development of IT for procurement. This investment will increase even more in the future: although large projects are not planned, half of the responding companies will invest an annual sum of more than 100,000 Swiss Francs (62,500 euros) over the next two years.

Procurement goals remain stable

Goals in procurement have largely remained stable in the past few years as compared to a previous study on procurement (c.f. Tanner 2003). From the current study, the following big picture can be deduced (see Figure 8).

The guiding theme in procurement departments is cost reduction, most importantly of purchasing prices but also of total costs, including internal process, logistic and quality assurance costs. This is fully in line with the findings from the Australian study where ‘improve efficiency’ and ‘reduce purchasing cost’ came out as the main drivers for the future adoption of e-procurement (Williams and Hardy 2007). The second issue is transparency and control. It is no longer sufficient in most fields that, in the vast majority of cases, purchasing goes well and that procurement is well organized. Instead, purchasing must achieve its optimum level across the board. Three-quarters of the participants in the study ranked information technology as important. The first task of IT is central coordination and demand aggregation, which was named a very high priority by the majority questioned.

Whoever expects a push toward auctions as a result of increased cost pressure will learn better from this study. The companies optimize their procurement from the inside out. On the strategic level, spend analysis, supplier assessment and contract management are the key areas of focus for the majority of the companies. On the operational level, automatic invoice entry processing as well as order processing for direct and indirect goods have high rankings, followed by order processing for services. The situation observed in Switzerland is similar to that identified by the latest European E-Business Report (European Commission 2007).

Information technology should enable top performance

The heterogeneity of processes and systems due to historically evolved decentralized procurement structures makes not only transparency more difficult to achieve but also makes it difficult to detect the weak points in the aggregation of demand. The increased control of central procurement should counteract this tendency, which is not to say that procurement as a whole should be centralized. Complete transparency tracks down the remaining weak points both internally and externally. Investment in IT should lead to the elimination of these weaknesses. IT investment pays for itself more quickly when used in a broader way, where possible with company-wide application. It further increases transparency because performance indicators
are uniformly raised and benchmarks can be set. New processes can be designed and, as far as possible, standardized. These processes include the suppliers, at least insofar as the suppliers must agree to defined processes and IT interfaces. Of course, renegotiation happens too, in which conventional negotiation procedures will, in the next five years, continue to overshadow the potential of online auctions. Where it is worthwhile, internal optimization will also be invested in – the automatic processing of incoming invoices being the most prominent example at present.

If procurement focused on direct goods in the past, procurement today has indirect goods squarely in its sights. Order processing of services is also becoming a priority for half the responding companies.

It seems as though procurement in Switzerland has completed a stringent fitness programme. Project goals have largely been achieved and 80% of responding companies are largely satisfied with their current systems. The fact that they continue to invest in e-procurement shows that procurement functions are striving for peak performance.

Suppliers will feel the squeeze. They are affected by practically all the current operational issues revealed in the study. The number of companies that already exchange business documents electronically is approximately as large as the number of companies that complain about the sluggish integration of suppliers into the procurement system. Only 20% of procurement heads report sufficient awareness of their suppliers about the need for optimizing B2B processes. Suppliers’ need for a B2B integration infrastructure is not rated higher.

Just half of the responding procurement organizations admit that B2B integration scenarios do not consider the supplier’s situation enough and that their companies cannot always offer suitable and financially acceptable B2B integration solutions. Two-thirds of the companies that offer their suppliers Web-EDI make use of a B2B marketplace or a transaction platform.

All involved parties are called upon to act

In addition to the difficulties with supplier integration, there are further problem areas in the roll-out of IT. High installation costs and problems in the quality of master data are also a concern for the majority of respondents. To ensure that procurement’s fitness programme is effective and that all the involved companies can withstand global competition, the following prescriptions can be derived from the study:

- **Procurement organizations** must improve the quality of their master data and test whether their procurement processes really need to be so multifaceted and complex. They must also build bridges for their suppliers. In many cases, their own particular ideas cannot be carried through on purchasing power alone – balanced B2B integration scenarios are a necessity;
- **Suppliers** must also work on their B2B fitness. Are their awareness and competence really as bad as their partners suggest? This study argues that suppliers need to build up the competence and be proactive in showing customers what a balanced integration scenario could look like for their own product segment; and
- **Providers of procurement solutions** should have a vital interest in developing founded arguments for defending the difficult-to-appreciate benefits of their solutions. Insufficient user-friendliness and poor user acceptance must also be addressed. The main objection of procurement organizations, i.e. the high installation costs of new solutions, must also be taken seriously. The cause of high implementation costs lies to a decisive extent in buyer and supplier companies – above all in the heterogeneity of their IT environments, organizational structures and processes – but vendors may well be able to do something about this. With better practices, a certain degree of openness, cooperation in standardization and support of interoperability, some of the complexity can be reduced and the pace of market development can be accelerated, to the benefit of providers as well as of their customers.

CONCLUSIONS

This paper reports on the state-of-the-art of e-procurement in large Swiss companies, grounded in a longitudinal investigation. Although the Swiss economy is unusual in some aspects (e.g., very high IT penetration, high IT skills in companies, high potential of IT investments) (Dettling et al. 2004, Schubert and Leimstoll 2007), the results we report here are quite similar in many respects to findings documented for Germany (Crossgate 2007, Kutschera and Tittel 2005), Australia (Williams and Hardy 2007), Portugal (Palma dos Reis and Soares Aguiar 2006) and Ireland (Nagle et al. 2007).

The adoption of electronic procurement systems has been argued to lead to significant cost reductions (Bakos 1997, Williamson 1996). However, studies from Germany (Crossgate 2007, Kutschera and Tittel 2005), Australia (Williams and Hardy 2007) and our Swiss study show that cost reductions are to date lower than expected. The 2005 German study showed that the initial outlay on ongoing operational costs of an EDI infrastructure for area-wide use in the automotive industry are simply too high to promote widespread adoption (Kutschera and Tittel 2005). German respondents agreed that operating an EDI system (without the help of intermediaries) is not economically feasible. In
consequence, a later study (Crossgate 2007) identified a trend toward further outsourcing to specialized service companies (such as providers of Value Added Networks and other e-procurement services).

Regarding future research topics, supplier relationship management takes first place. All other topics of great prospective interest similarly necessitate solutions that go beyond the borders of a single organization. If all market participants need to develop supplier relationships individually, one will have to wait a lot longer for any substantial progress. However, three-quarters of responding companies are prepared to tackle the challenges of supplier integration in cooperation with other procurement organizations and partners. We are guardedly optimistic about the future prospects in Switzerland, as well as elsewhere, for further IT-enabled progress in e-procurement.

Notes
1. The questionnaire is available from the authors on request.

References


