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The Evolution of e-Procurement within Swedish Municipalities from 2001 to 2008

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Abstract: Possibilities to reduce costs by increased efficiency in the procurement function are well recognized in business, and a growing number of municipalities are adopting e-procurement to achieve these benefits. The purpose of this paper is to assess the evolution of the e-procurement concept within Swedish municipalities between 2001 and 2008. A longitudinal study was conducted and a qualitative research approach was applied. Data were collected in 2001 and 2008 through structured personal telephone interviews with 40 municipalities. Results show that the implementation of e-procurement has developed substantially and the number of municipalities implementing e-procurement, the amount spent, and the number of goods/services that are purchased has increased. Cost reduction and time-savings are perceived as major advantages. The perceived challenges changed significantly, from technology issues in 2001 to organizational issues in 2008. Implementation of e-procurement was also shown to have an impact on the buying behavior.

Keywords: e-Procurement, municipalities, public sector, Sweden, local government

1. Introduction

There is strong consensus among researchers and practitioners regarding the strategic importance of developing efficient purchasing to reduce costs. An increasing number of municipalities are adopting e-procurement solutions to achieve the benefits that companies in the private sector have achieved [1]. E-procurement is the process of purchasing goods and services electronically [2][3]. In the private sector, e-procurement generally provides annual cost savings of between 25 and 50 percent, and potentially can reach the same level in the public sector [2]. The governmental sector in Europe represents 45 percent of GDP and 15 percent of GDP is related to public procurement [4]. Sweden has one of the world's largest public sectors [5], and even small increases in the efficiency in public procurement can lead to large savings. Due to the potential savings, e-procurement is one of the main areas prioritized for e-governmental EU initiatives [6]. Despite all the benefits that can be reached through public e-procurement [2], the implementation of any e-government project is complicated because of the size and bureaucratic nature of governments [7]. The current literature is limited with respect to e-procurement [8], especially in the context of public e-procurement [9], and even more so when local government purchases is considered [10][11].

Even though public e-procurement has similarities with the private sector, such as its focus on value, competitiveness, and accountability [1] it also has some special characteristics that make it different [6]. For example, the procurement process - the selection of bidders, tendering procedures and the selection of contracts - should be a transparent process open to public examination and review. In addition, public organizations must follow certain rules and restrictions imposed by the government [6]. Public procurement in Sweden is regulated by the Public Procurement Act (LOU), which promotes competitive bidding for public contracts and governs public procurement.

2. Objectives

In the marketing literature, e-procurement has been studied primarily from a business to business (B2B) perspective, and the field of public sector procurement, especially local government purchasing, has been neglected in previous research [10][11]. The purpose of this paper, therefore, is to address this significant gap in the literature by assessing the evolution of e-procurement concept within Swedish municipalities between 2001 and 2008. This study covers the perceived benefits and challenges with e-procurement, as well as e-procurement's impact on the buying behavior.

From a managerial perspective, this research provides the public sector with insight into the rationale of implementing e-procurement, as well as some challenges the management of public organizations has to meet in order to succeed with such implementation. Moreover, this study attempts to provide some examples of how implementation of e-procurement impacts the buying behavior.

3. Public e-Procurement – An Overview of Literature

Current literature within the area of public e-procurement is limited [9]. Literature identified and presented is categorized into three sections focusing on perceived benefits, perceived challenges, and e-procurement's impact on the buying behavior.

3.1 – Perceived Benefits with e-Procurement

Literature in the field of supply management and e-procurement is rich with estimates of the benefits of e-procurement [3]. For example, by implementing e-procurement, governments can handle much of the administrative work automatically, thus making the procurement process more efficient than any present paper-based system, with a corresponding benefit from large cost savings [2][6][1].

Major advantages with e-procurement, identified in literature (e.g., [12][1]), include benefits such as reduction of supply costs; reduction of cost per tender; lead time savings; simpler ordering; reduced paperwork; decreased redundancy; less bureaucracy; standardization of processes and documentation; online reporting; clearer and more transparent processes; ensured compliance with procurement laws and regulations; minimization of errors; and easier access to information.

In addition, e-procurement has been found advantageous as it enables purchasing professionals to focus more efforts on strategically important issues and facilitates decentralization of procurement, which may lead to more autonomy in departments [1].

3.2 – Perceived Challenges with e-Procurement

Despite the various benefits offered through the use of e-procurement, organizations have to meet a number of challenges when implementing such systems. The vast size and bureaucratic nature of governmental organizations could complicate the implementation of e-government projects [7].

In addition, challenges associated with strategic initiative, internal integration, external integration, technological integration, and security issues also have been identified [8]. As to strategic initiative, one challenge is to realize that the Internet is not the strategy, but only the tool, when developing e-procurement [13]. In terms of strategic initiative, lack of processes and procedures, inadequate planning, time issues and lack of management support have been identified as challenges in e-procurement implementation [8]. While achieving internal integration requires commitment from senior management and organization-wide communication of this commitment [14], other issues related to budget/cost and change management, as well as lack of training and resources, also represent challenges with respect to internal integration [8]. As to external integration,

change management issues were found to be challenging [8]. Concerning technological integration, data quality, system-to-system integration, and ICT/technical issues have been identified as major challenges to many organizations when implementing e-procurement [8].

3.3 – Implementation of e-Procurement and its Impact on the Buying Behavior

To transform a procurement department into an e-procurement environment requires changes in buying behavior. It is a mistake to believe that the establishment of an e-procurement system can be comparable with the purchase of a new computer system. To succeed, significant planning must be done to find solutions that integrate strategy, technology, processes, and people [2].

The buying process is often described as a sequential process with separate stages, steps, or phases of buying activities that take place from the time that a need arises to the actual purchase and subsequent evaluation. Mitchell [2] states that that e-procurement will change the procurement processes; however, there is a lack of research focusing on how e-procurement will have an impact on the buying process in public sector. Previous research with a focus on B2B has shown that e-procurement can shorten, automate, streamline, and structure the buying process [2][15][16][17]. Also, the selection criteria may change in an e-procurement setting; however no study has been found that focused on this with respect to public procurement. In B2B, new criteria, such as electronic catalogue management, electronic order management, electronic financial settlements and suppliers' e-skills, has been mentioned as gaining in importance when e-procurement is applied [17]. In addition, the number of suppliers that can be evaluated has been found to increase and potential suppliers can be searched all over the world [18].

No study was found that specifically focused on public e-procurement's impact on the buying center, i.e., the members of the organization that influence the buying decision. However, Mitchell [2] states that the introduction of e-procurement will influence the roles and skills required in the purchasing organization, and it also will alter relationships with vendors and suppliers. It therefore is important to manage the impact of these changes on both personnel and customers. In a B2B setting, one study suggests that the buying center may decrease in size, include fewer hierarchical levels, and contain fewer functional areas when e-procurement is applied [15]. Another study suggests that e-procurement leads to a centralized purchasing function and employees will be more empowered to manage their own purchasing while adhering to the organization's rules [19]. Findings from one study within the public sector [9] show that personnel across different departments—such as finance, procurement, administration, IT, and e-government—rather than one single department will be involved in public e-procurement. This, in turn, might lead to conflicts, such as regional policies of local purchases versus cost savings from having access to larger national markets [9].

4. Methodology

Due to the scarcity of research focusing on public e-procurement, as well as the exploratory nature of this research, a qualitative research approach was selected [20]. To capture the evolvement of public e-procurement, a longitudinal study was carried out. Data were collected at two points in time, first in year 2001 and secondly in 2008. From a database on all Swedish local governments, the 50 largest municipalities were selected as our sample. Out of these, a total of 40 municipalities agreed to participate in our study, which gave us a response rate of 80 percent. The size of the 40 investigated municipalities ranged from about 37.000 to almost 500.000 inhabitants.

Data were obtained through structured telephone interviews with the person responsible for e-procurement within each municipality. Each interview lasted between 30 and 60 minutes. An interview guide was used to collect the data. The interview guide was

developed based on previous research, some modifications were done between 2001 and 2008 due to the fact that public e-procurement evolved and became more sophisticated. In the data analysis, three concurrent flows of activities, i.e., data reduction, data display, and drawing conclusions were applied (i.e., [21][20]). Different steps have been taken to increase the quality of the data [22][20]. The interview guides were carefully developed and tested before the interviews were conducted. Follow-up questions were used when something was unclear, and anonymity was guaranteed.

5. The Development of e-Procurement within Swedish Municipalities

E-procurement within Swedish municipalities has evolved significantly between 2001 and 2008. Although 55 percent of the 40 municipalities had already implemented some form of e-procurement solution in 2001, they were in an early stage of the development. Most of these municipalities (68 percent) used e-procurement for buying at most two types of products (e.g., food and office supplies). However, in 2008, 70 percent of the municipalities had an e-procurement solution, and most of them (64 percent) utilize e-procurement for more than two product categories.

The result shows that the purchase value of e-procured products has increased substantially between 2001 and 2008. Few municipalities with an e-procurement solution in place in 2001 purchased products electronically for more than three million SEK, while most of them (90 percent) had reached a purchasing volume of 20 million SEK or more in 2008. In 2001, none of the 40 municipalities had an internally developed e-procurement solution. This had changed by 2008, when approximately one-fourth of the municipalities had developed an in-house solution.

5.1 – Perceived Benefits with e-Procurement

Similar to previous research, results from this study shows that implementation of e-procurement results in numerous benefits, such as reduction of paperwork, time and costs savings, increased compliance with supplier contracts, and enhanced control of spending. Other identified benefits include simpler routines and standardized ways of purchasing; thus, the use of electronic means in purchasing increases the efficiency of the procurement process. This study has identified additional perceived benefits, which were not identified before in the literature, such as increased quality and more adequate purchasing.

5.2 – Perceived Challenges with e-Procurement

Although a few municipalities had not come across any particular disadvantages with e-procurement, analysis of empirical data indicate that most municipalities encounter a variety of challenges related to the implementation of e-procurement. Out of the main challenges discussed in prior research (i.e., strategic initiative, internal integration, external integration, technological integration, and security issues), findings in this study shows that issues related to technological integration were perceived as major challenges in 2001. At that time, municipalities had to handle challenges related to complicated systems that could not manage direct purchases, which had insufficient search capabilities and were inefficient and inflexible. In addition, many e-procurement systems had flaws related to technology development and security. The problems encountered with technology in 2001 might explain why a large number of municipalities had developed an in-house e-procurement solution by 2008.

A comparison of empirical data from 2001 with data from 2008 reveals that the type of perceived challenges changed significantly over the years. While technology presented the major challenge for organizations that implemented e-procurement at the turn of the century, seven years later, in 2008, the main e-procurement challenges were perceived to be related to strategic initiative and internal and external integration. For example, low

maturity as to computer knowledge and usage among suppliers, as well as among employees in municipalities, has been identified as a major challenge related to e-procurement. Implementation of e-procurement involves changed way of handling the procurement process, and the e-procurement system is perceived to be difficult to use and learn. This constitutes a challenge that the organization has to meet in order to succeed with the e-procurement initiative. Findings highlight that it is therefore necessary to educate people who are involved in the procurement process, which in turn lead to higher costs in the short term.

5.3 – Implementation of e-Procurement and its Impact on the Buying Behavior

Similar to previous research within B2B, findings from this study show that implementation of e-procurement has an impact on municipalities' buying behavior in different ways. With respect to e-procurement's impact on the buying process, findings from this study are contradictory. In most municipalities, implementation of e-procurement has made the buying process more structured, more automatic, shorter, more streamlined, more efficient, and easier which also has been suggested in previous studies, although in some cases it was perceived that the buying process had become more complex and required increased employee knowledge. Very few municipalities had not experienced any changes at all with respect to the buying process.

Results also show that, in most cases, the introduction of e-procurement in municipalities influenced the selection of supplier. Suppliers without the capacity to handle electronic interactions or electronic invoices will not be selected when e-procurement is implemented. However, some municipalities highlighted that the introduction of e-procurement did not have any impact on the selection of suppliers, and several municipalities also highlighted that it still was possible for small and medium sized firms (SMEs) to be selected. However, with respect to selection of suppliers, none of the respondents highlighted the possibility to evaluate a larger number of suppliers through the use of e-procurement, which often is mentioned as the major difference in B2B setting.

The number of people involved in the purchasing process seems to decrease when e-procurement is applied, which also was suggested in previous research, but those involved are more knowledgeable. The need to educate people involved in e-procurement was highlighted by several respondents. Similar to previous research, a shift toward increased centralization of the procurement function within municipalities could be identified, and at the same time, employees were empowered to manage their own purchases, governed strongly by the organization's rules.

6. Conclusions, Recommendations and Future Research

The purpose of this paper was to assess the evolution of e-procurement within Swedish municipalities between 2001 and 2008. Results show that the implementation of e-procurement within Swedish municipalities has developed substantially between 2001 and 2008, and the number of municipalities implementing e-procurement has increased. In addition, the number of products that are purchased through e-procurement and the total amount spent also has increased significantly. However, in Swedish municipalities, e-procurement is still not implemented and utilized to its full potential. There are yet main activities and applications that need to be implemented, thus, savings can be made. Several benefits could be identified with regard to public e-procurement, such as reduction of paperwork, time and costs savings, increased compliance with supplier contracts, enhanced control of spending, simpler routines, standardized ways of purchasing, increased quality, and more adequate purchasing. The major finding with respect to challenges was the transformation from technology as the main constraint in 2001 to strategic initiative and internal and external integration as the major challenges in 2008.

Results show that the major impacts on the buying process is that it becomes more structured, more automatic, shorter, more streamlined, more efficient, and easier. Introduction of public e-procurement also will change the selection criteria by adding new criteria related to electronic interactions and electronic invoices. Finally, results indicates that procurement becomes more centralized, with fewer and more knowledgeable people involved, when public e-procurement is introduced.

With respect to managerial recommendations, this study highlights the importance of focus on people involved in the implementation of e-procurement and how they will be affected. It is important to allocate resources to educate these people instead of focusing only on the possible savings. Another important factor is to ensure compliance with regulations and policies; however, it seems to be less of a challenge in the public sector compared to the private sector since regulations (e.g., LOU) govern public procurement. It also is important to understand how and if e-procurement will influence SMEs' possibilities to be selected as suppliers.

This study was limited to focus only on municipalities, and further studies should evaluate public e-procurement within other governmental organizations that might have other administrative structures. Another limitation was that this study focused on Sweden with its own regulations of public procurement (i.e., LOU). Further studies should investigate if public e-procurement differs across countries that might have other legal or cultural conditions. Another suggestion for further studies is to focus not only on the impact that e-procurement has on buying behavior, but on the actual steps involved in the buying process, the selection of supplier, and the composition of the buying center.

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