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Three Positives Make One Negative: Public Sector IS Procurement

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Abstract. The requirement specifications are centric in the IS acquisition process, also in public sector. In addition to the regulatory factors multiple stakeholders are often involved in the procurement process. Yet their expertise varies and is often limited to a narrow sector or a specific field. For this paper, we conducted a single case study on an IS acquisition in a middle-sized city. The function nominated a project manager for the project, with little if any prior experience of IS or of their acquisition. The counterpart in the CIO's office had that knowledge but had little domain knowledge about the requirements. The third party involved was the Procurement and Tendering office. Having specialized in serving the variety of functions in that particular field, the specific areas become inevitably omitted. All three parties argued that their requirements specifications were good, if not great. We observed how such a trident, having reported successful completion of their duties, still missed the point. The tendering resulted in little short of a disaster; two projects were contested, and lost in the market court.

Keywords: public sector procurement, information systems procurement, case study

1 Introduction

Public procurement refers to the acquisition of goods and services to the public sector organizations [1]. In IS context, public sector organizations differ fundamentally from private organizations [2]: they have to simultaneously acquire the best possible IS and comply with public procurement regulations (Moe, Risvand, & Sein, 2006). This is not, however, easily accomplished [3].

In the public sector, a major hindrance in the way to successful IS acquisition is the lack of know-how in the acquisition process [4]. It can cause severe consequences. For example, the vendor might not be knowledgeable what the customer really wants and/or needs, while the customer might assume the vendor is offering a strange solution, creating ungrounded mistrust towards the vendor. Incompetent, inexperienced, or careless preparation and construction of the requirements result, most likely, foreboding tendering and procurement [5]. Even though the acquisition process is successfully completed, there might be repercussions and unexpected

consequences. For example, it is not uncommon that the party having lost in the competition may use these obscurities to complain about the proceedings to the market justice. This may halt the entire procurement process, so that no organization is able to reach its goals or gain desired advantages.

These simple examples highlight that IS procurement is a complicated process. Studies focusing especially on public sector procurement have also pinpointed the challenges. In addition to "typical" challenges of exceeding schedules and budgets or failing the objectives, public sector specific challenges such as specifying the requirements early on for tendering [4], [6], and coping with the conflicting needs and objectives of different stakeholders [7]–[10] are common. Even though these problems are well known, IS literature on public procurement seems to be lacking theoretical foundation and empirical evidence [3], [5]. In the literature, the process of public sector IS procurement is often described in rather simplified fashion, or the focus is on one particular task, not on the process on general level [4]. Similarly, with few exceptions, the stakeholders involved are considered often on organizational level – even though there may be several distinct parties within each organization, or the focus has been one specific stakeholder group [11]. As Moe and Päivärinta [3] put it: *"more research is needed on issues such as stakeholder management and on balancing different goals without asking for more than is needed. The interplay between procurers and vendors in public procurement has not previously been much researched."* (p. 318).

To answer this call, we conducted a qualitative, in-depth case study [12], [13] of a public procurement process where multiple stakeholders are participating in the procurement process in its different phases. The project personnel were very confident that they had one of the best requests for tenders they have ever made, yet the case resulted in a disaster. We will thus answer to following question: "How stakeholders participating in the public procurement influence the tendering?" In this paper, we will thus reveal the complex process behind public procurement and identify the stakeholders and their roles. This allows us to better understand the challenges, analyze the issues leading to the problems and potential success, and explain how those emerge in practice.

The paper is organized as follows. First, related research on public procurement, its challenges, and stakeholders is shortly illustrated. Second, research settings, methods, and findings are presented. Finally the findings are discussed and conclusion drawn.

2. Related Research

Public procurement refers to a process of acquiring goods or services for government or public organization through buying or purchasing [1]. It differs from the private sector procurement, even though the differences may not always be radical [2], [7]. For example, the ownership of the private business lies within a limited number of entrepreneurs and/or shareholders while the public organizations are collectively owned by members of political communities, individuals in the society [7]. Furthermore, public organizations are typically funded mainly by taxation. They are

thus less likely to be affected by the changing market forces than, for example, stock listed private organizations [14]. Similarly control mechanisms vary between public and private sector. While the economic system defines the constraints for private organization, public organizations are affected by rules imposed by political means. In addition, public organizations seldom have direct competitors offering similar services [7].

Information systems as the subject of procurement is different than more standardized goods or services [3]. The organization acquiring the system must often consider alternatives that may not be simply comparable or their differences easily evaluated. Also a standard system seldom fits with the public organization's needs so customization is almost surely needed. Outsourced development obviously stresses this issue, and calls for intensive cooperation and communication as the external stakeholders may not be familiar with the context. This nevertheless applies to internal parties as well. For example CIO's office may not be able to understand the use context. Consequently systems requirements may neither be clear at the beginning or in early phases of the procurement, e.g. in tendering, yet the scope and requirement related decisions must already been made [15].

The procurement process itself, payment model and standard government contracts holds several pitfalls and limitations. If those are too rigid, they will limit the vendors' interests to make tenders, and further to engage in the projects. This would, in turn, reduce competition, and provide less viable options for the customer organization. In other words, this will not allow the procurer to get the optimal price or quality [6], [16].

Procurement process itself and tendering are highly regulated. For example, in EU and EEA countries the call for tenders must be publicly, either nationally or EU wide, announced when certain threshold values at the acquisition are exceeded. Particularly public sector related problems are the lack of in-house experience and competence about the acquisition in general, poor understanding about the IS or technology, or the lack of resources to create high-quality and valid specifications [6]. Especially in IS procurement, the requirement specification is a crucial element, which is nevertheless very challenging to compose. Due to the regulations and pre-determined procurement process, the requirements need to be specified before announcing the request for tenders. Under the circumstance they are often done without a clear idea about what are the possibilities of different alternatives [3]. This makes it possible that the acquisition or its' scope are incorrect. The result may even prove to be that a wrong system is acquired [6]. This proactive determination of the requirements and scope causes difficulties in finding a suitable assessment and evaluation criteria [3]. In the words of Moe and Päivärinta [3], "*transparency for ensuring fair competition between vendors is clearly a public-sector-specific challenge; private firms can be more pragmatic on these issues*" (p.316).

In the public sector, multiple different stakeholders with divergent and conflicting objectives are often involved [17, p. 4]. This makes the procurement inherently complex. Abovementioned characteristics frame this; numerous stakeholders have a variety of wishes, needs and objectives, all waiting to be satisfied [7]. Stakeholders participating in the public projects are, however, case-specific and unique, or only partly the same to each situation. This makes the application of general frameworks for analysis difficult. This has been a motivation for different stakeholder studies [17],

[9]. Still it should be noted that public organizations often have other identical entities to cooperate with, e.g. other municipalities [3].

The number and variety of stakeholders within and across the organizations make public procurement challenging. Their demands and objectives may be in conflict with each other. Satisfying all of them may not be possible, or at least requires much additional effort. In addition, public organizations themselves tend to have more ambiguous goals, practices and responsibilities [7], [9]. Consequently different IS features may be treated differently, as the parties may understand their work tasks, divisions of labor, and responsibilities dissimilarly, or even the objectives or focus points may differ between the supplier and the buyer. For example, the parties may not have a unified view on organizational boundaries and related responsibilities. In addition, there are at least three types of organizational goals to consider, namely regulatory, commercial, and socio-economic. Pursuing all these may lead to conflicts, while overemphasizing one at the cost of others may have adverse effects. [8], [18]

The accuracy and level of detail of the requirement specification is also linked to the stakeholders' conflicting interests. For example, the procurer side prefers and strives for a complete and clear specification, while the vendors would like to have more freedom in order to present their qualities and possibilities not mentioned in the request [3], [19]. Technically speaking, the procurement gets difficult and complicated when the target system needs to fit with the customer's current IT portfolio. The integration and compatibility of different systems has been identified as a challenge as public organizations have multiple systems bridging a wide range of sectors and services [3] and little knowledge how to articulate this [20].

Defining project success is challenging. There is no universal definition for success, but the evaluation of different features varies between the viewpoints [21]. For example, the features denoting success include the project's timely delivery or staying within the budget frames. However, these features judge whether the project is successful only in a simplified manner by observing the procedure and effects of procurement [22]–[24]. The success may also be defined by using other measures. For example, improved organizational information integration, better decision making, and improved inter-organizational communications and/or decreased operational bottlenecks (*ibid.*). The question remains whether the absence of any one of these factors is enough to declare the project a failure. There may be distinguished different levels of success [25] or, according to a more pessimistic view, an inevitable failure [26].

Despite previously mentioned studies on stakeholders, much work is still to be done. Moe [4] suggests that there is a need for research on how different stakeholders manage and cope with potentially conflicting interests. Flak et al. [17] conclude that the dominant approach of putting the focal organization, i.e. the service procurer, in the nexus of stakeholders is insufficient when the conflicts are addressed. Future work should thus incorporate the relationships between all stakeholders involved in the project. On the other hand, due to lack of research, more focus should also be put on the vendor in the procurement process, for example in its tendering phase [4].

3 The Research Method and Settings

The single case study [13] behind this paper focuses on a social welfare sector of a city of over 200 000 inhabitants. The sector of social services, Home care unit, lists over 830 000 visits and treatment cases a year with over 2000 clients. The clients have various needs; some need attention only in delivering the medication whereas others need more concrete assistance such as heavy lifting, cooking, and handing out medication. Some clients need multiple daily visits while others require less attention. The clients are scattered around the city (surface area 689,6 km² divided into four care areas). Similarly to clients, the employees, i.e. the nursing staff, have different limitations. Some are entitled to hand out medication while others may not be permitted to do heavy lifting. The employees are divided into mutually supplementing teams. The complexity of the settings presents the management with challenges. It became suggested that modern ICT might offer a solution to these.

Before the procurement process started, at the beginning of every work shift, the nurses had to visit the central office to receive the latest information about the route of the day, the clients to be visited, keys to their houses, etc. During the home care process, the nurses may receive urgent calls, so they adjust the route accordingly. The shift ends by visiting the office to leave the keys and to report the day. Until recently, a person has been employed to monitor the daily situation and to plan the route and activities. As IT was perceived to ease the planning and execution of these tasks, the CIO's office decided to act. The procurement project begun.

The city uses a so-called purchaser/provider –model in its acquisitions. This model means effectively that the actual provider of the services, i.e. Home care unit, does not concern so much whether and how much care is needed for their individual clients as there is an organization to define the needs. This consists of health care, welfare and social service specialists. They visit the possible client in his/her house to study and to define the circumstances and the specifics of the need for care. When they have drawn a plan, they place an order for the care, and leave it with the Home care unit, which then takes the matter as a part of their routine.

The qualitative data was collected by semi-structured interviews. First the key persons for the IS procurement project were suggested by our contact person. Further interviewees were invited by their suggestions, i.e. snowball sample was used [27]. In total eleven interviews, listed in Table 1, were conducted face-to-face at the case organization premises. All the interviews were recorded and transcribed. The interview themes covered issues related to initiation of the project, available resources and stakeholders, contracting and legal agreements, procurement process and communication, and the evaluation of the success.

Table 1. The interviewees and their organizational positions.

Interviewees organization	Interviewees position
CIO's office	Agreement specialist
CIO's office	Coordinator
Home care unit	Project manager
Home care unit	Care person

Home care unit	Supervisor
Home care unit	Supervisor
Home care unit	Work Organizer / Care person
Procurement and Tendering Office	Procurement specialist
Social welfare sector	Process manager
Supplier/vendor	Project manager
Supplier/vendor	Supplier Project Manager

The data analysis followed interpretive research approach [28]. Two researchers went through the material several times to gain an overview of the procurement process, stakeholders involved, and different challenges, and to gather all relevant details. Process diagrams and stakeholder maps were drawn to visually aid the interpretations. These visual maps were further iterated. Due to the size of these visualizations and space limitations, they are omitted from this paper. Finally the findings were compared to the literature.

4. Findings

As a public sector organization in European Union, the case organization has to obey the Act on Public Contracts declaring that all acquisitions exceeding the sum of 30 000 Euros, a call for bids is to be placed in a public forum. Then all interested parties are able to inspect the bids, and a place a tender if found appropriate. The process how the procurement is initiated and how the proceedings happened is described next.

The procurement project roughly follows the generic public procurement process [4]. The project was initiated by a business unit (see Table 2). An initial project idea was proposed to the city's CIO's office. The initiative was stored in a centralized repository for initial projects and project ideas to be evaluated later. Each year, after the city's annual budget is released, the repository is reviewed. The projects were assessed and graded according to several criteria, such as criticality and cost-benefit analysis, and the number of citizens affected when the system would be in use. The evaluation was done by the development and steering group for the welfare services. The group constituted members from CIO's office and stakeholders from different functions related to welfare services.

Table 2. The actions in the project

Actions	Participants
1. Original idea of the solution	Home care unit
2. Proposition of the idea	Home care unit supervisor
3. Filing the proposition	Coordinator, CIO's office
4. Preliminary evaluation of the solutions	Outside consultant appointed by the CIO's

	office
5. Initial assessment of the ideas	CIO's office
6. Assessment of the various propositions	Development and steering group, Welfare sector
7. Go-decision for individual projects	Development and steering group, Welfare sector
8. Coordinator appointed for project	CIO's office
9. Requirements matrix created	Coordinator at CIO's office
10. Project manager appointed from Home care	Development and steering group, Welfare sector
11. Requirement specifications written	Project manager from Home care (with coordinator and agreement specialist (CIO's office))
12. Redefining the requirements	Project manager, coordinator (CIO's office), specialist, (procurement and tendering office)
13. Opening the call for bids	Specialist, (procurement and tendering office)
14. Tenders	Vendors
15. Initial, formal assessment of bids	Specialist, Procurement and tendering office
16. Assessing the bids	CIO's office, Home care unit
17. Making the decision	Development and steering group, Welfare sector
18. Receiving the complaint	Procurement and tendering office
19. Formulating the rejoinder	Procurement and tendering office, agreement specialist (CIO's office), Project mgr. from Home care unit

CIO's office decided that a pre-study is needed before final proposal acceptance. A third party consultant was hired to conduct it. CIO's office reviewed their report, and development and steering group officially sanctioned the actual project. A coordinator from the CIO's office, and a steering group were thus appointed. The steering group consisted of the coordinator from the CIO's office, and decision makers from both the purchaser and the provider functions. A project team was also set. In addition to the project coordinator, a person from the Home Care Unit was appointed as a project manager.

".. they set off to find a project manager, while the CIO's office's project coordinator was already working on the project plan.." [Project manager, Home care unit]

The project manager from the Home Care Unit was a civil servant with no prior experience of IS outside the actual use or their acquisition, who, in her own words, *"hopped onto a moving train"*. With some support from the CIO's office, the project manager started to write a detailed requirements specification document for the call for bids.

"..as the pre-study was there.. with some preliminary requirements.. We started the actual project hastily with the requirements matrix.." [Project manager, Home Care Unit]

The requirement specification work proceeded. The project was first divided into two sub-projects; a system for workflow optimization and tasks related to division of labor, and secondly an electronic door opening system to grant the nursing staff entrance into the buildings without bunch of physical keys. Even though the projects were treated separately, they were tightly connected as the systems were supposed to be integrated. An agreement specialist with a good grasp of tendering from the CIO's office was then consulted if his/her expertise was needed. The tendering specialist argued that sometimes, in some projects, the process and the outcome of the tendering competition is clear from the beginning:

"..sometimes it is possible to know already at the beginning that a complaint will be filed as qualitative measures are not easy to define in a manner that they leave no room for argumentation or objection" [Agreement specialist, CIO's office]

In this case, no such possibility was deemed likely, although there were signs that should the decision not favor a certain party, there might be repercussions.

"..plaintiff's contract in another area was discontinued. We knew that if this vendor does not get chosen now, they will file a complaint no matter what. And so they did." [Agreement specialist, CIO's office]

The call for bids was published in a public forum. In due course, the bids were received, and an acquisition decision was made. A small company (50 employees, in September 2013), claiming to be able to provide the features in the needed scope for the best price, was selected as an enterprise system provider. However, a complaint was filed in market court due ambiguity in requirement specifications. Similarly an electronic door system provider was chosen. However, the timing was unfortunate as there was a shift in the dominant design [29], [30] of the handheld appliances and the technologies used for this type of operation. It turned out that the technology (Symbian) upon which the applications were designed for, was becoming obsolete.

"Providers had not developed software for any other system but Symbian and both of the providers announced how long it will take to develop them.." [Project manager, Home Care Unit]

Both sub-projects were consequently put on a hold, one for the complaint and the other for technology change, until new directions were identified and assessed. The providers evaluated the significance of the technological change to their products (the optimization and electronic door system), and expressed their will to develop their product further as alternative technologies were recognized.

The negotiations continued. The door opening system provider announced that they could not be able to deliver the systems for the agreed price nor with required features.

"..we didn't have a glue that then the providers don't actually know how to count all their expenses for a fixed price, and then compete so brutally that they, on a way, give underpriced tenders so that they are not committed to the win tendering.." [Agreement specialist, CIO's office]

The original winner declined to sign the contract. After lengthy negotiations with the winning party no solution was found. The city thus signed a contract with the second runner-up. However, then the original winner filed a complaint. For the door

opening system, the city appealed to higher legal assistance about the decision. However, due to time pressures, a solution was needed immediately. Again the door opening systems was promoted with the second runner-up on a provisional agreement. Later also this received sentence in favor of the plaintiff declining the city the possibility to continue with the provisional actions.

The enterprise system tendering would have needed to be re-opened. However, as the city owned shares of National Centralized Purchasing organization (NCP), this gave the city a chance to evade public procurement process as the NCP had done the competitive bidding in forehand on behalf of the municipalities. They were thus able to acquire the system through the NCP from the original winner, the one they preferred, without tendering and violating the procurement ruling.

However, its optimization solution did not meet the city's needs and requirements. NCP is an integrator of various services offered to all public sector organizations. NCP's expertise and experience is on procurement in general with offerings based on general level specifications, not on any particular field of operations. Even inside in a municipality, there are dissimilar processes, practices, needs, and requirements. For example even though the work of Home care unit is controlled by the law and is basically the same in every municipality, the cities have different process models and needs for route optimization. Obviously also the size of the municipality and the number of the users and customers of the future system varies. In our city, the system was expected to optimize the routes, users, and customer incidents well beyond the number of cases which it was tested and found suitable. The optimization algorithms were not entirely on a level that was needed and advertised by the producing company. In other words, the complexity of the optimization and the systems requirements differ significantly between the cities.

"Depending on the geographical features of the city, route optimization and logistically reasonable route is, for some cities, more important issue in planning a care person's day than for others. For some cases, the most important feature is the person's primary care person. Between the boundaries, there are various wishes depending on the city's operations ideology and how efficiently they want to use their resources" [Project Manager, Supplier/Vendor]

The process in public bidding turned out to have unexpected outcomes; market court interpreted the law and declared both cases for unjustified and unlawful for the city. The interpretation is not always unambiguous, but leaves room for individual reading of the situation. This skill of preparing for the tendering is to be trained, but seldom can it be fully obtained without having paid the dues.

5. Discussion

There were several challenges in the project. The most significant ones are: lack of individual skills and knowledge about the acquisition, the complexity of the acquisition network and the number of participating stakeholders, difficulties in allocating the most suitable resources for the project, and the ambiguity of the overall tendering process and legislation.

The *number of stakeholders* in the city alone was large. Three main entities were Home care unit and the project manager, CIO's office and the coordinator, and the Procurement and tendering office. The project manager knew the work of home care unit and their needs by heart. Yet she was not knowledgeable about IS in general or its acquisition. Meanwhile the coordinator knew IS, technologies, technical terms, and something about the procurement, but he was not the domain specialist. Procurement and tendering office knew how to run through procurement projects, but knew nothing about home care or dedicated IS. This means that although the participants had all vital *knowledge*, it was *scattered across the network of actors*. The *lack of individuals' skills* on different areas was expected to be compensated by the group work. But, the *lack of skills in cooperating* in this manner prevented knowledge sharing.

The problems in knowledge sharing and group work were multiplied by the *lack of resources*. All but one of the stakeholders were working in other projects, and even this person had duties from the 'real job', so they were running the acquisition project as part-time. Hence, reviewing the documents, requirements, bids, and tenders was most likely done in hurry, with an extensive trust on others that they are able to spot possible mistakes and traps. Yet, as the comprehensive understanding about the acquisition process and its objectives was missing and fragmented across three parties, it was impossible to do this. The *lack of knowledge about the acquisition* was severe.

The *ambiguity of the tendering process and legislation* was also evident. Before the call for bids was out, even before the first call for market court, all the city's interviewees claimed that this would be a success case without any problems. Yet there were not only one, but two plaintiffs, one for both areas of acquisition. Why such surprises? Retrospectively speaking, as no one had a holistic understanding about the case or how it will proceed, all the city's participants believed, from their individual viewpoints, that this is a clear, easy assignment. External incidents, such as technological change or a cancellation of earlier contract, resulted in urgent and unexpected pressures to readjust and change the acquisition process one way or the other. Due to time pressures and lacks of knowledge and skills, the parties were not able to prepare and react appropriately and accordingly.

These findings are not novel in general level. Earlier literature review points out that all of these have been identified earlier [3], [4], [6], [7], [9], [8]. Yet, as the case illustrates, there are finer level of details here. Instead of generalizing the customer as one organization, there are several smaller sub-organizations within the customer-organization. Similarly to customer-vendor relationship, also these sub-organizations have their own skills and resources, perhaps even objectives, which evidently have an impact on their collective work. In this case, although the coordinator, the project manager, and the Procurement and tendering office, among other stakeholders, were all working together towards a common goal, their inadequate cooperation and knowledge sharing led to fragmented views on the acquisition project. Three positives became one negative.

Some lessons can be drawn:

- The project manager's role is crucial to the success of the outcome. The zest and energy the person makes or breaks the case.

- Acquiring appropriate knowledge and skills is not an evident or easy task. It is not enough just to gather the expertise together, but to utilize it in a manner that different areas complement each other comprehensively, without forgetting the overall picture.
- The stakeholders form a complex network. Understanding and exploiting this network and its skills and expertise requires special attention. Very easily some essential party is forgotten or ignored, making it difficult to gain the essential understanding or resources.
- The acquisition project has to be prepared for external incidents. This means change management, in all possible forms, and risk management practices have to be in place. Change management is particularly problematic in public sector procurement where legislation steers the process.
- Benchmarking the technology needs to be done in identical situation. Although this is easier to say than do, the use of optimization algorithms in smaller scale situations did not reveal the scalability problems.

There are some limitations there. First, this is a single case study. This means that our findings are context specific. In different cases these issues may emerge differently. More research is thus needed. Second, the study was conducted in Finland which is known for its strict attitude for following the rules. Hence, in some other countries, pending the Act on Public Contracts and making the corners straight may ease the situation. However, this would most likely create new challenges. Nevertheless, cultural and country specific issues cannot be ignored.

6. Conclusion

We have presented a case where it is believed that nothing could go wrong, and all goes wrong. Our point is not to tell yet another failure story, but to show that good intentions could result in bad outcomes if the intentions are not properly executed. This execution is not an easy task. In public sector procurement the number of stakeholders and the network they form complicate knowledge sharing, communication, and collaboration. Without purposeful activities, it becomes impossible to gain a holistic view from different fragments. Very easily three positive opinions become one negative outcome. The complexity of the situation is thus emphasized. Even though all the actions when writing the call for bids were done by-the-book, latter external incidents and their unexpected outcomes were not in that book. No one was prepared for them.

The paper makes a theoretical contribution by focusing a little studied situation: public sector IS procurement and groups of stakeholders. By illustrating how they cooperate, or actually lack the cooperation, results in unsatisfying outcomes. This has not been studied before. Practitioners benefit the paper by learning these mistakes and issues.

Future work could benefit from adopting a stakeholder approach as it has been proven useful both in private sector and in e-government studies [14], [31].

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