Abstract

This paper addresses a lack of research into public procurement of information systems, especially from a process focus. Three case studies from IS procurement in Norwegian municipalities are presented. By following one of the procurements in detail, the paper shows a process with a very strict phased division, an approach quite different from today’s agile system development methods.

The cases show the importance of the requirement specification which is completed before talking to vendors. They also show the need for clarifying the content of the offer, through a dialogue with the vendor. A number of critical incidents are identified, involving the interests of different stakeholders. Continual management of stakeholders and of the procurement process through to implementation and acceptance testing are highlighted.

1. Introduction

Public procurement constitutes a large part of the market for IT vendors in most western countries. Furthermore, procurement processes are complex, partly due to the requirements for transparency and equal opportunities for vendors arising from the regulations across EU and the EEA area. Procurement of Information Systems (IS) is particularly complex as effectively every new system is a new piece of technology, covering niche areas with new vendors competing, as well as new user groups being involved. Hence, a better understanding of the process of public procurement of IS may contribute to more efficient processes, both for vendors and for the public sector.

In this paper we show through a brief literature review the need for more work with a process focus covering both the procurement and the vendor perspectives. We have studied, longitudinally, three public procurement cases from the municipal sector in Norway. We have collected data through observation in meetings, interviews with key stakeholders, and through access to minutes from meetings and other documents. Section 4 gives an overview of all three cases. In addition, one of the cases is covered in more detail in section 5.

The paper highlights some of the critical incidents and shows the need for continuous management of the process from, (1) the initial awareness of procurement needs emerged, (2) to the call for tender is announced, followed by (3) negotiations, to (4) when the winning vendor is selected and (5) the information system is implemented and (6) accepted. We further show some of the complexity on the vendor’s side, and the need for further work in this area. The paper also shows the need for further work on managing stakeholders in the process, and for further work on requirement specification and on the subsequent negotiation phase. The benefit of this work could be substantial as public procurement of information systems is a crucial activity both for vendors and for the procuring organizations.

2. Background

Public procurement has been a neglected area of study [1], but the last 10 years have seen a significant increase in contributions. There is however a very limited body of research on public procurement of IS. This is surprising since procurement has become the common way of acquiring software in public entities. Large resources are spent every year, both on the process of procurement and on the systems themselves.

Most of the research on public procurement is based on factor studies. The research seems to be limited to focusing on a few specific tasks such as tendering, see [2-5] or the selection of the winner of a tender [6-10]. There is also very little research using a process focus, covering the different phases of a procurement project. We believe there is a need for a more holistic view when studying public procurement of IS looking at it as a process rather than as a set of related factors [11].

There seems to be an assumption that the procurement is finished once a contract is signed. As our research shows, this is not the case. Rather to the contrary, it seems to be crucial that the project leader for the procurement project is involved all the way to the end of implementation. No papers that we are aware of cover this part of the process. Other phases are also
more or less neglected, such as development of requirements specification. Furthermore, the vendor side is not well researched with the exception of one paper [12].

We therefore see the need for opening this “black box” of procurement and identifying the different parts of the process both on the vendor and the procurer sides. Previous research has shown that stakeholder issues and development and use of the requirement specification are among the more serious challenges [13]. We need to increase our understanding of how these challenges may be solved. This paper is an attempt in understanding how stakeholder interests can be managed in public procurement of IS. We seek to answer two specific questions related to stakeholder issues and other challenges: (1) how do the differing interests of stakeholders add to the challenges in public procurement of IS, and (2) what strategies do the public sector use to cope with stakeholder issues?

3. Method

Since this is a largely unexplored research field, it is natural to apply interpretive field studies to gain rich insights. This approach is also better suited for process studies. We have done interpretive field studies, studies based on collecting data from interviews and observations, and our interpretations of these in line with accepted practices [14, 15]. We have been able to follow three cases of somewhat diverse types [16]. These have been followed very closely from when invitations to express interest and calls for tenders were announced, to when the contracts were signed, and the systems were implemented and “handed over”.

In all three cases we have been able to take part as observers, both in internal meetings, and in meetings with vendors. We have taken notes and audio taped the meetings. The quality of these tapings allowed only partial transcription; however, they did allow us to improve our understanding of the context and to frame our questions. To some extent, they also allowed us to validate findings from our interviews.

The interviews were all digitally taped and transcribed, and they were sent to the respondents for verification. This also allowed subjects to delete parts of the interview they were not comfortable with. Overall, we conducted 27 interviews. We have interviewed most of the main internal stakeholders, and the winning vendor in all three cases. We have also interviewed one of the losing vendors in two of the cases. Eleven interviews were done over Skype due to the remoteness of the locations, the rest were accomplished face to face. All face to face interviews were done in the respondents’ location, in their office or in a meeting room, to avoid disturbances. We have also obtained access to documents, which have further improved our understanding.

In analysis of our findings we have applied a punctuated process model and identified critical incidents [17]. The critical incident technique has been applied in different fields such as studies of information behavior [18] and customer relationship management [19]. We have applied the term “critical incident” as being an aspect of the project that proved difficult, or that involved conflict to some degree, and which changed the outcome of the project. We have further identified different stakeholders. Previous work has shown that in the public sector and in particular in the e-government field [20, 21], stakeholder groups with different interests have a significant role to play. Organizations that are subject to political rather than economic controls are likely to face multiple sources of authority that are potentially conflicting [22]. One stakeholder group which is of particular interest, but which is seldom studied, is the vendors; hence we have also focused on this group.

4. Overview of the cases

We collected data from three cases which differed along important contextual issues; Table 1 below gives an overview. We made our selection based on both on our need for gaining access and because we wanted cases using different type of procedures. Yin [23] suggest reporting case studies in the form of narratives, based on a clear conceptual framework. Due to page limitations we have focused on only one case in our paper. We will give a further presentation of this case (case 2) in section 5.

Cases 1 and 3 were carried out in the same municipality, but used quite different procedures and were very differently organized. In case 1 a claims system was procured for a specific user group with very few users. The municipality needed a new system as the vendor of the old system had integrated this system with their ERP-system and had terminated the maintenance contract with the municipality. The procurement was organized with a project group of 5 employees from 4 different departments. One of these was a procurement manager. The municipality applied the procedure of open tender. Two vendors submitted their offers and the requested documentation by the end of the deadline. However only one of the two was found qualified after considering competence and vulnerability, the other one was considered too small. The process took more than a year altogether partly because the IT operations carried out a scheduled upgrade of the ERP-system before implementing the new claims system.

Case 2 was carried out in a different municipality, for a very large group of users. Most of the users worked
in the health and welfare sectors. The municipality applied tenders with negotiations as the procedure. Three vendors expressed an interest in participating and all three were found qualified and took part in the negotiations. As we will be giving a further presentation of the findings in section 5, we limit ourselves to this brief overview in this section.

Case 3 entailed procurement of an infrastructure system for the IT operations. The new system is planned to have only 2-4 regular users, and 25-30 that could use it in case of backup problems. The procurement was organized as a project with employees from the IT department only; staff from the procurement entity were not included in the project group. The project applied the procedure of competitive dialogue, where vendors are invited for dialogue meetings. Altogether 7 vendors expressed an interest in participating, and 5 of these were selected to take part in the dialogue meetings. The requirement specification was in many ways developed through this dialogue. Hence, as can be seen in Table 1, the vendors spent more resources on this project than on the two other projects. The project ran with tight deadlines, and implementation started one week after the contract was signed.

Table 1. Brief overview of the three cases for data collecting.

<table>
<thead>
<tr>
<th>Type of system</th>
<th>Type of procedure</th>
<th>Project period</th>
<th>Resource use procuring entity *</th>
<th>Cost of system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1: Claims</td>
<td>Open tendering</td>
<td>April 2012-May 2013</td>
<td>500 man-hours</td>
<td>Small – medium (50-100 hours)</td>
</tr>
<tr>
<td>Case 2: Electronic Health Record system</td>
<td>Tendering with negotiations</td>
<td>Jan 2012 – Feb. 2013</td>
<td>4,500 man-hours</td>
<td>Medium to large (175-250 hours each)</td>
</tr>
<tr>
<td>Case 3: System for backup and archiving</td>
<td>Competitive dialogue</td>
<td>Feb. 2012 – Jan. 2013</td>
<td>540 man-hours</td>
<td>Medium to large (150-200 hours)</td>
</tr>
</tbody>
</table>

* The estimated use of resources is prior to implementation

5. The Unfolding of a Process

The procurement project group consisted of 6 members. All of them worked in the health services, except the project leader, who had a shared position between the health sector and IT. However two of the project team members were employed in a neighboring municipality, as the two municipalities co-operated on this procurement project. The project group also used a procurement manager from a shared service as consultant on parts of the project.

The reference group consisted of 16 users from different entities such as nursing homes, GPs, and administration. This group was used in parts of the project. The steering group did not play any significant role.

5.1 Data collection

The first author took part in 7 meetings, all in the same building in the municipality. All participants were informed about the research project. An iPod was used for recording and notes were taken during the meetings (and memos were written afterwards). The quality of the recordings was not good enough for complete transcription of all the meetings. However the observations made it possible to refine our questions for the interviews, and gain a deeper insight. It also made triangulation (and to some extent validation of some of the findings) possible. Table 2 below shows a summary of the data collection protocol for the meetings.

Table 2. Overview of observations in case 2

<table>
<thead>
<tr>
<th>Date</th>
<th>Form of meeting, task</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. May 2012</td>
<td>Internal, opening expression of interest</td>
<td>2 hours (+ lunch, notes were taken)</td>
</tr>
<tr>
<td>16. May 2012</td>
<td>Internal meeting, finalizing the req. specification</td>
<td>3 hours</td>
</tr>
<tr>
<td>7. Aug. 2012</td>
<td>Internal meeting, went through the offers and planned the negotiations</td>
<td>2.5 hours</td>
</tr>
<tr>
<td>30. Aug. 2012</td>
<td>Negotiation meeting 1, with vendor 1</td>
<td>7 hours</td>
</tr>
<tr>
<td>7. Sept. 2012</td>
<td>Negotiation meeting 2, with vendor 2</td>
<td>3 hours</td>
</tr>
<tr>
<td>13. Sept. 2012</td>
<td>Internal meeting and demonstration with vendor 2, and the reference group</td>
<td>½ hour + 7 hours</td>
</tr>
<tr>
<td>20. Sept. 2012</td>
<td>Evaluation of offers and demos, selection of 2 vendors for telephone negotiations</td>
<td>6 hours</td>
</tr>
</tbody>
</table>

Interviews were carried out over Skype (with audio taping) or face-to-face. The face-to-face interviews were done at the respondents’ location, generally in his/her office where we were left undisturbed.

Table 3 below gives an overview of who were interviewed. The project managers were interviewed on several occasions over Skype during the process, in
addition to one longer face-to-face interview towards and after the end of the project. Table 3 also shows if the interviews were carried out face to face or over Skype, and the duration of the interview.

Table 3: overview of interviews in case 2.

<table>
<thead>
<tr>
<th>Int.</th>
<th>Date</th>
<th>Role</th>
<th>Form</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10. Sept. 2012</td>
<td>Project manager, procurement project</td>
<td>Skype</td>
<td>11 minutes</td>
</tr>
<tr>
<td>2</td>
<td>19. Sep. 2012</td>
<td>Project manager, message exchange project</td>
<td>Skype</td>
<td>21 minutes</td>
</tr>
<tr>
<td>3</td>
<td>2. Oct. 2012</td>
<td>Super user – booking office, member of ref. group</td>
<td>Skype</td>
<td>36 minutes</td>
</tr>
<tr>
<td>4</td>
<td>2. Oct. 2012</td>
<td>Super user – nursery home, member of ref. group</td>
<td>Skype</td>
<td>20 minutes</td>
</tr>
<tr>
<td>5</td>
<td>8. Oct. 2012</td>
<td>Super user – nursery home, member of ref. group</td>
<td>Skype</td>
<td>20 minutes</td>
</tr>
<tr>
<td>6</td>
<td>8. Oct. 2012</td>
<td>Super user – nursery home, member of ref. group</td>
<td>Skype</td>
<td>20 minutes</td>
</tr>
<tr>
<td>7</td>
<td>6. Nov. 2012</td>
<td>Project member, neighbor municipality</td>
<td>Skype</td>
<td>22 minutes</td>
</tr>
<tr>
<td>8</td>
<td>15. Nov. 2012</td>
<td>Project manager, procurement project</td>
<td>Skype</td>
<td>25 minutes</td>
</tr>
<tr>
<td>9</td>
<td>22. Nov. 2012</td>
<td>Project manager, procurement project</td>
<td>Skype</td>
<td>45 minutes</td>
</tr>
<tr>
<td>10</td>
<td>30. Jan. 2013</td>
<td>Super user, old system</td>
<td>f-t-f</td>
<td>62 minutes</td>
</tr>
<tr>
<td>11</td>
<td>30. Jan. 2013</td>
<td>Project manager, message exchange project</td>
<td>f-t-f</td>
<td>70 minutes</td>
</tr>
<tr>
<td>12</td>
<td>5. Feb. 2013</td>
<td>Winning vendor</td>
<td>f-t-f</td>
<td>56 minutes</td>
</tr>
<tr>
<td>13</td>
<td>26. Feb. 2013</td>
<td>Procurement managers (2 interviewed jointly)</td>
<td>f-t-f</td>
<td>73 minutes</td>
</tr>
<tr>
<td>14</td>
<td>26. Feb. 2013</td>
<td>Project manager, procurement project</td>
<td>f-t-f</td>
<td>75 minutes</td>
</tr>
<tr>
<td>15</td>
<td>31. May 2013</td>
<td>Project manager, message exchange project</td>
<td>Skype</td>
<td>11 minutes</td>
</tr>
</tbody>
</table>

5.2 Findings

Case 2 was carried out in one of the larger municipalities in Norway, with approximately 3,300 employees. This municipality is in a network with 5 neighboring municipalities, most of them considerably smaller. Among the issues they cooperate on is procurement and they run a shared procurement service that can serve any one of them on a consulting basis.

This project was initiated by a new Government requirement which was enacted in 2011 (critical incident # 1 (ci 1)). This requires municipalities to run electronic message exchange with the hospitals Electronic Health Record systems (EHR systems), by 2014.

Figure 1 gives a graphical overview of the case, with the different phases (both at the procuring entity’s side and the vendor side). It further shows the tasks that were done, and indicates the phase and when it occurred. The critical incidents are also indicated in the top part of Figure 1. The following is a brief account of the process, phase by phase, with an account of some of the main incidents. Bradley [24] identified 4 phases in public procurement in Ireland in a paper published well before EU set regulations for public procurement. Poon and Yu [25] suggested a model of 4 phases for procurement of ERP systems, consisting of formation of acquisition team, examination of business requirements and constraints, formulation of evaluation criteria and evaluation and selection of best fit. Our division of phases is a further development of this model, taking into account the strict phase division that EU Directive on Public Procurement [26] implies, and the actual phases that we observed in this case.

5.2.1 Project organization. A project manager was appointed for the “message exchange” project early 2011, and he/she realized the need to substitute the existing system with a new one (ci 2), as the old vendor was not able to align their system with the new requirements. However, not everybody agreed with this:

“We spent quite a long time in the (overall) project group on agreeing that we needed to replace the old system. It has to do with ... sense of ownership to the old system” (overall project manager, Sept. 19th 2012).

This “someone” with a “sense of ownership” was the super user on the old system. The manager of the procurement project gave a similar account:

“... suggested waiting a couple of years due to upcoming requirements and the danger of choosing the wrong vendor”(procurement project manager, Feb. 26th 2013).

After deciding to procure a new system, the procurement project was formally organized with a project group, reference group and steering group. Both the manager for the overall project and the super user on the old system took part in the project group.

Parallel to this, the procuring consulting entity invited other municipalities in the network to take part in the procurement. This is customary in the network, and one smaller municipality joined in the process (ci 3), before the requirement specification was completed.

The inclusion of another municipality meant introducing an extra level of stakeholders with possibly conflicting interests. The representatives from the two municipalities reported to their respective superiors and
had the interests of their user groups to take into account. The two municipalities could very well have disagreed on some of the requirements, on the final rating and on selection of the vendors.

The “new” municipality assigned two employees to the project group. These employees reported to their managers in their organization. During lunch break after one of their first meetings, the issue of decision rules between the two municipalities was brought up, but the procurement consultant failed to specify any criteria. This continued to be an issue that the larger partner felt uneasy about (ci 4):

“we never got a clear answer on what their role was ... and we never got a clear answer to whether our municipality could make an independent choice or whether they had to agree” (overall project manager, Jan. 30th 2012).

However the employees from the other municipality also meant additional resources to the project:

“There were probably some different opinions on different parts of the systems, but ... in my opinion these two were very clever in detecting things we might have missed out” (super user, old system, Jan. 30th 2012).

The addition of two new stakeholders could have led to a more difficult process if they had specific needs or if they had differing views on the requirements.

As custom in the municipal network, the project group engaged with the procuring consulting entity. Through this interaction they got advice on the choice of procedure, and on how to run the process.

5.2.2 Requirement development. They started with developing the requirements specification, a phase that took well over a year, from April 2011 to May 2012. They started the phase with “borrowing” the requirement specification from a neighbor municipality. Next they visited 3 other municipalities, customers of the 3 main vendors in this market niche in Norway. The members of the reference group were invited to take part, and most took part in one of these visits. Further, they ran a brainstorming session with the reference group. This was run as a series of full day workshops, where they were presented with the preliminary list of requirements and asked whether this covered their needs – and what extras they needed for their work process. However the project group decided to a large degree the content of the requirement specification:

“To a large degree we decided. They came up with quite a bit which would be nice to have. We couldn’t include everything. We took the laws and regulations as a basis: we were a bit strict, so to say” (overall project manager, May 31th 2013).

In the end the requirement specification was considerably longer than the template. After finalizing the input part the project group started merging the input from the brainstorming with the “borrowed” requirement specification.

“We had to go through their requirements to see if they were realistic, if they were in line with the laws and regulation and if they were already incorporated in the requirement specification we already had developed .... We had to sort all the requirements and get them to fit in a reasonable framework in the requirement specification, so they might not recognize their ...” (overall project manager, Sept. 19th 2012).

They created a complete requirement specification based on this input, and on their own preferences. It included requirements of three different levels: functionality which is required, functionality which is wanted, and functionality which would be “nice to have”. This was done in a meeting in the project group (May 16th 2012). The completed requirement specification consisted of more than 300 requirements, many of them very detailed down to field level, and including possibilities for granting access based on user roles and to possibilities to print reports and statistics. The document also covered message exchange (to the hospital), requirements for security and integration with existing systems, databases and hardware. The requirements were not prioritized in the specification.

5.2.3 Pre-qualification. While the project group was developing the requirements specification, they also announced the upcoming tender with negotiations, with invitation for vendors to express an interest in taking part. This was done both over the national portal (DOFFIN – A Norwegian Database) and EU’s portal (TED – Tender Electronic Database). The vendors were asked to express their interest in participating in a tender process and to submit documentation to show their financial and legal status and competence profile for the application area.

The vendors that took part in the process all have a large portion of their revenue from the public market, and they have a routine of checking the national portal for new announcements regularly. They were also aware of the upcoming announcement through occasional meetings at seminars and other informal contact with the procuring entities. The announcement of the upcoming tender initiated a process on the vendor side. They had to prepare and submit all the documentation needed to show that they could deliver reliably.

This is a process which is done fairly often by some of the vendors (20-30 times a year) so they have most of the documentation handy. They estimate that it still requires up to 5 man-days of work. The vendors were
given a deadline of 33 days, and by the end of this deadline three vendors had expressed an interest. This was when our data collection started.

The vendors were evaluated in early May 2012; in a process where they checked tax information, revenue status, similar contracts and the size and competence of the department at the vendors that would be involved. One of the vendors was asked to send in updated information as the tax information was older than 6 months (ci 5). This evaluation could have led to one or more vendors not being invited to submit tender, however as there were only three vendors from the start, they were very careful in doing so (notes from observation in meeting, May 10th 2012).

5.2.4 Tendering. Subsequent to the above they sent the requirement specification to all the qualified vendors and invited them to submit an offer. The vendors were again given a deadline, this time of 42 days (more than the minimum requirement of 36 days [26]). The vendors were asked to show what functional requirements they met. They had to tick a “Yes” or a “No” on specific requirements, and did experience doubts:

“In many instances where they have asked questions, they don’t always know what they are asking themselves and we don’t always understand what it says so we have answered based on what we understand ...” (winning vendor, Feb. 11th 2013)

So they used comments in many of the answers, and during the negotiations they were asked the reasons for both the comments and some of the answers. The winning vendor experienced that some of their “No’s” were changed to a “Yes” during the negotiations.

They were further asked to price the offer, workshops for training, and the implementation. They were also asked to specify a plan of implementation, with named resources. This effectively meant that the vendors had to schedule their staff so that they could guarantee they could supply the resources (people) they promised. The offers were submitted by 2. July 2012.

5.2.5 Negotiations. The next task was planning of the negotiation meetings and a first evaluation of the offers (to help phrase questions). This was carried out over a three week period in beginning of August. During this period the issue of conversion was brought up, and it continued to be a source of dispute (ci 6) (observation in meeting Aug. 7th 2012).

Conversion of old data could ease the transition, as this would save work, and the super user of the old system raised this point on several opportunities. But the procurement project manager was very skeptical:

“I have experience showing that it is a much bigger job and maybe somewhat less expedient than building the new data base from scratch .... Even if you test and verify ever so much, you have very little control with this data” (procurement project manager, Nov. 22nd 2012).

The decision on whether and what to convert was left till late in the project, after signing contract with the winning vendor.

The negotiations started at the end of August and ran over a 3 week period. Each vendor had one week between each of their meetings, so they got the same time to prepare. In the second negotiation meeting one vendor was sent home half way through due to disagreement over contract terms (ci 7). The vendor was asked to come up with a new contract that aligned with the standard government contract, and told that they would be considered disqualified if they did not do so.

“They got a few days to change the contract... to align with the Governments standard contract and they sent a revised contract, but it was still not aligned” (overall project manager, Jan. 30th 2013).

There was a heated internal discussion of whether to disqualify the vendor or not. After consulting with the procurement managers and getting a statement from the lawyer, they decided to keep the vendor in (ci 7 cont.):

“I think we kept it in because we wanted to maintain some competition (between the two best rated offers)” (overall project manager, Jan. 30th 2013).

It seems they were also to some extent worried about a possible formal complaint from this vendor, as:

“...it has a reputation of using lawyers regularly and filing complaints (notes from observation in meeting Sept. 20th 2012), and

“.....matters where lawyers are involved take time – our schedule would flunk” (notes from observation in meeting Sept. 20th 2012).

The reference group took part in the final meeting with each vendor. All vendors were assigned a case to demonstrate in this meeting. By using the same case, it was easier to compare and rate the systems. The reference group was asked to rate the user interface and were given the chance to ask question on functionality that was important for their job. Two of the systems came very close, so the project group decided to have a final negotiation over telephone with the two vendors.

Interestingly, the winning vendor had some reflections on how this phase might have led to more opportunities for further changes of work processes and realized benefits:

“If we only could have sat down and discussed the needs .... a lot could have been done in this process so that the municipality had delivered better health...
services, on routines, how is the work carried out ..... But it would have taken longer time. And we had to drop this or else we would have set the price too high” (winning vendor, Feb. 11th 2013).

5.2.6 Selection. Based on this input, and on evaluation of the different offers, the project group made a final rating of each system. The selection criteria had been announced as part of the call for tender:

- price for initial procurement and life span over 8 years: 35%,
- product properties including the criteria in the specification, functionality, usability and flexibility: 50%, and
- service properties: 15%.

The ratings from the reference group had serious flaws. Some only rated a few of the factors they were asked to rate, and some rated factors that had not been shown in the vendors’ demonstration. After serious consideration, the project group decided to include these ratings as input to the total rating.

The rating was done in a full day’s meeting (Sept. 20th). All criteria were given a rating between 0 and 10 (note from meeting Sept. 20th). After the rating the project group made a list of questions for reference customers on quality of support, training, consulting services, usability and documentation. Finally one system was selected and the contract was signed.

5.2.7 Implementation. The ongoing dispute on conversion of data from the old system was finally resolved (ci 8) after the contract was signed:

“We have chosen to meet half-way in a sense. We have converted some of the permanent stuff such as personal identifiers and templates, ... but we have not converted the journals” (overall project manager, Jan. 30th 2013).

They decided to convert some of the old data but not all that was possible:

“If we had been more precise earlier (on what we would be converting), then we might have had even better quality on the data we did transfer” (super user old system, Jan. 30th 2013).

The conversion was done in several pilot versions at the same time as new super users were given training, and the new system was being tuned to the municipality. The project group had to decide after the first pilot conversion whether to go on with converting, and they decided to convert more than they had first planned. The implementation phase turned out to be very busy. We see from Figure 1 that the process was not over before implementation was carried out:

“procurement is not carried out before the system is accepted .... We have had systems with so great flaws that the deliverances have not been accepted and the final fee has not been paid” (procurement project manager, Feb. 26th 2013).

The procuring entity was very dissatisfied with the vendor’s manager for the implementation, and expressed this immediately after their first interaction (ci 9):

“So we sent a few mails between their “bid manager” and us... and in a way we resolved the issue” (procurement project manager, Nov. 22nd 2012).

However, the vendor had a different account:

“We are used to more of a cooperation, where we discuss a lot, a workshop ... and they expect a set agenda .... but we have been clever at shifting our focus” (winning vendor Feb. 11th 2013)

Due to the strict deadlines, and his/her unique competence with big customers, this was the vendor’s only choice as manager for implementation. After this initial dissatisfaction, the manager was closely followed up by his/her superior and developed a mutual understanding with the customer on how to communicate. The vendor also tells about challenges during implementation:

“We were a bit surprised that they (the project group) were fairly unstructured .... There were probably some processes we did not understand, so when we had sent information, it was not always passed on .... .... then there was much forth and back, which we found a bit surprising as they have seemed very organized in the procurement phase” (winning vendor, Feb. 11th 2013).

Conversion was carried out through several rounds of pilot testing, and the final test was not done until the weekend before the new system was supposed to be up and running. This was also their final acceptance test. The whole project group sat all Sunday testing, and double-checking the conversion, and did discover a group of records that had not been converted (ci 10):

“We sat all through the last Sunday (the day before going live), two and two, one checking the old system and one checking the new system, and discovered that patients from one part of the municipality had not been converted over” (procurement project manager, Feb. 26th 2013).

One of the system developers and the project manager on the vendor side, sat as stand-by all day in their offices and corrected errors. However, it turned out that there was a fatal error in the set-up, which had to be corrected when the first users tried to log on next morning.
Interestingly, the project manager takes questions, stakeholder based on their power, to procure what they actually need. Negotiation phase is important in making sure that they have the proper job of tailoring it to their needs, and the specification that has been through the process. Some do not do a full specification that “inherits” from other municipalities often base their work on a requirement specification. The procedure is far less common, so we focus the rest of our discussion on the other two cases.

One specific challenge with open tender and tender negotiations is that the requirement specification has to be finalized before announcing call for tender. The specification is binding, and has to be clear and complete. Prior research has found that this is one of the main challenges for procuring entities in public sector [13]. Since the requirement specification is binding, more work may be needed to ensure that all details are included. The limited opportunities for dialogue and learning from vendors in public sector procurement may make the work with the requirement specification even more challenging.

According to the vendors interviewed the municipalities often base their work on a requirement specification that it “inherits” from other municipalities that have been through the process. Some do not do a proper job of tailoring it to their needs, and the negotiation phase is important in making sure that they procure what they actually need – no more and no less.

**6. DISCUSSION AND CONCLUSION**

This case gives insight to a complex process which is very much constrained by EU regulations. Public procurements which exceed a threshold value have to be announced through call for tenders all over the EU. There are further strict regulations as to running transparent processes: all vendors get the same information. There are minimum deadlines for submitting offer and there are requirements for documentation of the process. We can expect to find a similar picture in other contexts where public procurement is subject to regulations. We see from Table 1 that the procuring entities spent considerable resources on the process.

One of the striking features is the strict phase division. The two other cases we followed used different procedures and had different phase divisions. Case 1 applied open tender which is a simpler procedure, and did not use negotiations. Apart from this it compared well on many issues. They did apply pre-qualification of the competing vendors and decided that one of the vendors was not qualified to take part. They also experienced that procurement was not finished before implementation was finalized and that serious integration issues required close management. Case 3 used a competitive dialogue. This procedure also has a strict phase division, although it differs on the requirement specification. The procedure is far less common, so we focus the rest of our discussion on the other two cases.

In case 2, development of the requirement specification was based on a similar procurement in another municipality. However, considerable work was carried out before the specification was finalized. This included visits to reference customers and brainstorming. The reference group took part in this process. To save time, the vendors were invited to express their interest and submit documentation for pre-qualification in parallel, as seen in Figure 1.

We further see a very structured process where vendors are invited for negotiations and demonstration. The reference group was also invited for rating the demonstration. All vendors were given equal time to prepare and the same case to demonstrate.

There were a number of critical incidents in this case, which might possibly have altered the trajectory of the project. We also see some of the complexity on the vendor’s side. However, more research is needed to give the full picture. Some of the critical incidences occurred after the vendor had been selected and the contract had been signed. This is a clear sign of the complexity of public procurement of IS and shows that the process of procurement goes on until implementation and the acceptance test. In all three cases there were issues that emerged at the last minute. In case 1 they discovered 2 days before they had planned to start running the new system that the ERP system it was supposed to integrate with, needed updating. They also discovered problems with integration of one of the modules. In case 3 they discovered that one module was not delivered according to specifications in a meeting with the winning vendor after the system had been running for a month. We believe it is crucial that the project manager takes responsibility until the implementation had been completed and the systems have been accepted.

Returning to the research questions, stakeholder issues pose serious challenges and the project managers attended to other stakeholders based on their power, legitimacy and urgency [27]. We believe that stakeholder management may be particularly challenging in public sector IS procurement, as organizations that are subject to political rather than economic controls are likely to face multiple sources of authority that are potentially conflicting [22]. There were critical incidents related to vendors, a stakeholder group with a lot of power. This was evident in the incident where one vendor was considered for disqualification, but they decided to keep the vendor in the competition. However in the incident of dissatisfaction with the vendor’s project manager, they took action. Interestingly there were serious vendor issues also in case 1. In this case there were only 2 vendors that submitted offers, and the procuring entity decided to disqualify one of them, due to size and vulnerability of the vendor. However, they were careful to not let the other vendor...
know that there were no competitors. In the third case they were very careful to give all vendors exactly the same information both in the dialogue meetings and during the rest of the process. The project team member with interests in the old system had significant power through being part of the project group. Significant time was spent both on agreeing that they needed a new system and on deciding on whether and what to convert.

The neighboring municipality taking part also created challenges that could have posed serious problems, as no decision was made on decision rules. The only stakeholders that did not create any critical incidents were the internal users; however, a lot of resources were spent on involving them both in development of the requirement specification and in the selection phase. This can be ascribed to their legitimacy and urgency.

The process approach is helpful in identifying the challenges and critical incidents and in analyzing and understanding what goes on. The critical incidents are to a large part related to stakeholder issues. Some of these were never really solved, e.g. they did not decide on decision rules when assigning additional project group members from a second municipality, and they retained the vendor that did not align with the contract requirements. These incidents could have caused serious problems. Other stakeholder issues were handled, such as paying attention to the interest of the old super user. This led to a decision to convert some data from the old system, and run pilot tests, and the issue of input from internal users, which was balanced skillfully. More research through in-depth process case studies and interpretive studies are needed to untangle the procurement process further and to be able to suggest how stakeholder issues should be addressed.

7. Reference list

Figure 1: Overview of the process CASE 2 with its phases on the customer and vendor side, tasks and critical incidents

(PE = Procuring entity)