Procuring Usable Systems - An Analysis of a Commercial Procurement Project

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Abstract

This article presents a case study of how usability was dealt with in a procurement process of a content management system. The results indicate that the procurers found it difficult to define usability requirements, probably because they lacked tools and experience to do so. Difficulties also arose because the tools that they used were based on idealized models of how users worked. It is argued that proper usability activities at an early stage could have facilitated the procurement process and the discussion with suppliers, as well as integrated usability into the development process. A brief outline of how such an integration could be made is described.

1 Background

Methods for usability and user-centred design have mostly addressed suppliers' production models. Accordingly, positions as usability professionals have primarily been found in supplier organisations. Procurers, on the other hand, have relied on suppliers to create usable systems and have not focused explicitly on usability issues in their procurements (Holmlid & Artman, this volume). Unfortunately, although it might seem obvious to expect that the system you purchase should be usable and useful this is seldom the case. An important reason is that usability issues have not been dealt with consciously in organisations or projects and have been separated in development processes (Carlshamre, 2001). Usability professionals have, if at all, been involved in projects too late to have any impact on issues such as interaction design and utility. The separation has also brought with it a rather narrow view of the concept of usability. Usability is seldom discussed in relation to organisational change or business strategies, but rather as an isolated concept or as a property of the product or interface. The implicit assumption that suppliers should be responsible for usability may stem from this narrow view of usability - it is the responsibility of the supplier to develop the system.

In contract development (see Grudin, 1991 for a discussion of different development contexts) the development project and the work of the usability professional is often considered to start when the supplier signs the contract with the procurer. Although much work has often already been done in the procurement process this is not perceived of as usability activities. Nevertheless, the goal of the procurement is similar to the goal of the usability activities: to get from business goals to system requirements, while assuring that the system gets useful and usable. Thus, another reason why usability activities are often omitted in contract development is that the activities do not seem to add much to what has already been done in the procurement, even though this work may not have focused on actual use at all (Balic, Berndtsson, Ottersten, & Aldman, 2002).

This paper describes and analyses how a group of procurers attempt to define the requirements for a new content management system, and how requirements concerning usability were dealt with.

1.1 The Case Study

The study was carried out in a department within a large Swedish bank. The business goal of the department was to produce economical analyses. One of the key ideas behind the procurement project was to automate and streamline the analysis production process in order to cut costs and gain competitive edge. A project group consisting of three to four persons was put together to work with the procurement. Although the project leader was educated as a system analyst, none of the procurers had any formal training in either requirements engineering or user-centred design.

The bank had its own development process that should be used when purchasing and integrating products. Unlike many development processes found in the software engineering or HCI literature this one also included procurement. The first milestone, the Request for Information (RFI), is a tender that is sent out in order to find out which suppliers to involve in the forthcoming procurement process. It states the purpose of the new system and specifies important functions and business needs. The research project started after the RFI, when the work on the Request for Proposal (RFP) should begin. The RFP is the final requirement specification in the procurement process and is used to select a supplier to continue working with in a pre-study before the implementation project starts.

2 Method

Data was collected for six months, from March to September 2002, through participatory field studies including participatory observation, interviews, video and audio recordings. Data was also collected as documentation resulting from the ongoing work such as draft reports, mails, and meeting notes. The data was analysed qualitatively from an activity-theoretical perspective. Although the researcher role was seldom discussed my presence as a peripheral member of the team made it possible to participate in meetings and discussions. My role was at the outset to analyze usability issues in the procurement process but it soon changed to become more of a discussion partner or mentor for working with the requirements from a usability perspective. Thus, although I did not participate much in the activities, my presence had an effect on the RFP with respect to usability.

3 Results

When initiating the RFP project the motivation for procuring a usable system was high. Despite this interest in usability, it soon became apparent that the procurers found it difficult to define requirements. There was a frustration about not being able to get it right and they often exclaimed things like "*This [specifying requirements] is so hard*" or "*This is the most difficult thing that I have ever done*". Their goal was to define the requirements for a system that would not only fulfil the overall business requirements, but that would also fit the needs of the users.

At one meeting, there was a discussion about system requirements. The discussion was not grounded in knowledge about actual usage but more in on-the-fly inventions about what might constitute user requirements. For example, requirements and models gained bottom-up from the analysis of some users' work were applied top-down, without much consideration, to the work of some other users that had quite different duties. Incidents like this confused the participants and prevented progress. After a while, due to some interventions by me, the discussion in the meeting turned more towards actual usage and the user research results. This had immediate effect and

moved issues forward. When finishing the meeting one of the procurers said *"Wow, what a relief! Now we really start with actual needs… this feels so good!"*

Thus, it appears that the procurers, with little experience of requirements engineering and user-centred design, could not find the right tools to reach their goal of defining requirements based on usage. Instead, they had to invent their own tools as they moved along. In a meeting with an internal expert on procurement and the bank's development process, the procurers complained about this: *"You know we have RFP templates, guidelines for managing the relation to the suppliers, supplier evaluation matrixes etc. but we don't have any support, internal course, or tools that guide you into how to define the system requirements."*

3.1 Understanding User Requirements

As is common (Rouncefield, Viller, Hughes, & Rodden, 1995) the procurers often based their reasoning on idealized models of work and use, influenced by a rational or technical perspective. This conflicted with their stated goal of actually understanding and starting from the actual use model. The following passage is taken from an early user interview and concerns whether the system should be structured according to a global standard (GIX) or a locally developed structure.

Analyst	… and now we have a common folder on a shared server where all our models are located (…) So it is not at all structured according to the GIX standard but more in a way that is practical for us so we know where each company belong.
Researcher	mmm… do you see any problem in using GROW [application using the GIX standard] together with this or do you know where to…
Procurer	… to have the same structure on both your analysis and your shared folders and on your GROW data? I mean, that's what it's about, to structure information accordingly … and structured…
Analyst	Well, I don't know if that'll pose any problems. I mean the GIX standard is a global standard and it is… well it's hard to apply to… certain sectors naturally. (…)
Procurer	And then… well, I think it feels natural to structure your data using the same structure as the data the companies are structured by.
Analyst	… well (doubting)? If it wont cause any, any problems then…?
Procurer	It will be so messy otherwise because then you have one structure in one place and then you find the companies in another place… (…) But all work documents… all information folders… all INFORMATION should be structured in the same way…?
Analyst	…….. well, well I, I don't know.. but yes or I mean I don't know if it's so damn important cause then you could say that… if all information should be incorporated in all structure, I mean, the information that I keep in my head – that is not located in any structure at all. But it is still used and expressed in my written analysis sooner or later (…) maybe it doesn't matter how my own folder is structured, just as it doesn't matter how my brain is structured and the fact that I don't write everything down?

In the passage above the procurer reasons about usage and tries to interpret and understand it from an idealized model of work. The user (analyst), on the other hand, bases his understanding on the actual use model. Since the procurer has little experiences of assessing use through activities with users, uses a different model for the user's work and has different objective than the user (to create a consistent requirement specification), she assumes that high quality must mean consistent structuring of information. The user, on the other hand, knows that they have defined their specific structure because the global GIX structure was too coarse and made work less effective. Although the aim of the interview is to get a better understanding of the use model and user requirements the operative procurer thinks more of the future setting and what would logically be most sound for the business, and tries to convince the user of this model.

3.2 What and How

Somewhat simplified, the user-centred design process can be seen as divided into two stages. The first stage, the "what" stage, aims at defining what kind of system and functionality that will solve identified user needs. The second stage, the "how" stage, addresses how the interaction with the identified functionality should be designed. Since activities with users in this project were not initiated until the start of the work on the RFP, there was only time to do a quick and dirty needs analysis, that is, completing the "what" part. Therefore, everyone had their own thoughts about the solution, which often confused discussions. Moreover, it made the choice of a supplier more difficult. Since the suppliers had only received "what" requirements their responses were also of this kind: "Yes, it is possible in our solution". All of the suppliers also said that they could fulfil more or less all of the requested requirements (although to vastly different prices). The decisive factor was therefore not if, but how the requirements would be solved. But since the group had different views of what would constitute a good system design and the suppliers had not been given any how-questions this was difficult to discuss. Consequently, the important discussion about choosing a supplier was largely based on the impressions of the supplier demonstrations.

4 Discussion and Conclusions

This article reports a case study where the responsible procurers worked with requirements specification and usability aspects already in the procurement process. The findings are interesting since it has often been taken for granted that usability is something that is dealt with only by suppliers, after a completed procurement. Even in the HCI community there has been a strong focus on suppliers and an absence of reports from procurements (Artman, 2002; Holmlid & Artman, this volume).

The case study presented here is based on the position that a user-centered methodology fits well into the procurement process; it would provide a way to bridge business and system requirements while still focusing on actual usage. It could also make it possible to integrate a user-centered perspective from the very beginning of a development project through the RFP - as requirements or wishes for the future system. However, in the procurement process that was studied this approach was not all successful and posed several problems. The conclusion is that most of these problems arose due to a lack of competence in user-centered design. The procurers involved were not trained in either requirements engineering or user-centered design. Lacking tools and experiences of working with usability, the procurers had difficulties accessing actual user needs. Moreover, the tools that were used often mediated an idealized view on usage. Internal discussions and communication with suppliers were hindered since the team did not penetrate interaction design issues, for example through an iterative prototype and evaluation process.

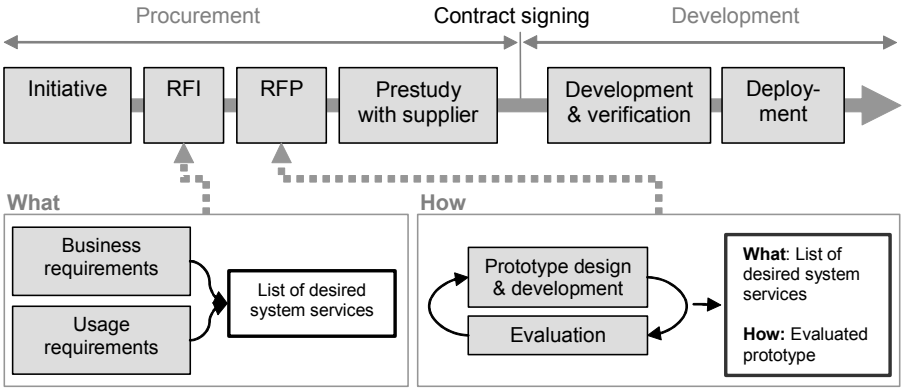

Figure 1: Integrating user-centered design in the development process.

Given this, it would be interesting to study a procurement where a trained usability professional would be responsible for writing user requirements in the RFP. Figure 1 describes how this could be realized in practice with the particular development process of the bank. Exploration of user needs and the definition of system services could be done in the RFI process. This initial "what"-requirement specification would form the basis for the first selection of suppliers. In the RFP process these requirements could be detailed into an information architecture and interaction design. When completed, the results could be presented both as textual requirements and as an evaluated prototype describing both which system services that are needed and how the interaction with these services should work. Together they could serve as a vision for the procurement and as a basis for concrete discussions with suppliers.

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