

Procuring a Usable System Using Unemployed Personas

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ABSTRACT

This case study examines a procurement project where the Swedish National Labor Market Administration (AMV) hired usability consultants in order to redesign their website for employment exchange. The user centered design process was part of a larger project to define how the website could be reorganized to better support new organizational goals. The project was managed by a procurement group that had already defined the organizational requirements for the website. They hired the usability consultants to learn about user requirements and to specify an information architecture and design. The usability company suggested a process with a user research phase and an iterative design phase. The primary deliverables would be personas and an evaluated prototype. The results demonstrate how the user centered design process can effectively be used by active procuring organizations as a bridge between abstract organizational requirements and concrete systems requirements. Tools such as personas and prototypes helped the procurers to understand and prioritize among requirements, as well as to communicate their work to the organization. These tools will be used in the continued work to specify and develop the system.

Author Keywords

Procure, Acquire, Procurement, Procurer, Usability, Interaction Architect, Personas, Requirements, Integration, Design, Business.

ACM Classification Keywords

H.5.2 Information Interfaces and Presentation: User Interfaces – theory and methods, user-centred design. K.6.1 Management of Computing and Information Systems: Project and People Management – life cycle, strategic information systems planning, systems analysis and design, systems development. K.6.3 Management of Computing

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and Information Systems: Software Management – software development, software process, software selection. D.2.9 Software Engineering: Management – life cycle, software process models.

INTRODUCTION

One central problem that HCI practitioners face is that they are seldom allowed to do their job properly. Late involvement and lack of influence on the requirements specifications are more rule than exception [11]. The origin of the problem is twofold.

On the one hand suppliers, who have been the main proponents of usability as well as employers of usability practitioners, have failed to incorporate the Usage-Centred Design (UCD) process into their development. In spite of the growing interest in usability in the industry few success stories have been reported [5,9]. On the other hand, procuring organisations seldom require UCD activities to the extent they should, or could.

One reason that suppliers have taken the initiative when it comes to usability issues is because the UCD activities are often understood as being a part of the systems development process, rather than an aspect of defining the organizational activities and operational goals. This is especially evident when examining the literature on HCI and systems design.

In this paper we want to argue that it is more fruitful to view UCD as part of an organizational development process. Whether it is a business to consumer, business to business or an internal system that is procured the aim is to realise some organizational goals. But as pointed out by Balic, Berndtsson, Ottersten, and Aldman [2] an interactive system can never realise such goals by itself - someone has got to use it:

“What often seems to be forgotten is that the generated business value corresponds to the level of usage (number of users who actually use the product) and the product’s quality-in-use (effectiveness, efficiency and user satisfaction when the product is used). In other words, business value is generated through product usage.”

Thus, whether it is a consumer that purchases something at a website or an employee who registers a transaction the actual *usage* is central in realising the desired organizational goals. Consequently, understanding usage

should be a central task in procuring any interactive system. In order to be able to specify what to procure a procurer needs to understand the requirements of both the current and the future usage of the system being procured. This, as it happens, is exactly what UCD is about.

We propose that procurers would benefit from becoming more active when it comes to usability issues, and that the UCD process is well suited to bridge organizational goals and systems requirements. To regard usability as an attribute of organizational activities rather than as an attribute of human-computer interaction, is making usability and interaction design a much more general and desirable aspect for many organisations since it is the operational goals that should be fulfilled efficiently rather than the interaction with the computer.

In this paper we present a case study where the Swedish National Labor Market Administration (AMV) hired a usability firm to perform the UCD process in order to help the organization specify the requirements for a new website.

The Procurement Competence Research Project

For almost three decades usability and UCD have been researched and shown to have great merits for systems design. Yet, many usability professionals, at least in Sweden, feel that they have to preach its value in order to take place in the design process [11]. All too often their work is constrained. The UCD community has partly got itself to blame for this failure. The preaching of usability with its own processes, competence groups and vocabulary has strengthened the separation of HCI. Some (e.g. [4]) have therefore said that our field is mature enough to dismiss the usability as a term – stop talking about it and just do it.

Since 2001 we have researched on how procurers of system design think and reason about usability and UCD. We have found that most organisations value usability and think it is of high importance. Some organisations think it is so important that they do the usability activities on their own [17], others require it in the general requirement specification [19]. In the former situation the organisation is doing the best they can to make the systems design usable – usability becomes defined by the competence of the procurer organisation. In the latter case the procurer seldom specify it concretely enough in the contract. Consequently, usability becomes defined by the developing organisation and their willingness to do usability work. Procurer and supplier process negotiations is a third form of organisation of usability design, where the degrees of usability are defined ad hoc and on the fly by the procurer and the supplier [1].

In this study we examine a fourth form of organisation of UCD where the procurer organisation contracted a third party to perform the UCD activities and to make the requirements concrete through an evaluated prototype. The

general aim of our project is to examine what usability and interaction design can accomplish in these very early stages of systems design, and further dig into how procurer organisations reason about usability. We also investigate how personas can be used as a tool for procuring organisations to reach consensus and merge organizational and usage goals.

Personas

Personas [7,8] is a method/tool that has become increasingly popular among usability practitioners. A Persona is a character representing a group of users with similar usage patterns and goals. It is based on thorough research of actual usage. The tool is used to understand and focus on user requirements and to communicate these requirements among different stakeholders in a project.

Personas as a methodology has not been thoroughly researched. In addition it has been rejected by some since it replaces some actual user participation [10]. Others argue that this is its strength since actual user involvement in the design work can be perceived as a hinder rather than a help [7,8,10,13]. This may be particularly true when designing systems for large audiences, such as an internet services.

Personas is usually described as a mediating tool between usability practitioners and developers. In this study we are especially interested in examining how a procurer experienced the use of personas and, as a consequence, how they understood the merits of interaction design in relation to the overall goal of procuring a large implementation project.

METHOD

The case study was conducted as a participatory observation field study where the first author participated as a usability consultant from the usability company throughout the user research and design phase of the overall project. Therefore, this phase is described mainly based on the first author's experiences of participating in the project. This is complemented with reflections of the process by other project members, both before and after this phase. The interviews were conducted both with the project leader from the usability company and with members of the procurement project group (hereafter called PPG). The interviews were conducted by both authors in a project room at the interviewee's workplace. The second author was lead interviewer. All interviews were recorded.

We have analysed the project as it uncovered chronologically. We have triangulated the observations with documentation and with opinions and reflections from the interviews.

RESULTS

This case study describes a pre study that was conducted to gather requirements for a new version of the Swedish National Labor Market Administration's website. The goal of the pre study was to gather information for making a

management decision of whether to invest in a new website. In large the project consisted of three phases, as described in Figure 1.

The first author participated as a usability consultant during the gathering of user requirements. Before that the agency had gathered organizational requirements and they continued to prepare the decision material and anchor the results in the agency after the user research and design phase was finished.

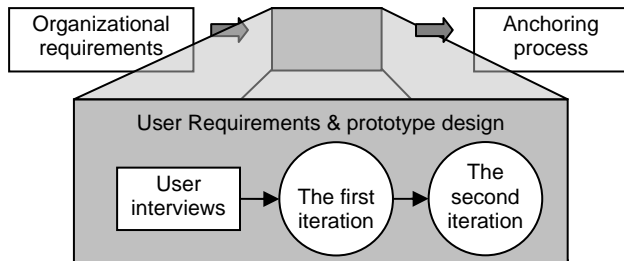


Figure 1. The project as it was planned in relation to the previous and following internal activities.

Project Background

The Swedish National Labor Market Administration (AMV) is a very important government agency in Sweden. It's role is to monitor the employment market and decrease unemployment. When Internet became widespread in the late nineties the agency was one of the first to use the new medium to offer services to the citizens. The website has since grown with more services and information. Although successful, it has with time become difficult to use. One reason is that the organic growth of the site has created an information structure that is not developed from a usage perspective. One of the procurers conclude that:

"We have not been able to design with the users interest in mind but everyone sees to their department and their own interests"



Figure 2. The website as it is presented today

There are three major user groups of the website: employers, unemployed and various users that seek information about the work of the agency. Since they all

have to share the same top navigation much important information has today been pushed downwards in the structure, which make services and information difficult to find. Furthermore the website is in general heavy on information which also adds to the difficulties. Figure 2 gives a snapshot of the current website. It has six main sections that are directed to different user groups.

The agency's mission is to match employers and unemployed. This has traditionally been handled by assistants in the local offices around the country. The website has, until now, mostly been seen as separate from the local offices, and it has been managed and developed by a specific department within the organisation with much authority of its own. During the last year, with up to 700.000 visitors every month, the management wanted to create a new organisation in which the website would be the main channel for the matching process and employers and unemployed would handle the process themselves. A new call centre and the local offices would mainly deal with those that need more support and that can not get by on their own. In this way it was envisioned that the organisation's resources could be used more effectively.

To accomplish this, the general director ordered a pre study to define the business and user requirements for a new version of the website. This project had been initiated once before but had crashed due to internal disagreements:

"There had been a project like this earlier to define a new information structure for the website but it collapsed since there were internal disagreements and conflicts about which perspective one should use and how the user groups looked like and so on."

The new project leader employed two major strategies to succeed with the project. One was to make the website a management issue rather than a department issue. Hence the project group was put together to represent all major departments and was organised in direct contact with the management. The first months of the project were spent gathering organizational requirements from various documents and statements from the Director General. This work resulted in some central summarizing directives. Since these were based on speeches by the Director General and general documents they were quite abstract, such as:

"The tools on the website shall above all be an effective support for the visitors' own matching activities", "The website shall communicate our mission and clarify our assignment" and "The website shall be developed from a usage perspective and adapt to the citizens and companies needs and conditions."

The second strategy was to "disarm" the question of the users' perspective. There had not been any research done about the users' needs in the previous project. This had been one reason for its crash since everyone had claimed that they knew what the users actually needed, as a support for their own ideas.

“Everyone claimed to have the user’s perspective and I claimed that no one could have it. The only way to get it was to work very systematically with the users”

Hence, when the PPG had nailed down the business requirements as detailed as they could they decided to conduct a study with the users to define the user requirements. They explained this to the usability consultants that they had a framework agreement with and they had got to respond with a proposal of how they would like to run the project. After a selection process the PPG chose a small usability firm, mainly because of their methodology:

“What was attractive was that it was not this kind of “we are the experts on the user’s opinions” but a methodological base to stand on that was very clear.”

The usability company provided two consultants, one responsible project leader and the first author, as assisting consultant. We suggested a process with contextual interviews to create personas and scenarios, followed by an iterative design and evaluation phase to create a prototype. Since the scope of the project was to define a new information structure the interviews would not be used so much to gather new functional requirements as to understand current usage and the segmentation of the user population. An abstract representation of the work process is provided in Figure 1.

The project group had worked for five months nailing down the organizational requirements and their time was running out. They planned to prepare and anchor the results of the project in the organisation through a review process before the end of the year. Therefore the UCD process could not take more than eight weeks. At the same time they wanted two iterations and a thorough interview phase. Hence, the schedule for the UCD process was very tight. However, the project was important and prestigious for the usability company and it was judged that we would be able to deliver on time by working with two consultants on top speed.

User Requirements and Prototype Design – a Usability Consultant’s Perspective

The user research and design project was initiated with a workshop in which the PPG presented what they had done so far in gathering the business requirements. All relevant documents were also handed over to the usability company. Apart from going through the organizational requirements a *persona hypothesis* [8] was formulated. Several contextual interviews [3] were planned for each user group in the hypothesis. The hypothesis was based on the agency’s existing information and knowledge about the segmentation of the users of the website.

We provided the project group with a list of the planned interviews and asked them to participate in as many as possible to gain a first hand insight into the results, as well as of the process. The members of the PPG were very engaged and interested and one of them participated on almost all of the 21 interviews that were conducted. In

order to not interfere too much with the actual interviews only one member of the PPG was allowed to attend on each interview session. When the interviews were completed we analysed them qualitatively and transformed the data into personas covering the different user groups, their goals and needs. Although the scope was on an information architecture level the needs analysis resulted in several usage scenarios for the new website with new functionality to support the discovered and as yet unmet needs.

This was all completed in about nine days, Even though this was evidently a very fast tempo we felt that we were in control of the work. Although they were active and engaged, the members of the PPG, on the other hand, only participated occasionally in the hands-on work, such as on an interview or in a design session and then got the results presented to them in a weekly workshop. Thus, they did not get the same insight into the details of the results as we got. Although this was not discussed it seemed to make them uncomfortable. In the following interviews one of them comments this as:

“Things happened very fast. And I don’t think we were prepared on that. (...) So we felt that we were maybe not really involved in all the details of the work, which we may have wanted to be. But at the same time we had decided to follow this time plan to be able to do all the things we needed to gather the user requirements. But when you look back at it we should have spent more time in the project and been more involved.”

When the personas were discussed the PPG noticed that two categories of users seemed to be missing. The selection of respondents had not included these user groups. Therefore, one of the members of the PPG complemented the personas with two more, based on discussions with assistants in the local offices.

After the personas were completed and presented for the PPG we moved on to work with the design and the information architecture of the first prototype. Card-sorting exercises were planned with the two most important user groups, but only one could be performed. Again, only one member of the PPG was allowed to attend in order not to disturb the exercise, but the information architecture was worked through with the whole group in a workshop shortly after this. Alongside with the information architecture we created a first draft prototype. A graphical designer added a first idea of form and visual design to it. The prototype and the fundamental design ideas were presented and discussed with the PPG. Since the members had varying experiences of working with design the discussion was not always smooth and concepts such as navigation levels had got to be explained.

After the workshop the prototype was made “testable” by making it possible to interact with it. While the prototype was evaluated with users and by experts on accessibility the graphical designer conducted a mood board workshop with the PPG to uncover their ideas about the visual design. Hence, when we presented the results of the evaluations to

the project group the visual designer could start working on the visual design that would be used in the second iteration.

Altogether, the general directives of organizational requirements, the personas and user requirements, the results from the usability and accessibility evaluations, and a new form provided the basis for a second high fidelity design. However, a few days into the second iteration the procurement project leader called us to announce that the project needed to make a halt. The PPG had not been able to follow and understand all the decisions that had been taken during the design process. Therefore they were also not sure about the connection between their abstract organizational goals and the now concrete design. We were assigned to lead a series of full-day workshops with the PPG to backtrack what had been done and work through both the organizational and user requirements again.

After three intense workshops spread out over about eight days most questions had been answered and the PPG felt much more comfortable with the work that had been done. We updated the prototype with all the design decisions that had been taken during this period and a second round of usability test was planned. In the meantime the graphical designer negotiated with the PPG about the requirements for the final form. As in the first iteration the prototype was also sent for evaluation by experts on accessibility. There had been many changes in the design, both concerning interaction and form issues since the first iteration, and the usability evaluations indicated some areas that needed reconsideration. This was discussed in a final workshop with the PPG. Design decisions were agreed upon and the final changes were made to the prototype.



Figure 3. The design of the final prototype.

In the new design (Figure 3) each primary persona gets their own version, or mode, of the website. This means that the whole top navigation can be used for each target group which gives better overview and a more shallow information architecture. The design is also more action-oriented than before and more coherent in the sense that related parts are now integrated rather than spread out in the structure.

Our last responsibility was to write the final project report that described the work process, the personas and basic ideas about the final design. This was handed over together with the prototype and the final graphical design. Although this was the end of our involvement the PPG had much remaining work. They had to continue and intensify the work of anchoring the results of the whole project in the organisation, mainly through a thorough predefined process in which the prototype would be sent out for review to various departments.

The halt – an Analysis

From a UCD perspective the project had progressed smoothly. In spite of a tough time plan we were on time. Therefore, the halt came as a surprise to us since time had been absolute top priority and a halt would inevitably cause a delay. But suddenly the priorities had changed. Instead of time understanding became essential. When the project was discussed in retrospect the PPG leader gave two major reasons for the halt:

“The usability company had delivered entirely accordingly to the expectations but the project group did not have full insight and understanding (...) of the results, which made them feel uncertain. And then they would not be able to perform the extremely important work to become ambassadors. So I was forced to halt the project so they would be able to understand the results that had been produced by the usability company.”

We identified the organizational requirements first and they did not reach the same level of concretization as the users’ requirements. (...) And the usability company was in charge of developing the prototype and we got to review it in this kind of dialogue... but then... the usability company got to strong somehow. The usability company was much more professional in some way – they had their methodology and they knew where to go and so forth. But we, who sat with the organizational requirements, in which the usability company did not have any competence, we were not as good at steering, so to speak.”

We were aware that the PPG was unsure about how the abstract organizational requirements should be translated into the design and had asked them shortly after the user interviews to try to detail their requirements to be able to discuss them in relation to the design. This was not done, however, and in order to be able to deliver on time we felt that we had to move on. Furthermore, since we had read the report from their previous work and had designed the prototype based on user requirements, but in the overall framework of the organizational goals, we were less worried. Of course, there were still questions that were unanswered and even some contradictions in the documents on organizational requirements, but we expected these to be resolved during the second iteration.

In retrospect it becomes clear that the halt was necessary not only for the PPG to understand the user requirements, but also to specify and secure the organizational requirements. The PPG had not been able to detail these to the level that the user requirements were specified. Since these were also “owned” primarily by the usability

consultants the PPG experienced that the user requirements grew “too strong”. Considering that the previous attempt to specify the requirements had failed the motivation to actually *understand* was very high. However, lacking a thorough understanding of the user requirements and with diffuse and contradicting organizational requirements it is not easy to participate in an argumentation about design decisions, especially in the fast pace that the project was moving.

The halt is interesting from a research point of view since it manifests the importance of working with a dual perspective of business and user requirements, as discussed later on. It is, however, important to emphasize that it was a completely internal project decision and the members of the PPG did not consider it as a big thing in the following interviews but merely as a response to a too tight time plan.

Understanding Through Cooperation

When asked how they would plan the next project based on these experiences the PPG members agree that they were satisfied with the overall process of identifying the organizational requirements first and then the user requirements, and the decision to involve usability competence:

“I don’t believe in this type of methodology where you take in users and let them design their own system. I believe in the meeting (...) between those that are (...) specialists on designing systems and the new technologies etc., and the users’ needs. It is in this meeting that you get the absolutely best solutions.”

If they would change anything the most recurrent comment is rather that they themselves should have been more involved in the project from the start, and spent time on their own with the requirements, without the usability company. Even though they would let an outside company be responsible for the UCD process they comment that they should have participated more in the activities and that all work should have been done in their offices, instead of having the usability consultants work in their own office.

“Looking back we should have planned to be more involved in the project.”

Although we who were responsible for the design felt that we had captured the essential organizational requirements in the prototype the PPG needed to work through the design decisions themselves to gain the same understanding.

“It might not have been that different [had we not had the halt] – but it was mostly a feeling that you got time to think through a lot of issues (...) Things were more clear to me [after the halt]. I could take a discussion with others better than when it was highway all the time.”

Thus, although the design did not change drastically during the halt it was needed in order to get the PPG up to speed in the design discussions. Nevertheless, the project, although following the project plan with respect to the activities with the users, turned out to be a different project than expected from the PPG’s perspective (Figure 4).

Anchoring the Results in the Organisation

Since the end of the design project the PPG has continued to anchor their results in the organisation. The prototype was sent out for review to different departments with an opportunity to comment on the results. The responses were summarized and the PPG decided to make several changes in the prototype based on the comments. Since this process both required the project group to continue to work with the requirements and also explain it to others in presentations it further increased their feeling of confidence:

“Now we have done this and we stand up for it – we know it. I believe this is very important for the credibility – that it’s not only something that a consultant has said since it’s much easier then to say “well that’s only a consultant who’s done it. We’ll change it”.”

Although many comments were handed over in the review process the PPG agree that the results in general have been very well received. Both the final result and the structured work process they used to reach it were appreciated. The management has now made a decision that the prototype represents the vision of the future website and has decided to continue to specify a cost and resource estimate for a development of the new website based on the prototype.

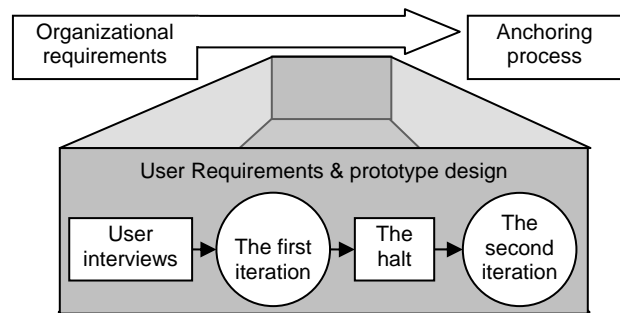


Figure 4. *The process as it actually turned out with a continuous dialogue between organizational and user requirements*

Organizational and User Requirements

The PPG comment in the interviews that the UCD process, with the halt, helped them to better understand their own organizational requirements, apart from specifying the user requirements. Although the original organizational goals were not changed their understanding of them and the requirements did:

“The organizational requirements have become more concrete (...). The policy documents are written on a fairly high level of abstraction. It’s easier now to run in the staircase of abstractions (...) I can go from a detailed level, for example a database table. I can take this with me and run up to the policy document.”

By working in a structured way with both organizational and user requirements they seem to have built a very solid platform from which to continue the procurement project. In particular the halt and their own work with the material after the design phase seem to have helped them to understand how user and organizational requirements are interrelated and represented in the design. Here is a

concrete example of how the personas and the design work aided in this integration and prioritization of the requirements:

One organizational requirement was that the website should communicate what the agency do and how well they do it. From a usage perspective this was in line with the goals of the information seeking persona (i.e. journalists and researchers) since a large part of their job is about writing about the employment market. However, the employer and unemployed personas did not share this interest. Their primary goal was to find employers or a new job. This was also in line with the main organizational goal of the website – to support the matching process between unemployed and employers. Therefore we decided to emphasize information about the agency in the website for information seekers but minimize it in the website for other personas. The organizational requirement of informing about the agency could not come in conflict with their primary goals of matchmaking, which in turn would realize the overall organizational goals.

One of the members of the PPG also describe how they now present the personas and the organizational goals together through an integrated concept where it becomes clear how different personas will use their services differently and in different channels in order to realize the organizational goals.

The members of the PPG agree that this project was successful in that it followed a structured method from abstract organizational goals to detailed systems requirements, and that it took both organizational and user requirements under consideration and integrated the two. If possible, they would use the same work model again if they got involved in a similar project, also because they do not have any method or process for this today.

Working With Personas

The PPG got interested in the tool personas already when the usability company presented it in their project proposal.

“One thing that caught our interest was to work with personas (...) to get something more concrete to work from”

The fascination with the tool grew during and even after the project as it proved its effectiveness. For example, although the results of the interviews were much in line with the persona hypothesis there were also some important differences. One such deviance was that the hypothesis divided users based on the agency’s internal categorisation of short-time unemployed and long time unemployed users. In the analysis, however, it turned out that a categorisation based on how long a person had searched for a job, rather than how long he had been unemployed, was more interesting. But the greatest strength of personas was not as an analysis tool but rather as design tool and as a way of communicating requirements:

“Its not only that it becomes very concrete and tangible when you work, like a really good tool when we should design the prototype.

We talked about them as friends in the project group. How will Linda handle this? And then everyone knew. Linda was a whole concept that stand for a lot of things instead of having to recount all the details. So it becomes a very, very smooth tool to work with.”

More interestingly the use of personas did not end with the end of the design project but they have lived on during the internal preparations for a development decision:

“The second thing that struck me was what an enormous response we have had on these personas when we have been out in the organization talking about the project. Suddenly it has become tangible even for people who do not have a clue about web development. “Right, the users.” And the users are not a grey mass but they want different things!”

The PPG even report that they have found new uses for the personas in many other projects and completely other settings, such as in education. For example, when discussing with the assistants in the local offices who shall teach unemployed to use the website the personas have helped them understand how different users may need different services and may use the website differently.

“Suddenly our website gets differentiated in relation to the users... that is really incredible.”

DISCUSSION

As pointed out in the introduction business goals can seldom become realised through technology alone. The technology has got to be used by someone for the goals to be fulfilled. Therefore an analysis of current usage and a prediction of future usage through prototypes and evaluations is a crucial step to take in any development project to come to grip with what kind of system and services that are suitable. By performing these activities already in the procurement project we anticipated several benefits. Mistakes and questions can be solved at an early stage at a low cost. The procurement itself can become more concrete which facilitates communication with suppliers [17]. Most importantly though, from a UCD perspective, usability issues can be integrated, or embodied, into the request for proposal without the need to actually speak about usability.

These benefits were experienced by the PPG in the current case study. The usability process became a bridge between the PPG’s original abstract business goals and the more concrete systems requirements. Judging by the comments of the PPG and our earlier experiences [e.g. 1,17] it would have been more difficult to go directly from the abstract documents to a detailed systems requirements specification. Furthermore, if the UCD process had not been incorporated already in the procurement usability activities would still have had to be done later in the development phase. An integration of the two would most likely have been more complicated at that stage since there would be a contract based on abstract business requirements regulating what should be done. In this case study the PPG instead let the user and business requirements grow in parallel towards a

final design, solving contradictions between requirements as they came along.

The idea that the usability process should be used to bridge organizational goals and systems requirements in the procurement presupposes a separation between “external” and “internal” design [16, p. 94]:

“Software development informed by recent work in design methodology should aim at separating external design from internal design and construction. (...) This has implications for how we view the designer’s role, as well as for the structure and management of software development projects. A problem which remains to be addressed is how to deal with constructional aspects affecting the use of the final product. Response time, reliability, maintenance, etc., all affect the users’ experience of the product (see Gould, 1988, for a discussion). Yet they cannot be adequately addressed in the design work since they are determined by the final construction. A tentative answer is that the designer - much like the architect - is responsible for coordinating the construction work in such a way that it satisfies the design vision to the greatest extent possible.”

As Löwgren points out the backside of a separation of internal and external qualities is that those that are determined by the final construction cannot be specified alongside other external qualities. It is therefore tempting to argue against such a separation and propose that one and the same supplier can have both usability and technical competence and both design and implement a usable system. We would certainly like this to be the case, but in reality it does not seem to work. As mentioned in the introduction suppliers in contract development fail over and over again to integrate UCD activities in their development processes. Furthermore, even though we may one day see suppliers that have succeeded with this integration, we believe that usability activities will often be involved too late if they come after a contract for the technical development is in place.

The Interaction Architect

Other case studies that we have done [1,17] highlight that it is not enough to only perform the UCD activities in the procurement process, but the procurer must also possess UCD competence to do it (the same point is raised by Scown [18] but he argues that the procurers should actually learn HCI). This does not necessarily mean that all procurers of interactive systems should employ usability practitioners. A strategy that was used by the agency in this case was instead to hire competence temporarily. Since usability played a key role in this case study it is interesting to analyze this strategy further. We will refer to the role that the usability professionals had as the *Interaction Architect*.

The idea of the Interaction Architect, using the metaphor of the construction architect, is to provide UCD competence when needed, without having any interest in also implementing the specified system [17]. The comparison of the usability professional to the construction architect is quite common in the UCD literature (e.g. [6, 14,16, 20]). For example, Kapor [15, p. 4] write:

“Architects, not construction engineers, are the professionals who have overall responsibility for creating buildings. Architecture and engineering are, as disciplines, peers to each other, but in the actual process of designing and implementing the building, the engineers take direction from the architect. When you go to design a house you talk to an architect first, not an engineer. Why is this? Because the criteria for what makes a good building fall substantially outside the domain of what engineering deals with.”

As emphasized by Kapor you don’t go to an architect when you have already built the shell of the building, or when the construction is nearly finished. Neither do you involve an architect after you have chosen what to build in detail, and who should build it. Rather, you use the competence of the architect to understand what it is you need, and to define this in a format that is understandable by contractors.

Consequently, we want to use the metaphor of the architect to stress the *point in time* in which this role is involved. The responsibility of the Interaction Architect is to secure issues of quality in use *before* a contract with a technical supplier is signed, as well as to monitor the progress during the systems development. The results from this case study, as well as another that we have performed, are very promising. The UCD process was valued by the procurers. The results from the work of the Interaction Architect – a design, grounded in usage and business goals, will be used as a high level requirement specification by the procurers in the continued specification and development work. Whether or not this will result in a usable system is, however, too early to say since neither development project has started yet. However, the results have in this case persuaded the management to use it as a vision which they will try to reach.

We believe that we will see more of this, or similar, roles in the future. Perhaps a scenario as described by Winograd [20, p. 11]:

“As software design continues to mature, perhaps we will see a similar evolution: from the individual artisan-programmer (far from an extinct species today); to a master architect builder, as described by Fredrick Brooks (1995); to a commercial environment that includes software architectural firms that vie for awards for originality and elegance of their designs, but that are not responsible for construction (implementation).”

Or maybe we will even find, in a not to distant future, a situation where usage requirements are fully taken into account not only in the procurement stage, but also all along the development and implementation stages.

Integrating User and Business Requirements

The results of the case study indicate that viewing the usability activities primarily as a process of organizational development or procurement, rather than as part of a systems development, facilitates an integration of the UCD activities. The procurement organisation saw these steps as necessary to be able to specify what they needed. Usability professionals often have to beg to get involved early in the process, and then “early” is often defined as the start of the supplier’s engagement. In this case the usability

professionals were involved even before that and their results were appreciated by the organisation and have been used extensively.

However, it is clear that the successful integration of usability did not come automatically by involving usability professionals. Rather, it demanded a lot of work and effort from the procurement project group (PPG). In retrospect the participants seem very pleased that they paused the project since they got a chance not only to listen to the results being presented but also to work their way through the proposals themselves. This suggests that when planning a project with an Interaction Architect, regardless of whether he/she is hired or employed by the procurer, it is also necessary to include time for working through and re-evaluating the business requirements, and to link these to the needs of the users. One method for this integrated approach is suggested by Balic et al [2]. We are not sure, however, that the work needs to be that formalised. It might be enough to establish this two-edged focus early on in the project, to plan it accordingly and, most importantly, to have time not only for practical activities but also for reflection. One difference could, for example, be to not only plan evaluations with presumptive users, but also with the procurers.

Apart from the benefit of including the organizational requirements more explicitly, the time for reflection also gives the procurers possibilities to get more familiar with the results, which is necessary if they will use them by themselves later on. There exists today no established method or process for procurers to manage their work, but a method inspired by UCD seems to be a promising candidate. In this case study the UCD process was appreciated and effective for the procurers as a method of transforming their abstract goals into detailed requirements, through involving users and designing for them.

Hence, although the UCD process was originally intended to understand the user requirements it also helped the PPG to understand and deal with their own organizational requirements. With a prototype available it became easier to become concrete regarding the organizational requirements, or to notice that they were not yet embodied in the prototype.

The Active Procurer

Holmlid [12] emphasises “the active procurer”. This case study confirms that a successful procurement and involvement of usability requires an active procurer. The members of the procurement project group were active in many ways:

- They worked intensively together to specify the organization’s goals and requirements for the new website
- They were involved in the UCD process in order to really understand the results

- They worked closely to the organization during the requirements phase to continuously communicate and gain approval for their work
- They planned a thorough review and approval process after their work with the prototype was completed, in order to anchor their results in the organisation

Although the involvement of an Interaction Architect and the UCD activities were successful in themselves the result of the whole project would most likely not have been as successful if the procurer had not worked actively and taken responsibility from the very start. Even though the requirements did not change drastically during the halt the PPG got an opportunity to work with the material themselves, which they had not had before. This, together with their continued work with the requirements after the design project, increased their credibility in their internal anchoring process.

Thus, although the UCD process helped the PPG to detail and evaluate organizational and user requirements this was merely one piece in the overall process. An equally important piece was their engagement in the project, as well as a thorough planning for internal marketing and anchoring.

Personas & Prototypes

One of the worst fears of the PPG was that they would not have an adequate understanding of the results since they had outsourced the UCD process. The usability company introduced a new work process and possessed design and analytical skills that the PPG did not have. In retrospect the fears were unfounded. As mentioned before the PPG’s engagement in the process is identified as one reason for their ability to embrace the results. Another reason is probably the tools that were chosen.

Both the personas and the prototype have been used extensively by the PPG after the design project ended. They have even made changes in the prototype by themselves. The choice of these concrete and communicative tools for the deliverables was likely important for this to happen. Had the usability company instead delivered a large report and a requirement specification in UML the PPG would likely not have used them as much and the process of anchoring the results would have been more difficult.

Both the prototype and the personas were appreciated by the PPG for their communicative power and simplicity. The personas represent the users and communicate their goals. The prototype represents the system and communicates the requirements. Both of these tools are non-technical and easy to use in presentations and discussions.

On the other hand, their power and simplicity may also be a danger since they may start to live a life of their own and be used in areas and for argumentations that they were not designed for. Although this is a pleasant problem compared

to not having any focus on the users at all it is one which a procurer-oriented perspective on usability must deal with.

CONCLUSIONS

This case study emphasises that the user centred design process, which is commonly perceived as a systems development issue, may as well be used in organizational development or systems procurement. Procuring organisations today lack methods or processes to transform their often abstract organizational requirements to a systems specification for procurement. This case study demonstrates how the usability activities may be used in this phase to bridge organizational and systems requirements through an emphasis on usage. The result of such a process is a requirement specification that is based on both organizational and user goals and that can be used to procure a systems development project.

Furthermore, the case study highlights how tools such as personas and prototypes can aid not only in the design process, but can also be used by procurers with no formal training in usability in their endeavour to communicate and anchor the results of their work. The results indicate that success factors include having access to competence in UCD and an active procurer who is engaged and want to participate in and understand the work of specifying the requirements in order to become confident and secure in one's own abilities to know what to procure.

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