Developing e-services in a government authority:  
Different views on design in procurement and system development

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Abstract. The aim for this study is to understand and describe the ways the different actors describe and understand interaction design, and to identify challenges to balanced and active UCD work. The purpose is also to learn more about how procurers and interaction designers view the procurement situation and how the role of an interaction designer is constructed in such a situation. Ten subjects, representing the procurer organization and the development organization were interviewed. The results show that the enforcement-department is in the middle of a change process, where interaction design will be their responsibility as well as part of their area of expertise. The interviewed interaction designers have a narrow perspective of their work and do not see the complete process from procurement to delivered product or service in which they are a part of. As a result from the organization change they expect to meet more active procurers.

Keywords: interaction design, design process, acquisition, procurement, system development,

1 Introduction

Swedish government agencies are in the midst of several change projects. One is the transformation from a visit- and form-based business to a 24/7 oriented business. One of the drivers in this transformation has been the introduction of a wide range of self-services and computer mediated services. Another transformation, concerning some government agencies, is the requirement that they should clearly distinguish between the procuring organization and the system developing organization, in terms of resources as well as governance. This transformation sometimes is used as a driving force to redefine processes, project governance, and the positioning of roles and activities. This provides a possibility to find alternative ways of employing user-centered methods in e-government projects, whether they concern services, administration or democracy.
The government agency we currently work with have started a change towards such an alternative way. In a new three stage project management model interaction design work is performed by the procuring organization as well as the producing organization. The inspiration for this change was collected from Markensten (2005) as well as Ottersten & Balic (2004).

1.1 Interaction design by procuring organizations

Some of the research performed within Human-Computer Interaction (HCI) or interaction design can be read and analyzed from a procurement perspective even though that was not the primary focus for the research performed (e.g. Grudin 1991, Näslund 1996, Näslund & Löwgren 1999). Moreover, some work has been done regarding government contracting (Winkler & Buie 1995). As such it poses challenges, because of legislation and more or less rigid processes set up for equality purposes. It also poses opportunities because governments employ a lot of personnel, they are large procurers, and sometimes have the moral obligation to act as role models. Literature that focus on procurement (e.g. Kapur 2005) often highlight economical or legal issues of procurement or on functions rather than functioning.

Most user-centered design (UCD) models and methods, as practiced, rely on the considerate developing organization and that the producer is performing all the user centric tasks. All expects, and wants, usable systems – it seems so obvious that many organizations assume that it does not have to be dealt with or specified until the producer starts to develop the system. It is common that users are mentioned when training is mentioned, when access rights to the potential system are discussed, and in some cases when tests before delivery are described. These assumptions are supported by the fact that literature on user involvement mainly concentrate on the producers’ role (see e.g. Gulliksen & Göransson 2002, Schuler & Namioka 1993). The implicit assumption has been that it is the responsibility and task of the developer to ensure that developed systems are usable. The discourse of interaction design is not so obviously directed exclusively towards developers, even though it has been adopted by them, and implicitly assumes a position similar to the position of UCD.

In recent research we have focused on the role of an active procurer in relationship to the development of usable systems (Artman 2002, Holmlid 2004, Holmlid & Artman 2003; Markensten & Artman 2004). Markensten (2005) shows how usability and usability methods successfully can be deployed as part of prospects for request for tenders. He proposes that usability should be seen as the connector between organizational development goals and system development goals. Moreover he suggests that a tested prototype should be used as part of the functional descriptions given by the procurer as part of a contract or a requirements specification. Markensten & Artman (2004) and Artman & Markensten (2005) describe how scenarios and personas used in request for tenders helped the procuring organization articulate their objectives and motives for developing a system. The prototype, scenarios and personas relates closely to the ideas of boundary objects (Skjetne 2005). In Holmlid (2005) we frame a procurement process of an IT-system as a part of a larger service design process, suggesting that user-centered design is an integral part of organizational development and innovation, thus providing a wider design process framework for organizations to connect the organizational development work with the design processes directing the development of technology. Interpreted as a design
management process, being an active procurer of usable systems shares some of the challenges posed in Holmlid (2006).

1.2 Interaction design by developing organizations

HCI and interaction design focus on the usability and interaction of an IT-system. There is not one definition of the term interaction design and it is often used to cover activities such as usability, interaction, context and design. Working with research methods focusing on analyzing, comparing and evaluating current system designs moving from studying functionality and interfaces of a system towards studying activities and use situations.

In Gulliksen, Lantz & Boivie (1998, 1999) the designer is described as someone that acts as a mediator, someone that goes between user and developer.

A survey on usability professionals, men in the 40ties with background in computer science or engineering in Sweden is reported in Gulliksen, Boivie, Persson, Hektor & Herulf (2004). One recurring comment from the respondents was that the development process used does not in itself contain any support for usability activities or UCD and the usability perspective was described as severely neglected.

In Boivie, Gulliksen & Göransson (2006) an interview study with usability designers, project managers and user representatives is reported. The authors talk about three phases that the usability designer is involved in; analyses, evaluation and design. The way the three phases are presented they can be understood as separate phases placed on the system development process when needed. The usability designer is described as a lonely person. A somewhat negative picture is presented and some usability designers expressed doubts about the impact they have had on the product and on the user situation. What the usability designer did was not really a part of the project. Neither did they have any formal rights to make design decisions.

In Lantz, Artman & Ramberg (2005) an interview study with eleven interaction designers representing university, academia, private companies and authorities is presented. The roles described by the respondents were varying from looking upon the role as mainly consisting of working with usability and use to focus more close to graphical design and e.g. branding. Some view interaction design as an area building on HCI and usability, a sequential way of working, normally not focusing on graphical design and aesthetic expressions. Others work from the start to the end of a project in a process that includes problems and possible solutions iteratively, at one and the same time. The interaction role is also by several respondents described as a project leader or the project leaders’ right hand.

The view on necessary skills of an interaction designer varies. Some of the respondents present the opinion that an interaction designer has to know the material i.e. programming language and technical aspects. Others say that what is most important is that you can communicate with the different actors around you i.e. all the project members (e.g. programmers, developers, graphical designers, art directors) and of course also the customers and end-users.

According to Arvola (2005) the role of the interaction designer includes contemplating and judging a complex situation and from a creative thought composing a design that fulfils the situational, technical, functional, ethical and aesthetical requirements.
Still much of interactive systems design is done in a reciprocal process where internal construction is as much defining ways of what the external design can do, as the opposite.

1.3 Research aim

The aim for this particular study is to understand and describe the ways the different actors describe and understand interaction design, and to identify challenges to balanced and active UCD work. The purpose is also to learn more about how procurers and interaction designers view the procurement situation and how the role of an interaction designer is constructed in such a situation.

2 Results

We performed 10 structured interviews with key personnel of the Swedish Enforcement Agency. Four (2 male, 2 female) were employed by the Enforcement-department, of which none were an interaction designer. Six (3 male, 3 female) were employed by the developing organization. Of the six interaction designers three had moved to other missions and three worked as active interaction designers at the time of the interviews. Each interview took about two hours and was performed in a room at the respondents’ work place. The interview that followed an interview guide, was tape recorded and transcribed.

2.1 Context of the study

The Swedish Enforcement Agency has recently employed a new three-stage project-management model, the so called program model. It follows the development towards a clearer delineation between procuring and development organizations undertaken by most Swedish government agencies. The first stage is a stage where the organizational prerequisites for system development are established. The responsibility for this stage lies with the Enforcement-department. The second stage is a system development stage, for which the IT-department is responsible. The third stage is an implementation stage. The three stages are coordinated by program management. We have limited our study to the two first stages in this study.

The Enforcement-department has one interaction designer now working with business development tasks and procurement, while the IT-department has 3 interaction designers.

2.2 Enforcement-department

In the middle of something. It becomes obvious in the interviews of the non-designer persons at the enforcement-agency that they are in the middle of a change process. On one hand, the respondents refer to interaction design as design of surfaces, and to some extent as dealing with aspects of product quality or product
properties. They refer to GUI-sketches, prototypes and user-testing, but have little or no experience working directly with these. This is hardly surprising as the respondents have not worked with interaction design directly before. On the other hand, the respondents refer to interaction design as a central aspect of successful development projects, in the sense that by working with design the usage of the system will be better. They also claim that there is no question whether interaction design should be part of the first stage of the program-model, although they have problems expressing exactly where in the process it should be integrated, how it should be performed, what the value-added is, and what the concrete results are.

The simplified view of interaction design seem, interaction design as styling, to be their appropriated view, gained through experience and earlier organizational structures, in which where it was not viewed as their responsibility, nor their area of expertise. On a more general level, this point towards a structural problem with viewing UCD as mainly a practice integrated into system development process frameworks, it also points towards the institutionalization effects such a view has had on the expectations on what interaction design brings to the effective development of well-designed systems. The more advanced view, interaction design as process, seems to be procured from the discussions on the newly formed program-model, as well as from the interaction designer employed by the Enforcement-department. The interaction designer is in the process of establishing a role for design and an interaction designer at the Enforcement-department. On a more general level, we expect that the Enforcement-department will develop a new understanding of interaction design as it becomes integrated into their work-practices.

The Enforcement-department is in the middle of a change process, where interaction design will be their responsibility as well as part of their area of expertise. This renders them a new set of working practices, a new responsibility in relationship to the users and their expectations for good systems, as well as a new relationship to the IT-department and their work practices.

**Intra-organizational relationships.** Several of the respondents point towards a potential risk with the new program-model and the positioning of an interaction designer in the first stage. They assume that from the 1st stage there will be delivered artifacts, documents and results that the organization responsible for the 2nd stage expects to be their job developing. Furthermore, they expect that these artifacts, documents and results will be enveloped as specification or requirements, thus limiting the space for negotiation of the IT-department. A range of worries were expressed, such as whether the program management would be strong enough to accept the user-involvement from the Enforcement-department, the program management would be strong enough to force the IT-department not to redo the user-involvement work, the new program-model with its emphasis on user-involvement and design in the 1st stage would drive the IT-department further away from understanding the important aspects of the agency’s business and values, etc.

The Enforcement-department point toward a higher-order change of initiative and information-asymmetries which they do not feel have been recognized in the overall change process.
2.3 IT department

*Intra-organizational relationships.* Among the interviewed interaction designers two groups can be viewed. One group, have a narrow perspective of their work and do not see the complete process from procurement to delivered product or service in which they are a part. Another group, have moved on from working as interaction designers to today working with tasks on the business side or higher up in the hierarchy of the organization. They have more of a helicopter perspective and can describe the process from identifying need to the deliverance of a service or a system. They have the possibility to work for usability aspects and describe that people listen to them more now than when they worked as interaction designers.

The respondents describe working with a number of persons with different roles during an IT-project. Representatives from the business side and from the employees are included in the projects either working directly in the project or as contacted and visited out in the organization. The interaction designers experience having the responsibility for the usability aspects and can often do the activities they suggest should be performed within an IT-project. Within the organization a modified version of the system development model RUP is used. Here the role interaction designer is described and shall be included in the IT-projects. Activities described by the interaction designers are single activities performed within a project e.g. target group description, modeling with users and usability evaluations. The respondents say they work with interaction, with the surface i.e. the GUI and also with the context. In some longer projects an interaction designer can work up till 80% of her work time and follows then the process of the project and perform activities to secure the usability in the product. When asking about how results from a project are followed up they say that it is not clear to them or that they think it is not always done. It is also clear that the target group for usability aspects most often is the employees working in the organization and not the citizen that is going to be the user of the e-service.

*Re-organizing the organization.* The respondents describe the re-organization that has started as messy and they do not have a clear picture of what it will lead to in their daily work. Some has expectancies that they will have a better work situation after it has been carried through. They also expect to meet procurers that know what they are procuring and why. Some of the respondents also say that they look forward to meet more active procurers from the business side but they will not have them go as far as presenting a requirements specification consisting of sketches of the GUI, then they have gone too far.

3 Discussion

Given the results reported above the organization we’re studying are facing a set of challenges with respect to interaction design’s role in the development projects.

As a pioneer among Swedish government agencies, the organization we studied has decided to give interaction design a new role throughout the organization, and integrate it not only in the system development processes but also in the organization development processes. It is today not clear to the respondents what this change will mean to their daily activities or how skills can be transformed between the two groups of actors. The role as interaction designer and their influence on the design
process should be generic with respect to other organizations. The shift from a
traditional development process to a process driven by an interaction design
perspective will develop on a case to case basis, and thus be generic in the sense that
there will be differences and similarities between cases.

3.1 Managing the transition of information asymmetries

In the traditional system development relationship between a procurer and a
developer, the procuring organization knows everything about the business, tasks and
processes. The developing organization knows everything about the technology. This
is a classical asymmetry, where UCD has been an advocate for institutionalization of
process for eliminating the asymmetry with respect to the users and their tasks

In the organization we study management have decided to more clearly distinguish
between the procuring organization and the developing organization (Artman &
Andersson 2006). This means that the basic information asymmetry structure
becomes pronounced and supported by an organizational construction. Two major
differences from a classical case are important to address here. First, the development
organization have a long history of user and business-centered work-practices, from
being a part of a more integrated development organization than the one being
instantiated now. Thus, the development organization already has worked towards
balancing some aspects of the information asymmetry. As of today, they possess
technology, user, business as well as design competence to a higher degree than a
neutral development organization. Second, the three-stage program model used to
integrate organizational and IT-development projects is crucial to maintain both
differentiation and integration. The program management thus becomes central for
driving the higher order organizational change, as well as requiring change and
competence development from participants in the different subprojects.

Management has also decided to move some of the design work to a point in time
before the developing organization is involved. Or, expressed with an integrated
process perspective, extended the time-frame under which design is performed. Given
that the procuring organization still have to understand and use interaction design as a
core practice in their development projects, and the development organization have
both design and user competence, the information asymmetry looks a little bit
different. The procuring organization is going through a change process, where they
are supposed to integrate interaction design in their processes, with the support of one
experienced interaction design. The developing organization on the other hand goes
through only a minor change, supposing that they will deal with a new kind of
requirements documentation, and refraining from being involved in early stages of
analysis. Thus, there will be high pressure on the development organization to
appropriate the design practices as individuals and as an organization to be able to
deliver what is expected of them between stage 1 and 2 in the three-stage program
model. Assuming that there will be pressure caused by efforts to have an effective
organization as well as swift changes, they should be given good and competent
support for an extended period of time.
3.2 Consequences for user involvement in e-government projects

In the beginning of the article we described two changes that the government agencies are going through. The transformation from a visit- and form-based business to a 24/7 oriented business were mentioned and it is quite surprising that the respondents in the interview study focus on internal users rather than the public. When users are brought up on the agenda they are regarded as internal users i.e. employees within the organization.

The interaction designers in the presented study did describe different levels of working with usability within the organization and that they had easier to get their voices heard when they worked on the business side or higher up in the hierarchy.

The consequences for user involvement in e-government projects seem to be manifold. First, there is the issue for the Enforcement-department to utilize the user-involvement they already perform through their process-analysis and definition work. Second, the Enforcement-department need to appropriate and utilize relevant design practices to transform the knowledge gained through this user-involvement into specifications and other process-related artifacts that may drive a good IT-development. Third, the value-chain between the different stages of the program-model needs to be kept open, so as to allow knowledge gained through user-involvement in different stages can be utilized as a free resource towards the benefit of the whole program, and not for the isolated stage. Fourth, it will require of the IT-department to rely on user-studies performed by non-resident designers, and will allow them to work from a higher ground as a starting point. Getting the most of their own designers will be a challenge.

It is our firm belief that design is one of the best and most valuable ways forward.

3.3 Future research

We will continue to follow the organization studying their development as a considerate design organization, trying to understand how they might take advantage of the new role design is taking in their organizational development. This requires of us to pay interest to how management handles the overall transformation of the organization, how the designers across the organization coordinate and perform their work, what design practices will be developed and appropriated by the procuring organization, and how the integration of design work in the requirements documentation will be handled in negotiation as well as development processes. We will also study the transition between the 2nd and the 3rd stage in the program-model.

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4 References