

Making Sense of Usability

Organizational Change and Sensemaking when
Introducing User-Centred Systems Design in Public
Authorities

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UPPSALA
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Systems Design in Public Authorities

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Public Authorities

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Abstract

Computers have become an everyday encounter, not at least in work settings. These computers must support the user in order for her to work in an effective and efficient manner. The field of Human-Computer Interaction (HCI) has among other things been focusing on this issue, and there are numerous methods and activities that aim at helping developers to develop usable computer systems. However, the methods and activities must be used in practice in order to be beneficial, not only within research, thus the methods must make sense to the system developers, as well as the organization in which they shall be applied. Furthermore, the organization must change in order to incorporate these methods and activities, and this change must impact a larger part of the organization than just the IT-department.

My research has revolved around the *introduction of usability* methods in *public authorities*, in particular *user-centred systems design (UCSD)*. My methodology has been *action research*, which implies a close collaboration with practitioners. Some of the methods used to gather data have been interviews, participatory observations, research diaries and field studies.

In this licentiate thesis I present my work up to date and the theories that have informed my understanding of *organizations* and *organizational change*. Furthermore I have been influenced by the *sensemaking* theory, which can be used in order to understand how people make sense of technology, methods and organizational change. With the help of these theories, I extend my results further than presented in the papers.

The notion of organizational change when introducing usability issues has not achieved sufficient attention in the HCI-field. This thesis is a step towards an understanding of this issue. Furthermore, I have, with the results from my papers together with the theories presented shown that although formal documents can be used to promote change, it is not enough. Rather there is a need to further explore the interplay between formal aspects and the situated work, and how to enhance sensegiving in this sensemaking process.

Svensk sammanfattning

Datorer används idag i allt större utsträckning än tidigare i arbetslivet. För att inte riskera arbetsmiljöproblem och låg effektivitet måste datorerna stödja det arbete som utförs, de måste ha hög användbarhet. Tyvärr är inte så alltid fallet, och en av åtgärderna är att utveckla system som är mer anpassade för arbetet och användaren. Detta kräver dock att man utvecklar systemen på andra sätt än vad som är brukligt idag, och till detta behövs metoder och aktiviteter som bättre fångar upp behov i en given arbetssituation.

Forskningsfältet Människa-Datorinteraktion (MDI), har bland annat tagit fram metoder och aktiviteter som kan hjälpa utvecklare att utveckla system som är mer anpassade till användaren och arbetssituationen. Men metoderna måste användas i praktiken och inte bara inom forskning, och för att detta ska ske måste metoderna passa in och vara meningsfulla för utvecklare, men också för resten av organisationen. Dessutom måste organisationen förändras för att kunna införa dessa metoder, och denna förändring sträcker sig utanför IT-avdelningen.

Min forskning fokuserar på hur man introducerar användbarhetsfrågor, och framför allt användarcentrerad systemdesign i statliga myndigheter. Forskningen har skett i nära samarbete med de statliga myndigheterna i aktionsforskningsprojekt. Intervjuer, deltagande observationer, forskningsdag-bok och fältstudier är några av de metoder som jag har använt mig av för att samla in material till min forskning.

I den här licentiatavhandlingen presenterar jag mitt arbete fram till dags dato i de artiklar som ingår i avhandlingen, samt fördjupar mina resultat med teorier jag inspirerats av. Teorier har ökat min förståelse för organisationer och organisatorisk förändring. Vidare presenterar jag en teori om menings-skapande som kan hjälpa oss att förstå, inte bara hur människor skapar mening i organisatoriska förändringar, utan även hur de skapar mening kring nya arbetsmetoder eller teknik.

Denna licentiatavhandling bidrar till ökad förståelse för organisationsförändringar vid införandet av användarcentrerad systemdesign och införande av fokus på användbarhetsfrågor. Jag visar att formella dokument kan användas för att driva förändring, men att det inte är tillräckligt. Vi behöver fördjupa oss i samspelet mellan de formella aspekterna och det praktiska arbetet för att kunna stödja förståelsen och meningskapandet som behövs vid en organisationsförändring.

*Till Farmor,
tänk om du fått läsa vidare!*

List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals. Reprints were made with kind permission from the publishers.

Paper I	User-Centred Systems Design as Organizational Change: A Longitudinal Action Research Project to Improve Usability and the Computerized Work Environment in a Public Authority
Authors	Gulliksen, J., Cajander, Å., Sandblad, B., Eriksson, E. and Kavathatzopoulos, I.
Publication	International Journal of Technology and Human Interaction, 5(3): 13-53, 2009
Short summary	This paper is a presentation of a 4 years long project at a public authority. The aim of the project was to increase the focus on usability issues and the paper elaborates around organizational change issues.
My Contribution	I started my PhD halfway through the project. My contribution to the paper is mainly the methods section. Moreover, I was one of two researchers who conducted the evaluation interviews. These interviews are the main material in the paper.
Paper II	Hello World! – Experiencing Usability Methods Without Usability Expertise
Authors	Eriksson, E., Cajander, Å. and Gulliksen, J.
Publication	In Proc. INTERACT 2009, 552-567, 2009
Short summary	The focus of this paper is the developers and their experiences of doing field studies for the first time, both in a educational as well as in a practical context. The paper discusses the implications these field studies might have on system development.

My Contribution I am the main author of this paper, and conducted all the interviews with the developers, as well as participant observations. Furthermore I did most of the analysis of the data.

Paper III Introducing Usability Roles in Public Authorities

Authors Eriksson, E., Cajander, Å. and Gulliksen, J.

Publication In Proc. NordiCHI 2008, 113-122, 2008

Short summary This paper explores the usability role, by interviews with 9 usability professionals at 5 public authorities. The main focus is on the introduction of usability and the usability role.

My Contribution I am the main author of this paper, and conducted all the interviews.

My Co-authors

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Other Contribution

In addition to the papers above, I have participated in various workshops, with reviewed position papers (Cajander and Eriksson, 2007). Furthermore I was accepted to the Doctoral Consortium at INTERACT07, in Rio de Janeiro (Eriksson, 2007).

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Abbreviations

AR	Action Research
AvI	Avändbar IT (Usable IT)
CSN	Centrala Studiestödsnämnden (Swedish National Board of Student Aid)
FK	Försäkringskassan (Swedish Board for Social Securities)
HCI	Human-Computer Interaction
IS	Information Systems
IT	Information Technology
MV	Migrationsverket (Swedish Migration Board)
SMHI	Sveriges meteorologiska och hydrologiska institut (Swedish Meteorological and Hydrological Institute)
SV	Skatteverket (Swedish National Tax Board)
UCSD	User-Centred Systems Design
VV	Vägverket (Swedish Road Administration)

Introduction

“Why doesn’t it get better?”

This is the subtitle of a Swedish report from the trade union for white-collar workers concerning their IT (Information Technology) environment (Unionen, 2008). The study shows among other things, that the computer systems used by the workers are inefficient and not correctly designed. Furthermore the integration between computer systems are in many cases deficient, and the systems often control the work tasks in an enervating and unnecessary way. Perhaps the translation should have been: “Why doesn’t IT get better?”

The problems with poor systems should not be neglected. The union study also shows that work environment problems connected to IT are increasing, for example cognitive problems and a perceived stressful work situation. Moreover, half of the users in the study had problems with, or pain in, their neck or shoulders (Unionen, 2008). This affects more and more people, as few today can escape a computer in their work setting. Furthermore it is not only the numbers of workers using computers that has increased, the time spent in front of the computers is also increasing considerably. According to the Swedish Work Environment Authority, more than 50% of the computer users spend half or more than half of their working hours in front of the computer (Arbetsmiljöverket, 2008).

Spending time in front of computers is not a problem per se ; the problem is rather that computer systems do not meet the goal of being usable in a given work situation. Unfortunately the focus in system development is too often on technology, and not the work task or the work situation in which the system should be used. This leads to computer systems with poor usability¹, which leads to inefficiency and enervating work tasks. Consequently there is a need for a higher focus on usability when changing existing or developing new computer systems. Hence, my overarching research question is:

How can we increase the usability focus in IT development?

¹ “[Usability is] the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.” (ISO 9241-11, 1998)

The research field of HCI (Human-Computer Interaction) has during a long period of time dealt with the question of developing more usable computer systems and from this research has sprung forth a multitude of methods and activities. Many of these methods and activities can be incorporated in existing system development methods and models. However, the research field could invent and develop perfect methods for developing computer systems, but it would be pointless if the methods are not applicable in real life. The methods introduced must make sense for the organization as well as for the individuals that are supposed to use the methods. And the key point here is the organization; usability is not an issue that only resides in *one* department, the IT department, in organizations. Rather it is a question that affects stakeholders through out the whole organization. In order to work with usability issues, there is a need for an organizational change in order to increase the usability focus, and this leads to the research question I will try to answer in this licentiate thesis:

How can we create the organizational change required to achieve a higher focus on usability in IT development?

This is a question that has not achieved sufficient attention within the HCI-field. The organization is discussed in terms of affecting system development or how the introduction of technology will affect the organization. Not how the organization need to change in order to develop better computer systems and a more healthy work situation. Hence this licentiate thesis will discuss organizations, organizational change and how the members of an organization make sense of change.

Outline of the Thesis

In the next two sections, I will present the setting in which my research has been conducted, the *research area* and my *research project*. Then I will give a background to my research in the form of *theoretical perspective, methodology and methods* used in my research. It is not until after these sections that the *theory* that has informed me is described. My general results are summarized in the *results* section, and in the same section I will further deepen the results from my papers with the theory. Close to the end of this thesis is the *discussion* section, where I will discuss my findings, my research approach and some other thoughts, and then finally, I will direct the reader to some *future work*. Finally some gratitude is duly expressed in my *acknowledgments*.

Research Area

The research area within which I publish, as well as my research group influence me. Therefore, in order to position my research, I will in this section briefly present a background, that is, the HCI-field and the focus of the research group I belong to.

HCI

The HCI-field is an interdisciplinary field with a research perspective as well as close links to practitioners. One way to describe the HCI-field is to discuss the development the field has gone through, which can be characterized as waves. The first wave was discussed in a panel at CHI2003 (Kaptelinin, et al., 2003) and was depicted as focusing on information processing psychology and cognitive psychology, where one human was working with one computer, more or less in isolation. Furthermore at the same panel, the second wave and some theoretical perspectives connected to this development were discussed and how these perspectives could be linked together. The new center of attention in the second wave is context and multiple users of computer systems in work situations. However, the notion of a first and second wave was not newly stated at the panel. Others have pointed at different generations of HCI research, for example, Bannon (1991) describes a transition of focus from information processing to a holistic view of a human actor in a specific situation. Furthermore Rogers for example describes the HCI-field as being in a state of flux and rapidly growing:

“What was originally a bounded problem space with a clear focus and a small set of methods for designing computer systems that was easier and more efficient to use by a single user is now turning into a diffuse problem space with less clarity in terms of its objects of study, design foci, and investigative methods.” (Rogers, 2004, page 88)

Subsequently, the field has become even fuzzier and less bounded. A reputedly current third wave has emerged and Bødker (2006) discusses this third wave in relation to the second wave HCI-research, and according to her the new wave is a break from the issues in the second wave. The focus is shifted from the workplace to culture, aesthetics, emotions and experience and it

“seems to be defined in terms of what the second wave is not: non-work, non-purposeful, non-rational, etc” (Bødker, 2006, page 1). Bødker argues that new technologies, such as pervasive technologies, augmented reality and tangible interfaces have been developed in order to service the theoretical developments. However I believe that the technological development and the theoretical development both influence each other. Furthermore there is an expansion of IT applications from workplaces to everyday life, in peoples home (Bødker and Sundblad, 2008), work can be conducted everywhere and anytime. There is also a movement in the other direction:

“At the same time as work technologies permeates the boundaries between the workplace and human life in general, other technologies seem to expand from home life and leisure into the workplace.” (Bødker and Sundblad, 2008, page 293)

My research, in relation to these waves, is positioned mostly in the second wave, in the situated work of civil servants in public authorities. However, my research is expanded from the mere interaction between humans and computers to the organization and the organizational aspects that affect the development of computer systems, and the organizational change in order to increase the usability and work environment focus.

The Research Group

The focus in our research group has long been the development of systems used by real users in real work settings. The group has been working with the development of user interfaces and cognitive aspects since 1980 and onwards. Our group emphasizes the importance of understanding the area of application, that is the unique context of the specific working domain, when developing systems for this domain. Another factor that has guided our research is occupational health, work environment and stress, and the need to take these issues into consideration in systems development (Åborg, 2002). The computer systems have mostly been developed in-house in organizations, primarily public authorities, with a relatively close proximity to the users and their work. Nevertheless the development of IT systems often focuses on technical elements rather than the social or organizational aspects (Boivie, 2005). There is a need to take into consideration the work setting, work practices, social and organizational factors, and the organizational change that takes place when the IT system is being introduced; what is called a user-centred approach (Gulliksen, et al., 2003, Göransson, 2004). The problem is also to establish the user-centred attitude needed in order to work in a user-centred way. This attitude lies partly in the basic values and

perspective within the organization, as well as the business values and models (Cajander, 2006).

My research is firmly rooted in the research of my group, and is expanding its domain in order to look at organizational change needed to increase the usability focus and factors that help or hinder the introduction of usability and user-centred systems design in public authorities.

The Research Project

The setting in which I do my research will inevitably affect the research I am able to do, and hence my results. Consequently, I will in this section present the research project that the results mainly stem from.

Satsa Friskt

Satsa Friskt was a development program (Satsa Friskt, 2009) started by The Development Council for the Government Sector (Partsrådet, 2009), in order to reduce present and future sick leave, prevent long-time sick leave and improve the work environment. The development program funded projects in several areas at public authorities, and our research group has been involved specifically in the area of Human-IT (Satsa Friskt - Människa-IT, 2009). The aim of the area Human-IT has been to:

- increase the employees participation in the design and development of the new system,
- improve the opportunities to influence the contents of work and design of the workplace,
- apply and evaluate methods,
- and, to disseminate relevant experiences to others.

Our research group worked with long-term collaboration projects with the Swedish National Board of Student Aid (CSN), the Swedish Migration Board (MV), and the Swedish Meteorological and Hydrological Institute (SMHI). The developmental projects were partly funded by the Development Council for the Government Sector (Partsrådet²) and partly by the public authorities. However, the Development Council for the Government Sector did not fund the research part of the projects. Paper I, II and parts of paper III were written as results from our collaboration project with CSN, called AvI (Användbar IT, Usable IT), described below.

² Partsrådet was formerly named Utvecklingsrådet.

The AvI-project at CSN

CSN is the public authority in Sweden that handles financial aid for students, mainly loan and grants for studies. It is a fairly large public authority with around 1100 employees with offices in 13 cities and towns. Around 350 of these employees work at headquarters where most of the computer systems used are developed in-house. Thus the majority of the employees are case handlers, that is civil servants working with handling cases, and these case handlers are the users of the computer systems. The collaboration project with CSN lasted for three years, the pre-study excluded, and I started my PhD studies halfway through the project. The methodology for the collaboration was *action research*, further explained in the Methodology and Methods section. We were 6 researchers from our research group involved in the project, and we worked together with a project group at CSN, with members from different departments. The purposes of the project were:

- to certify that the organization has a high level of usability in their IT support, in the long run, that thus can contribute to the fulfillment of their business goals about work environment and decreased health problems.
- to create a foundation for developing a sustainable methodology to assure usability in the IT support systems.
- to create a broad cooperation and a high level of knowledge in the field
- to make assessment and improvement of usability standard operating procedure within the organization.
- to develop and introduce an IT usability index and show that it has a positive development from 2005 to 2007.
- to show a continual positive development of healthy work and low numbers of sick leaves.
- to make the organization into one of the best organizations when it comes to developing usable IT systems.

The project consisted of a wide variety of activities as can be deduced from the purposes above. Moreover we as researchers had the aim of doing research and enhance knowledge about the introduction of user-centred systems design in public authorities. Further information about CSN and the AvI-project can be found in Paper I.

Other Research

The interviews in paper III were mainly done outside any research project. However, our research group had been involved earlier in research projects with all the public authorities involved.

Theoretical Perspective

This section describes the theoretical perspective that has informed my choice of research methodology and methods. These are not the theories that have influenced and informed my understanding and analysis of my research subject, rather this is the philosophical stance that is informing my choice of methodology and thus providing a background and a grounding for my research. Theoretical perspective here has the same meaning as described by Crotty (1998).

Epistemology

In order to anchor my theoretical perspective, I will describe my epistemological stance. Often in literature there is a debate between objectivism and subjectivism. In Burrell and Morgan (1979) this is not described as a dualism between two extremes, but rather a continuum, which is a view I share. I consider myself positioned within constructionism, which means that:

“...all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context.” (Crotty, 1998, page 42)

Constructionism can be found somewhere between subjectivism and objectivism. In the subjectivist stance, reality is constructed solely by the mind of the beholder, and in the objectivist stance, reality is out there, objectively true and ready for us to discover it. In constructionism on the other hand, there is no objective truth, but still there are objects in the world with which we interact and create meaning. Furthermore, I adhere to a social constructionism, which refers to the way meaning is created rather than the things we create meaning of (Crotty, 1998), that is, our meaning is socially constructed, and can be meaning about social phenomena or natural phenomena.

Interpretivism or Critical Theory or Between

As a starting point I would argue that my theoretical perspective resides in the interpretive stance, which in the HCI-field has been called Science 2.0 (Schneiderman, 2007). The interpretive approach has historically been a reaction to the positivist approach, where positivist approach seeks objective universal knowledge through following methods from the natural sciences and:

“The interpretivist approach, to the contrary, *looks for culturally derived and historically situated interpretations of the social life-world.*” (Crotty, 1998, page 67)

I adhere to the underlying common perspective in the interpretive approach, that the subjective experiences of individuals are of primary concern and the social world is an ongoing process of creation. There is an interest in understanding from within, rather than structuring the world from the outside of the subjects under study. According to Burrell and Morgan (1979), there is a central focus on the stability of society within the interpretative approach:

“By and large, interpretive theories concentrate on the study of ways in which social reality is meaningfully constructed and ordered from the point of view of the actors directly involved. They present a perspective in which individual actors negotiate, regulate and live their lives within the context of *status quo.*” (Burrell and Morgan, 1979, page 254)

Here I perceive a shift, from my part, away from the interpretive approach, since one of my interest lies in change, and not just studying change, but rather to impact change. Furthermore, I am scientifically brought up in a Scandinavian tradition, which partly includes a hint of emancipation. Consequently I am, more and more, moving towards critical inquiry.

However, Burrell and Morgan (1979) states that interpretivism and critical theory are situated in two different scientific paradigms, and that these are mutually exclusive, that is, a researcher cannot at a given point in time adhere to both of them. I am at this point not sure if I can argue against them, and conclude that my theoretical perspective, in this thesis, is interpretive.

Methodology and Methods

In this section, I will present my research methodology, which constitutes the strategy that informs my choice of action and guides my choice of methods. Furthermore, I will briefly present the methods I have used in my research. A more thorough description of research methods can be found in paper I-III.

Action Research

Action research is a research methodology which is particularly suitable for research in organizations since it has a dual aim of solving research questions and solving problems in practice (McKay and Marshall, 2001). The idea is that the researchers together with the practitioners combine their different perspectives and knowledge in order to solve a particular problem and develop theory concerning this problem. This participative form of research is defined in the following quote:

“[...] action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.” (Reason and Bradbury, 2001, page 1)

Furthermore, in action research, the researchers follow a research plan, although the research is iterative (Avison, et al., 1999), which entails that the plan is revised during the course of the research. In the participative spirit, these revisions are done together with the practitioners with whom the research is conducted. In consequence of the iterative component, action research is particularly suitable for research on organizational change, since it gives the researchers and practitioners the possibility to react to both the intended and unintended effects of planned change. An example of this is given in the research done by Lüscher and Lewis, where the researchers have followed middle managers, and helped them handle the paradoxes that emerged during a major restructuring of their organization (Lüscher and

Lewis, 2008). In this particular research project, the main author met with the managers in sparring sessions in order to explore the problems that the managers met. This is in line with Rasmussen, who explains that the researcher in an action research project takes on different roles, for example facilitator, educator and mentor (Rasmussen, 2004).

Action research is not commonly used, or at least not explicitly used within the HCI-field. However the methodology has been used within the neighboring field of Information Systems (IS), although the underlying theoretical perspective in this research is different from my theoretical perspective. Within the IS field authors have been trying to fit action research into a more positivistic oriented research (Kock, 2004), by introducing elements that makes the research more rigorous. I would rather argue that action research should be evaluated by quality criteria connected to non-positivistic research. Rasmussen (2004) presents three areas of evaluation of action research; transparency, consistency and validity. Transparency means that the different decisions within an action research project must be transparent for non-participants. Consistency means that there must be an “...explicitly explained relationship between the problem setting and the methods used to gather and analyze the empirical material” (Rasmussen, 2004, page 23). Finally, validity is based on five quality criteria, defined by Bradbury and Reason (2001) as:

- a relational praxis,
- a reflexive-practical outcome,
- a plurality of knowledge,
- an engagement in significant work,
- an emergent inquiry towards enduring consequences.

The first three criteria are connected to the co-inquirers. Did they learn new ways to communicate and collaborate etc (a relational practice)? Did they learn new ways to act and think (a reflexive-practical outcome)? Is there an acceptance of different kinds of knowledge, and is the new knowledge grounded in the co-inquirers’ language and understandings (a plurality of knowledge)? Furthermore, the action research project should engage in worthwhile problems, and the choice should be made explicit (an engagement in significant work). Finally, there should be a change after the action research project that is sustainable (an emergent inquiry towards enduring consequences).

Methods

In my research, the main body of material has been collected through interviews, with open-ended questions from an interview guide. The interviews were in most cases audio recorded. Furthermore, I have at all times, at work, been carrying around a research diary, in which I have written down thoughts, comments, conversations etc, in the course of my research, as well as more structured field notes when I have been doing for example participant observations. I have analyzed the written material, alone and in our group of researchers, mostly by sorting and resorting into categories of emergent themes. However, the primary analysis have only been done by researchers, not participants in the research project, although, they have been reading the results and been able to comment upon this.

Furthermore, the writing process has been a central method in my research, which has been an iterative process, both when writing a paper, and then when revising papers after comments from reviewers. The extensive writing process makes me visit and revisit the research material.

In this licentiate thesis, I have done a literature review, which was mainly conducted in a graduate course, where the first drafts of the theory section was commented upon by fellow graduate students as well as teachers, mainly from the organizational theory area. Furthermore, I have been revisiting my research papers, read them thoroughly and revisited my research diary, and compared my findings to the new organizational and sensemaking theories.

Theory

To bring about intentional organizational change in order to get a higher focus on usability, we need to know what an organization is, what organizational change is and how the members of the organization make sense of a changing environment. Therefore I will in this section present theory that has helped me to understand organizations in general and the public authorities we have been working with in particular. These give one perspective of change and I do not claim that these theories are exhaustive. I will here focus on organizations, organizational change and sensemaking, as they are a significant contribution to the HCI-field and not present theories about usability issues from the HCI-field. I will start by explaining the concept of organizations and organizational change.

Organizations and Organizational Change

There are hundreds of definitions of what an organization is, which suggests that an organization is something that is hard to capture in a simple definition. Organizations can be defined case by case, but to give a universal definition of the organization is more difficult. (Jaffee, 2001) It is easier to define theories about organizations, and still there is no consensus, several different perspectives or paradigms compete within the area and perspectives will yield different definitions of organizations.

Stable Organizations

A prevalent view on organizations, is that organizations are stable, and that change occurs when a force makes the organization to become de-stabilized, and then stabilized again (Grey, 2005). The force does not necessarily have to be a planned change strategy, although the aim often is to guide change. Implicitly, this view describes people as objects that can be managed into changing, and fail to include that people are subjects, that can react in different ways than intended, which might lead the change into an unpredicted direction (Grey, 2005). In this regard, change management has to have strategies to handle for example resistance from the people subject to change (Kotter and Schlesinger, 1979). In this view, organizations become something that is definable in their stability.

Organizations as Flux

Another view on organizations, competing with the view described above, is that organizations are not stable. Rather organizations are in a never-ending flux. In this view an organization becomes something else, and is perhaps less possible to define, it becomes a moving target, always on the way of being newly created. It becomes something that can be described at a given point of time, but not as an everlasting definition. Tsoukas and Chia promote this view of organizations as under constant flux, and they give a description of organizations:

“Organization is an attempt to order the intrinsic flux of human action, to channel it towards ends, to give it a particular shape, through generalizing and institutionalizing particular meanings and rules.” (Tsoukas and Chia, 2002, page 570)

The authors further develop this thought, they argue that action comes first, and that organization is an outcome of action. Furthermore, they describe how organizations are a set of routines and rules, which are socially constructed to order the action of individuals. However, according to Suchman, there is a problem with the belief that actions are ordered, and planned:

“[...] coherence of action is not adequately explained by either preconceived cognitive schema or institutionalized norms. Rather the organization of situated action is an emergent property of moment-by-moment interactions between actors, and between actors and the environments of their actions.” (Suchman, 1987, page 179)

Action is situated, deeply embedded in the context in which it takes place, and cannot be planned and anticipated in detail in beforehand. This means that actors may in different situations or environments act in somewhat different ways, diverging from the routinized ways of working, a small situated change to the routine. Orlikowski discusses change as being situated and not always planned:

“By focusing on change as situated, it provides a way of seeing that change may not always be as planned, inevitable, or discontinuous as we imagine. Rather, it is often realized through the ongoing variations which emerge frequently, even imperceptibly, in the slippages and improvisations of everyday activity. Those variations that are repeated, shared, amplified, and sustained can, over time, produce perceptible and striking organizational changes.” (Orlikowski, 1996, page 89)

Going back to Tsoukas and Chia, they are not unaware of the context in which action takes place. They explain that an organization is, besides the set of routines and rules described above, a pattern created by individuals following these rules and routines in a given context (Tsoukas and Chia,

2002). They also give an explanation to why organizations are stable, even though there is a constant possibility of change. The authors describe organizing as placing particulars under general categories, which could be explained as doing work, where the situated work is the particulars and the general categories are the methods, routines etc. It is these categories, which are socially constructed, that seem to be stable even though they are at all times subject to change. However different categories are not equally stable or susceptible to change:

“Categories, in other words, are radially structured: There is a stable core in a category, consisting of prototypical members, which accounts for the stability with which the category is often applied. However, there is also an unstable part, consisting of nonprototypical members, which accounts for the potential change in a category, which its situated application may bring about.” (Tsoukas and Chia, 2002, page 573)

The prototypical members are stable in a given context with a given background knowledge, and depends on a shared meaning between individuals. This implies that stable categories in one organization might not be stable or even the same as in another organization. The nonprototypical members can be understood and used, depending on the structure of the categories. They are not all unintelligible:

“We are still able to make intelligent judgments about problematic cases because we can understand in what ways they diverge from the conditions of prototypicality.” (Tsoukas and Chia, 2002, page 574)

The categories are an abstraction that corresponds to everyday routines, norms, etc, and prototypicality is like an indicator of how much this abstraction diverges from the everyday particular. Or the other way around, we can compare a problematic situated particular with the abstraction and thereby make sense of it.

To summarize, the perspective that organizations are unstable, redirects the focus from structure to process and there is a shift from organization to organizing. This also suggests that it is relevant how we can study organizational change.

Process and Content in Organizational Studies

When studying organizational change, researchers can study two different dimensions defined by Barnett and Carroll (1995) as content and process. Content concerns how an organization has changed, the outcome, and the comparison is done between two different states given at two different points in time. The dimension of process, on the other hand, is concerned with how

the change has taken place, what takes place during the change and drives the change forward. The two dimensions can be viewed separately, but can also be investigated in unison. According to the authors, there tends to be a focus on content rather than process, in research on organizational change (Barnett and Carroll, 1995), and the reason for this is that there are numerous factors, besides the planned change program that affect the process. It is less demanding to collect data about the transformation in content rather than the process, since data about the process must be collected at all times during the change. In the case of investigating the process of change, the researcher must have insights into a wide part of the organization during the whole period of transformation in order to detect which events, decisions, situations that influence the transformation.

I find the process of change more interesting than the content, since I am interested in creating change, and since there might be situations where there is a need to intervene and direct change. Since change is an ongoing process, especially in the perspective that organizations are in a constant state of flux, the theories to analyze change must be of an ongoing character. Furthermore, it is the individuals that create and live through change. It is important to see how these individuals understand change, and in this case I consider sense-making as a suitable theory, and in the next paragraph I will look at sense-making. Further on I will describe how sensemaking can be linked with organizational change.

Sensemaking

The term ‘to make sense of something’ and further, sense making, is commonly used in our everyday encounter with the world. This normal usage of the term might interfere with the more scientific usage of the term Sense-making, since it at first glance is perceived as something truly obvious. Although sensemaking also encompasses this everyday meaning, where a person tries to make something sensible, the scientific usage of the term also encompasses, or consists of theoretical underpinnings that broaden the term. Sensemaking is an ongoing, reflective activity, a process rather than a product, or in Weick’s own words:

“To talk about sensemaking is to talk about reality as an ongoing accomplishment that takes form when people make retrospective sense of the situations in which they find themselves and their creations. There is a strong reflexive quality to this process. People make sense of things by seeing a world on which they already imposed what they believe. People discover their own inventions [...]” (Weick, 1995, page 15)

In this citation, several distinguishing features of Weick's sensemaking are mentioned and according to Weick, sensemaking consists of seven properties (Weick, 1995), see figure 1.

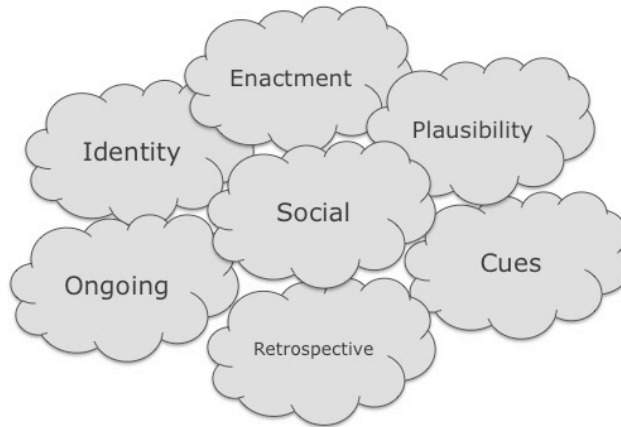


Figure 1 The seven properties of sensemaking are intertwined and affect each other.

The properties are further described below:

1. Grounded in identity construction

Different persons will react differently in a sensemaking situation according to their self-perception. An example is given in Bansler and Havn's (2006) study on how technology mediators³, through identity difference and corresponding enactment make different sense of the same groupware⁴ and thus adapt and mediate the computer system in very different ways within the same organization.

2. Retrospective

Sensemaking is always a process that takes place after the situation that triggered the sensemaking, even though the time span might be only a few sec-

³ A technology mediator is an individual that makes other individuals use technology in a particular way.

⁴ A groupware is a computer system that makes it possible for a group of users to work on the same information.

onds. This has some implications for sensemaking, since the retrospective view will also include all that has happened, been learnt and been changed since the sensemaking situation. This means that we are colored by the intermediate time, when we make sense of an earlier situation. This suggests also that there is no objective truth about the sensemaking situation, which is connected with the seventh property ‘plausibility’.

3. Enactive of sensible environments

This property is actually grounded in an ontological view that defines the world as something that is not fixed or objective. Rather the world or reality is partly created by those who live in it, they enact a world that they believe will be there, or put in other words: “[...] there is not some kind of monolithic, singular, fixed environment that exists detached from and external to these people. Instead, in each case the people are very much a part of their own environments. They act, and in doing so, create the materials that become the constraints and opportunities they face” (Weick, 1995, page 31). Again Bansler and Havn give an example, where the technology mediators perceive the world differently, consequently behave accordingly and thus get different behavior back from the project members, which in turn only enhances the worldview of the technology mediators (Bansler and Havn, 2006).

4. Social

Even though sensemaking might seem to be a highly individual process, it is grounded in a social context. For example identity is mirrored in how others perceive you. Another example is the enactment of a sensible environment, which also includes other individuals, how they act, behave and think. It is not always necessary that other people are physically present. Their actions or perceived thoughts about a matter influence a sensemaker anyhow. (Weick, 1995)

5. Ongoing

Sensemaking never starts and never ends; we are constantly in a flux of events that are prone to be used in sensemaking. Even though we do make sense of an event, situation or the like, we react, act or change due to the sensemaking process and the event or situation will change or our perception of the same will change.

6. Focused on and by extracted cues

In the constant flux of events, something is extracted, and reacted on, and these are the cues that a sensemaker builds her sensemaking on. The cues are deeply set in the context of the enacted world as well as linked to the identity of the sensemaker. Different people will extract different cues, depending on how they enact their world, or depending on how they perceive themselves.

7. Driven by plausibility rather than accuracy

“Sensemaking is not about truth and getting it right. Instead, it is about continued redrafting of an emerging story so that it becomes more comprehensive, incorporates more of the observed data, and is more resilient in the face of criticism.” (Weick, et al., 2005, page 415) This means that sensemaking is more about what is plausible, than what is the objective, rational truth. As long as the sensemaker can act on the plausible result, everything is fine.

All of these properties are part of sensemaking, however, not all of them are studied or articulated in sensemaking studies. The properties can be summarized as in the following citation:

“Once people begin to act (enactment), they generate tangible outcomes (cues) in some context (social), and this helps them discover (retrospect) what is occurring (ongoing), what needs to be explained (plausibility), and what should be done next (identity enhancement).” (Weick, 1995, page 55)

Sensemaking seems to happen all the time, and is not always easy to notice and study, mostly it is so effortless that it is only the result that can be noticed. However, it is easier to study sensemaking where there are expectations and interruptions from these expectations, and where there is a need to comprehend a situation or event.

“Thus, we expect to find explicit efforts at sensemaking whenever the current state of the world is perceived to be different from the expected state of the world.” (Weick, et al., 2005, page 414)

The intriguing aspect with sensemaking theory is that it can be used when studying organizational change in a wide perspective, as well as more micro changes; as for example how individuals make sense of newly introduced methods. So far, sensemaking seems to be a highly individual process, something that could be described at a micro level. The next section will give a tool to understand how sensemaking expands to include more than one individual.

Micro/Macro Perspective

Wiley defines four levels in sociology, intrasubjective, intersubjective, generic subjectivity and extrasubjective, where intrasubjective and intersubjective belong to the micro level and generic subjectivity and extrasubjective to the macro level (Wiley, 1988). The different levels are depicted in figure 2 and described below.

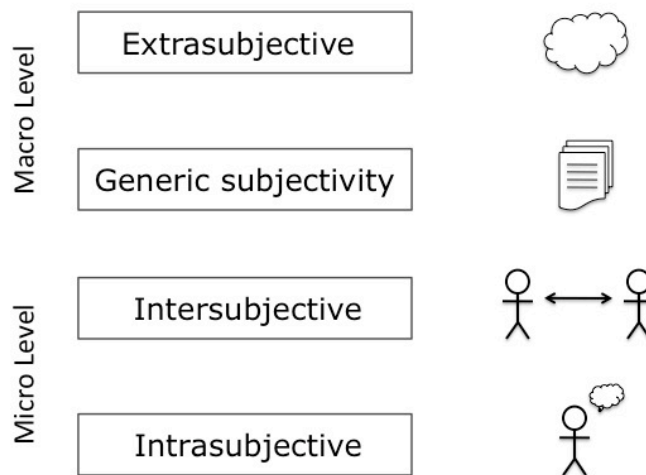


Figure 2 The micro/macro levels of sociology.

These levels can become a vocabulary to describe and understand sensemaking, as well as other phenomena in organizations. Explained in terms of organizations and sensemaking, intrasubjective is the personal level, the “I” that makes sense of a given situation. The next level, intersubjective, is the interaction between individuals, and in a sensemaking perspective, the meaning concerns a “we” instead of the “I” in intrasubjective. Both Weick (1995) and Wiley (1988) talk about a transformation from the self to a merged subject of two or more subjects, that occurs on this level when individuals interact, communicate and share meaning. Generic subjectivity is a level of social structure, where subjects are interchangeable; this level consists of the scripts, role descriptions, methods and models, both formal and informal within organizations. A subject is still present on the generic subjective level, although an abstract subject. The fourth level, extrasubjective, is described as the cultural level, defined by Wiley as a “[...] subjectless level of symbolic reality [...]” (Wiley, 1988, page 259). There is a clear notion of ongoing emergence from the lower levels to the higher, described in the paper, but less on how the different levels affect each other in the other direction. I would argue that the levels are under ongoing change, and that there is a constant feedback back and forth between the levels. For example, the culture of an organization will affect how routines and norms are formed.

Sensemaking and Organizing

Organizational sensemaking could be defined as all the sensemaking an organizational member encounters in the organizational life. This is still an individual sensemaking process. However the occasions for sensemaking could also include, or take place, in the interaction with other organizational members. The process of sensemaking, with extraction of cues, identity shaping etc can be done in interaction with others, and the identity could be the “we” identity of a group of people on an intersubjective level. This implies that the organization is there, from the beginning, and that sensemaking is happening because of and in this organization. Weick et al. want to go further, and argue that sensemaking constitutes the organization, at the same time as the organization constitutes sensemaking (Weick, et al., 2005). This can be connected to the view of organizations as organizational becoming and the constant flux described above, that sensemaking is an intrinsic part of organizing. Weick argues that organizing:

“[...] lies atop that movement between the intersubjective and the generically subjective. By that I mean that organizing is a mixture of vivid, unique intersubjective understandings and understandings that can be picked up, perpetuated, and enlarged by people who did not participate in the original intersubjective construction.” (Weick, 1995, page 72)

Thus sensemaking occurs, in the constant flux of micro changes, when organizational members make sense and use existing routines and scripts, as well as reacting to the situatedness of work. The nonprototypical categories described above are material for sensemaking, for example the extrasubjective culture might constitute cues for how to deal with the nonprototypicality.

Sensemaking also occurs in the planned strategic changes, where the categories are not well defined, when scripts and routines are not clearly described in beforehand and where roles and identity are ambiguous. This sensemaking in strategic change is described in Balogun and Johnson’s study (2005), where middle managers try to make sense and work through a major restructuring of their company. Their findings show that both a vertical social process with their senior managers affects the middle managers as well as a lateral, social process with other middle managers. The social processes are both formal and informal, and the authors show that the informal vertical processes are more dominant in their sensemaking. They propose that this has implications for the senior managers who manage strategic change:

“From the perspective presented here, ‘managing’ change is less about directing and controlling and more about facilitating recipient sensemaking processes to achieve and alignment of interpretation.” (Balogun and Johnson, 2005, page 1596)

This facilitation of sensemaking is called sensegiving. Gioia and Chittipeddi define sensegiving as:

“ ‘Sensegiving’, is concerned with the process of attempting to influence the sensemaking and meaning construction of others towards a preferred redefinition of organizational reality.” (Gioia and Chittipeddi, 1991, page 442)

Even though it makes sense, that there is a possibility to influence the sensemaking process of other individuals, it is also very precarious, since the process is highly individual and internal. Gioia and Chittipeddi describe change as a negotiation process where the change managers must give new interpretations of the organization in order to lead change (Gioia and Chittipeddi, 1991). This suggests that managers are able to generate or change cues that sensemakers use in their sensemaking. However, there is no certainty that sensemakers will react to these cues; it could be others that in a higher degree call for their attention.

Results

In this result section, I will first briefly summarize the results from the three papers included in this thesis. Then I will elaborate the results further with the help of the theories presented previously in this licentiate thesis.

General Summary of Results

The first paper in this thesis (paper I) is a presentation and summation of our project at CSN, the AvI-project, lasting for three years. Due to the large scale of the project, the results are briefly presented. Initially the project was mostly perceived as a technical project meaning that it only affecting the development of computer systems. However after an interview study with management half-way through the project (Cajander, et al., 2006), which was presented to the organization, more people became aware that the project also had implications leading to business development and organizational changes. Some of the results are related to this organizational change, in the form of formal documentation, such as the introduction of a usability policy as well as changes in business models. One of the major results is that usability has become something that people talk about in the organization. Furthermore the interviewees in the final interviews expressed an increase in interdepartmental cooperation as well as a heightened awareness and interest about the work situation of case handlers by the developers. The paper does not only list the success factors, but also pitfalls. Not all the methods we tried to introduce were adopted; one of the aspects that did not work in the public authority was iterative development.

The increased awareness of the developers is further elaborated in the second paper (paper II). The developers took part in a three day long course, in which they did field studies on case handlers. In the paper we discuss the experience they had from the field studies, and the most prominent result was that they perceived that they got a holistic overview, which they earlier had missed. Moreover the participants became inspired and motivated by doing the field studies. The field studies also inspired the case handlers to visit the developers at the main office in their work exchange program.

Unfortunately there was a tendency at CSN, that usability work became synonymous with field studies. Furthermore, field studies conducted by developers did not eliminate the need for usability professionals. The partici-

pants felt that they got substantial results from the field studies, however a usability professional would notice different things and do a deeper analysis of the work situation.

The usability professional is the focus of the third paper (paper III), which is a study that further explores the role of the usability professional when introducing usability in these public authorities. We interviewed usability professionals and people working with usability issues in five different public authorities, and some topics were common, for example the amount of work needed to market themselves and the aim to work strategically. There seem to be a need for several different kinds of usability roles, working strategically or more practically, as well as a critical mass of people. Furthermore in many of the public authorities, the usability professionals initially hired had little previous experience of the work, and hence had less possibility to influence the organization.

Sensemaking in the Results

Introducing User-centred systems design at CSN has, as described above, led to organizational changes. Sensemaking takes place at several levels in this change process, for example at an intrasubjective level, when individuals make sense of the new methods. An example of this is the system developers (see paper II) encountering the method field studies for the first time. In this particular study, the results suggest that the developers' different *identity constructions* affect their sensemaking of the method.

Brian, one of the developers was quite negative about the field studies, and expressed that he did not gain anything useful that he could use in his work from the experience. In the interviews he expressed the following view of case handlers and involving them in system development:

“We are as good as they are at guessing! And I don't buy all these things about working with the users because they know how things work. Because I have been talking to users and I know the rules better than they do since they are used to doing things in a certain way. I who don't work with these things say that I have read the rules and these are the rules. Then I can do it easier somehow. I wouldn't say that I am better than they are at saying what they want. But still somehow we guess what they need and they are not better than we are at expressing that need. Of course there are some things that they can tell us, but I don't think it is a good idea.”

This view can be contrasted with the view of Scott, who was quite positive about the field studies, he expressed that he had gained knowledge on a more overview level. He thinks it is important to look at the user as expressed in the following quotation:

“I am not a case handler, and since I have not been working with case handling, then it is not the same thing as when I sit and work with the windows when I do testing or something. You can’t compare that to the real situation when it comes to stress and those things. It’s different”

As can be seen in the above quotation Brian sees himself as someone working at the public authority, and someone who is well-informed of the rules and regulation. He even sees himself as better informed than the case handlers working in the core business. Brian’s identity is as a programmer, but also more than just a programmer. The interviews indicate that he sees himself as an analyst and a designer, with the right knowledge to create a great system.

Scott on the other hand does not see himself as much as a part of the core-business. He acknowledges that there is a difference between himself and the case handler. Scott also sees himself as a programmer, but is not as tightly coupled to the public authority and the core business. Their identity creation can explain their different sensemaking of the field study method. Brian has no need of the field studies since he knows best himself, and also expresses this view. Scott on the other hand perceives the field studies as beneficial, which matches his identity creation.

Furthermore, the new method also leads to sensemaking at an intersubjective level, as in the debriefing following the field studies (see paper II). Here the group reported and discussed the different findings and experiences. The group started to explore some issues, for example how to take care of all the problems identified that could not be resolved in the ongoing project, and how to report these problems. The project members who had done field studies had different experiences, but yet they elaborated their individual and shared meaning. Field studies even became more or less synonymous with usability, one reason for this could be that as many as 100 different people at head quarters, with roles ranging from system developers to project managers and middle managers, did field studies before the AvI-project ended. Finally, the field studies ended up at a level of generic subjectivity as part of the pre-study and acquiring process, and also became part of the system development model. At the generic level, there is no sensemaking activity as such, since it is a level without subjects, or rather with interchangeable subjects. However, at the generic subjectivity level, the methods like field studies, are material of sensemaking, that is, they provide something to make sense about. They also serve as a cues informing further sensemaking.

The Formal and Informal

A central theme concerning the change process in the papers included in this licentiate thesis is the formal documents used to promote change. These documents are below described and discussed together with some contrasting informal aspects.

Formal Documents and Informal Promotion

A central document in the AvI-project was the usability policy (see paper I, page 36), which was developed early in the project as a collaboration between project members, researchers, and the union. The process of creating the policy was cumbersome and took long time, mainly because of the many stakeholders involved in the process. During the final interviews the policy was described as a door opener and it was used extensively in internal courses and as an argument to focus on usability. On the other hand some claimed that the policy is yet another document that nobody is reading. As a document the policy belongs on the generic subjectivity level, but the extensive work creating the document and the amount of people involved in the sensemaking process makes it also well grounded on the interpersonal and intrapersonal level. Consequently, it is more plausible that the policy will be used because of this grounding.

The policy is perceived as short and this is seen as a success factor. However, in order to define how the policy should be used, the usability professionals had to write a document with explanations and methods matching the policy. The policy was placed at the architect department and the ownership of the policy was commented in the final interviews. The architect department is responsible for system development, but not business development. Some interviewees expressed that the policy should instead be placed under the business development department, since it then should affect a larger part of the organization, especially the earlier phases of system development; the pre-studies and acquiring of systems. From a sensemaking point of view, this is interesting, since the policy by default (by being a policy) was organizational wide, but its placement generates cues that indicate that it only affects the later stages of system development.

The systems development model is another important formal document in the public authority. It existed before the AvI-project, and one of the key concerns during the project was to change the models so that it included more user-centred systems development methods. This proved to be difficult, mainly because of a discussion of the possibility to work iteratively in

system development. The owner of the model claim that there is nothing in the model that prevents working iteratively. However when talking to system developers, they express that they cannot work iteratively since the model does not support this. Furthermore, there is only one model to be used for development in different areas and programming languages. This meant that for example the programmers working with web-development did not use the model, since it did not match the needs of their work. Yet others explained that the model was something they had read once, and never thereafter looked at, they claimed they knew how to work. In the end of the AVI-project several new usability methods and activities were included in the revision of the development model document, but most of the interviewees were not aware of this. The reason for this was probably that the group that revised the systems development model was fairly small and that after the revision no particular opportunity was given to the developers to read, make sense and incorporate the changes in their work practices. The system development model is a part of the generic subjectivity but does not match the situated work well. In this case several developers did not follow the model since it did not match their work practices. Yet the way the developers worked was sanctioned from management, perhaps based on the end-result of their work, rather than the process. But it is also possible that the closest managers, at least sanctioned the work practices, as a form of informal generic subjectivity, a way of working, not written down in formal documents.

In contrast to these formal documents, used to promote change in the organization, there were informal ways of directing change, as in the following quote:

“A majority of the work has been about ‘planting’ ideas with others in a way that will make them think that it is their own ideas.” (see paper I, page 30)

Results from the interviews suggest that a major part of the change was conducted on a more informal level. For example some of the success factors reported from the interviews were the importance of getting particular individuals on the right track and that it was not until these individuals joined the project that things started to happen. Yet another example is the way the head of the architect department, under the final seminar of the project, talked about the personal insights he had made and the development he had gone through during the project. He had personally changed his opinion about usability and realized that the main concern is utility.

Formal Role and the Individual

I will here only consider the formal role of the usability professional, even though the name and description of a formal role is relevant in other situations as well. The result from the paper (see paper III) suggests that the for-

mal description of the usability professional role plays an important part in the organizational sensemaking of the role. If there is no clear role description, the usability professional needs to recurrently negotiate the work she can contribute with. As with the usability policy above, the formal role description can be used as a tool in order to gain access to developmental projects etc (see paper III).

The name of the role also plays a part in organizational sensemaking. In our interview study in (see paper III), the name ranges from non-existing to usability architect. When introducing usability in an organization, the name will be used as a cue in the process of making sense of the role. In the case of usability architect, the connotations connected to that name indicate that the role works with strategic issues and on a higher organizational level than for example a usability designer. At CSN, the usability professional role got the name Methodology Support. Since this role already exists in the organization, and since this role in other cases is supposed to help others to use specific methods, the role of the usability professionals were misinterpreted as being passive and only working with teaching usability methods. This led to conflicts in some projects where the usability professionals tried to take a more active part (see paper III).

Both the name and the role description are formal elements of an organization and in contrast to this is the individual having this role. The personality of that person affects the impact and work done in the organization. Since there is not a common definition of a usability professional and since this role in most of the cases we have been looking at, is not well-defined, the individual shape the role to a great extent. In that case it is the individual and her sensemaking, that is, enactment of environment, identity and extraction of cues that creates the role. The identity of an individual is created together with others, who mirror this identity construction. This means that the surrounding individuals' view of a person will affect that person's identity construction.

Common in most of the public authorities we have looked into (see paper III) is that the usability professionals had to market themselves and usability. In one case, the informal, and the formal even merged, when the usability professionals at FK added in the role description, that the usability professional needed to have marketing skills.

Discussion

In this section I will first discuss the results; what do they imply? What could have been different? Then I will discuss my research approach and my research question.

Organizational Change and Formal Documents

It is clear that the formal documents are used in order to promote change, although the success is not always clear. Formal documents play an important role in describing and defining the expected new state of the organization. But, with the perspective that organizations are not stable entities that can be forced to change, but rather an ongoing constant state of micro changes, the documents must be seen in a different light. Just introducing new documents or changes to existing documents will not make the members of the organization to behave in a new way. This is discernable at CSN where for example the systems developers did not follow the system development model. Instead there is a need to incorporate the documents, or rather what the documents convey, into general categories that form the abstraction of work. Just introducing the documents are not sufficient; they end up in the periphery of the radially structured set of categories where they do not match the situated work. What is needed is a sensemaking process, in which the members of the organization start to understand and make use of the new ways of working. One example where this happened is the usability policy, which went through a thorough writing and review process and thereby ended up used and perceived as a success within the project.

The fact that the formal documents did not match the situated work is not a hindrance to change; there will always be more or less a difference between the formal documents used to promote change and the situated work. What hinders change is when the members of the organization do not interpret the formal aspects appropriately. An example of this is the name of the usability professional role that led to an unintended sensemaking that the role only should help others to use usability methods. Hence I argue that formal documents alone are not sufficient to promote change, rather we need to engage in a sensegiving process, where the formal documents are material for sensemaking.

More Focus on Process

Organizations are about the situated work, the formal just being the abstract categories one relates to in the sensemaking process. I believe that the informal aspects of work in a higher degree than here presented affect the organizational change. However, in the results there were not many cases concerning the informal, perhaps because the studies have mostly been focused on the content of change, rather than the process of change. In future studies, I would suggest using data gathering methods that in higher degree capture the ongoing change. Interviews, and especially interviews in the end of a change process are not sufficient, since the respondents at that time has made a new sensemaking of the event, which is retrospective and plausible, and might not reflect the course of action.

Research Methodology

My research interest resides in organizational change, which is possible to study with many different research methodologies. However, I am not only interested in presenting an interpretation, or a description, of why change occurs. Rather I am interested in how to direct change. I believe action research is in this case the most appropriate research methodology, since one of the aims of the methodology is to solve problems in real life settings.

Some weaknesses in my research methodologies could in future studies be remedied. For example, I could engage my respondents more as co-inquirers, and not only let them read my results and comment upon it. Furthermore, it is always difficult to obtain transparency in a research project, so that all the decisions are made clear for non-participants. Moreover, in retrospect, I could have used different research methods in order to collect data about the elusive process of change that I am trying to follow.

The results in this licentiate thesis are tightly coupled to the public authorities I have worked with, and thus they are not possible to generalize to organizations in general. However, the empirical findings together with the theories presented are applicable in similar settings.

Getting Back to the Aim

The aim of this thesis was to discuss organizations, organizational change and sensemaking and to be more specific, answer the following question:

How can we create the organizational change required to achieve a higher focus on usability in IT development?

I have in this licentiate thesis taken a step towards answering this question. I have here presented theories about organizations and organizational change that is an issue that has not received sufficient attention within the HCI-field. Furthermore, I have presented sensemaking, a theory that can be used in order to understand how organizational members make sense of usability methods and the organizational change needed in order to increase the focus on usability issues. Finally, I have with the theories and my empirical material, seen that formal documents can be used to promote organizational change, albeit they are not sufficient. We need to see beyond the formal documents, and how people make sense of them, and help the members of the organization in their sensemaking; we need to engage in a sensegiving process. Joyfully, this is my licentiate thesis, and I have thus the opportunity to engage myself in the further explorations of these issues in my coming dissertation work.

Future Work

This licentiate thesis has opened up several paths of possible research within the HCI-field. For example the sensemaking theory could enhance and deepen our understanding of how different stakeholders make sense of usability methods and usability issues. Moreover I argue for further studies on organizational changes when introducing user-centred systems design. Here, one interesting research area is the interplay between formal and informal aspects during organizational change. How can the work described in formal documents become a core part of the categories that constitutes the abstraction of work? Furthermore, how can we ease the transition from knowledge stored in formal documents to the knowledge of the situated work?

On question that was not elaborated on in this licentiate thesis is the sustainability of change. With the fluctuating character of organizations, and the ongoing reinterpretation of what the work practices are, how can one make change sustainable?

With action research, we have the possibility to study and react to the ongoing change in the situated work as well as the planned change. This could be done through close collaboration with the organization under study. The close collaboration could among other things be through project meetings as well as coaching sessions with key participants (Cajander, Forthcoming) in a similar fashion as the previously described study by Lüscher and Lewis (Luscher and Lewis, 2008). Awareness of sensemaking can guide us to ask questions that will elicit problems that the organizational members meet while trying to incorporate the new way of working with system development. It is important to note here that system development encompasses more than mere coding of a new or altered system. Rather the aim is to look at the whole work situation, which means that this development must cover a larger part of the organization than the IT-department.

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