Reporting User Experience through Usability within the Telecommunications Industry

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ABSTRACT
In some software development contexts, understanding ‘who else’ to report usability results to and how this must be done has a larger impact on the usability of products, in the long run, than reporting results to designers and developers in planned and ongoing software development projects. This situation is true in some parts of the telecommunication area. This is an area that constantly presents new usage possibilities arising from new ‘hot’ technology and competitive situations, i.e. not primarily from internally identified user needs. Understanding how use-oriented knowledge can have the greatest impact in this context is a challenge. As engineers we must be prepared to adjust our work to varied actors and environments under specific conditions to optimize our influence. In this case, how do the ‘new hot technology and competitive situation focus’ affect our possibilities to introduce use-oriented knowledge? Our desire to achieve highest leverage from performed usability work made us realize that we need to take advantage of existing usability testing as a first step in introducing more of user experience in the user-orientation.

Categories and Subject Descriptors
[Management]: Software quality assurance (SQA). D.2.9  
[Metrics]: Product metrics. D.2.8  
[User Interfaces]: Theory and methods, User-centered design H.5.2.

General Terms: Design, Documentation, Human Factors, Management, Measurement

Keywords: Use-orientation, market driven requirements engineering, telecommunication area, usability, user experience, usability test, usability metrics

1. INTRODUCTION
In Jensen’s article Lead, wallow, or get out of the way [6] it is argued that usability professionals have an unpredicted leadership opportunity in the coming decade. What needs to be done is to change the conversation to change the exchange of information and the thought process [6]. It is suggested that usability professionals take a new active leadership role within the company; that they participate in business and management discussions. In order to help business leaders, usability experts need to talk the language of business and not the language of science (e.g. metrics debates). In this paper we discuss our starting point for this new leadership.

For those actors who advocate the view of textbook descriptions and formal expectations of roles and responsibility in an organization, it might be a challenging thought that understanding “who else” to report usability results to, and how this must be done; can in the long run have a greater impact on the usability of products than reporting results to designers and developers in planned and ongoing software development projects. This is in conjunction with the fact that it is well known that many failures in software projects and IT businesses can be explained by a too superficial understanding of the work practice to be supported. Software products are created by people, working in varied environments, under varied conditions – we need descriptions of these social worlds to enable high quality development of methods, techniques and tools. Beside procedures/what is being done we need to emphasis interaction/how it is being done in the social settings in which the phenomenon is embedded. A too superficial understanding of the work practice is a general issue in academic discourses. In the CSCW and PD community many types of discourse can be found that demonstrate this point (for PD see [8, p.9]). One example from software engineering (SE) is [13] who provide their own study and an overview of CSCW studies that focus upon SE and address the relationship between methods and system development. The authors demonstrate how the software engineers who participated in the study innovatively played out the idealized understandings of a company’s organizational prescriptions in unexpected and ‘unknown ways’ to enable them to get the project work done.

In this paper we describe how company and telecommunication area related conditions affect the possibilities that usability professionals have to introduce user experience and influence software development. Thereafter we present our first step towards a solution; to build in to existing usability reporting channels a continuous distribution of user experience and usability lessons learned to managers, product owners, clients, and marketing people.

2. THE TELECOM AREA
The influence that the competitive situation and the fact that the telecommunication area focuses on new ‘hot’ technology has on
user representation is discussed in [12] from a Participatory Design point of view. From that work we borrow two quotes. The first is from Sony Ericsson’s CEO who commented on the importance of phones having "wow" factor: models that the customer wants in the same moment as he or she gets it in the hand. The second is from Nokia’s CEO who comments on the relationship to the downward pressures on prices in the PC industry: That is an entirely different branch. What we have to do is to continuously develop so advanced products that they do not end up as staple commodities that anybody can copy. Both of these comments, on the ‘wow’ factor and the need for a continuous rapid technical development, illustrate how the area clearly focuses on the development of hot new technology rather than being driven by user experience knowledge or usability needs. In [12] it is demonstrated how such area characteristics influenced the implementation of a PD method, i.e. archetypes representing users when developing mobile products.

Four years have passed, and it is still an area that constantly presents new usage possibilities arising from new technology rather than the other way around; in this area usability experts are expected to make new technology usable. The area also prioritises the launching of new versions and products at regular intervals and at the advertised time. The requirements scope is thus not related first and foremost to end users needs. Instead it is market- and competition-related issues that primarily influence which requirements are implemented at the end of the day in a software development project. Marketing windows have a ‘best before’ date; up to a certain point of time releases of new technology will attract attention from media and buyers. When a company releases technology ahead of a competing company’s planned release day, interest from the media is greater when compared to when the second release of similar technology appears. The time of the year might also influence when the technology should be released. See [12] for a richer description.

The above phenomenon is also identified in studies of market driven requirements projects [10; 15]. The telecommunications is a market driven software development area. In market driven projects there is no distinct set of users, instead there are potential groups of people who fit an imagined profile of intended users. The elicitation of requirements is mainly managed through marketing, technical support, trade publication reviewers and user groups [1]. Recent study in this area has also revealed that the constant flow of requirements caused by the variety of stakeholders with different demands on the product is an issue; an issue which is closely related to how to write understandable requirements [7]. The latter problem of many stakeholders relate to diversity of different ‘natural languages’ in different organizational situations [14]. In market driven companies requirements are often invented by developers based on strategic business objectives, domain knowledge and product visions [11].

### 2.1 Use-orientation in the company

The company in this study is UIQ Technology AB, a growing company with currently around 330 employees, situated in Ronneby, Sweden. The company was established in 1999, and has as one of its goals the creating of a world leading user interface for mobile phones. Their focus is “to pave the way for the successful creation of user-friendly, diverse and cost-efficient mobile phones” [18]. They develop and license an open software platform to leading mobile phone manufacturers and support licensees in the drive towards developing a mass market for open mobile phones. Their product, UIQ, is a media-rich, flexible and customizable software platform, pre-integrated and tested with Symbian OS, providing core technologies and services such as telephony and networking.

UIQ Technology AB has focused on usability from the very start and employed a number of usability experts from the beginning, which demonstrates their usability ambitions. Regarding user experience, requirements handling at the company is the responsibility of Product Planning, and Software Development is responsible for the breaking down of requirements and feasibility. In Software Development the first breakdowns are done by a System Design team, thereafter teams responsible for each component take over. The usability experts are part of System Design, and perform validation of suggested designs. They are also consulted by Product planning on elements of concept design. In general the usability experts enter the process a little bit too late, and are regarded as one input among many others for deciding the requirements (for other inputs see the previous section introducing market driven requirements). The fact that end user input is important is of course also a conviction shared by UIQ’s clients. The latter do not necessarily have the same methodological standpoint; indeed they often have different perspectives and different priorities and ways of representing users. Obviously, dependent on which position is taken when viewing users the politics and terminology differ.

An existing influence of use-orientation in the company is through an usability test package called UTUM (UIQ Technology Usability Metrics) [17] which is in everyday use within the company. UTUM has been jointly developed within the studied company in cooperation between academia [19] and industry [18]. The process of cooperation is action research according to the research- and method development methodology called Cooperative Method Development (CMD), see [3] for details on the research methodology.

UTUM is a method for measuring and presenting usability, based on metrics for the traditional elements included in usability: efficiency, effectiveness and satisfaction [5]. This is combined with judgements made by a test leader/usability expert [20]. The results of a UTUM test are stored as qualitative and quantitative data in spreadsheets, and as information in the mind of the test leader. For more information on UTUM see [17]. UTUM metrics are regularly reported to managers, product owners, clients, and marketing people. It is in relation to the occasions where the results are presented that we discovered an opening to increase the influence of user experience on strategically important levels in the company and area. In UTUM we encourage decision makers to understand the user perspective instead of just streamlining decision making. Hence, how to report usability findings in a way that not only influences ‘narrow’ design decisions in a current software development project, but also feeds back to the overall loop of the ‘technical growth’ preceding the requirements in software development projects has been a concern from the start.

When presenting UTUM reports, all kinds of user experience issues and concerns are raised by listeners; reporting usability results triggers user experience questions. Hence, our answer to Jensen’s request lead ... or get out of the way is to build in a continuous distribution of user experience thoughts related to the
3. USE-ORIENTATION

Many of us, as also exemplified by Jensen [6], are convinced that user-oriented design and development is a winning concept in the long run, whereby we strive to find ways to place use-orientation as early as possible in the chain of product development. Use-orientation can be divided in usability and user experience.

Achieving high usability level in a product means that the user fulfills his/her tasks in an intended ways that do not causing disturbance or annoyance. If a product is good the users do not consider the usability level of it. If bad usability appears even small things can irritate users and make them turn the product in for replacement. Usability (U) is a measurement on a products level of hygiene.

In general there is a striking degree of consensus that User Experience (UX) is an area where there is no coherent and consistent definition of the field. As stated in the foreword to a report from the COST294-MAUSE workshop on User Experience in 2006, the field of UX is theoretically incoherent, and methodologically immature, and there is no definition of UX or theory of experience that can inform the HCI community how to design for and evaluate UX [9].

Same concerns are noted in another workshop 2007, where it is stated that “the definition of UX is not settled”, and that “we need to find lightweight evaluation methods applicable for iterative prototype development” [2]. Much work is being done within the field, both theoretical and industrial, but much remains to be done, and it is still uncertain how UX differs from U. Still, if UX is to be accepted as a topic in its own right, it must differentiate itself from and add to the traditional view of interactive product quality [4]. There is also a lack of discussion how the process of decision making actually takes place in a product based company; in our case how to get use-orientation included in different stages of the strategic decision making.

3.1 UX in UTUM?

Although UTUM is based on traditional theories and standards regarding Usability (U) we discovered that it captures aspects and facets of UX to a large degree through the presence of a usability expert in the test. The test leader observes and judges the UX in specific use situations, and comments and impressions are stored in spreadsheets. In today’s situation, both U and UX are to be found in the complex mixture of metrics and the mental picture possessed by the test leader, but the results of the test are mostly translated to U issues found to optimize use case performance. The latter handling of results can be changed to also emphasise UX more.

There are correlations between U and UX to be found in the metrics. Even though the metrics in the UTUM test measure U, they are also analysable to show the presence of a good UX. Here the test expert judges UX in use, related to satisfaction, effectiveness and efficiency. For example, if there are high values for both satisfaction and test expert evaluated efficiency (as time taken), then the efficiency rather than a good UX, may have increased the user’s satisfaction. However, if the user evaluates satisfaction and effectiveness as high, whilst the test expert evaluates efficiency as low, this show that a good UX that has raised the user evaluation.

Comments recorded in spreadsheets also record what we call the “Wow” factor, or delighters, and their opposites, the displeasers. The “Wow” factors can be equated with the “attractive requirements” found in the Kano model, that have greatest impact on satisfaction regarding a certain product [16]. These requirements are not explicitly requested or expressed, but if they are present they lead to an increased level of satisfaction. These comments can concern both hardware and software issues and can be used to study which elements of the UX are pleasing or displeasing and thereby improve UX.

Most of the discovered UX influences are related to U measurements of specific use cases. Still, our experience is that all kind of subjects related to both U and UX (questions, statements and opinions) pop up through the test expert’s observation and interaction with testers. As these concerns obviously are important for the testers, the test leader talks about them based on a general desire to both understand why these issues are important, and also to reveal users suggestions for how to improve future products.

Bearing in mind the above, the test expert, when reporting UTUM results, is in one sense actually acting as a spokesman for the users.

4. DISCUSSION

We believe it is fair to say that U issues in industry have still not reached the level of UX. UTUM is an attempt to try to deal with the more complex context and focus on visualizing the result for decision makers. To some extent we have succeeded, still when looking at it from a UX perspective we’re not even close in our own opinion. UTUM and the usability expert today capture and reports vital U flaws in the product. When these result are presented and visualized for the right people the issues go away.

When looking at a product from a UX perspective there are other factors that make the user like/dislike a product. Here, user research need to find the underlying behavior of users, getting to know why they behave as they do and what makes them do what they do. It’s probably back to ethnography again in its pure form. Understanding what role hygiene, brand, marketing, trends, and familiarity affects. Also understand how the process of decision making actually takes place in a product based company. What language do the experts need to talk in order to get user knowledge and user participation included in different stages of the strategic decision making.

In our case it is obvious that managers’, product owners’, clients’, and marketing peoples’ interest in UTUM presentations first and foremost is not U related design details/issues! They are there as strategic actors hoping to get useful information needed for strategic decisions. Hence, we have already, at least partly, solved Jensen’s challenge for usability professionals. We are in the same room and we have their attention. Still, in order to increase our UX influence, and make more difference we need to develop the test expert’s way of interacting with users, to ask new questions during UTUM tests.

We also need to sharpen the presentation technique at UTUM reporting occasions, i.e. to present results in a more aggressive but still constructive manner. In this way we can better capture the
attention of the people who hold strategic positions and signal the importance of the findings. Here we need to talk the language of product owners and business people, not the language of design; whereby one of the perhaps greatest challenges for us is how to analyze data from this point of view so that we can present the results from this point of view. The latter argument is related to the fact that different organisational ‘natural languages’ exist in different environments (a theoretical model explaining ‘natural language’ and interpretation problems in software development work can be found in [14]).

Above identifies our next challenges and future research. The first is about developing better understanding of UX in our situation and context, and introduce UX triggers in relation to the existing UTUM test package. The second is about developing ‘aggressive’ presentation techniques. And the third is about applying another

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6. REFERENCES