

A First Analysis of the UsersAward Programme from a Value Sensitive Design Perspective

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ABSTRACT

The goal of the UsersAward programme is to develop and maintain a strategy for better workplace software through user-driven quality assessment. One of its key activities is the user-driven certification of workplace software using the USER CERTIFIED 2002 instrument. In this paper we present a preliminary analysis of the values that inform the criteria and procedure making up the USER CERTIFIED 2002 instrument, using the Value Sensitive Design methodology. We then propose a set of empirical investigations with the different UsersAward stakeholders, which should yield a deeper understanding of some of the critical issues concerning user-driven software assessment programmes.

Keywords

UsersAward programme, user-driven certification of software, workplace computing, Participatory Design, Value Sensitive Design

INTRODUCTION

The UsersAward programme of user oriented activities was launched in 1998, initiated by the LO (Swedish Trade Union Confederation) in cooperation with the TCO (Swedish Confederation for Professional Employees). One of the main activities in the programme has been the IT Quality Assurance research project (ITQ), which brought together a multidisciplinary team of researchers from four universities in Sweden: KTH in Stockholm (coordinator), Uppsala University, Gävle University, and Luleå Technical University.

The UsersAward activities follow the “Scandinavian tradition” of involving users in IT development for use at workplaces. In the seminal Utopia project in the 1980s [1], the focus was on user involvement in the design and development of the IT support. Since then the understanding has developed that for IT support to work well in workplaces it is also crucial that users are involved with and can influence the deployment, daily use, and further development of the software [2]. The results of ITQ confirm this. The motivation for the investigations proposed in this paper is to understand how the principled

and systematic approach to designing for human values that Value Sensitive Design offers can further the understanding of when and how different stakeholders can contribute to IT design, development, and deployment in a sustainable and mutually beneficial way.

THE USERSAWARD PROGRAMME

The goal of the UsersAward programme is to develop and maintain a strategy for better workplace software through user-driven quality assessment. The programme involves union and consumer organisations which cooperate with researchers, user companies and software providers in a powerful combination of user movement and research. This strategy for user influence has been manifested in a unique combination of user surveys, user conferences, pilot projects, a yearly IT Prize contest, and, most importantly, a Users' certification process for workplace software packages.

Approach

The inspiration for the goal to develop a certification process for workplace software was the successful certification program for display units, TCO'92, which had been launched by TCO through a broad cooperation with researchers and consumer and environmental organisations. This certification programme has been regularly upgraded (TCO'95, TCO'99) and had by 2002 put its label on more than 200 million display units worldwide [3, 4].

LO now wanted the ITQ project to develop a similar model for the area of workplace software. To be legitimate in the eyes of end-users and the marketplace, each certification had to be based on end-user satisfaction with the software and on a rigorous process. In this respect, the method is user-driven, both in the sense that it is *initiated by, and developed in cooperation with*, Sweden's largest employee organizations (2 + 1.3 million members), and in the sense that the certificate each software package receives is *based on end-users from at least two different workplaces* who, after having operated the software for more than a year, have given it their seal of approval.

In a study done in May 1999, LO asked the membership and the local union leadership to prioritize a set of concrete tasks that the UsersAward programme should engage in. “Certification of software providers” was identified as the most urgent task by 65% of the respondents, followed by

“Checklists for deployment” (62%), “Education and training on IT and work organization” (58%), “User tests of systems” (56%), and “User conferences” (42%) [5]. This provided a good empirical basis for designing the research and development activities of the programme (the first two coordinated by CID; the last two coordinated by LO):

- develop criteria and a procedure for user-driven workplace software certification
- perform pilot projects to underpin the articulation of those quality criteria
- perform periodic user surveys to track membership satisfaction with their software
- initiate a series of user activities, such as a yearly Users’ IT Prize contest, user conferences, the launching of a UsersAward website, and the convening of a User Panel to mobilize and guide an emerging user movement.

The survey on policy measures showed a strong support from the union membership for a certification instrument of the kind that TCO had launched so successfully. The first User survey, the “IT Map”, presented the opinions of 1124 users, of which 50% represented workers in direct production, and provided further empirical grounds for understanding which aspects of the IT usage the union membership deemed most problematic [6].

However, TCO had already tried out a quality assurance package for software at work, an initiative that did not gain sufficient momentum due to the turbulent character of software development at the time [7]. LO’s new strategy, developed in close contact with the TCO, was to underpin the development of the certification process with the set of supportive measures the first survey had proposed and confirmed. These measures included not only well-directed research efforts, but also the mobilization of a user movement that could help spotlight useful IT tools and help articulate the new problems that emerged in parallel with new technological breakthroughs.

The Certification Instrument

The format of this paper only allows the following brief summary of the instrument, its development and use. For more comprehensive descriptions see [8, 9].

The assessment procedure starts by asking a software provider who applies for certification to fill out a self declaration regarding the software and its intended use. In this declaration the provider is also asked to suggest three workplaces at which the user satisfaction of the package can be assessed. The main activity is the set of interviews and questionnaire surveys the evaluation team carries out at the three workplaces. Each of the 29 quality criteria in the certification questionnaire is presented in the form of a statement to be confirmed on a value scale between 1 (total dismissal) to 6 (total agreement). At each of the three workplaces, three end-users and three representatives from management are interviewed separately, based on the questionnaire. These interviews are then accompanied by

having a panel made up of 10% (or at least 10) of the software’s end-users answer the user version of the questionnaire.

The questionnaire covers six areas: 1. Overall benefits (2 statements in user version), 2. Deployment method (5), 3. Technical features (10), 4. Work task support (6), 5. Communicative support (5), 6. Local assessment method (1). The users are considered satisfied as a whole, and a certificate is issued, when at least two of the investigated workplaces meet all the following levels of confirmed criteria statements in the questionnaires: mean values of at least 4.0 on 80% of the statements for all users, on 67% of the statements for each user category, and on 67% of the statements for both men and women. If successful, the process concludes with the publishing of a detailed protocol, with quotes from end-users on all pertinent issues, for downloading from the UsersAward website <http://www.usersaward.se>.

Lessons from the certifications

So far, three software packages have received the USER CERTIFIED 2002 label: the time scheduling package TimeCare (TimeCare AB, 2002), the Enterprise Resource Planning package Monitor (Monitor AB, 2002), and the medical record system Take Care (Profdoc Care AB, 2004). All three assessment protocols bear witness of a solid appreciation for the respective IT support from end-users and managers at the buying organisations. And all three software providers have claimed that the certificate has helped them in the marketplace. The UsersAward AB, a development company formed by LO in 2003 to manage the certification process, has had repeated contacts with the Swedish branch organisation of software providers and reports that there are a substantial number of suppliers who discuss the possibility of having their software assessed. Although this common appreciation from end-users, managers of the buying organisations and software providers have been reached, many important research questions remain to be conceptually straightened out and investigated in a principled manner. We now present Value Sensitive Design as a promising approach to deal with some of these research questions.

VALUE SENSITIVE DESIGN

Value Sensitive Design (VSD) is a theoretically grounded approach to the design of technology that seeks to account for human values in a principled and comprehensive manner throughout the design process [10, 11, 12]. Examples of projects that have used the Value Sensitive Design theory and methodology include a redesign of the Mozilla web browser to better support the value of informed consent for browser cookies; a series of studies of robotic pets and children, the elderly, and others; and design of the interaction model for a large-scale urban simulation. (See www.ischool.washington.edu/vsd for further information and references.)

Value Sensitive Design is an interactional theory: values are viewed neither as inscribed into technology nor as

simply transmitted by social forces. Rather, people and social systems affect technological development, and technologies shape (but do not rigidly determine) individual behavior and social systems.

Value Sensitive Design employs a tripartite methodology, consisting of conceptual, empirical, and technical investigations. These investigations are applied iteratively and integratively, with results from new investigations building on and integrating earlier ones. *Conceptual investigations* comprise philosophically informed analyses of the central constructs and issues under investigation. *Empirical investigations* focus on the human response to the technical artifact, and on the larger social context in which the technology is situated, using quantitative and qualitative methods from the social sciences. *Technical investigations* focus on the design and performance of the technology itself.

A third key aspect of Value Sensitive Design is its focus on both direct and indirect stakeholders. The direct stakeholders include the users of the system in question, the system developers, and the managers of both users and developers. The indirect stakeholders are people who are not direct stakeholders, but who are nevertheless affected by the system, either positively or negatively. For example, the direct stakeholders for a hospital scheduling system might be doctors, nurses, and other hospital personnel. Two important classes of indirect stakeholders would be the patients and their families – even though they don't use the system directly, they are strongly affected by it.

PRELIMINARY CONCEPTUAL INVESTIGATIONS

We turn now to an analysis of the UsersAward programme from a Value Sensitive Design perspective, and considerations of how this analysis could inform the evolution of the programme. While quite preliminary, these investigations have already yielded useful insights, and pointed the way to promising directions for a more substantive set of investigations.

As described in the previous section, VSD has been employed in the design of information systems. In contrast, in the UsersAward work, we are using VSD to inform the design of a programme intended to impact the design of computer systems – in other words, we are working one level removed from the design of the IT system. (For now, we simply note this; but in the longer term we believe this move will be significant in showing the generality of the VSD theory and methodology.)

Direct and Indirect Stakeholders

Value Sensitive Design calls on the investigators to consider indirect as well as direct stakeholders, and also harms in addition to benefits. For example, the prize-winning system Boomerang in the 2005 Users' IT Prize contest coordinates the activities of the regional transit authority Skånetrafiken. Here direct stakeholders include rail and bus operators and drivers in the region, and passengers, who access over the web and by phone, e.g. to

get information and compensation for delays. Indirect stakeholders include motorists, pedestrians, and other residents who don't use the transit system but are affected by its operations.

This call in the VSD methodology is immediately applicable to the UsersAward programme: we recommend that the certification instrument articulate in a more systematic way questions about who are the indirect as well as the direct stakeholders, and about the harms as well as benefits of the system for the different stakeholder groups.

Explicitly Supported Values in the UsersAward Programme

In recent work on the value sensitive design of the interaction model for a large-scale urban simulation [13], the researchers found it valuable to make a sharp distinction between explicitly supported values (i.e., ones that we explicitly adopt and support throughout the design of the system), and stakeholder values (i.e., ones that are important to some but not necessarily all of the diverse stakeholders for that system). Making this distinction provides a strong response to the concern that the system simply reflects the personal values of the designers, since the explicitly supported values are subjected to a principled analysis of arguments for their inclusion rather than simply being a matter of personal preference. We make this same distinction in our analysis of the UsersAward programme. Among these explicitly supported values in the UsersAward programme, we in turn distinguish between values of the UsersAward programme itself, and values that we are trying to foster in the systems being evaluated.

The principal explicitly supported values of the UsersAward programme itself are *transparency* and *fairness*: transparency, because we want the process by which software packages are certified to be open and understandable; and fairness, because we want the certification assessment to be made in an unbiased manner. Both of these values can be seen as supporting the legitimacy of the programme. (See [13] for more on legitimation as a key instrumental value.)

For the systems that are being evaluated, the values the programme is attempting to foster are all related to human welfare and human flourishing. They include: competency development for the individual, the team, and the organization as a whole (in particular, opportunities for exploration and learning); enhanced degree of self-direction for individual workers and teams; supporting flexible, self-directed communication within and between work teams; and the economic health of the organization using the system. Many of the contributions to the first international workshop arranged by the UsersAward research group [14] touched on these and related value issues as well.

PROPOSED EMPIRICAL INVESTIGATIONS

One key area for empirical investigation will be how well the UsersAward programme supports the values of transparency and fairness. Another will be how well it fosters the values listed above in the systems being

evaluated – and whether there are other values that should be added to the list, or values that should be clarified or subsumed (following VSD’s iterative methodology).

As a specific example, one of the lessons learned from the certifications is that the value “exploration and learning” in the USER CERTIFIED 2002 instrument was met with some uncertainty by end-users who had little chance to try out different solutions in their everyday work situation. However, the ITQ pilot project on simulation as a tool for day-to-day planning at Arvika Foundry, and the certification of the time scheduling software TimeCare at the Falu Lasarett and at one of the Åhlens department stores in Stockholm, clearly showed that end-users, as well as management at different levels, welcomed the enhanced shared overview and opportunities for ‘what-if’ exploration the simulation and time planning packages could offer.

The Users’ IT Prize (with 30 finalists so far) provides further cases that highlight values shared by many stakeholders. Examples are palmtop applications for care of the elderly that give attendants and caretakers, and also family members, possibilities to change schedules at short notice. Another case is the Boomerang system mentioned above. Investigations of such good examples with the VSD methodology could benefit the certification process by revealing new insights.

Participatory observations and interviews with both direct and indirect stakeholders about trade-offs among such values as support for flexible and self-directed communication within and between work teams, competency development, productivity, and quality of services could cast new light on the potential for better supporting all of these values by new light-weight simulation and planning software. This would benefit both the certification process as such, and workplaces that have considered investing in such software without having had sufficient information about the conditions for its deployment and use.

CONCLUSION

We propose Value Sensitive Design as a methodology that could help to further clarify the underlying values of one of the key activities of the UsersAward programme, the USER CERTIFIED 2002 instrument. There are urgent questions to clarify, both about the values inherent in the assessment program and about the design choices made to support these values. These questions are of a general interest for much of the research that aims at giving end-users an enhanced control over the tools of their trade.

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