INTERACT 05-Workshop: User Involvement in e-Government development projects

User Participation Supported by Usability Engineering Experts in e-Government Projects[1]

Reinhard Oppermann

Fraunhofer-Institute for Applied Information Technology FIT

Abstract. The paper describes several means to increase the usability and utility of public services for citizens. User participation and supporting expertise in ergonomics are described as a combined strategy for e-Government developments. Direct user group participation and legal representatives have to be involved. Adaptation and end user development means can be incorporated to extend the user participation beyond the development process towards the whole life cycle of the system.

1 Introduction

To get optimal conditions for public service production and delivery with respect to the employees as producers of content and the citizens as receivers of content more than one approach is needed. Compared to private services public services in e-Government are not only concerned with the usability of the system supporting the service but public services are also concerned with the utility in a more complex sense. Public services have to reflect the political and legal rights of the parties involved beyond the pragmatic utility of the functionality and the content of the service. Citizens have to be involved from the very beginning to determine the subject of the service reflecting the interest of the citizens in the political and administrative context.

Thus, citizen participation is the first approach to be included to fit the interests of the citizens. Citizens are in part direct users of the system whenever they have access to the electronic services from home or from public access points (kiosk systems). At least citizens are addressees of the system in terms of procedures defined by the system or in terms of the (paper-) output of the system. Employees on the other side are another group of users and their participation is the next approach to be involved. Employees also have interests and they have qualifications and experiences which could and should be involved in the development process. For the employees the use of the system defines central parts of the quality of work.

For user participation the international standards 13407 can be supplied.

Beyond participation of citizens and employees usability experts are needed for the ergonomic aspects of system development. Users are competent and motivated in

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describing and analysing their working procedures and tools. But users are not trained and need support in the design of work systems. Usability experts could and should be included in the development team to support the analysis, the design, the implementation and the evaluation of work systems.
For usability issues the international standards 9241 can be supplied.
In this paper the author's experiences in system development in several projects are the basis to scan the complementary roles and contributions of user participation and ergonomic design of systems.

2 Methods of user participation

Political participation has been developed for technology development based on the experiences with public protest against nuclear power plant development. Information technology should not meet the same problems in public acceptance. In particular in Scandinavia and Germany many projects of citizen and employee participation have been started in the early 80th. One of the earliest citizen offices in local communities in Unna (Germany) was the first project of the author in this field and it included a wide spectrum of methods of participation. The methodology included three types of involvement (Mambrey, Oppermann et al. 1986):

Throughout the development process in several polls (written and verbal) employees were asked for their interests and their proposals for the technology design. Interviews and feedback groups were supported by more and more concrete drafts and prototypes of the system. Citizens were informed in the local newspapers and in several public presentations about the goal of the project and they were invited to contribute by comments and proposals.

A representative of the employees was nominated by the work council and a representative of the citizens was nominated by the local parliament to join the development team to continuously participate in the development process. These representatives had access to all documents, analysis results and design proposals of the project.

For the citizen participation direct methods of involvement seemed not to be sufficient. The citizen office aimed to integrate services of social and financial support for living. People concerned were not expected to be competent and resolute enough to articulate and to penetrate their interests. As an additional compensatory instrument an Advocacy Planner was involved in the project team who developed close contact to specific social groups and analyzed and represented their interests in the development process. Other experts that can be included are change agents if there is considerable resistance against change (Fogg 2002) or planning cells if there are more people concerned than could be involved by direct participation (Dienel 1999).

The results of the methodology of participation were successful even in several situations conflicts occurred between groups of participants and in particular between participating individuals and official representatives of the work council and the local parliament. Problems occurred between different interests of employees and citizens and between different roles of normal representatives (work council and parliament) and ad-hoc representatives in the development team. The conflicts could be resolved by subsequent discussions and acceptance of development team decisions so that the

members of the parliament and the members of the work council did not loose their power of control.

The resulting outcome of the development project works successfully since 22 years. In my opinion the result goes back to two factors:

- the competent technical contributions of the parties concerned
- the constructive negotiations of different "interests" of citizens and employees with respect to service content and service location for the citizens and the qualification and chances for personnel development for the employees

The project followed the industrial science approach called "software design as work design" (Hacker 1987).

User participation has been developed in several other projects in public services (Mambrey and Oppermann 1983; Mambrey, Mark et al. 1997).

3 Usability Engineering

Users of e-Government applications (employees as well as citizens) are the authentic source to determine the quality of usability design. This does not include that they are also the best actors as analysts, as designers, as developers and as the final evaluators. Such roles need specific competency, experience and training. For the usability assurance of e-Government applications a cooperation of usability experts and users (employees as well as citizens) is needed. This holds for every system, this holds in particular for an application that is designed for specific tasks (compared to standard applications like, e.g., text editing) and this holds in particular for systems with a wide spectrum of users with a wide spectrum of computer related experiences, administrative, communicative and technical competency needed, and a wide spectrum of interaction methods in various contexts. Currently we are conducting a project focusing on the usability requirement analysis and usability design for mobile services for citizens in 5 European countries: Portugal, Spain, France, Germany and Poland. Scenario writing, focus groups with users and questionnaires were used to elicit utility and usability requirements for service content and service handling, respectively (Terrenghi, Kronen et al. 2005), and field experiments with users were used to evaluate design results under realistic conditions with citizens.

Beyond user participation and usability assurance during the development process also means should be considered to incorporate evolving user requirements during the usage period of a system. Adaptability and adaptiveness of a system are traditional approaches to ensure the flexibility of a system for various demands of specific users, specific tasks, and specific technology included during the live time of a system (Oppermann 1994). Today *End User Development* is the keyword to focus on the potential of users and user groups to incorporate services, functions and interaction methods into applications that occur during the life time of the system (Lieberman, Paternó et al. 2005). For e-Government applications end user development capabilities can be a crucial feature because for political participation of citizens specific configurations of social communities, role attributions, functions, access rights etc.

are needed that can't be configured in advance but need flexible and powerful adaptation features of the support system.

Conclusion

Classical user participation where small or at least dedicated user groups are concerned by the system development process and where members of the user groups participate in the development process can not be applied in e-Government applications. In e-Government projects applications are to be designed that need inclusion of interests of employees and interests of citizens. In both cases direct user group members and legal representative delegates from the work council and the (local) parliament have to be included into the participation process. A two step participation process seems to be appropriate for e-Government projects with direct user group members in contact with the development team working as specific task and interest representatives and legal representative delegates from the work council and the (local) parliament forming the global feedback and acceptance measure for the decision and development results with respect to the general interests of the user and citizen population.

Most of the people concerned in e-Government projects are not known before or during the development process—in particular from the side of the citizens. Many of the requirements are not known before or during the development process—this is also true for more and more other applications with dynamic goals in the context of use. Thus, adaptivity and end user development can be means to empower the user during the usage period. They reduce the necessity for the user to identify and articulate the own requirements before or during the design and implementation period. They allow the user to participate during the whole life cycle of the system. But means for system adaptation and end user development will hardly be applicable by occasional users like citizens in ad hoc contact with (local) authorities. In particular for citizen participation in political planning processes support will be needed if information, communication, negotiation or simulation tools are applied during the planning project. User-oriented software-engineering experts or advocacy planners can be useful to empower the user with respect to the development process and the product features to be designed.

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