

PARTICIPATORY (RE)DESIGN OF A SOFTWARE SYSTEM

WHAT WAS THE AIM?

- Achieve a high level of acceptance of the new computer system
- Reduce errors in entering data
- Reduced the time to learn how to use the system

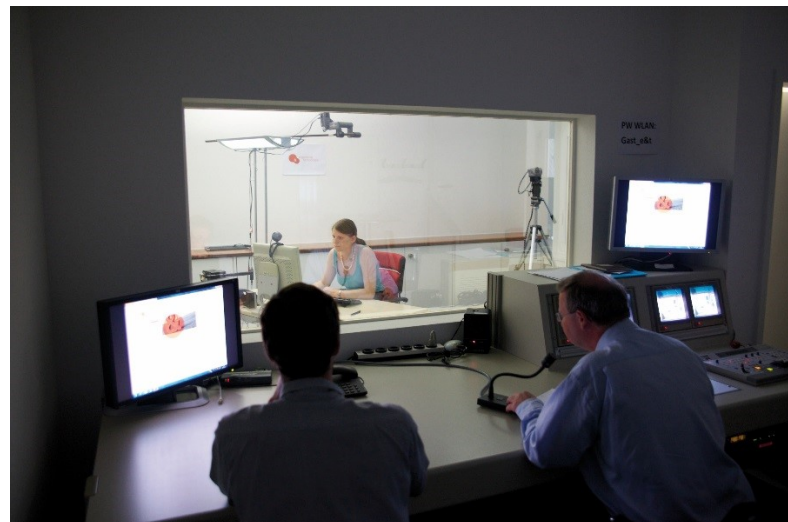
THE NEW SOFTWARE AND OUR ROLE

The Department of Auxilliary Benefits of Zurich is responsible for the administration of payments to people living within the city area who qualify for financial support according to social security regulations. An over twenty-year-old software system maintained records of clients, amounts paid and justifications for the payments. The local administration decided that they would like to replace the old system completely, rather than continue to update it.

Our Usability Laboratory was established in 1994 and the user-centered design process was developed during the early years of its operation. We involve users in every step, from the first discussions, where we establish what the users need to know from the software and what aspects need to be set or steered, to getting feedback on experiences with the final product. The Laboratory is mainly used to test mock-ups during the development.

Ensuring good usability was part of the offer submitted by the software developers and they sub-contracted our services for this aspect of the work.

Fig. 1: The Usability Laboratory for observing user behaviour. Observation station in use (above) and user station close-up (below).



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making it [easy to use](#)

OUTCOMES

User (and management) feedback very positive. "Don't ever think of taking it away from me."

No criticism was received at all after the new system was introduced.

The system was delivered in time and to complete satisfaction of the client.

OTHER OUTCOMES OF THIS PROCESS

We get lots of information about what really bothers people in their daily working lives. Sometimes it results in quite a different product being developed than the one originally planned.

For example, we once asked if it was sensible to design a touch screen on a machine that was never accessed directly by the users, who sit in control rooms away from the machine. The project was stopped. The control could be transferred to the operators in the control room.

We don't want to hear "The usability is fine, but I won't use it, as it is no use to me."

EVALUATION

At first the test users didn't like the prototype, as it was very different to what they had previously used and seemed to be missing steps, however they expressed surprise and pleasure very quickly, as they realised how easy it was to do their work with the new system. Many steps had been automated in the background.

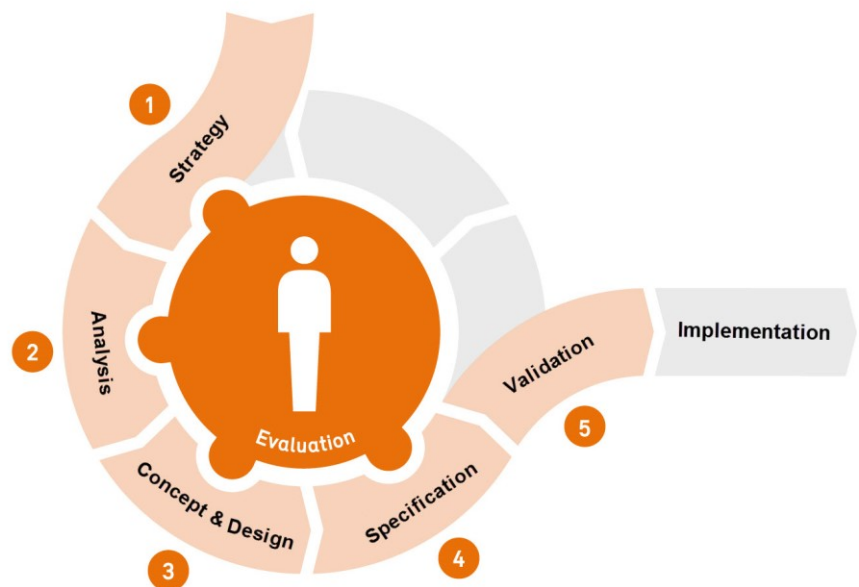
Although we often think we could have done even better, we know that the software is better after the usability testing with this process than it would have been without it.

*User experience never ends.
Users always experience.*

INVOLVING THE USERS EVERY STEP OF THE WAY

We started with a discussion with management and the front end users to find out exactly what they all required (define the specifications). We aimed not just for a solution but the right solution. Six one-hour interviews and observation of the daily work steps were conducted. After that, we started to develop prototypes (called wireframe sketches) with feedback from a project team comprised of management and users. We observed that we were not the only ones learning how the work is done, the management also realised some of the issues that the front end users face for the first time. The first working prototype was tested by eight users in the usability laboratory. A further wireframe prototype was tested some month later, and a final test of a first working system concluded the testing phase. The system was finally introduced in Summer of 2017. During the development, everybody that was expected to use the system was kept informed about the project and they could always look at prototypes and give feedback.

Fig. 2: The iterative workflow of the human-centered design process applied to software development (Based on ISO Standard 9241-210)



The process has five steps and each one involves feedback from the users.

1. **Strategie:** This is to plan the whole process and identify the touch-points and interaction needs of users.
2. **Analysis and Concept:** We need to know exactly what the users need to do and to develop specifications out of it. For this we do a contextual study, we then present ideas in a workshop and develop the information architecture (what needs to be known and what needs to happen).
3. **In the design stage** we produce prototypes of different level of detail.
4. **Specification:** Here we precisely define the user requirements for the program developers. We may also need to work with the graphic designers.
5. **Validation:** In this step we test the new design to make sure it meets all the requirements that we have made.

The whole process is constantly evaluated and enriched with input from users.

Analysis, the evaluation of design and workflow as well as the interaction architecture is strongly connected to the needs and feedback from users. Only in this manner can a product be developed that meets the needs and is understood by the targeted users.