

Usability Engineering

The Design Process

Usability determines to a major extent the success of products and services that are based on Information and Communication Technology. The Usability Engineering (UE) group develops and applies guidelines, methods and user interface concepts that guide the software development process to improve the task support, accessibility and ease of interaction.



The interaction design process that the UE group typically employs is carried out in an iterative manner, including regular feedback to and consultation with the client. In all stages of the design process, users that belong to the application's target group are involved. They are asked to evaluate the designs and to give suggestions for improvement. The improved version of the interaction design is then used as a basis for a more detailed design, which ultimately leads to the final user interface specifications.

Usability Engineering provides user interface design and usability testing services to help clients integrating human factors into their system development process.

Scenarios

The first phase in the design process results in a description of a number of typical use cases of the application in the form of scenarios. A scenario describes the users, their tasks and the context in which they carry out these tasks in a comprehensive, story-telling style. Typically, the scenarios are constructed in close cooperation with the client to make sure that they reflect the client's objectives.

Scenarios are created:

- to get more insight into the ways the application is supposedly going to be used;
- to have a means to communicate these insights to both client and users, in order to validate them.

6:45 hours

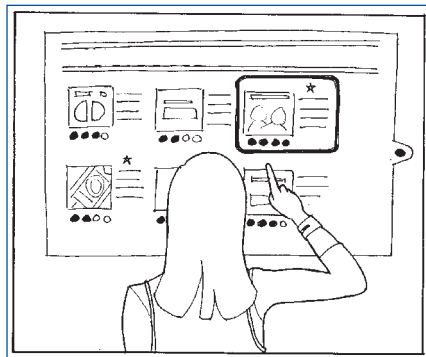
Anne gets up and takes a shower. As she is the first one to leave the house today, she prepares breakfast for the other family members and meanwhile has her own. Then she synchronises her PDA with the home bulletin board. She checks the family's appointments for today and the things that need to be done. Before leaving the house, she admires the drawing that Hanna scanned into the bulletin board yesterday evening....

Storyboards

The second phase in the design process results in a number of 'storyboards'. A storyboard visualises a number of possible consecutive steps within an interaction sequence situated in a typical use context, in the form of cartoon-like line drawings.

Storyboards are created:

- to visualise the actual use of an application in a realistic setting, to make existing ideas more concrete;
- to have a means to show client and users what the application may look like and how it may be used, in order to collect feedback;
- to form a basis on which to decide what functionalities to develop, and to prioritise them in an ordered feature list, in close cooperation with the client.



User interface design concepts

Subsequently, the output of the storyboard evaluation is used to create a user interface concept. In this concept, the user interface is visualised in a more detailed way, in which specific functionalities and interaction styles are taken into account.

Typically, a number of versions of the user interface concept is designed, each version being a refinement of the previous one, based on client and user feedback.

User interface design concepts are created:

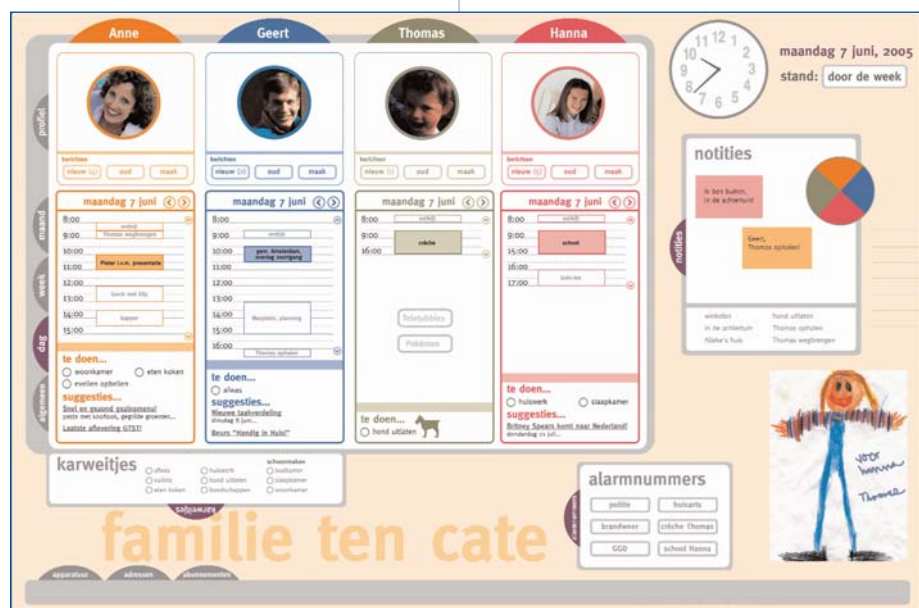
- to design the user interface in an iterative way;
- to involve client and users in the design process by confronting them with intermediate designs and evoke reactions from them, both on the task level and the communication level.

User interface specification

The user interface concept is used as a basis for composing a detailed specification of the user interface. This specification serves as input for software developers who finally implement the application into a working prototype.

User interface specifications are created:

- to instruct software developers to implement the application.



Depending on the needs of the client, we offer these products as a 'design package' or as separate products, including or excluding user evaluation. If the client has already existing designs available, user evaluation can also be applied to those designs.

To evaluate working prototypes of software applications, extensive usability testing can also be provided (see the flyer "Usability Engineering - Usability Testing").

The total of this iterative design process results in user interfaces that are attuned to the characteristics of the users and their tasks, and possibly adapted to a specific use context.

TNO Human Factors
P.O. Box 23
3769 ZG Soesterberg

T 0346 35 62 11
F 0346 35 39 77

www.tno.nl

Dr. M.A. Neerincx
T 0346 35 62 98
neerincx@tm.tno.nl