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Fraunhofer Institute for Digital Media Technology IDMT

Project Group for Hearing, Speech and Audio Technology of the Fraunhofer IDMT

The Project Group for Hearing, Speech and Audio Technology was founded in Oldenburg in August 2008 and combines the globally recognized Oldenburg hearing research with the competencies and technologies in the area of digital media developed at the Fraunhofer IDMT. As a partner in the cluster of excellence "Hearing4all", it is the goal of the project group to implement the scientific findings from university fundamental research in new technologies. With their research specialities, the scientists address the needs of customers in the fields of telecommunications, multimedia, health, transport and security technology. The "Transfer Center for User-Oriented Assistance Systems", a cooperation with the Jade University of Applied Sciences Wilhelmshaven, Oldenburg, Elsfleth, has been affiliated with the Project Group since 2013 and offers development and consulting services for technologies that assist people in their everyday lives – taking into account in particular the effects of demographic change.

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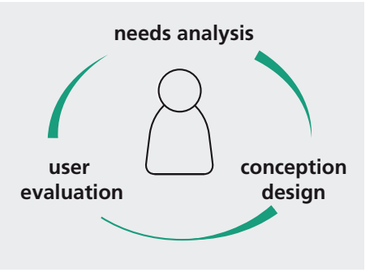
Usability studies and user-centered design

Photo: Thinkstock

Does your product offer everyday usability for all target groups?



Iterative processes in user-centered design: Analysis of user needs, development of design variants, evaluation of prototypes and products.

Usability studies

Do your products offer everyday usability for all target groups? Can users with motor, sensory or cognitive impairments also operate your products? Do customers like using your product? What product functions does your target group really need? The Transfer Center for User-Oriented Assistance Systems of the Fraunhofer IDMT offers needs and usability studies also with older people and persons with impaired health. The portfolio extends from study series as part of product development through to evaluation of market-ready prototypes, e.g. in the area of multimedia, telecommunications or household appliances.

User-centered design

In addition to functionality, the practical suitability and experience value also play a decisive part in relation to acceptance of a product. With user-centered design, a dialog takes place early on between potential users, experts and product designers in order to avoid development mistakes. Detailed analysis of the needs and requirements of the target group is followed by joint development of early design variants and testing of prototypes. Different methods are offered in the Transfer Center as part of a user-centered design process – from focus groups, in-depth interviews with end users and workshops with developers through to systematic and evidence-based testing of operating concepts.

Evidence-based evaluation

For evaluation of technologies and operating concepts the scientist employ evidence-based methods such as eye movement recording (“Eye Tracking”), physiological measurements and electroencephalography measurements (EEG) of mental effort. Depending on the given task potential end users are being observed systematically in their living environment or in the laboratory (e.g. “Out-of-the-Box tests”, video analysis).

Test person databas

In cooperation with the company Hörzentrum Oldenburg the Transfer Center has access to a central database with more than 2,000 persons up to the age of 85 when conducting studies on behalf of customers. Test persons can be selected according to specific criteria such as technology acceptance, technical competence or sensory impairments.

Infrastructure

- Study laboratory with living environment (Ambient Assisted Living)
- Video lab with one-way window
- Laboratories for acoustic measuring methods
- Communication Acoustics Simulator
- Tracking of eye movements and physiological measurements
- Electroencephalography measurements, stationary and portable

Contract research

- Development of questionnaires and online surveys
- In-depth interviews
- Focus groups
- Organization of workshops with developers and end users
- Development of application-specific checklists for product developers
- Product studies/Out-of-the-box tests
- Usability analyses
- Studies in the laboratory, home environment and in the field

Various usability labs are available in the Transfer Center for evaluation of operating concepts. A database with test persons up to the age of 85 is available thanks to cooperation with the company Hörzentrum Oldenburg GmbH. Photo: Thinkstock