GUIDE – Adaptive Accessibility for Web&TV Platforms

www.guide-project.eu

Christoph Jung, Fraunhofer IGD
christoph.jung@igd.fraunhofer.de
GUIDE project

- European research project
- Started February 2010
- Status:
  - User trials
  - Early technology prototypes
  - Requirements engineering and design

33%

UNIVERSITY OF CAMBRIDGE

technicolor

Centro de Computação Gráfica

Fraunhofer IGD

(Version Coordinator)

ingema

UNIVERSIDADE DE LISBOA

vsonix
Why do we need GUIDE?

- Inclusion of growing elderly society
- Impairments
- Web & TV
- User interface technology
- Application/service developers
- Platform providers
Gaps

Main gaps

1. Elderly users have problems using TV-related applications and services.

2. Lack of awareness and acceptance of accessibility in the industry.

3. User-centred design is costly and time-consuming, due to user involvement.

4. Accessibility APIs and assistive technologies are there, but not performing automatic adaptation to the user.

5. Existing design guidelines may not fully cover Web&TV application scenarios and multi-modal interaction design.
How can GUIDE help?

- User-centred design

  - Requirements Gathering
  - Accessibility Guidelines
  - Requirements Specification
  - Adaptive User Interfaces
  - Design
  - Evaluation
  - Virtual User Simulation

Users + experts

User experts + designers

UI / Application Designers
GUIDE at all stages

1. In GUIDE:
   User trials, user modeling, requirements engineering

2. At design time:
   Design guidelines, User simulation

3. On first usage:
   User initialisation

4. During run-time:
   Adaptation
GUIDE at all stages

1. **In GUIDE:**
   - User trials, user modeling, requirements engineering

2. **At design time:**
   - Design guidelines, User simulation

3. **On first usage:**
   - User initialisation

4. **During runtime:**
   - Adaptation

W3C Workshop Web & TV - Christoph Jung (Fraunhofer IGD)
© Copyright The GUIDE Consortium.
GUIDE at all stages

1) In the project:

- User trials/studies with elderly end users

User tests

Focus groups (illustr.)

User interface mock-ups

User modelling
GUIDE at all stages

1. In GUIDE:
   User trials, user modeling, requirements engineering

2. At design time:
   Design guidelines, User simulation

3. On first usage:
   User initialization

4. During runtime:
   Adaptation
GUIDE at all stages

2) At design time

- User simulation: Renders UI with simulated impairments (vision, hearing, …)

- GUIDE “Handbook”: Web repository of knowledge, guidelines, documentation, …
GUIDE at all stages

1. In GUIDE:
   User trials, user modeling, requirements engineering

2. At design time:
   Design guidelines, User simulation

3. On first usage:
   User initialisation

4. During runtime:
   Adaptation
GUIDE at all stages

3) On first usage

User initialisation: Measure user capabilities & preferences
GUIDE at all stages

1. In GUIDE:
   User trials, user modeling, requirements engineering

2. At design time:
   Design guidelines, User simulation

3. On first usage:
   User initialisation

4. During runtime:
   Adaptation
GUIDE at all stages

4) During run-time

- Multi-modal adaptation as open source software framework
(Web-)Technology in GUIDE

- TV set top box by partner Technicolor
- Browser as application environment → Opera
- GUIDE adaptive software framework to be deployed on platform
- „Seamless“ integration in existing dev processes
  - Link UIs<->Framework: UI Mark-up?
  - Link Web editor<-> Simulator
- Applications: Video conferencing, Home Automation, Content access, Tele-Learning
  - Evaluation
  - Developers tutorials & examples
Standards in GUIDE

- GUIDE Framework
  - Compliance to existing and emerging standards (HbbTV, HTML 5, etc.)
  - Design guidelines
    - We have efforts allocated and are willing to generate pre-standardisation input!
    - On-going discussions with W3C-WAI

- User modeling
  - Standardisation of user models
  - Standardisation of user data and corresponding meta-data formats
What has to be done?

- **Accessibility in industry**
  - Dissemination: Awareness, comprehension, acceptance
  - Progress on guidelines (e.g. WCAG): Extensions, evaluations, …?

- **Industry roadmap on platforms**
  - Server-side vs. client processing?
  - Application/service environments?

- **Web technology**
  - Progress on standards („HbbTV++“, HTML 5, WAI-ARIA, …)
  - Clear roles/responsibilities of browsers, APIs, UIs, assistive technologies

- **Applications**
  - Identify and specify future application scenarios (N-Screen, Social TV, AAL, Seamless access, …)
  - Leverage adaptive accessibility in non-accessible technology & vice-versa

- **Research**
  - Advanced UI / applications semantics, meta data
  - Smart accessibility: Adaptation, personalisation, user modelling
  - Virtual users & simulation: Automatic testing & evaluation of UIs
  - Cloud-based („server-side“) accessibility services
Thank you!

Christoph Jung
christoph.jung@igd.fraunhofer.de