

# GUIDE – Adaptive Accessibility for Web&TV Platforms

[www.guide-project.eu](http://www.guide-project.eu)

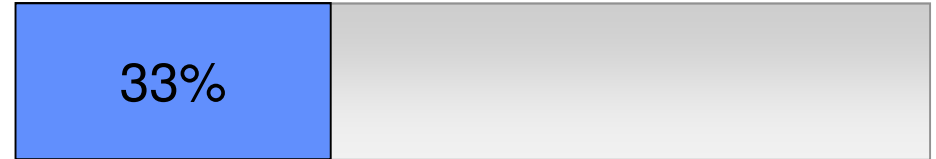
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# GUIDE project

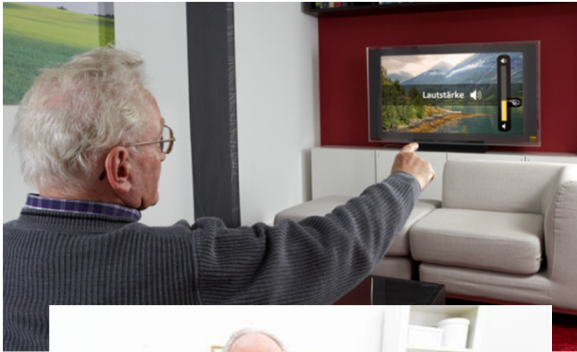
- European research project
- Started February 2010
- Status:
  - User trials
  - Early technology prototypes
  - Requirements engineering and design



Centro de  
Computação Gráfica



# Why do we need GUIDE?



- Inclusion of growing elderly society
- Impairments

- Web & TV
- User interface technology

- Application/service developers
- Platform providers

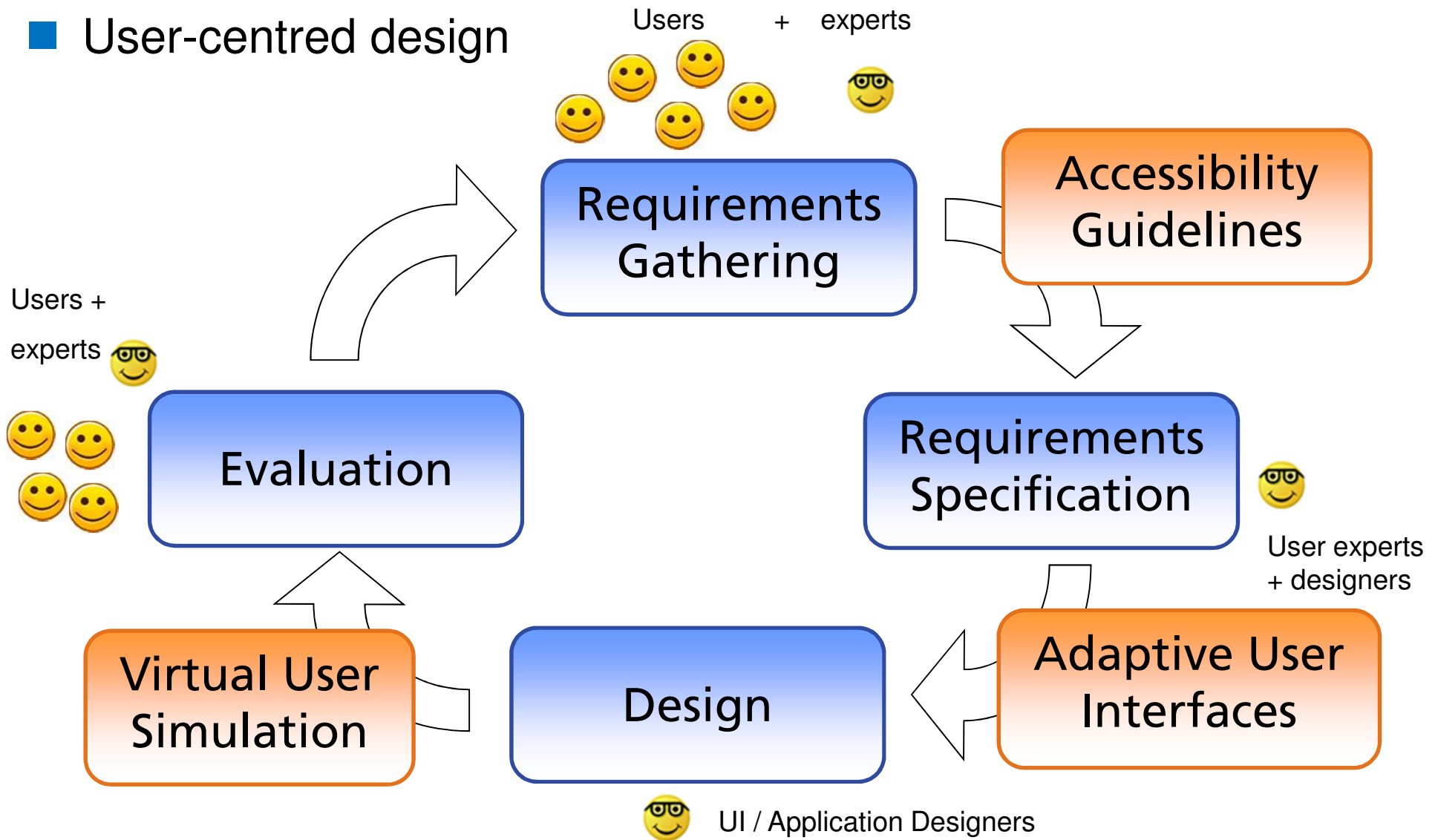
# Gaps

## ■ 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



# 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

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# GUIDE at all stages

## 1) In the project:

- User trials/studies with elderly end users



User tests

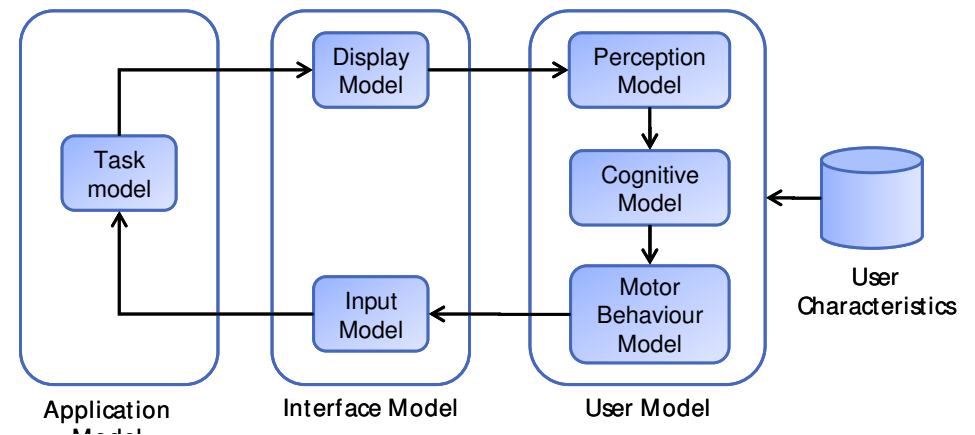


Focus groups (illustr.)



User interface mock-ups

## User modelling



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# GUIDE at all stages

## 2) At design time

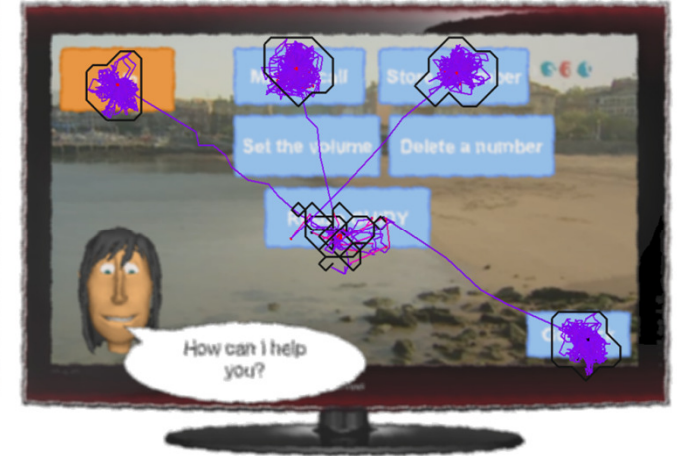
- User simulation: Renders UI with simulated impairments (vision, hearing, ...)



Normal view



Simulated view  
(Wet Macular Degeneration)



Simulated viewing trajectories

- GUIDE "Handbook":  
Web repository of knowledge,  
guidelines, documentation, ...



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# GUIDE at all stages

## ■ 3) On first usage

- User initialisation: Measure user capabilities & preferences

The image displays three overlapping screenshots of the GUIDE user initialisation interface. The leftmost screenshot is the 'Welcome' screen, titled 'Welcome Let's get Started', featuring a vertical list of five numbered icons: 1. Visual Capabilities (eye), 2. Audio Capabilities (ear), 3. Physical Capabilities (person), 4. Speech Capabilities (mouth), and 5. Cognitive Capabilities (gears). The middle screenshot is the 'Vision Capabilities' screen, titled 'Vision Capabilities Daltonism...', showing a circular pattern of colored dots with a small inset video of an avatar. The rightmost screenshot is the 'Audio Capabilities' screen, titled 'Audio Capabilities Listen...', with instructions to listen to the avatar and adjust volume, accompanied by a video of the avatar and volume control buttons. At the bottom right, there is a photograph of an elderly couple sitting on a sofa, with the woman pointing and the man holding a remote control.

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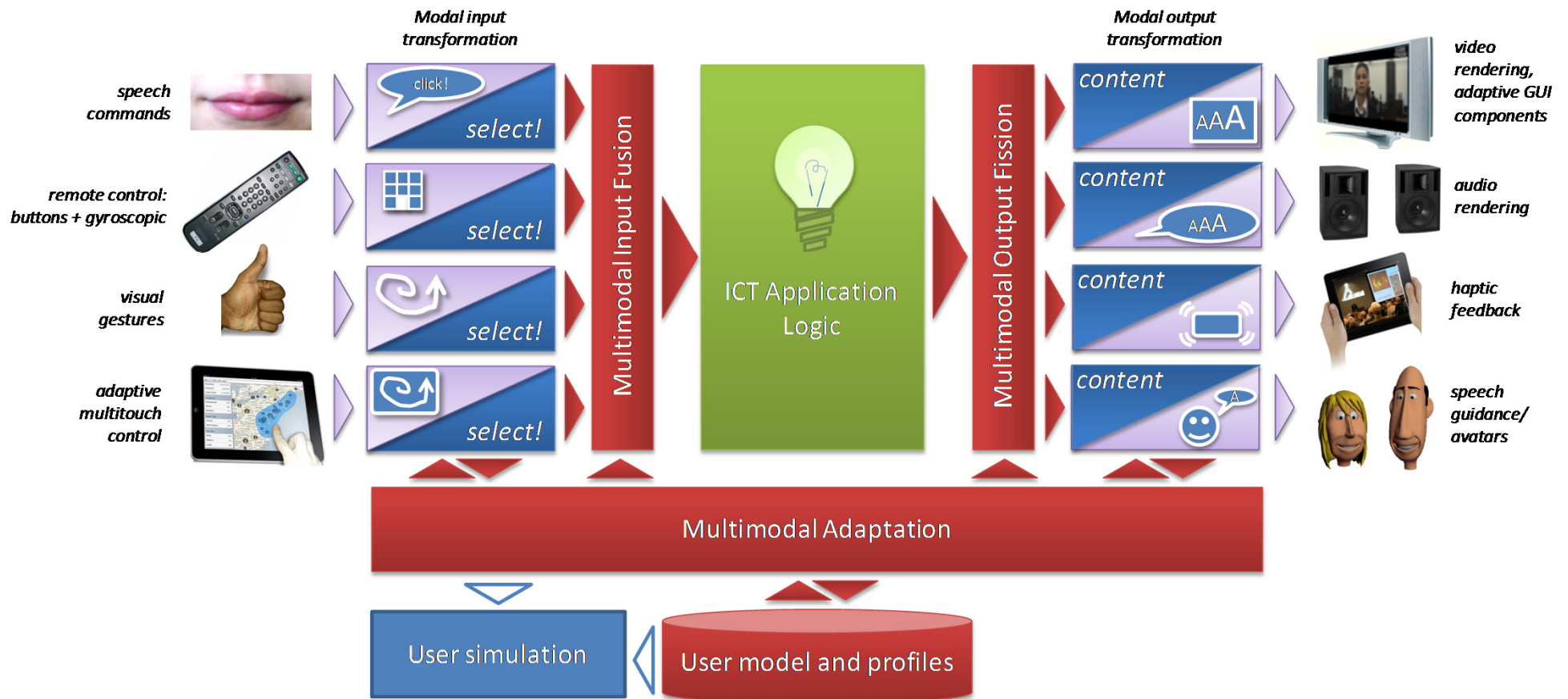
During run-time:

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
  - Cooperation with other European projects in the VUMS cluster (Virtual User Modelling & Simulation): <http://www.vums-cluster.eu/>
  - 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!



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