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Community Research

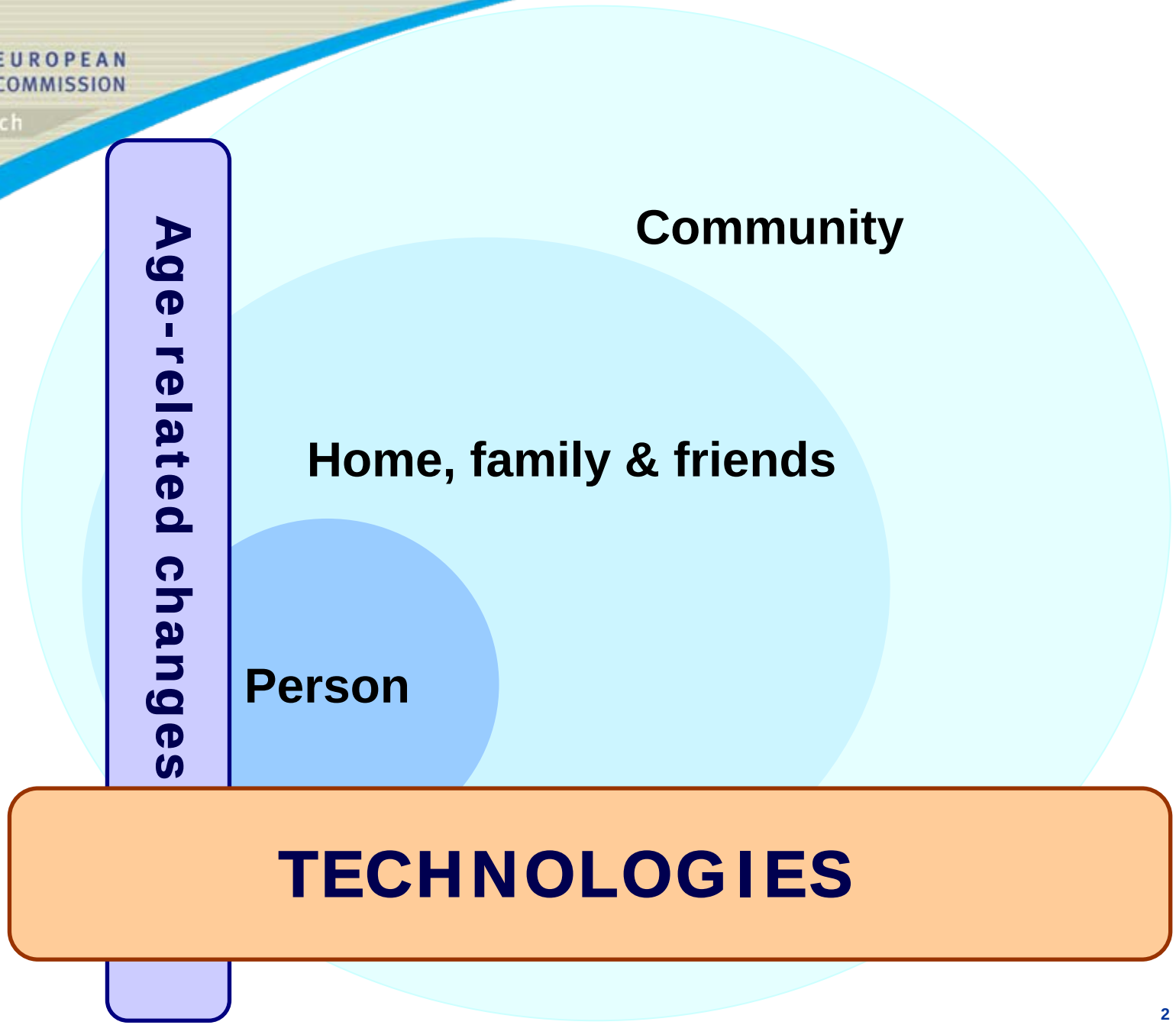
Results and conclusions

from European research actions

on

new technologies for the quality of life and mobility of older people

Dr. Gesa Hansen
Scientific officer
European Commission
Directorate General Research


Age-related changes
Community
Home, family & friends
Person
TECHNOLOGIES

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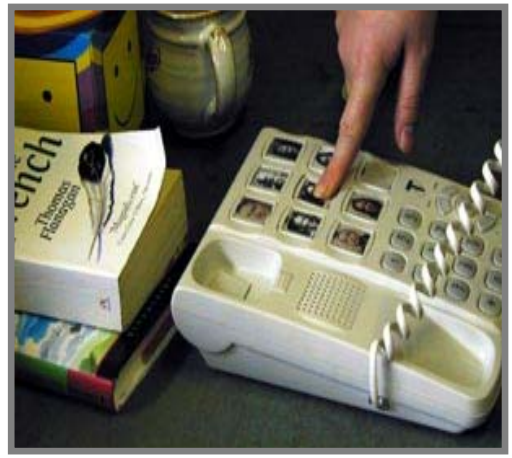
ENABLE

Enabling technologies for persons with dementia

cooker-monitor

Lost objects

Day & Night Calendar



Big button phone with pictures

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Most common physical limitations were:

- **Difficulty in bending and kneeling**
- **Prevalence of poor balance**
- **Reliance on walking aids**

Housing accessibility barriers and obstacles:

- ➔ **No grab bars at shower/bath/toilet**
- ➔ **No/too few seating places in public areas**
- ➔ **High curbs on road next to house**
- ➔ **Outside path and surface not level**
- ➔ **No handrails on staircases**

Policy recommendations:

- ➲ **Ensure accessible housing (for new houses and renovations)**
- ➲ **develop norms and standards**
- ➲ **In general reduce barriers and obstacles for all**
- ➲ **Provision of information for citizens on what accessible housing means**

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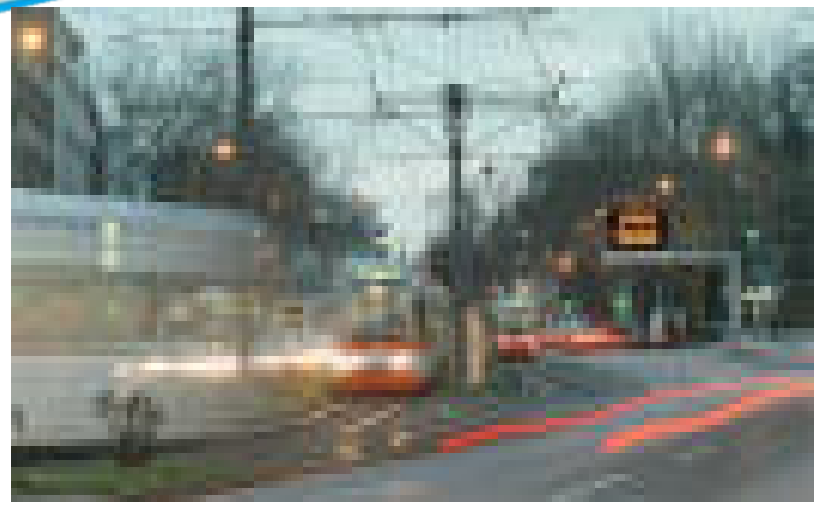
MOBILATE
Enhancing Mobility in Later Life



There are 2 types of environmental obstacles to outdoor mobility:

- spatial and technological barriers
- impediments caused by a lack of mutual consideration,
- the hectic pace of traffic,
- feared hazards in public spaces.

In view of the work carried out in the project, there is a need of integrating transportation policy, urban and social planning, promoting:

⇒ fully accessible public transportation options

⇒ providing readily accessible shops and services in easy reach

⇒ mutual consideration – a social task.

FRR Friendly Rest Room

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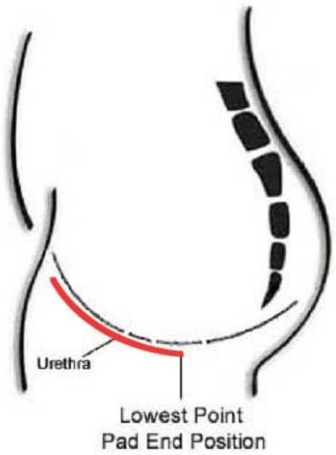
NICMS Non-invasive continence management system



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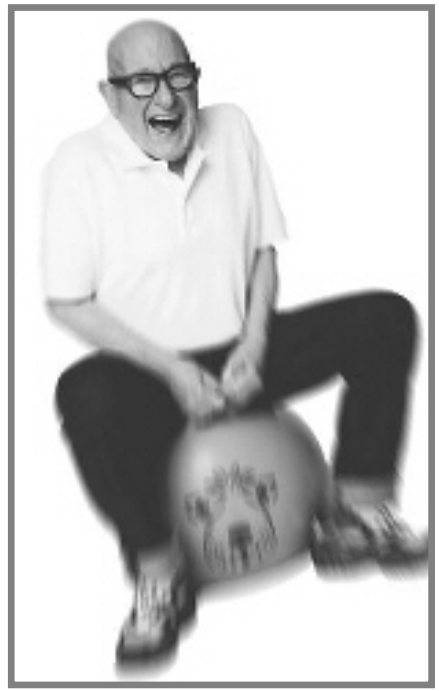
PROFANE Prevention of Falls Network Europe

Balance-training



Technology Projects:

- **AGILE** Aged people's integration, mobility, safety and quality of life through driving

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Older People are contributing to research, providing vital knowledge;

- As originators of ideas for technologies and new ways of coping
- As testers of technical prototypes
- As discussion-partners in technology projects; offering critique and suggesting improvements
- As co-workers in the research process (e.g. keeping research diaries)
- As subjects in advanced medical and clinical trials
- Always under full ethical controls and informed consent

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Technology Challenges

New technologies must be:

- ✓ Acceptable
- ✓ Appropriate
- ✓ Easy to use
- ✓ Affordable

for older people

Important!

“older people-friendly“ does NOT equal the general term “user-friendly“

Example: daily used electronic equipment

Conclusions

1. **Research and development of new technologies must take into account the needs and preferences of older people across Europe.**

2. **Technological solutions must not lead to the isolation of elderly people.**

3. **Small and medium sized enterprises (SMEs) should participate more actively in ageing research as this is a growing but specialised economy**

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Information about research funding

- **EC FP5 - Quality of Life Programme**

  Key Action 6 The Ageing Population:

  - *KA6 Project Synopses (Download)*
  - *Mid-Term Assessment Report (2003) of Key Action 6 (Download)* *http://www.cordis.lu/life/*

- **General information on research:**
  http://europa.eu.int/comm/research

- **General information on the new Framework Programme (FP7, 2006-2010):**
  http://europa.eu.int/comm/research/future/index_en.html

- **Information on research programmes and projects as well as FP call documents:**
  http://www.cordis.lu

- **Information requests:**
  research@cec.eu.int

Assistive Technology to Support Older Persons' Daily Life

Workshop:
Assistive Technology for Persons with Disabilities and Older People with Impaired Mobility

Paul Panek

fortec – Research Group on Rehabilitation Technology
Institute „integrated study“
Vienna University of Technology

Institute „integrated study“

1) Support Unit for disabled students

2) Research Group for Rehabilitation Technology (fortec)

- Head: Wolfgang Zagler
- Since 1986
- Research and Technical Development, Human Computer Interfaces for disabled and older persons, evaluation, ethics

Examples of Recent Research Projects

- Intelligent Toilet
- Extended Emergency Call System
- Mobility Enhancement Platform

Friendly Rest Rooms for Elderly and Disabled Persons (FRR) Project

- EU funded, 2002-2005,
  10 partners from 7 countries.

- Aims:
  - User friendly toilet
  - Adapts itself to the individual needs

- Approach:
  - User driven & multidisciplinary

User Involvement & Ethics

- User Involvement
  - Interviews, Discussion groups, Questionnaires
  - Over full project duration (user boards)
  - Interaction between

    user <----> toilet prototype

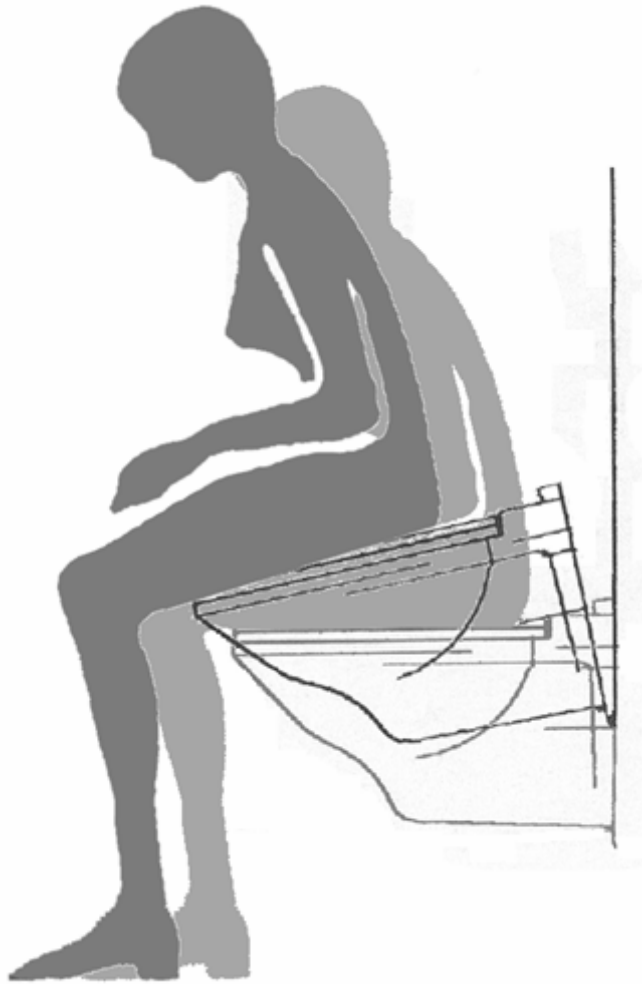
  - Primary and Secondary Users
- Ethical Review

Modular Prototypes of Friendly Toilets

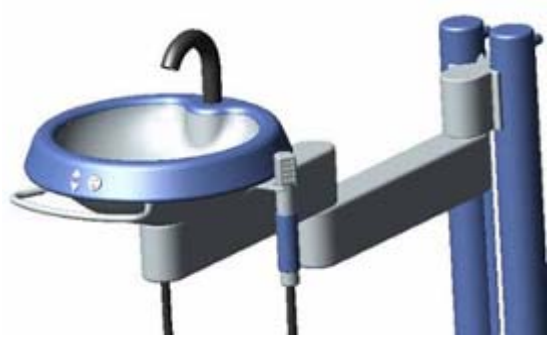
- Some components:
  - Adjustability of Tilt and Height
  - Comfort Wash basin
  - Speech Input and Output
  - Sensors for recognising falls
  - User Identification

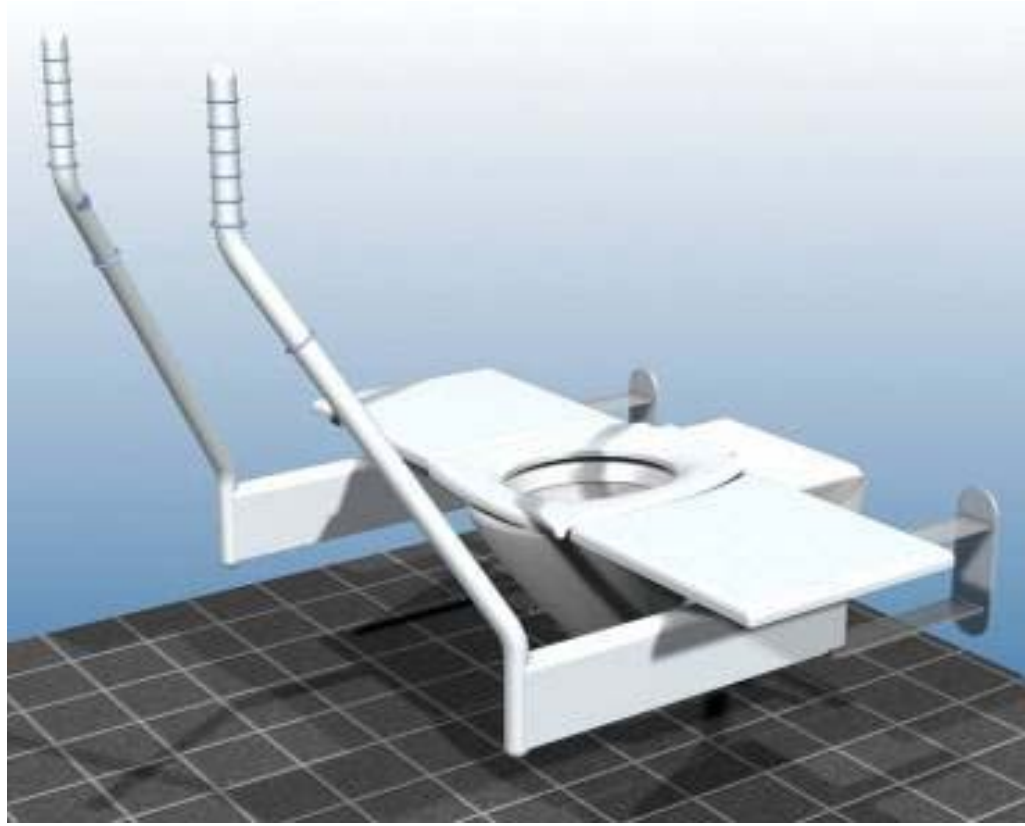
Adjustable Height and Tilt

- Height of bowl
- Tilt of bowl
- Different positions are possible e.g. for transfer, sitting…
- Standing up aid



Vertical bars and moveable wash basin



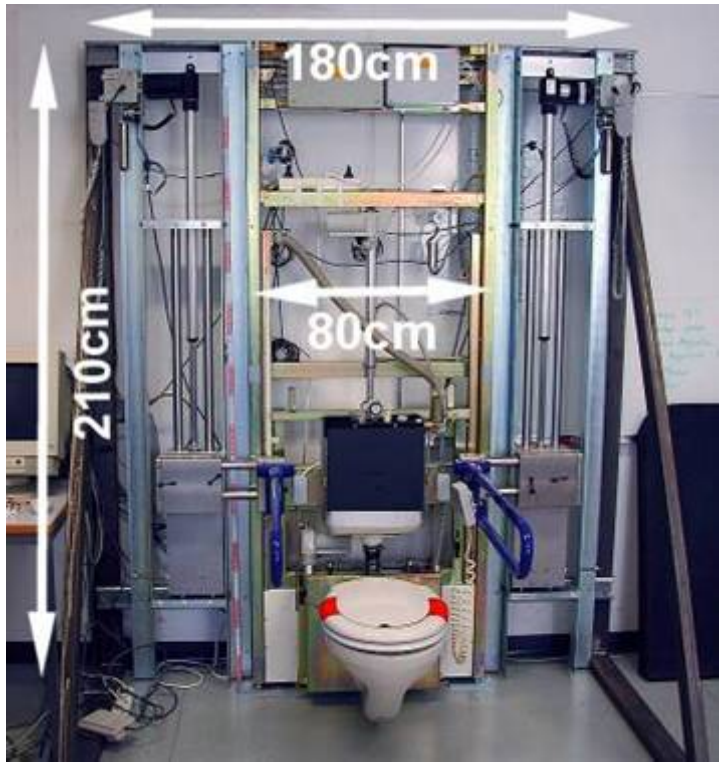


User Identification - A self adapting toilet

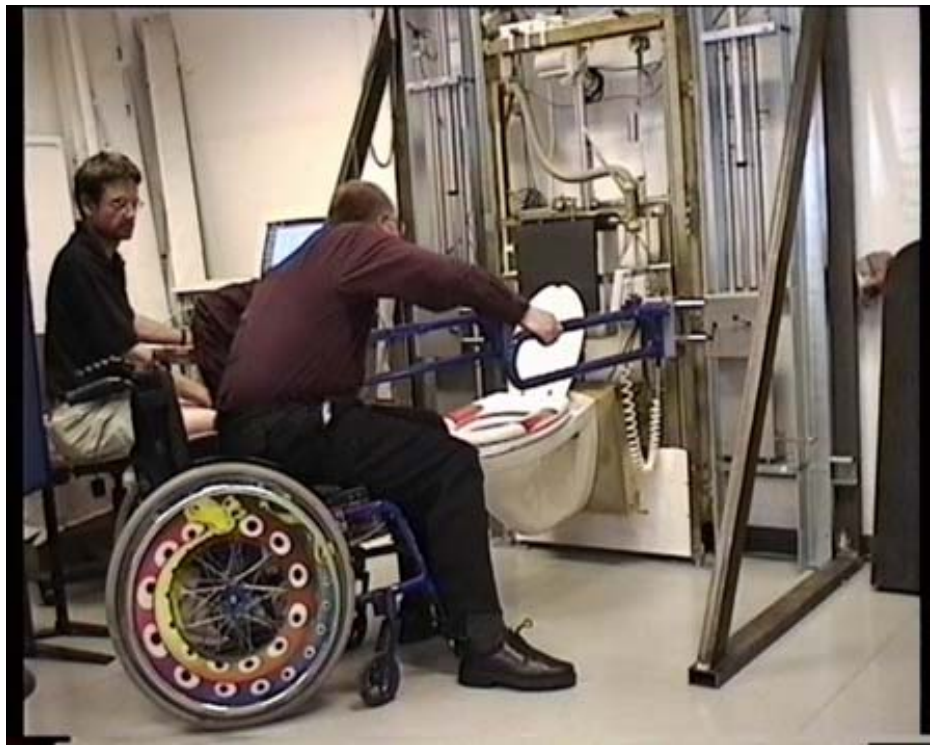
- Recognising the user and his/her preferences.
- Works in a contact less way (RFID)
- Smart Card (credit card format)
- Privacy of data

Tests in Laboratory

The very first prototype



Several cycles of user-testing



Note: All persons visible on these pictures have explicitly agreed to publication of this material

User Tests 2002 - 2005

- Laboratory: ~ **200 prototype tests with users** in 5 labs in Europe

- Daily Life: ~ **300 toilet sessions** in a day care centre in Vienna

www.santis.org

Main Outcomes

- Well accepted and highly appreciated
- Benefits for primary & secondary users
- Higher autonomy, safety, quality of life
- Toilet in day care centre still in use
- Product available since early 2006
- Germany: care insurance will support private installations (Thanks to BIVA)
- Some features are part of bid of Vienna Airport skylink terminal extension

Extended Senior Alarm Systems

- Most older people want to live in their own home as long as possible
- Existing alarm systems are useful but limited

- → Development of new portable life-signs monitors

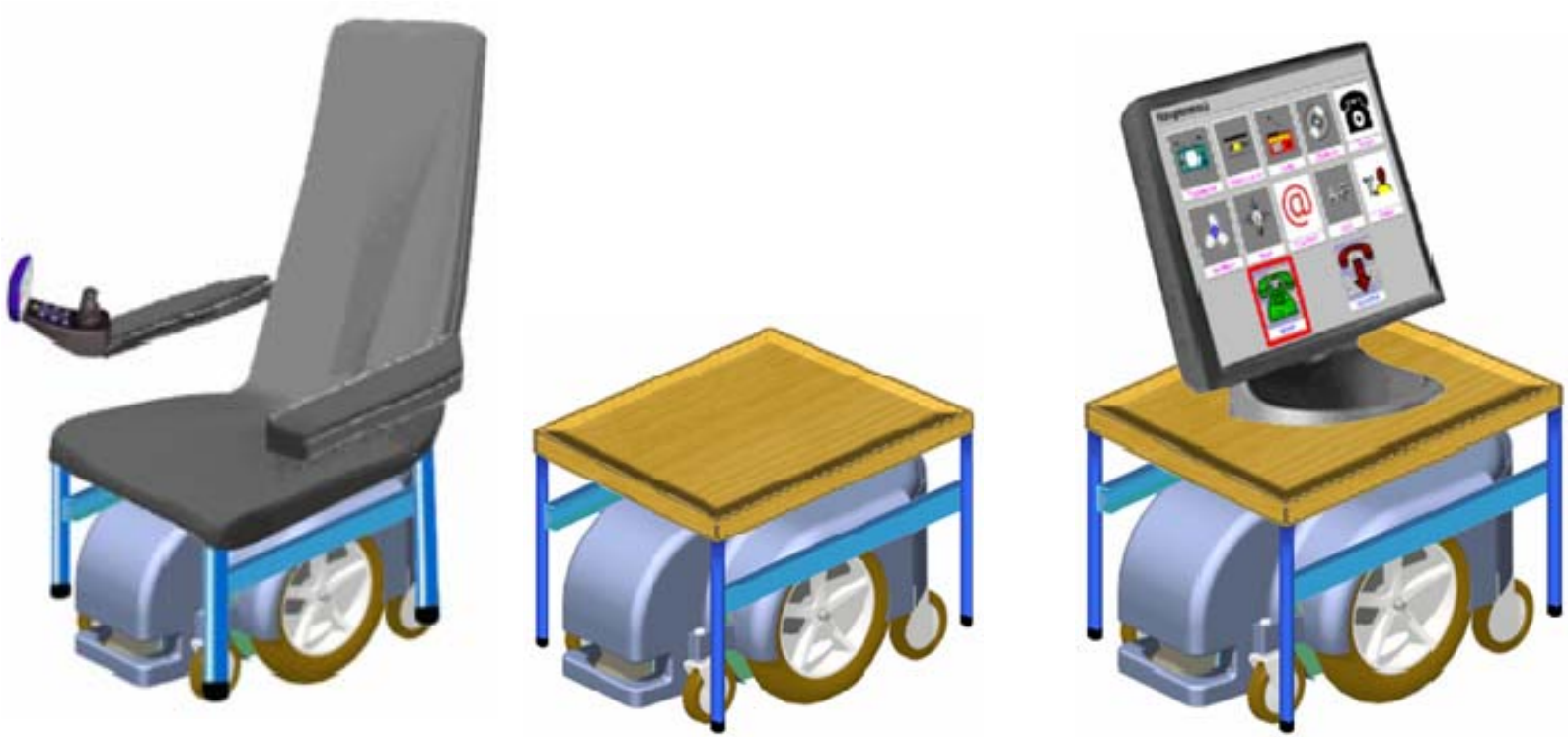
SILC – Supporting Independently Living Citizens

- Integrated biometric sensors
- can trigger an alarm call automatically

MOVEMENT

Modular Versatile Mobility Enhancement Technology

Modules for moving people, objects and information



Thank you !

Consider to visit the web site of manufacturer (www.santis.org)

Homepage:

www.fortec.tuwien.ac.at/frr

Acknowledgements

- FRR was partially funded 2002-2005 as project QLRT-2001-00458 in the ÊU/FP5/Quality of Life Programme. Project partners were:
  - **Industrial Design Engineering** - Delft Univ. of Technology (NL),
  - **Fortec** - Rehabilitation Technology, Vienna Univ. of Technology (AT)
  - **Certec** - Dep. of Rehabilitation Engineering, Lund University (SE),
  - **EURAG** - European Federation of Older Persons (AT),
  - Laboratory of **Health Informatics** – University of Athens (GR),
  - **Applied Computing** – Dundee University (UK),
  - **Landmark** Design Holding (NL),
  - **Clean Solution** Kft (HU),
  - **SIVA** (IT),
  - **HAGG** – Hellenic Association of Geriatrics and Gerontology (GR)
  - **Ethical Review**: TU Vienna (M. Rauhala, I. Wagner)
- Special thanks to:
  - Austrian **MS Society** and **Caritas Socialis**, Vienna

Contacts regarding Intelligent Toilet Project

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www.fortec.tuwien.ac.at/frr

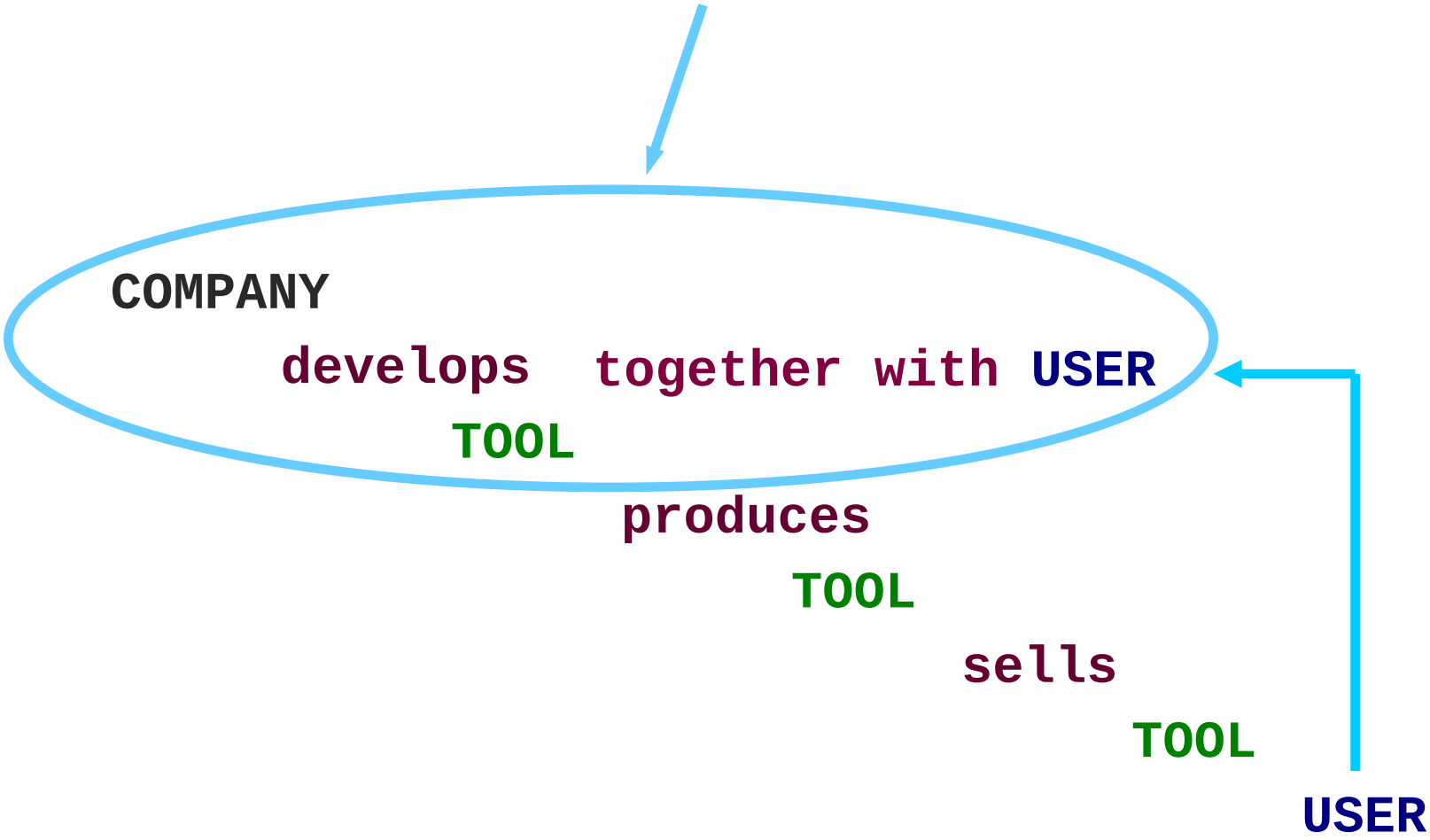
Why Involving Users?

Christian Dayé

EURAG - European Federation of Older Persons
General Secretariat, Graz

Ageing and Disability Conference
June 8-9 2006 in Graz, Austria

User Involvement?



What does that mean for the user?

USER: not only **CONSUMER** of Assistive Technology, but also

PART of the development team, because s/he is seen as:

(Experience-based) EXPERT

(H. M. Collins & Robert Evans, 2002)

Why involving users?

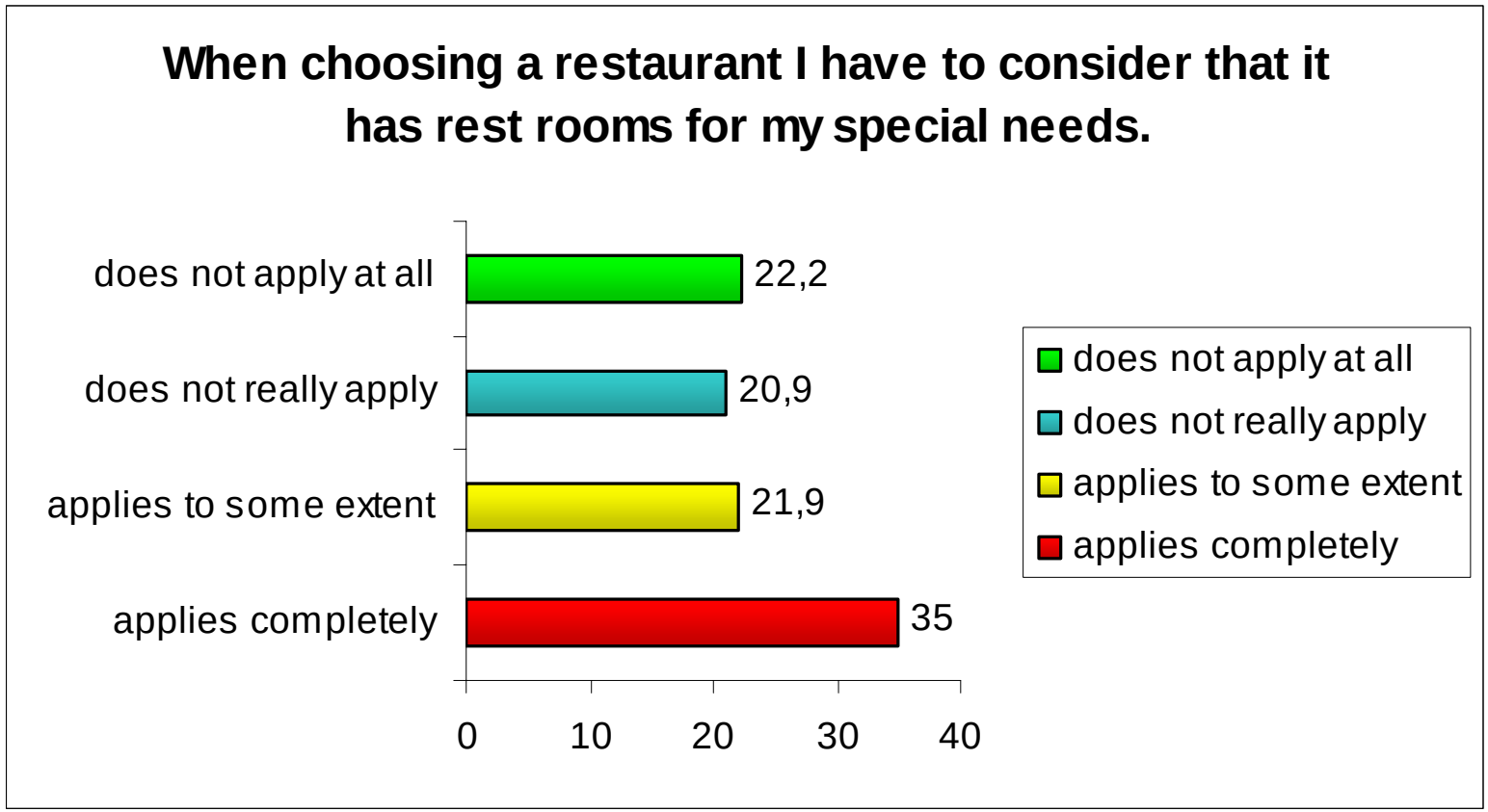
OVERVIEW of the argument

- **There is a need for better technology**
- **Project realizing user involvement are more likely to lead to better technology**

User involvement helps to help

There is a need for better technology – example: toilet

There is a need for better technology – example: toilet



There is a need for better technology – example: toilet

User Involvement leads to better technology

KNOWLEDGE is a RESOURCE

KNOWLEDGE comes from EXPERIENCE

USERS have KNOWLEDGE

Their KNOWLEDGE is an important and valuable RESOURCE for those who want to develop new and better technology

What is required for User Involvement?

COMPANY / RESEARCHER

- To understand the value user involvement can bring to the outcome of research and development work
- To accept and integrate users as EXPERTS who have something very valuable to offer: KNOWLEDGE based on EXPERIENCE

USER / REPRESENTATIVES

- To see that taking part in research projects contributes to the development of better technology
- To participate in or to support UI projects and to seek and provide information for persons interested in UI

THANK YOU!

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