AGNES

User-sensitive Home-based Systems for Successful Ageing in a Networked Society

John A. Waterworth
Dept. of Informatics
Umeå University
Sweden
Objective: Successful Ageing with Innovative ICT

- **Target users**
  - Elderly people, living alone, often with mild cognitive impairment, their family and other caring persons

- **Reduce isolation and loneliness**
  - Increased social interaction
  - Sensitive emotional support
  - More participation in shared activities
  - Practical support for daily needs
  - Enhanced feelings of security

- **Extend independent living in own home**
  - Alleviate, delay, even reverse psychological decline

- **Explore the new frontier of ageing research**
  - ICT and its possibilities for/effects on cognitive wellbeing in the elderly
Summary of Effort

• Ten partners in 6 countries
  – 3 user organisations (in Sweden, Greece, Spain)
  – 3 companies (in Germany, Austria, Italy)
  – 4 universities/research centres (in Sweden, Spain, Greece, Austria)

• 400+ person months over 36 months
  – total cost: €3,6 million
  – AAL funding: €2,4 million
AGNES partners

- Umeå University, Sweden
- UNED, Spain
- Can Controls, Germany
- Graz University of Technology, Austria
- AIT, Greece
- Modern Families, Austria
- KMOP, Greece
- ONDA Communication, Italy
- INGEMA, Spain
- Skellefteå Municipality, Sweden
The AGNES Vision

- **Wellness and active social participation go together**
  - Technology can increase social participation
  - Combating loneliness and mental deterioration
- A secure social network system for the older person

- **Elderly people retain implicit cognitive knowledge**
  - Interaction with technology should capitalise on this
  - Most current systems and devices rely on implicit knowledge for use
- Design/develop tangible interaction around the retained skills of older users

- **Family members need to be informed about elders’ states and needs**
  - Can then respond in a timely and sensitive way
  - Contact/visit/involve as needed, not intrude
- Unobtrusive detection/communication of activities and states

- **All this demands user-led innovation for success**
AGNES User-led innovation

• We don’t know in advance what will work for older people & their families

• An evolutionary approach to design and implementation

• Users actively involved in design ad testing from the beginning
  – Requirements, scenarios, suggestions, reactions
  – Iterative design prototypes - system and components
    • Allow older users to communicate requirements, preferences
    • Discussion objects, test use, selection, field trials

• Creative tension with technical work
  – Technologists want early specifications
  – User-led innovation means keeping design options open


Work plan

• Incremental and modular design and implementation
  – Involving users at every step in design and evaluation in use
    • Approach and components
    • Including field trials of 3 stages of prototype

• Starts with a dedicated family social network
  – Built around the old person and family
  – Can include non-active networkers (e.g. pets, babies)

• Progressively add, test (and remove!) features:
  – Detection of users’ states and activities without intrusive sensors
  – Ambient devices for display and interaction
  – Tangible interaction objects for participation

• Provide a platform for future modular applications
  – Develop test applications (e.g. Games) that use platform

• Investigate psychological and social impact
AGNES:
home-based, user-sensitive, for social inclusion/caring
Evaluating impact on users and their families

- **Investigating the psychological and social impact**
  - Before, during and after, with and without AGNES, across 3 cultures
  - Users, family and other caring persons

- **Select end users, calibrate wellness status at the start of trials**
  - E.g. WHO International Classification of Functioning, Disability and Health
  - indicator of changes in general health and cognitive functioning over time

- **Tests of specific cognitive abilities and mood states, e.g.**
  - Mini Mental State Examination tests five areas of cognitive function: orientation, registration, attention and calculation, recall, and language.
    - Versions are available for all relevant languages.
  - Self-Assessment-Manikins (SAM), devised by Lang (1980),
    - extensively tested in conjunction with the International Affective Picture System (CSEA, 1999)
    - graphical version can be used across different language speakers

- **Interviews, both structured and unstructured,**
  - with elderly users, family and other caring persons
    - including social and practical aspects
Commercialisation aspects

• **ONDA Communication, ModernFamilies, CanControls**
  – Plus user organisations and other partners

• **During AGNES, we will:**
  – Develop a commercial dissemination plan
  – Conduct specific assessment of market values
  – Aim towards cheap technology for mass deployment
  – Develop a specific product roadmap

• **Market opportunities include:**
  – Stimulation of bandwidth requirements
  – Devices for state/activity detection, ambient/tangible interaction
  – Services, especially in social contexts

• **Telecoms, equipment, device and service suppliers**
WP1 - Project Management – UmU – from month 1

WP2 - User Involvement – UNED – from month 2

WP5
Ambient Interaction – UmU – from month 8

WP3
Sensing – TUG – from month 2

WP4
Social Network – MF – from month 4

WP6 - Integration and Validation – AIT – from month 7

WP7 - Dissemination, Exploitation and Commercialisation – ONDA – from month 1