

“Older people’s expectations and attitudes towards technology”

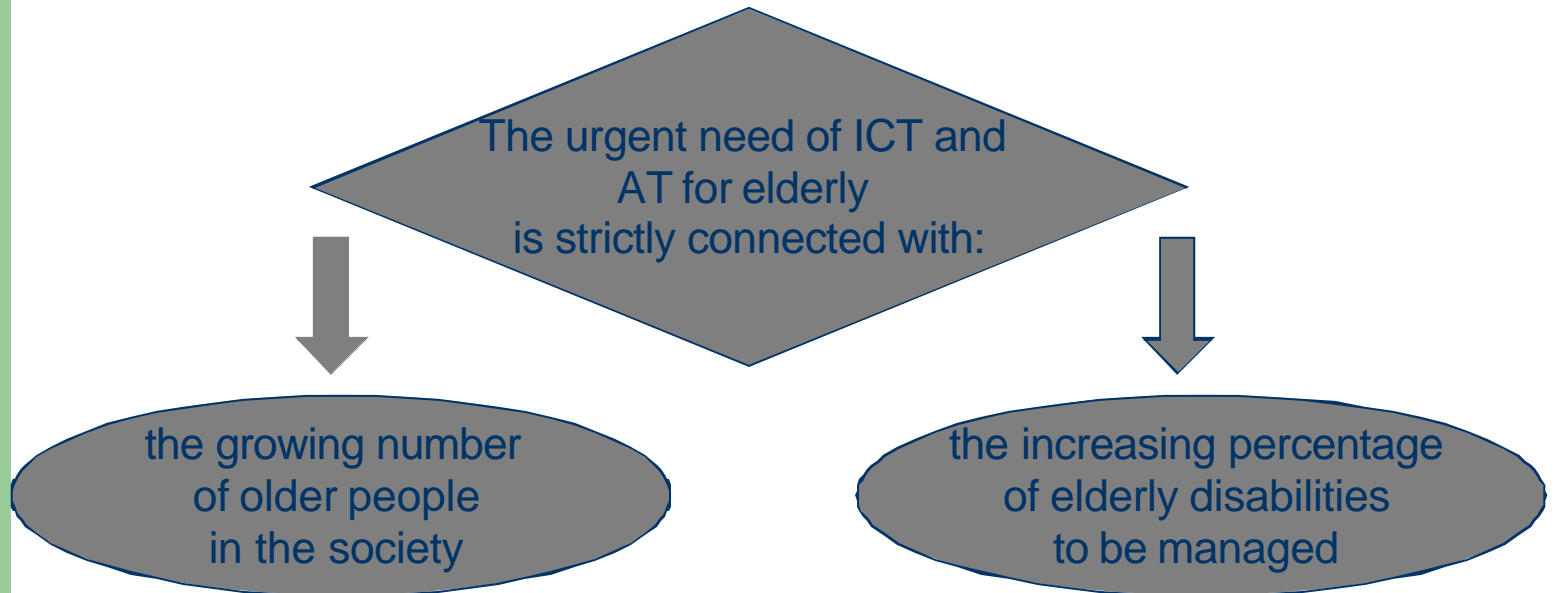


*OASIS 1st International Conference
4-5 November 2009, Florence, Italy
Palazzo degli Affari*

Dr. Fiorella Marcellini
Dr. Roberta Bevilacqua



The need of technology: social trends



AMBIENT ASSISTED LIVING



The need of technology: opportunities

AT is defined as
'Any device or system that allows an individual to perform a task that they would otherwise be unable to do, or increases the ease and safety with which the task can be performed'
(Cowan and Turner-Smith, 1999)

supporting the public/private services and the policies, in giving adequate aid to elderly and caregivers

potential capacity of filling the gap between elderly needs/resources and their environment, also in their existing accommodation

Technology and Older users' perspective

The acceptance and willingness of using technological solutions seem to be complex in the older people perspective

The choice of using an ICT device is mediated by many factors:

- on the individual side (i.e. the elderly perception of safety, needs, and usefulness of the device) (*Mann et al. 1994; Zimmer and Chappell 1999; Wielandt and Strong 2000; Roelands et al.2002*);
- on the social side (i.e. support received from caregivers or institutions);
- on the device characteristics themselves (i.e. usability, accessibility).



AMBIENT ASSISTED LIVING



Analysis of Older users' perspective on Technology

The usefulness of the research is reached through:

- End users involvement
- Interdisciplinary aspects
- Coherence of the end user-related aspects and approach
- Adequate methods and tools
- Wider Impact

Evaluation of the research success:

- Reducing the barriers to the development and take-up ambient intelligence
- Involving citizens in R&D
- Supporting emerging industrial practices and improving industrial competitiveness
- Developing new ways of research
- Delivering improved education and training to the European workforce
- Assisting technology integration
- Contributing towards standardisation activities

Basic Issues for the researchers in the field of Ambient Intelligence

- **Methods and tools involving the users:**
 - **Study designs:** User centred design, Participatory design, Co-creation, Contextual design, Scenario based development of human-computer interaction.
 - **Methods:** Qualitative research, Quantitative research, Action research, Soft systems methodology.
- **Important concepts and frameworks:**
 - **Field of study:** Ubiquitous computing, Ubiquitous communications, Human-computer co-operation
 - **Actions:** User related research, Development of prototypes, Usability test, Feasibility tests and validation.

All those issues were taken into account for the HAPPY AGEING Project development

HAPPY AGEING Project



INRCA (IT):

Fiorella Marcellini (*Project Coordinator*)

AB.ACUS S.r.l. (IT):

Maria Bulgheroni (*Technical Coordinator*); Enrico D'Amico (CEO)

Speed Automazione S.r.l. (IT):

Fabio Marchetti; Roberto Bosani; Enrico Fritz

Institute of Sociology Hungarian Academy of Sciences (HU):

Zsuzsa Szèman; Csaba Kucsera

Global Security Intelligence (UK):

Kush Wadhwa; Nancy Baker

Fundaciò Privada Cetemmsa (SP):

Fanny Breuil; Virginia Garcia; Carmen Margeli

The Association of Catholic Organizations of Senior Citizens in The Netherlands (NL):

Rob Knipping



HAPPY AGEING

Objectives & Target



Objectives:

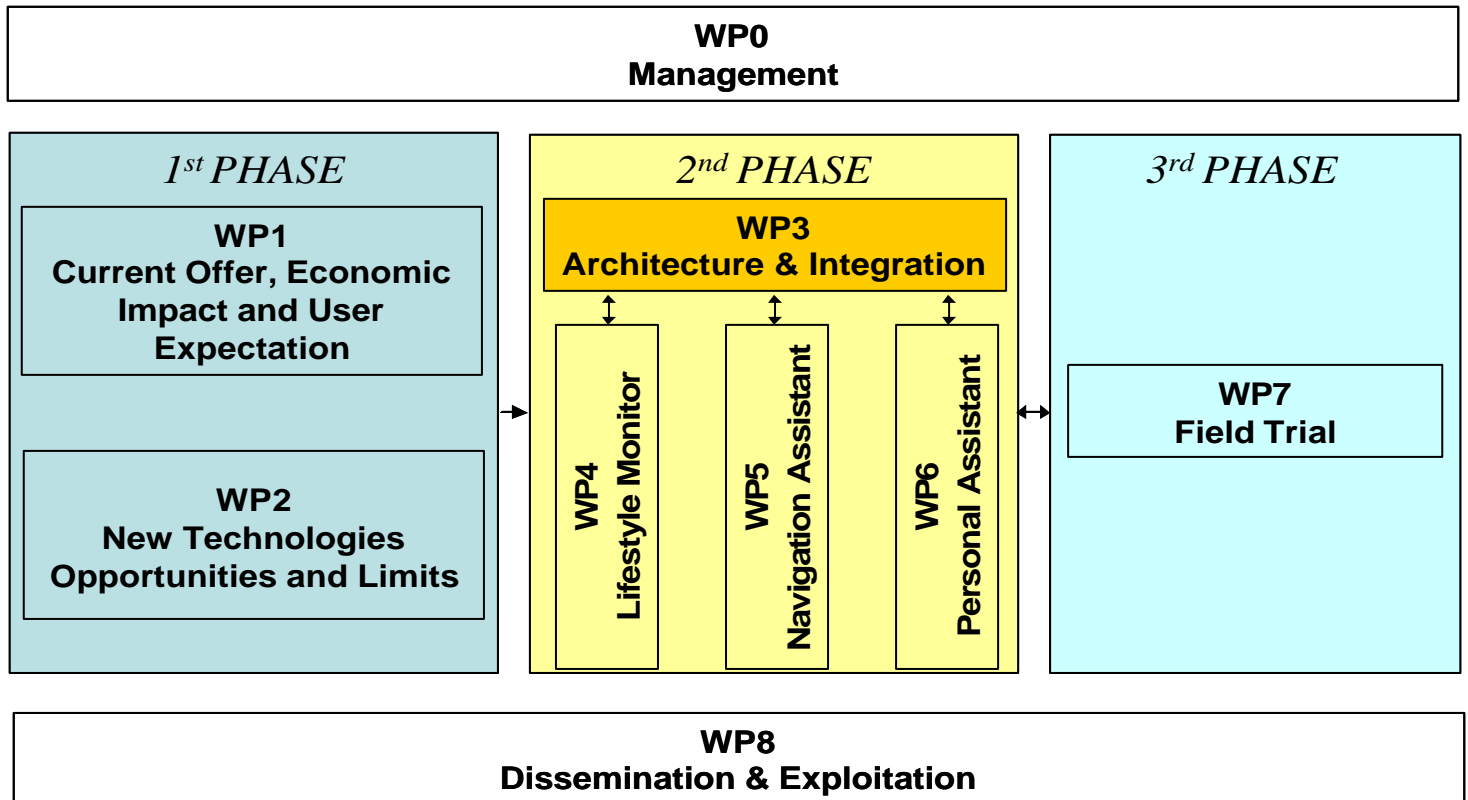
- To prevent the incidence of chronic conditions and to manage such conditions supporting independent living of older people
- To develop and integrate a customizable system
- To directly involve the end-users in all phases of the project
- To stimulate business innovation and create market opportunities to distribute and selling HAPPY AGEING device

User target group: Older people with mild physical and cognitive impairment, who are motivated to live at home, especially the ones alone and their caregivers

Funded by: EC – AAL Joint Programme, 2008-1

Duration: 24 months

Workplan





HAPPY AGEING System

- The system will integrate sensors and technologies available on the market in a whole smart system (RFID), able to assure reliability and privacy of the user.
- It will be composed by three main modules:

Lifestyle monitor

- ✓ Recording activities in the home and compare with the habits of the subject
- ✓ Reminding the user to performe important activities (e.g. taking medicines)
- ✓ Monitoring lack of activity for an extended period and unusual behaviors

Navigation assistant

- ✓ Support user's mobility in close environment
- ✓ Extremely useful for older people with low vision or difficulties of orientation

Personal assistant

- ✓ Support in performing usual actions (e.g. dialing a phone number)
- ✓ Support in searching for personal objects in the home (e.g. keys)

Demand Side Factors

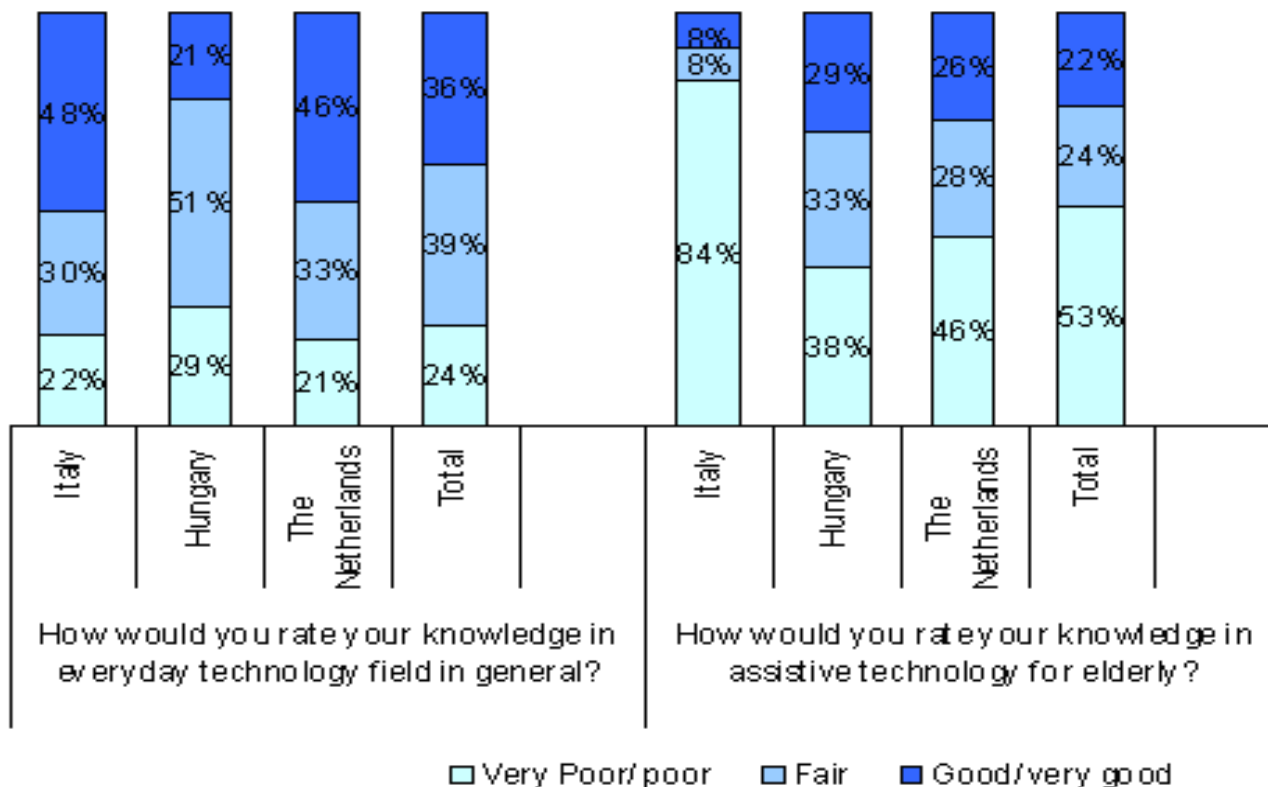
HAPPY AGEING Survey



- **Referred:** Task 1.1 - “Elderly independent living frame definition”, WP1 (M1-M4)
- **Aims:**
 - Collect data on end-users condition and attitude toward technology
 - Investigate the factors that influence the choice of using an ICT device
 - Involve directly the end-users in the definition of device requirements
- **Protocol of questionnaires on:** End-User Condition, End-User perspective on device, Demand and cost information
- **Sample:** 180 subjects (104 females, 76 males) in NL; IT; HU
 - Mean age= 75.72 (SD=6.6)
 - Marital status= married or full time relationship (44%), widowed (43%)
 - Education= secondary school (43%)
 - Working condition: retired (98%)
 - Kind of household= alone (51%), with the spouse/partner (37%) and also with the children (6%).

Demand Side Factors

Survey main results (1)



Demand Side Factors Survey main results (2)



Expectations and attitudes towards technology (%) NL HU IT tot

	NL	HU	IT	tot
I think technology innovations could help elderly to satisfy their needs and problems	79	96	78	85
I think that technology solutions can save my life in case of unfavourable circumstances	77	94	81	85
I'd like to learn using simple technological tools, if they can help me in case of problems	94	79	62	79
I think that I could use some assistive device to improve my quality of life	69	86	58	73



AMBIENT ASSISTED LIVING



Demand Side Factors

Survey main results (3)



Motivations factors (I would decide to use it if...)(%)	NL	HU	IT	tot
The use of the device is suggested by a physician	82	86	80	83
The device could really improve my daily activities	96	73	71	81
I will feel more secure in my home when I'm alone	85	81	68	79
If the device is scientifically approved and certified	79	68	80	75
If the use is suggested by my family or caregiver	60	82	71	72
If the device could help the caregiver's work	91	53	64	70

Demand Side Factors Survey main results (4)



Barriers towards technology (%)

	NL	HU	IT	tot
Technology solutions are too difficult to use without training	74	50	74	65
Technological supportive devices for elderly are too expensive	67	24	81	54
I fear that some devices could be more intrusive and/or could modify my home environment	36	19	41	32
I fear that some devices could represent a restriction of my privacy	47	11	31	30
I fear that the device would take caregiver's place in helping me	43	10	21	25
I have some concerns about security of new technology devices	21	13	33	21
My friends or relatives have suggested me not to use it	9	9	5	8

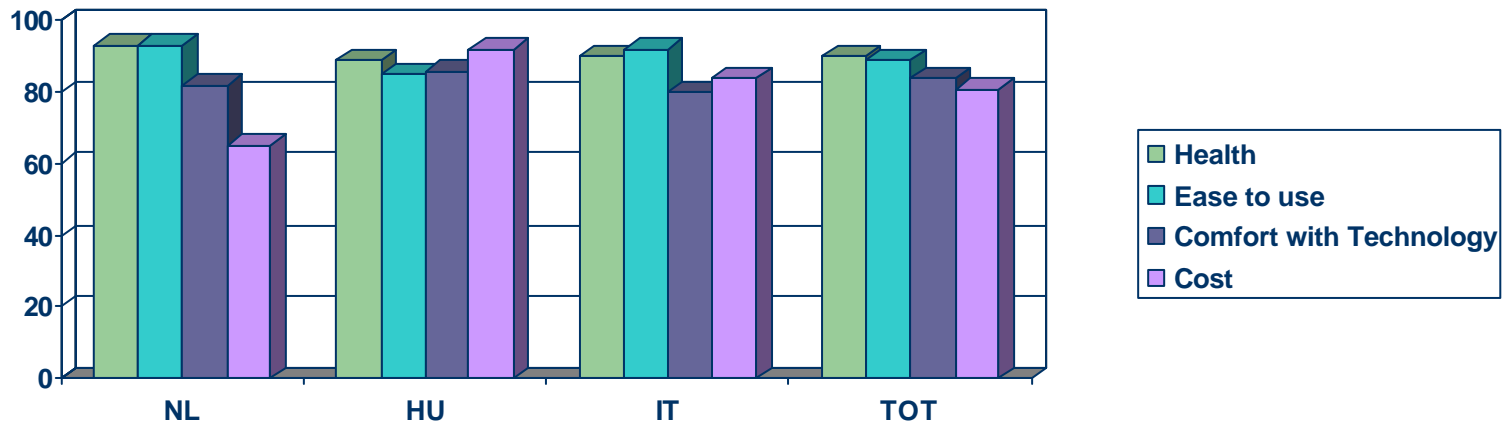


Demand Side Factors Survey main results (5)

Device requirements – General Results

- ✓ To receive help at home is the most expected requirement and the one that mostly influence the choice of using HAPPY AGEING system.
- ✓ Cost is not so important if compared to the opportunity of receiving support at home.

The most critical factors for purchasing an AT device are (%): Health, Ease to use, Level of Comfort with Technology, Cost:



Demand Side Factors

HAPPY AGEING Focus Group



- **Referred:** *Task 1.4* - “Institutions role investigation”, **WP1** (M1-M4)
- **Aim:**
 - to get an overview of private and public health and social systems in each countries
 - to understand the role of policy-stakeholders as driver and/or barrier to innovation in the context of elderly independent living
 - to collect information for the Cost-Benefit Analysis
 - Ethical Issue investigation.
- **Method:** focus groups with relevant stakeholders were taken in Italy, Hungary and The Netherlands
- **Procedure:** Common Check-list

Demand Side Factors

HAPPY AGEING Focus Group Check list



<i>Topics</i>	<i>Key words</i>
General impression	Innovating, interesting, useful, applicable...and their opposite
Welfare system	Inappropriate hospitalization, independent living, appropriateness of care, homecare
Characteristics of the population	Age, impairment, dietary regimen, unexpressed needs, independent living, living alone
Reimbursement mechanism and spending capacity	Reimbursement mechanism, needs evaluation, income, household situation, impairments, services accessibility in the living area
Technology acceptance	Education, example of other technological devices, training, advisor
Ethical issue	Relevant aspects to be considered

Demand Side Factors Focus groups Results (1)



General impression:

- a) the device could be useful both for older people and caregivers;
- b) it could help to reduce caregiver's burden and stress;
- c) the next generation of older people could find it more useful and easy to use.

Ethical Issue:

Privacy issue has to be analysed in relation to cultural differences (I.e. Hungary context after Socialism).

Demand Side Factors Focus groups Results (2)



Technology acceptance:

- a) Cost, social context and design aspects of the device are the key factors;
- b) fear of getting lesser support and care from their care givers has to be monitored.

Welfare system, Reimbursement mechanism and spending capacity:

Governments, politicians, Health insurance company, housing cooperatives are involved in each country in different ways.

More in depth analysis will be requested for the diffusion of the device.

Conclusion



- *Even if the knowledge in everyday technology and AT still remains to improve, the elderly have a high good predisposition toward technology and toward the opportunity of learning how to use new devices.*
- *A more in depth-analysis confirmed that a higher level of education and the age are strictly connected with the using of technological devices.*
- *These results should be interpreted as promising, considering that the level of education of elderly is expected to increase significantly in the future*
- *It could be hypothesized that these better-educated seniors will be more familiar with technology and its use but also they likely be more demanding health care consumers.*
- *The likelihood of receiving help at home might solve two crucial problems: the need of offering adequate help to elderly and their caregivers, whereas the public/private services were lacking, and the need of promoting the technology acceptance in the elderly since now, inside their own environment.*



Thank you for your attention!

Dr. Fiorella Marcellini

INRCA (Italian National Institute on Aging)- Scientific-technological Area

Phone +39 071/8004788

E-mail: f.marcellini@inrca.it

Website: www.inrca.it



AMBIENT ASSISTED LIVING

