Cooperation between AAL-related Research and Caregiving for Seniors in the Municipality of Schwechat

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1 ABSTRACT

The demographic changes in the developed countries, especially the growing number of elderly citizens, are causing opportunities and big challenges to societies. The need of care and support of seniors is growing fast, also the changes within our ICT based information society increase the gap between the younger generation ("digital natives") and the older generation ("digital immigrants"). Ambient Assisted Living (AAL) offers an approach to meet these challenges. AAL covers different areas, especially ICT based solutions for improving care for elderly persons and also improves access to ICT based services for the large number of "digital immigrants" in terms of e-inclusion.

For research in the field of AAL it is very important to involve actively members of the target groups, which are seniors as primary users, care givers, nurses and relatives as secondary user group and private and public stakeholders as tertiary target group. In the urban area of Schwechat / Austria a collaboration between research teams and all groups of end users was established as a base for performing applied research and development of AAL-products, services and solutions.

Starting with the initial situation and local, national and international basic conditions this contribution describes objectives, methods, outcomes and lessons learned of this cooparative approach.

2 THE SITUATION OF ELDERLY PEOPLE LIVING IN SCHWECHAT

Elderly persons being serviced by mobile care taking organisations have been interviewd about their living situations [Meissl et al. 2007]. The result of these interviews as well as outcomes of consultance conversations with seniors and their family members shows that more than 90% of concerned persons have the whish to stay at their own home even at an old age and they believe that there dwelling situations is suitable; they have problems facing barriers outside their home like stairs at doctor's offices, in shops, etc.

A large group of elderly persons living at their own whome are supported for doing the household and for shopping by their loved ones.73% of the interviewed persons stated to have personel contact to their children or grandchildren on a daily base. Single living seniors and their affiliates are mainly concerned by the following possible disresses:

Fall downs followed by a situation which does not allow to use a telephone or an alarming device

Danger of fire due to not switching of an oven, etc.

Becoming isolated due to building's conditions, eg. a missing elevator leads to dependency on other persons and to loose own autonomy.

3 THE AAL LIVING LAB SCHWECHAT – COOPERATION BETWEEN CARE AND RESEARCH

3.1 History

The municipality of Schwechat, Austria, has initiated several programmes, subsumed under an umbrella called eSchwechat.at to bring forward ICT research and development as well as the concrete usage of ICT in daily life in order to allow people of the community to participate in the e-society, to gain benefits provided by novleous ICT-solutions and to close the digital gap between the younger and the elder generation

One element and outcome of this initiative is the CEIT RALTEC research institute dedicated to ICT-based research and development of ICT-solutions to support and improve the life of older people according to the ideas of AAL. In order to follow the basic principle of user-centred design by active involvmement of

potential end users the AAL Living Lab Schwechat (LL) was was establishd and became a member of the European Network of Living Labs [ENoLL] in 2008.

Since 1996 the municipality of Schwechat operates the Senior Center ("Seniorenzetrum") as a sheltered housing considering elderly peoples pursuit of an autonomous living. The residents can arrange their life to their personal needs in an environment responding to the special cirumstances and needs of getting older. A number of different assisistive technological solutions are in use and are well accepted by the elderly residents. In the field of support services and care for the elderly it is important to think and plan oriented towards the future in order to fulfill the requierments of the next generation by applying technology based approaches. This is seen by the management if the Senior Center Schwechat as a challenge to be actively involved iton the development of new services, solutions and products, to bring own practical experiences and to test and evaluate prototypes of assistive solutions. [Panek P. 2011],[Senior Centre].

3.2 Key Actors and Stakeholders in the LL Schwechat

Besides CEIT RALTEC and the Senior Center Schwechat the following entities play a significant role in the AAL Living Lab Schwechat:

- Advisory board of senior citizens ("Seniorenbeirat"): Its mission is to collect and forward requests from senior citizens in Schwechat, to discuss important topics in the context of senior care in Schwechat, and to organize and coordinate leisure activities for senior citizens.. The members of the advisory board often contribute significantly in their role as multipliers to identify further persons interested in joining workshops and field trial activities in the LL
- Cooperation Platform: Regular meetings between representatives of the Senior Center, mobile care providing institutions and CEIT Raltec to share information, to discuss topics of care provision in the local context and to plan and implement joint projects
- Municipality of Schwechat (SW): Tthe local government authorities are very interested in new technologies supporting the autonomous living of the older population [Hlauschek, et al. 2009].
- SME and industry: involved via local association "Wirtschaftsplattform Schwechat" and through the research consortia, carrying out user-centric work in the LL

3.3 Methods applied

User centric methods often applied are focus groups with older adults [Oberzaucher, et al. 2010], [Panek, et al. 2008], interviews with users and carers [Werner, et al. 2011], [Panek, et al. 2007], workshop meetings with users and care experts for requirement gathering via low fidelity prototypes and for presentation of results, different types of evaluation activities (from lab tests to field trials) [Zagler, et al. 2009], [Schumacher, et al. 2007], [Bergvall-Kåreborn, et al. 2010], [Wilson, et al. 2008]. An iterative approach is used in nearly all cases

4 PROJECTS CARRIED OUT

The projects carried out are focused on the research and development of new systems for empowering older adults to live a life as independently as possible.

IAP-Video phone for elederly people: within this industry funded project a touch screen based video phone for older persons was developped and evaluated together with a group of eldely people [Oberzaucher, et al. 2009].

eHome: CEIT RALTEC and 3 Austrian partner developped an assistive smart home solutiuon for safe and comfortable living of single living seniors. The solution was field tested in more than 10 private appartemts in the area around Schwechat [Diermaier, et al. 2008], [Werner, et al. 2011], [Mayer, et al. 2011]

LLM (Long Lasting Memories): CEIT RALTEC, the municipality of Schwechat and 10 European partners enhanced eHome by adding components for physical and cognitive training for seniors. The solution was tested at the senior's centre and at private premises of elderly citizens in Schwechat. Additionaly the LLM-system was validated in 4 different European counries [Konstantidis et alt.2010].

vitaliSHOE: CEIT RALTEC, acting as project leader, developped in cooperation with Austrian industry and rsearch institutions a mobile gait analysis and fall prevention solution. Senior's and care givers of Schwechat have been evolved as active partners [Oberzaucher, et al. 2010].

MyTablet: a usability study of state of the art tablet PCs has been performed by active inclusion of seniors living in Schwechat [MyTablet]

KSERA: this assistive robotic solution developped by 4 European research and indsutry partners is currently validated at the premises of the Senior Center Schwechat by elderly citizens supported by reaerch staff of CEIT RALTEC.

AAL Demo Appartment

In 2009 "AAL demo-apartment" in the Senior Center [Demo-Apartment] was set-up. This project was initiated and organised by the team of the Senior Center supported by the municipality, CEIT RALTEC, mobile care providers and enterprises. A dedicated flat was equipped with already available assistive technology and offers the possibility to test technical aids and provide hands-on experience in real life settings for seniors as well as family and staff. Many companies have followed the invitation to support the project and have provided products for free. The demo-apartment can be visited by anyone interested and explanations are given by professional technical engineers and experienced nursing staff. The flat is also used to provide some insight in upcoming future systems by exhibiting some selected research prototypes [Werner, et al. 2011] and to gather feedback on those prototypes from the visitors of the demo flat [Panek, et al. 2011]. This project is good example of cooperation of a public body (municipality of Schwechat), care giving and a research institute getting a useful result for every day's life

5 INITIAL RESULTS AND LESSONS LEARNED

Issues which came up during the above listed projects are discussed below and provide some concrete examples of the research context in which they became known:

- **Speaking the same language:** ICT researchers and users not necessarily speak "the same language" which can cause non trivial communication problems [Panek 2007]. Some expressions might either not be understood by people who are not familiar with modern ICT or even scare them off.
- **Person of trust:** For sorting out problems it was found to be of high value to have social worker / care persons on board who are well familiar with the test persons and can communicate with them on a meta level (with regard to the project level). The eHome project [Werner, et al. 2011] [Mayer, et al. 2011] for example is a very sensitive project as the researchers get a very detailed insight into the living situation of the person and his/her daily activities.
- **Recruiting users:** First users were recruited with the help Senior Center and advisory board. After initial successful projects, it also turned out that involved users helped us by recruiting other persons they knew as additional new users for upcoming research activities. This is obviously a very positive indicator. On the other hand, being successful in establishing an active group of older adults participating in research activities brings up a new issue: persons who are closely connected to these activities might be biased e.g. when giving their comments and opinions about prototypes to be evaluated.
- **Time and efforts needed:** Ambient Assisted Living (AAL) and assistive technology supporting older adults are very relevant topics for European society. User-oriented research and technical development in these areas do need a significantly high amount of time and resources in order to come up with innovations which are mature enough to enable sustainable improvements regarding quality of life of older persons and carers (cf. our "demo apartment" project).
- **Other issues:** lack of time with the mobile care providers, positive feedback from involved users asking us and our LL partners for status updates, progress and next steps to which they can contribute. In some specific cases, it is difficult or may not even be possible to evaluate research prototypes with the real target user group (e.g. persons with mild dementia and/or persons prone to fall frequently cannot test pure research prototypes with not yet guaranteed performance levels due to ethical, practical and legal reasons).

6 CONCLUSION AND OUTLOOK

After nearly six years of cooperation of the municipality of Schwechat and CEIT RALTEC, the results are very promising for research as well as for the care giver's and the municipalitie's activities. A user club of older adults engaged in researcj activities could be established, an informal structure of regular meetings between core partners and regular meetings of other partners (mobile care providers, senior's advisory board, senior's centre) proved to meet the needs. Several projects could be completed successfully; involved partners are satisfied and very active in continuing with this endeavour. This cooperation is a good base for establishing national and international contacts and working cooperation for future R&D projects.

After the successful set-up of the AAL demo apartment the fruitful cooperation of municipality and research is continuously going on. Outcomes of user-centred research projects are going to be applied in the field within new approaches of Schwechat to support the life of their older citizens. Just before publication of this article the detailed planning for a multigenerational residential settlement ("Siedlung Frauenfeld") within the municipalitie's area started. CEIT RALTEC is currently bringing in practical experiences gained within research projects accounting for barrierfree design issues, intermediate inputs for planning high-tech assistive solutions, etc.

To arrive at a conclusion it can be stated that the concrete pragmatic approach of cooperation between local care giving and research chosen in Schwechat has proven to be a good choice.

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