

Telecare

I. MEYER, S. MÜLLER, I. BIERHOFF, (Conveners). *Telecare and ambient assisted living today: From concept to reality. Gerontechnology 2010;9(2):133;*

doi:10.4017/gt.2010.09.02.063.00

Participants: ILSE BIERHOFF (NETHERLANDS), SONJA MÜLLER (GERMANY), INGO MEYER (GERMANY); **ADDITIONAL SHORT STATEMENTS BY** ELENA URDANETA (SPAIN), ROBERT SAVAGE (CANADA), and ANTHEA TINKER (UK).

ISSUE Over the past few years we had the privilege to observe telecare and ambient assisted living beginning to turn from a good idea into something that can be used by older people, professional and family carers, and that – hopefully – will impact their life in a positive way. Although we are still far from seeing the end or only the high point of that development it seems a good time today to sit back, to take stock of what has been done and learned so far and to consider the way ahead. By bringing together theorists and practitioners and by drawing upon their experiences from research projects, implementation programmes and market studies, this symposium aims to further the discussion of key challenges posed by the development, implementation and deployment of IT-supported processes for care delivery to older people.

CONTENT The symposium will look, in some detail, at three key challenges encountered on the way from telecare concepts to market-ready applications and services: (i) Meeting the demands of intermediary and end users, (ii) Evolutionising rather than revolutionising care processes, and (iii) Developing business models and plans for difficult and differing market environments. These challenges will be discussed against the background of practical experiences made in three European RTD and deployment projects, SOPRANO, NETCARITY and CommonWell. Furthermore, findings of a recent study on telecare and telehealth markets in Europe, the US and Japan will be presented. To broaden the scope in the following discussion, short statements from further researchers on issues ranging from evaluation, to the telecare market in Canada will be included.

STRUCTURE The symposium will start with an introduction to the issue followed by three presentations giving practical examples of approaches and challenges for telecare development, implementation and deployment. The larger part of the time will be given to a moderated discussion among presenters and audience aiming to identify further challenges, to find solutions for existing ones and in general draw upon the expertise of those present to describe a way from research to practice. Further presenters will give short statements on selected issues to keep the discussion going.

CONCLUSIONS The key outcome will be a better understanding of challenges met in the implementation and deployment of telecare solutions among those who are present. The symposium will also aim to start a sustainable exchange of experience across the Atlantic and towards Asia. A summary report will be created and distributed among the symposiasts and other stakeholders in the EU, Canada and elsewhere.

Keywords: telecare, AAL, RTD, user involvement, processes, markets

Address: Empirica, Germany; E: ingo.meyer@empirica.com

I. BIERHOFF, S. SPROLL, S. MÜLLER, E. AVATANGELOU, S. DELANEY, P. BYRNE, A. SIXSMITH, P. KREMEN, Z. KOUBA, B. GOOSSEN, P. PANIS. *Making user-centred design a reality: Experiences from the NETCARITY and SOPRANO project. Gerontechnology 2010;9(2):134;*

doi:10.4017/gt.2010.09.02.064.00 **Purpose** If home technologies are to be successful in supporting independence of older people, they should be designed with the needs of all users involved in the service delivery in mind. Thus, involving potential users from the very beginning and in all phases of the development process is crucial when designing Ambient Assisted Living (AAL) systems and services. Users of the systems are very diverse. In general, five types of user groups can be distinguished: (i) older people, (ii) informal carers, (iii) professional carers who deliver care at home, (iv) care stakeholders (care providers, service centre employees, insurance companies, doctors, etc.) and (v) technical stakeholders (architects, builders, electricians, maintenance providers, etc.). Every user group has its own driving force to be interested in AAL systems and services and their own wishes and desires with respect to the design of those systems and services. Deriving those desires and wishes for innovative technologies and services also requires innovative research methods. Another challenge is to work together with users and experts in the same design step in the iterative process. This paper describes experiences from two European research projects in making user-centred design a reality. **Method** In the NETCARITY project, the most recent user-centred design activities focussed on employees of the service centre who will play a crucial role in offering the NETCARITY services. All employees of the service centre (user group 4) were actively

involved in designing the user interface that would allow them to offer the developed services and to align the AAL services with the current practices and long term plans of the service centre. The focus was, however, on the design of the interface using a task-centred design process. Tasks to be performed were defined based on envisioned services specified by older people earlier on in the user-centred design process. The tasks were used to raise issues about the design, to aid in making design decisions, and to evaluate the design as it is developed¹. The approach adopted within SOPRANO facilitated user involvement in all stages of research and development, ensuring that proto-



Figure 1: Call centre employees designing an interface

type systems are developed in a way that is sensitive to the everyday situations, needs and preferences of prospective users. Innovative methods to generate feedback from users were the theatre approach² and multimedia mock-ups. Both methods are especially helpful in making users imagine what it is like to use AAL services and to indicate preferences. Several iterative design cycles are already completed. In every cycle all input and feedback from users was evaluated according to its quality, validity from a pan-European perspective and feasibility in order to decide whether ideas and requirements should be integrated in the next cycle of development. **Results & Discussion** Users can play an active and valuable role in the development of AAL services. The methods used allowed them to be an equal design partner. Challenge is to maintain this equality towards the final iterative steps in the design process when the actual implementation of the services and exploitation comes into play.

References

1. Lewis C, Rieman J. *Task-Centered User Interface Design, A Practical Introduction*. Boulder: University of Colorado; 2008
2. Marquis-Faulkes F, McKenna SJ, Newell AF, Gregor P. Gathering the requirements for a fall monitor using drama and video with older people. *Technology and Disability 2005;17(4):227-236*

Keywords: user centred design, theatre approach, multimedia mock-ups, task centred design
Address: Smart Homes; Netherlands; E: i.bierhoff@smart-homes.nl

S. MÜLLER, P. QUINONES, I. MEYER, D.M. RUEDA, C.G. CAZALILLA. *Process and IT innovation: Experiences from the CommonWell project. Gerontechnology 2010;9(2):135;*

doi:10.4017/gt.2010.09.02.065.00 **Purpose** It is a well-known fact that innovative, technical, stand-alone solutions or even more complex Ambient Assisted Living systems have the potential to increase the independence of older people and improve their quality of life^{1,2}. The technical development of these systems is, however, only one part of the whole process. If these new technologies and systems are not integrated into existing care delivery processes, wider usage and acceptance and, as a consequence, successful market exploitation, will very likely fail. The identification and examination of existing care processes and how the new solution can be fitted into these processes is thus a crucial part of the whole way to go. In particular, when it comes to the delivery of integrated social care and healthcare services, a thorough understanding of the care delivery processes and knowledge about where the solution under development needs to be fitted-in is needed, not only during the development process of technical systems but also during the implementation period of these systems. This does, however, not mean that processes are completely fixed and cannot be changed. However, even the most promising technical solution will very likely fail if the underlying existing care processes need to be turned upside down. Thus, technical solutions and processes have to be carefully synchronised in order to provide successful services that support independent living. **Method** The presentation focuses on experiences from the CommonWell³ project which, as part of the requirements elicitation process, emphasised the investigation of existing service processes and the identification of how technical systems can best fit into these processes. Care service providers, who are well aware of the service processes, thoroughly investigated the existing processes in parallel to requirements elicitation work and use case development, thus ensuring that the envisaged new technology-supported service is smoothly integrated into the existing processes instead of making it necessary to completely revolutionise the existing processes. This was done with the help of focus groups involving care service providers and other relevant stakeholders in the care delivery chain. **Results & Discussion** Amongst others, current processes of the cooperation between an emergency service and a social care provider in Andalusia were investigated. In a second step, models (flow-charts) were drawn up showing how the envisaged new technology-supported service could fit into the whole process of service delivery. Key questions for the development of the flow charts were amongst others: What processes are performed? What are the work-flows? When is the process performed? How is it performed? Where is the process performed? By whom is the process performed? Based on the service process models and the use cases, prototypes were developed. Both prototypes and the service processes will be evaluated in a field trial involving 100 users starting in summer 2010.

References

1. AALIANCE. Ambient Assisted Living Roadmap. Berlin; 2008
2. IPTS Institute for Prospective Technological Studies. User Needs in ICT Research for Independent Living, with a Focus on Health Aspects. Report on a Joint DG JRC/IPTS- DG INFSO Workshop held in Brussels, November 24-25, 2005; http://ec.europa.eu/information_society/activities/health/docs/events/indep-living-nov2005/24-25nov-report-final-draft-june2006.pdf; retrieved January 20, 2010
3. CommonWell consortium. CommonWell - Common Platform Services for Ageing Well in Europe. www.commonwell.eu/; retrieved January 22, 2010

Keywords: care service processes, independent living, ambient assisted living, telecare

Address: Empirica, Germany, E: sonja.mueller@empirica.com

I. MEYER, S. MÜLLER, L. KUBITSCHKE. *Telecare and telehealth applications: The (stony) way to the markets. Gerontechnology 2010;9(2):135-136; doi:10.4017/gt.2010.09.02.066.00* **Purpose**

Over the past years, telecare and telehealth have begun to turn from good ideas into something that is available to be used by older people, professional and family carers, and that shows the potential to impact their life in a positive way. At the same time, market deployment rates for applications and services differ widely and tend to be low overall¹. Among factors contributing to the success of telecare and telehealth applications are the involvement of users in their development^{2,3}, the integration of the technology into care delivery processes⁴ and

business planning taking into account the difficult market environment(s). This paper analyses the barriers that tend to hamper the deployment of telecare and telehealth, shows how these barriers are linked to a user-centred and process-oriented development approach and discusses how they can be addressed. **Method** The development of an exploitation strategy and of business plans is a standard task in research and deployment activities funded by the European Commission. This paper is based on practical experiences from exploitation and business planning in two such projects: SOPRANO⁵ and CommonWell⁶. It also takes into account the outcomes of the ICT&Ageing study on telecare and telehealth markets in 12 member states of the European Union, the United States of America and Japan. **Results & Discussion** The markets for telecare and telehealth applications are maturing at very different speeds. According to the ICT&Ageing study¹, the deployment of basic social alarm devices in 14 countries ranges from 0 to 16% of the population aged 65+. More advanced telecare applications are, today, partially mainstreamed in only a handful of countries. Telehealth applications are even less widespread; a finding that is also supported by a recent survey of ICT use among General Practitioners⁷. Key market barriers that have so far prevented a wider uptake of telecare and telehealth include variability in the perception of the role of telecare in social care provision, more general professional and social resistance, inelastic reimbursement schemes, ethical and regulatory issues, boundaries in the healthcare system and the lack of recognised business cases¹. While some of these barriers are out of the immediate reach for RTD and deployment projects, others can be addressed in this context, for instance, through the analysis of national market structures, of legal and regulatory framework conditions and of the costs and benefits. Among these, a key role is played by cost-benefit analysis (CBA) as a means to provide economic evidence to support a business case. At the same time, CBA presents difficulties that need to be addressed, including the quantification of concepts such as Quality of Life as well as the due representation of different stakeholder groups and their (shifting) costs and benefits. Practical experience shows that – in order to deliver useful results – CBA should be based on indicator sets reflecting user demand and the characteristics of the services that are involved, i.e. should follow the paradigm covering the development approach of being user-centred and process-oriented.

References

1. Kubitschke L, Cullen K, Rauhala M. ICT & Ageing European Study on Users, Technologies & Markets - Preliminary Findings; Bonn; 2008
2. I. Bierhoff, S. Sproll, S. Müller, E. Avatangelou, S. Delaney, P. Byrne, A. Sixsmith, P. Kremen, Z. Kouba, B. Goossen, P. Panis. Making user-centred design a reality. Experiences from the SOPRANO and NETCARITY project. *Gerontechnology* 2010; 9(2):134
3. Müller S, Meyer I, Bierhoff I, Delaney S, Sixsmith A, Sproll S. Iterative user involvement in Ambient Assisted Living research and development processes - Does it really make a difference? In Röcker C, Ziefle M, editors. *Smart Healthcare Applications and Services: Developments and Practices*. Niagara Falls: IGI; 2010 (in press)
4. Müller S, Quinones P, Meyer I, Rueda DM, Cazalilla CG. Process and IT innovation: Experiences from the CommonWell project. *Gerontechnology* 2010;9(2):135
5. SOPRANO consortium. SOPRANO - Service-oriented Programmable Smart Environments for Older Europeans; www.soprano-ip.org; retrieved January 19, 2010
6. CommonWell consortium. CommonWell - Common Platform Services for Ageing Well in Europe; www.commonwell.eu/; retrieved January 19, 2010
7. Meyer I, Hüsing T, Didero M, Korte WB. Benchmarking ICT use among General Practitioners in Europe. Final report of the Pilot on eHealth Indicators study. Bonn; 2008

Keywords: telecare, telehealth, markets, barriers, business, cost-benefit analysis

Address: Empirica, Germany; E: inqo.meyer@empirica.com