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RITA: An ambient assisted living approach to study, design and implement socio-medical services for ageing well. *Gerontechnology* 2012;11(2):289; doi:10.4017/gt.2012.11.02.303.11 **Purpose**

The RITA-project aims to demonstrate the efficiency of designing socio-medical services with an ambient assisted living (AAL) approach. This paper presents the cooperation of a multidisciplinary group (i.e. researchers, socio-medical organizations, caregivers and the elderly) that studied and designed socio-medical services for ageing well, using innovative AAL-technologies. **Method**

The project methodology includes four phases: (i) analysis of needs and quality of life (QoL); (ii) analysis of socio-medical services; (iii) design of AAL-technological devices made integral to welfare services; and (iv) testing and assessment. This paper describes the first three steps. A total of 172 elderly persons (over-75 years: 24 men and 105 women; between 65-74 years: 22 men and 21 women) and 68 caregivers were recruited during the first two steps and interviewed on elderly QoL, needs, and quality of services (QoS) provided by socio-medical organizations. These results guided the design of RITA-technological services. **Results & Discussion** Other studies already investigated elderly needs and QoL¹, but this RITA-analysis was used here also because we aspired to design AAL-tools suited for the specific service context of Pisa, Italy. Starting from ADL/IADL scales and WHOQOL-BRIEF-OLD, two new tools were designed both with a 5-point Likert-scale to easily collect information and compare answers; there were also open-ended questions. Outcomes of phase (i) show that most of interviewees need medical care, live alone or with a partner, feel autonomous and independent enough to live at their own home (Table 1). On technologies, about 50% of elderly 75+ and about 90% of elderly 65-75 use a mobile phone and all use the TV for entertainment and to get community news. The results of phase (ii) indicate that the caregivers think that the quality of health care is adequate but could be better; they also believe that technologies could improve elderly users' QoL, security, and QoS. In particular informal caregivers find assisting their old relatives stressful and they would like a system to monitor them, especially in their absence. These results show the importance of allowing the elderly to live independently whilst monitoring them also remotely through tele-assistive systems to guarantee users' safety. Based on this analysis, an innovative AAL-system was designed during phase (iii) to increase elderly security everywhere and throughout the day. It consisted of three main modules: a wearable module; an environmental sensor module; and an ambient intelligence (Aml) infrastructure. The wearable module was designed with inertial and GPS-sensors to evaluate the position of end-users and their activity of daily life (ADL) both at in- and outdoors. The environmental sensor module is a ZigBee wireless network of sensors distributed around the home, i.e. doors, windows, bed, sofa, etc. The Aml-infrastructure was conceived to exploit both the indoor ZigBee network and the GSM/GPRS-network in outdoor context to monitor end-users, recognize specific ADLs and sending alerts when dangerous events are identified. Next year, phase (iv) will test these AAL-tools with elderly users in realistic environments and evaluate them to verify the usability and acceptability of the system and the efficiency of these services.

References

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1. Molzahn A, Skevington SM, Kalfoss M, Schick Makaroff K. The importance of facets of quality of life to older adults: an international investigation. *Quality of Life Research* 2010;19(2):293–298; doi:10.1007/s11136-009-9579-7

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Table 1. Phase (i) and phase (ii) results of questionnaires on elderly needs, QoL and QoS in the Pisa area; score 1=negative judgment; score 5=positive judgement

Older adult	Age		Caregiver	score
	65-74	75+		
QoL perception	3,56	3,09	Correspondence between needs and provided services	2,96
Safety feeling	3,19	2,70	Stress due to assistance work	3,49
Medical care received	2,70	2,83	Improvement of assistance services with technologies	4,01
Autonomy & Independence	3,72	3,04	Improvement of users' security with technologies	4,38
Use of mobile phone	3,72	2,53	Improvement of users' QoL with technologies	3,98