Project FoSIBLE
Fostering Social Interactions for a Better Life of the Elderly

Deliverable

D2.3: Report on comparative macro analysis and on market study. Delivery date: M8.

Responsible

USI (Lead Contractor)

Participants

UTT, AIT, CURE

Abstract

D2.3 contains comparative macro analysis of political, socio-cultural and ethical issues in all three participating countries according commonalities and differences of implementation, use and appropriation of ICT for elderly. In addition, ICT market analysis for elderly is included for all 3 countries.

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Table of Content

1 Demographics in EU with reflection to Germany, France, and Austria

Ageing is one of the greatest problems and challenges of the 21st century for European societies. Today and world-wide, Europe has highest proportion of population aged 65 and over, while only Japan has similar age structure. In 2006, there were around 83 million elderly people aged 65 and over in the EU-27, compared with 38 million in 1960. Today there is one elderly person for every four people of working age (15-64)[1]. The proportion of elderly people (65+) averaged 24.3% for all EU-27 states, and by 2050 it will almost double to the value of 50.24%[2]. The proportion of old people (80+) will nearly triple from 18 million in 2004, to nearly 50 million in 2050[3]. The aging problem is mainly caused by low total EU fertility rate (1.48 children per woman in 2003[4]) which has been falling for 30 years, decreasing number of overall population, an finally an increased life expectancy which after WW2 was popped up from 50 years to 75 years.

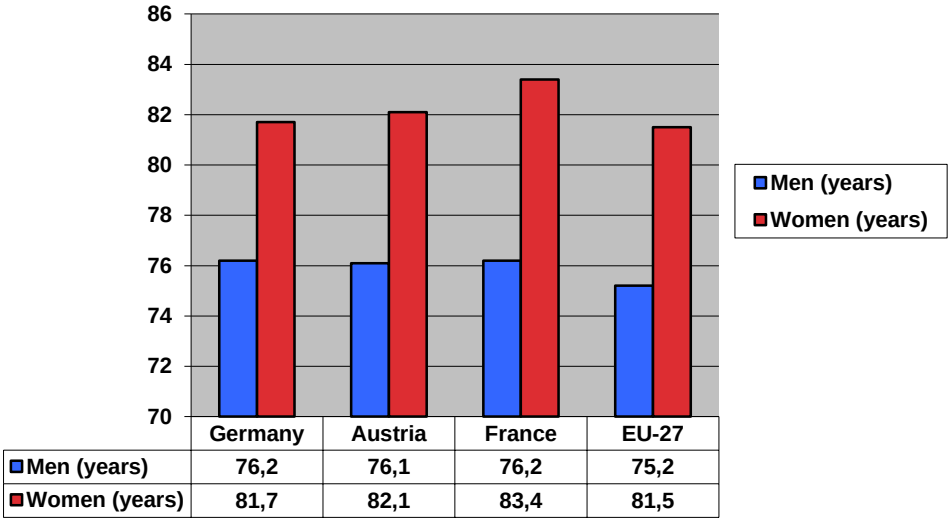
Increasing life expectancy is still an ongoing process and clearly there are differences in each country of the EU-27[2]. Figure 1 shows life expectancy of males and females in our three countries in 2004. Life expectancy for males was about 76 years in all three countries. In general, the highest life expectancy has Sweden with 78.1, and the lowest has Latvia with 64.9. For females, the highest life expectancy has France about 81.5, while Romania has the lowest 75.4. On the other hand, to show the increased trend of life expectancy, the projection for year 2050 is shown in Figure 2.

[1] European Commission: The Social Situation in the European Union 2008 http://ec.europa.eu/social/BlobServlet?docId=2842&langId=en

[2] VDI/VDE AAL: http://www.aal-deutschland.de/deutschland/dokumente/ict_for_elderly_webversion.pdf

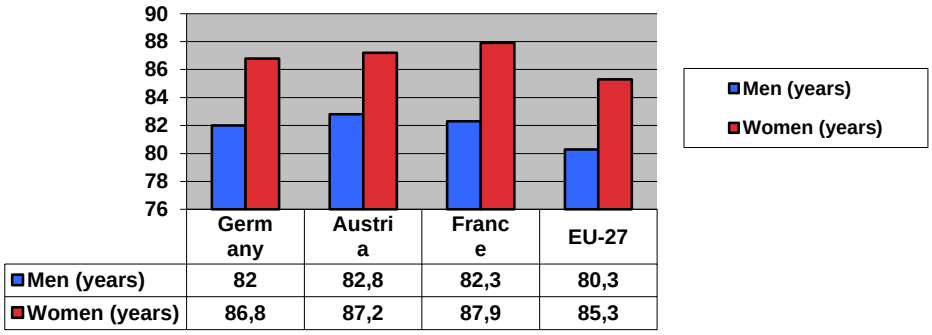
[3] EUROSTAT: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-NK-06-003/EN/KS-NK-06-003-EN.PDF

[4] Europe Press Release: Europe's changing population structure and its impact on relations between the generations http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/96&format=HTML&aged=0&language=EN&guiLanguage=en



	Germany	Austria	France	EU-27
Men (years)	76,2	76,1	76,2	75,2
Women (years)	81,7	82,1	83,4	81,5

Figure 1: Life expectancy at birth in 2004.



	Germany	Austria	France	EU-27
Men (years)	82	82,8	82,3	80,3
Women (years)	86,8	87,2	87,9	85,3

Figure 2: Projection of life expectancy at birth in 2050.

Due to higher life expectancies and low fertility rates, the age structure of European societies will experience a shift towards an overall older population. The population change till year 2050 will differ from country to country as show on Figure 3. The absolute recorders are BG (-33.8%) and RO (-22.7%) as of negative trend, while IE (36%) and LU (42%) as of positive trend[5]. As shown, DE will lose 6% of the population, while FR will raise it by 9%.

[5]VDI/VDE AAL: http://www.aal-deutschland.de/deutschland/dokumente/ict_for_elderly_webversion.pdf and EUROSTAT Population Statistics: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-EH-06-001/EN/KS-EH-06-001-EN.PDF

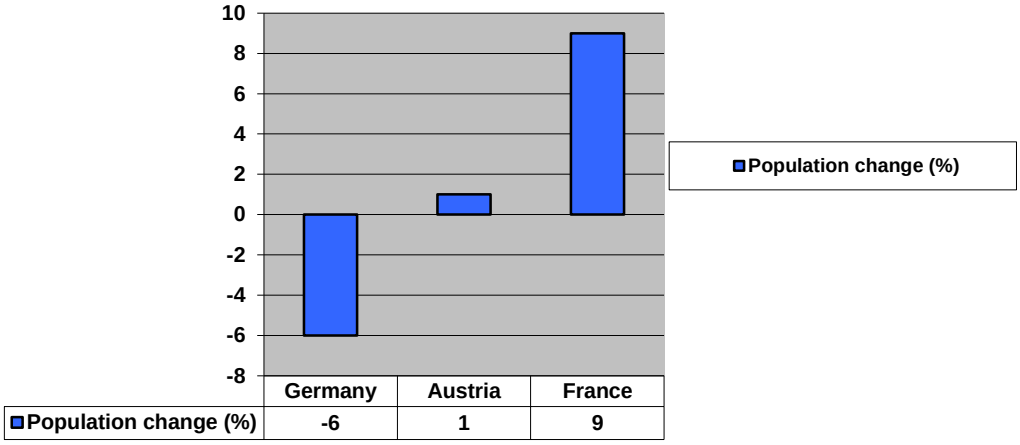


Figure 3: Projected population change in % from 2004 till 2050.

However, there is one thing that countries experience in common: the part of population that is 65+ will significantly increase till the 2050 as shown on Figure 4. This is common to all EU-27 member states. Absolute recorders will be IE (+219%) and CY (+193%) while lowest rate is in LV (+30%). As seen on Figure 4, DE has significantly lower predicted rate than FR and AT.

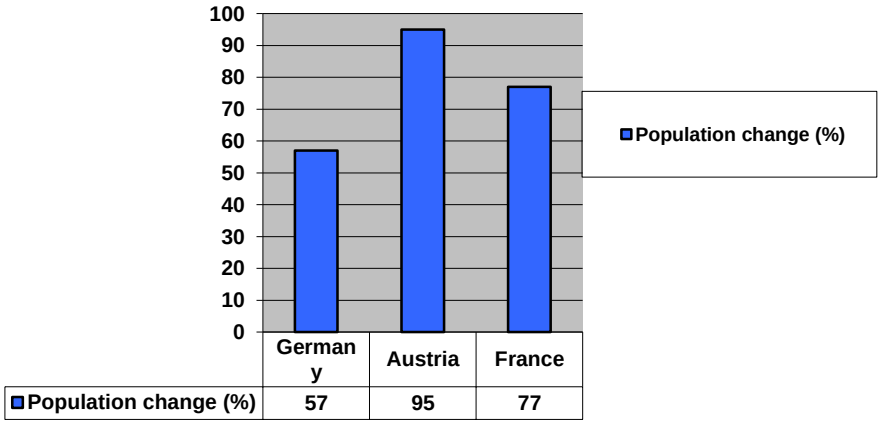


Figure 4: Projected population change of elderly aged 65+ in % from 2004 till 2050.

A problem that is highly related to the aging trend of European societies is social isolation - a measure of social exclusion in terms of having no contacts or meetings with relatives, friends, or possibility to ask for help (friend, relative or neighbour). While social exclusion is greater in general among the poor and unemployed, it mainly rises with the aging (aldo good informal help exists)[6]. Also, in most countries, there is not a significant difference between

[6] EUROSTAT Social Inclusion: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-10-014/EN/KS-RA-10-014-EN.PDF

the frequency with which those with income below the poverty risk threshold meet up with relatives or friends and that with which those with income above the threshold do so actually[1]. Figure 5 shows roughly the trend of loosing contacts with friends in respect to the aging groups[6].

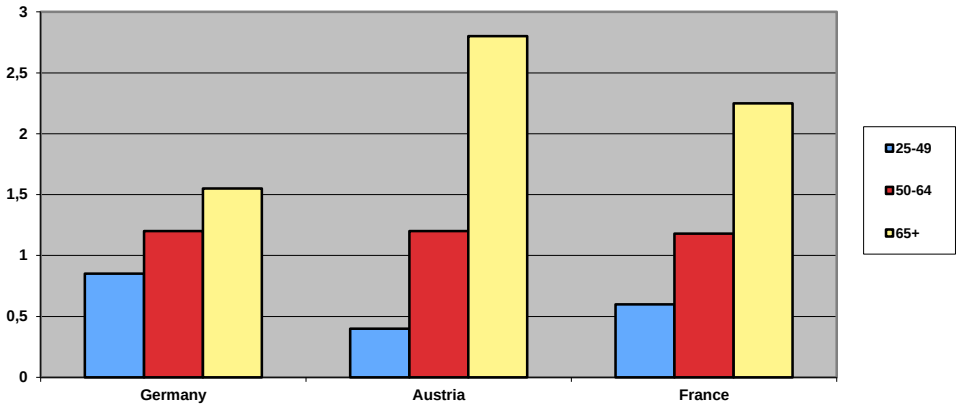


Figure 5. Ratio of those with no friends by age groups compared to the total population, 2006.

Gender differences with respect to social isolation are much smaller than those presented with respect to age. It's known that more men are without possibility to ask for help, comparing to women. Similarly, men are more likely to be without relatives and women may cultivate these contacts more than men do. In AT this might be slightly more visible than in FR and DE. However, women tend to have fewer friends. This is slightly more visible in FR and AT than in DE. Without focus on physical geography, this is probably due to the longer life expectancy of women and their greater isolation in old age[6].

2 Macro analysis of political issues regarding ICT usage in elderly

2.1 Germany

Germany is one of the most rapidly ageing states in EU and the accelerating trend towards population ageing has received considerable attention in public over the last years.

The demographic challenge is generally perceived in terms of potential crisis in the funding of health and social programmes. Against this background, for some years diverse sectoral policies have been seeking to develop effective strategies for meeting the challenges that are expected to come with ongoing demographic developments. Considerable financial resources have for instance been spent – and are still being spent – by the national/regional governments on ICT-related research and technology development in the field of medical/social home care and AAL more generally. Here are some examples of such solutions with definitions as provided on www.ict-ageing.eu:

- **'Social alarm'** is the term used to describe a service (and associated equipment) that enables help to be called by an older person when needed. The service typically involves a special telephone or portable alarm device that can be used to make a call to an alarm centre in the event of a need arising (e.g. a fall). Social alarms have frequently been called 'first generation telecare'.

- The term **'telecare''** is used to describe a range of enhancements to the basic social alarm service concept. For our purposes, telecare is concerned with the provision of social care (i.e. non-medical services) to the home. Typical examples include the provision of various sensors in the home (e.g. fall detectors, bed/chair occupancy sensors, smoke, gas and flood detectors, and so on) that alert social care services in the event of a problem arising in the home. In addition, videophone-based or other remote social care to the home can also be considered to be forms of telecare. Such applications have frequently been called 'second generation telecare', whereas the term 'third generation telecare' has been used to describe ICT-based solutions of more preventative nature such as extensive sensoring in the home for the purposes of 'lifestyle monitoring'.

- The term **'telehealth'** is used in this study to refer to the use of ICTs in the delivery of medically-oriented care services to older people in their homes. It can include a variety of somewhat different services or applications, including telemonitoring (e.g. blood pressure, blood glucose, ECG, etc.), teleconsultation (e.g. online, by videophone, by telephone) and telerehabilitation (e.g. by videophone), as well as self-care devices to be used by people in their own homes to help them monitor and manage their health themselves. They are often, but not always, developed and implemented independent of telecare solutions, in part because of the traditionally separate organisation of and demarcation lines between medical care and social care.

- **'Smart homes'** is the term now commonly used to describe a range of environmental control, home automation and home network systems that can help older people to remain living independently in their own homes. In addition to such 'systems', there are also a variety of more standalone ICT-based assistive technologies that can help older people to remain independent, including computer-based or other electronic communication aids, object locators, reminder systems and so on.

Unlike some other countries, in Germany there is so far no dedicated policy strategy directed towards facilitating wider implementation of ICT solutions. Although reimbursement of social alarms under the statutory long-term-care insurance scheme seems to have given some stimulus towards uptake of simple push button alarms, self-payment seems to be quite common and the social alarm market has tended to remain rather price sensitive up to now. Beyond social alarms, no systematic funding/reimbursement streams have been put in place in relation to telecare more generally.

Legislative changes enabling the funding of home telehealth services in the framework specific disease management programmes have acted as a facilitator of ICT development. There are currently about 200 health insurers in the country and it remains to be seen how many of these will follow this approach. Preliminary evaluation activities suggest that the implementation of disease management programmes in general and telehealth services in particular provide significant potentials to improve patients' quality of life in a cost efficient manner. Outcomes suggest for instance that patients with heart insufficiency who participated in a telehealth scheme had to be less frequently treated in a stationary setting. Overall, the number of patients who were referred to a hospital has been reported to have decreased by 42%. For those who needed to be referred to a hospital a decrease of hospital days of 24% was observed. Overall, costs for hospital treatment have been reported to have decreased by 77%. Similar benefits have been reported in relation to diabetes patients that were included in a home health monitoring scheme.

Another field is smart home technology where German government has recently launched a dedicated programme "The Intelligent Home". The programme is directed towards stimulating age-friendly design of buildings, including the utilisation ICTs for purposes such as facility management, home care provision and interpersonal communication. Overall, 65 demonstration projects have been selected. A particular focus is on developing innovative housing solutions for people with dementia. Moreover, industry players seem to be increasingly aware of this topic. For example, a network has been initiated by the Bertelsmann foundation – a major private foundation aiming at identifying key societal challenges and helping address them. Beyond this, some manufacturers of prefabricated houses have started to provide basic smart home features within their premium model ranges. Bus-systems connect different smart-home components such as heating, air-conditioning, lighting, telecommunication, sanitary facilities etc. in an intelligent way. Together these developments may act as facilitators for further integration of smart home features into the mainstream building stock. However, high costs still act as a major barrier for wider deployment: from purchasing, installing and maintaining ICT systems to customising systems according to individual needs. Theses aspects are of particular relevance for people living on rather low levels of income with increasing energy costs over the years.

2.2 France – The "Aging in Place" program

On February 18th, 2010, the Secretary of State dedicated for Seniors, Mrs. Nora BERRA, launched the project "Aging in Place", a pluralistic reflection on the issues of living at home for the elderly. Based on the fact that with age advancing, the desire to live at home encounters various obstacles and disincentives in everyday life, the Secretary of State confided to a group of experts the task of identifying the prospects for action in favour of aging in place. These should help to promote autonomy as long as possible at home, improve the effectiveness of support services, and relieve pressure on the host institutions. It seems also necessary to display a strong and clear political will to support the technology sector for health and autonomy on axes clearly chosen to give it a much better view from all stakeholders. The National Agency of research (ANR) and the National Solidarity Fund for Autonomy (CNSA) have mandated ALCIMED to conduct a study to identify and characterize technologies for health and autonomy available in the market and their contribution for the French industrial sector for the next 5-10 years (Poulain & al, 2007). The technologies for health strictly include developments from the medical field and the technologies for autonomy represent a medico-social continuum that goes beyond the strict framework of health care and they are not intended to treat people with reduced autonomy, but to accompany them and facilitate their daily life and social participation. The ANR and the CNSA wishes from this study are to determine the actions needed to be implemented to promote the development in France of an offer in advanced technologies and a competitive industrial base in the technology sector for health and autonomy. This means that they must work to ensure that strategic axes will be chosen, as massive funding will be granted by various national and international sources for the most promising projects, that start-ups and SMEs be supported with dedicated funding and facilitative measures, and a clear framework for assessment and management of these technologies will be defined and that bridges between different disciplines and actors will be constructed so that all the research and industrial strengths can be pooled around policy announced.

2.2.1 Context and objective of the mission "aging in place"

Over 90% of people aged over 60 years old are aging in place and the majority of them want to stay in as long as possible. Aging in place is a freedom massively claimed by the seniors. Like any freedom, it involves an element of risk. Liability of public authorities is to ensure that it can be accomplished under the best conditions. Adapting public policy to new demographic realities and the wishes expressed by massively seniors aging in place is among the concerns of the French state. The Secretariat of State for Seniors, with the Minister of Labour, Social Relations, Family, Solidarity and the City was created in June 2009 and directed by Ms. Nora Berra. The establishment of the global mission "vivre chez soi" (Aging in Place) in partnership with the National Reference Center (CNR), and four other agencies

CNAV, CNSA, DGCS, and the CCMSA* is their priority (Franco, 2010). It is a strategic decision for decades to come. This major political issue also involves a real economic dimension of growth, innovation in services and technologies, and development of our territories. The Secretary of State for Seniors wishes to identify the essential tools and concrete measures to promote the improvement of aging in place for the greatest number of elderly. The objective of the mission is to promote the autonomy for elderly at home as long as possible and provide concrete steps for the completion of the mission "Aging in Place". If ageing in place is a massively shared desire, one reason is that the symbolism of retired house refers to a dimension of continuity and an essential resistance to time as getting older. The Mission thought the home as an open place, a place where the unity of self is constructed through its relationship with others. The Mission has also associated to its thoughts, beyond the home, the issues related to the immédiate environment (neighbourhood, institution, hospital) of the elderly.

By the following proposals, the Mission aims to meet the desire of the French to live in their own homes by supporting them in their life course, with the dual consequence:

- Facilitate the development of an economy of technologies and services dedicated to live at home.
- Move the dependence cursor backward in order to minimize the constraints of medical social workers and allow them to concentrate their resources on the more difficult cases.

2.2.2 The six areas of the Mission

Six areas of action for a global vision for the aging in place mission were identified to ensure the necessary guaranties and meet the needs and expectations of the seniors:

Autonomy and habitat diagnostic

The desire expressed by seniors to live at home represent a principal fact of many risks, because home remain a principal place which can lead to the isolation, domestic accidents, confidence abuse ... The role of prevention at home will be decisive for the "aging in place" mission. It is about creating a device for seniors, allowing them to make a diagnosis "autonomy habitat" which includes their immediate environment. This tool will be associated with adaptation measures for housing with the goal of ensuring the autonomy, security and quality of life.

The autonomy and habitat diagnostic area is driven by Mr. Bertrand Delcambre, president of the Centre Scientifique et Technique du Bâtiment and Stéphane Rebaudo, Project Manager at CSTB.

* **CNAV** : Caisse Nationale de l'Assurance Vieillesse, **CNSA** : Caisse Nationale de Solidarité pour l'Autonomie, **DGCS**: Direction Générale de la Cohésion Sociale, **CCMSA** : Caisse Centrale de la Mutuelle Sociale Agricole.

The objectives of this action pane are:

- Perform an inventory;
- Identify the contours of the autonomy habitat diagnosis;
- Determine the characteristics of the sector (economic, technical, administrative skills...);
- Define the institutional and financial framework for the diagnosis implementation.

Technologies and services for autonomy

Technologies for the autonomy represent an important lever for the mission “aging in place”. These technologies respond to the needs and expectations of seniors (autonomy, mobility, access to information and services, security, preventive health, family relationships...) and they relieve family caregivers and professionals from certain constraints, physical tasks, and foster greater coordination. Adopting these technologies will also participate in economic growth, creation of skilled jobs and international competitiveness. An emerging sector, products and services offers, but the domestic market is not mature due to the lack in institutional, social and economic model. The challenge is to remove these obstacles and promote the development of this sector in France.

The technologies and services for autonomy area is driven by Ms. Maryvonne Lyazid, Deputy General Manager of “la Fondation Caisse d’Epargne pour la solidarité” and Christine Balagué, Co-President of “Renaissance Numérique”, Teacher and researcher at the Institute for Telecom, and François Piette, Professor of Internal Medicine in Gerontology at Charles Foix Hospital and President of the French Society of Information Technology for Autonomy and Gerontechnology.

The objectives of this action pane are:

- Identification of useful technologies and services that can be developed quickly (internet, mobile services, home automation ...);
- Define the technical and economic development condition for a "aging in place" public offer including specific applications;
- Create an ICT-services repository: technical standards, legal and social, with quality indicators, measurement and control. This repository will be followed by designers, manufacturers, distributors and service managers;
- Propose a development methodology in the territories (leader departments).

Mobility and Planning

Seniors are strongly attached to their independence that is related to the mobility. Indeed, to walk out of the house, move freely in the city, access to shops, local services and leisure, is an essential factor for the aging in place mission. Three key factors are involved: the environment in the sense of the area of life, travel and security modes. The seniors are

among the victims of road accidents despite the fact that they drive less than usually. Furthermore, with the advancing in age, the risk of accidents and falls in public places (streets, plazas, pedestrian crossings, traffic lights) and common parts (staircases) increases. Therefore it becomes essential to promote a controlled use of the car, to adapt means of travel with an affordable cost to individuals and bearable by the community. Finally, more generally, this strategy should also influence the development of public spaces, transport networks and street furniture.

The mobility and planning area is driven by Dr. Jean-Pierre Aquino, president of the French Society of Geriatrics and Gerontology, and Pierre-Marie Chapon, researcher at ICADE and Claude Dumas, Managing Director of the Centre for Resource and Innovation for Mobility Disability.

The objectives of this action pane are:

- Perform an inventory;
- Build an information and advice dispositive to enable seniors to drive as long as possible and safely;
- Promote proximity transport means that are more responsive to seniors displacement needs;
- Incorporate the mobility needs of seniors in planning documents and planning (Territorial Coherence Schemes, Local Town Planning and Urban Transport Plans (PDU).

Trades, skills and training

Quality and accessible services are essential to the "aging in place" mission. Trades are numerous: assisted living, home help, nurse, nurse's aide, medical and psychological assistance, host, meals on wheels, mobility aids, security jobs and security, building trades. As the needs are growing at the same time the sector is less attractive because the trades have a low visibility and are little valued in the job market. Moreover, because of the massive turn-over, the sector risks a worsening shortage of human resources. It therefore becomes urgent to promote trades and skills for the living at home, support their evolution and structuring vocational training courses.

The trades, skills and training area is driven by Prof. Yves Matillon, Professor of Clinical Epidemiology and Advisor for the assessment of competence of health professions, and Aurélie Arnaud, mission charged, Ministry of Health and Anne-Marie Charraud National Conservatory of Arts and Crafts (CNAM).

The objectives of this action pane are:

- Create a mapping of trades "aging in place" and their evolution;
- Define a methodology and an action plan to create a repository of jobs and training.

Inclusion and prevention from discriminations

Seniors are facing obstacles, brakes and situations of discrimination in many areas: employment and career management, access to services, mortgage and consumer, insurance (complementary health, repatriation), travel, rental cars, housing, this situation does not promote aging in place for them, goes against their needs and expectations and is opposed to the principles of our society based on equal rights.

Also exclude these seniors from these consumption levers will slow down the economy: construction, services, transportation and leisure.

The inclusion and prevention from discriminations area is driven by Gilles Duthil, consultant and director of the Institute Silverlife and Revest Michel, Research and Innovation Director at Covéa Group and Michel Riquier, Vice-President of the French Confederation of Pensioners (CFR) and Vice-President of the European Platform of Older People AGE.

The objectives of this action pane are:

- Perform an inventory for situations;
- Define a methodology for consultation with stakeholders to develop ways to improve and prevent discrimination in the future;
- Develop a tool (such as "charter") to valorize the actors who commit themselves respecting the equality of rights towards the elder ones.

Services management optimization

Aging in place is directly linked to our ability to access easily to services quality. In recent years, spurred by the development plan for human services, the diversity of the providers and the extent of available services have really increased. However, managing stakeholders and skills is expensive, which slows down the growing range of services.

To improve rapidly the situation, a comprehensive economic vision is needed. On the one hand, it is to articulate domestic services with those dedicated for seniors and more generally to all the French. And on the other hand, emphasizing the economic interest of the pooling of resources and coordination of actors relied on ICT tools (generic common infrastructure at reduced costs), this vision will help reorganize the deep channels.

This strategy will invest more on training and development of career paths, while providing better quality services, appropriate and accessible to all.

The services management optimization area is driven by Ms. Michele Debonneuil, General Inspector of Finance and Vincent Rialle, Universitiy Lecturer - Hospital Practitioner at Grenoble University Hospital and Vice-President of the National Reference Center - Home Health & Life.

The objectives of this action pane are:

- Perform an inventory and definition of a new economic framework for the provision of information, goods and people at the scene of life (homes, institutions…);
- Foreshadowing a model of organizing health services supported autonomy for seniors on a generic infrastructure which will interface the Technologies and services for autonomy
- Proposal of a territorial deployment plan to equip in a larger scale all the 5 voluntary departments all the service providers and users (seniors, family environment and prescribers).

2.2.3 Priority axes and measures

The recommendations adopted by the mission and the conditions of their implementation have been given as a priority in eighteen measures. These of course concern the State and its public partners (communities, agencies, National Reference Center for Health at Home and Autonomy ...) but also private actors (telecom operators, suppliers of home automation solutions, insurance companies...); some of them will assume regulatory work at national and European level.

Axis 1: Improving the Living Environment of Seniors

- Measure 1: Create a label "Ageing in Place"
- Measure 2: Generalisation in local habitat plans foreshadowing studies of the territorial strategy in terms of adaptation of the new or existing housing stock
- Measure 3: Make it possible to create a new category of social housing dedicated to seniors
- Measure 4: Establishment of a "autonomy diagnosis" of the habitat and its immediate environment, complementary of the existing diagnosis (Carrez law, including energy efficiency) in the service of consumer protection
- Measure 5: Promoting financial solutions for universal access
- Measure 6: Setting up mobility checks for seniors
- Measure 7: Measure and prevent discrimination related to age
- Measure 8: Initiate a dialogue with the insurance industry on the issue of de-mutualisation

Axis 2: Facilitating access to services and technologies of ageing in place, encouraging the development of a suitable offer

- Measure 9: Launch a communication campaign dedicated to technologies and services of ageing in place
- Measure 10: Spread seniors' access to the Internet
- Measure 11: Encourage the provision of home automation
- Measure 12: Encourage the development of universal design in industrial clusters through Collaborative Research & Development

- Measure 13: Create an investment fund dedicated to companies developing smart devices promoting the ageing in place

Axis 3: helping the modernisation of services to the person

- Measure 14: Create a centre of reference and expertise for jobs and skills in the field of health and social
- Measure 15: Strengthen the organization of services to elderly people by mutualisation supported by a shared infrastructure
- Measure 16: Develop the of solutions to optimise of services to elderly people
- Measure 17: Encourage the development of multi-service call centres in the social and medico-social fields
- Measure 18: Promote Ageing in place at international level

2.3 Austria

In Austria, one program, funded by the Austrian Federal Ministry for Transport, Innovation and Technology is responsible for fostering the research activities in AAL. Few actions contribute to the inclusion of elderly people into the world of ICT. These are OCG and HANDYNET.

2.3.1 The "Program Benefit"

In order to support a national implementation of the Ambient Assisted Living Joint Programme (AAL JP), the Austrian Federal Ministry for Transport, Innovation and Technology (bmvit) has designed a new mission orientated R&D Programme in the field of "Technology (in particular ICT) and Elderly People".

Aims

The motivation of the new funding activity is in the demographic change and ageing in Europe, which implies not only challenges but also opportunities for the citizens, the social and healthcare systems as well as industry and the European market. The programme benefit (see also AAL) aims

- to extend the time people can live in their preferred environment by increasing their autonomy, self-confidence and mobility,
- to support maintaining health and functional capability of the elderly individuals,
- to promote a better and healthier lifestyle for individuals at risk
- to enhance the security, to prevent social isolation and to support maintaining the multifunctional network around the individual
- to support carers, families and care organisations
- to increase the efficiency and productivity of used resources in the ageing societies

Duration: 2007-2013
Budget: 4 million euro per year

Cooperative research projects
Call topic: Demographic Change - Active Ageing
Next Call: Autumn 2011

Encouraging the industry to participate in such a program will prove to be a challenge for program management. Due to the structure of the Austrian industry, where 99.6 percent of all companies have fewer than 50 employees, it is essential that these small enterprises are being reached by establishing appropriate guiding principles, supporting community building and adequate communication. It should be considered whether public institutions cloud act as lead customer in certain application areas in order to reduce the business risk for SMEs.

To create successful new products and services for the new target group, it is essential to that companies build an in-depth knowledge about the need of elderly people and are able to evaluate their new ideas and prototypes in close interaction with potential customers.

Fostering interdisciplinary cooperation between researchers, developers, user interface designers, sociologists, psychologists, ethicists, etc. will be a key to success in this market segment

The four topical areas

Topic 1: Social inclusion

- Communication
- Social network-building and –maintenance
- Information / Consultation

Topic 2: Activities in and around the living environment

- Activation regarding games, physiotherapy and physical activity
- Tourism
- Mobility in the (extended) living environment

Topic 3: Comfort

- Smart homes
- Smart textiles

Topic 4: Safety, Security & Health

- Measure/monitor/alarm
- Management of risk factor within chronic diseases

2.3.2 The Austrian Computer Society

OCG (Austrian Computer Society; www.ocg.at) with 1600 individuals and about 100 supporting stuff supports the important socio-political concerns in terms of the evolvement of the Austrian Society into an Information Society. Taking this in account, OCG takes measures to facilitate for e.g. elderly people the access to Information-Technologies. The OCG

- serves as the focal point of associations, organizations, and institutions in Austria involved in information processing (institutional members).
- represents Austria in the IFIP (International Federation for Information Processing) and in other associations, e.g. CEPIS (Council of European Professional Informatics Societies) and IMIA (International Medical Informatics Association).
- is affiliate member of ACM (Association of Computing Machinery) and of the IEEE Computer Society.
- provides services, information and consultation for its members.
- promotes research and development projects, especially those of an interdisciplinary nature.
- established several Working Groups dealing with specialized aspects in the field of information technology.

- organizes international conferences and congresses and supports its member institutions in organizing such events.

The motivation behind OCG is to avoid the development of the Austrian Society towards a "minority – majority" society. Already several years ago OCG founded a Working Group called "Information technologies for people with disabilities" leaded by K. Miesenberger, W. Kremser and W. Zagler.

Over 18 years the OCG emphasized on the topic "computer for handicapped people" and in 1989 the international conference ICCHP - International Conference Helping People with Special Needs – was organized by the OCG for the first time in Europe. Since 1990 this conference is organized every two years. In 2012 the 13th ICCHP will take place in Austria, Linz. Scientists of all five continents will take part and present their researches to the international public.
The OCG experts come from an academic environment (universities, institutes of Austria) but also from the business world. They don´t work only theoretical on different topics but have reached a high level of knowledge in permanent cooperation with elderly and handicapped people. A lot of scientific and popular publications have been published concerning the topic "information technology for elderly and handicapped people".

2.3.3 Handynet

HANDYNET (http://handynet-oesterreich.bmsg.gv.at) by Federal Ministry of Social Security and Consumer Protection is a computerised European Information system. It deals with all information that affects disabled people: technical aids, accessibility, employment, training, organizations, legislation etc.

The national database for technical aids, "HANDYNET-Austria" was originally developed and published on a CD-ROM with the objective of providing a survey, independent from economic interests, of technical aids available on the market that would help disabled and older people wanting to acquire them. Since 2002 this information database has been accessible to the general public without restrictions, under the internet address http://handynet-oesterreich.bmsk.gv.at. More than 8.200 illustrated sets of documents provide information about the extensive range of technical aids being offered on the Austrian market. A systematic reassessment of the entire information-package offered by the Federal Ministry of Social Security and Consumer Protection, the subjects of DISABILITY in all situations of life – from professional training for disabled children to caregiving to the elderly – have been taken out from the HANDYNET database. They were integrated into a separate info source: http://www.infoservice.bmsk.gv.at or http://hilfsmittelinfo.gv.at.

Overall, the "Best Practice Catalogue"[7] of the eGoverment Austria offers list of many other measures by government not strictly related to elderly.

[7] http://www.austria.gv.at/DocView.axd?CobId=33428

3 Macro analysis of socio-cultural issues regarding ICT usage in elderly

3.1 Germany

A recent report "Statistical Yearbook 2010"[8] by Federal Statistical Office (DESTATIS) reveals us a picture of Germany considering the ICT usage.

3.1.1 Use of the Internet

From 2005 to 2009, the share of German population using computer and internet increased with meaningful rate. For generation 55+ in terms of share of population, the number of computer use increased from 35% in 2005 to 46% in 2009, while Internet use increased from 27% in 2005 to 40% in 2009. The differences by age are shown in Table 1. Little bit less than half of 55+ population use computer and Internet.

Table 1: Equipment and Internet use by age in 2009

	10-24 years old	25-54 years old	Over 55 years old	Share of 2009 population
Computer use	98 %	91 %	46 %	76 %
Internet use	97 %	89 %	40 %	73 %

Source: (DESTATIS, 2010)

Looking into more detail of Internet use, the generation 65+ closely resembles the youngsters who are 10-15 years old, considering the frequency of Internet use. However, the purpose why Internet is used drastically differs from youngsters. Table 2 shows these effects in terms of share of Internet users in 2009.

[8] DESTATIS : Statistical Yearbook 2010
http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/SharedContent/Oeffentlich/B3/Publikation/Jahrbuch/Informationsgesellschaft,property=file.pdf

Table 2: Internet use by purpose, frequency and by age in 2009

	10-15 years old	16-24 years old	25-44 years old	45-64 years old	65+ years old	Share of Internet users
Every day	55 %	82 %	74 %	67 %	57 %	70 %
Once per week	33 %	15 %	19 %	23 %	30 %	22 %
Once per month	13 %	4 %	7 %	10 %	12 %	8 %
Email	74 %	95 %	92 %	88 %	89 %	89 %
Chat/Forum	69 %	88 %	46 %	26 %	16 %	46 %
Info search	47 %	82 %	94 %	90 %	83 %	86 %

Source: (DESTATIS, 2010)

As we can see in Table 2, 65+ users use significantly less chat and forum than the other generations while almost every second one is on the Internet every day. However, they use significantly Internet for sending email or information search. Moreover, it is also the fact that usage of Internet radio or looking video content on the Internet is almost as low (17%) as using chat and forum. Interestingly, they search for information just like 16-24 generation. Comparing to other generations, usage of chats and forums dominate with 16-24 years old generation.

3.1.2 The use of Telephone and Mobile Phones

Mobile phones tend to be used much more than fixed-line phones in households where people are less than 70 years old.

Table 3: # of equipment per 100 households and age (2009).

	Bellow 25 years	25-35 years old	35-45 years old	45-55 years old	55-65 years old	65-70 years old	70-80 years old	80+ years old
Telephone	78,5	89,9	114,8	123,5	118,0	114,2	109,2	110,6
Mobile	147,8	165,1	192,5	201,9	146,6	118,8	93,1	55,8

Source: (DESTATIS, 2010)[9]

[9] http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/SharedContent/Oeffentlich/B3/Publikation/Jahrbuch/Wirtschaftsrechnungen,property=file.pdf

On the other hand, 70+ households tend to have much more fixed-line phones in use than mobile phones. Yet, in Germany, every second 80+ household tends to have a mobile phone.

3.1.3 The use of PCs and Laptops

The number of PCs and Laptops reduces significantly as households are getting older. However, use of PCs is always higher than use of laptops irrelevant of household age as shown in Table 4. It's interesting to see that generation 35-55 have much more PCs and Laptops than any other generation.

Table 4: # of equipment per 100 households and age (2009).

	Bellow 25 years	25-35 years old	35-45 years old	45-55 years old	55-65 years old	65-70 years old	70-80 years old	80+ years old
PC	75,9	76,4	100,8	105,6	81,5	63,3	42,4	25,1
Laptop	70,9	74,0	57,6	60,9	44,5	29,3	18,7	9,2

Source: (DESTATIS, 2010)

3.1.4 The use of Television

TV use is highest within 45-55 year old households while lowest within 80+ years old households. TV equipment in Germany is significantly less present per 100 households than any other previously mentioned equipment like phones, mobiles, PCs, or laptops.

Table 5: # of equipment per 100 households and age (2009).

	Bellow 25 years	25-35 years old	35-45 yeas old	45-55 years old	55-65 years old	65-70 years old	70-80 years old	80+ years old
TV (LCD/Plasma)	/	27,0	26,9	35,6	33,5	28,6	23,9	19,8

Source: (DESTATIS, 2010)

3.2 France

The Research Center for the Study and Observation of Living Conditions (CREDOC) in France conduct in June 2009 a survey about the diffusion of the information and communication technology in the French Society.

3.2.1 The use of the Internet

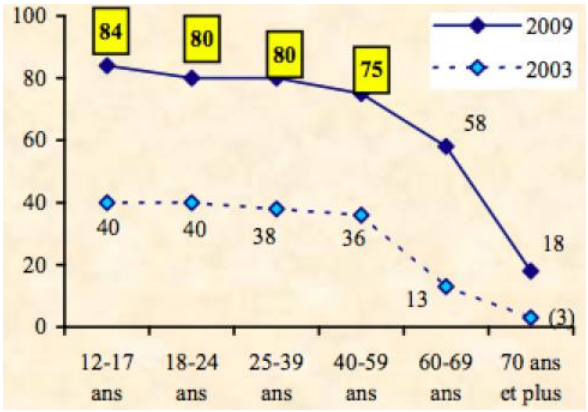
Internet usage is growing steadily with the elderly. Today almost 6 out of 10 younger elderly aged between 60 and 69 years are connected to the Internet from their home. They are 2 out of 10 for the 70 years old and over (see Table 6). The first group unlike the second belong to the generations that discover and use the Internet in their professional life.

Table 6: Equipment and Internet use at home for 60+ years old people.

	60-69 years old	Progression in 1 year	Over 70 years old	Progression in 1 year	Average population
Computer at home	62 %	+17	21 %	+4	74 %
Internet connexion at home	58 %	+21	18 %	+4	67 %
… which are connecting everyday	59 %		48 %		71 %

Source: (CREDOC, 2009).

On Figure 6 we can notice that the proportion of the elderly connected to the Internet has significantly increased during this last years.



Source: (CREDOC, 2009)

Figure 6: Proportion of people equipped with an Internet connection by age in %.

59 % of the 60-69 years old who are connected to the Internet use it every day yet 48 % of the aged 70 years old and over. This is also the case of 71 % of the total population on average. In France in June 2009, 40% of the non-Internet users are over 70 years old.

Seniors in France use Internet to perform administrative or fiscal approaches (29 % of aged between 60-69 and 5 % of aged 70 years old and over). They also use it to do their shopping (25 % of aged between 60-69 and 5 % of aged 70 years old and over).

41 % of 60-69 year olds in France said that having Internet access is pretty important to feel integrated in the society and also 33 % of persons aged 70 and over.

3.2.2 The use of Telephone

Landline

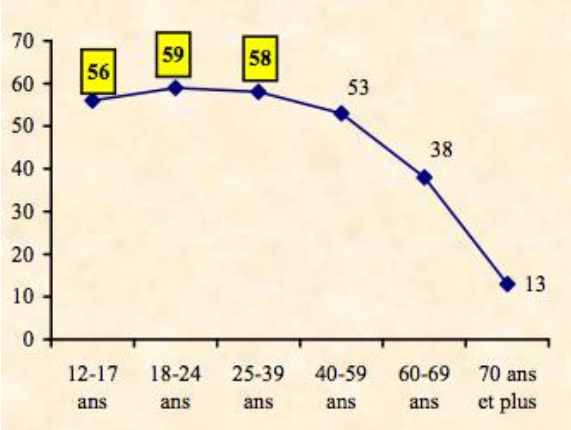
In France the rate of people who are equipped with landlines varies by their income. The holders of the lowest incomes are least equipped. We can see from Table 7 that 96% of retired people are equipped with a landline and also 97% of people aged 70 years old and over.

Table 7: Proportion of people equipped with one landline at least.

		June 2003	June 2004	June 2005	June 2006	June 2007	June 2008	June 2009
Age	60-69 years old	95 %	95 %	91 %	96 %	97 %	88 %	93 %
	70 years old and over	97 %	98 %	99 %	97 %	97 %	97 %	97 %
Profession	Retired	96 %	96 %	97 %	96 %	96 %	94 %	96 %

Source: (CREDOC, 2009)

Another way that elderly can use phone at home is the Internet by linking their landline with the Internet box. Only 13 % of elderly aged 70 and over are using it to make calls (see Figure 7).

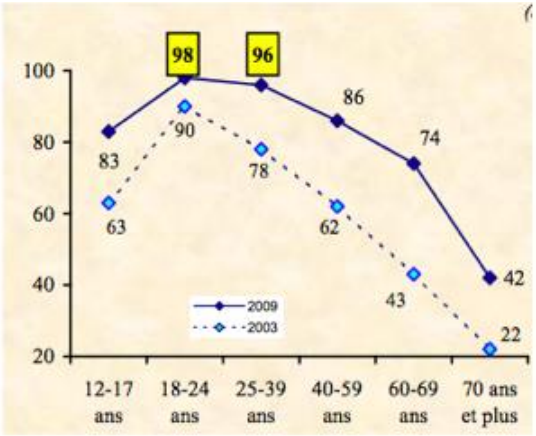


Source: (CREDOC, 2009)

Figure 7: The use of an Internet box to make calls by age (in %)**.**

Mobile phones

The mobile phone is still struggling to attract senior citizens over 70 years old: less than one out of two seniors use it in 2009 (42%, see Figure 8), while 74% of those between age 60-69 have one.



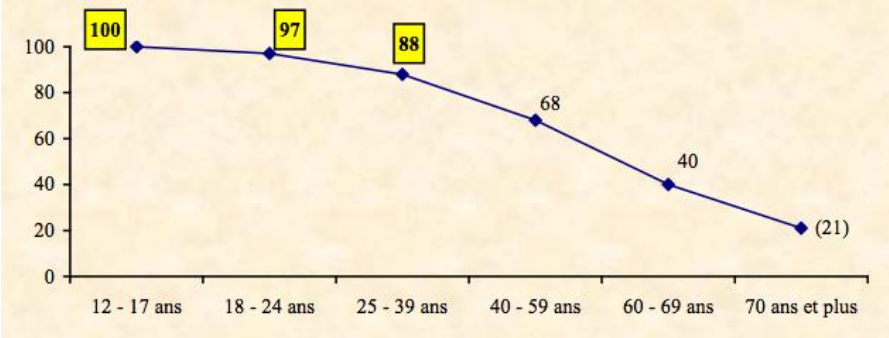
Source: (CREDOC, 2009)

Figure 8: Proportion of people with a personal mobile phone by age.

In June 2009, 68% of people aged between 60-69 years old are equipped with both (a mobile phone and a landline) and also 40% of people aged 70 and over, against 70% of the total population on average.

Sending SMS

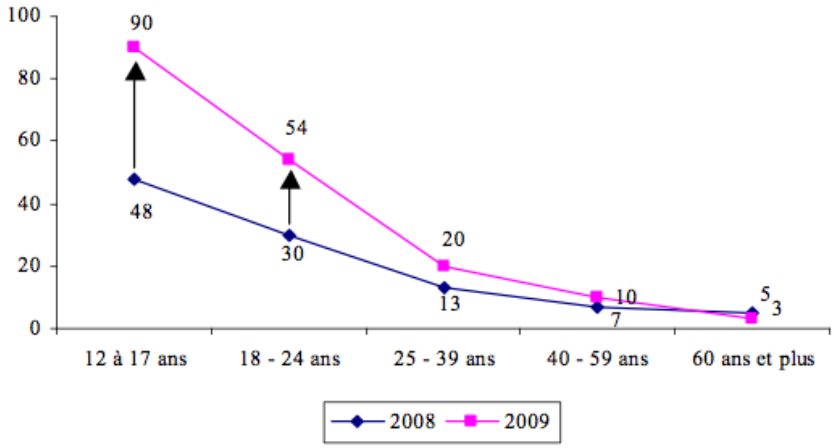
The retired in France use rarely their mobile phone to send SMS. Only one in three (35%) has adopted this practice. In June 2009 (see Figure 9), 40 % of people aging between 60 and 69 are using their mobile phone to send SMS and only 21 % for people aged 70 and over, against 74 % of the total population on average.



Source: (CREDOC, 2009)

Figure 9: The percentage of people using their mobile phones to send text messages decreases with age (in %)

We can also say that the number of SMS sent per week decreases sharply with age (see Figure 10).

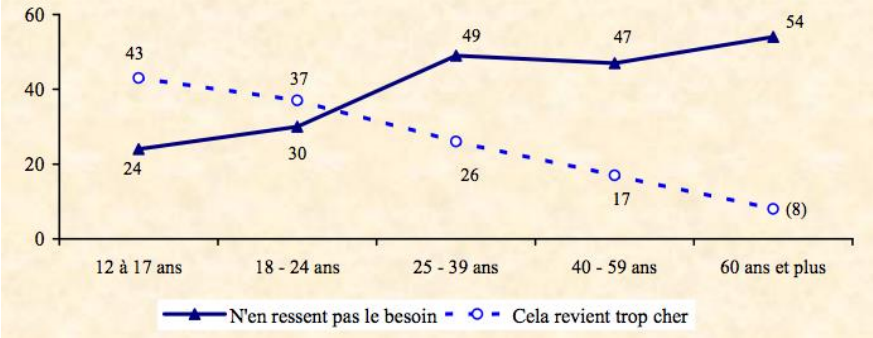


Source: (CREDOC, 2009)

Figure 10: The average number of SMS sent per week by age (in %)

Internet on mobile phone

2% of mobile phone owners aged between 60 and 69 years old use it to navigate on Internet and only 1% for the person aged 70 years old and over, against 13 % of the total population average. The more the person is aged the more they said that they do not need to go online via their mobile phone (see Figure 11). 55% of the sexagenarian equipped with a mobile phone but do not using it to navigate on the Internet said that the main reason is that they do not need it. This is also the case for 45% of the whole population.



Source: (CREDOC, 2009)

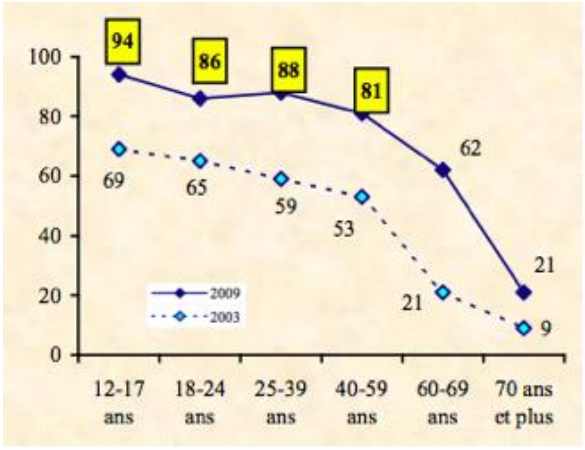
Figure 11: Reasons why people do not use Internet on mobile phone by age (in %)

Among other reasons, 20 % of people aged between 60-69 years old and 24 % aged 70 and over said that their mobile phone do not allow access to internet.

The use of the mobile phone by people aged 60 and more to download games, logos and ring tones is really insignificant (2%).

3.2.3 The use of Personal Computers

In France, only 21% of people aged 70 years old and over have access to a computer at home. Nonetheless the rate of sexagenarian equipped rose sharply between 2008 and 2009 by 62%.



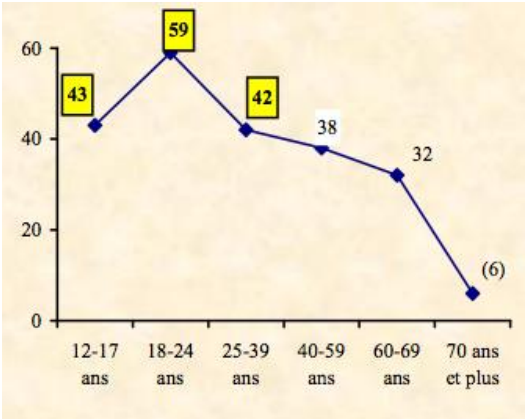
Source: (CREDOC, 2009)

Figure 12: proportion of people equipped with a computer at home by age in %
(comparison 2003-2009)

3.2.4 The use of Laptops

In France in June 2009, 32 % of people aged between 60-69 years old are equipped with a laptop and only 8 % of people aged 70 and over. 33 % of aged between 60 and 69 said that

they are competent to use a computer, against 12 % of people aged 70 and over, against 53% of the total population on average.



Source: (CREDOC, 2009)

Figure 13: proportion of people equipped with a laptop at home by age (in %)

3.2.5 The use of Television

In recent years, TV consumption increased and the French have succumbed to the charms of the TNT, satellite, cable or computer to access their favourite programs. Older people are more attached to their classic antenna inputs. Currently, France is adopting the TNT that will force the citizens to change their mode of reception. In 2009 there were 41 % aged between 60-69 years old and 27% aged 70 years old chosen the TNT. 28 % aged between 60-69 years old and 23 % aged 70 years old and over chosen the satellite; 17 % aged between 60-69 years old and 6 % aged 70 years old and over chosen the ADSL; 11 % aged between 60-69 years old and 11 % aged 70 years old and over chosen the cable to access television.

3.2.6 The most Important French Associations related to ICT use by the Elderly

3.2.6.1 La Société française des technologies pour l'autonomie et de gérontechnologie (SF-TAG)

This company was created in February 2007 from the initiative of Prof. Alain Franco and from the Société Française de Gériatrie et Gérontologie gerontechnology group as a filial. Its objectives are (RIALLE, 2007):

- Establishing or improving links, meetings and communication between all professionals related to health and medico social sector involved in the care of patients losing autonomy or that risk to lose it and requiring an aid at home or in institutions;
- The promotion of medical research, care research, and health for patients losing autonomy or that risk to lose it and requiring an aid at home or in institutions;
- Promoting the advancement of knowledge about diseases and conditions contributing to disability and knowledge about new information technology, communications, mechanics and mechatronics that are potentially useful for the autonomy and support adapted from the persons concerned;

- Promoting the training of professionals, caregivers and families;
- Promoting quality care for patients and families;
- Promoting medical, health and social coordination for patients losing autonomy or that risk to lose it and requiring an aid at home or in institutions;
- Promoting professional multidisciplinary of medical and social link for patients losing autonomy or that risk to lose it and requiring an aid at home or in institutions;
- Promoting structure and processes evaluation related to the care of patients losing autonomy or that risk to lose it and requiring an aid at home or in institutions;

The SF-TAG aims not only to promote the developments and uses of these technologies but also to allow France to be more present in European and international level (with an expected accession to the International Society of Gerontechnology).

A first consultation in gerontechnology was opened in France in February 2007 from the initiative of Prof. Franco. A geriatric consultation associated with a prescription of the adapted technology for every personal condition. Given the critical role of certain technologies for dealing with falls, hearing or vision loss problems, potentially dangerous social isolation, forgetting to take medication, they play a preventive or curative role in supporting a medicament prescription and to prevent or reduce as much as possible to going into an institution.

3.2.6.2 E-seniors

E-seniors was founded in 2005 by Monique Epstein, a retired computer scientist, to promote access for seniors to new information technologies and communication. The association offer older people to introduce them to computers and the Internet adapted to the pace and needs of seniors. The Web indeed is used as a way for retirees to avoid isolation, to create new links and to employ their intellect.

The training is organized in groups of 8 persons with 2 trainers in four different reception points in Paris.

In addition to introducing seniors and the disabled to new communication technologies, the association aims to:

- Reduce the "digital fracture" between generations.
- Get out the seniors from their isolation.
- Facilitate access for retired to training and information to enable them to better enjoy their free time.

Through training provided by this association, the Internet becomes a new tool to foster independence and intellectual stimulation for the elderly.

It is also a way for seniors to get out from their isolation by teaching them form example how to send email or connect a webcam or using forums.

E-seniors organize a cyber tea for seniors for a financial contribution according to the resources of every one, and also meetings between them and younger persons. The association also offers solutions for people with disabilities: assistance for the acquisition and installation of computer hardware, training on site and remote communication to provide support services and technical support.

3.2.6.3 Rennaissance Numérique

Rennaissance Numérique (RN) is the think-tank of the digital citizen in France. The association brings together industry experts from the professional world (CEOs) and academia (faculty members)[10].

Rennaissance Numérique proposed five incentive and assistance to the diffusion of information and communication service for use by senior citizens in three years (Renaissance Numérique, 2009):

Measure 1: Developing the accompanied Internet offer

Measure 2 : Extend Vivre@Domicile plan to 10 departments

Measure 3: Developing the accompanying by a strong human Networking on the territories

Measure 4: Launch a national communication campaign on digital and seniors

Measure 5: Implement a "Digital Seniors Days"

Also Renaissance Numérique proposed a sixth measure based on a forward on the design and development of new services and new technological uses for the elderly, "Seniors, innovative design and technology”:

Measure 6: promote and support multidisciplinary projects involving scientific and industrial for the design and creation of new devices and automated services for seniors

[10] http://www.renaissancenumerique.org/

3.3 Austria

Based on the official Austrian statistics source "Statistics Austria" (www.statistik.at) we have found various statistics on ICT use and aging population. The last EU-SILC 2007[11] data for Austria also provide statistics on usage of durables.

3.3.1 Use of the Internet

From 2005 to 2009, the share of Austrian population using computer and internet increased with meaningful rate. For generation 65+ in terms of share of population, the number of computer use increased from 35% in 2005 to 26% in 2009, while Internet use increased from 27% in 2005 to 22% in 2009. The differences by age are shown in Table 8. Little bit less than half of 55+ population use computer and Internet.

Table 8: Equipment and Internet use by age in 2009

	16-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	Share of population in 2009
Computer use	98 %	94 %	88 %	77%	56 %	26 %	76 %
Internet use	97 %	93 %	85 %	73 %	51 %	22 %	73 %

Source: (STATISTIK, 2010) [12]

Looking into more detail of Internet use, the generation 65+ cannot compare to any other generation. They significantly use less computer and Internet. Youngster generations 16-24 and 25-34 dominate in computer use and Internet. However, the purpose why Internet is used drastically differs from youngsters. Table 2 shows these effects in terms of share of Internet users in 2009.

[11] EU-SILC 2007 Austria: http://www.statistik.at/dynamic/wcmsprod/idcplg?IdcService=GET_NATIVE_FILE&dID=52044&dDocName=035744

[12] http://www.statistik.at/dynamic/wcmsprod/idcplg?IdcService=GET_NATIVE_FILE&dID=64255&dDocName=043840

Table 9: Internet use by purpose, frequency and by age in 2009

	16-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	Share of Internet users in 2009
Every day	72 %	67 %	66 %	68 %	62 %	58 %	67 %
Once per week	24 %	25 %	25 %	26 %	27 %	28 %	25 %
Less than once per week	3 %	6 %	7 %	5 %	10 %	12 %	6 %
Email	92 %	90 %	85 %	84 %	85 %	83 %	87 %
Chat, Blog and News	69 %	36 %	21 %	12 %	13 %	11 %	31 %
Internet telephony and Web cam	34 %	31 %	20 %	14 %	18 %	17 %	24 %

Source: (STATISTIK, 2010) [12]

As we can see in Table 9, 65+ users use significantly less chat and blog than the other generations while almost every second one is on the Internet every day. They use Internet significantly for sending email. Moreover, it is also the fact that usage of Internet telephony or web cam on the Internet is a bit higher than chat or news reading. Interestingly, 65+ users closely resemble from Internet purpose perspective those who are 41-64 years old (at least from a part of statistics).

3.3.2 The use of Telephones and Mobile Phones

Table 10: # of telephones and mobiles per age group in 2007

	bellow 19 years old	20-39 years old	40-64 years old	65+ years old
Telephone (in 1000)	1125	1150	2066	1227
Mobile (in 1000)	1792	2113	2754	890

Source: (EU-SILC, 2007 Austria)[11]

In Austria, the use of mobile phones is much higher than that of fixed-line phones, except within generation 65+ as shown in Table 10.

3.3.3 The use of PCs and Laptops

Out of 1.89 million households with the Internet access in 2007, 76,4% of households use PC to access Internet, 41,2% use laptop, while in separate 3,7% use mobile phone. The use of PCs is much higher than the use of laptops for Internet access, especially in the households with 3 or more persons as shown in Table 11.

Table 11: Use of PCs and Laptops for Internet access in households, 2007.

Households with at least one person aged 16-74	Households with Internet (in 1000)	PC (in %)	Laptop (in %)
1 Person	419	63	46
2 Persons	466	76	39
3 Persons or more	346	82	43

Source: (STATISTIK, 2007)[13]

3.3.4 The use of Television

Currently in official federal statistics there is no data regarding use of TV by age groups, rather by households and number of persons in households. It's interesting that single person households have much more TV sets than those with 3 or more persons. Also, Satelite is mainly use for connection, much more than Antenna or Cable (Table 12).

Table 12: Households with TV in 2007.

Households with at least one person aged 16-74	Households with TV (in 1000)	Antenna (in %)	Satelite (in %)	Cable (in %)
1 Person	969	19,1	31,6	43
2 Persons	882	20,2	48,2	36,0
3 Persons or more	467	19,9	56,9	30,5

Source: (STATISTIK, 2007)[13]

[13] http://www.statistik.at/dynamic/wcmsprod/idcplg?IdcService=GET_NATIVE_FILE&dID=50667&dDocName=029050

3.3.5 The SOPAAL Study

EXECUTIVE SUMMARY

The present study consists of three main parts:

• Description of the various needs of the AAL target group along a segmentation based on functional capabilities (demand side).

• Representative view on current and intended AAL activities of the Austrian industry sector (supply side).

• By comparing demand and supply side gaps and matches as well as key success factors for an implementation of an AAL program in Austria (analysis and recommendations) are identified.

Demand side

A segmentation based on functional capabilities of persons aged 60+ (in 2004) shows the following distribution:

Segment 2004 % Population % of 60+

GO-GOES ("independent performers") 1,3 Million 16% 72%

SLOW-GOES ("independent survivors") 0,33 Million 4% 18%

NO-GOES ("supported retirees") 0,18 Million 2% 10%

A secondary target group assisting SLOW-GOES and NO-GOES can be identified: supporting relatives (0.43 million) plus several tens of thousands of (semi-)professional personnel for mobile care and support.

SLOW-GOES and NO-GOES are highly fragmented segments due to a large number of various deficiencies and needs in the target groups. Furthermore, the majority is not willing or able to pay for additional products or services.

On the other hand, there is a relatively large number of 60+ people in good mental and physical health with an active lifestyle – the GO-GOES segment. Health and wellness are of high importance within this group. Existing life style segmentations suggest that sub-segments can be identified where a willingness to spend money for new products and services can be assumed.

As a result, business cases are easier to establish for GO-GOES than for the SLOW-/NO-GOES segment.

Supply side

A closer look at AAL research activities in the Austrian industry shows only very limited efforts to support the GO-GOES segment. A few companies are e.g. dealing with enhanced communication applications for the target group – including the setup of (virtual) communities.

On the other hand, there are a number of relatively small companies - supported by research institutions- that focus on rehabilitation and e-health. Their target is

• Monitoring and alerting

• Communication - e.g. care-givers / clients

• Information and mentoring

• Smart homes

• Support for cognitive deficiencies

Analysis and recommendations

Due to the nature of the SLWO/NO-GOES segment it is difficult to set up viable business cases and thus to motivate a wider set of companies to invest in this field. Other financing models including public funds, private insurances, etc. will be needed to address this target group.

As this might take considerable time we recommend approaching the GO-GOES as a first step for AAL activities in Austria. Two effects are to be expected:

- Promising business cases will help to encourage the industry to target this new market
- New projects will reach a wider audience and thus the visibility of the AAL initiative will be enhanced which in turn will help to further stimulate the industry

However, encouraging the industry to participate in such an AAL program will prove to be a challenge for program management. Due to the structure of the Austrian industry where 99.6% of all companies have fewer than 50 employees, it is essential that these small enterprises should be reached and encouraged. Program management will need to take extra care of their needs by establishing appropriate guiding principles, supporting community building and ensuring adequate communication. It should also be considered whether public institutions could act as lead customers in certain application areas in order to reduce the business risk for SMEs.

Relevant topics for targeting the segment of GO-GOES are seen in the health and wellness area by supporting an active and healthy life style. Examples are to be found in the fields of

- Nutrition
- Physical activity
- Cognitive activation
- Social connectivity

To create successful new products and services for this new target group it is essential that companies build up in-depth knowledge about the needs of GO-GOES and are able to evaluate their new ideas, prototypes, products and services in close interaction with potential customers. Especially the latter is seen as a further challenge for SMEs. As a possible remedy platforms for larger testbeds such as living labs could be incorporated into the program. Last but not least, SMEs have to be made aware of the fact that it will need more than a technically perfect product to find acceptance in this market. Fostering interdisciplinary cooperation between researchers, developers, user interface designers, sociologists, psychologists, ethicists etc. will be a key to success in this market segment.

4 Macro analysis of ethical issues regarding ICT usage in elderly

4.1 Germany

An ethical study[14] on some EU countries including Germany contains much of the information herein presented.

Advanced telecare/telehealth going beyond basic social alarms has not reached wide diffusion in Germany yet, but there are many activities and the area is developing quickly. Also, no dedicated ethical rules or procedure have been reported in relation to telecare applications. Ethical issues have so far mainly come to fore in relation to aspects of health care provision and medical research that do not immediately relate to the utilisation of ICT. When it comes to ICT-related aspects in particular, an area which has received some attention concerns data protection issues in relation to personal medical records.

In relation to medical services more generally, the code of conduct of the German Medical Assembly requires physicians not to diagnose and start therapy if they have not examined the patient personally. In case of non-compliance with the code liability issues may arise. This would not seem to be the case in case of remote interactions with the patient – e.g. in terms of a telemedicine application - which solely support the treatment. Moreover, reference to patient rights is made in a large body of legislation. The scattered nature of legislation concerning patient rights across different pieces of federal and state law has been criticised. The council of Ministers has therefore taken a decision to develop a comprehensive patient right Charta to be enacted by a federal law.

Data protection is regulated through both federal legislation and state laws. At the federal level data protection is regulated through the Federal Data Protection Act (BDSG) of 1990, as revised in 2003 and 2005. The act regulations on transmitting personal data abroad, video surveillance, anonymization and pseudonymization, smart cards, and sensitive data collection (relating to race/ethnic origin, political opinions, religious or philosophical convictions, union membership, health, and sexual orientation). It grants data subjects rights of objection. Similar legislation has been enacted in each federal state.

The Parliamentary Commissioner for Data Protection and Freedom of Information oversees national data protection legislation. Besides supervising the implementation of the Data Protection Act and acting as an ombudsman for both data protection and freedom of information, the Commissioner's tasks include investigating complaints, maintaining the Data Protection Register, and providing opinions on draft legislation.

[14] http://www.ict-ageing.eu/ict-ageing-website/wp-content/uploads/2008/11/d11_ethics_compilation_rep_with_exec_sum.pdf

4.2 France

The advent of the Information and communication technologies in the daily life of the elderly and care practices has become a subject of conflict and intensity of the debate on the ethical issues has never been so crucial. The more the disability and loss of independence faces by the elderly is greater the more is the need of private information by these new systems to be more effective. Information technology must respect the human identity, the human rights, privacy and liberties. These technologies are nevertheless about to be prominent. Society sees this highly impending technological pressure that could severely harm the freedom (to accept or refuse the use of any device) or to human dignity (ruptures of private space, transformation of the human on a monitoring subject, etc.).

Ethics is at the basis for the creation of laws. Germany in 1971, Sweden in 1973, and France in 1978 were the first three States to vote for a "Computers and Liberty" law; these work with an independent control authority. Section 1 of the French law “computer and freedom” is a good illustration: “IT must be at the service of every citizen. Its development should take place within the framework of an international cooperation. It shall not prejudice to human identity, human rights, privacy, individual or public liberties”.

The issue of ethics related to technologies for ageing people staying at home is debated in Europe, reports and theses are published on this topic. We can quote, for instance, in France, the work from Vincent Rialle (2005, 2007-b). The types of problems raised are mainly related to technologies assisting health or the loss of autonomy: privacy, responsibility, dependence).

In the FoSIBLE project, the technologies are not focusing directly on health but are related to the well-being of isolated elderly. The scenarios we have defined with our end-users (see deliverable 2.1) are dedicated to collective activity like sharing contents, visiting places together, exercising or gaming together, and discussing. In our opinion, the ethics question for our project is then more related to the issue of data privacy.

4.2.1 The status and role of the “CNIL”

The “Commission nationale de l’informatique et des libertés” (CNIL)[15] is an independent administrative authority whose mission is to ensure that data privacy law is applied to the collection, storage, and use of personal data. Its existence was established by French law n° 78-17, concerning computers, files and liberties (data privacy) and enacted into law on 6 January 1978. The CNIL is composed of seventeen members from various government entities, four of whom are members of the parliament (Assemblée nationale and Sénat). Twelve of these members are elected by their representative organisations. The CNIL's administrative authority status is totally independent for selecting the actions that it will

[15] http://www.cnil.fr.

undertake. However, its power is limited and defined by law. The CNIL is financed by the budget of the French Republic.

The CNIL ensures that the methods used to implement an individual's statutory right to access his/her data on files do not impair the free exercising of that right. It holds the specific competence to access State security, defence and public security files, including those of the security branch of the police force and investigation police department, on behalf of citizens.

The CNIL responds to all the requests for advice it receives; It adopts recommendations for a correct implementation of the law (actually 28 recommendations on the most varied subjects: telephone auto-commutators, consumer credits, polls and surveys, CCTV, use of files for political communication purposes, medical research, health websites, diffusion of nominative judicial decisions on the Internet, etc.); It promotes the adoption of professional rules of good conduct or codes of deontology in various professional sectors (direct marketing, call centres, mass marketing).

Sensitive data processing is subject to the CNIL's authorisation. Data controllers that fail to comply with those formal requirements may be liable to administrative or criminal sanctions. The CNIL makes the "file of files" available to the public, i.e. a list of notified files and their main characteristics.

The CNIL keeps itself informed of the evolution of technical processes; it draws up reports which are submitted to public consultation (files for combating fraud in matters of consumer credit, advertising via email, biometric recognition technologies, the Internet and minors, cyber-surveillance in the workplace, etc.); It proposes to the government all the necessary legislative or regulatory measures for adapting the protection of rights and liberties regarding the evolution of technologies.

The CNIL supervises compliance with the law, by inspecting IT systems and applications. The Commission uses its inspection and investigation powers to investigate complaints, improve its knowledge on some specific files, better appreciate the implications of using IT in some sectors, and following up on its deliberations.

The CNIL also monitors the security of information systems by checking that all precautions are taken to prevent the data from being distorted or disclosed to unauthorised parties.

The CNIL may pronounce different types of sanctions: warnings, injunctions, financial sanctions up to €300.000, orders to stop processing operations. The Chairman may also file a petition in court to order any necessary measure. He can, on behalf of the Commission, report breaches of the law to the Prosecutor.

No public file may be implemented without a favourable opinion of the CNIL: if the decision is unfavourable, the file can only be implemented if the Council of State hands down a

positive opinion; The CNIL can, on its own initiative or following a complaint by an individual, carry out an audits on the spot concerning any file (it carries out approximately fifty audits a year); in case of offences, the CNIL may issue warnings to the persons responsible for the files or inform the Public Prosecutor of any offences it has knowledge of.

4.3 Austria

The legislative situation in Austria is similar to Germany. There are two laws that directly apply to ethical issues regarding ICT usage and elderly. The first law is the Privacy law, in German the „Datenschutzgesetz 2000" or in short DSG 2000 (long name: Bundesgesetz über den Schutz personenbezogener Daten)

- This law describes that Data should be protected against access from unauthorised persons, as well as protected against accidental and unlawful destruction and loss, according to paragraph 14, article 1.
- This also implies the declaration of those people that are allowed to access, update, analyse the data, the organisation of access control, the organisation of backups, the identification of users, etc.
- If explicit medical data is obtained and stored in a database, this has to be reported to the Privacy Protection Register, except if it is stored anonymised. Of course, the participant will have to sign their consent for this.
- The consent form has to be approved by the ethical committee.
- Anonymisation should be performed wherever possible and a relation to persons should only be available when it is absolutely necessary to a specific person. An ID is possible, as long as it cannot be indirectly connected to the specific person (e.g. through a combination of date-of-birth, city, employment).
- Distribution of data to other Partners should be communicated to the Ethical committee stating the reason. Guidelines should be followed regarding encryption.

The second law concerns collection of personal medical data: „Data security law for medical information" – in German: „Gesundheitstelematikgesetz" or in short GTelG (long name: Bundesgesetz betreffend Datensicherheitsmaßnahmen beim elektronischen Verkehr mit Gesundheitsdaten und Einrichtung eines Informationsmanagement, Stammfassung BGBl. I Nr. 179/2004).

- The law covers specific aspects about the security measures that have to be taken into account for storing health and patient records for medical information.
- The law is not relevant for the FoSIBLE project (but included for the sake of completeness).

Furthermore, the following laws or ordinances deal with data protection

- Datenschutzverordnung d. BPräs.: This legal ordinance controls basic principles on data investigation and processing, data usage, its transmission and deletion.
- Informationssicherheitsgesetz: This act regulates basic rights of data privacy and the duty to give information.
- Medizinproduktegesetz: This law for products in medicine regulates aspects of application at the patient or consumer side.

For assessing ethical aspects of studies, two main ethics commissions are worthnoty. First is the "Austrian Bioethics Commission", the other the "Ethical Committee of the City of Vienna".

4.3.1 The Austrian Bioethics Commission

The purpose of the Austrian Bioethics Commission is not to assess studies for their ethical correctness, but solely to assist and advice the federal chancellor in ethical questions. However, it published an opinion document called "Assistive technologies, Ethical Aspects of the Development and Use of Assistive Technologies with Regard to Older People". The aims of this document are

- Drawing attention to the ethical aspects which arise from the use of assistive technologies in everyday life,
- Developing recommendations concerning issues of responsibility, autonomy, dependence and care, data protection, methods of technology development and social and ethical questions.

The opinion is based on a detailed study of the literature and deals with a number of ethical questions that arise in connection with the use of assistive technologies:

- What forms of personal care and contact are abandoned with the use of assistive technologies?
- What consequences arise when responsibility for the monitoring and quality of intervention is delegated to machines and informal carers (in many cases, family members)?
- Which services must be established or made accessible to ensure that patients receive integrated care and that the technologies can be embedded in the domestic environment?
- Which particular problems arise in terms of data protection?
- What is necessary to ensure that all those in need have access to assistive technologies and that no one is disadvantaged?
- What requirements does technological development need to meet from an ethical perspective?

The results from this recommendation are concrete advices in different areas. The areas discussed are

- **Autonomy, Dependence and Care**
  - The partial transfer of medical care and nursing into the home by means of assistive technology should always be subject to consent of those affected.
  - The partial transfer of medical care and nursing to the home must always be preceded by thorough consultation with the patients and their informal carers. In particular, it must be clarified whether they are socially and mentally capable of carrying out the tasks arising from the installation of the technologies, what are the potential consequences of new dependencies (upon people and machines), etc.
  - Patients and their informal carers should be given the opportunity to discontinue the use of complex AT in the home after a period in which they have familiarised themselves and gained experience with it. This should be a mandatory option for its installation.
  - Care should be taken that the use of AT supports communication and does not replace it.
  - The introduction of assistive technologies in the home should always be combined with their inclusion in integrated care networks or the development of new services. This should help prevent the high quality of monitoring or care that is essentially guaranteed by a specific technology being diminished by an inadequate environment.

- **Socio-Economical Aspects**
  - Useful assistive technologies whose effectiveness has been proven should definitely be made available in the public health-care system in the spirit of participatory equality.
  - One area where caution is required is the fear that the use of AT in the home might potentially only benefit those who have a suitable social environment and suitable living conditions. Measures should be put in place to prevent this.
  - Patients should not be disadvantaged with regard to their further medical treatment and nursing care should they refuse to have assistive technologies in their home. Any such refusal should always be preceded by a personal consultation.
  - There should be a discussion of the general impacts of assistive technologies on the healthcare system and its role in strategies for dealing with the general demo-graphic development.
  - It is recommended that ethical guidelines be drawn up for research and products.

- **Legal Aspects**
  - The Commission recommends that a study be conducted regarding the necessary legal arrangements.

- **Data Protection and Invasion of Privacy**

- The continuous registering of parameters should be minimised and, where possible, patients should have the option of escaping this surveillance at least temporarily.
- The collection of data should be strictly limited to data that is absolutely essential for the activity supported by the system; access to such data should be subject to a time limit determined by medical and nursing needs.
- Special arrangements must be made in respect of the technology-assisted monitoring of individuals who are incapable of giving consent and those who are especially vulnerable.

- **Demands on Technology Development**
  - Assistive technologies can be medical equipment, medical supplies, implants, medical aids for the disabled, medical software, medical laboratory diagnostics, and medical laboratory equipment. All these are defined as medical devices pursuant to the Austrian Medical Devices Act. Even if medical technology is associated with patient treatment at hospitals and in medical practices, individual products are increasingly being used in the home as assistive technologies. To enable such equipment to be operated properly in a home environment, it must conform to the essential requirements of being safe, efficient and approved for the particular application. Unlicensed products may only be used within the framework of clinical trials in accordance with the relevant national and international guidelines. Particular consideration should be given to the requirements set out below for clinical trials of medical devices which are intended for home use. In particular, provision should be made for evaluating these devices “onsite” in real situations of use and this requirement should be incorporated into the guidelines of research funding programs. These guidelines should also be subject to review by an ethics committee comprising specialists from the relevant fields.
  - Technology development in such a sensitive area should as a matter of principle be carried out using participatory methods, i.e., in close cooperation with users. The products that are developed should be tested in real situations and their implementation within the context of the existing health care and nursing system should be taken into account from the very outset. This should also be taken into consideration when awarding project funding at the EU level.
  - When developing AT consideration should be given to the technology’s transparency for the user and its configurability. Examples of such requirements are: Users require a simple model that shows them how the system works; their attention should be drawn to the effects of their activities in the system (thought should be given here to suitable feedback); they should basically understand the possibilities for configuring the system and must be offered simple possibilities of interaction; consideration should be given to the learning and support needs of the formal and informal carers
  -

4.3.2 Ethical Committee of the City of Vienna

For assessing studies in the context of ICT usage, there exists no dedicated commission in Austria. However, there are several ethical commissions in the area of clinical and medical studies. In Vienna, the Ethical Commission of the Medical University of Vienna is responsible for assessing studies conducted at the Medical University and its associated General Hospital of Vienna. Several smaller private medical institutions and hospitals maintain their own ethical committee. Hospitals directly owned by the City of Vienna have access to the "Ethical Committee of the City of Vienna", which offers consultation and assessment of medical, ethical and legal aspects when conducting clinical tests and testing new medical methods. It is responsible of clinical tests of drugs and medical products as well as the appliance of new medical methods according § 15a of the "Viennese hospital law" – in German: "Wiener Krankenanstaltengesetz 1987" (long name: "Wr. KAG in Krankenanstalten der Unternehmung Wiener Krankenanstaltenverbund (mit Ausnahme des Allgemeinen Krankenhauses der Stadt Wien)).

The ethical commission of the City of Vienna has the task to judge if the rights and the integrity of a test participant taking part in a certain clinical study or a new medical method are appropriately protected, taking into account the "Guideline for good clinical practice"[16] and the Declaration of Helsinki.

The ethical commission has to assess in particular:

- The eligibility of the tester in respect to his qualifications
- Participating institutions and persons (personal and structural conditions);
- The test plan in respect to goals, the medical and technological justification of the test and the scientific explanatory power, as well as the assessment of the risk-benefit relationship;
- The way in which the recruitment of test participants is conducted;
- The way in which the information and consent for participating are conducted;
- The measures in case of harm during a clinical test or the appliance of a new medical method.

The Ethical Commission of the City of Vienna is certainly eligible to assess studies conducted in the context of AAL, as many of the factors mentioned above apply both in clinical as well as non-clinical studies. However, its clear focus on clinical and medical studies shows the need of a dedicated ethical watch authority in Austria when it comes to elderly and the use of ICT. An ethical commission with a broader focus is currently being installed at the University of Vienna, but it is not yet clarified, if it will be available for non-academic research bodies.

[16] http://www.wien.gv.at/ma15/pdf/gcp.pdf

5 ICT market analysis for elderly

5.1 Technologies for elderly available on the German Market

A noticeable amount of activity has been identified in relation to ICT-based support directed towards older people. This mainly includes social alarm services which are by now fully mainstreamed and more advanced forms of telecare as well as telehealth and smart home developments[17].

5.1.1 Social alarms

A social alarm is a system that provides a means to raise an alarm call by pressing a button on a small portable alarm trigger. Alarm calls are received by a control centre. The operator opens a speech link and organises help for the person in need. The control centre has a database with information about the subscribers. Control centres have a reliable 24 hours a day communication and help infrastructure. The systems are designed to give users, such as the elderly or others in need of care, a means of living more independently and often in their own homes, while still being able to rely on help in an emergency. Depending on the individual situation, follow-up action is taken by relatives, neighbours or the local rescue service. With the emergence of mobile alarm phones or other mobile alarm devices some service providers have started to offer localisation via GPS. Such devices are advertised as „a guardian angel in the pocket". Although exact figures are not available, mobile alarms do not seem yet to be widely used. In contrast to the case of fixed social alarms, reimbursement within the framework of the long term care insurance is not available for mobile alarms.

Social alarms have been available in Germany for more than 25 years and nearly 90% of the social alarm services are provided by six large welfare and charity organisations operating on a country-wide basis. Partly, these run their own service centres and partly service centre operation is outsourced to specialised organisations. Commercial alarm service providers, include:

- Recontrol[18] (Service with set of Receiver/Push-button transmitter)
- Tunstall Group[19]
- Bosch Security Systems (ManDown Sensor[20] and Social Alarm Unit 3100[21])
- HausNotruf Service GmbH[22]

[17] http://www.ict-ageing.eu/?page_id=252

[18] http://www.recontrol.de/hausnotruf.html

[19] http://www.tunstall.de/

[20] http://resource.boschsecurity.com/documents/SocialAlarmManD_DataSheet_enUS_T5947906827.pdf

[21] http://www.appliancemagazine.com/news.php?article=9811&zone=0&first=1

[22] http://www.hausnotruf.net/

- Vitaphone[23]

In addition to commercial lines, mainstream housing organizations like SOPHIA[24] provide social alarms as well. According to the German association of alarm service providers (Bundesverband Hausnotruf[25]) their member organisations serve about 350,000 users. This would represent 2.3% of the population aged 65+. Traditionally, service offerings have relied upon a purely reactive concept of support provision, i.e. responding to emergency situations rather than proactively preventing such situations. During recent years, however, service offerings have become available that adopt a more proactive approach, e.g. by making regular telephone or even video phone calls to clients. Also, new generations of alarm systems enable integration of diverse types of passive sensors such as smoke detectors, gas or movement detectors.

5.1.2 Telecare

There has been a considerable amount of research and piloting activity in the field of telecare over recent years. In 2006, for example, the German government launched a research programme entitled ”Ageing Related Support Systems for Healthy and Independent Living” (Altersgerechte Assistenzsysteme für ein gesundes und unabhängiges Leben) in the framework of its ”High-Tech Strategy for Germany”. This research programme put emphasis on exploiting the inherent properties of modern technology for enabling older people who are in need of support to continue to live in their own homes. The programme had budget of €30 million.

More recently, the German government has played an active role in setting up the Europe-wide joint research programme on Ambient Assisted Living (AAL). In the framework of the “AAL-Joint Programme” participating countries together with the European Commission have committed themselves to spend about 50 Mio Euro per year between 2008 and 2013 on research in this field.

When it comes to mainstream implementation of telecare solutions, a lot less activity can be reported. One exception concerns the SOPHIA service concept mentioned in social alarms, which was developed from a publicly funded pilot project. It has been successfully mainstreamed and is currently being deployed in different parts of the country by means of a franchise model. Round-the-clock operation of local services centres is at the heart of the SOPHIA service model. These operate in close cooperation with locally available volunteers and professional services such as community care services and handicraft businesses. A not-for-profit foundation – the SOPHIA foundation – has been established in order to recruit and train volunteers who support individual clients. Different service packages are offered:

- A “basic” service package includes 24/7 availability of a service-centre by telephone, a weekly reassurance call initiated by the SOPHIA staff as well as on-demand advice to clients and/or their relatives in relation to formal services that are locally available

[23] http://www.vitaphone.de/

[24] http://www.sophia-tv.de/

[25] http://www.bv-hausnotruf.de/

from other parties. In case of illness, the client is contacted on a daily basis by service centre staff.

- A "security" package includes – in addition to the above services – a personal alarm service utilising an intelligent wrist band and, if required, various sensors placed in the client's home (e.g. gas and fire sensors). The wrist band enables an alarm call to be actively triggered by the client. Response is initiated according to an individually agreed protocol and delivered by external parties, e.g. a family member, a neighbor or the family doctor. Moreover, the intelligent wrist band enables the service centre to actively initiate an intervention on the basis of a 24h activity profile generated through this device.
- A "contact" package enables – in addition to the "basic" service – video telephone contacts to be established via an ordinary TV set with the service centre or any other party (e.g. family members and friends) stored in a personalised video telephone directory. Beyond this an "information button" enables access to dedicated news, e.g. concerning health matters. This package is typically offered to individual clients when specific needs arise, e.g. in case of immobility or absence of any social contacts. As the economic capabilities of many clients who stand to benefit most from the "contact" package tend to be rather confined, financial support is available on a case by case basis from the SOPHIA foundation and Kabel Deutschland, a national cable network provider.
- A "comfort" package comprising all service components sketched above is available as well.

Clients who are eligible to receive support under the statutory long term care insurance scheme, service fees are reimbursable up to an amount of €19 per month. A mixed financing model relying on contributions by housing organisations, service fees and partial public reimbursement of service costs enables to keep the financial contribution required to be made by the end users at a manageable level, currently about €35 per month on average depending on the service package actually utilised.

5.1.3 Telehealth

The purpose of telemedicine/telehealth is to provide optimal patient care as well as implement improvements within the health care processes. A considerable amount of trial activity has been observed in the field of telehealth. Various health insurers have started to conduct trials concerning home monitoring of patients suffering from specific chronic diseases such as diabetes and heart disease, many of whom can be found in the older age. Some recently finished pilots include for instance SOMATEK, IN-MONIT, TEDIANET, and HeartCycle. Here is a bit more detail on each of them:

- SOMATEK[26] prevents secondary life-threatening situations for patients with a cardiologic risk constellations by establishing innovative technical and organizational infrastructures for a 24/7 monitoring. The secondary prevention is achieved by seamless monitoring of relevant vital parameters, which covers the entire period of

[26] http://www.somatek-care.de/en/overview.html

acute point of care inside the hospital and the recovery period, when first mobility is achieved and when the patient is released into ambulatory or home care environment. Technical innovations include the development of non-obtrusive sensors and signal processing algorithms for reducing artifacts, a body area network, low-power wireless data transmission, and communication interfaces to the hospital information system and the telemedical healthcare center.

- IN-MONIT[27] project does 24/7 monitoring and identification of cardio risk factors using innovative in-ear sensors which allow wireless extraction of various biosignals (temparature, EKG, druck etc.).
- TEDIANET[28] is a diagnostic system designed for mobile patient monitoring and ambulance use especially for monitoring various biomedical signals and correlating them to sleep problems and therapy management.
- HeartCycle[29] aims to improve the quality of life for patients with coronary heart disease or heart failure by monitoring their condition and involving them in the daily management of their disease as well as by developing mechanisms to automatically report relevant monitoring data back to clinicians so that they can prescribe personalized therapies and lifestyle recommendations. HeartCycle system consists of two loops: An inner home-based loop directly interacts with the patient in his daily life, giving feedback, motivation and help, and an outer loop involves medical professionals, maintaining a personalised care plan for optimal therapy.

Beyond the pilot activities, health insurance companies have started to mainstream home health monitoring solutions as part of dedicated disease management programmes (Integrierte Versogung). Examples of telehealth schemes that have been implemented in the framework of such integrated healthcare programmes and some other products include:

- The health insurer BKK Taunus [30]in cooperation with SHL Telemedizin[31] provides home monitoring of patients with chronic heart conditions and diabetes. The services have been tested and are offered to all members of the Taunus BKK.
- The programme Corbene[32] aims at people with heart failure. People who have health insurance provided by BKK Nordrhein can participate in the Corbene programme which, amongst others, includes home telemonitoring and a mobile alarm service with tracking functionality.

[27] http://www.in-monit.de/motivation.htm

[28] http://www.tedianet.org/

[29] http://heartcycle.eu/

[30] http://www.ict-ageing.eu/?page_id=1330

[31] http://www.shl-telemedicine.de/

[32] http://www.bkk-nordwest.de/versorgungsprogramme/extras-in nrw/vertragsarbeitsgemeinschaft/corbene.php

- The Techniker health insurance[33] together with Dr. Hein Group[34] provides video-based therapy for Parkinson patients in several regions.
- Dr Hein Group with their patented EvoCare platform used by 12 hospitals enable wide scope of applied therapies such as supervised kinetic exercises, e.g. for people who had a heart attack or people with dementia, supervised ergometer exercises, e.g. for people who had a heart attack or stroke and diabetes patients, cognitive exercises, e.g. for people with dementia, Parkinson disease or depression, speech exercises, e.g. for stroke patients, people with Parkinson disease or dementia, and memory/attention exercises, e.g. for people with Parkinson disease or dementia.
- Tunstall[35] RTX3370 and RTX3371 (GPRS) telehealth monitors and CSO/Telehealth software provides flexible solution to meet the requirements of remote health monitoring as patients' needs change and as monitoring services are expanded both locally and nationally.

5.1.4 Smart Homes

Since the1990s, a national information campaign - the "Senior-Info-Mobil" campaign - was supported by the German government in cooperation with ICT industry players. Amongst other things, it was aimed at promoting wider implementation of smart home technology that was available on the market at that time. Today, a range of stand-alone home automation products are available on the German market (e.g. electric shutters, home security systems, intelligent lighting systems, energy management systems, air conditioning systems). However, networked smart home solutions specifically geared towards the needs of older people have up to now only been implemented in experimental settings. Research and demonstration homes that can be found across the country include:

- **inHaus[36] or Innovative Center for Intelligent Room and Building Systems** – claims to be the largest innovation centre for intelligent room and building systems worldwide and has a high profile in the field in Germany. The project involves collaboration between partners from industry and research to develop and test innovative components and systems solutions. Many of the applications originally developed within the inHaus programme are now being provided on the open market.
- **OFFIS apartment[37]** for older people (ideAAL) has the goal of developing an integrated solution for the ageing society. Technologies include door sensors, automatic switch-off of electrical devices, medication reminders, fall detectors, automatic switch on and off of lights. In summer 2008 two apartments were completely reconstructed for the needs of elderly people and equipped with smart technologies. The apartments now are used as demonstrators and development laboratories.

[33] http://www.tk.de/tk/tk/english/145048

[34] http://www.dr-hein.com/

[35] http://www.tunstall.de/

[36] http://www.inhaus-zentrum.de/site_de/

[37] http://www.ideaal.de/

- **Das Mediale Haus**[38] is a pilot for standard home automation technology (automatic switch-off/on of electric appliances, regulation of heating etc.), including safety and communication applications. The demonstration home addresses, amongst others, older people but is not particularly designed for them. Partners involved include technology developers, software businesses, craft businesses.
- **Smart Living in Hattingen**[39]**:** In 2007, older people moved into 54 innovative living communities in the framework of a pilot project. The homes are equipped with an intelligent network from the Ambient Assisted Living GmbH. Areas covered are health, safety and security, comfort. Applications include health services to improve care of patients; an intelligent infrastructure to enable multimedia-based communication; entertainment and edutainment infrastructures that are easy to use; home delivery; automatic switch-off/on of electronic devices.
- **Assisted Living in Kaiserslautern**[40]: Target group of this project are in particular older people and the focus is on AAL technologies to support older people living independently at home. Areas the work focuses on are health, safety and security, comfort and communication. Technologies include automation devices, TV, radio, internet access, door camera, motion detectors, light switches, electrical driven roller blinds, water flow sensors, fall detectors. The project is conducted at four different locations, each focusing on a different user group and living arrangement: 20 new homes that appeal to people of all ages (Kaiserslautern); residential home (Neuwied); assisted living (Speyer); retro-fitting of existing homes (Mainz). Cooperation partners involved are technology developers, research institutes, pharmacies, care service providers.
- **SmartHome Paderborn**[41] (not strictly for older people) was initiated by a consortium featuring a number of technology providers, craft businesses and ICT providers. The SmartHome demonstration house focuses on comfort/security issues and the complete house is available on the market. All products shown in the demonstration home are available on the market but yet not mainstreamed.
- **The SerCho smart**[42] (not stricly for older people) home provides support in the areas of communication (fax, e-mail, text messages, answering machine, access via TV, computer, stereo equipment, communication assistant), entertainment (presentation of different kinds of media on one screen) and energy saving (self-learning system for energy control). The project is funded within the framework of the programme "Next generation media" by the Federal Ministry for Economic Affairs and Technology and involves software developers, telecommunication businesses and research institutes. In June 2009 "Connected Living", an association which aims to promote the development of innovative and inter-sectoral solutions of intelligent home networks.

[38] http://www.das-mediale-haus.de/

[39] http://www.smarterwohnen.net/

[40] http://www.eit.uni-kl.de/litz/assisted_living/index.html

[41] http://www.smarthomepaderborn.de/

[42] http://130.149.154.94/

5.2 Technologies for elderly available in France

On the French market we find several types of technologies for the elderly. Three categories can be distinguished

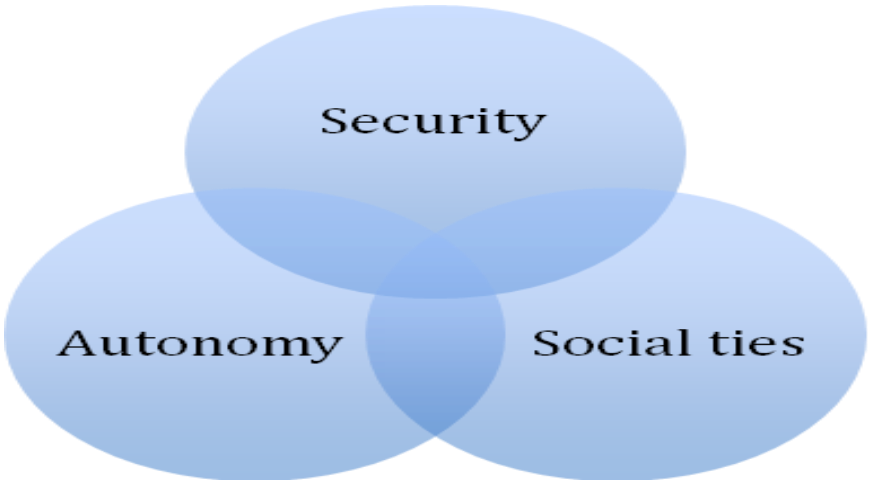


Figure 14. Technologies types for the elderly

Offers for security: technologies that automatically ensure the security of the person at home or in institutions.

Offers for social ties: technologies pertaining to communication between the elderly and their relative (family, friend, caregivers).

Offers for autonomy: technologies that allow the dependent person to make by itself some activities of daily living. (These technologies are not part of this project focus)

In this report we will present a non-exhaustive set of technologies. Emphasis will be laid on technologies for the social tie and technologies for security. At the end we will summarize in a table the technologies presented by their features.

5.2.1 Offers for security

Assystel teleassistance

For over 15 years, the company ASSYSTEL[43] founded in 1978, was the exclusive supplier for France Telecom with telecare devices and central receiving calls. Asystel provides to elderly for feel safer an equipment very easy to use. A waterproof medallion or a bracelet let them to be in contact with a hostess with a simple button touch (see 15). The senior can use it 7 days on 7 and 24 of 24 for an emergency or simply to speak to someone.

[43] http://www.assystel.fr

Source: http://www.assystel.fr/materiel.html

Figure 15. Assystel medallion and bracelet

Assytel telacare services cost 19,99 euros per month plus 29,90 euros for the installation, with a possibility supported by the APA (Aide Personnalisée à l'Autonomie).

The UbiQuiet system

UbiQuiet[44] is a solution that complete teleassistance offers. It is a communicating object that can be installed at the domicile of the elderly to enable them to easily and simply share with the outside. This solution is intended for health professionals, general councils, local communities or associations for the elderly or ill with limited autonomy requiring continuous monitoring.

UbiQuiet allows users:

- Receiving voice mails from relative or from authorized services (local authorities, associations, service providers) by email, SMS or audio stream.
- Make a call simply by recognizing the photo of the person or the service without necessary knowing the phone number.
- Notify the user about the visit or not of a caregiver, nurse or other person.

Sensors are installed in the house to ensure a continuous monitoring of the seniors activities. A permanent link with health care professionals is installed to intervene if an abnormal situation is detected by the secure processing center that can analyze abnormal situations such as detection of falls or deviance in relation to habits. Also a secure web portal is available to enable allowed relatives ensure that everything is going well.

[44] http://www.ubiquiet.com

Source: http://www.ubiquiet.com/?q=fr/page/présentation-ubiquiet-full.htm

Figure 16. The Li1 of UbiQuiet

The markup Aloïze

The markup Aloïze[45] is developed by IGL to remedy from homelessness problems affecting patients suffering from Alzheimer disease, allowing their relatives to identify their position at any time on a website or via a telephone service. It took two years developing for IGL before launching the service in December 2006.

Aloïze is a small box that measures 100 x 69 x 33 mm and weighs 210 grams. It features GPS, GSM, SIM card and a battery that provides 4 days autonomy. Aloïze can be worn in a pocket, purse, or in any container as a leather pouch that is offer as an accessory by the developer (see 17).

Aloïze is available for 99 euros for the implementation and then a monthly fee of 45 euros.

Source: http://www.igl-france.com/alo45.php

Figure 17. The markup Aloïze

The Amber alarm

Amber[46] is an integrated solution of telecare and remote alarm developed by Startel Automation. The remote alarm works in the traditionally way with specific sensors (smoke, loss of verticality, home automation) and automatically directs calls to emergency centers (firefighters, hospitals, etc ...). For the remote alarm, Amber allows many functions:

[45] http://www.igl-france.com

[46] http://www.stratelautomation.com

- Trigger by radio medallion, bracelet, panic button;
- Smoke detection;
- Loss of equilibrium, inactivity test;
- Home automation functions.

The functions of telecare transmit medical information to a specialised structure. The medical devices communicate via Bluetooth with Amber:

- The heart rate;
- The glucose rate;
- The Blood Pressure;
- The weight.

Source: http://mad.benetic.net/?cat=25&paged=3

Figure 18. The Amber alarm

EDAO services

Link Care Services[47] is a French company that develops and operates video monitoring solutions for dependent people. Link Care Services designs and distributes EDAO[48], a video monitoring service for dependent people living at home or in a care facility. EDAO can be used by dependent people and their entourage to ensure their safety, reduce response times in the event of a problem and provide respite for informal caregivers.

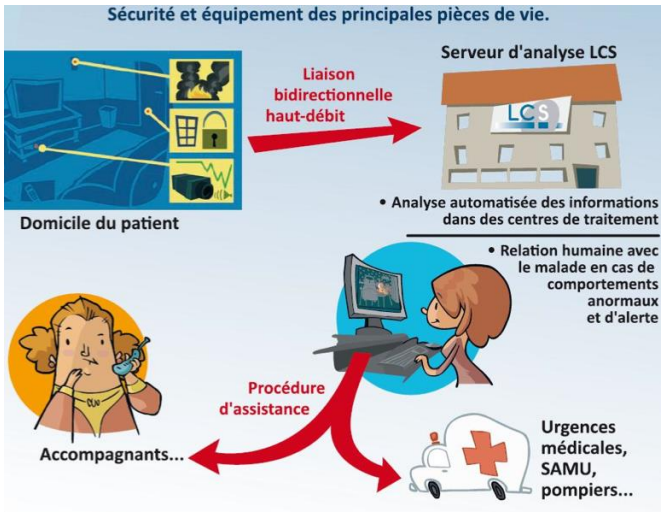
The EDAO cameras are installed in the home which send recorded video via internet to a server for analysis. The server automatically identifies situations where a problem may (or may not) be present. When the software detects a risk situation, a live video connection to the home is automatically established at the EDAO monitoring centre. Agents specially trained in assisted living assess the situation. The trained agent decides whether or not they

[47] http://www.linkcareservices.com

[48] http://www.edao.com

need to activate the assistance plan established beforehand with the patient and their entourage (e.g. to call a family member or emergency services).

EDAO is available as a monthly subscription based on the number of hours of monitoring used. It is varied between 50 and 250 euros.



Source: http://www.cneh.fr/Portals/2/EVENEMENTS/SUD/AUTRES/CARRE%20gérontechnologies.pdf

Figure 19. EDAO services

5.2.2 Offers for social ties

The Magui computer

Magui[49] is a computer imagined by the company Simplistay[50] as a communication tool for the elderly's house residents. It is presented as a tactile flat screen without keyboard, mouse or anything that can remember users who are in front of and it can easily be placed in the appropriate place (see Figure 20). It has four central functions of communication represented by icons on the screen: phone, e-mails, photos and messages. But no function gives access to web browsing. The user is continuously guided by a natural voice, which can also read all the texts that are displayed on the screen. The colors, sizes of buttons and text, shapes and vocabulary have been selected to fit elderly conditions and needs. A photo directory and an integrated webcam allows to select the contacts and call them by videoconference. For example to contact a friend or a family member the user can simply touch his picture on the screen to be linked automatically and immediately.

Normally destined for residents of nursing homes, it is also destined to the general public.

[49] http://www.simplistay.com

[50] http://www.simplistay.com

Today Magui has been installed in some specialized facilities for the elderly in France.

Source: http://www.magui.fr/index.php?page=presentation

Figure 20. The Magui computer

The e-lio system

The e-lio[51] system is the first success of the Technosens Company. It is a small device that allows users to communicate remotely with their relatives on the television screen and to send them messages, photos and videos from any computer (via www.e-lio.fr and e-liophone - downloadable for free) or any phone around the world. The ergonomics of the remote control (see Figure 21) and the intuitive navigation allows the system to be adapted to the capabilities and constraints of elderly users, in order to provide them the optimum comfort - text size, sound volume, automatic hung up when the user is near the handset when ringing.

Source: http://www.technosens.fr/1-4551-La-Solution-e-lio.php

Figure 21. The e-lio system

The VisAge platform

VisAge[52] proposes a set of services adapted for maintenance at home for dependent elders through a touch screen connected to a central web platform controlled by an administrator (see Figure 22). VisAge is the result of 7 years of experiments and development performed

[51] http://www.technosens.fr

[52] http://camera-contact.com

by researchers coming from the major French research organizations: CEA, CNRS, Ecole Polytechnique, Supélec. VisAge is located in Limousin (France) at the Building Automation and Health Pole of Guéret.

Source: http://camera-contact.com/index.html?in=presentation&lang=fr

Figure 22. VisAge platform

The basic domains of activity of VisAge are: maintenance at home for elderly (implicating the medico-social staff and caregivers), hospitalization at home (e-health), communication in rest homes. VisAge is a closed system that allows older persons to receive e-mails, photos and SMS messages sent by their interlocutors who are identified and registered on the platform. But the system is not open on the Internet services in terms of software, communication… This protect from some inappropriate online intrusion. The VisAge screen regularly helps to find stimulation to practice some adapted movements. Some games that combine physical and cognitive activity can be practiced with other persons. Memory exercises also can be practiced regularly to help keeps the brain in good shape. Caregivers can monitor progress and participate in support. They remotely configure reminders to take medication or family events. Other events that punctuate the day (meal times, lifted, lying ...) can be configured, it may serve as a time marker for people with Alzheimer's disease or related.

The principal users for VisAge platform are General Councils, Community Commons, rest homes, gerontological centres, hospitals, as well as isolated elders and their families.

The e-sidor Computer

A young French company ISIDOR has developed the e-Sidor[53], a computer with a touch screen, originally designed for the 92 years old grandmother of its inventor. The computer displays a simplified interface that allows surfing on the Web, send and receive email, enter text, manage its accounting, organizing photos and play games. As a bonus, a software for shopping and have them delivered is include. E-sidor is sold 1 495 euros (with delivery, installation and handling), it comes with a keyboard and a camera.

[53] http://www.e-sidor.fr

E-sidor exists in office and portable version (see Figure 23). The e-sidor specific environment does not prevent to go back to the Windows or Mac environment. The customization also does not prevent to share the computer with several users.

Source: http://www.e-sidor.fr/la-gamme

Figure 23. e-sidor product line

The Ordissimo computer

The company SUBSTANTIEL created Ordissimo[54] in order to propose for the market a different computer that is easy to use, comprehensive, intuitive and virus-free. Ordissimo is equipped with many programs to relax, learn and work or whatever the older user needs. It presents the following three characteristics:

- A special keyboard with a larger number of keys. One character per key, no key combination required.
- A simple graphical interface: no buttons, no right click, no double click, no drag and drop.
- Closed system, delivered "turnkey". Like any system built around Linux, it is still little subject to viruses.

From a material standpoint the Ordissimo is a conventional computer, there are several versions: Unit central (tower) with an external monitor, laptop 15 or 17-inch, all-in-one (the display includes the unit central like the iMac, see Figure 24). All versions have the same operating system. Ordissimo offers a full range of products that are sold between 449 and 999 euro.

[54] http://www.ordissimo.com

Source: http://www.ordissimo.com/index.php?main_page=index&cPath=36

Figure 24. "All-IN-ONE" ORDISSIMO touch

The Ordimémo computer

Ordimémo[55] is a software suite developed by Dossier Systèmes and pre-installed on an ultra-portable (PC T101MT EEA) or one of the two computers of lounge (Eee Top 1610 and 2010) with a color touch screen, easy to use. This computer without keyboard or mouse is specially designed for the seniors who want to stay "connected" with their family, their children, grandchildren, friends but also with the medical staff or carers.

The software offers 12 integrated communication features: Checklist, Messaging, Directory, Photos, Shopping, Telephone / Visio, household helpers, medical, e-mail, ideas, news and weather, entertainment / internet, and more in each category. The software is also regularly updated.

Source: http://www.ordimemo.com

Figure 25. Ordimémo

[55] http://www.ordimemo.com

I-Pocrate console

I-Pocarte[56] console is developed by the company Communicartes and allows its user by manipulating single RFID cards to:

- Consult an Agenda;
- Receive, send and archive emails;
- Launch a Videoconference;
- Access to a web or multimedia content and also games.

The communication interface i-Pocarte offers the possibility to access the functions of a computer. Moreover, the i-Pocarte console is multi-user and can be used both at home and in nursing homes.

i-Pocarte is offered with different packages:

- Communication pack.
- Divertissement pack
- Games pack “TV Neurones”

Source: http://www.ipocarte.com

Figure 26. i-Pocarte console

Témo the mobile phone

Témo[57] is a simplified phone for seniors to stay connected with their relatives developed by e-medics, a company specialised in developing support solutions for patients and vulnerable people.

The services proposed by Témo are:

- A “service” key to reach the Témo center 24/24 and 7 / 7 for emergencies but also to know the weather, ask for a taxi, train tickets or to be in touch with his friends ....

[56] http://www.ipocarte.com

[57] http://www.temo-mobile.com

- A “family” key programmable on the web (www.my-temo.com), to directly call a member of the family.
- An integrated GPS that allows taking a geographic position when emitting or receiving a call.
- A standby of inactivity, to inform the caregiver that Témo has not moved for over 12 hours and it would be better to call to ensure that its bearer is well.
- The website www.my-temo.com to access the history calls, access to the geo-location and change the predefined numbers.

Source: http://www.temo-mobile.com/service.php

Figure 27. Témo

A forfait varied which with the communication time is offered by Témo for a price between 39.90 and 49.90 euros.

Bazile the mobile phone

The French company Bazile[58] Telecom offers a new mobile phone for the elderly with a minimal manipulation for use it.

Bazile is the mobile phone for seniors without keyboard, without display screen and with a single function key. The Bazile introduces innovative features such as:

- The "hands-free" mode is automatically activated when the phone is in a flat position. When the user put it on his ear, it returns to the “headphone” mode.
- The phone can be configured remotely with the operator or on the website www.monbazile.fr : the directory, the change of tone, volume, automatic answer ...
- Bazile can send an SMS to a person selected by the user when the battery is low, when the user makes an emergency call or when prolonged inactivity is detected.
- The emergency call can be activated when pressing the button for 5 seconds. An emergency procedure is initiated.

[58] www.baziletelecom.fr

- Bazile is fully vocalized, and announces the hour.

The Bazile phone is rather designed for people aged over 70 years. By simply pressing the center button will put the user in touch with an operator who will then liaise him with one of the people of his choice from a pre-established list.

Source:http://www.generation-nt.com/bazile-telephone-mobile-personnes-agees-orange-actualite-47206.html

Figure 28. Bazile

The Bazile phone costs 133 euros for which we must add 15 euros per month for the online service to call persons.

The Wizz-Box

Wizz-Box[59] is a set of online tools developed by Pétrarque / Animagine a publishing company specializing in the Gerontology field:

- Interactive content adapted to the elderly and those around them: mail box, jukebox and personal and shareable calendar.
- A way to boost intergenerational relationships: photos albums, photos exchange, multimédia biography, and so on.
- An interface that brings together all players in the support domain around seniors: games, institution social life calendar and so on.
- An interactive platform that offers to the elderly a way to stay connected to the outside world and to the essential cultural references to maintaining their identity: information, internet, slideshow, cultural games and so on.
- A customizable space for the elderly where they can find their temporal and spatial cues and identity.

[59] http://www.maison-retraite-france.fr/maisons-de-retraite/wizzbox.html

Source: http://www.maison-retraite-france.fr/maisons-de-retraite/wizzbox.html

Figure 29. Wizz-Box calandrer

Mélo the musical bound

The musical bound Mélo[60] is developed by the Onze plus company, based on the evidence that the use of a hi-fi is difficult for elderly (buttons too small, CDs can not be opened, get damaged, break, disappear). The bound support also animations, it's offers games, some of them are intended to develop memory: Music Lotto, Lotto ball machine, Guess the song ... etc.

The musical bound mélo is the laureate of two innovation awards 09 and 10, one of them was attributed by the President of France Alzheimer Association. When installing the first prototype, the success was immediate: 900-1600 music heard by month.

Source: http://www.11plus.fr

Figure 30. Mélo the musical bound

[60] http://www.11plus.fr

5.2.3 Prototypes

The webnapperon

The prototype webnapperon[61] developed by ERASME - Rhône Department (France) aims to share the wealth of the web with elders, without imposing computer constraints and facilitate access to online social and family networks.

Webnapporon is a doily designed to fully integrate the home furniture (see http://www.erasme.org/Le-Web-napperon

Figure). It recognizes the objects manipulated in front of him and displays the content associated on a picture frame. He needs only an outlet and a network connection.

Source: http://www.erasme.org/Le-Web-napperon

Figure 31. The webnapperon

The Webnapperon uses a set of RFID tags that allows associate to every object that can be manipulated by the user a unique content that will be displayed according to his needs (text, audio, video…). The family use a simple extranet web interface to publish contents. Webnapperon is also a terminal that makes available web 2.0 networks to elderly. It is available as a DIY (Do It Yourself) version to allow any interested person to develop it[62]. This experimental approach aims helping discover new uses and allow to a greatest number of people to participatie in its technical development.

The Deci-Dela Watch

The Deci-Delà watch[63] is developed by a group of student from L'Ecole Nationale Supérieure de la Création Industrielle as a part of a project initiated by the City of Design of St. Etienne (France) to facilitate the daily lives of people affected with Alzheimer's disease.

[61] http://www.webnapperon.com

[62] http://www.erasme.org/Webnapperon-DIY

[63] http://www.mariecoirie.fr/?proj=deci

Deci-Delà is a watch/jewellery, which reduces the risks related to the spatiotemporal disorientation by being worn daily. The watch will be in a simplified mode when the user is at home and it has a dial calibrated in 24 hours divided into four different color ranges to sequence the morning, afternoon, evening and night. When the person crosses the threshold of his home, a signal switch off the magnet holding the dial of the watch on its support. It glides smoothly in the hand of the user and switch into "space" mode to serves as a simplified compass (arrow indicating the direction of the house) and guides the user to his home (see Figure). The function “watch” is always possible by repositioning the dial on its support, but the magnet will be activated upon the return at home.

Source: http://www.pluslonguelavie.net/Laureats-de-l-appel-a-projet-d

Figure 32. The Deci-Delà Watch

	Teleassistance	Telecare	Phone	Visiophone	Adaptive computer	Cognitive stimulation	Entertainment	Geolocation	Alerts	Home automation	Activity monitoring
Assystel	X		X						X		
UbiQuiet	X	X	X								X
Aloïze								X			
Amber		X							X	X	X
EDAO	X								X		X
Magui				X	X						
e-lio				X							
VisAge	X	X		X		X					
e-sidor				X	X		X				
Ordissimo				X	X		X				
Ordimémo		X		X	X		X				
I-Pocrate				X	X	X	X				
Témo			X					X	X		
Bazile			X						X		
Wizz-Box						X	X				
Mélo						X	X				

Table13. Overview on the market study on ICT for elderly in France.

5.3 Technologies for the elderly on the Austrian market

5.3.1 Monitoring and alarm functions

Companies like Rehatronik, Telecare and Vitaphone offer 24x7 services (normally call centres). Basically they offer concepts like the "emergency button" for the usage in the living environment or mobile. Even an GPS-localisation or the transmission of an ECG is possible in the meantime.

5.3.2 Communication and communities

The possibilities in Austria reach from communication aids for people with physical limitations (e.g. Lifetool) to internet platforms for the specific target group (e.g. www.plejaden.net, www.senjorkom.at)

The web platform offers target group-specific information to topics like health, events, travelling, etc. but also regional networking possibilities via forums, chats and the organisation of activities in real life.

5.3.3 Cognitive activation and support

This group contains educational and learning software for elderly people, e.g. from Plejaden. On the whole this topic is underdeveloped in comparison to what is offered for the young generation regarding game consoles (Xbox 230 Kinect, PSP, etc.).

Another important topic hereby is support, in the case that cognitive functions decrease. One example would be the automatic switching off of the stove or an intelligent medication dispenser that ensures that the proper medication is taken in the proper dosage.

5.3.4 Smart Living

5.3.4.1 General

The market offers different systems in different implementation levels. Isolated controls of the light system, windows, doors, air conditioning or heating in the house exist with different base-technologies. Offering companies for these systems are e.g. Mechatron, Möller, Rehatronik, Siemens, Sorex or Telekom.

5.3.4.2 HOMEBUTLER: Safety, Health, Communication, Entertainment

Your Security Officer: HOMEBUTLER will raise the alarm in the case of heat or smoke detection as well as alerting the emergency contact person or service. It will also stop bath tubs or sinks from overflowing, as well as turning off an overheated cooker and alerting the resident to security risks such as an open window. A central locking system which works along with the central key presence detection as well as the night light system to prevent falls are additional safety features.

A caring friend and helping hand: With the help of a non-obtrusive monitoring system HOMEBUTLER can alert relatives or medical support in case of an emergency. With the help

of Telemedicine it will manage all medical appointments as well as charting important statistics, such as blood pressure levels. To complete the holistic approach it will also assist you as a personal trainer to increase your memory, concentration and reaction (memofit®-programmes).

A versatile entertainer and communicator: HOMEBUTLER will turn your TV into a multimedia entertainment station. Offering you a great selection of TV and Radio programmes as well as:

- Electronic photo album
- Music and audio books
- Audio version of daily news
- Answering machine and Telephone

Managing your day-to-day activities

HOMEBUTLER can organise your appointments, which also includes a diary and it will remind you of your upcoming engagements. It will also manage your address and telephone entries and can receive and send text messages.

An integrated platform also allows nominated friends, family members or carers to access your online data and make adjustments where needed (i.e. adding new telephone numbers, change of address, etc.) and add or update appointments. As well as communicating with you via text messaging.

5.3.5 Information and consultation

The Association "Aging with future", “Altern mit Zukunft”
Founding: 2.12.2003
Club target
The Association "Aging with future" aims as a non-profit organization to support health promotion and health care in medically scientific projects. Purpose of the Association is to promote human health and the activation of preventive potential and of personal responsibility to create conditions for a more active and healthier ageing. It takes also into account social and gender dimensions.
The Association "Ageing with future" is represented by Univ.-Prof. Dr. techn. Dr. med. Anita Rieder.

Several social services offer information for elderly people. Just to name a few: AVS (http://www.avs-sozial.at/), Volkshilfe (http://www.volkshilfe.at/), Hilfswerk (http://www.hilfswerk.at/) or Caritas (http://www.caritas.at/).

The supply with goods is also ensured in Austria by these organisations and a service called “Essen auf Rädern” (food on wheels), that is availably nearly with blanket coverage in Austria.

6 Conclusion

Demographical aspects for all three countries reveal us diversified aging trends and projections. Till 2050, the population of Germany will drop by 6%, Austrian will increase by 1%, and France will experience increase by 9%. However, the 65+ proportion of population will by 2050 increase in all countries: in Germany by 57%, in Austria by 95%, and in France by 77%. Across EU states, the 65+ proportion of population will double, yet 80+ proportion of population will triple to 50 million. The trend of European societies is social isolation in terms of having no contacts, meetings with relatives, friends, or possibility to ask for help. This mainly rises with aging, yet gender differences as of social isolation are much smaller than those presented with respect to age.

The analysis of political issues as of ICT usage in elderly, section 2, reveals that all three countries have funded AAL directions. As of response to demographic changes, considerable financial resources have been spent in past years, and are still being spent, by national/regional governments for ICT-based home care and AAL. In Germany, beyond social alarms, no systematic funding/reimbursement streams have been put in place. A major project in Germany is „The Intelligent Home" aiming to utilize ICT in age-friendly buildings. In France, the major program is „Aging in Place" as started since 2010, sicne 90% of those who are 60+ age in place or would like to do so as long as possible. In Austria „Program Benefit" aims for security, autonomy, and social inclusion of elderly.

As of macro analysis of socio-cultural issues in ICT usage, section 3, the three countries have official statistical reports that differ by sampling intervals in age structure. However, these provide with interesting quantitative facts and patterns. For instance, 65+ users use significantly Internet for sending email, information search, staying in contact, closely resembling actions of youngsters. Almost every second household is on the Internet every day. Statistical reports didn't have yet chance to include post 2010 technology (range of SmartTVs, tablets, gesture technology, smartphones etc.) which might offer more intuitive interaction and ways for social inclusion over TV (traditionally present in households).

The ethical issues analysis, presented in section 4, reveals that all three countries have been working on implementing ethical aspects of health care provision and medical research. However, that doesn't relate to the utilisation of ICT. When it comes to ICT-related aspects, the countries adopted relevant data protection and privacy laws.

The ICT market for elderly is fragmented on technologies that aim for security of specifically tailored group of elderly, and on technologies for learning or bringing more social ties. In Germany, except of social alarms and telecare systems, smart-home developments seem to be much more active than in Austria or France. In both France and Austria, products range from custom tailored learning and social inclusion, to various telecare systems. Overall, it seems that fully integrated social inclusion tools and smart-home environments have not yet been demonstrated, yet no significant market visibility has been reached.

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