SoMedAll

WP 1

D1.1 – State of the Art Report

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Summary

This document reports an analysis of international literature and best practices on the usage of social media, particularly by elderly users. Such analysis constitutes a reference framework for the development of an ICT-based service platform as a tool for offering social media services for elderly people with a variety of easy-to-use user interfaces.

The report includes also the results and related discussions about two surveys led by the SoMedAll Consortium in Finland and Italy respectively, in order to get an updated picture of elderly users' requirements and expectations.

Described results are used as basis of scenarios and service concept creation.

The SoMedAll Consortium is established by partners from Finland, Italy and Slovenia. Project Social Media for All elderly People includes to the AAL programme (Ambient Assisted Living) and was accepted by the second call of the programme in 2009.

Report is final after acceptance by project management group.

Contents

1 INTRODUCTION

The Information Society is fostered by an increase in media content made available through different interfaces (mobile phone, PCs, TV, etc.). Blogging tools and diverse Web 2.0 services have made it easier for the non-professional user to create and share digital content (Brandtzæg & Roibás, 2009). A big part of media content has therefore become user-generated content (UGC). Unfortunately, elderly people are to a lesser extent part of this active user revolution in UGC

Academic research on the usage of UGC and social networking sites has typically neglected older users. The usability of UGC platforms and applications is in addition barely out of its infancy. In a recent study by (Brandtzæg and Heim, 2008), low usability was reported by end-users to be the third most important reason for reduced use of particular social network sites. UGC development implies therefore a number of challenges for the field of human–computer interaction, particularly among elderly users or non-users.

It is therefore an urgent need to develop appropriate interactive systems designed to prevent older people's exclusion from being active members of the (information) society. These systems should seek to improve elderly people's access to social services, to facilitate social contacts and independent living, as well as access to context-based infotainment and entertainment. ICT need to be shaped to increasingly allow older people to stay active and productive for longer; to continue to engage in society with more accessible online services; and to enjoy a healthier and higher quality of life for longer.

Another factor that makes this research area both timely and increasingly important is that elderly people are a growing group in society. By 2020, 25% of the EU's population will be over 65; the same trend is also present in USA and Asia. Elderly people in industrialized countries live longer; they have a higher cultural background than past generations, and have more and more interests to enrich their daily lives (they enjoy traveling, learning, sharing experiences, practicing sports, etc.). At the same time, the majority of elderly people are in danger of being excluded from an increasingly complex Information Society. It is well known that elderly citizens pose a particular challenge to technology developers, as they are often disaffected by technical advances and unaware of the potential benefit that ICT can have on their lives.

Based on the Eurostat statistics it can be realised that Italy and Finland are the fastest ageing countries in Europe and among EU-members. In Italy the population is about 60 million and the share of people over than 65 years is more than 10 %. Italy is the oldest country in the world. When analysing this number a little bit closer it can be seen that the share of people over 80 years is over 5.6 %. So in Italy there is more people over 65 than Finland have inhabitants, approximately 5.4 millions. Finland is coming gray even faster than Italy. For example in the year 2000 the share of people over 65 was 15.0 %. During the year 2030 the share will be 26.3 %. This means that every forth person is over 65 years old. In Slovenia the number of population is 2 million. The share of people over the age 65 is estimated to be 20.6 %. Based on mentioned figures and numbers there will huge questions to answer in those countries and of course the other European countries will follow Italy, Finland and Slovenia. As nearest is Netherland. It has also been estimated that 40 % of the people over 80 years will suffer from dementia. These numbers and illnesses mean that there will be a strong need to develop new solutions and services for elderly people. Social media developed especially for elderly people can offer one way to manage and support elderly people's daily life.

(http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-08-072/EN/KS-SF-08-072-EN.PDF)

It is a key challenge to make it easy for elderly users to navigate through rich data displays, as well as to enable mechanisms for easy creation or co-creation of UGC. Furthermore, this media content needs to be made available, engaging, useful and usable in social settings beyond traditional social settings such as the "living-room" or "office." As Preece notes, not only the usability aspects of are of importance but also sociability (Preece, 2000). UGC has typically been characterized as "conversational media," as opposed to the one-way media system of professional media content. In fact, as UGC platforms are embedded in people's lives (and complementing or replacing traditional media platforms such as TV). It will consequently be crucial that the social media should be designed for engaging navigation and use of content in a social context, supporting community-based interaction in media content.

2 LITERATURE REVIEW

2.1 Approach

In order to set up the material to be used for the Literature Review, we conducted a preliminary bibliographic and documental research. Such a research led to the collection of different type of materials (monographs, peer-reviewed journals, conferences proceedings, best practices plus a rich variety of user-generated contents).

As regards monographs, the following catalogues were adopted for searching:

Catalogue	URL
Amazon	http://www.amazon.com/
Library of Congress	http://www.loc.gov/homepage/
Google Scholar	http://scholar.google.it/

For journals and periodicals the following catalogues were looked through:

Catalogue	URL
ERIC	http://www.eric.ed.gov/
JSTOR	http://www.jstor.org/
EMERALD	http://www.emeraldinsight.com/
ISI WEB	http://apps.isiknowledge.com/
PsycLine	http://www.psycline.org/
PSYCINFO e ARTICLES	http://psycnet.apa.org/
Medline (pubmed)	http://www.ncbi.nlm.nih.gov/pubmed/
Sciverse.hub	http://www.hub.sciverse.com/
WILEY	http://onlinelibrary.wiley.com/
SPRINGERLINK	http://www.springerlink.com/
INFORMAWORLD	http://www.informaworld.com/
ed/itlib	http://www.editlib.org/
SAGE	http://online.sagepub.com/
ACM Digital Library	http://portal.acm.org/
journalseek	http://journalseek.net/index.htm
Infotrieve	http://www4.infotrieve.com/default.asp
Scirus	http://www.scirus.com
Online Journals Search Engine	http://www.ojose.com/
Metapress	http://www.metapress.com/home/main.mpx

More specifically, we reviewed the archives of the following peer-reviewed journals and reference publication sites:

Journal	URL
The Gerontologist	http://gerontologist.oxfordjournals.org/
New Media Society	http://nms.sagepub.com/
Aging International	http://www.springer.com/social+sciences/journal

	/12126
International Journal of Service Science	http://www.inderscience.com/browse/index.php?journalID=238&year=2008&vol=1&issue=2
Gerontechnology	www.gerontechnology.info/Journal/

Pertinent reports and publications were searched from the following sites:

Institution	URL
Institute for Prospective Technological Studies (IPTS) - European Commission's Joint Research Centre (JRC)	http://ipts.jrc.ec.europa.eu/
Pew Internet and American Life Project	http://www.pewinternet.org/

Investigations have been conducted in related search engines with the following groups of keywords:

- elderly, older people, senior, etc.
- social media, social network, literacy, lifelong learning
- usability, accessibility, etc.

Finally, several interesting references were collected with precious help by the mailing list Air-L -- Association of Internet Researchers

(http://listserv.aoir.org/listinfo.cgi/air-l-aoir.org)

2.2 Study review

This chapter presents main findings from articles based on a literature review.

2.2.1.1 U. S. A.

Age differences in online social networking – A study of user profiles and the social capital divide among teenagers and older users in MySpace

The aim of this research (Pfeil et al., 2008) was to investigate age differences and similarities in the use of the social networking website MySpace, to explore potential differences in social capital among older people (users over 60 years of age) compared to teenagers (users between 13 and 19 years of age). The authors used locally developed web crawlers to collect data from MySpace's user profile pages,

and to quantify any differences that exist in the networks of friends of older people and teenagers. Content analysis was applied to investigate differences in social activities between the two age groups on MySpace, and the way they represent themselves on their profile pages. Their findings show a social capital divide: teenagers have larger networks of friends compared to older users of MySpace. On the other hand, they found that the majority of teenage users' friends are in their own age range (age ± 2 years), whilst older people's networks of friends tend to have a more diverse age distribution. In addition, the results show that teenagers tend to make more use of different media (e.g. video, music) within MySpace and use more self-references and negative emotions when describing themselves on their profile compared to older people.

Overall, the study investigated around 6000 MySpace user profiles. It started with collecting profile IDs of 50 teenage users and 50 older users. In particular it specified as teenagers those who are aged from 13 to 19 and older people those who are 60 years old and above. To allow for some analysis based upon gender, the authors restricted the sample to 25 teenage girls and 25 teenage boys, likewise for the group of older people to 25 older women and 25 older men. Then, the crawler collected the profile data of these 50 users and the profile data of all their friends, resulting in around 6000 MySpace user profiles being crawled.

This study brings to light interesting findings of the characteristics and age-related differences of MySpace users and the different ways these two user groups build and maintain social capital in this setting. It identified differences between samples of teenage and older users and found some significant findings when comparing the two groups.

The findings show that teenagers tend to have more friends than older people on MySpace. In addition, most of the friends of teenage MySpace users are of a similar age (±2 years), whereas older MySpace users tend to have friends from age groups outside their own age. This indicates clearly that teenagers seem to have a different way of connecting to friends on MySpace compared to older people. The findings imply a social capital divide, where younger people have larger social networks. However, they also show that older people have access to a more diverse network compared to teenagers, suggesting different types of social capital for these target populations.

The study indicates that teenagers' social capital on MySpace consists of many weak and strong ties to peers that they know from offline activities. Older peoples' social

capital, in contrast consists of less relations to a more diverse group of people. The high number of friends of teenagers indicates that the quantity of friends is quite important for teenagers. As it is impossible to maintain strong relationships with a high number of people, our findings indicate that teenagers connect to both close friends as well as loose acquaintances in MySpace. In contrast to that, the low number of older people showed a different pattern of behaviour. This could have several reasons. Firstly, it could be that older people do not know as many other people on MySpace as teenagers do. Secondly, it could also be an indication that older people tend to be more careful and selective when choosing their friends on MySpace and only want to add to their friends' list people that they know very well. This could have implications for the design of Social Network Services (SNS), as older people might require more information about the other person in order to decide whether to have this person as their friend or not.

What comes to MySpace features that older people and teenagers use, the study showed that teenagers make more use of different media (e.g. music and videos) on their profile pages when compared to older MySpace users. Age differences were also found concerning the number of comments users receive on their profile page, as teenagers receive on average almost ten times as many comments as do older people. Again, a gender difference was also found as both female teenagers and older women receive more comments than the male counterpart of their age group. The same tendency could be found for the usage of blogs on MySpace. This facility is much more used by teenagers compared to older people, and females are more likely to use blogs than males for both of the groups. This finding showed again different patterns of behaviour between the two investigated age groups. Whereas teenagers tend to use the full capacity of available media, older people are more reluctant to make use of additional features, like music, videos and the exchange of comments. This might be due to different preferences and motivations to use MySpace. Whereas teenagers seem to be engaged in the usage of different media, older people seem to have a much more narrow focus on MySpace usage. Findings from previous research showed that the intensity of SNS usage is positively associated with the social capital of users. Thus, the finding indicates that the smaller social capital of older people might be related to the reluctance of this target population to make full use of the available features on MySpace.

In order to find out whether teenagers represent themselves on their personal profile on MySpace in a different way than older people do, the authors conducted a content analysis of the profile pages. They applied the LIWC categories and found that

teenagers use more negative words than older people in their profile descriptions. Also, the results showed that teenagers use more self-references in their self-descriptions than older people. In addition, they found that older people use more articles and big words than teenagers. The findings also showed that teens use more self-references, negative emotions and overall cognitive words than do older people. In summary, this indicates that older people tend to represent themselves in a more formal and official way compared to teenagers. In addition, findings showed that teenagers tend to not only write in a more informal way, but also focus more on themselves and their emotions when representing themselves. Differences in self-presentations indicate that the different age groups might have different motivations and aims when creating their profiles. Whereas teenagers seem to be centred on themselves, older people seem to strive for a more informative and official version of self-description. Given the fact that teenager's social capital seems to be larger than older people's social capital on MySpace, the findings indicate that revealing personal and emotional information about oneself on MySpace is a better strategy to build and maintain social capital than representing oneself in a more formal and informative way.

ReadWriteWeb: Generations X and Y Lead the Way in Today's Digital World

Forrester Research just released in 2010 its annual survey of American technology adoption, this time focusing on the generational divide. The findings, which arose from a survey of over 37,000 participants, reveal that when it comes to the adoption of digital tools and technology, the generation gap still exists, with Generation Xers and Years far ahead of both Boomers and Seniors.

The identified generations with age range are the following:

- Generation Y: 18-30
- Generation X: 31-44
- Younger Boomers: 45-54
- Older Boomers: 55-65
- Senior: 66+

The report looks into everything from mobile use to media consumption and PCs to social networking. The takeaway, says Forrester, is that Gen Y "lives and breathes" a

digital social life, Gen Xers are masters of the functional benefits of technology, but those older are much more reserved in nearly all areas.

1. Generation Gap Remains

From the summary of the differences between the generations, Gen Yers lead the adoption curve. The youngest members of this group don't remember life without a mobile phone or a time when texting or email was unavailable. Generation X, despite having a longer "tech memory" than its younger counterpart, still rivals Generation Y in many areas. This slightly older group tends to use the Internet and computers more functionally. For example, 26% of Gen Xers go online for information about food and cooking, 61% use it for news, 65% use PCs to manage photos and 53% email photos at least once per month. Boomers fall behind on the technology adoption curve, but spend more money on everything tech-related from telecom fees to online shopping purchases. Seniors, however, lag ever further behind. 80% still subscribe to a local newspaper, for instance. But in other ways, they're catching up: 40% own an HDTV; one in five uses the Internet for reading news and one quarter for travel planning.

2. Devices: Gen X Leads

When it comes to devices - think HDTVs, digital cameras, PCs, gaming systems - Gen X leads the way. Their households are the most likely to have these devices in them. When it comes to the household PC (meaning "personal computer" not necessarily "Windows machine"), Gen X and Boomers tend to use theirs for practical matters like word processing and household finances. They're also more focused on PC health, regularly scanning for malware and backing up files.

3. Mobile: Gen Y Leads

Meanwhile, on the mobile front, the 49 million Gen Yers lead the other generations, using their phones for everything from product research to social communication. Along with Gen Xers, Gen Yers are the most likely group to own a smart phone with an unlimited data plan. One fifth of Gen Y uses their phone for maps and directions now, while Gen X is generally more interested in checking news, sports and weather.

85% of Gen Y sends and receives text messages, while 68% of Gen X does the same. Only 15% of seniors use SMS, however.

37% of Gen Y surfs the mobile Web. Mobile "Facebooking" is also more popular with Gen Y, with 27% participation, compared with 18% of Gen X. Seniors on Facebook, supposedly a growing trend on the desktop, is not so prevalent on mobile - only 1% use Facebook or other social networking sites from their phone.

Overall, 23% of Gen X and Y own a smart phone and 17% of Americans do.

4. Online: Gen Y Surfs, Gen X and Boomers Shop

Internet use has surpassed TV viewing for Gen Y for a few years now, but this is the first time that Gen X can say the same. Younger Boomers (45-54) also now spend equal amounts of time online versus on the Web. TV viewing still beats Web surfing for older Boomers and Seniors though.

The survey found, too, that Gen X does the most online shopping, but Younger Boomers spend the most. In fact, Boomers were the only generation that spent, on average, more than $600 online in the past three months.

5. Forecast: eReaders are "Device of the Year," but Few Use

Forrester says that eReaders have drawn a lot of hype over the course of the year, but in reality, only a small percentage of the population currently uses them. However, the analysts forecast that another 6.6 million will buy an eReader by year-end. 8.3 million will buy a netbook or mini PC, though, in the same time frame.

Netbook and mini-PC purchases will outpace eReader sales until 2014, when both slow to 1% growth rates. Laptops will also decline to 2% growth in 2014.

6. Conclusion: Gens X & Y Outpacing Others

Forrester concludes that Gens X and Y are "setting the example of how future digitally native generations will live," with both generations "outpacing Boomers and Seniors on almost everything technology-related."

Statements like these tend to rile up the tech-savvy Boomers and Seniors who read this blog, often leading outraged comments about the wrongness of the data. In this case, though, Forrester analyzed 30,064 households containing 37,226 individuals to reach these conclusions, a sample size which seems sufficient enough for this analysis. Any generation will have its outliers, of course, from the digitally-adept Grandma to the Gen Yer who refuses to Facebook. Plus, anyone reading this article is at the top of the curve, no matter what the technology in question is, we would bet.

Seniors' Online Communities: A Quantitative Content Analysis

This study (Nimrod, 2010a) reports on a quantitative content analysis of data from seniors' online communities Content analysis identified 13 main subjects discussed in the communities, including (in descending order) "Fun on line," "Retirement,"

"Family," "Health," "Work and Study," "Recreation" "Finance," "Religion and Spirituality," "Technology," "Aging," "Civic and Social," "Shopping," and "Travels." The findings suggest that the communities may provide social support, contribute to self-preservation, and serve as an opportunity for self-discovery and growth. Because they offer both leisure activity and an expanded social network, it is suggested that active participation in the communities may contribute to the well-being of older adults. Figure 1 shows how the 686 283 messages were divided into different themes. Based on the information can be stated that most interesting themes were fun, retirement, family and health.

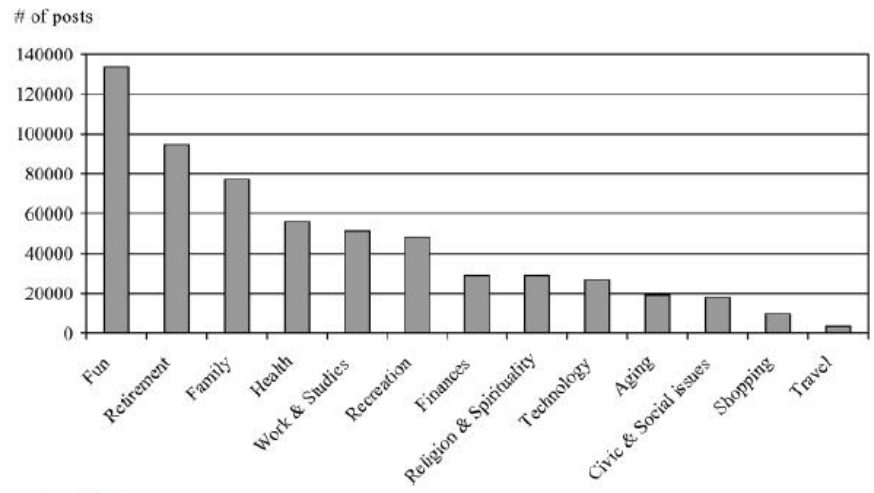

Fig. 2.1. Importance of the themes based on the content analysis

Following table 1 describes examples concerning conversations and questions which seemed to be important for participants.

Table 3. Examples for Active Discussions in Each Set of Messages

Subject	Headline	Content
Fun on line	Tell us some quotes, anything will do	All kind of quotes
	What's next?	First player posts a short phrase. Next player uses the last word of that phrase to start a new phrase
	It's funny joke Thursday	Jokes
Retirement	Where to retire?	Places to live in after retirement
	How much is enough?	When to retire
	Retirement ideas and making the transition to retirement	What has worked out, what hasn't, things people wish to do or wish they did, etc.
Family	Grandma's ethics	Genealogy. Humorous or poignant writings found in research of family histories
	Are you and your mate affectionate?	Long conjugal relationships
	Hurting, excluded from son's birthday get-together	Painful family relations
Health	Flu shot, best time to get it?	Advices concerning flu shot
	Walking, hiking, jogging, swimming, biking	Physical activity
	Diabetes	Symptoms, medications, and other related issues
Work & Study	Companies that hire seniors	Links and names
	Beware of Tim Horton's jobs	Retired people exploitation in new job
	Want to learn Spanish	Advices, advantages, and challenges of picking up a new language
Recreation	What are you reading right now?	People telling about books they have read
	ER forum cookbook	Recipes
	American idol	Discuss the TV show
Finances	ISM/OSM yet again	Stock market explanations
	Street smart	Investing in general and various investments or types of investments
	Making ends meet	How to have the financial resources needed for the active life of retirement
Spirituality	Bible punchers, Christianity	New calculations for believers
	Agnostics and atheists	Thoughts about and understandings of atheism and agnosticism
	Wiccan chants	All kind of chants for different purposes
Technology	E-mail	Questions, problems, and comments regarding e-mail
	Software—Windows 95/98/ME/Win2000/ WinXP/Vista	Questions, tips, and problems encountered using Windows
	Cameras—digital, video, still, and web cam	Questions and experience with digital cameras
Aging	Aging issues	Experiences and views of getting older
	Memories. . .youth/life	A memories album for the next generations
	Dying and end of life issues	Views of death and dying and issues related to the end of life (e.g., hospice, funeral arrangements, etc.)
Social issues	Elections candidates and issues	Discussing the 2008 elections
	Iraq, Pakistan, and the Middle East	Conflicts and events in the Middle East
	Gullible warming	Environmental issues, global warming, and weather
Shopping	If you were buying a car	What kind of car should one buy
	Seniors discounts	All kinds of discounts for seniors
	Cheap notebooks	Cheap computer deals
Travel	Senior's tours	Tips about specific tours company
	Travel medical insurance	Stories of good and bad experiences with travel medical insurance companies
	Travel by RV/camping	Questions and stories of travels with Recreational Vehicles and camping

Note: ER = Early Retirement; RV = Recreational Vehicle.

Table 1. (in this report) Examples concerning conversations and questions which seemed to be important for participants

Further studies conducted on the Fun Culture in ([Nimrod, 2010b) showed that the majority of posts were part of online social games, including cognitive, associative, and creative games. The main subjects in all contents were sex, gender differences, aging, grand parenting, politics, faith, and alcohol. Main participatory behaviors were selective timing, using expressive style, and personalization of the online character. In a reality of limited alternatives for digital games that meet older adults' needs and interests, seniors found an independent system to satisfy their need for play. Seniors' online communities provided a unique form of casual leisure, whose nature varied among different groups of participants. The fun culture seemed to offer participants

many desired benefits, including meaningful play, liminality[1] and communication, opportunity to practice and demonstrate their abilities, and means for coping with aging. Therefore, it may have positive impact on seniors' well-being and successful aging. Nimrod's studies are relevant for defining the primary types of activities to be enabled through seniors' social networks.

Adults and Social Network Websites

This report (Jones, 2009) describes a situation of increasing share of adult internet users who have a profile on an online social network site.

In 2009 younger online adults were much more likely than their older counterparts to use social networks, with 75% of adults 18-24 using these networks, compared to just 7% of adults 65 and older. Detailed demographic characteristics of Social Network users are reported in Fig. 2.1.

[1]Is a psychological, neurological, or metaphysical subjective state, conscious or unconscious, of being on the "threshold" of or between two different existential planes.

Demographics of Social Network Users

The percentage of online Americans in each demographic category who have a profile on a social network website:

All adults	**35%**
Sex	
Men	35
Women	35
Age	
18-24	75*
25-34	57*
35-44	30*
45-54	19*
55-64	10
65+	7
Race	
White, non-Hispanic	31*
Black, non-Hispanic	43
Hispanic	48
Annual Household Income	
Less than $30,000	45*
$30,000 - $49,999	38
$50,000 - $74,999	30
$75,000 +	31
Education	
Less than HS	43
HS grad	31
Some college	41*
College grad	33
Locale	
Urban	34*
Suburban	26
Rural	23

Source: Pew Internet & American Life Project Survey December 2008 Survey, n=2,253, with an n of 1,650 internet users. For internet users the margin of error is ±3%.
* These groups are significantly different from the other groups in the section.

Pew Internet

Fig. 2.1- Demographic characteristics of social network users.

At its core, the use of online social networks is still a phenomenon of the young.

At the time of this survey (NB: collected data are from 2008) overall, personal use of social networks seemed to be more prevalent than professional use of networks, both in the orientation of the networks that adults choose to use as well as the

reasons they give for using the applications. Most adults, like teens, were using online social networks to connect with people they already know.

Pew Internet and American Life Project

A focused research (Zickhur, 2010) published in December 2010 aimed at focusing on social media users aged 50 and older. This study showed that while social media use has grown dramatically across all age groups, older users have been especially enthusiastic over the past year about embracing new networking tools as illustrated in Fig. 2.2:

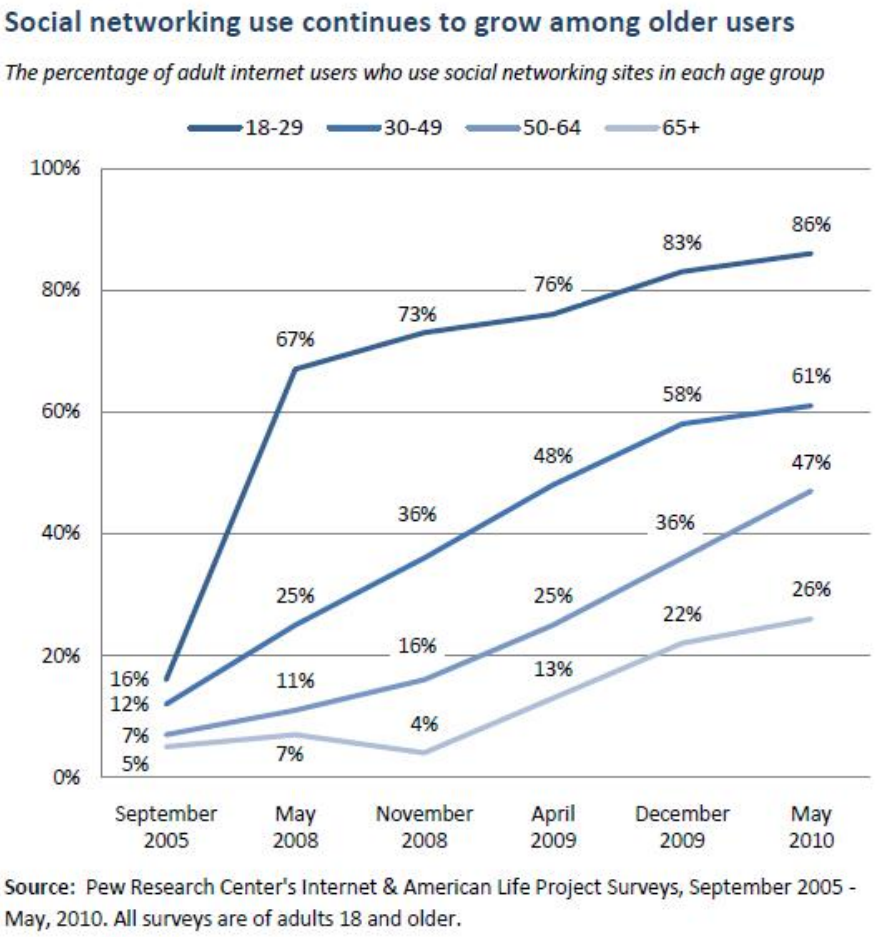

Fig. 2.2 – Trend in the use of social networks among older users.

Results show also that email and online news are still more appealing to older users, but social media sites attract many repeat visitors (Fig. 2.3):

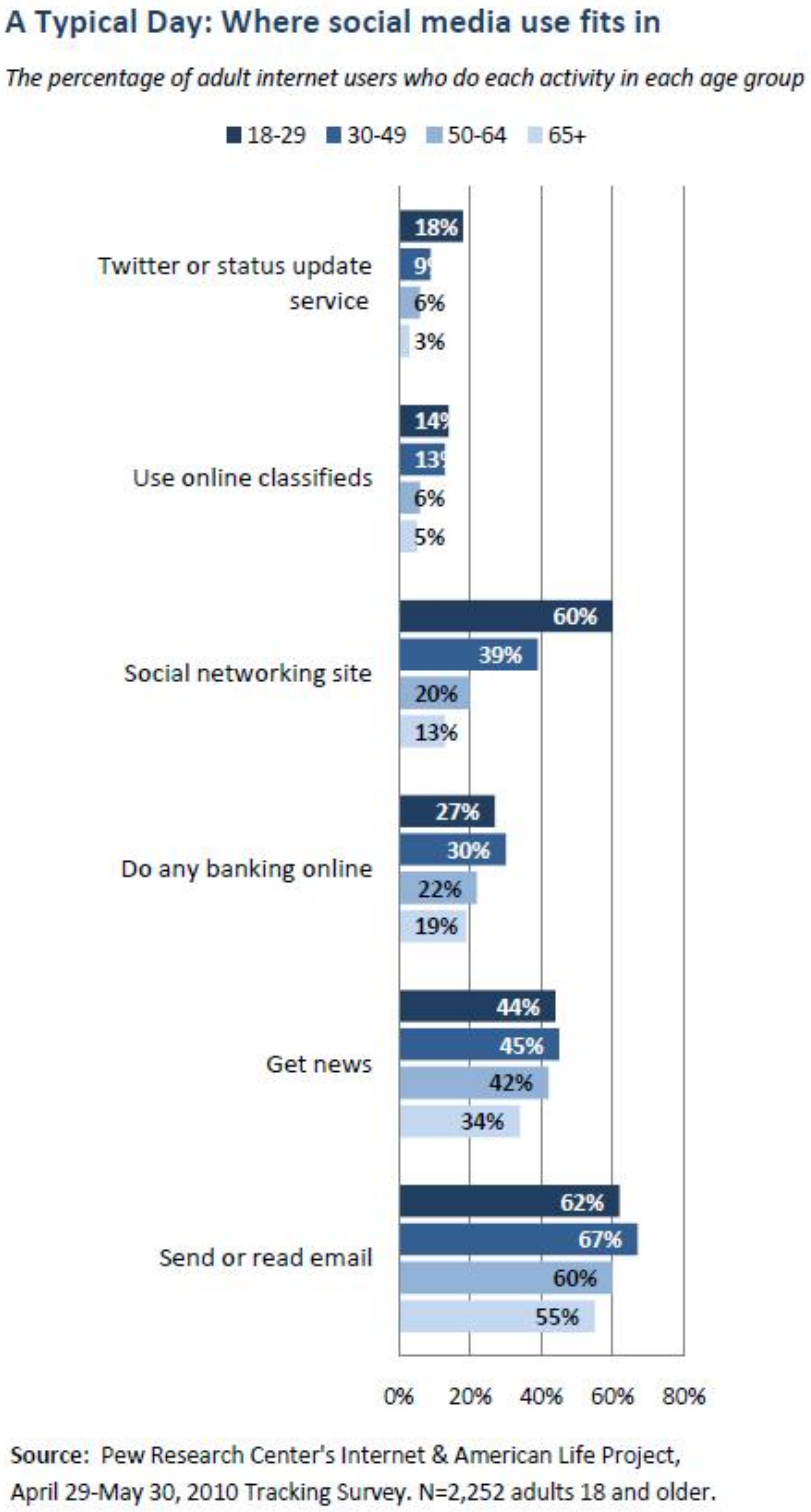

Fig. 2.3 – Distribution of the usage of social network services.

The report focuses on three main implications on the importance and impact of social media on older adults:

1) Social networking users are much more likely to reconnect with people from their past, and these renewed connections can provide a powerful support network when people near retirement or embark on a new career.

2) Older adults are more likely to be living with a chronic disease, and those living with these diseases are more likely to reach out for support online.

3) Social media bridges generational gaps. While the results can sometimes be messy, these social spaces pool together users from very different parts of people's lives and provide the opportunity to share skills across generational divides.

Another relevant finding of this research is related to broadband: social media use is somewhat more prevalent among older users who have high-speed connections at home.

Indeed the oldest adults in the U.S. (age 65+) are among the least likely to have high-speed access. (Just 31% have broadband at home). They are also the least likely to see the lack of having broadband as a disadvantage. However, even though older adults may be among the most resistant to broadband, there is evidence that once these users get a taste of high-speed access, they often come to rely on the internet as an everyday utility in their lives. While the rates of broadband adoption among the oldest users are low, the frequency of use among those who do have high-speed access is relatively close to the usage levels of younger users.

Topological Analysis of an Online Social Network for Older Adults

This paper was presented in 2008 by Marcella Wilson and Charles Nicholas of the University of Maryland at the ACM workshop in California.

Social network systems on the Internet, such MySpace and LinkedIn, are growing in popularity around the world. The level of such activity is now comparable to that associated with email and blogs. The research addresses the question of whether people in different demographic groups use these systems in the same way. Older Americans tend to use email the same way as Americans in general. The usage of blogs, however, is different, with significant differences in the topological and structural patterns of post and response in blogs being evident in different demographics. The authors discovered important information about the topological structures of online social networks by examining topological patterns in blog posts, also known as cascades. To accomplish this, they created and studied the

blogosphere, blog and post networks of an online social network used primarily by older adults. They also studied the topological patterns of cascades in greater detail, reporting their common shapes, properties and size distribution. Their research has implications for the design of social network software for older Americans, as well as the algorithms used in search engines for such systems.

Future research on closed communities can corroborate the validity of the proposed Blog network topologies. Online social networks are the fastest way to disseminate and exchange information on the Internet. However, the information content in blog portions of online social networks is not hyperlinked to the web. Therefore, current research is trying to leverage the large body of non-hyperlinked content in the blog portions of online social networks to improve the quality of search engine results. Major web search companies such as Yahoo!'s My Web 2.0 and Google Co-op are deploying services that leverage social networks. Future research will use older online social networks to evaluate current systems and help design new online social network-based systems and applications.

Mobile Technology is used by 1 in 6 caregivers

AARP has recently released an original survey titled "Health and Caregiving Among the 50+: Ownership, Use and Interest in Mobile Technology" that demonstrates that half of people 50 and older use — or are at least somewhat interested in using — mobile technology for their health. Among caregivers of people 50 and older, one in six uses mobile technology to track the health of their care recipient.

The majority of people 50 and older own some type of mobile technology and nearly rights out of 10 own a cell phone. Not surprisingly, cell phones are the most frequently mentioned mobile device that respondents say they take with them when they leave home. While cell phones could be a productive means of communicating with this audience about health issues, respondents' receptivity varies by how the technology is to be used. There is, however, substantial interest in using mobile technology to track one's own health.

This study examined the ownership, usage and interest in handheld mobile technology among the 50 and older population and focused especially on whether people 50 and older take mobile devices with them when they leave home, and their current usage or interest in using mobile devices to manage their health or the health of someone 50 and older that they assist. While cell phones could be a productive means of communicating with this audience, there are mixed findings about respondents' receptivity about how they are used. A minority of those 50 and older

use a mobile technology to track their health, though a substantial proportion are at least somewhat interested in doing so. Interest waned, however, when asked about using mobile technology to share health information with a health care professional, tracking one's location with a GPS and using mobile technology to motivate or adopt healthy behaviors.

The results show caregivers' interest also varies. One in five adults provides assistance to someone 50 and older with activities of daily living. Among those, about one in six uses any mobile technology to help track the health of the person he or she is helping. Among those who use any mobile technology to track the health of the person they help, the vast majority reports using a cell phone or mobile phone to accomplish this task, and about one-third reports using a laptop or desktop computer to do the same.

2.2.1.2 Europe

Ofcom - Independent regulator and competition authority for the UK communications industries.

In 2008 Ofcom published a study with the title “Social Networking - A quantitative and qualitative research report into attitudes, behaviours and use”. The study had the following objectives:

- to set social networking sites in the wider media literacy, online and communications context;
- to profile the use of sites;
- to understand people’s use of sites; and
- to investigate concerns about privacy and safety.

The main conclusions of the study are reported in the following.

1. **Social networking sites are most popular with teenagers and young adults**

Ofcom research shows that just over one fifth (22%) of adult internet users aged 16+ and almost half (49%) of children aged 8-17 who use the internet have set up their own profile on a social networking site. (-1-). For adults, the likelihood of setting up a profile is highest among 16-24 year olds (54%) and decreases with age. (-2-)

2. Some under-13s are by-passing the age restrictions on social networking sites

Despite the fact that the minimum age for most major social networking sites is usually 13 (14 on MySpace), 27% of 8-11 year olds who are aware of social networking sites say that they have a profile on a site. While some of these younger users are on sites intended for younger children, the presence of underage users on social networking sites intended for those aged 13 or over was also confirmed by qualitative research conducted by Ofcom.

3. The average adult social networker has profiles on 1.6 sites, and most users check their profile at least every other day

Adult social networkers use a variety of sites, with the main ones being Bebo, Facebook and MySpace. It is common for adults to have a profile on more than one site - on average each adult with a social networking page or profile has profiles on 1.6 sites, and 39% of adults have profiles on two or more sites. Half of all current adult social networkers say that they access their profiles at least every other day.

The site people choose to use varies depending on the user. Children are more likely to use Bebo (63% of those who have a social networking site profile), and the most popular site for adults is Facebook (62% of those who have a social networking profile). There is also a difference between socio-economic groups: ABC1s with a social networking profile were more likely to use Facebook than C2DEs, who were more likely to have a profile on MySpace.

4. Two-thirds of parents claim to set rules on their child's use of social networking sites, although only 53% of children said that their parents set such rules

For many children, the rules and restrictions that their parents set on social networking site usage are an important influencing factor in the child's use of social networking sites. Two-thirds of parents whose children have a social networking page say they set rules on their child's use of these sites. Most commonly these concerned meeting new people online and giving out personal details. However, significantly fewer children (53% of those with social networking profiles) say that their parents set rules on their use of these sites.

5. Social networkers fall into distinct groups

Social networkers differ in their attitudes to social networking sites and in their behaviour while using them. Ofcom's qualitative research indicates that site users tend to fall into five distinct groups based on their behaviours and attitudes. These are as follows:

- Alpha Socialisers (a minority) – people who used sites in intense short bursts to flirt, meet new people, and be entertained.
- Attention Seekers – (some) people who craved attention and comments from others, often by posting photos and customising their profiles.
- Followers – (many) people who joined sites to keep up with what their peers were doing.
- Faithfuls – (many) people who typically used social networking sites to rekindle old friendships, often from school or university.
- Functionals – (a minority) people who tended to be single-minded in using sites for a particular purpose.

6. Non-users of social networking sites also fall into distinct groups

Non-users also appear to fall into distinct groups; these groups are based on their reasons for not using social networking sites:

- Concerned about safety – people concerned about safety online, in particular making personal details available online.
- Technically inexperienced – people who lack confidence in using the internet and computers.
- Intellectual rejecters – people who have no interest in social networking sites and see them as a waste of time.

7. Users create well-developed profiles as the basis of their online presence

The qualitative research confirmed the importance of a well-developed profile to people's use of these sites. Profiles often contain very detailed information about the user, even though it is not compulsory to provide this. Users also enjoy customising their profiles, posting photos, watching video content, playing online games, and in some circumstances, experimenting with aspects of their personalities.

Building a profile in this way enables users to efficiently develop a wide online social network by making the most of the communications opportunities that social networking offer. Users derive significant enjoyment from the process of building a social network, collecting a list of their friends and using this list of friends to browse others' profiles.

8. Users share personal information with a wide range of 'friends'

Although contact lists on sites talk about 'friends', social networking sites stretch the traditional meaning of 'friends' to mean anyone with whom a user has an online connection. Therefore the term can include people who the user has never actually met or spoken to. Unlike offline (or 'real world') friendship, online friendships and connections are also displayed in a public and visible way via friend lists.

The public display of friend lists means that users often share their personal details online with people they may not know at all well. These details include religion, political views, sexuality and date of birth that in the offline world a person might only share only with close friends.

9. While communication with known contacts was the most popular social networking activity, 17 % of adults used their profile to communicate with people they do not know. This increases among younger adults

Both quantitative and qualitative research showed that communication was the most popular activity on social networking sites. Users communicated mainly with people with whom they had at least some form of pre-existing relationship. Sixty-nine per cent of adults who have a social networking page or profile used social networking sites to talk to friends or family who they saw regularly anyway, compared to 17% of adults who used sites to talk to those they didn't already know. In particular users of all ages appreciated social networking sites as a means to manage their existing relationships, and particularly for getting back in contact with old friends.

Among those who reported talking to people they didn't know, there were significant variations in age, but those who talked to people they didn't know were significantly more likely to be aged 16-24 (22% of those with a social networking page or profile) than 25-34 (7% of those with a profile). In our qualitative sample, several people reported using sites in this way to look for romantic interests.

10. Only a few users highlighted negative aspects to social networking

The majority of comments in our qualitative sample were positive about social networking. A few users did mention negative aspects to social networking, and these included annoyance at others using sites for self-promotion, parties organised online getting out of hand, and online bullying.

11. From Ofcom's qualitative research it appears that concerns about privacy and safety are not 'top of mind' for most users

The people who use social networking sites see them as a fun and easy leisure activity. Although the subject of much discussion in the media, in Ofcom's qualitative research privacy and safety issues on social networking sites did not emerge as 'top

of mind' for most users. In discussion, and after prompting, some users in the qualitative study did think of some privacy and safety issues, although on the whole they were unconcerned about them.

In addition, our qualitative study found that all users, even those who were confident with ICT found the settings on most of the major social networking sites difficult to understand and manipulate.

Several areas of potentially risky behaviour are suggested by the qualitative and/or quantitative research. These include:

- **leaving privacy settings as default 'open'** (Ofcom Social Networking qualitative research) – 41% of children aged 8-17 who had a visible profile had their profile set so that it was visible to anyone (Children, young people and online content quantitative research) and 44% of adults who had a current profile said their profile could be seen by anyone (this was more likely among those aged 18-24) (Adult Media Literacy Audit 2008);
- **giving out sensitive personal information, photographs and other content** (Ofcom social networking sites research/Get Safe Online Report 2007). Our qualitative research found that some users willingly gave out sensitive personal information. This was supported by the *Get Safe Online* research which found that 25% of registered social networking users had posted sensitive personal data about themselves on their profiles. This included details such as their phone number, home address or email address. Younger adults are even more likely to do this, with 34% of 16-24 year olds willingly posting this information;
- **Positing content (especially photos) that could be reputationally damaging** (Ofcom Social Networking qualitative research). Examples ranged from posting provocative photos to photographs of teachers drinking and smoking being seen by their pupils and pupils' parents; and
- **contacting people they didn't know (and/or didn't know well) online/accepting people they didn't know as 'friends'** (Ofcom Social Networking qualitative research) – 17% of adult users said they talked to people on social networking sites that they didn't know and 35% spoke to people who were "friends of friends" (Adult Media Literacy Audit 2008).

Non si finisce mai di imparare: competenze digitali e utilizzo dei nuovi media da parte degli anziani. Form@re.

This paper reports on a survey conducted by E. Risi in 2007 among senior Italian internet users. The purpose of the study is to position the users groups in a competence/skill matrix. The survey conducted on 200 users aged 50+ showed that in 2007 the positioning matrix was the one of Fig. 2.4 in which four quadrants are identified: newbies, explorers, specialised and power-users.

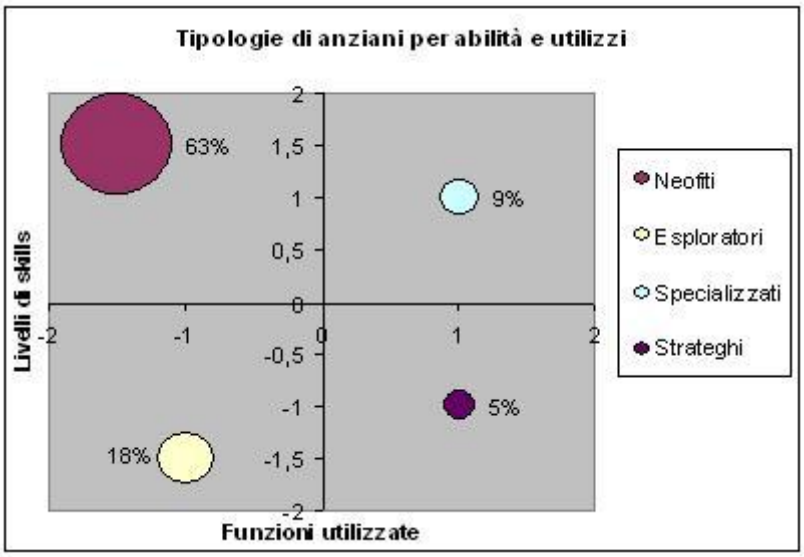

Fig. 2.4 – Positioning matrix in the Form@re study.

Who says that old dogs cannot learn new tricks?: A survey of internet/web usage among seniors

This study (Juznic et al, 2006) reports on a survey of web/internet usage among seniors conducted in Slovenja and discusses the role of Third Age University and Public Library as mediator of the information literacy process.

A survey was carried out among seniors, the participants of different Third Age University programmes, by using a questionnaire, designed for this study. This particular group of seniors was chosen because they lead more active lifestyle than average seniors and the results should be more relevant. Participating in these programmes means they are eager to learn new things and that they have access to computers.

The study aimed to focus on a specific group of internet users, active seniors, identify some of their characteristics, and also to find out what programmes are offered (if any) to raise their understanding of information literacy.

The findings show that senior citizens with higher education are more likely to embrace the internet. Almost half (46 per cent) the participants with higher education use the internet. As the level of education decreases, fewer senior citizens use the internet. College educated individuals also have a large number of users (43 per cent), but there is a huge decrease in internet usage among participants who finished secondary education (18 per cent).

Senior citizens surveyed were more comfortable using their own computers and only a small percentage use the internet elsewhere. Seniors who did not use the internet could list their reasons for that and quite a few commented that they know how to use it (they used it when they were still working) but do not have a computer at home and therefore do not use it anymore. Other reasons for not using the internet were that they:

- Do not know how to use the computer;
- Do not know how to use the internet;
- Do not have internet connection; and
- Have problems with eyes.

The average age of internet users (62) is almost the same as the average age of all participants. The percentage of users drops with each age group as anticipated but then it starts to rise in 74-79 category and becomes even higher in 80 þ age group. This anomaly could be explained by the small number of participants (ten) in these two age groups. There are only a few people in this category, but the results show that those few in this age group (who are taking part in life-long learning programmes – Third University) are remarkably active and have learned how to use the internet.

According to the results the authors assess that their first hypothesis can be confirmed as it has been proved that education can affect the use of the internet. Partly is it the same with an age, but older seniors can also be quite active internet users.

There is also an interesting but anticipated difference between males and females. Although there were not many male participants, 80 per cent of them use the internet. Among female participants there were only 27 per cent who go online. The authors also assume that gender is the most important factor deciding if a senior will be a user of the internet or not. However, the small number of male respondents might restrict full confirmation this statement.

The results of this study also lead to the conclusion that there should be more public initiatives for promoting the value of the internet to senior citizens. This should be done by public libraries as it is they who have the responsibility to support information literacy for all their users. In order to achieve this, public libraries need to design courses specifically targeted at the needs of senior citizens. This is important because the elderly often have problems with their motor abilities and may need more time to adjust, and also because they might feel uncomfortable among younger people. This survey found that most participants are not even aware whether their local libraries organize courses aimed at teaching computer and internet usage. This suggests that public libraries do not do enough to promote their programmes and should really start looking into how to market their schemes effectively in order to make senior citizens aware of such opportunities.

"A Little Silly and Empty-Headed" – Older Adults' Understandings of Social Networking Sites

The aim of this article (Lehtinen et al. 2009) was to explore how older adults experience social networking. Older adults here were considered so-called baby boomers. This age group has been neglected in SNS (Social Networking Sites) studies and that's why this wide group of ageing people needs special attentions, if we think about the future elderly consumers – what kind of hopes and expectations they have for example in future web services.

The study was based on qualitative intervention research design. The study was conducted with group and single interviews among people aged 58 to 66. Totally 8 participants, half men and half women, were found through mutual acquaintances and they knew each other before hand. Two separated groups between men and women were conducted.

The research questions were the following:

1) How do older adults understand SNSs?
2) How do these understandings fit certain aspects of their life?
3) How should these conceptions be taken into account in the design of SNSs?

The participants in this study can be characterised as "typical Social media users", because they use Internet regularly, but not SNS.

The interventions were 4 weeks long containing interviews at the begining and in the end of the experiment. There were also groups of discussion in the beginning of the study. The main focus of the interventions was on Netlog service, which is a service

in which users can create profiles, list their personal details, add their own photos and videos, make a list of their friends, and maintain a blog. The system was introduced to each participant in the group. After four weeks it was possible to continue the use of Netlog.

The results of the study indicate the importance of developing social media services starting from the needs of elderly. According to this study there were suspicious attitudes and stereotypes related to social networking. For example, Internet was considered as a dangerous and uninteresting place, if one for example did not have enough skills to use it. Also the motivation to use social network sites were low, because many of the participants already experienced that they have tools to communicate with people, like e-mail, phone calls and text messages. The main results of this article also underline the difference of social behaviour between younger and older generations; suitable social interaction in Internet seems to be more conservative among older users. Making friends in Internet is considered more suspicious and it requires lot of mutual trust to share different things with ”strangers”.

As a result, this article suggests these solutions for further studies:

1) There should be better understanding related to social relationships, especially friendships among older adults. Reciprocity in relationships is underlined in the article. Similarity of interests and life style & life situations are also meaningful for creating new friendships among older people.
2) Easy privacy settings and simply techniques must be available to older users with technical concerns and problems, especially if not familiar with the computer. One solution could be for example special computer courses to elderly users or some learning with friends, pair or in a group.
3) The content of the SNS must also be of interest for the need of target groups.
4) Regular use of SNS also requires that one has friends in SNS. This article suggests older users for example to invite one friend when using SNS, like Netlog in this case.
5) In the future, “life-long net services” should be considered for all ages, considering different life transitions and stages. Also, personal digital information could be available in the Web.

Digitally-enhanced services for the elderly

The opportunity of integrating technology into elderly's lives seems to be challenging. This study (Häikiö et al., 2010) was based on two case-studies, which included interviews, observations and database analysis. The purpose was to explore digitally-enhanced services that aim to help elderly people in their everyday lives. The case studies were planned and conducted in a real life environment with city authorities organizing and managing daily service processes in elderly care. There was cooperation between partners in city elderly care, service and technology providers.

The research methodology was qualitative and inductive based, only some quantitative methods were used. Research consisted of two case studies employing an embedded design. Both studies had two units of analysis: firstly, the elderly, with a focus on subjective user experience, and secondly, the order and delivery process from the service provider viewpoint.

The data was analyzed in two stages. In the first stage, both case studies were analyzed independently by categorizing and sorting. In the second stage, a comparative case study analysis was conducted in order to find similarities and differences between the two cases. The case studies, meal service and product order service, were analyzed from different methodological and theoretical angles. For types of triangulation were used to increase the accuracy of empirical research; data, theory-, methodological- and investigator triangulation.

The main results indicate that integrating technology into the lives of elderly users is challenging. Service efficiency does not directly translate into a better service experience for the elderly user. Different adoptive techniques can help elderly to balance with technology and own functional capacity, which also enables independent decision-making and choices.

The main suggestions based on the results of the case studies can be summarized as follows:

1) increased independence and autonomy when choosing and planning own meals to increase life satisfaction;
2) maintaining cognitive skills when choosing own meals by a digital service: it increases the feeling of engagement with everyday surroundings;
3) better visibility of the delivery processes, which can be used for more efficient route;
4) planning and quality control;

5) more efficient service processes as information can be transferred quickly and automatically among actors;

6) rearrangement of work processes: service delivery tasks are assigned to specialized personnel who can do these tasks more efficiently than elderly care workers.

Elderly People as users of Internet and Digi-tv-services

The study (Petäkoski-Hult et al., 2004) of Internet and Digi-tv-services presents the results of the VIRIKE, Entertainment and services – Elderly People meet in the net project. The project was based on the evaluation of developed service portal and usability of it both on computer and Digi-Tv environments and developed Virtual Sakkola 3D model was also evaluated. Virtual Sakkola was describing the former Finnish Carelian area as it was at 1940's. The area was given for Russia after war. During the development phase quite many elderly people participated to the scenario phase and evaluated also concepts which were written based on interviews of elderly people and different kind of focus groups.
Participants were over 60 years old people, some of them were using home care or home nursing services and others were independently living elderly. Participation to the research did not require previous experience of Internet and computer use. Vice versa, participants were mainly people with less or no previous user experience of ICT devices. In this study review, the main target is only the part where the portal evaluation was conducted. The evaluated portal was developed by the project.

The study was conducted on two communities in Finland´s capital area and one in East-Finland. Participants, totally 14 between 62-82 years old, were chosen from these areas in Espoo city, Pirkkala and Ristijärvi communities and from Sakkola-Foundations. The data collection was organized to test situations with different tasks and portal evaluation, interviews and observations in usability tests by researchers. The purpose of evaluation was to get information of Internet-protype usefulness and usability and also collect development suggestions and notify possible usability problems. Usability evaluation was specially concentrated to the clarity and easiness of portal, consistency of headlines, understanding icons and symbols and also the interest of content. There was also purpose to collect experiences of user interfaces.

The main results of the study indicates the benefits of technology to elderly users; elderly seem to have a positive attitude and interest for this kind of research and

development projects and the fact that many older people felt necessary online pages and services. In summary, elderly people in the future will be those who might benefit mostly of such technological opportunities, because they can open new possibilities to get and use different technology based services.

The suggestions for further study based on this article are the following:

1) The content of the services should be planned together between researchers and elderly end users;
2) Special attention should be paid to “Internet vocabulary” and its plainness;
3) There should be Finnish versions for pop-up lockers to help elderly understand the English text;
4) When planning a service portal, it´s important to pay attention to the adopted terms.

Elderly People as a user of services - A report on service demand of people over 65 years old Lohja citizens

This report (Manninen & Mäkelä, 2010) was based on Laurea´s Trade school thesis, which focused to study the satisfaction of services among Lohja citizens´ age over 65. The study was also focused to the usability rate - how often different services were used. In this study review only the part of Internet services were taken into consider. The study was based on quantitative research. The data was collected using questionnaires, with structured and open questions. The questionnaires were sent to six different districts of West-Nyland in Lohja. The participants, totally 500 over 65 year old Lohja citizens´ were randomly selected in Lohja. The response rate was about 35 %.

These results point out an interesting fact: the level to use of Internet services between 65-74 years Lohja citizens´ is lower than in average Finnish people in same age group. Other results indicate that bank, e-mail services and online news were the most generally used services. Internet was used also to social networks, the most popular and used form was Skype. Internet services were mostly used for the entertainment type of use.

The conclusion and suggestions of the survey are the following:

1) Elderly in Lohja need more clarifications and easiness for the service use (Lohja City´s Web service portal for elderly, so-called Elderly´s service marketplace).
2) There should be more information on the web service portal of Lohja. Many Lohja citizens may not even know the existence of service.
3) There should be special training programmes for computer and web service use to elderly citizens organized by Lohja City. This could help and increase the use of web services among the elderly.
4) The low usability rate of Internet among elderly Lohja citizens is remarkable. The study authors remind the stereotypes and fears of elderly related to computer and Internet use and also the difficulties, which may be a hinder to start learning

In conclusion, the results of this paper may be partly generalised. Many elderly still need more learning and training possibilities for computer and Internet use, even if they already know computer. Also attitudes to technology can vary between enthusiastic and negative attitude among older people.

Touch-based user interface for elderly users

This research (Häikiö et al. 2007) was exploring touch-based user interface technology among elderly in homecare. Mobile phone was used as a user interface element among home-dwelling elderly people to choose their meals to be delivered by means of a home care service. The study focused on examining the suitability of a touch-based user interface in the everyday life activities of elderly users during eight-week experiment.

Research setting in this study was a trial period over 3 to 8 weeks. Totally 9 participants, average age 76, 6, was selected from volunteers in Oulu regional care service for the elderly. All participants were independent living and clients of a meal service. Most participants had memory disorders of differing levels. Participants were possible to choose daily meals from two options. This enabled freedom of choose and decision-making related to own life. All participants were interviewed by the time of intervention and after experiment. As a result, user experiments and attitudes were gathered and analyzed by content-based analysis.

The results of the study presented in this article based on 3 analysis types:

1) A use analysis of the effects of the physical and cognitive skills and capabilities of elderly users:
    a) impaired motor skills can make the use of a mobile phone keypad difficult;
    b) buttons of mobile phone is too small for many elderly users, also difficulties using a pen among some of the users;
    c) all the participants adopted the touch interaction method easily regardless of their motor skills.
2) An analysis of effects of the users' prior experience with mobile phones:
    a) earlier mobile phone use did not predicted and correlated with the ability to learn and use the application (even though earlier use correlates with the willingness to adopt the applications use);
    b) mobile phone can evoke negative expectations in some elderly persons, especially if no user experience beforehand.
3) An analysis of the design of the components of the system, including the mobile phone and the menu stand:
    a) eight out of nine participants said they were sure that their orders always reached the backend system;
    b) in the beginning some participants had difficulties for read and interpret the menu table;
    c) in the final interview, the participants did not have difficulties for interpreting the menu table.

In summary, the results of the article give mainly a positive perspective of future possibilities in touch-based user interface technology. The results namely indicate that specific knowledge or experience is not required for learning and that the adoptive techniques are easy-to-learn for elderly. Also impaired motor skills do not prevent the use. On the other hand, the study underlines the importance of attitudes to technology, which can be a strong contributor to adopt the services in daily use. Also five of the nine participants preferred the new catering service over the earlier practice, as a result not everyone were interested continuing the service use.

2.2.1.3 Others

Ethnographic research on the experience of Japanese elderly people online

Elderly people in Japan are becoming part of virtual communities (Kanayama, 2003). This article explores the online experience of such people, how they interact with others and how they construct social support relationships via computer-mediated communication (CMC). This ethnographic research, through participant observation and in-depth interviews, reveals that these elderly people enjoy interaction in a variety of language forms, ranging from haiku to emoticons, by combining traditional text-based Japanese culture with a new virtual culture, despite the limitations of text-based communication. Also, both the immediacy and asynchrony of CMC helps them to construct real human relationships in the virtual community, including social connectedness to others as well as supportive and companionship relationships. The elderly people could create a sense of greater propinquity by sharing their old stories and memories.

Love Actually! Older adults and their romantic Internet relationships

This research (Malta, 2007) was inspired by two stereotypes: first, that older adults don't do computers – and certainly not the Internet and, secondly, that older adults don't do sex – they are asexual. The results clearly show these stereotypes to be flawed. Semi-structured qualitative interviews were conducted via synchronous computer-mediated-communication (private chat). The sample consisted of older adults (61 – 85 years) who had all used the Internet to meet potential romantic partners, either through their involvement in online discussion groups or via online dating sites. For the most part, the relationships described were meaningful, intimate and long-lasting. The majority were involved in ongoing sexual activity with their partners, and for some, cyber-sex was or had been an integral part of their relationships. Additionally, a proportion enjoyed flirting online with others and some were also involved in extra-dyadic relationships; indicating that sex and intimacy outside of primary, committed relationships was just as compelling an activity for these older adults as for younger Internet users.

2.2.2 Identity and Personality in Social Media

Who interacts on the Web?: The intersection of users' personality and social media use

This paper (Correa et al., 2009) was presented at the Association for Education in Journalism and Mass Communication, Mass Communication and Society Division in Boston.

This paper advances the literature on the uses of new technologies introduced in society by exploring the relationship between people's personality traits and user-generated applications. In particular, it focuses on social media use, a construct that captures the ways in which Internet users socialize, connect, communicate and interact with each other via instant messaging and social network sites.

The authors sought to predict levels of social media use based on the psychological Big-Five framework, which measures individuals' personality attributions and characteristics.

This paper has taken this line of research a step further in a number of ways. First, data collected and analyzed assures U.S. national generalisability, providing a broader and more reliable snapshot of social media users and their personality traits. Second, the models presented have taken into consideration and control for the residual effect of a set of demographic variables (age, gender, race, education and income) and levels of life satisfaction to isolate the predicting relationship among our variables of interest. Additionally, the inclusion of these variables as controls was preferred because the literature has identified some personality traits being related to demographic variables. Along these lines, we found a positive relationship between age and emotional stability. It was important to control for life satisfaction because overall personal contentment with life is also related to personality traits and social media use.

Overall, this study found that individuals' personality traits – extraversion, emotional stability and openness to experiences -- play a role in the uses of interactive social media. These results are consistent with previous studies conducted by other authors, who tested how personality played a role in Internet use, and with studies that examined online applications that involved some degree of social interaction. This study supported the hypothesis that extraversion was positively related to social media use. The first studies that explored the relationship between personality and different uses of the Internet found extraversion was negatively related to uses of social services such as chat rooms. The argument was that social interactions through these online applications differed from offline interactions due to the lesser importance of physical appearance and physical proximity. As a result, introverted people as well as those who experience social anxiety and loneliness tended to use the Web to assuage their real-world isolation in these early studies of Internet use.

Current social media applications such as social network sites and instant messages are different from previous research on social services because they do not provide

anonymity. Therefore, this may explain why extraverted, rather than introverted, people tend to engage in social media use. This is consistent with another study that explored the relationship between personality traits and Facebook use. This result suggests that given the influence of these social media on today's social interactions — more than half of America's teens and young adults use them and more than one-third of all Web users engage in these activities (Jones & Fox, 2009) — Internet designers should take into account users' characteristics and needs (Amichai-Hamburger, 2002). For instance, if introverted people are less likely to engage in these social activities, the sites' designers could increase the privacy options to attract those who prefer greater levels of anonymity.

This investigation also found emotional stability was negatively related to social media use. In other words, people with greater levels of neuroticism and negative affectivity are more likely to engage in these social activities. Interestingly, the relationship between lower levels of life satisfaction and greater social media use disappeared when emotional stability was taken into account in the model, suggesting that higher levels of anxiety were actually predicting social media use rather than level of personal contentment with life. This finding supports previous studies that found higher levels of neuroticism were related to the usage of Web social services such as chat rooms and instant messaging. Given that neuroticism is related to loneliness, a possible explanation is that anxious and nervous people use these services to seek support and company. They also provide more time for contemplation before acting compared to offline or face-to-face interactions.

The positive relationship between openness to experiences and social media use found in this study was expected given the novel nature of these technologies. For instance, although the first recognizable social network site was launched in 1997 (SixDegrees.com), the most widely used sites in the U.S. – MySpace and Facebook — were introduced much later. MySpace was launched in 2003 and Facebook in 2004, although only in 2006 did it become available to everyone.

This finding, however, along with others was affected by age. The relationship between extraversion and social media use was particularly important among the young adult cohort: extraversion was the most important predictor of social media use. Conversely, being open to new experiences emerged as a key personality characteristic to predict social media use for the more mature segment of the sample. Borrowing from Prensky's notions of digital natives and digital immigrants (Prensky, 2001), it seems that for younger generations using the Internet as a social media tool has more to do with being extraverted, while for their older counterparts it has more

to do with being open to new experiences. Younger people grew up with these digital options at their disposal to interact and communicate, making them digital natives. Older people, then, are considered immigrants. They confront every change in technology as something new to be mastered, so they must have a much more open-to-experience mindset. That is, they need to be predisposed to being open to new things in order to engage in such social media use. Gender presented another difference among personality traits. While extraverted men and women were both likely to be more frequent users of social media tools, only the men with greater degrees of emotional instability were more regular users. There was no significant relationship between women and emotional stability. This may illustrate the differences in the ways men and women communicate – women place a greater emphasis on forging connections with others and building a sense of community. Given this gender-based tendency among women and previous findings that the vast majority of SNS users rely on it to build connections and maintain relationships, one would expect women regardless of their demeanor to be drawn to social networking sites.

Conversely, when considering the relationship between neuroticism and self-esteem, it seems men with greater emotional instability are drawn to use social media, perhaps as a way to bolster feelings about themselves by reaching out to others.

Avenues for future research include developing a richer measure of social media use. A vast list of different uses within the social media realm would greatly improve this line of research by differentiating similar forms of interaction. An experiment testing how people engage in different uses, as well as in-depth interviews with subjects would facilitate a better understanding of this emerging phenomenon.

This paper did not test all possible dimensions of personality, instead opting for those dimensions that the literature has shown were relevant. The Big-Five model was tested with a brief index specially designed for studies that cannot test a large instrument due to time and space constraints. This instrument, however, has been previously validated and showed consistency in this study. That does not mean other personality traits may also predict whether citizens opt to engage in social media use, but future research should examine this possibility.

Overall, this paper contributes to the understanding of how people's personality characteristics predict their social media use on the Internet. Research needs to continue disentangling many of the psychological factors that lead people to engage in this participatory media. This type of investigation is especially relevant in an ever-

increasing user-generated Web where active participation may become crucial for advancing in social and political spheres.

Acting your age: a study of the relationship between online social interaction and identity in older adults

This study (Dell, 2008) combined quantitative and qualitative methods to investigate the relationship between Internet use and identity, particularly age-identity, in older Internet users. The focus in this study is on how changes in social interaction that occur due to Internet use affect the identity negotiation process. The research is focused around two key areas: whether older users experience the same kinds of online identity processes as younger users, and the impact exposure to novel audiences has on identity negotiation.

The study consisted of two phases. In the first one, a quantitative survey was administered in which a measure of age-identity was assessed and compared with measures of audience novelty. Results showed that a significant increase in variance of age identity is associated with communication with people from other countries. This finding supports the theory that identity is formed in negotiation with the audience with whom one communicates, and that expanding this audience may lead to identity effects.

To investigate this issue more deeply, a qualitative phase was conducted in which participants were interviewed using rapid ethnography techniques, and at the conclusion of which a model of the interaction between age-identity and Internet communication was developed. This model was then verified with follow-up interviews with key informants and with field observations from sites of online social interaction among seniors.

The model developed during the qualitative stage identifies three ways in which age identity is influenced by social interaction on the Internet. First, the Internet is used in response to emotional or practical consequences of ageing. Second, older Internet users could take advantage of the ability to manage their personal front online to achieve agelessness, and third, the Internet is used as a backstage area to discuss age identity issues. The context of these claims is all-important; each individual's unique circumstances, emotions and motivations influence the way in which they will use the Internet and respond to others encountered through it.

2.2.3 Social Media and Well-Being

Active Ageing and the Potential of ICT for Learning

This is a scientific and technical report published by the Joint Research Centre in 2008. The study is conducted by the Institute of Prospective and Technological Studies.

The perspective under which the topic is presented emphasizes the role of learning in ageing societies as an enabler of "active/well ageing".

The reports rely on the World Health Organization **definition of active ageing** as "the process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age". Among the determining factor of active ageing there is social environment (Fig. 2.5).

Fig. 2.5 - Active Ageing Dimensions according to JRC.

The social environment is conditioned by social support, education and literacy.

Three main areas are recognised as being relevant to well ageing (European Commission, 2007)

1) Ageing well at work, as staying active and productive for longer with better quality of work and work-life balance.
2) Ageing well in the community, as staying socially active and creative, improving quality of life and reducing social isolation.
3) Ageing well at home, as enjoying a healthier and higher quality of daily life for longer, assisted by technology, while maintaining a high degree of independence, autonomy and dignity.

These three areas are linked to different learning needs for older people as jobs, living environments, social networks, and their own health change in old age.

Another important element drawn from this report is a different perspective on the classification of elderly people.

Older people are a heterogeneous group and improved differentiation is necessary. The traditional categories for age groups (categories like 50-64, 65-74 and 75+) are useful for statistics and quantitative research on older people. However, the above mentioned authors (Binstock, Fishman and Johnson, 2006) argue for a different approach, based not on age but on the following phases of ageing:

a) Age more or less close to retirement (period of pre-retirement)

b) Autonomous age as a pensioner (period of independent living)

c) Age with increasing handicaps (start of period of dependent living)

d) Dependent pensioners' age (period of dependent living up to the end of life)

Older people motivation to learn depends on how useful they perceive their learning results to be and also on whether they think they are capable of achieving these results. They are especially interested in:

1. learning to know
    - issues related to their well being (health, safety)
    - culture, politics, people, society
    - language
2. learning to do
    - activities supporting travelling
    - activities for communicating with the family or for working and interacting with other people in the community
    - practical tasks (managing money, organizing transportation using new house appliance..., use aids for compensating disabilities..)
3. learning as an activity
    - keeping up to date with ICT
    - a way of giving back (intergenerational learning - see also EU Eagle-project)

Another important issue drawn from this report is related to the importance of designing for the “silver market” aiming at simplicity of tools to accommodate differing personal needs as specified in (Gassmann and Keupp, 2009).

First-time Internet users find boost in brain function after just one week

This article was published on UCLA Newsroom (Champeau, 2009) and it reports on researches conducted by a group of UCLA researchers that has determined that for middle-aged and older folks, using the Internet, particularly search, causes enhanced neural stimulation leading to better reasoning and decision-making.

The results of this research have been presented at the Neuroscience 2009 meeting in Chicago. Scientists stated: "The results suggest that searching online may be a simple form of brain exercise that might be employed to enhance cognition in older adults." Defying folk wisdom regarding old dogs and new tricks, the research was conducted on Internet users aged 55 to 78, about half of whom rarely used the Internet.

Previously, the same researchers proved that conducting searches online doubles brain activation in older "digital natives" compared to older "digital immigrants."

One of the authors of the study, UCLA psych professor Dr. Gary Small, said, "We found that for older people with minimal experience, performing Internet searches for even a relatively short period of time can change brain activity patterns and enhance function." In other words, it takes just a matter of days for older first-time Internet users to catch up to their more experienced counterparts in terms of brain activity.

Here's how the study was conducted: The researchers found 24 people aged 55 to 78 whose brains functioned normally. Half were daily Internet users, and half were noobs.

First, all the volunteers searched the web in a lab setting while the scientists took functional magnetic resonance imaging (fMRI) scans of their brains, looking at changes in blood flow in the brain. Next, the test subjects were sent home and asked to search the Internet for an hour a day for seven days over the course of two weeks. Their searches were based on assigned topics that required them to search the web, explore websites, and read. Finally, the participants returned to the lab for more scans while they searched for more information on different topics.

What researchers found was that the Internet noobs' brains displayed activity in areas of the brain that govern language, reading, memory, and visual ability during both the "before" and "after" scans. However, their brains showed new and increased activity in the parts of the brain that control working memory and decision-making. The patterns were, in fact, similar to those found in the brains of the longtime daily Internet users.

The UCLA team said that these changes occurred because search requires users to store information in working memory and also determine relevant details from datasets of competing pictures and words.

Can the Internet improve the well-being of the elderly

In this paper (Mellor et al., 2008) the authors report on a project that aimed at evaluating the potential of the Internet to reduce social isolation amongst the elderly, and thereby, improve psychosocial functioning. Twenty residents of a retirement village volunteered to be given access to, and training in, the use of computers and the Internet. After 3 months, they exhibited little change in measures of self-esteem, positive affect, personal well-being, optimism and social connectedness. However, they reported that they found the use of the Internet to be of great benefit. Over the 12 months of the study 12 participants discontinued their involvement for a variety of reasons.

After 12 months, the eight participants who remained in the study again reported a range of positive outcomes however, quantitative survey data did not confirm these findings of a generally-positive experience. This discrepancy between the qualitative (interview) data and the quantitative (survey) data suggests that impact of the Internet on the wellbeing of the elderly may be more complex than suggested, and broader than was assessed psychometrically.

The results of this evaluation suggest that implementation of Internet access in residential facilities has the potential to improve the lives of older persons. However, in order for such programs to be successful, certain supports must be put in place. The provision of Internet facilities to older people who are socially isolated should be done carefully, as clearly not all older people are suited to the Internet, and not all will continue with its use when it is provided. It is difficult to prescribe what would constitute suitable attributes for inclusion on such a program. In our study, many potential participants excluded themselves from the study on the basis of poor vision, arthritis and so on, but it was other social, environmental, personality and cognitive factors that seemed to be related to attrition. Further work to explore what

differentiates between those who continue with the use of the Internet and those that do not would be informative.

The placement of computers in a facility appears to be a crucial factor in whether the implementation will be successful. The findings of our study suggests that computers be placed in areas of the facility that are private, quiet, and close to residents' rooms so that they are easily accessible in the evenings. The placement needs to be conducive to the residents, warm, secure, well lit and with a telephone so that help can be obtained when needed.

Our study also found that there is a strong need for older persons who are learning to use the Internet to have ongoing, consistent access to technical assistance and support. Therefore, it is recommended that at least one permanent member of staff in an aged care facility is comprehensively trained in the use of computers and the Internet. This member of staff should be willing to assist at a very slow pace, to repeat the same thing many, many times, and to constantly reassure the elderly participants that they are not at fault if something goes wrong. The results of this evaluation have indicated that cognitive issues such as poor memory hinder the ability of older persons to recall instructions. This could be overcome by the provision of a purpose-designed written guide to computer and Internet use. Therefore it is recommended that instructions for the use of a computer and the Internet be provided in a written format, in plain language, so that individuals may refer to this documentation. Such instruction needs to be very simple, with every step included, and in a very easy to understand format. Currently available self-help guides to the Internet are not appropriate.

The evaluation found that various social pressures were non-conducive to maintaining participants' engagement with the Internet, with some participants feeling stigmatized when they joined the project. In any residential environment that planned to introduce Internet facilities, a clear and obvious commitment from the management and care staff would be helpful, and an opinion leader could be encouraged to be part of the project. The introduction of computers to groups who already share some common activities, even if not much more than a friendly cooperative arrangement, would improve the chances for success when combined with patient, readily-available support.

2.2.4 Social Media Trends

ReadWriteWeb: Trends Archives

Ustrategy.com has published on ReadWriteWeb an analysis about the evolution of social networks in 2011. The key trends to watch in the coming year are the following.

1. Social media will be supersized

Following the success of various social media SaaS vendors and application providers, and fueled by Apple envy,'in 2011 we will see a surge of service providers bundling social networks, engagement widgets, video, mobile capabilities, cloud services and analytics, with their own unique services and proprietary capabilities. Ad agencies, for example, will offer bundles that include layers of creative strategy, campaign management and advertising deals all handled through a central dashboard; telecommunications companies will offer video tools for businesses and consumers with greater bandwidth, storage and syndication; learning management systems (LMS) integrators will add engagement, archiving, training and collaboration tools for a deeper and more engaging academic experience. By the end of the year, using today's à la cart solutions will seem as efficient as buying a pocket knife with only a bottle opener in it.

2. Companies will integrate social feedback into their decision making process

In 2011 we will see a growing number of companies finally go beyond using social channels merely for building awareness and providing support. As social thinkers," these companies will use the social engine to inform strategic decisions, and execute on the organization's objectives, marketing plans, product roadmaps and more. "It's not just about technology, it'is about a fundamental shift into a new age of leadership with new type of executives who behave and operate in new ways. Expect to see a rise in companies who, by end of year, will be recognized for socially-informed innovation, customer focus and work environment, much like Zappos and Amazon were a few years back.

3. Mobile will become our gateway to the world

In the coming year mobile device users will interact with content, companies and the Web more on their phones and iPads than on their computers, and IT and service providers will create solutions that are defined by our mobile consumption and use behaviors. The trend will impact from social shopping on the go, to easy paperless transactions and check-ins, to watching (and creating) videos with friends abroad, to in-class learning and collaboration, to managing our health real-time - prepare for an

explosion of connected experiences across all points of interactions between people and people, people and companies, and people and information in the cloud.

4. Video will be everywhere

With plummeting video delivery costs and highly accessible and flexible video management platforms, custom-use of video by enterprises online, on mobile devices, and across screens is on the rise across all sectors. In the coming year, gaps in our video experience will be filled with the integration of filtering, tagging, editing and locating tools into each and every video feed. Both companies and consumers will increasingly rely on video to provide information and behavioral cues that are not otherwise present in texts, tweets and status updates, making video a critical component of the value chain for its impact on shaping people's perception about companies and about each other.

5. The next big Online Social Network will not be a network at all

Social networks have transformed human access capabilities much like modern transportation and the telephone did over 150 years ago. But they are also changing the very structure of our relationships - flattening our naturally varying levels of intimacy in real life. In the coming year we will see the rise of dynamic, engaging, easy-to-use community platforms and applications like Diaspora, Path and Looppa that will better mimic and facilitate the innate way people seek to manage relationships.

As they become more social, on their own turfs, companies will once again own their customer relationships and brand in a whole new way, —ultimately building greater community value for both the company and its customers.

6. ROI will be redefined

As brands move this year from *being* on social media to *using* the social media ecosystem, ROI metrics will finally evolve beyond counting 'likes' and comments. Aligning with actionable business objectives and their corresponding metrics will be critical to being able to demonstrate repeatable contribution to the bottom line. Companies who hire social media strategists with proven marketing analytics background and business strategy experience will have the upper hand and will place first in the race to cracking the ROI code.

7. Psychology is shifting

Until now, human psychology has been regarded slow to change. In the coming year we will begin to see evidence that we are, in fact, witnessing a growing psychological

plasticity. Once feeling powerless to fight against personal and cultural injustices, today people know they have the power to voice their grievances, the tools to bring about change and the ability to take control of their experiences. As the constructs of relationships, privacy and our ability to influence others evolve, we will also face important questions: How do we respond to the changing definition of relationships? How does the elimination of behavioral cues, only available face-to-face, impact our ability to connect? How does our need for emotional balance get addressed in the face of constant change?

In the coming year, companies wishing to succeed should already start to set practices and create a charter to understand the intersection between technology and psychology. Focusing on behaviors is no longer sufficient.

8. Citizen activism brings back purpose and power

With the power made possible by social technologies to connect, inform and mobilize, we will see a surge in self-organized and managed citizen activism. Wikipedia and Mozilla FireFox are early and ongoing examples of the value of the connected human infrastructure; many more, including Causecast and OpenIDEO, as well as lesser known projects like It Gets Better will light up the grid. By the end of the year we may each join a group of people we have never met in order to take part in bringing about change in completely new ways.

9. Social business intelligence will heat up and so will privacy

As we become ever more connected, and rely on giants like Apple and Google to funnel our most personal information, the field of social business intelligence, and with it, our privacy, will move to the spotlight. Every company now looks to tap into the boundless user data being collected in the cloud. While personalized, targeted experience can be extremely valuable in helping companies and consumers cut through the clutter, the line between perceived use and abuse can be thin at times.

In the year ahead we will witness (and be part of) major data virtualization initiatives designed to map our activities, preferences and choices. Mechanisms designed to triangulate our mobile, online and physical information will yield more accurate information than our Social Security numbers can. We will see fierce regulation battles and hear about companies who use our data to test boundaries and our trust.

10. The role of the social media strategist will be changing

Social media roles today focus on tangible, results-driven capabilities within the organizational structure and processes. Hiring managers are more informed and better connected, making it easier to separate the wheat from the chaff.

In 2011, social media strategists will need to contend with much more actionable, and often mundane, tasks such as selecting and piloting new tools, integrating social widgets and analytics, helping to educate the organization, and integrating social-based thinking into the organization's process and culture. Process design, stakeholder management, strategic planning, and the ability to manage large projects within complex environments will all be required. Strategists looking to remain inspired and work at the cutting edge will have to look outside today's leading corporations. Some of the most interesting social media work will come from new media digital agencies, smaller innovative companies, international companies who are just entering the field and late-to-adopt sectors such as health, finance and insurance.

In the year ahead we will see more of the same: more users on Facebook, more videos, more social media widgets, more tools, more devices, and more applications. But it will also be a year of important accomplishments and fundamental shifts in our thinking, behavior and psychology. As social media and social technologies integrate deeper into our daily lives and across vast audiences, our areas of focus will begin to transform. Companies will begin to overhaul their internal structures and decision-making processes even if at a fairly superficial levels at first; consumers will seek to make sense of their evolving relationships, always-on connectedness, and to redefine value and meaning.

As we finally surface from social media stimulus overload, the questions we will ask in the coming year should not be about technology but about what it enables, what it jeopardizes and about how we, as the connected collective, want to shape the years to come.

Intelligent Technologies for Bridging the Grey Digital Divide

This book, co-ordinated by Jeffrey Soar, Rick Swindell, Philip Tsang and edited by IGI Global in 2010, offers high-quality research with both industry- and practice-related articles in the broad area of intelligent technologies for seniors. The main focus of the book is to provide insights into current innovation, issues to be resolved,

and approaches for widespread adoption so that seniors, their families, and their caregivers are able to enjoy their promised benefits.

The book covers the following topics:

- Attitudes of Seniors to Technology
- Benefits – Clinical, Social, and Economic
- Disease Management and Coordinated Care
- Education, Training, and Awareness
- Legal Issues and Regulatory Compliance
- Payment Systems, Funding, and Business Models
- Smart Homes and Buildings
- Technologies for Residential Aged Care
- Telecare and Telehealth
- Ubiquitous and Pervasive Technology
- Wearable Technologies
- Workforce Productivity Tools

It is organized into 19 chapters and the main conclusions for each chapter are reported below.

1. Ubiquitous Computing for Independent Living

Ubiquitous computing technology (ICT) shows great potential in supporting the infirm elderly, and others managing complex health issues, to live independently in their own home. While these technologies have great promise, their adoption level is low in Australia. It is suggested that two concurrent strategies are needed to improve the penetration of ICT-based assistive technology in the community. Firstly, significant trials are needed to verify that such systems can provide improved health outcomes and reduce health system costs for suitably targeted patients. Secondly, research in security and privacy, open standards, human-computer interfaces and new models of care driving software specifications is needed, so that these health system benefits can be achieved at a reasonable cost, and with adequate consideration of the needs of clients and care givers.

2. Ageing, Chronic Disease, Technology, and Smart Homes: An Australian Perspective

This chapter explores ageing, chronic disease, technology and social change. Healthcare has been transformed through medical technology but there is much still to be done to enable seamless exchanges between all care givers, which is expected to improve safety, quality and efficiency. There is massive potential for technology to transform the experience of ageing including assisting with the management of chronic disease, coordinated care and guided self-care for consumers. Innovative technologies are increasingly available to assist in maintaining health and independent living. This includes telecare, telehealth, assistive technologies, robots and smart homes. A challenge is in providing access to and support in the use of technologies where there are clear benefits to consumers, care givers, providers and funders of healthcare. The chapter also reports on the Queensland Smart Home Initiative which is one of several organisations internationally that share a mission of assisting people to be supported through these technologies.

3. A User-Driven Approach to Developing Ambient Assisted Living Systems for Older People: The SOPRANO Project

This chapter describes some of the results of the EU-funded SOPRANO project to develop an Ambient Assisted Living system to promote active ageing and ageing-in-place. The chapter outlines SOPRANO‘s experience and application research approach to ensure that end-users are involved in all stages of the research and development. A number of key areas for application development were identified and developed as a set of use cases (or descriptive models), for example for medication reminding, and to support exercise. These use cases were further refined through visualization and iterative prototyping techniques with end-users to ensure usability, usefulness and acceptability for users. The SOPRANO prototype system is described together with future plans for deployment in demonstration sites and field trials.

4. Falls Prevention in the Home: Challenges for New Technologies

Approximately 1 in 3 people over the age of 65 fall each year; therefore it is of little surprise that falling is often accepted as a natural part of the aging process. Many falls are simply managed using alarm pendants to notify others when a falls event occurs. However, falls technology extends beyond simple notification; technology can be used to screen for falls risk, or to prevent a fall from occurring. In this chapter, we review the latest best practices for the identification of falls risk. We review the technology, if any, developed to support these practices, and discuss the challenges of using technology for in-home falls prevention, risk assessment and falls detection. Recommendations and suggestions for future research directions are discussed.

5. The Use of Assistive Technology to Support the Wellbeing and Independence of People with Memory Impairments

This chapter presents the research, results and lessons learned from a project to evaluate currently available assisted living technologies for elderly people with mild to severe memory impairments who want to age in place. During the project a number of households were equipped with assistive technology to enable the end users to better cope with the barriers and problems associated with their forgetfulness. End users were involved in different phases, starting with a problem and needs analysis and ending with an evaluation of the technology installed in their homes. It seemed that technology did have a positive impact on their lives as well as on the lives of the informal caregivers who often live with those who suffer from amnesia. This project gives insight into how we are coming closer to optimizing the positive effects which assistive technology holds for the elderly with memory impairments. Key insights are presented.

6. Meeting the Needs of Diverse User Groups: Benefits and Costs of Pluggable User Interfaces in Designing for Older People and People with Cognitive Impairments

“Pluggable user interfaces” is a software concept that facilitates adaptation and substitution of user interfaces and their components due to separation of the user interface from backend devices and services. Technically, the concept derives from abstract user interfaces, mainly in the context of device and service control. Abstract user interfaces have been claimed to support benefits such as ease of implementation, support for User Centered Design, seamless user interfaces, and ease of use. This paper reports on experiences in employing pluggable user interfaces in the European project i2home, based on the Universal Remote Console framework, and the Universal Control Hub architecture. In summary, our anecdotal evidence supports the claims on the benefits, but also identifies significant costs. The experience reports also include some hints as to how to mitigate the costs.

7. A Robotic Arm for Electric Scooters

This chapter describes the mechanical design, manufacture and performance of a three-degree-of-freedom manipulator arm and gripper that can be attached to a mobile vehicle or electric scooter. Known by the acronym “ESRA”, or “Electric Scooter Robot Arm”, this device can be remotely or automatically controlled to pick up and retrieve heavy objects, such as books or grocery products, from high shelves or difficult-to-reach locations. Such tasks are often considered to be arduous or even

impossible for the frail elderly and people with disabilities. This chapter describes one example of how the combination of mechanical and electronic engineering technology can be used to perform physically strenuous tasks and enable the frail elderly and people with disabilities to enjoy a greater degree of self-sufficiency, independence and physical productivity. It includes the design process for robotic arm manipulators and actuators. It also provides a brief overview of existing “state of the art” robotic and machine vision technologies, and how these can be used to perform many everyday domestic or household chores.

8. **Thinking Outside the Box: Novel Uses of Technology to Promote Well-Being in Older Populations**

This chapter aims to examine the adoption of technology by older adults within a framework of current gerontological theories and research. Cognitive, physical, mental and interpersonal development and change later in life will also be described. Two main psychological frameworks for understanding successful ageing are briefly outlined and within these frameworks, the role of technology in enhancing the lives of older adults, regardless of the level at which they incorporate it into their lives, will be discussed. The chapter concludes with suggestions for removing barriers and enhancing uptake of technology for older adults, helping to bridge the grey digital divide.

9. **U3A Online and Successful Aging: A Smart Way to Help Bridge the Grey Digital Divide**

Population aging is refocusing aging policy away from mainly remedial actions towards low cost preventative interventions that keep older people independent and participating in their communities for longer. The purpose of this chapter is 3-fold: 1) to outline the elements of the successful aging model; 2) to explain the worldwide, self-help University of the Third Age (U3A) adult education program as a very low cost, successful aging organization; and 3) to discuss findings from two related studies of older adults who were members of a virtual U3A called U3A Online. Considerable anecdotal evidence shows that U3A Online is particularly valuable for people who are isolated from their mainstream communities by circumstances such as illness, disability or care giving. An email focus group with nine participants from three countries was conducted over a two year period, using the successful aging model as a guideline to examine the characteristics of these older people who are attracted to online learning. Results based on the combination of automated computer text analysis and manual text analysis techniques supported a conclusion

that the Internet was an integral part of the lives of these participants, particularly those with serious health difficulties or profound hearing loss. Outcomes also supported a conclusion that electronic communication can reduce feelings of isolation and provide stimulating and enjoyable pastimes with the potential to assist older people in aging successfully.

10. Promoting Active Ageing through Technology Training in Korea

By 2050, people aged 60 and older will comprise 33% of Korea's population, up from about 12% currently. In many occupational sectors, women retire at 55 and men at 60. This rapidly shifting demographic requires a new perspective on retirement and a better image of older persons in Korea. In line with the Active Ageing Framework of the World Health Organization, the Active Ageing Consortium in Asia Pacific (ACAP) advocates for changes to individual practices, social norms, and social policy to support the continued engagement of older adults as active contributors to society in the 21st century. Digital literacy is a critical element of Active Ageing, enhancing participation in today's modes of communication and social connectivity. To promote the concept of Active Ageing with Digital Ageing, Korea's Research Institute of Science for the Better Living of the Elderly (RISBLE) aims to increase Korean elders' access to information and their opportunities for communication and participation. RISBLE's programs—Cyber Family, Internet Navigator, and the 1080 Family Online Game Festival—help elders master new technology, strengthen intergenerational relations, gain leadership roles, and contribute as community teachers. This chapter reviews the Korean situation of ageing, outlines ACAP's commitment to Active Ageing with Digital Ageing, and presents information on three RISBLE programs. These "best practices" are shared in hopes that other communities can learn from RISBLE's work to reduce the ageing digital divide and promote digital life for older persons in South Korea.

11. Intelligent Transportation Systems for Older Drivers: A Systems Approach to Improving Safety and Extending Driving Longevity

This chapter covers current and future technologies relevant to older drivers. It does this using a systems framework, reviewing research and issues relating to older adults and technology at the level of the road user, the transport infrastructure and the vehicle. While most Intelligent Transportation Systems (ITS) currently exist at the level of the vehicle (technologies such as satellite navigation, collision avoidance, and hazard alerting systems), research and development at the infrastructure level also holds promise of significant improvements in automotive safety through the

exchange and coordination of digital information between vehicles and the roads upon which they are driven. At the individual level, there are also increasingly sophisticated technologies being developed that aim to accurately identify potentially unsafe drivers, and to maintain and even enhance cognitive capacities that are critically important to safe driving. This chapter begins with a review of salient characteristics of older drivers, before discussing current and future technologies at each level of the adopted framework: the road user, the road, and the vehicle.

12. Low Usage of Intelligent Technologies by the Aged: New Initiatives to Bridge the Digital Divide

Contrary to expectations, assistive technology (AT) usage by the elderly has not increased in proportion to availability and ease of access. This is despite a belief that technology can contribute significantly towards improving their quality-of-life. Our Rehabilitation Mechatronics research group at NTU Singapore is developing a “unified neuro-physio platform”, taking a cue from Eastern philosophies which emphasize that the “internal environment” of the users strongly affects how they interact with the “external environment.” This chapter highlights the need to bridge these two environments meaningfully through “sensitive” technologies which address the mindsets and learning mechanisms of users. The technology platform we propose helps the elderly to understand and enhance their internal environment in order to interact at various levels with AT in their external environment. It provides a fresh approach to understanding and minimizing the persistent “digital divide” between the elderly and high technology.

13. Building a Mutual Assistance Community for Elderly People

Efficient and cost-effective solutions are needed to meet the demands for services required by an ever increasing number of users. We discuss the characteristics of Ambient Assisted Living (AAL) as a new approach that promises to address the needs of elderly people. We propose combining social aspects with technology to build a community of mutual care which, among other things, can serve as a platform to effectively organize the social resources, promote social connection, and introduce intergenerational activities. Our research analyzes the characteristics of a mutual assistance community to help elderly people age well. The needed technologies are investigated, challenges of building such a community are reviewed, and the design of some prototypic solutions and preliminary research on organizing services inside the community are discussed.

14. Preventative Healthcare: A Proposed Holistic Assistive Technology Model based on Industry Practice

Australia's ageing population has escalated the demand for current health services and the trend could compound to unsustainable levels under the current health system. This chapter proposes a preventative healthcare model based on assistive technology to strengthen wellbeing at the individual and community level. The proposed model could minimise premature and inappropriate admission of Australians to care facilities while enhancing their independence and self care. It could also present a cost effective approach for policy makers by helping to alleviate the escalating costs of the health system. Importantly, this program offers an effective and sustainable alternative for delivering future health services.

15. Attitudes Toward Intelligent Technologies: Elderly People and Caregivers in Nursing Homes

Nursing homes provide long-term care services and can help preserve the quality of life of elderly people subject to physical and cognitive impairments. In this chapter, we explore the role of intelligent technologies as a supplement to human care-giving and the potential to improve quality of life for both older adults and their caregivers in nursing homes. A study was conducted on elderly people's and caregivers' attitudes toward the use of intelligent technologies in nursing homes, with the aim of understanding in which domains of everyday activities the application of intelligent technologies can be more suitable. Results showed that attitude toward the application of intelligent technologies in nursing homes are positive, although multifaceted. Elderly people and caregivers considered intelligent technologies as relevant devices for the improvement of quality of life in different domains. Nonetheless, differences related to the role that technologies played in nursing homes clearly emerged.

16. Supporting Family-based Care for Aged Patients with Chronic Illness

Family carers play an important role in care for aged patients with chronic illness, particularly in home and community settings. The information needs of these family carers and their patients are poorly understood and current health information systems do not adequately support their needs. This chapter describes current models in understanding patient and family carer information needs and analyses technology solutions in a new field of consumer health informatics. The analysis shows that current technology solutions in consumer health informatics fail to

effectively support aged people in their own management of chronic illness and as well failing to support their family carers. The chapter also identifies key research issues in developing technologies that support aged patients and family carers in chronic illness management.

17. Telenursing in Aged-Care: Systematic Evidence of Practice

The rapidly growing aged population is challenging conventional methods of care provision. Global ageing, combined with other challenges, has compelled health systems to explore new methods for providing health care. Telenursing, providing nursing care at a distance using new technologies, is identified as one alternative. The lack of evidence for the effectiveness of telenursing in aged care is a drawback for its wider use. The aim of this chapter is to review the evidence of randomised controlled trials (RCT) in geriatric telenursing practices. We performed a systematic literature review using the Ovid Medline and Pubmed databases on telenursing. A total of 62 articles were retrieved and 18 studies were selected for comprehensive analysis. The review found that the RCTs were conducted in different areas of geriatric telenursing and various information and communication technologies (ICT) were used in the interventions. Although robust evidence, based on RCTs in aged care telenursing is yet to emerge, the majority of current studies suggest that telenursing is an effective tool.

18. Health Insurance Systems as Models for Managing the Increasing Elderly Populations of Japan and Korea

This chapter looks into the systems and institutions for the elderly population covered by long-term care insurance in Japan and the Republic of Korea (hereafter Korea). It shall discuss the historical changes in policies in these two nations. The Health Care and Welfare Complex elements that make up a single business model for the Health Care and Social Services of the aged in Japan and Korea will also be discussed in this paper. The management environment for medical facilities greatly changed with adjustments in the population structure and the social environment, and this resulted in serious competition between medical facilities for patients. Medical facilities in Japan and Korea showed a rapid increase in comprehensive medical and welfare management. Consequently, there were provisions in both health care and social services through affiliation, chain affiliation and multiplication, before and after the enforcement of long-term care insurance.

19. Assistive Technologies as Aids to Family Caregivers in Taiwan

The social structure in Taiwan has changed dramatically in the last twenty years. An increasing population of people aged over 65, a decreasing birth rate and rising numbers of women entering the workforce have led to the need for more aged care services. Research has demonstrated that nursing home placement of older adults in need of advanced care is the most cost effective option for family caregivers. However, filial piety, which entails looking after older parents at home, is one of the core tenets of Chinese society. Placing older parents into nursing homes can lead to conflicts that are detrimental to adult children psychologically. Moreover, the burden of care giving does not necessarily end for the family once they have placed their parent(s) into nursing homes. It can continue to evoke deep emotional responses in some former family caregivers. This chapter draws on findings from two case studies to illustrate the dilemmas facing Taiwanese families who must cope with changing social conditions and customary filial expectations. The use of assistive technologies as solutions to these dilemmas is outlined. These technologies are argued to be a cost effective way to assist adult caregivers, their charges, and staff in nursing homes. Their use may apply to other Asian countries with similar cultural beliefs and values.

2.2.5 Design requirements and recommendations

E-literacy and the grey digital divide: a review with recommendations

This article (Morris, 2007) is focused on grey digital divide in the UK.

Since older people represent a large and growing sector of the UK population it is disconcerting that a high proportion of older people in the UK does not use the Internet and therefore lack e-literacy skills. It would seem that there are a number of different reasons for this: lack of motivation, of feeling too old to learn new skills, having a fear of technology, not having access to IT, not having e-literacy skills, not being able to afford going online, having concerns about lack of security and privacy, and not having the dexterity needed to use computers because of disability.

Lack of motivation is a big problem. Many older people simply do not how and what the Internet can be used for. They, therefore, need to be better informed. One way of doing this might be to implement a targeted marketing campaign by the Government, alongside organisations concerned with older people, like Age Concern. The provision of information and activities relevant to older people need to be stressed. While seniors may be less interested in activities like chat rooms, they are likely to

recognise the benefits of online pension's advice, communicating with family and friends via e-mail and the value of online food shopping. Media that are popular with older age groups, like the television, could be used to deliver this message.

After stimulating interest, more opportunity for e-literacy training must be made more available. Appropriate and sympathetic training would go a long way to resolving issues relating to "feeling too old"; having fears about security and technology use, and the lack of e-literacy skills. Many public libraries, Age Concern and UK Online Centres offer e-literacy courses specifically designed for older adults, these should be further encouraged, together with "buddy" schemes whereby older people are paired up with someone who can teach them e-skills and e-literacy on a one-to-one basis. Initiatives, such as the "Cybrian Project: my guide" should also be encouraged.

Having access to IT is essential for older people to become e-literate. While there are plenty of access points across the country in public libraries and elsewhere, they may not be convenient for everyone, especially those without transport or who have mobility problems. Ideally, older people need to have access to a computer in their own homes if they want to have the benefits of Internet access. With the cost of computers and broadband access falling, the expense may not be so prohibitive to older people. However, advice and help with the purchase of computers and their installation is needed and this should be made readily available. Perhaps a network of voluntary advisors could be set up by local charities or the University of the Third Age that would be willing to take on this role.

More help needs to be made available to people with disabilities to enable them become e-literate. Currently, provision for disabled people in UK online centres is sporadic; only some centres have facilities for people with a physical disability and those with visual impairments. Ideally all centres should have access to specialist equipment like trackballs and speech reading software that would help people with common age-related conditions like arthritis and sight loss. Accessibility would be further increased if websites were better designed. All major UK organisations, which have an online presence, should be encouraged to adhere to the RNIB and the World Wide Web Consortium (W3C) web content accessibility guidelines when designing their sites. Simple sites are often best and should be promoted because while they benefit all, simple designs are especially helpful for people with cognitive impairments.

To summarise encouraging more older people to go online, providing specialised training and suitable equipment, and making websites more accessible should help to combat the “grey” digital divide in the UK and reduce the information gap between the “haves” and the “have nots”. However, it should not be assumed that the Internet is of necessity a positive force, nor that everyone will want to use it. What is important is that everyone who wants to can use it without barriers to access.

Co-creation and user-generated content-elderly people's user requirements

There is an increasing demand on citizens to participate in social network websites and to create and share their own user-generated content (UGC), such as photographs, videos, and blogs (Karahasanovic, 2009). So far, little is known about how elderly people respond to these new trends and master the techniques required. This paper reports on three studies that investigated elderly people’s user requirements related to consumption, sharing and co-creation of UGC in new media. The first study, conducted in Norway, identifies patterns of Internet usage, age differences, and participation in online communities and the consumption, sharing and co-creation of UGC on a macro level. The second study, conducted in Belgium, investigated the social requirements of elderly people on a group level. The third study, also conducted in Belgium, investigated user and context requirements on an individual level. The results of the first study show that the elderly rarely participate in online communities and share audio-visual UGC. However, they embrace some aspects of the new media and more often express themselves politically. The results of the second study show that the elderly are very motivated to contribute with UGC, given the right circumstances. The results of the third study show that it is important for elderly people that they be able to use the new technologies easily and identifies their worries about using them.

The authors developed a theoretical framework that identifies constructs that are critical for the adoption and usage of UGC. We conducted three studies to investigate how elderly people co-create content in on-line and off-line communities, and to identify their requirements with respect to the co-creation of UGC.

One interesting finding is that elderly users are slowly learning to recognize the affective, personal integrative, affiliative, and creative aspects of online communities and user-generated content sites.

Study I showed that elderly users may be embracing the expressive aspects of new media to a greater degree than is usually expected: the elderly who are already members of online communities in significant numbers express themselves politically

Study II, which was conducted on the group level, indicates that elderly people do not necessarily dismiss the co-creative and social aspects of digital technology and online communication. More precisely, Study II suggests that given the right circumstances, elderly people are eager to work with AV content, especially digitizing old analogue material. The opportunity to co-create narratives based on a common history was met with enthusiasm, especially when these stories were also shared in offline contexts. Similarly, Study II showed that elderly people were very motivated to contribute with content that documents the history of their neighbourhood. The social value of the proxy technologies was also undeniable, both in terms of bonding and bridging processes, and a consequent increase in social capital. As with other age groups, online communities and communication proved to be a significant ice-breaker for social interaction.

Study III, which was conducted on the individual level, also pointed to ease of use as being an important factor for elderly users. Although the elderly users were generally positive about new technologies, they had problems with learning them and were anxious about using them. As was shown in Study III, help from family and friends might help in overcoming these obstacles.

Digital circles of support: Meeting the information needs of older people

This paper (Godfrey and Johnson, 2009), summarises research on older people's information needs and use which informed the design for one of these projects, Leeds Link-Age Plus. The research explored the complex circumstances around which older people access and use social and community information – a topic that has received limited attention in the literature. The paper is novel in considering how the use of informal networks for securing information, advice and advocacy can be supported by technology literate mediators, who may be older people, located within local community or voluntary organisations. Emphasising the mediator in design facilitates social contacts, directly addresses issues of trust and can reduce the chance of causing distress dealing with complex information.

In order to examine the design options of social media the research team constructed a maturity matrix (see Fig. 2.6). The matrix provided the team with a tool for drawing

together the conclusions for design from the literature and user engagement and for framing design questions with the potential to lead to innovative solutions. We distinguished between searching the Web, a self-supported activity using search engines to find Web sites and then hunting for information, and the emerging Web 2.0 applications where groups of individuals provide each other with information. Clearly there are older people who have low support needs and who have the technical skill and physical ability to search for information on the Web and interact with others via social networks, we classified these as having low support needs. From our work on the age related digital divide and experience working with older people it is clear that many others have higher support needs. For these top two quadrants of the matrix the authors considered what feature sets and design ideas would improve information access.

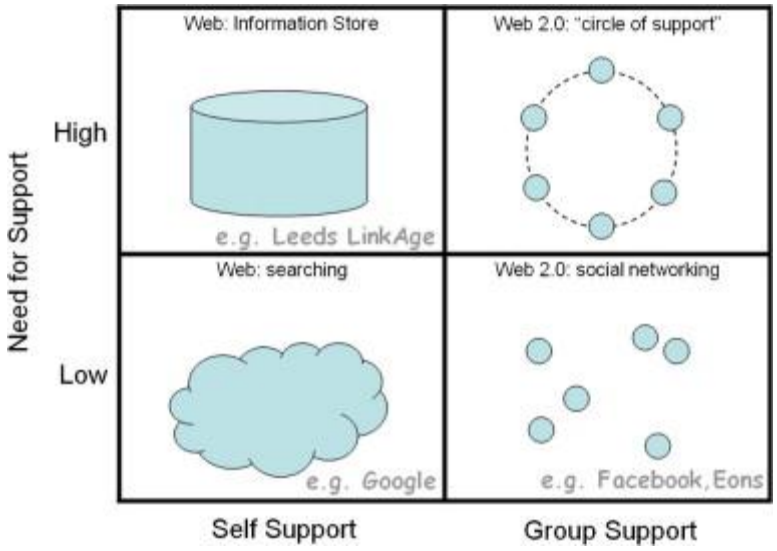

Fig. 2.6 – Maturity matrix for digital circles of support.

The maturity matrix suggests a more advanced model for future development where both private and public information support can co-exist. In the emerging Web 2.0 social networks private individuals pass information, express opinions and offer advice within the framework of an online community. The research suggests that the 'information store' can evolve to support social networks of mediators involved in an older person's circle of support. The authors constructed then a Digital Circles of Support model to articulate their view of the features that a Web 2.0 group support tool would need to have to harness the network effect of multiple mediators within an older person's circle of support.

The digital 'circles of support' are a form of social network where mediators collaborate to create and share self-authored content (see Fig. 2.7).

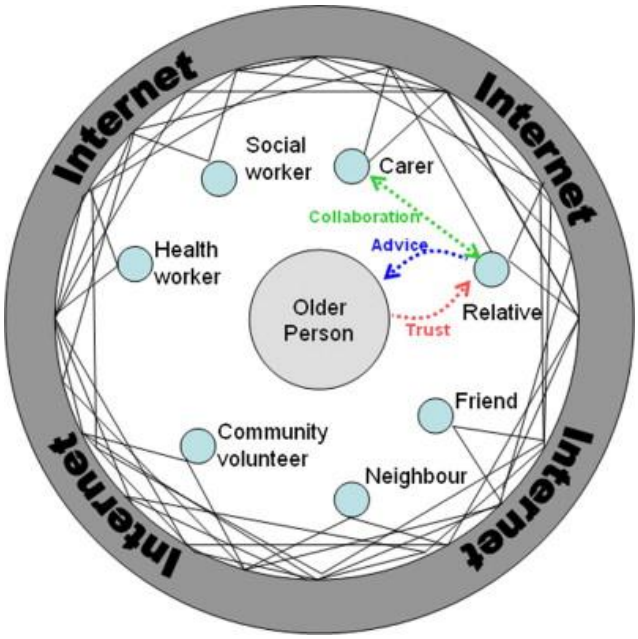

Fig. 2.7 – Model of digital circles of support.

The Digital Circles of Support model reflects the real life network of friends, relatives, neighbours, carers, social and health workers and community volunteers who are involved in an older person's circle of support. Each of these individuals will have a personal relationship with them and the older person will inevitably contextualise the information and advice they offer based on the nature of the trust in the relationship – a close relative may be given a high degree of trust and their advice generally be accepted while advice from a friendly neighbour may be discounted. The relationship is however complex and much depends on the nature of the information – the friendly neighbour's advice on a local taxi firm may be trusted more than that of a relative who does not live locally. Relationships between people in the circles of support are also complex – they may collaborate, sharing and discussing information, they may at times be in conflict or may even be unaware of each other's role. While disputes over daily hassles such as a taxi booking may be trivial, major life events such as bereavement may involve multiple mediators with different views, different information and considerable scope for conflict.

The Digital Circles of Support model suggests that networked interactive media systems can reinforce pre-existing circles of support in a number of ways. Firstly,

people who are part of an older person's circle of support can use the internet to search for information on web portals; in this case information access can be improved by directly targeting advice to mediators. Secondly, mediators may choose to get advice from social networking sites, discussing the difficulties of being a caregiver. Thirdly, the model suggests that members of the circle of support could use digital network technology to improve collaboration and information sharing between each other. This may be as simple as sending a link to a useful web page via email but could extend to creating a social network group consisting of friends, relatives, social workers who are able to share information and collaborate to provide the best support. These digital circles of support offer a new model for combining Web 2.0 technology with the information store's web-portal bringing group support to older people with high support needs – the question mark in the forth quadrant of our maturity matrix.

2.3 Best Practices Review

2.3.1 Care givers UK's Online Discussion Forum

Care givers UK is a National Charity providing unpaid care by looking after an ill, frail or disabled family member, friend or partner. They are active in supporting care givers in order to get their activities acknowledged by society both from financial and practical point of view.

The project Online Discussion Forum has become the UK's most popular online discussion group specifically aimed at care givers. Since 2005, Care givers UK has helped care givers break isolation by providing an online forum which puts care givers in touch with each other, offering peer to peer support, information and a listening ear. The forum has seen a remarkable period of growth, meeting a real need. Crucial to its success has been the central role played by care givers who run the forum. The project meets its strategic aim which is to provide support and advice to care givers and care givers involvement.

The Forum figures are currently the following: 2 career volunteer moderators, 2 staff at Care givers UK who help moderate as part of their wider duties, 1500 members on the forum of whom 875 have posted a message.

The forum is also viewed more than any other part of the website by approximately 30,000 people each month who do not necessarily post a message. In terms of its growth, in 2008 the forum recruited on average 59 new members each month.

This shows that most people who join are 'lurkers'. They either view and don't post, or make a small numbers of posts usually to ask direct advice to a specific problem, and then they drop out. It is recognized that as in any other social situation, some care givers can find it a little intimidating taking their first steps into this virtual community. The moderators know this and take time to welcome and nurture new people.

Aside from those who sign up and join the forum, it has also a large readership who simply visits to read the posts.

Each month the website averages 30,000 unique visitors, with around 850,000 page views. Of these page views the Forum is the most popular. The main Care givers UK home page gets about 40,000 page views. The forum home page gets 66,000.

Care givers say they want to access information from people like them who know what they are going through. The activity of the forum is reported in the following table 2 (2008):

Activity	Number of forum members	% of membership
1-10 posts	645	43
11-50 posts	135	9
51-300 posts	70	5
More than 300	25	2
Never posted	625	42
	Total 1500	

Table 2. Activity of forum members.

An interview with one of the forum's moderators also revealed the following issues:

- It was thought that the most frequent user of the Forum was in her or his 40s, though there were also a number of older members. The youngest member was approximately 20 years old. The average age of Forum users was thought to be lower than that of care givers registered at Care givers UK.
- Although care givers across the world have access to the Forum, the overwhelming majority of users were thought to be located in the UK. Moderators estimated that most care givers using the Forum were white, working-class and not currently in paid employment. It was thought that very few IEM users had registered as Forum members (although it should be noted that ethnicity data is not collected and that this view is based on assessment of the content of users' posts).

- There is a wide range of care givers of people with different conditions among the Forum's membership. The 'virtual' environment was thought to eliminate differences between these groups (policy differences relating to conditions, etc.) by allowing them to focus on common issues (e.g. the practical difficulties of caring).
- There has been some discussion at Care givers UK concerning whether membership of the forum – which is currently anonymous – should be made more formal by requesting users' real names. This was thought to have advantages and disadvantages. In the first case, it would protect users from harassment and bullying by occasionally abusive members.
- In the second case, this was felt to endanger the anonymity involved in the forum, an attraction thought to be valued by care givers seeking the "comfort, trust and community" of a "virtual family".
- Experience had taught the Forum team that it was important to adopt a "zero-tolerance" attitude towards people who violated the "supportive environment" the Forum was designed to provide.
- Private messaging was facilitated by the Forum's technology and care givers made extensive use of this. These messages could not be moderated, and some difficulties in dealing with abuse between members conducted via this more private method had been encountered.
- Several care givers involved in the Forum were known to have met each other (in public) as a consequence of their membership.
- A few years ago the Forum had been expanded to include care workers. This development was viewed as very unsuccessful and had been abandoned, because once care givers became aware that a Forum user was a care worker, they "attacked" them, complaining about the quality of career services. It was noted that another online forum (developed by different care givers' organization, with the intention of bringing care givers together with care workers) had experienced similar difficulties. Care givers UK had no plans to redesign a forum for care workers in the future.
- Care givers UK hopes to attract future funding to expand the number of moderators to 10 or 15 and to provide enhanced training for them, in the form of a manual. It was noted that it is important for moderators to know how to handle difficult situations. Care givers UK would like to promote the Forum more widely,

and to consider the use of Internet chat-rooms, which allow users to chat together more quickly. However, there are a range of difficulties (relating to moderation, etc.) which required careful planning, and this service is not yet available.

2.3.2 The Information Literacy Initiatives

The Information Literacy Initiative of the University of Washington's Information School and Information & Society Center provides direct services to individuals who are out of school and need help learning how to find quality information. Using research developed at the Information School, the Information Literacy Initiative's current trainings are for entrepreneurs, patrons in a public library, small-medium size business owners, and women without homes, youth labeled at-risk and adults over 55. Trainings can be customized for the group and subject matter. Trainings show how to use the information literacy techniques for the subject matter and group demographics, allow time for the individuals to practice while learning, and include materials to reinforce teachings after the workshop is completed.

A relevant example of what available through this initiative is “Facebook for Adults 50 Plus and Senior” [FB_50+] a good video tutorial produced to introduce FaceBook to 50+ users.

The hosting site “Searcher in Charge” contains educational videos to show individuals how to "get good information" that is needed in their daily life as a professional worker or an individual in need of quality information.

2.3.3 AARP

Founded in 1958, AARP is a non-profit, nonpartisan membership organization that helps people 50 and over improves the quality of their lives. AARP has offices in all 50 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands. As a social welfare organization, as well as, the USA largest membership organization for people 50+, AARP is leading a revolution in the way people view and live life.

Since its inception in 1958, AARP has grown and changed dramatically in response to societal changes, while remaining true to its founding principles:

- To promote independence, dignity and purpose for older persons
- To enhance the quality of life for older persons
- To encourage older people "To serve, not to be served"

AARP works tirelessly to fulfil the vision: a society in which everyone lives their life with dignity and purpose, and in which AARP helps people fulfil their goals and dreams.

1. Advocacy

AARP stands up for our members and society as a strong nonpartisan advocate for social change. It works on the issues that matter, including strengthening Social Security and supporting other retirement savings efforts, promoting adequate and affordable health care, and fostering communities.

2. Community Service

AARP helps its members and their communities help themselves. Caring and compassion are the bottom line of AARP. Its goal is to give people a voice, a sense of community, and a purpose through Create the Goodand the AARP Foundation, through which members can contribute to those in need across the United States.

3. Publications and Media

AARP provides valuable and trustworthy information to its members, through several channels: the AARP The Magazine, the AARP Bulletin, AARP Viva, a quarterly magazine and a radio program in Spanish and English, a public affairs radio program, Prime Time, an award-winning website, AARP.org and two syndicated TV shows, Inside E Street, a public affairs program, and My Generation, a magazine-style show.

4. Research

AARP conducts extensive research on aging-related subjects. Its Public Policy Institute publishes major reports on the 50+ population, and it recognizes the Best Employers for Workers Over 50.

5. Global Aging

AARP is a leader in working internationally with governmental and nongovernmental organizations. AARP's international program works to exchange ideas and find solutions to aging concerns worldwide.

6. National Event

Life@50+ | AARP's National Event & Expo annually brings information and entertainment to 27,000+ members and non-members.

7. Products and Services

AARP leads the way in the marketplace by being a force in influencing companies to offer new and better choices for our members and older Americans. Specific products made available as member benefits include health insurance; automobile and homeowners insurance; member discounts on rental cars; cruises, vacation packages and lodging; a credit card; pharmacy services; alternative health services; legal services; and long-term care insurance. AARP Services provides quality control over branded products.

On its website, AARP manages an online community http://www.aarp.org/online_community/, which allows its members to interact on a variety of subjects through several communication channels (Fig. 2.8).

Users can register to create a personal profile, connect with friends and family, and meet new acquaintances. They can brose through thousands of interactive groups, with more being created daily, with topics ranging from travel to job hunting to relationships, and they can join the discussion.

Through the AARP online community, more than one million users are building an online photo album filled with images of life's most enriching experiences. They can also browse through an incredible collection of personal stories, rants, essays, and dispatches from all points of view.

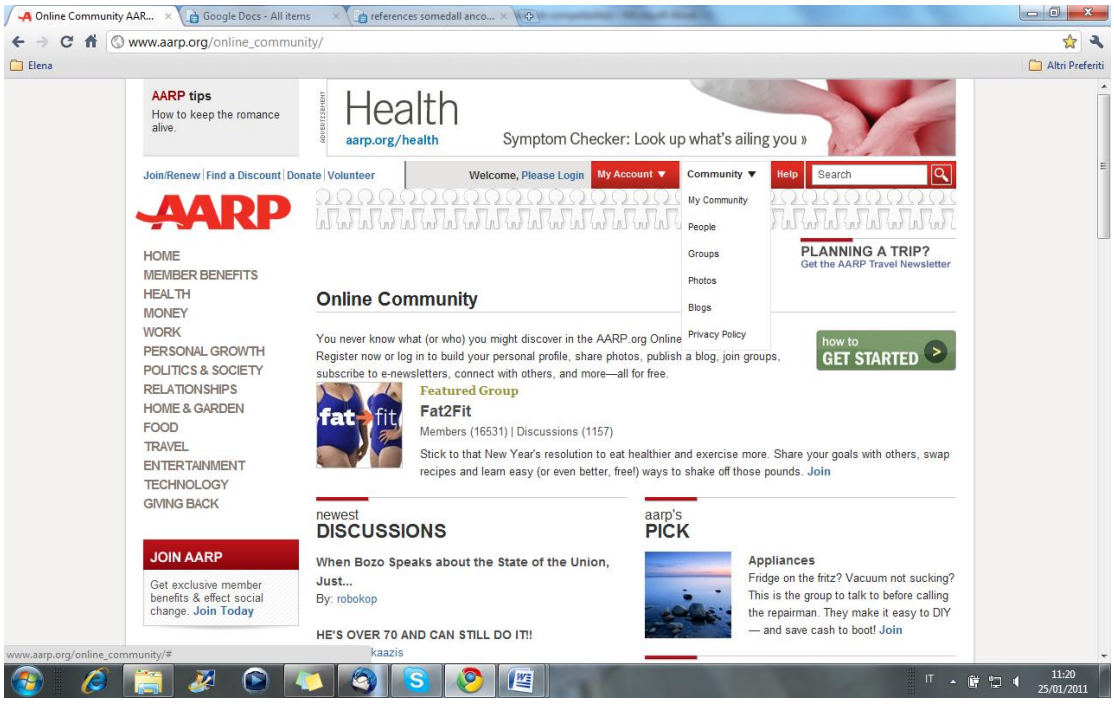

Fig. 2.8 – Home page of the AARP online community.

2.3.4 Older Adults Technology Services

Older Adults Technology Services (OATS) is a non-profit organization that harnesses the power of technology to change the way people age.

Technology can only reach its full potential when older adults hold a stake in its development and distribution. OATS training and support, online services, and community-building programs empower older adults to thrive as individuals and members of society. OATS achieves extraordinary outcomes with older adults, improving their social engagement, health and well-being, financial security, and opportunities for social activism, creative expression and life-long learning.

OATS focuses entirely on the interests and priorities of older adult participants in its programs. They have designed over 600 pages of curriculum around the needs of older individuals.

- **OATS partners intensively.** They operate no programs at the central office, instead collaborating with over 60 partner sites citywide to bring training to the communities where it is needed most.
- **OATS has professionalized technology services for older adults.** On average, each of its trainers has taught over 400 community-based technology classes to seniors, with excellent feedback from participants.
- **OATS builds community.** The Senior Planet Digital Community brings together thousands of older adults online and in person every year to share resources, events, and commentary.

2.3.5 Get Older Adults onLine

To promote the adoption of Internet benefits the Project to Get Older Adults onLine (GOAL) in the USA announced their launch as a new organization dedicated to providing a platform for advancing broadband services to the older adult community.

The project will serve to help promote the adoption of broadband services by older adults, to raise the profile of the challenges confronting the use and adoption of technology within the older community, and to create a new voice representing these issues:

- Provide a new platform to promote the adoption of broadband services for the older adult community.
- Advance the benefits of broadband services for older adults and the aging community.

- ✓ Health benefits, such as telemedicine, health monitoring, and current health information
- ✓ Reduction in isolation, such as social networking with community, family and friends
- ✓ Online commerce opportunities
- ✓ Independent living, aging in place

- Connect national and local community organizations working on issues related to broadband together to exponentially increase the impact of adoption programs

A blog is available on the GOAL website, where the users can discuss and debate several topics of interest.

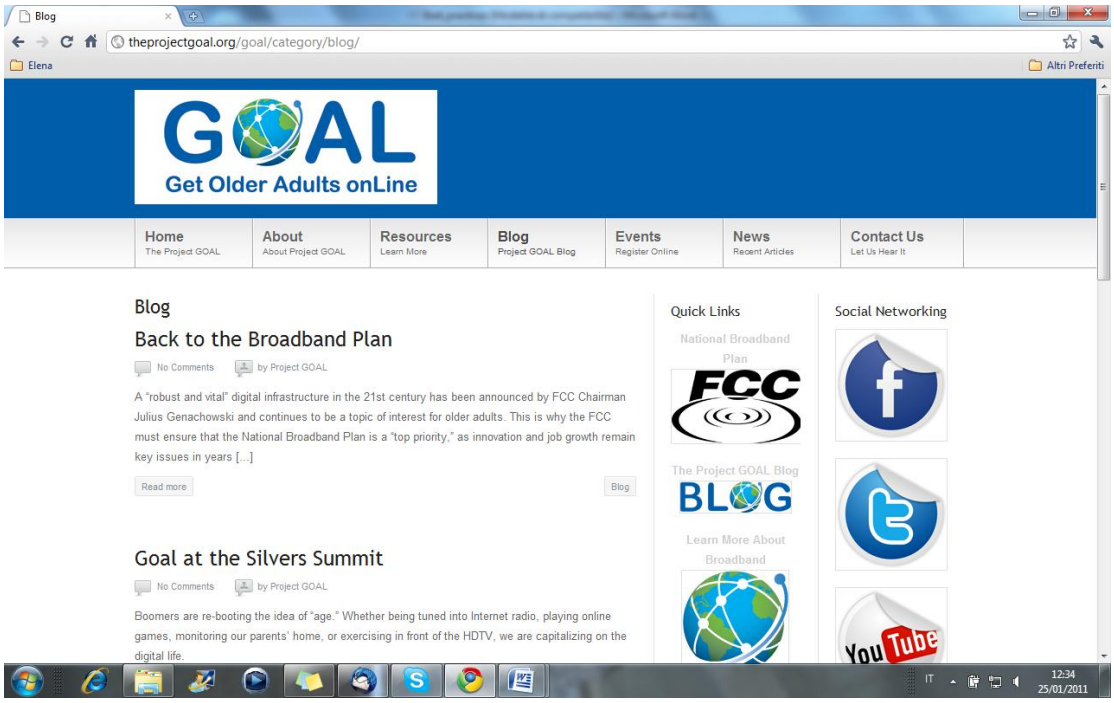

Fig. 2.9 – The GOAL home page.

2.3.6 Eldy

The Eldy association is an Italian non-profit organization who adopts the best technologies, reaching out to the Senior and disabled community with the intention of reducing loneliness and isolation through the exchange of information and the encouragement to remain socially active. The Eldy software allows communication through email, videoconference and chat and it's mainly devoted to over 55, to

encourage them in the use of computer. It is a Java application for Windows and Linux, freeware with perpetual free-of-charge license. The software adopts natural language full screen interfaces (Fig. 2.10):

Fig. 2.10 – The ELDY services.

Email is an easy experience, free of charge, with intuitive writing and envelope interface. **Chat** places the elderly in the middle of the community, with social and technical support. Browse the internet is easy on an ad hoc directory. **EldyTV** provides an interface to most common streaming (e.g. Youtube). Weather info, a text editor, some mouse exercise and the viewer for digital picture provide other applications in the platform that is enriched at every version. **File management** has been completely re-written for usability.

Eldy has been localized and customized for Regions (e.g. Lombardia and Friuli-Venezia Giulia), Provinces (e.g. Vicenza, Padova, Vicenza, Verbania, etc.) and several municipalities. Eldy allows user to write directly to Public Administration offices or Hospitals with easy interface, according to specific profiles, even without knowing the address.

Eldy had been added with smart card library to allow digital signature of email attachment (Lombardia) or secure connection (Friuli): when the user identity is granted, user can access all services (e.g. booking a visit).

Eldy allows accessing Public Administration website, without using Google; it allows the use of the Regional Service Chart (CRS) and of the Public Administration Smart Card, which are key elements in the health sector.

Eldy allows to integrate Public services into an easy interface (e.g. Region FVG email, doctor visit booking) and can help not only elderly, but also immigrants, illiterates etc to develop a good relationship with technology.

Several training projects have been carried out in order to involve young people in teaching the elderly the use of the software, thus building a bridge across generations.

Eldy is part of the network VALUE AGEING, a 48 month Marie Curie industry academia partnerships and pathways action incorporating European fundamental values into ICT for ageing.

3 ANALYSIS OF THE PROJECT SURVEY

3.1 Introduction

In the framework of the SoMedAll project, two surveys were carried out, one in Finland and the other in Italy, in order to get reference data for the definition of the requirements of the service platform and to verify the coherence of local investigations with national and international trends.

In the following sections, the adopted methodology is described together with the survey tools and results.

3.2 Methodology

SoMedAll project partners agreed on the definition of a questionnaire to be submitted to the project's stakeholders, i.e. elderly people, family, caregivers. The final questionnaire is reported in Annex 1.

The project partners submitted the questionnaires and conducted interviews according to the methodologies described in sections 3.2.2 and 3.2.3.

Both during data collection and analysis, the partners used the Owela online collaboration environment described in the following section.

3.2.1 Owela

Owela (Open Web Lab, http://owela.vtt.fi) is an online space for open innovation with users, customers, developers and other stakeholders. It was used as part of the user tests in the SoMedAll project, as it provides tools for understanding users' needs and experiences as well as designing new products and services together. Owela is administrated by VTT Technical Research Centre of Finland.

Owela project spaces may be used as co-design platforms from first ideas to final testing or only in selected phases of the innovation process (see Fig. 3.1).

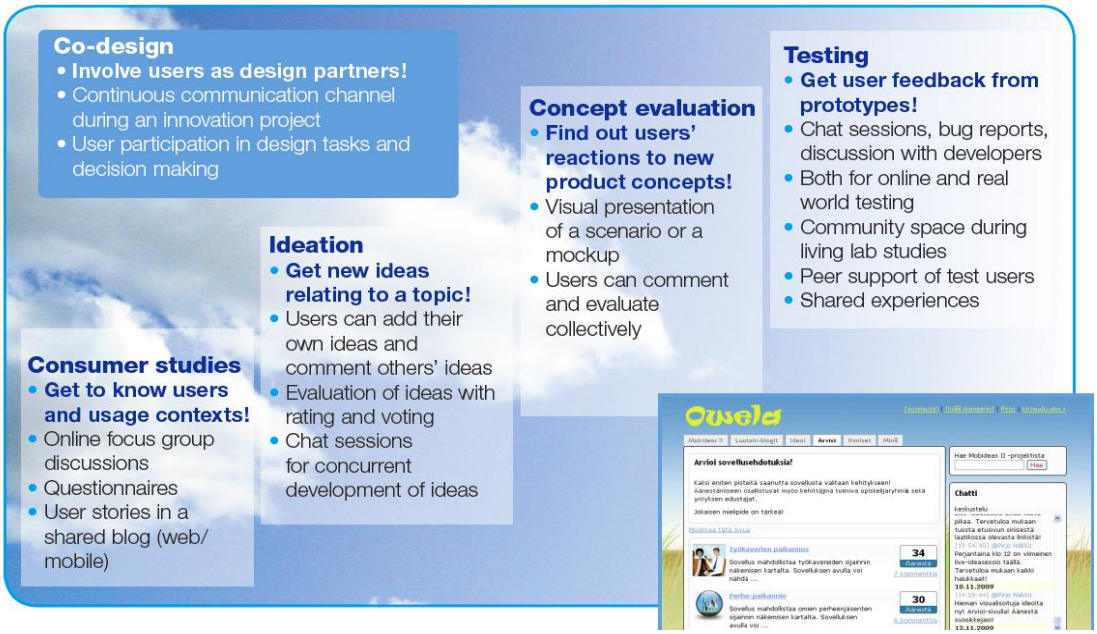

Fig. 3.1 – Use of Owela in different phases of the innovation process.

In the SoMedAll project, Owela is meant to be used in different phases of the planned activities. In the first phase, Owela was used for questionnaire, discussions and ideations with elderly people. Both Finnish (http://owela.vtt.fi/vanhatketut/) and Italian (http://owela.vtt.fi/pensiamociinsieme/?lang=it) sites were set up in Owela.

3.2.2 Survey in Finland

The Survey of Finland took place in three stages between November 2010 and January 2011. These stages included;

- Owela´s questionnaire and discussion forum,
- interviews of elderly people and nursing personnel,
- Social media club.

The collection of data was first started with the Questionnaire in VTT´s Owela site and followed by the discussion forum "Old foxes" for elderly people to implement and create ideas based on their needs and interests. The second stage was the interviews in living center Wilhelmiina (MSS) to elderly residents and nursing personnel. The third stage was the Social media's club for testing and getting ideas from elderly users.

3.2.2.1 Owela questionnaire and discussion forum

In Owela users were able to create their own ideas (see Fig. 3.2) and to participate in nine different predefined discussion themes (see Fig. 3.3). The topics were

Maintaining health and well-being, Services for senior citizens, Learning new things, Getting new experiences, Collecting and sharing memories, Sharing a hobby, Retiring, Peer support and Maintaining social relationships. Finnish site included also the page where users were able to share their memories relating to different topics such as “First time in car” and “Memories from home”. This page was added during the test based on the suggestion of one user.

Fig. 3.2 - “Vanhat Ketut” discussion and ideation forum in Owela for elderly people and other stakeholders.

Fig. 3.3 - Examples of the discussion themes in Owela.

For getting users to participate in Finnish Owela site advertisement in Facebook, Google and other web sites and organisations relating to elderly people were used.

There were totally 108 registered users who also logged in Owela “Old foxes” discussion area. Some of the registered users had problems with Owela login. The age of registered users varied from 28 years old to 83 years old. 52 % of Owela users were between 55 and 65 years old, 28% between 65-70 years old and 8 % over 70 years old. 11 % of Owela users were under 55 years olds. 49 % of users were women and 51 % men.

38 users, 18 man and 20 women actively participated on Owela discussions (researchers are not included in these numbers). This is 35 % from all Owela users that were logged in Owela. The age between these active participants varied from 56 to 80 years old. In addition two participants were under 50 years old.

Totally 733 comments were added during discussion period. 666 comments were created by end users and 67 comments were added by researchers. 261 comments were received for the predefined discussion themes. 41 new ideas or discussion topics were added and totally 431 comments were added to these subjects. Six different topics and 41 comments were added by users for the memory sharing.

The amount of the comments by one single user varied from 1 to 145. 15 users had over ten comments and 8 users had only one comment. The average was 18

comments by a user. Five active users created 50 % of all the comments and 17 users created 90 % of the comments.

The analyses of the discussions are presented in chapter 3.3.1.3.

3.2.2.2 Interviews

In Finland 6 interviews were carried out to elderly and nursing personnel on December 2010. Four of these interviews were carried out in the living center and service house Wilhelmiina and to its independently living residents. One interview was also carried out in Wilhelmiina´s home group, which belongs to sheltered housing services to elderly. The middle age of elderly participated to interviews was 81,4 years (between 79-89 years old).

The elderly people were selected for the survey on the basis of the data reported in the following table 3:

Tutored social network services	**Social network services**
Social media club: Test group of social media services to people age over 65 People recruiting from Owela, West-Helsinki area and Wilhelmiina´s living center. Including two test groups of elderly users – beginners and experts groups based on knowledge of Facebook. Totally 16 participants; 10 in beginners group and 6 in the group of experts. Social media club test group included also group interviews for both groups.	Internet questionnaire to users from Owela to target group of people age over 55 Including also discussions, ideation in Owela with family members and friends etc. Totally 223 answers received from Owela. Family members, health professionals and other caregivers were also asked to answer the questionnaire.

Caregiver support and assistance	**Dedicated social services *(people with physical disabilities)***
This category includes interviews to different target groups: 1. Elderly people age over 65 a) Elderly living independently at Wilhelmiina´s apartments, total 4 people b) From residential care of Wilhelmiina´s home group, total 1 person 2. Nursing personal - total 1 person Totally 6 interviews	This category includes interviews those people who has some physical limitations in their functional abilities - Age over 55v. - are familiar with the internet and social media - from Helsinki city´s homecare, and Wilhelmiina *Note! No single person was interviewed in this category!*

Table 3. Description of people involved to the interviews

One of nursing personal was also interviewed in living center Wilhelmiina on December 2010. This interview contained three main questions:

1. Do you self use Social media services, which kind?
2. What do you think about the Social media use of elderly people?
3. How do older people should be taught to use Social media services?"

The main idea was to collect information about the knowledge and use of social media among elderly people and nursing personnel. The main results of the interviews are reported In sections 3.3.1.1 and 3.3.1.2.

3.2.2.3 Social Media Club

The purpose of Social media club was to get information and ideas of how to develop Social media services for elderly population. In Social media club there were two different groups of elderly for testing Social media services. The participants of these groups had different skills for Internet and Social media use.

Social media club participants were selected from living center Wilhelmiina, West-Helsinki area independent living elderly and from the Owela´s questionnaire answered people. The idea was to have two different test groups of elderly – beginners and advanced users of Social media.

The first group of Social media club was held on 19th of January in VTT. There were six participants in all, who were recruited from Owela's Old fox site. The selected theme was Facebook. The criteria for this group were that they used Facebook

regularly and were aged over 65. The age of participants was between 69-73 (average age 71, 5). For this first group were basically selected those with high-level computer skills and knowledge of social media services like Facebook. Many of the participants seemed to be high-educated and still active in different organizations and communities. The program of the Social media club was organized in order to take participants' needs into consideration. The club was 4 hours long and actual test situations in computers and iPad took approximately two hours, one before and one after lunch. So, participants had enough time for breaks. First part of the Sos.med club was based on information about different functions in Facebook in more complicated sense (because participants were already active users of Facebook).

The second group of Social media's club was held on 21st of January in VTT. There were totally 9 participants who were recruited from living center Wilhelmina and West-Helsinki area. There were 3 same people, who had also participated to single interviews. Theme was the same in this group - Face book. The criteria for this group were that they did not use Face book regularly and were "beginners" in Internet and computer use. The age of participants was between 65-83 (average age 73, 4). Some of the participants had previous experience of Internet and Social media services more than others.

There were totally 17 participants (including interviewees & Social media club users).

3.2.3 Survey in Italy

In order to collect information about needs and requirements of the users, a survey was conducted among patients and their relatives, care givers and Nursing Personnel.

Three specific questionnaires were developed, one for each typology of user. The questionnaires have been prepared on the basis of a preliminary analysis of possible services that the SoMedAll system could offer to the users on different media.

The main identified services are:

1. Social network space to:
    a) Create discussions/pages
    b) Insert comments
    c) Insert photos
    d) Insert videos
2. Search engine

3. Voice/Video/chat room service
4. Calendar
5. Agenda on-line
6. Medical assistance
7. Caregivers support

Based on this list, a user-media-services matrix was created (Annex 2) and three questionnaires were drawn.

Then, in order to define the users to be interviewed, ALDIA made a specific analysis of its users. Three focus groups were organized with care givers and nursing personnel (coordinators and operators) in order to present the SoMedAll project and its objectives, to analyse and define the segmentation of possible elderly users that can be targeted in SoMedAll solutions and the type of services to be issued and their best fit with the different categories of ALDIA' users and to analyse the survey results.

During the first focus group, ALDIA defined the methodology to be followed for the users segmentation described in detail here below. After this first meeting the care-givers involved analysed the ALDIA's users, also through one to one conversation, and selected those who could have been involved in the SoMedAll activities.

During the second focus group, the users to be involved were identified and the method and calendar for the interview were defined. The last focus group focused on the survey results.

3.2.3.1 User segmentation

Adopting Maslow's perspective (Maslow, 1943) with respect to the possible SoMedAll users, ALDIA better focused on those services which can be addressed with respect to the initial situation of the users.

The first attempt was to define how different types of services can be proposed (i.e. "of interest") to different types of users. In this perspective, the following Fig. 3.4 reports a tentative "best-fit matrix" showing the assumed matches for services and users.

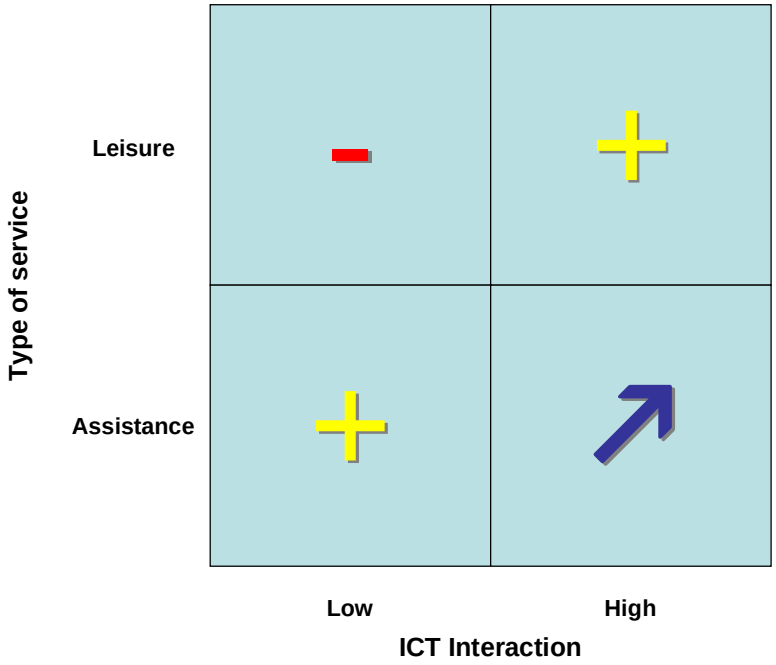

Fig. 3.4 - SoMedAll best-fit matrix.

On the x-axis the users are classified according to what we have called “ICT interaction”, that is the capability to actively use ICT media. It is worth to underline that, in this picture, a Low interaction may be equally due to low internet literacy and/or physical impairment (users with significant cognitive impairment are not considered in this preliminary phase).

On the y-axis the services are classified from the assistance-oriented type (i.e. medical services) to leisure-oriented type (i.e. social network Facebook-like).

We hypothesise that the best fit can be found in the “plus” regions; therefore users with a low ICT interaction can be interested in assistance-oriented services while leisure-oriented services can be proposed to users with high ICT capabilities.

The “minus” region means that it is difficult to find leisure-oriented services to be proposed (in this first-order approximation) to users with low ICT interaction, but this of course can also be regarded as a challenge in order to develop niche services specifically oriented to this audience.

The “evolutive” (arrow) region refers to skilled users with assistance-oriented services. We can assume that this kind of users may not be interested in basic services but they can quite interested in advanced services seen also as an evolution of the proposed basic services.

Fig. 3.5 reports a positioning matrix trying to identify services according to users' personal autonomy and internet literacy.

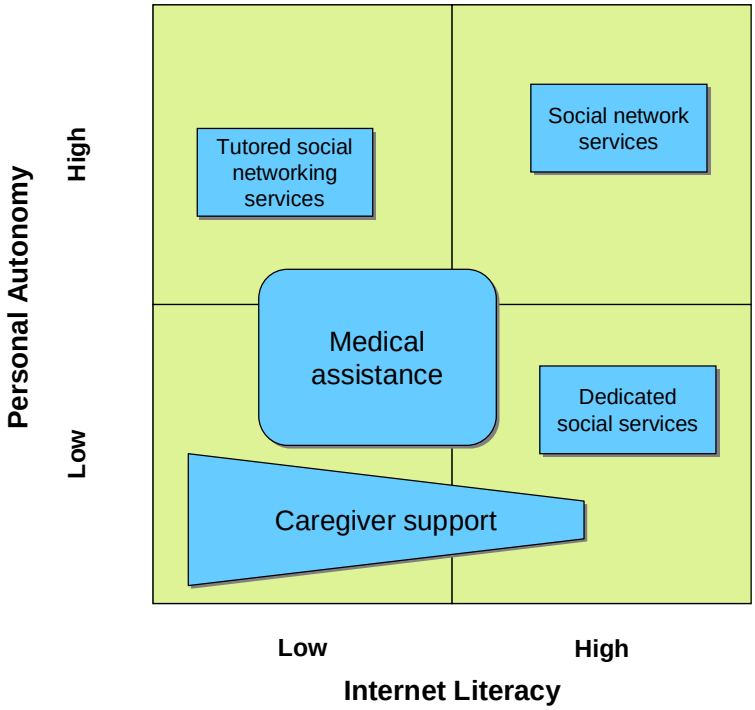

Fig. 3.5 - SoMedAll Positioning matrix.

In this matrix we tried to position services according to two users' dimensions: Internet literacy (IL) and Personal autonomy (PA).

We assume that people with both low IL and PA will be more interested in assistance-oriented services, especially those involving a caregiver support. This kind of services might be of interest (although with less relevance) also for people with high IL and low PA.

People having low skill but high autonomy could be addressed by "tutored" services where tutor can be seen as an external operator or a "peer" (i.e. a more skilled elderly).

Aged people with ICT skills and autonomy are the natural candidates to fully exploit the potential of Social Media as well as to lead other elderly persons in social groups.

People with high IL but with a low PA shall be carefully considered for dedicated services, with particular attention to the development of user-friendly interfaces.

Last, we have positioned medical assistance services at the centre of this matrix, with a greater relevance for the lower-left quadrant.

With reference to services for elderly people presently managed by Aldia, they can be described as follows:

- Homecare Assistance: activated on a request basis and partially co-funded by national Healthcare Services.
- Residential Services

For both types of services the age range of assisted users spans from 65 to 85 and can be further detailed in the following profiles:

PROFILE A

Elderly people capable of autonomously manage their living for whom a limited and episodic support is needed.

PROFILE B

Non-completely autonomous elderly people, capable of partially manage their living for whom a recurring external support is needed.

PROFILE C

Non-autonomous people, non capable of managing their personal living because in severely limited in their psycho-physical conditions. These are potential users of Residential Services.

Aldia currently follows about 300 elderly people among which:

- About 60 related to Profile A
- About 120 related to Profile B
- About 120 related to Profile C

A reasonable estimate of the possible users interested in SoMedAll Social Networking services is about 30 among the people assisted by Aldia.

The graphical mapping of this numbers is reported in Fig. 3.6:

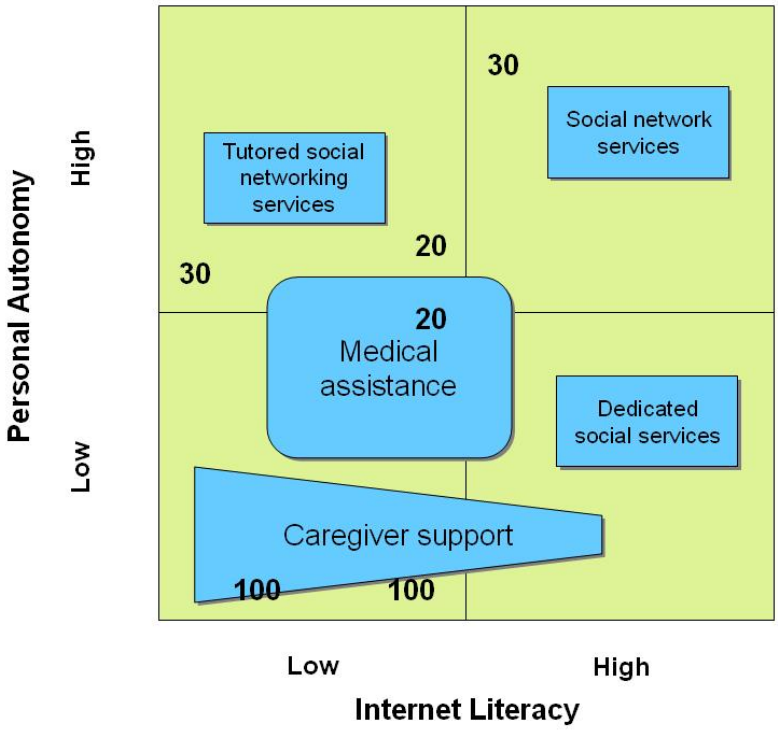

Fig. 3.6 - Aldia's users with respect to SoMedAll Positioning matrix.

3.2.3.2 Questionnaires

The users involved in the survey were:

- Elderly people segmented according to the ALDIA positioning matrix described in the previous paragraph
- Friends and Family
- Care Givers

In Italy ALDIA conducted 55 interviews to elderly people, relatives and care givers, with the aim of helping them in filling the proposed questionnaire. The interviews were carried out as follows:

- 27 to elderly people
- 14 to relatives
- 14 to care givers and nursing personnel

The interviews with elderly people and relatives were conducted as single ones at user home and directly involved 6 persons from ALDIA, between November 2010-January 2011.

Each single interview started with the introduction of the SoMedall main objectives and services the system could offer per type of media.

Elderly

The objective was to acquire a deep understanding of the needs, interests and skill levels of the elderly people in order to develop services that will genuinely improve the quality of life of the elderly.

All the interviews were conducted “vis a vis” in order to better explain the objectives of the survey.

Relatives

The objective was to acquire the relatives’ point of views regarding the needs of their dears, also by exposing their problems and needs while dealing with them, in order to improve the quality of life of both elderly and their relatives.

All the opportunity of the SoMedAll defined services have been explained in details and feedback from relatives have been collected. As per the elderly people ALDIA made single interviews also to the relatives.

Care givers, Nursing personnel

The objective was to acquire the caregivers and nursing personal’s point of views regarding the needs of their assisted, also exposing their problems and needs while dealing with them, in order to improve the quality of life of both elderly and their caregivers.

The interviews of care-givers have been collected during an internal one day meeting done in January in which ALDIA has invited 14 care givers and presented the SoMedAll solution and possible services.

Feedback about the possible application and use of the project system has been also collected. Some of the care givers evidenced that in Italy the majority of elderly people has not an IT background and they will be reluctant to use Internet to access to the proposed services. On the contrary the same services could be very interesting if can be accessible through the Television; also the mobile phone can be more comfortable for the elderly.

3.3 Results

3.3.1 Results in Finland

3.3.1.1 Interviews of elderly

All interviewed elderly, except for one, had mobile phone and computer and were able to search information from Internet, to read e-mails etc. In addition, few people paid their bills through online banking.

Almost all interviewees felt that they were the wrong target group for the SoMedAll topics. Reason to this was the fact that these elderly were still able to move outside from home and to see the other residents of the Wilhelmiina apartments. On the other hand, in the sheltered housing ”home group” this was due the high age of the only interviewee (89 years old), who felt that he had already experienced and seen all in life and therefore was not interested to learn the use of computer.

Nearly all the respondents did mention a variety of negative attitudes through the interviews. Interesting feature was that the problems and threats of use social media were also highlighted with those respondents who were already computer and Internet users, except for most advanced user (like one who had been tutor to elderly computer users).

The most typical problems were related to three main categories; *technical problems, lack of motivation and problems related to functional ability. Technical problems* were related with new and surprising things when working on computer, for example “pop-up lockers” and warning windows in English. To be included also some difficulties to understand what is commercial or not and the general fact that elderly people do not have the same basic skills to computer and Internet use as younger people.

Managing with technical problems is also related to *functional ability* of elderly. Physical ability restrictions, like sight and hand coordination were commonly mentioned problems for the use of computer and Internet. In addition, problem-solving skills like memory and reasoning were problematic cognitive capacity skills as well. One of interviewees (”tutor”) thought that elderly beginners may have these type of problems at the beginning of computer experience.

Motivation related problems became evident in the different opinions of interviewees. These were related to age, (too old), self-perception (insecurity as a computer user) and to lack of knowledge of social media services on behalf of already active elderly. Other elderly people's attitude towards social media was negative. One of the

interviewees also mentioned that interaction on the web is not real and that face to face contact is needed more.

The most advanced user also strongly considered that age itself is not a barrier to computer use and its learning. She mentioned how she has managed to get over 90-years old people to begin computer use. According to this ”tutor”, the main challenges are not in the lack of technical use or in functional capacity restrictions, but the fact that elderly people have too much fear related to this topic.

The positive point of view was that social media networks offer the possibility to maintain social relationships with friends and relatives and give also some opportunity for fun. Those interviewees who had already experience about social media also represented this positive view. One elderly (”tutor”) also underlined the world of net games as an entertaining possibility to spend time.

The most popular social media services among the interviewees were Skype, discussion forums, blogs and online magazines. Only few of the respondents were "active user" like blog or content producer.

In conclusion, nearly all the respondents pointed out a variety of negative attitudes through the interview, which were related to different threats and problems. However, almost all were interested to learn social media use or to learn more if they were already users. On the contrary, the non-user people who were shown Owela, Facebook, or Seniorinetti were either slightly or more interested in using them, but "in the future”.

3.3.1.2 Interview of nurses

The interviewed nurse did use social media services herself, although she said at the beginning of the interview that she might not know about this topic that much. She was using Social Media services regularly, for example using the Facebook chat and reading online news daily. According to this, the concept of social media might be therefore somehow unclear also to younger people.

The interviewed nurse considered important that older people could use Social media. She underlined especially social contacts and their maintenance, but questioned on elderly people's skill to use computers and other technical equipments. The nurse also answered to Owela´s questionnaire and she mentioned that in that occasion she thought herself that “this could be a good thing to elderly”.

The nurse told also that she would be interested in taking advantage of Social networks in the nursing field. She considered the contacts with relatives with the help of Social media to be a very good idea, in addition to e-mails and telephone calls.

When asked on the possibility to teach the elderly, she thinks the best ways depend on the type of person. A starting point could be for example “natural groups” were older people normally meet. According to nurse, this could be an easy way to find out if they are interested to learn. She also suggests that teaching elderly in their own home could be a good idea to make them learn about Social media.

3.3.1.3 Owela´s discussions in ”Old foxes”

In this section, the analysis of the discussions in the “Old foxes” group is reported, in order to evaluate different categories and main themes. As a result five major themes can be presented; h*obbies and interests of pensioners, the picture of elderhood in culture and society, pensioners and social policy, Internet and social media services of elderly* and *maintaining welfare.*

1. ***Hobbies and interests of pensioners***

This category includes *memories/ memorizing, hobbies, new experiences and learning possibilities.* Memories and memorizing actively were considered useful and entertaining amusement to elderly. The main idea of discussions in this topic was that relatives could help the elderly to make use of old photographs and that social media services could support a variety of easy ways to build content, also by elderly themselves. In the discussion it was suggested which kind of technology to adopt, for combining sound and voice with digital photo albums. Therefore, it is possible to create content easily and combine it for own memories. As a result, this supports the social interaction between generations and families and also helps for example dement elderly and elderly with special needs.

During the discussion plenty of different hobbies and other activities were mentioned. Facebook, Skype and other social media tools were suggested for sharing activities in Internet. Interesting things for the use of Internet are for example writing, sharing food recipes, studying languages and different cultures, current policy, gardening etc. Facebook was also mentioned as a good channel to find old friends in Internet.

To learn new things and to get new experiences when retired seem to be of potential interest for many elderly in “Old foxes”. After a busy work life there is time to do things that have not been previously done. This reflects the freedom of choice and of spending time with one’s own interests. Some of the “Old foxes” are interested to

voluntary sector in different organizations and activities in communities of retired. Others tell that they want to enjoy peaceful life without obligations to do something.

2. Image of the Elderly in culture and society

In Owela´s discussions were also mentioned *image of elderly as a part of culture like literature and art and as a part of society's valuation related to attitudes and stereotypes* of elderly population. Many cultural concepts differ from each other and reflect different view of older people. Literature, especially detective stories, and visual art were categorized as a different topic in Owela. There were few people discussing their favorite writers and books and sharing their tips for reading. The image of elderhood was considered diverse among artists; positive and negative stereotypes arose. Self portraits of artists in visual arts were under discussion as well.

The other perspective to the image of elderly was related to values and attitudes in society. On one hand, older people were seen in a negative perspective, as a heavy burden and neglected in society. On the other hand there were positive image of elderly, which represented things like new ageing culture with active and successful ageing. From the discussion became clear that responsibility and valuation toward the elderly were expected more from authorities and decision-makers.

3. Pensioner and society politics

There was very active discussion about the pensioner's policy under many of the discussion topic, not only in this category. The main message seems to be that retired people still want to be active citizens and take a stance on issues related to their own welfare. Main themes in the discussions were related to *discrimination of elderly, evaluation of public services, economy of elderly, the role and activities of pensioner's organizations and party politics.*

The discussions under this topic also included strong critics to others comments and ideas. For example, there was one party who was particularly active in trying and getting new deputies for the next municipal elections. The discussion topics of this category were partly suggested by this leader of the party and also by two other active elderly who were very interested and committed to pensioners' issues. For example, they expressed a strong statement for politicians and decision makers to promote pensioners' issues in the Parliament.

As a result of active discussion many ideas and opinions occurred to improve welfare for pensioners. Next is the list of presented suggestions:

- Pensioner's "information bank": gathering and sharing information about the other pensioner organisations in Finland;
- "Law package": older people's rights and responsibilities;
- News panel: active influence channel to promote pensioners' issues, maybe as a part of services dispensed by pensioner organisations
- Senior team: gathering criticism for the elderly councils regarding public authorities and policy makers.

4. Elderly peoples Internet services and Social media

This was one of the most important categories, since discussion provided a lot of suggestions for future Internet and Social media services to elderly. The content of this topic included the following main themes:

- Sharing experience on Internet and social media services like Facebook, and Skype, also through Owela suggestions;
- Ideas and suggestions for service development:
  - Interesting and useful Web services to elderly
  - Easy –to-use techniques, suitable to elderly with different needs
  - Motivation, peer support and learning possibilities

In Owela discussions it became obvious that people in Old foxes had quite good skills and understanding about Internet and Social media services. As a result the Owela site got many comments and suggestions about how to develop its services. This also tells about some lack of understanding on the original purpose of Owela, because some participants considered it a ready-to-use service instead of a developing platform for innovations.

Ideas and suggestions for service development contained a lot of useful information produced by participants. As a result, in a next project phase, when developing the service concept, the group in Old foxes will give a good contribution and the ideas conceived through the Owela discussion will represent an excellent information source for this purpose.

5. Maintaining well-being

This category included mixed themes, for example Facebook and Internet as tools to keep up social connections. According to the contents of discussions, the main themes upraised were s*ocial relationships and health & well-being*.

To maintain social relationships becomes often challenging when people retire. To keep contact with old friends or to visit them can be difficult due to lack of strength or illnesses. Also the death of the spouse can increase the feeling of loneliness. As a result, it is not surprising that in Old foxes for example peer support is suggested as a specific topic or that Skype and Internet services are for many elderly people a very important help to manage everyday living. On the other hand, retired people are often known as “busier than in work life”, which may be part of the truth. As mentioned before, there are also elderly who purposely reduce busy life style so that everything goes without any timetables.

In this category, exercise and other physical activity was also considered important to maintain health and functional capacity. Support from network, interesting hobbies and public support for “sales card” to retired were under discussions. Few participants also reminded that people should not make feel guilty those who are not able to exercise, for example due to previous hard physical work in work life. Everybody has right to choose what kind of exercise they want to try – or not want.

3.3.1.4 Social media club – Testing Social media´s services & group interviews

In this section the results of both groups interviewed in the Social media club in a guided test situation in VTT are reported.

Group 1

The discussions with all participants and the group leader (Mikko Järveläinen, Conga) were mainly focused on *the active use of Facebook; creating a new group, different social networks, photo albums and copyrights.* Privacy in Facebook and the possible threats seemed to interest participants. For example, how much you can reveal of yourself in Facebook and if password is saved.

Also sharing own hobbies and other interests in Facebook were interesting topics for many. Participants wanted to especially know more about different setting techniques related to *Facebook groups and their functions*. The group discussed about *open and closed groups, connecting different groups, group invitations and online calendar, homepage to group and how to make a protest with the help of Facebook.*

One important topic was *social networks* like family, friends and relatives. Some of the participants told that they had for example relatives living abroad and Facebook is a help for keeping contact with them. It was considered interesting to follow children’s lives on Facebook and to exchange family pictures (for example about

holidays). Facebook was also seen as a tool for active participation in different levels and environments, like in pensioners' organizations and other voluntary based organizations. Few participants also mentioned health services and one particularly underlined the easiness to get services when using "health file" (even if this is not the actual role of Facebook).

Examples of comments in the group

- *"Facebook is interesting, but my friends are not there"*
- *"With whom do I want to make friends?"*
- Facebook is a good tool for keeping connections with international contacts and friends abroad
- Facebook should be for all people without categorizing young and elderly generations (One participants commented that Owela Old foxes is a little bit dull, because it is only about seniors' things)
- Skype and email was also the most popular "Internet connections" participants mentioned in this group.

There were so many questions that there was no time to use Facebook on computers. As a result, the group followed the teaching and actively discussed the whole lesson. There were also few iPad for testing activities and some of the participants tried them. They were considered easy to use, interesting and participants thought they would be suitable for the elderly with some illnesses.

Group interviews:

- Facebook should be a common forum for all, regardless of age
- The user interface (service) should be considered to answer all older people needs and constraints, e.g. text size, language preferences and other settings; it should also be useful to have a unique login to enter a number of services such as Skype, Facebook etc.
- Services should be segmented with respect to older people's interest and needs, including for example topics like daily life of elderly, health, support networks, organizations and communities.
- A new generation of elderly computer users already exists, with emphasis on hobbies, organizations, and other activities.
- Motivation of older people to use social network services:

  - The starting point is given by individual need and interest
  - Elderly people's identification as a service user
  - Friends could advice and guide the elderly to computer and Internet use

- The group came up with concrete proposal:
  - Development of a social media club for a number of activities; to invite each pensioner to take part in Owela old foxes
  - Development of such group inside Owela

Group 2

The program of the Social media club was almost the same as it was in the first group. The few differences were for example that there were two tutors to give support and advices. Facebook teaching and guiding were now considered at a beginner level. There was also more time for actually testing the situation. Those who had already registered and used Facebook were helping and guiding the others as well.

Examples of comments in the group:

- *"Who has Interest on other people's Facebook walltexts?"*
- *"Facebook has different kind of users, how to behave there?"*
- Facebook as an entertaining or a more official site
- You can do basically the same things by e-mail

This beginners' group seemed to have a more doubtful view of Facebook. The main focus was related to this question: "what is so special in Facebook and why should I start to use it? On the other hand, some people in this group were also active participants in other social media forums, but not in Facebook. One general fact appeared again: the elderly don´t necessary have friends on Facebook.

Group interviews:

- Many of the participants became interested in Facebook and the day was considered a nice experience.
- Few participants also said that they did not necessarily want to start to learn Facebook or, in any case, they first needed some more information.

- Also few of those elderly who already used Internet and Social media services said that they were not interested in it so much to be registered as a user.
- Services should still be developed also for the oldest age group, i.e. people over 80-years
- Facebook and other services should have texts in Finnish, so that older people can understand the usage.

In conclusion of this section some general suggestions about the results of Owela discussions and Social media club are listed:

- Everybody has different needs and interests - elderly are a heterogeneous group of people!
- Motivation and support networks are important for learning
- Service content has to be both useful and interesting
- Technology has to be easy and consider individual needs and market segmentation
- Elderly Internet and Social media users have a lot of useful information for service providers
- New ageing culture – the elderly and the younger generations have better possibilities for ICT learning (experience of computers in work life)
- Prevent “Digi-discrimination” with elderly – economical and social support for Digi-services

3.3.2 Results in Italy

The survey in Italy was related to 55 persons, 65% were women and 35% men. The results are presented in a general form both according to age distribution and to user group identification.

In this paragraph we present in detail the results of the survey made among the ALDIA’s user group (elderly people, relatives and care givers).

3.3.2.1 The answers of the elderly

We interviewed 27 elderly people, whose 70% is between 55 and 75 years old. The 63% of them are women. Most of the interviewees attended only the primary school (63, 3%) while the 37% have got a degree or a vocational training.

Despite the average age of participants is reasonably low the use of the internet mean for an informative purpose results to be quite scarce. Replying the question "Do you read newspapers or watch online TV", the half of them answered never, and only the 7, 4% answered weekly; the same goes for blog readings, forum debates and chatting. The situation doesn't change once analyzing the use of social networks or interactive tools, such as TV (You Tube, Ip TV) or voice services (Skype); while there is no trace of knowledge of tools such as photo sharing (Flickr) or micro blogging (Twitter). The only internet tool which seems to be pretty popular among this group is Wikipedia.

A strong disincentive to the Internet alphabetization is determined by a general aversion towards the use of new technologies. There is also the big question related to the huge TV diffusion on national scale, which doesn't help these generations to switch to other media. Once we asked "Have you ever had any problem using technologic means" only the 5% of them never had troubles with it, something that confirms the scarce familiarity with technological devices.

The interviewed have got a great familiarity with the mobile phone, autonomously or with the help of someone else, reaching percentages near the 96% for phone calling, the 74% for SMS and photos, while the numbers lower down once they have to get into the net (29%). Concerning the computer usage, half of the elderly use internet at home, writing e-mails and listening to music.

We can see that the crucial aim in using internet services is acquiring info on social and medical services and to keep in touch with the family and friends, while it seems that the social networking aspect is not properly exploited by the 91% of elderly, really low the % regarding the collection of their memories and cultural purposes. Despite there is no skills using the mean, the interviewees consider the net a powerful and useful mean to work out a problem. The 64% of them answered positively to the question "Are you interested in using a social media".

3.3.2.2 The answers of the Relatives

The 14 relatives we interviewed are divided into half man and half women, they are aged under 55 years old, more of the 60% is married and more than the half of them (57,1%) owns a vocational training. Most of them (78, 6%) work, while only the 14% is retired.

About the internet alphabetization, the majority of the interviewees use the mean essentially for a recreational purpose (the 35, 7% of them use weekly the chat), while

it clearly results a scarce usage for informative purpose (the 71, 5% seldom or never read newspapers or watch TV online), for investigation or a productive aim.

To communicate, our interviewees use services like Facebook but the 70% of them states that seldom or never use services such as Skype or Twitter. It is evident the preference of a more traditional mean like mobile phone to keep in touch with their dear ones, to send SMS, to take pictures and to navigate the net.

At the end we can see the relatives don't have any problem to have access to internet, rather the 57% of them sometimes have difficulties using it and they states that internet would be a great help in running all the activities they use to do with other devices.

3.3.2.3 The answer of Caregivers and Nursing staff

The nursing personnel and caregiver group is mainly made by women (90, 9%), the whole group is aged under 55 years old, split into two specular sub-groups of singles and married. Regarding their instruction, the 70% of them own a vocational training. As far as their average use of the internet services, such as chats, online TV, blogs and forum debates, they affirm to seldom or never use it. The same goes for platforms such as Flickr, Twitter, You Tube and Skype, while when it comes to face services such as Facebook or Wikipedia the rates of frequent usage suddenly rise up.

Like the other two groups pictured above, this group too sometimes face problems using the internet services, but we can notice that the 100% of these group commonly use the mobile devices in full effects, even to get into the net.

The percentage of positive feedback using a computer doesn't change, especially for sending e-mails or other basic services. But once we asked them if they knew more advanced services such as IP TV, the 75% of them didn't even know the existence: this data confirms that the alphabetization could be considered basically acceptable but must be improved more and more especially because, in most of the cases, the caregivers represent the link between their assisted and some vital information.

This third segmentation considers really important keeping in touch with the patients and their relatives, in order to share information and to offer services cut for elderly and perceives the internet a crucial mean to be in touch with their assisted and their family.

3.3.3 Discussion

SoMedAll survey was conducted both in Finland and Italy according to the methodology described in section 3.2. Complete results of the survey are detailed in Annex 1. Hereafter we discuss some of the results illustrated in Annex 1 with the purpose to highlight what we consider the relevant outcomes of the surveys. These results will serve as the basis for user scenarios to be detailed in WP2.

The total number of respondents is 278. The respondents rates in the two countries is unbalanced (about 80% in Finland and 20% in Italy) due to the two different surveying modes: Finland promoted the survey also online while in Italy only face to face interviews were conducted. As regard gender, the overall (Italy and Finland) rate of women is slightly superior (about 60%) to that of men (about 40%).

Respondents' age distribution shows the rates reported in Table 4, highlighting that about 24% (63 people) of the respondents is over 65, while the 60% is aged between 55 and 65 and about 17% is aged below 55.

Description	*Value*	*Perc*
Age: <55	47	16,9%
Age: 55-65	164	59,0%
Age: 66-75	56	20,1%
Age: 75-80	7	2,5%
Age: >80	4	1,4%
Total	278	100,0%

Table 4. Q2 Age Distribution (global).

Seniors respondents are therefore a minority of the overall survey respondents. However, when asked to which user groups they belonged, users distributed as illustrated in Fig. 3.7 and Fig. 3.8, highlighting that the potential SoMedAll users cover about the 70% of the total users who answered the questionnaire. This figure is quite consistent with the number of "retired" respondents (about 60%).

At a national level, the group of retired respondents is represented by about the 63% of the total in Finland and the 47% in Italy.

It is important to take into account that the focus of AAL programme is in the ageing people in Europe. So it can be said that during the next steps of the SoMedAll project it should be concentrated on that target group. Quite often people under the age of 65 are used to use technology at their work and everyone is familiar with mobile

phones which is today's technology. Also digital and HDTV television is more and more known among people in both countries.

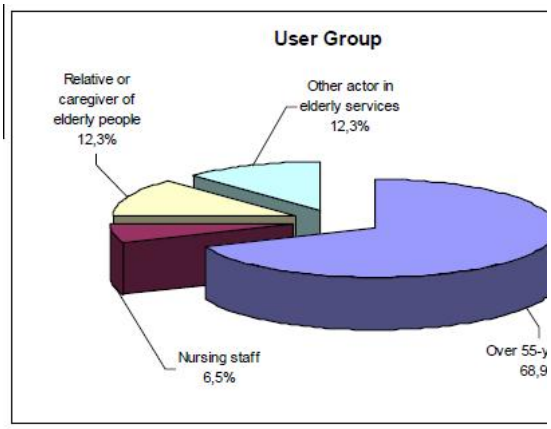

Fig. 3.7: Q4 User Group (global).

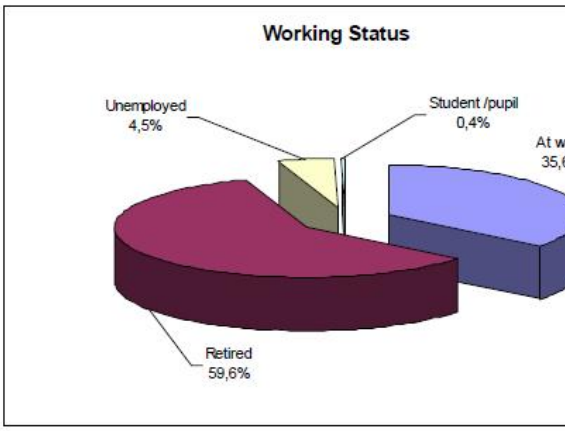

Fig. 3.8: Q7 Working Status (global).

As regards education, only the minority (less than 20%) of the respondent answered not having a higher education degree (or more); although their number is remarkably higher in Italy than in Finland (approximately three times more).

As regards media usage, Italy and Finland present differences: consultation of online magazines and web sites highlight an opposite trend as illustrated in Fig. 3.9, while blog consultation shows a more similar trend (Fig. 3.10), though in Italy the percentage of respondents affirming that the never read blog is substantially higher (45% versus 12%). Same goes for Forum sites (see Q8c in Annex 3).

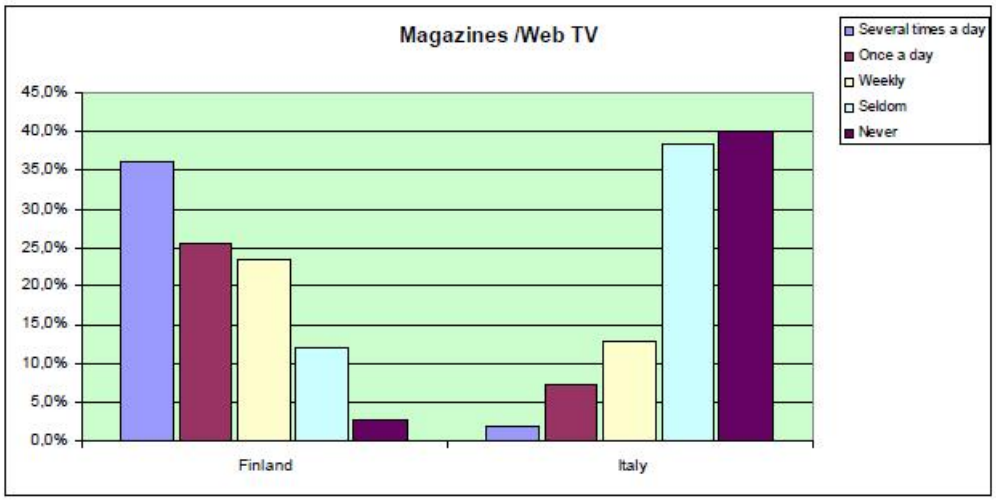

Fig. 3.9: Q8a Internet Services.

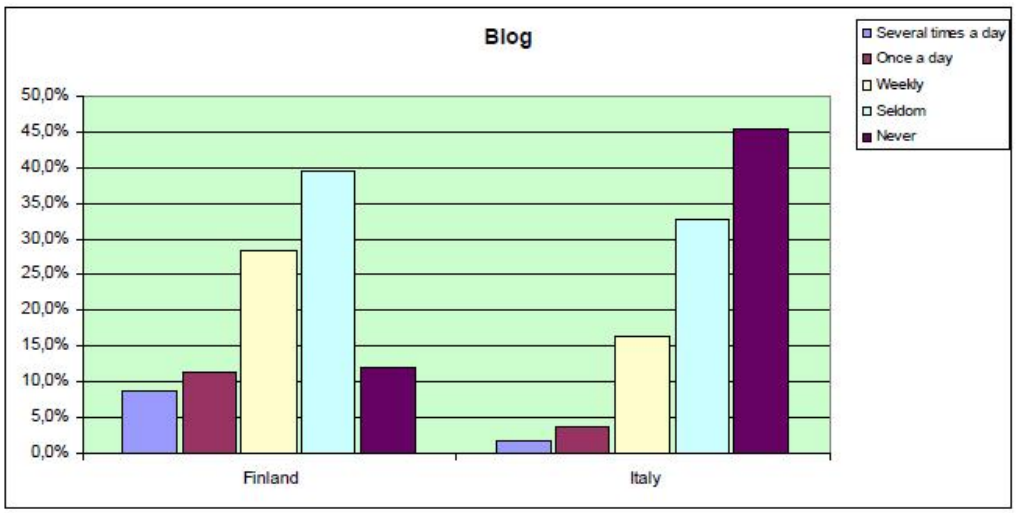

Fig. 3.10: Q8b Blog.

Synchronous communication tools (chat) shows a different adoption trend, which is more uniform in Finland and less established in Italy (Fig. 3.11).

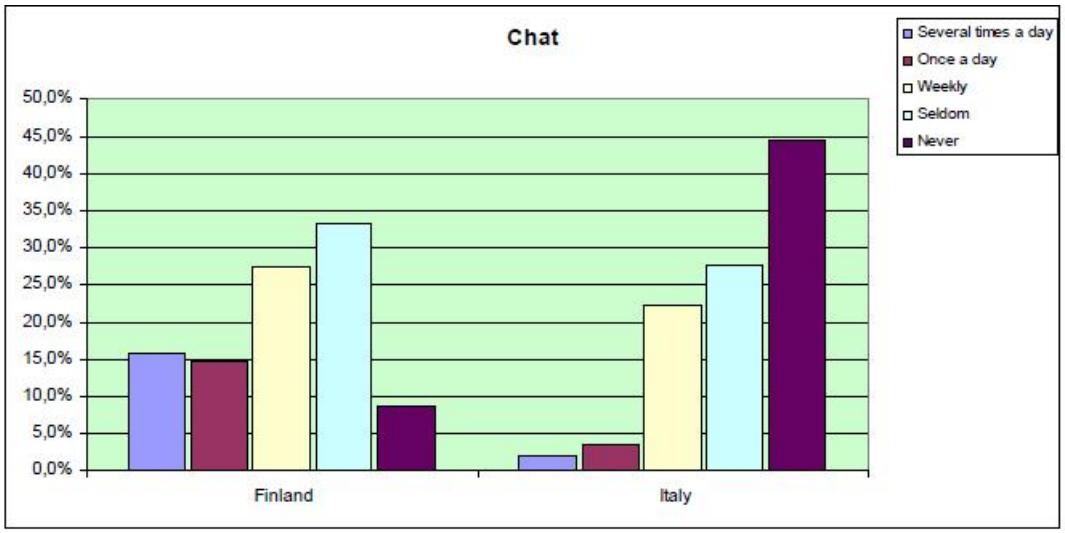

Fig. 3.11: Q8d Chat.

Online participation for content production shows similarities of trends in the two countries, while still maintaining the more advanced role of Finnish users with respect to Italians.

In order to discuss possible use case scenarios as expected in WP2, it is worth focusing on social media usage with respect to considered User Groups: over 55, Nursing staff, relatives or caregivers. Hereafter we discuss some main results for the group “over 55”.

As regards seniors (over 55), the two countries differ for the penetration trend of some services which already evident in Finland (YouTube, Flickr, Twitter, Wikipedia,

dedicated seniors' social networks) and less marked in Italy. An exception is made for Wikipedia whose use is diffused in both countries (see Fig. 3.12 and Fig. 3.13) and, to some extent, for Facebook.

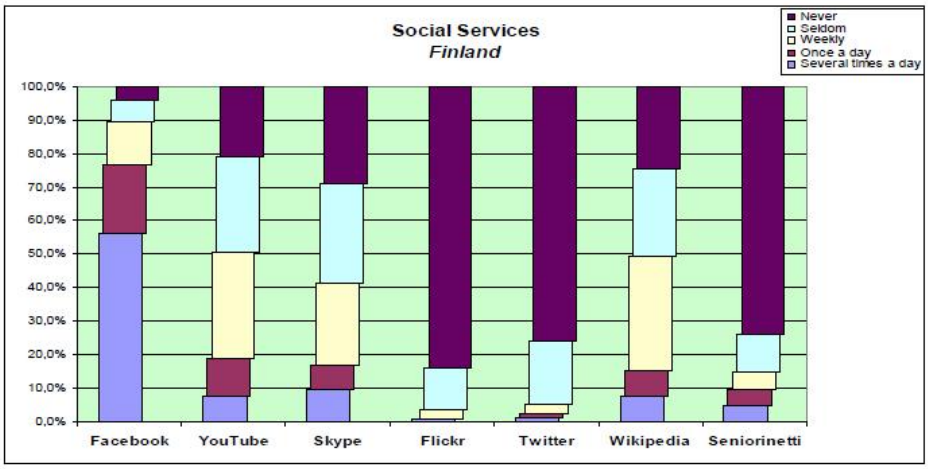

Fig. 3.12: Use of Social Service for Seniors (Fin).

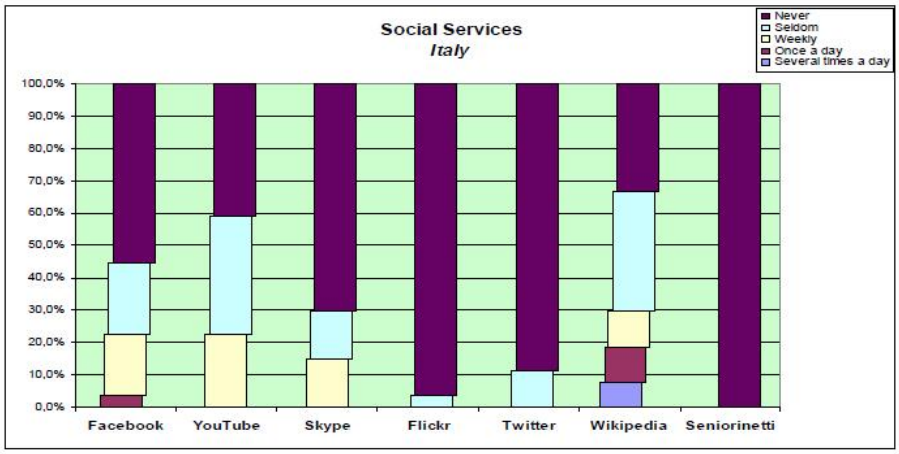

Fig. 3.13: Use of Social Services for Seniors (It).

As for the user group composed of relatives and caregivers, the social media use is substantially equivalent in both countries, though showing difference frequency rates in the use of some services (e.g. Facebook) as shown in Fig. 3.14:

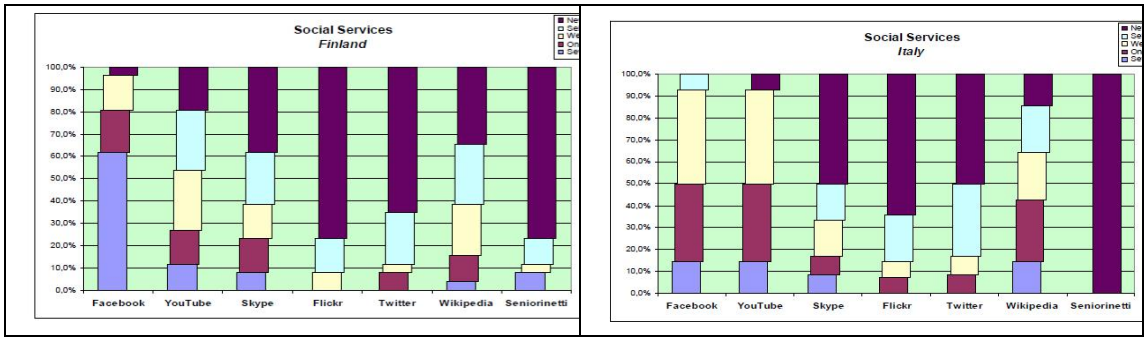

Fig. 3.14: Q10 Use of Social Services for relatives and caregivers (Fin and It).

The comparison of mobile phone use by seniors in the two countries (Fig. 3.15) shows that similarities in availing of the device for multiple purposes, from the basic phone call, to text messaging, to Internet access and taking pictures.

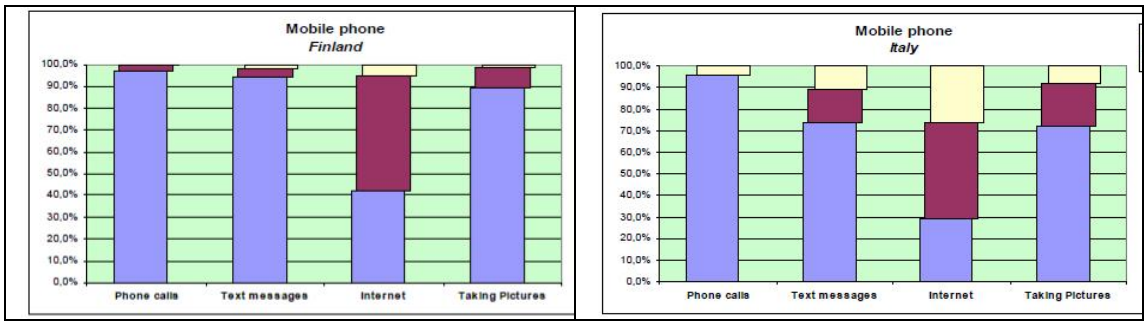

Fig. 3.15: Q12a Mobile Phone use (seniors).

In contrast, differences in the use of a personal computer device are evident from Fig. 3.16 showing that Seniors Italian use of Internet and e-mailing is less common than in Finland.

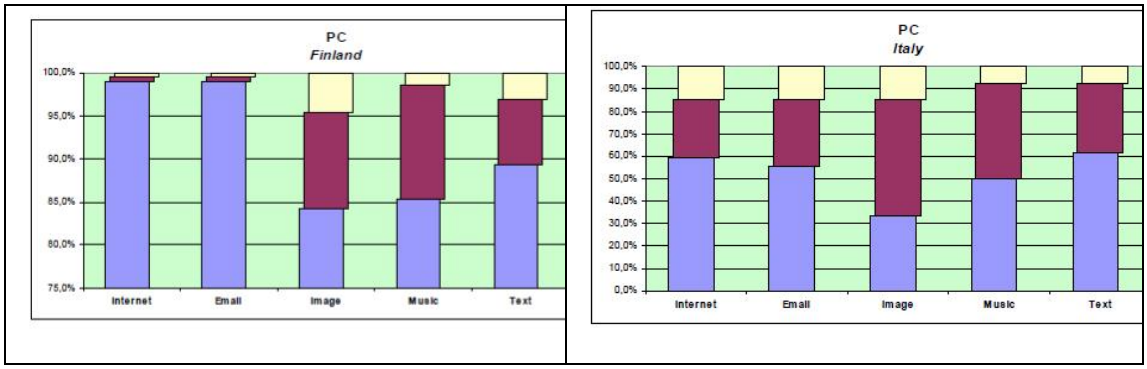

Fig. 3.16: Q12b Personal Computer use (seniors).

Still in the realm of hardware, it is worth commenting that interactive TV penetration in the two countries is quite equivalent (Fig. 3.17).

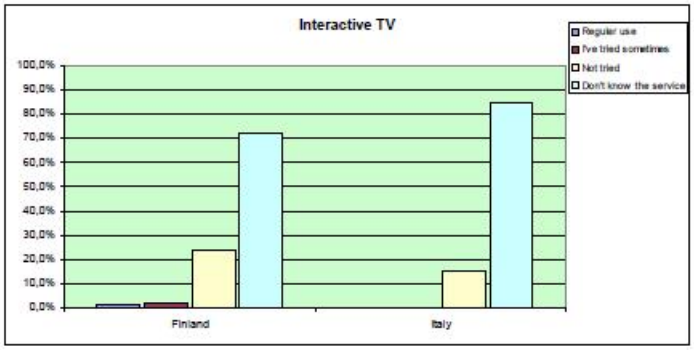

Fig. 3.17: Q12e Interactive TV use (seniors).

Seniors' motivation to use Internet services is reported in Fig. 3.18 and Fig. 3.19 and shows a significant importance of communication (keep in touch, get peer support),

learning (new experience, learning) and information (well-being, hobbies, memories) related activities.

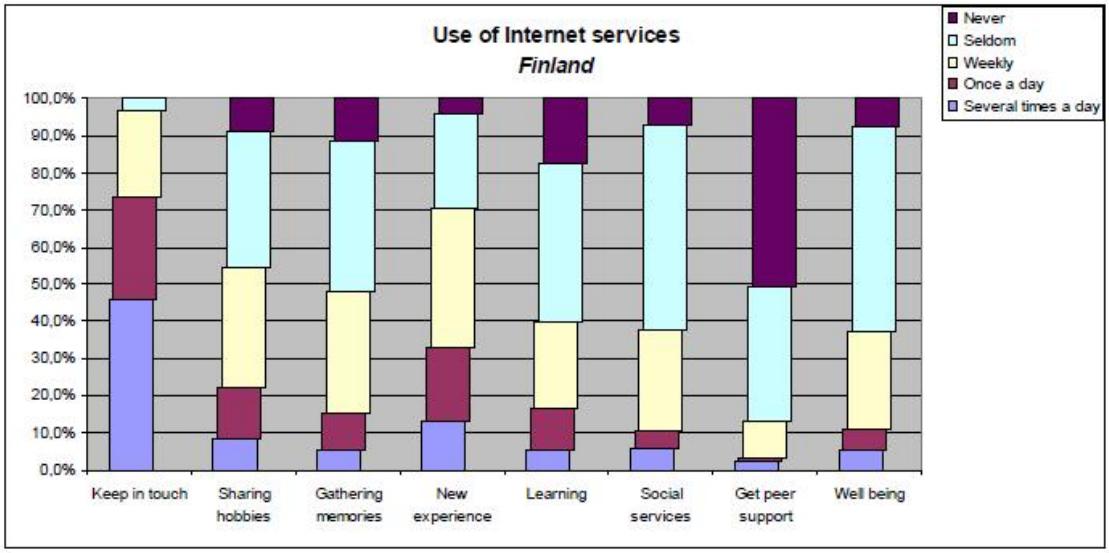

Fig. 3.18: Q13 Seniors Motivation to use Internet Services (Fin).

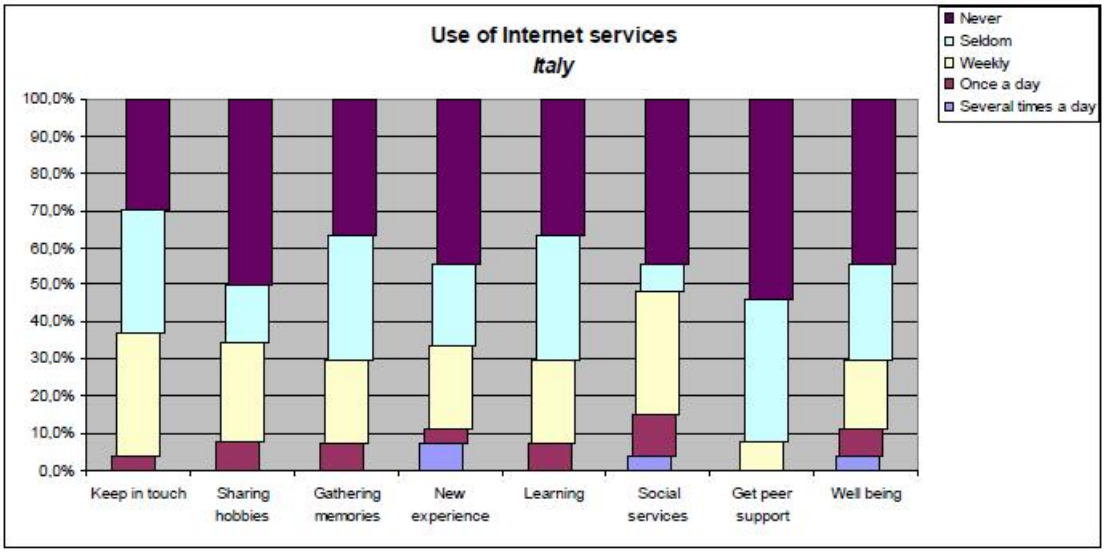

Fig. 3.19: Q13 Seniors Motivation to use Internet Services (It).

Given the above results, together with detailed results of Annex 3, we can therefore speculate that:

1. Senior users are already quite active in using social media services and interested in continuing to use them for information, communication and learning purposes. Italian users however, are less keen to use personal computer for such purposes than Finnish users. For Italian users the possibility to designing social media services based on Interactive TV will be explored in users scenarios,

2. care givers, relatives and nurses are generally technology skilled in both countries. They are interested in adopting social media services to assist elderly people. They generally see a potential in these technologies in increasing the quality of their assistance,
3. quite often elderly people are eager to use technology based services and also willing to pay something of them if the solutions are supporting their living independent at their homes or service homes and environments,
4. it must be realised that cultural attitudes and level of education can be strongly effect on the willingness to take new solutions in use,
5. it is important that partner countries and organisations are doing this development work together if the aim is to develop solutions and applications which will affect and increase the possibilities for elderly people live at all partner countries,
6. one issue is that Finland and Italy are ageing quite fast and new possibilities and technology is needed to support countries to arrange services for all elderly people who have a need for different kind of services,
7. social media is one possibility but not the only one, anyway development work can also create new working possibilities and business in each country,
8. it must be emphasised that this kind of development work must be done in close cooperation with real end users,
9. if the aim is to arrange services using new technology education and learning possibilities must also be developed and
10. ethical issues cannot be diminished.

4 CONCLUSIONS

On the basis of the review of literature reported in this document, it can be emphasised that international researches confirm that the use of social media by the eldest groups has increased in the last years. Social networking use among more than 50 years old users has globally doubled from 22% to 42% over the past year. More particularly, half (47%) of Internet users and one in four (26%) more than 65 years old now use social networking in US. The most popular social media activities for older people are email and online news (Madden 2010).

Society's trend of successful ageing may explain the increasing use of social media among the elderly. In particular, successful ageing is related the concept of active ageing, which underlines the importance of maintaining social interactions despite of ageing process and its consequences (Rowe & Kahn 1997; Baltes & Baltes 1990). As a result, elderly people are nowadays more interested in trying new things in order to stay involved in social networks and social activities.

If we think about the future perspectives of social media use among the elderly, it seems possible that it might become even more common. One reason for this is the fact that people who have already used computer in work life become easily familiar with the use of social networks. Such users are also familiar with mobile phones and other technical equipments and for them it may be interesting to continue learning new things with the computer and keep up to date with the development of social media.

Older people's motivation to learn depends on how useful they perceive their learning results to be and also on whether they think they are capable of achieving these results. From the literature's review and from the surveys carried out within the SoMedAll project it may be drawn that elderly people's main interests can be summarized as follows:

1. learning to know
    - issues related to their well being (health, safety, etc.)
    - culture, politics, people, society
    - languages
2. learning to do
    - activities supporting travelling
    - activities for communicating with the family or for working and interacting with other people in the community

- practical tasks (managing money, organizing transportation, using new house appliance, use aids for compensating disabilities)

3. learning as an activity
   - keeping up to date with ICT issues
   - a way of giving back (intergenerational learning)
   - Another important issue drawn from this report is related to the importance of designing social network services for the “silver market” aiming at the simplicity of tools, to accommodate different personal needs as specified in (Gassmann & Keupp 2009). In that respect, important issues to be taken into account are the following:
   - the adoption of simple and multimedia interfaces, in order to encompass all different capabilities and requirements shown by elderly users; such interfaces need of course to be adapted according to the device through which social services are supplied;
   - the implementation of IP TV services through appropriate interfaces, particularly for those elderly users (like most of the Italians) who are not very familiar with other devices like PC and smart phones, Since television is the most frequently used device and actually a companion all the day long in many cases, it appears worthwhile to design and test IP TV solutions which can be interesting for elderly people to use, thus conjugating a familiar environment with innovative services.

According to Finnish Statistics’ study there are two explanations for the rapid use of social media. One is the media itself and one is the social world we are living in (Tilastokeskus – Finnish Statistics 2010).

As a result elderly people are nowadays more interested to try new things in order to stay involved in social networks and social activities.

When thinking the future prospects of social media use among elderly, it seems possible that it will be more common. One reason for this is the fact that people who have already used computers in work life become easy familiar with the use. This group has also used to mobile phone and other technical equipments. Older people familiar with ICT it may be interesting to continue learning new things with the computer and keep up with development of Social media.

It is important to realise that future generations will be in different situation than today’s elderly people, but it is not possible to wait and watch what will happen.

There is a need for new services and solutions already because the resources are scarce in every ageing country. It can also be seen that elderly people will have more responsibility to pay for the services they use. Anyway the decision makers must realise that also pure and sick people need high technology based services and their socio-economical abilities must be taken into account.

As one conclusion it is possible to raise a new question: is there a national legislation which takes into account this kind of service development in every European country?

5 GLOSSARY

ITS	**Intelligent Transport Systems** A broad range of communication-based information, control and electronics technologies integrated into the transport system infrastructure and in vehicle themselves, to help monitor and manage traffic flow, reduce congestion, provide alternate routes.
LICW	**Linguistic Inquiry and Word Count.** Linguistic Inquiry and Word Count (LIWC) is a text analysis software program designed by James W. Pennebaker, Roger J. Booth, and Martha E. Francis. LIWC calculates the degree to which people use different categories of words across a wide array of texts, including emails, speeches, poems, or transcribed daily speech.
ROI	**Return on Investment** In finance, the return on investment (ROI), rate of profit or sometimes just return, is the ratio of money gained or lost (whether realized or unrealized) on an investment relative to the amount of money invested. The amount of money gained or lost may be referred to as interest, profit/loss, gain/loss, or net income/loss. The money invested may be referred to as the asset, capital, principal, or the cost basis of the investment. ROI is usually expressed as a percentage**.**
W3C	**World Wide Web Consortium** It is an international consortium where member organizations, a full-time staff and the public work together to develop standards for the World Wide Web. W3C also engages in education and outreach, develops software, and serves as an open forum for discussion about the Web.
Gen	**Generation** Generations X and Y
AAL	**Ambient Assisted Living** Development programme establish by 20 Eu member countries and three others.
UGC	**User-generated content** Social media content where user him or herself have a role in the process. This means that non-professional user have a possibility to create and share digital content.
SNS	**Social Networking Sites**
fMRI	**functional Magnetic Resonance Imaging**

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- http://www.eagle-project.eu/welcome-to-eagle
- http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-08-072/EN/KS-SF-08-072-EN.PDF
- http://discuss.50plus.com
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- www.age-net.co.uk
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- www.early-retirement.org
- www.idf50.co.uk
- www.kelleytown.com
- www.pensionersforum.co.uk
- www.retiredmagazines.co.uk
- www.retirementcommunity.com
- Seniors dailySeniors daily
- www.little-brown-jug.com
- http://theover50goldengroup.net
- http://www.monami.info/
- www.hmi.dk
- www.DINF.ne.jp
- http://www.dfaei.org
- www.hi.se
- www.teknikforaldre.se
- www.edean.org
- http://www.ikateknologia.fi/

ANNEX 1 - QUESTIONNAIRE

1. Are you ☐ man ☐ woman

2. Birth Year_____

3. Marital Status

   ☐ unmarried ☐ married or cohabiting ☐ divorced ☐ widow

4. What user group do you represent? If you represent several different user groups, select all the user groups to which you belong.
   a) over 55-year-old social media user or potential user
   b) nursing staff
   c) older people relative or caregiver
   d) other actor in elderly services

5. Education

primary school or basic education ☐ vocational training ☐ a university degree ☐ something else, *what*?_____

6. Are you..?
   ☐ Work
   ☐ Retired
   ☐ Unemployed
   ☐ Student / pupil

7. Residence

Where do you live?
☐ home
☐ service apartment

With whom do you live?
☐ I live alone
☐ I live with a spouse or with other close

8. Do you use the following online/Internet services?

5 = several times a day, 4 = once a day, 3 = weekly, 2 = seldom, 1 = never

Do you read online magazines or television web site?	5	4	3	2	1
Do you read blogs					
You follow the debate forums?					
Do you use a chat?					

9. Do you yourself participate in the online discussions, commenting or on content production?

5 = several times a day, 4 = once a day, 3 = weekly, 2 = seldom, 1 = never

Do you comment contents or discussions on online forums?	5	4	3	2	1
Do you write blogs, or comment on other blogs?					

10. Have you used the following services?

5 = several times a day, 4 = once a day, 3 = weekly, 2 = seldom, 1 = never

Facebook	5	4	3	2	1
YouTube	5	4	3	2	1
Skype	5	4	3	2	1
Flickr	5	4	3	2	1
Twitter	5	4	3	2	1
Wikipedia	5	4	3	2	1
Seniornet or any other services aimed at older people	5	4	3	2	1

Something else, what?_____

11. If you have used the above services, do you have had problems with their use?

1 = often 2 = sometimes 3 = never

12. Have you used the below-mentioned devices for the next purposes by yourself or with the help of someone?

a) mobile phone

Making phonecalls	☐ yes ☐ no ☐ with someone´s help
Writing text messages	☐ yes ☐ no ☐ with someone´s help
Using Internet by mobilephone	☐ yes ☐ no ☐ with someone´s help
Taking pictures with mobilephone	☐ yes ☐ no ☐ with someone´s help

b) computer

Internet usage	☐ yes ☐ no ☐ with someone´s help
E-mail use	☐ yes ☐ no ☐ with someone´s help
Image processing	☐ yes ☐ no ☐ with someone´s help
Listening to music	☐ yes ☐ no ☐ with someone´s help
Text processing	☐ yes ☐ no ☐ with someone´s help

I use a computer

☐work ☐at home ☐in public places ☐I do not use at all

c) Interactive / Welfare TV(eg, television controlled group sessions)

☐ In regular use
☐ I´ve tried sometimes
☐ I know the service, but I have not tried
☐ I don´t know the service

If you've ever used the Interactive TV, then briefly describe your experience
_____
_____
_____

13. What you are using Internet services for? Answer this question only if you are already using Internet and social media services.
5 = several times a day, 4 = once a day, 3 = weekly, 2 = seldom, 1 = never

Keeping in touch with close and friends	5	4	3	2	1
sharing own hobbies (eg, cooking, gardening, fishing)					
gathering and sharing own memories (eg, pictures, videos, recordings, easy to download systems)					
Getting peer support from people in same life situation?(Eg, widowed failure, severe illness, loneliness)					
Learning new things (eg, languages, hobbies, e-learning)					
Information on the condition of health and well-being to maintain (eg, memory, exercise, nutritional information)?					
Getting new experiences (eg, culture, current affairs)					

14. How interesting do you see the opportunities for Internet use in the following situations? Reply to this question, even if you are not using social media services at the moment.
5 = very interesting, 4 = quite interesting, 3 = Do not know 2 = not very attractive, 1 = not at all interesting

Keeping in touch with close and friends	5	4	3	2	1
sharing own hobbies (eg, cooking, gardening, fishing)					
gathering and sharing own memories (eg, pictures, videos, recordings, easy to download systems)					
Getting peer support from people in same life situation?(Eg, widowed failure, severe illness, loneliness)					
Learning new things (eg, languages, hobbies, e-learning)					
Information on the condition of health and well-being to maintain (eg, memory, exercise, nutritional information)?					
Getting new experiences (eg, culture, current affairs)					

Can you think of any other interesting matter or topic you would like to use social media?
*What?*_____

Would you be interested to learn social media?
☐ yes ☐ I'm not interested

<u>Additional questions for the nursing personal and relatives</u>
<u>also for other actors in elderly services (eg, organisations)</u>

15. Questions for nursing personal: How interesting do you see the opportunities for Social media use in the following situations?

5 = very interesting, 4 = quite interesting, 3 = Do not know 2 = not very attractive, 1 = not at all interesting

Keeping in touch with patients and their family (eg,video phonecall, mobilephone: voice and text)	5	4	3	2	1
Sharing information (eg, wellfare, dining, hobbies "calendar for activities")					
Elderly/customer services (eg. getting information of services, delivering services to home)					

16. Questions for other actors in elderly services: How interesting do you see the opportunities for Social media use in the following situations?

5 = very interesting, 4 = quite interesting, 3 = Do not know 2 = not very attractive, 1 = not at all interesting

Keeping in touch with patients and their family (eg,video phonecall, mobilephone: voice and text)	5	4	3	2	1
Sharing information (eg, wellfare, dining, hobbies "calendar for activities")					
Elderly/customer services (eg. getting information of services, delivering services to home)					

17. Questions for relatives and other family members: How interesting do you see the opportunities for Social media use in the following situations?

5 = very interesting, 4 = quite interesting, 3 = Do not know 2 = not very attractive, 1 = not at all interesting

Keeping in touch with own close elderly (eg,sharing everyday things and situations)	5	4	3	2	1
Keeping in touch with nursing staff					
Peer support family/caregivers (e.g. mutual cooperation)					

18. Would you be willing to pay the social media services, if these services are useful?
☐not at all ☐ les than 5 € /month ☐ 5-25€ /month ☐26-50€/month☐ more than 50 € /kk ☐ I can not say

As a part of the SoMedAll –project we will build so called Social media club in January 2011. We are looking for this over 65 years old people to join.
The purpose of this is to get the social media experiences from ageing people. In Social media club will be tested different social media services in a guided group situation. So, you have now unique possibility to get instruction, education and opportunity to learn from Social media! Every participant will get surprise gift!

If you live in the metropolitan area, would you be interested in participating in Social media club?

☐ yes
☐ no

We will be in contact later to some of those whose interested.

Please leave your e-mail or phone number here:

_____

Thank you for your answer!

ANNEX 2 – SOMEDALL USER MEDIA-SERVICES MATRIX

The following tables describes for each type of identified user the service and functions that will be implemented in different media.

User: Elderly people with Internet knowledge

Media	Service	Functions	Short description
Internet	Social Network	Create discussions/pages	
Internet	Social Network	Insert comments	
Internet	Social Network	Insert photo	
Internet	Social Network	Insert video	
Internet	Search	Search engine	Through this service the user can search for information in Internet or in a predefined repository
Internet	Chat text	Chat via keyboard	Through this service a user can chat with another user (friend, family, care giver)
Internet	chat Voice	VOIP service	Through this service a user can talk to another user (friend, family, care giver)
Internet	chat Video	Video chat	Through this service a user can have a video conference with another user (friend, family, care giver)
Internet	Calendar	Read Insert / modify / delete events in a personal Calendar	Through this service a user can add personal events (birthdays, social dinners, etc)
Internet	Agenda	Read appointments on a scheduled Agenda managed by Care Giver / public institution	Through this service a user can see his/her own important appointments with Care Givers, public institutions, etc.
Internet	Medical assistance	Contact via web the medical assistance	
Internet	Caregivers support	Contact via web the care givers	
IP-TV	Search	Search engine	Speech to text / text to speech Through this service the user can search for information in Internet or in a predefined repository
IP-TV	chat Voice	VOIP service	Through this service a user can talk to another user (friend, family, care giver)
IP-TV	chat Video	Video chat	Through this service a user can have a video conference with another user (friend, family, care giver)
IP-TV	Search	Search engine	Speech to text / text to speech
IP-TV	Calendar	Read Insert / modify / delete events in a personal Calendar	Through this service a user can add personal event (birthdays, social dinner, etc)

IP-TV	Agenda	Read appointments on a scheduled Agenda managed by Care Giver / public institution	Through this service a user can see his/her own important appointments with Care Givers, public institution
IP-TV	Medical assistance	Contact via web the medical assistance	Medical assistance
IP-TV	Caregivers support	Contact via web the care givers	Caregivers support
Mobile phone (smartphone)	Social Network	Create discussions/pages	
Mobile phone (smartphone)	Social Network	Insert comments	
Mobile phone (smartphone)	Social Network	Insert photo	
Mobile phone (smartphone)	Social Network	Insert video	
Mobile phone (smartphone)	Search	Search engine	Through this service the user can search for information in Internet or in a predefined repository
Mobile phone (smartphone)	chat Voice	VOIP service	Through this service a user can talk to another user (friend, family, care giver)
Mobile phone (smartphone)	chat Video	Video chat	Through this service a user can have a video conference with another user (friend, family, care giver)
Mobile phone (smartphone)	Calendar	Read Insert / modify / delete events in a personal Calendar	Through this service a user can add personal event (birthdays, social dinners, etc)
Mobile phone (smartphone)	Agenda	Read appointments on a scheduled Agenda managed by Care Giver / public institution	Through this service a user can see his/her own important appointments with Care Givers, public institution
Mobile phone (smartphone)	Medical assistance	Contact via web the medical assistance	Medical assistance
Mobile phone (smartphone)	Caregivers support	Contact via web the care givers	Caregivers support

User: Elderly people without Internet knowledge

Media	**Service**	**functions**	**Short description**
IP-TV	Search	Search engine	Speech to text / text to speech Through this service the user can search for information in Internet or in a predefined repository
IP-TV	chat Voice	VOIP service	Through this service a user can talk to another user (friend, family, care giver)
IP-TV	chat Video	Video chat	Through this service a user can have a video conference with another user (friend, family, care giver)
IP-TV	Search	Search engine	Speech to text / text to speech
IP-TV	Calendar	Read Insert / modify / delete events in a personal Calendar	Through this service a user can add personal event (birthdays, social dinners, etc)
IP-TV	Agenda	Read appointments on	Through this service a user can see

		a scheduled Agenda managed by Care Giver / public institution	his/her own important appointments with Care Givers, public institutions, etc.
IP-TV	Medical assistance	Contact via web the medical assistance	Medical assistance
IP-TV	Caregivers support	Contact via web the care givers	Caregivers support
Mobile phone (smartphone)	Social Network	Create discussions/pages	
Mobile phone (smartphone)	Social Network	Insert comments	
Mobile phone (smartphone)	Social Network	Insert photo	
Mobile phone (smartphone)	Social Network	Insert video	
Mobile phone (smartphone)	Search	Search engine	Through this service the user can search for information in Internet or in a predefined repository
Mobile phone (smartphone)	chat Voice	VOIP service	Through this service a user can talk to another user (friend, family, care giver)
Mobile phone (smartphone)	chat Video	Video chat	Through this service a user can have a video conference with another user (friend, family, care giver)
Mobile phone (smartphone)	Calendar	Read Insert / modify / delete events in a personal Calendar	Through this service a user can add personal events (birthdays, social dinners, etc)
Mobile phone (smartphone)	Agenda	Read appointments on a scheduled Agenda managed by Care Giver / public institution	Through this service a user can see his/her own important appointments with Care Givers, public institution
Mobile phone (smartphone)	Sms	Sms	Receive information from Care-givers, public institutions
Mobile phone (smartphone)	Medical assistance	Contact via web the medical assistance	Medical assistance
Mobile phone (smartphone)	Caregivers support	Contact via web the care givers	Caregivers support

User: Care Givers/public institution

Media	Service	functions	Short description
Internet	Social Network	Create discussions/pages	
Internet	Social Network	Insert comments	
Internet	Social Network	Insert photo	
Internet	Social Network	Insert video	
Internet	Search	Search engine	Through this service the user can search for information in Internet or in a predefined repository
Internet	Chat text	Chat via keyboard	Through this service a user can chat with another user (friend, family, care giver)
Internet	chat Voice	VOIP service	Through this service a user can talk

			to another user (friend, family, care giver)
Internet	chat Video	Video chat	Through this service a user can have a video conference with another user (friend, family, care giver)
Internet	Agenda	Insert/modify appointments on a elder Agenda	Through this service the Care Givers, public institution can add appointment to the User Agenda
Internet	Communication	SMS	Send SMS to users

ANNEX 3 – STATISTICAL SURVEY

The results of the surveys carried out in Finland and Italy are available in the document Annex 3 – Statistical, Annex (WP1_D1.1_Annex3.pdf).

Such document includes the following parts:

- Part 1: Synoptic results
- Part 2: Finland – Italy Comparison
- Part 3: User Group Comparison
- Part 4: Age Comparison