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SENIOR-TV

PROVIDING ICT-BASED FORMAL AND INFORMAL CARE AT HOME

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0. INTRODUCTION

This deliverable summarizes the desk research and the lessons learned from the three piloting cycles with the primary end-users as conducted in Romania, Slovenia and Cyprus. The desk research was focused on the formal and informal caregiver services in Romania, Slovenia and Cyprus, and on the pilot results from the three end-user countries, where the Senior-TV product was tested. The extensive desk research started with the development of D1.1 “Analysis of existing services of formal and informal care”, the literature review on technology benefits and its related acceptance and anxiety manifested by seniors and, the field-research lessons learned from the three piloting cycles, which were analyzed using the SPSS Statistics software package.

The two primary objectives of this report are: (1) to conclude on the so far insights brought by the desk research and the field-tests administered and (2) present the lessons learned from the piloting cycles so as to inform future research.

Part A

1. Between Formal and Informal Care: The Informal Care Challenges in Today Societies

1.1. *Definitions of Familialism and De-Familialization*

Familialism refers to the generational and kinship obligations which may be inscribed in law and it may be also supported through public policies for financial compensations for the financial and caring responsibilities. De-familialization minimizes family obligations and it may be supported through publicly financed services or market-provided services or private insurance against social risks. Though, when someone appeals to market services that is an alternative offered by family resources, so it becomes an outcome of familialism and a matter relevant to social justice policies. The statistics reveal the overwhelming responsibilities of the high incidence of caring obligations among the older workers across Europe (European Foundation, 2008) and the demographic changes show that the burden will increase (Deliverable D1.1 (Updated) “Analysis of existing services of formal and informal care”)

Recently, the three countries have started to recognize and support through public policies the importance of familialism, and some financial compensations for the caring responsibilities are offered. Informal care, familialism and home care are all three different facets of the same matter: family as the first provider of caring within the family.

1.2. *Slovenia, Cyprus and Romania as Cultures of Familialism*

If we look through the lens of Hofstede's concept of "cultural distance" (Hofstede, 2019) we note that Slovenia, Cyprus and Romania are cultures which share the values of familialism through a high degree. Slovenia is stressing more on the quality of life than Romania and Greece, and Romania is being more hierarchical and promotes a culture of accepting to a larger degree the existent inequalities, comparative to Slovenia and Cyprus.

The indicator of "power distance" (PDI) which shows the degree to which the less powerful people accept the unequal distribution of power, is the most telling for expressing the underlying culture of family obligations.

Slovenian, Cypriot and Romanian cultures are manifesting to a large degree respect and care, help and loyalty, for the older members of their family. On a scale from 1 to 100, among the three cultures, Romania scores 90, the highest, and Slovenia scores 60, the lowest, in accepting and deploying family values of care.

The three societies under investigation here have all a tendency to the higher side of PDI: Cyprus 60, Romania 90 and Slovenia 71. It shows that people believe that hierarchy and inequalities are acceptable, leading also to **familialism, and manifesting respect toward the old age people and caring for them**. Because Romania scores 90 we understand that all those characteristics are exacerbated for the Romanian society.

Indeed, Slovenia, Cyprus and Romania are collectivist cultures, comparative to Spain which ranks at the middle of the scale. Group cohesiveness is often expressed through the **extended family where members offer help and loyalty, strengthening the familialism paradigm**.

Comparative to the Western societies, Slovenia, Cyprus and Romania have all higher rates of old age dependency which reinforce their affinity towards family responsibility of care for elders, and

lead to social and economic consequences which directly affect the working population and families, and which are not investigated and cared for.

In conclusion, Slovenia, Cyprus and Romania use a mix of services between familialism and de-familialization as all the three countries are somehow engaged onto the path of de-familialism, even though for different reasons (Kouta et al, 2015). Though, familialism stays as a strong value even though the economic and societal changes force people to adopt a path towards de-familialism, for which neither the governments nor the people are equipped.

1.3 The Societal Consequences of the Prevalence of Familialism

1.3.1. The Growing of the Informal Care Sector

Different economic and social factors put Slovenia, Cyprus and Romania to re-think their relationship with familialization. Slovenia and Cyprus were driven by their economic miracles, who engaged heavily women into employment, while Romania has

However, there is a strong tendency for stepping onto the path of de-familialism: home-based services are coupled with public policies which support familialism. That, on the one hand, is maintaining the values of family care and responsibilities and, on the other hand, is strengthening the informal care economy through outsourcing care responsibilities.

been strongly affected by its constant care-givers migration. Vianello (2015) shows that transnational families from Romania remains the first and foremost provider of the care needed at home while adequate policies for the elderly are belated.

Because the cultural values related to familialism prevail, all the three countries are favoring the growing of the informal care sector: Cyprus more easily appeals to the caregivers from Asia (Bettio et al, 2006), while women from Romania are leaving the country to serve as caregivers to Western Europe, overwhelmingly in Italy and Germany. In the countries of our focus the governments do not have yet the experience, the knowledge and the capacity of dealing with the challenges posed by the growing of the informal sector.

1.3.2 Care Work and Gender: “The Feminization of Care” and “The Feminization of Elderly”

The talk on the “sandwich generation” is of relevance here due to its strong gender dimension strengthened by the traditional cultures. The “sandwich generation” are the people aged in their 40s, 50s and 60s who care for their parents while also caring for their children, or grandchildren or, eventually, for both their adult children and grandchildren. As the middle generation provides support for the elderly, women with low incomes are the most vulnerable group. They also care the double burden of looking for children and grandchildren, while providing home care to the elderly. The phenomenon of “feminization of care work”, which also impacts on the phenomenon of “feminization of elderly” is strongly present among the countries of our focus which are collectivist and hierarchical.

1.3.3. Lacking Data

Since 2004 Slovenia and Cyprus became European member countries, while Romania entered EU since 2007. Following EU membership, they have the legal provisions facilitating the systematic formal support of the state towards caring. Though, the growing of the informal care economy prevents the assessment of the impact of the legislative measures. Lacking data availability due to the prevalence of familialism and experience of the public institutions in that matter, make it difficult to identify the prevalent problems and needs existent in the home care sector.

Nevertheless, the wide spread of the genderization of care is scarcely investigated and data and information on this phenomenon is scarce (Saraceno, 2010).

Informal Care Services for the elderly are provided by the family members, relatives, friends, neighbors. Due to this highly spread phenomenon and social challenges, non-governmental organizations entered the field. These non-for-profit and volunteer organizations can be professionalized service providers who frequently offer unpaid services as volunteer work.

The demographic increase of the elderly and the prevalence of familialism lead to 1) the growing of the informal care sector and 2) the widening of the feminization of care. 3) Lack of data in the informal care sector is a consequence which hampers adequate public policies and risks the loss of significant gains in terms of commitments to the elderly care and gender equality.

The case of Romania is outstanding among the three countries. Here, familialism is widely spread especially in the rural areas, where almost each family choose to care for the dependent seniors. Though, there is almost no data available on the phenomenon of informal care and no official estimates (Popa, 2010). The real access to the compensations from local budget offered for the caregiver is also unknown. Across Europe it is only Romania and England which offers a financial benefit which can be used as a substitute for informal care but that is the expression of some degree of recognised disability, if proof of medical or nursing need is documented by a special medical and social commission (Riedel and Kraus, 2011).

2. Technology and its Foreseen Beneficial Role

2.1. Introduction

The population is ageing. The increasing percent of seniors in our societies led to various business opportunities in relation to older populations, attracting investment in domains such as health and medical care, commodities, insurance and, nevertheless, entertainment and education for seniors (Chen et al, 2011).

Psychological difficulties experienced by seniors are seriously affecting their social life. Feelings of loneliness, anxiety and lowered self-esteem (Chaumon et al, 2013; McMellon and Schiffman, 2002) are commonly experienced by the ageing persons. The risk of social isolation and loneliness seriously affect elderly health (Khosravi et al, 2016; Holwerda et al., 2012). They are connected to poor cognitive functioning (Caciopp and Hawkey, 2009; Shankar et al, 2011), mortality (HoltLunstad et al, 2010; Shiovitz and Ayalon, 2010), impaired sleep and diminishing of physical activity (Hawkey et al, 2010), impaired mental health and Alzheimer's disease (Wilson et al., 2007).

The Societal Challenges of the ageing population. The growing number of ageing people impacts dramatically on the health care systems (Langa et al, 2004; Lehnert et al, 2011). It is widely believed that the development of new technology can tremendously help in facing the challenges posed by the ageing population. Khosravi et al. (2016) show that the use of new technologies may have benefits on the one hand for reducing loneliness and social isolation, which impact positively on the elderly and their families and social medium and, on the other hand, impacts positively on the costs of the health care system.

Technology is of special focus due to the large and unchallenged political assumption that solely, technology may improve the quality of elderly people lives in all aspects. One strong argument is that technology may support the independence of the seniors in their own homes (Melenhorst et al, 2002). Though technology advancement improves the ways of communication, information and entertainment while staying at home, this potential is highly appreciated for the beneficial improvements technology and being for the people aged over 65 (Dickinson and Gregor, 2006). Studies which support the claiming that computer and Internet use is considerably beneficial to the well-being of seniors are numerous (Barnett and Adkins, 2004; Chaffin and Harlow, 2005; Jones and Bayen, 1998; Namazi and McClintic, 2003; Opalinski, 2001). Other show that social integration increases, and isolation decreases if seniors fulfil their needs for enjoyment with computers, internet supplement their need for information and the communication is reached via e-mail (Fogel Albert et al, 2003; Nahm and Resnick, 2001). Online communication may offer substantial social support to seniors (Bradley and Poppen, 2003).

The benefits brought by ICT for seniors are discussed in the literature (Selwyin, 2004) as following

- 1) social and self-understanding benefits such as the increased access to health information and to smart homes (Demiris et al, 2004)
- 2) interaction benefits, such as increased connectivity and social support (Winstead et al, 2013)

task-orientated goals, such as ICT-assisted work, travel, shopping, and others (Loges & Jung, 2001; White & Weatherall, 2000). Some research shows that seniors benefit from ICT through perceiving the life stress much lower due to the fact that via ICT the seniors improve their connection to outside world and so their life quality increases (Irizarry & Downing, 1997; Swindell, 2002).

There is a growing interest in exercising through video games (exergames) for its benefits on physical activity and there is also an interest in using exergames as a rehabilitation tool as it showed good results for enhancing balance capabilities, for those with Parkinson's disease and patients with heart failure (Verheijden Klompstra et al. 2014).

Gerontechnology. Inquiring into human-computer interaction for seniors means to undertake a truly interdisciplinary journey into nursing, gerontology and social work (Dickinson and Gregor, 2006). More specifically, bringing together older adults and technology, gerontechnology is a fast-growing interdisciplinary domain (Delello and McWhorter, 2017). Gerontologists draw attention to the phenomenon of the too fast-growing technology while the implications can be understood in time.

2.2. *Is Technology for Seniors Beneficial or Detrimental?*

According to Dickinson and Gregor (2006), many gerontechnology studies adopt a techno-centric perspective of ageing, which actually is not supported by the evidence. The claiming that new technology is empirically verified beneficial for people are not thoroughly supported, according to close meta-analyses of the studies such as Dickinson and Gregor (2006) and Kosravi et al (2016) which investigated into thousands on research articles on the topic. They show that the secondary literature which cites various studies is quite ambiguous as it does not make a difference between the effects of training or support which is offered (human interaction) and computer use; understand wrongly causality; and generalize results (Dickinson and Gregor, 2006; Wagner et al 2010).

Generalization. The assumption that technology is beneficial for all different age-groups is still debated in the light of research findings as what proves true for the youngsters is not necessarily true for other demographic groups and other cultures. Seniors behavior is different from the youngsters in many aspects. For example, studies show that seniors do not replace the time spent in direct interactions with others with the time spent with technology, as young people tend to do. Moody (2001) shows that older people would rather tend to diminish the time spent in front of TV and radio for direct interactions and socialization, while on the Internet they will access their sites of interest rather than the media sites (Hilt and Lipschultz, 2004).

Another inconvenience in generalizing results is that there is a high diversity among the older people which stem from their degree of being fit or frail, from living independent or in nursery homes and the results from one group is not available for others (Dickinson and Gregor, 2006). Meta-analyses such as those conducted by Dickinson and Gregor (2006) and Kosravi et al, (2016) show that the research findings are inconclusive, and they do not support the assumption that technology is beneficial for seniors per se. Indeed, there are conflicting findings regarding the benefits of technology, especially with a solely focus on the elderly. While some studies emphasize the benefits, others show dramatic drawbacks. ICTs is intended to support social contact and emotional wellbeing (Cotten et al, 2012; Winstead et al., 2013). But, contrary to the common assumptions, the effectiveness of these technological interventions remains inconsistent and inconclusive.

Effectiveness. Other studies show that even if some beneficial results may be identified, their effectiveness is still questionable. Khosravi et al (2016) conducted a meta-analysis initially of over 6,500 articles, in order to find out if technologies may alleviate social isolation among seniors. They found that the research conducted between 2000 and 2015 on ICT show that there are 8 technologies which show an impact though, more research is needed for appreciating the effectiveness of this new technology. The three top technologies are: video game, robotics, personal reminder information and social management system, asynchronous peer support chat room, social network sites, Telecare and 3D virtual environment.

Extensive literature discusses the impact of technology on individual lives though the findings of the studies focused solely on older adults are not definitive as their effectiveness stays unclear (Khosravi & Rezvani, 2012; Khosravi, Rezvani, & Ahmad, 2013; Rezvani, Khosravi, Subasinghage, & Perera, 2012; Tennyson & Sisk, 2011). Khosravi et al (2016) inquired into the use of the seniors of 8 types of technology and measured their effectiveness. They found that video games and PRISM were the most effective, and then Tele-Care which diminish the perceived feeling of loneliness. General ICT is on the third place.

Research findings regarding the effectiveness of new technology are not conclusive, specifically those focused on the relation between using the Internet and reducing the loneliness or social isolation. If Ford & Ford (2009) show that the use of Internet decrease depression classification to about 20% many strongly emphasize that more research is needed for robust conclusions and for a more in-depth knowledge of the needs of the seniors (Khosravi et al, 2016).

Misinterpreting causality. The critiques towards these studies suggest a serious of misinterpretations and shortcomings of the research conducted. It is suggested to separate the impact of computer use from the effects of the training process and the context in which computers were used. The studies conducted by White et al (1999; 2002) bring evidence that the interaction with the trainers in computer learning reduced loneliness but that that is not an argument for the benefits of computers as it has been wrongly misinterpreted and cited (Saunders et al, 2004; Namazi and McClintic, 2003; Segrist, 2004). Another typical confusion in the literature is between the predictors and the results, according to Dickinson and Gregor (2006). Therefore, the subjective well-being of the older people who are open towards technology and learning to use Internet, and it helps them in learning new things, though the perceived well-being is not the result of the use of Internet as Cody et al. emphasize.

Dickinson and Gregor (2006) show that when friends and relatives trained elderly, significant increases both in self-esteem and depression were noted according to pre- and post-intervention measures and the presence of a computer did not affect that. The study arguments that the use of computers does not affect the well-being, although the use of computers in combination with nurse training does have an effect. Whether the computers are a necessary element remains open to question; it may be that the training process alone is responsible for the changes in people's well-being. The finding that computer training from a friend or relative increases depression in a vulnerable older sample should recommend caution to those who advise general introduction to computers for this user group. If some studies emphasize that personal contact is so relevant to the well-being of seniors (Gabriel and Bowling, 2004; Wilhelmson et al., 2005), it may be the case that systems with autonomous use can make people feeling more isolated and lonely as some evidence show that family visits to nursing homes are impacting negatively on the residents.

Selwyn (2004) argues that it is still much more to learn about the motivation of older people for the adoption or non-adoption of ICTs, the support and specific needs which they have as well as about the results of using it, as much of what we intend is based on assumptions that ICT is useful and desirable (Haederle, 2011; Lenhart, 2000; Pew Research Center, 2014). Zickuhr & Smith (2012) shows that information about the current state of affairs makes older people depressed and disappointed preferring as a consequence their own ways of spending time and reflecting rather than the engagement with new technology.

To ease the process of SENIOR-TV adoption, the remote-control used for the first two piloting cycles was re-designed as end-users had reported various difficulties with its handling.

2.3. *Current Barriers in Technology Adoption by Senior Users*

Older people's needs are not taken into consideration when developing new technologies while, those who design and develop new technologies are young (Boulton Lewis et al, 2017; Zajicek, 2004). Seniors adopt with difficulty new technologies because of several age-related impairments such as vision, hearing, memory loss and loss of mobility, which lead to associated to the impairment difficulties and lack of confidence.

This is the case with various technologies. Currently, technologies available on the market do not

meet the needs of the elderly, namely user-friendliness, special design and one-touch interface. They are primarily designed for entertainment and not with a health mission. However, many foresee a great future for exergaming in retirement and in rehabilitation settings, as in in-patient hospital care and seniors' homes, if the design and content are created to meet seniors' needs. Delello and McWhorter (2017) argues that the barriers for the adoption of technology by elderly include costs (Berry, 2011), inappropriate design, experience, awareness (Barrett, 2011), attitude (Lenhart, 2000), self-efficacy (Alvseike & Brønnick, 2012), and a general lack of interest (Cohen-Mansfield & Biddison, 2007). Demiris et al (2004) addresses the psychological barriers identified as the privacy violations from the cameras, the replacement of human assistance by technology, and the user-friendliness of technology.

By supporting an easy management of everyday tasks older adults may stay independent for longer (Mitzner et al, 2010). Mitzner et al (2010) found that the openness towards adopting new technology is related to the support offered by technology to everyday tasks, convenience and usefulness while the reluctance is related to the inconveniences created, unhelpful characteristics, as well as security and reliability concerns. Oestlund (2010) shows that also the perception of a limited future, the increased feeling of fatigue and circumspection significantly reduce the appetite for new technology. Boulton-Lewis et al (2007) add embarrassment with lack of abilities, reduced dexterity and visual acuity and memory loss.

There is a common assumption of the barriers to ICT used by the older people, and it refers mainly to the reluctance manifested by the older

Our research is in line with the literature findings and refers to:

1) The importance of promoting technological models within ethical frameworks which promote users as independent persons rather than dependent patients (Demiris et al, 2004) and

2) The main reason expressed by overwhelming majority for the non-use of ICT is the perceived irrelevance of ICT in their lives (Selwyn et al, 2003).

people when faced with new technologies. Research shows that the main reason expressed by the overwhelming majority for the non-use of ICT is the perceived irrelevance of ICT in their lives (Selwyn et al, 2003). Taking hence that into account, we asked for the opinion of the Senior-TV participants and we correlated our findings with their use of technology and time of adoption.

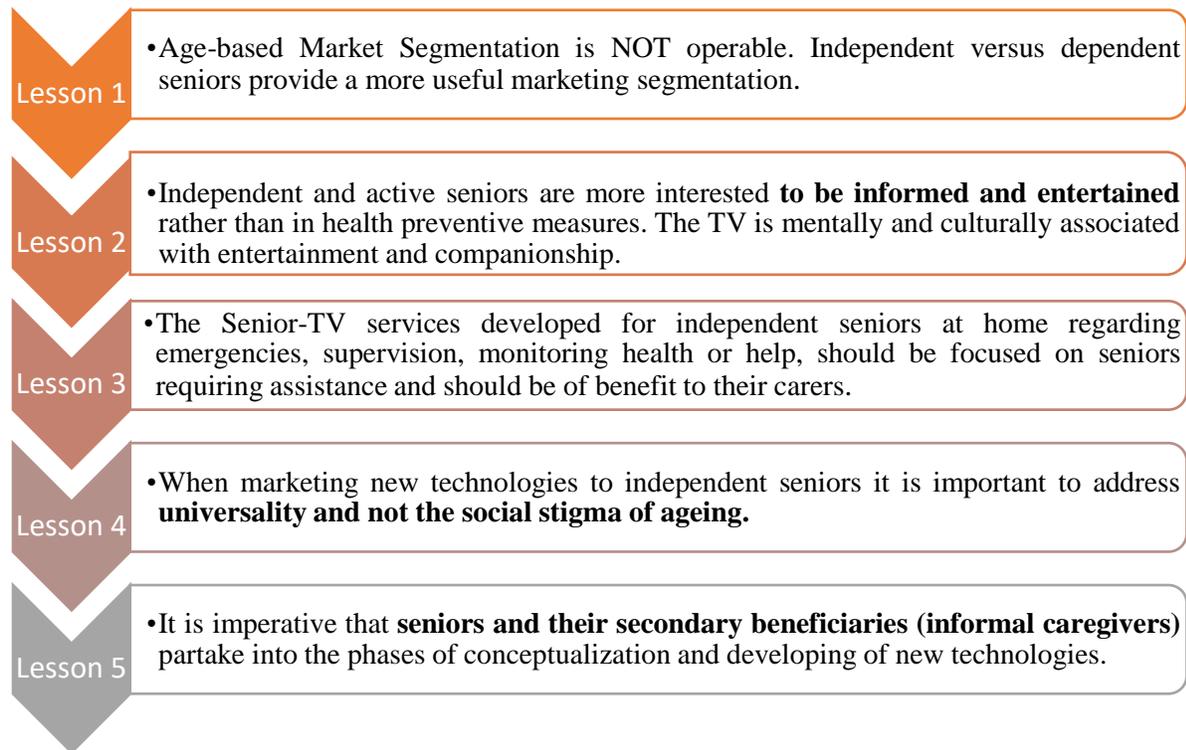
3. Lessons Learned from the Field

3.1. Hypotheses and Senior-TV Services Developed over the First Two Pilots

Senior-TV was developed and tested over three piloting cycles. The objective of the **1st piloting cycle** was to check the approach that Senior-TV would follow: is the TV an appropriate device to communicate new technologies to seniors? Are the interface designs appropriate (colors, font sizes, etc.)? How do seniors use the remote controls? In order to acquire this information, the services developed were only "mockups" meaning that the apps developed had only the basic functionalities. The mockups included in the first pilot testing were of the **Weather, News and Events** services because those services were rated as the most interesting for seniors in Workshop 1.

For the **2nd piloting cycle**, a complete version of the **Weather, News and Events** services were developed. Furthermore, new informal care services were included in the platform: **Agenda, Tracker, Virtual Center and Wikipedia**. These new services aimed to promote physical activity, inform and entertain older adults (Wikipedia and Virtual Center) and remind them of their daily routine / help them organize appointments (Agenda). In addition, the **first version of the Health app** was developed. Objective of this formal care service was to assess seniors' acceptance with regards to logging in the platform biomedical parameters via the TV and communicating them to doctors and other medical staff.

Fig. 1 Overview of the Lessons Learned over the first two SENIOR-TV piloting cycles.



3.2. 1st Lesson Learned: The Age-based Market Segmentation Is Not Operable

The high group heterogeneity of people over 65 years of age leads to operational segmentations, such as independent vs dependent seniors.

Older adults are a more diverse group than young adults, as diversity increase with age. Nevertheless, seniors' attitudes towards old and new technologies are heterogeneous (e.g.

Having defined the group of seniors from Slovenia, Cyprus and Romania as over the age of 65 provided us with a very heterogeneous group for useful definition, as a result of the rising of life expectancy to 80 and to the diversity which increases with age.

age, culture, emotional state of health, cognitive abilities). Defining the group of seniors as over 65, from Slovenia, Cyprus and Romania provided us with a group that was too heterogeneous for useful definition, due to the rising of life expectancy to 80 in these countries. A first segmentation which can be included refers to the independent versus dependent elderly.

The aging of the global population led to a mature marketing and many organizations developed an interest in this market being aware of its fast-increasing importance. Moschis (2003) reported that most of the American elderly are not satisfied with the products and services conceived and designed for them primarily because of the stereotype among the decision-makers that seniors, is a homogeneous group, which, in fact it is not true.

The ageing processes differ based on the psychological and social states which may be determined by personal habits and past experiences as well as demographical factors (sex, educational level, income level and such).

3.3. 2nd Lesson Learned: The Utilitarian versus Hedonistic Perspective

Developers look for utility while the independent seniors share a more hedonistic perspective. Developers and implementers also think from a utilitarian perspective while looking at the results from the first two piloting cycles, **seniors at home are independent people who manifest a high interest in enjoyment** or manifest an enjoyment for information. Therefore, independent and active seniors are not so much focused on the usefulness of the Senior-TV services, such as Agenda, Health and Games for improving cognitive activity.

Therefore, seniors are more interested in enjoyment rather than the usefulness of the Senior-TV services. It is the enjoyment, and not the usefulness, which triggers the interest of the independent seniors in TV applications as the TV is mentally and culturally associated with entertainment, leisure, social integration and companionship. Active and independent seniors do not perceive Health Technologies to be useful for them.

Sex-based segmentation is extremely useful in the market targeting as women and men have different social roles especially in highly hierarchized and traditional societies such as in Slovenia, Cyprus and Romania. For example, research shows that mobile usage differs from women to men: while men primarily use mobile phones for micro-organization, women look for supportive and social interaction. There is a weak tendency for women to express that they feel more downhearted and blue comparative to men but we should also consider here the social desirability bias, which may generally affect men more than women, refraining them from expressing more freely and truly their emotional state.

3.4.3rd Lesson Learned: The Top-Down Approach

All three end-user countries are societies with a strong tendency towards the higher side of the “power distance indicator”, showing respect for hierarchy and justifying inequalities, making them consequently more prone to the top-down approach. The elderly market is led by people in their 40s and 60s so their biases should be considered.

Seniors may perceive themselves as entirely independent or they may share different degrees of dependency. Health technologies developed for institutionalized seniors have high adoption rates while the adoption rates for new technologies developed for the independent seniors are slow and costly, often met with reluctance and inadequacies. This is because the same top-down approach as for the assisted seniors applies, which disempowers seniors when perceived as **fragile, disabled and impaired**. Therefore, the services developed for the independent older adults who live at their own homes and focus on **emergencies, supervision, monitoring health or assistance** should be primarily targeted to seniors’ caregivers. Furthermore, the services developed for keeping older adults cognitively and physically active are difficult to be adopted if seniors have firm habits, preferences and needs.

3.5. 4th Lesson Learned: Universality versus Age Stigma when Targeting Independent Seniors

Moschis (2003) discusses the characteristics that a product should have to be appealing to seniors. Our findings are in line with research that shows that **functionality** matters to seniors more than social connectedness or health (Moschis, 2003).

Our conclusions are in line with Moschis (2003); when marketing new technologies to independent seniors it is important to address **universality**, since independent seniors have a better self-perception of age, higher self-confidence and a healthier engagement with the future than dependent seniors. Universality should be promoted when developing new technologies addressed to independent and active seniors rather than age-stereotypes and stigmas.

When marketing new technologies to independent and active seniors it is important to address universality and refrain from age-stigma.

Identifying the one-dimensional quality is key for the success of adopting new technologies. The **one-dimensional quality** refers to the performance which is either met or not. Attractive quality is more of an outcome which results from the new technology and, if satisfaction lacks, dissatisfaction is not manifested (Kano, Seraku, Takahashi, & Tsuji, 1984). Moreover, Arning and Ziefle (2006) found that elderly users do not take account on the **time and effectiveness** of the new technologies but they put value on the results comparative to the adult consumers for whom time is a key ingredient when measuring the effectiveness of the new technologies.

3.6.5th Lesson Learned: Seniors and Stakeholders' Inclusiveness Approach

Many marketers are younger than the mature target market, lacking experience with the characteristics of aging. A bottom-up and inclusiveness approach in conceptualizing and developing technologies should be used rather than including seniors only in the testing phase.

Shifting towards a more inclusive approach is imperative; **seniors should be partaking** in the development of new technologies. Furthermore, **the secondary beneficiaries, elderly's families**, should also partake into the phases of conceptualization and development of new technological products. As a result of testing our services in Eastern and Southern Europe which are **risk-averse cultures**, with studies showing that with increasing age seniors become more risk-averse, value needs to be put on security guarantee as intruding into elderly's privacy is rather met with reluctance.

The emotional, cognitive and physical habits of seniors determine their behaviour in accepting or rejecting technology. Senior-TV or technology in itself is less likely to change habits or determine an active behaviour.

4. Concluding Remarks

For the **3rd piloting cycle**, new informal care services were developed to reduce seniors' isolation and to keep them mentally active: **Games, Audiovisual Channels, Video chat and Social Nets**. A new version of the **Health** app was developed to incorporate some external devices for automatically sending seniors' biomedical measures (i.e. weigh and blood pressure) to the app.

In the first two piloting cycles we faced various challenges which we managed to overcome with discussions and analysis of data. One of the challenges was the discrepancy between targeting

independent seniors while developing services tailored for people at risk, vulnerable elderly or elderly with a certain degree of dependency.

We realized that inquiring into the needs of the elderly **and equally into the needs of their home carers, social and medical caregivers**, would potentate our innovativeness in the services offered for seniors' well-being.

Nevertheless, following the previous field research phases, we became aware of the paramount importance of the cultural, psychological, social and economic factors, that affect the conceptualization and design of new technologies for seniors. The experiences of senior users are influenced to a large extent by cultural factors. Through inquiring into **cultural dimensions, we may better understand the pits and falls when launching new technologies**. We lack field-based data related to the needs of seniors due to prevalence of familialism, the informal sector and of the growing of the informal economy of care. When developing new technologies for seniors a distinction between the institutionalized and independent seniors should be taken into account. Health care technologies targeting independent seniors should not be developed with the same top-down approach and utilitarian perspective as for dependent seniors; this approach emphasizes the physical needs and disempowers the independent and active senior as it increases his/her dependency and self-perception of frailty. We need to inquire and include **a more inclusive perspective with regards to seniors and their informal caregivers**.

An increasing number of seniors are accessing computers for communication, entertainment, and information (Gatto and Tak, 2008), so we have tried to see if seniors who developed a long-term relationship with the TV are willing to adopt computers and experience through Senior-TV the same needs for communication, entertainment and information. A similar investigation with the one we conducted was led by Chen et al (2011) who aimed to study the elderly citizens' behavioral intention toward using broadband network services provided via television. The study was built on the technology acceptance model (TAM). Seniors used a remote control instead of a mouse to operate television broadband network technology services, as in Senior-TV. By positioning ourselves against the assumption that senior TV watching is a neutral and passive activity (Laslett, 1991) and by endorsing the findings of qualitative research we decided to investigate the relationship among watching TV and our participants' profile in order to see if this affects the interest or willingness to adopt new technologies in general and particularly Senior-TV.

If the study initiated by Chen et al (2011) inquired into senior citizens' behavior intention toward

the use of broadband network technology service via television from the perspective of technology acceptance, our study inquired into the use of Senior-TV with the same purpose though we have developed a multiple-perspective conceptual model. Therefore, we worked on complementing the technology acceptance models while building up a new conceptual framework to incorporate seniors' relation with the TV.

In conclusion, for the third piloting cycle we propose: 1) to test theories along the classical TAM; 2) a more in-depth investigation of the relationship among seniors and the TV as well as a new TV product, Senior-TV, which may challenge this relationship; 3) a market research of new technologies for seniors; 4) the diversification of target groups: secondary beneficiaries, assisted elderly, medical carers, technology marketers, to acquire a multifaceted perspective of business opportunities and get a better grasp of how stakeholders perceive “the ideal client”.

Part B

5. Final Considerations

5.1. Research Findings of the Third Pilot Cycle

105 primary end-users participated in the 3rd piloting cycle; 32 from Romania, 30 from Cyprus and 43 from Slovenia. For the case of Romania, there were 52 seniors pre-trial interviewed and the drop-out rate was of 20 seniors. There were two primary reasons for the the high drop-out rates: 1) the perception of an intrusive device that had to be installed at their own private TV and the testing being held at their own homes and 2) the irrelevance of the product to their current interests and lifestyle.

We found that gerontographics segmentation tremendously informs on seniors' behavioral intention and that the frail recluses and healthy hermits are the only categories of seniors who are open to gerontechnologies. Seniors who are independent and socially active, namely the categories of healthy indulgers and ailing outgoers, are open only towards new technologies and avoid age-stigmatized gerontechnologies and health products and services designed for seniors. The categories of frail recluses and healthy hermits, who are more self-insulated and dependent, are equally open towards new technologies and gerontechnologies alike. Frail recluses and healthy hermits act rather under the influences of their formal or informal caregivers, superseding the 'perceived usefulness' and 'perceived ease of use' of the technologies, which plays a key role in the classic technology acceptance models. Our findings are in line with those presented by Chen and Chan (2013) who show that 'perceived usefulness' and the 'perceived ease of use' have only an indirect impact on the behavioral intention. **We also found that a major key factor in the acceptance of technology by seniors is played by the meaning they associate to the use of certain technologies,** which carry out a specific role for them, such as that of offering information or enjoyment, or decreasing loneliness and setting up a rhythm of the day.

Moreover, the successive field-research cycles show that technologies cannot actively engage seniors per se, but seniors' attitudes towards new technologies determine seniors' engagement with new technologies and gerontechnologies. Seniors' attitudes is determined by the state of health of the respondents and by their current lifestyle, which may be assessed through a gerontographics approach. Our findings emphasize **the relevance of contextual factors rather**

than of the product experience: seniors’ habits, activities, interests and curiosities are a result of their lifelong experiences and, therefore, their adoption on new technologies depends more on contextual factors and not on new technology products’ attributes.

We propose a novel framework for understanding seniors’ technology acceptance in order to increase our general understanding about the factors affecting seniors’ acceptance or rejection of new technologies and gerontechnologies. The research has been done with a limited sample size. The sample size is only preliminary, and it is recommended to continue and replicate the research on a larger scale if necessary or in relation to other technological products and gerontechnologies.

Figure 2 The Seniors’ Technology Acceptance Model Revisited. General Framework

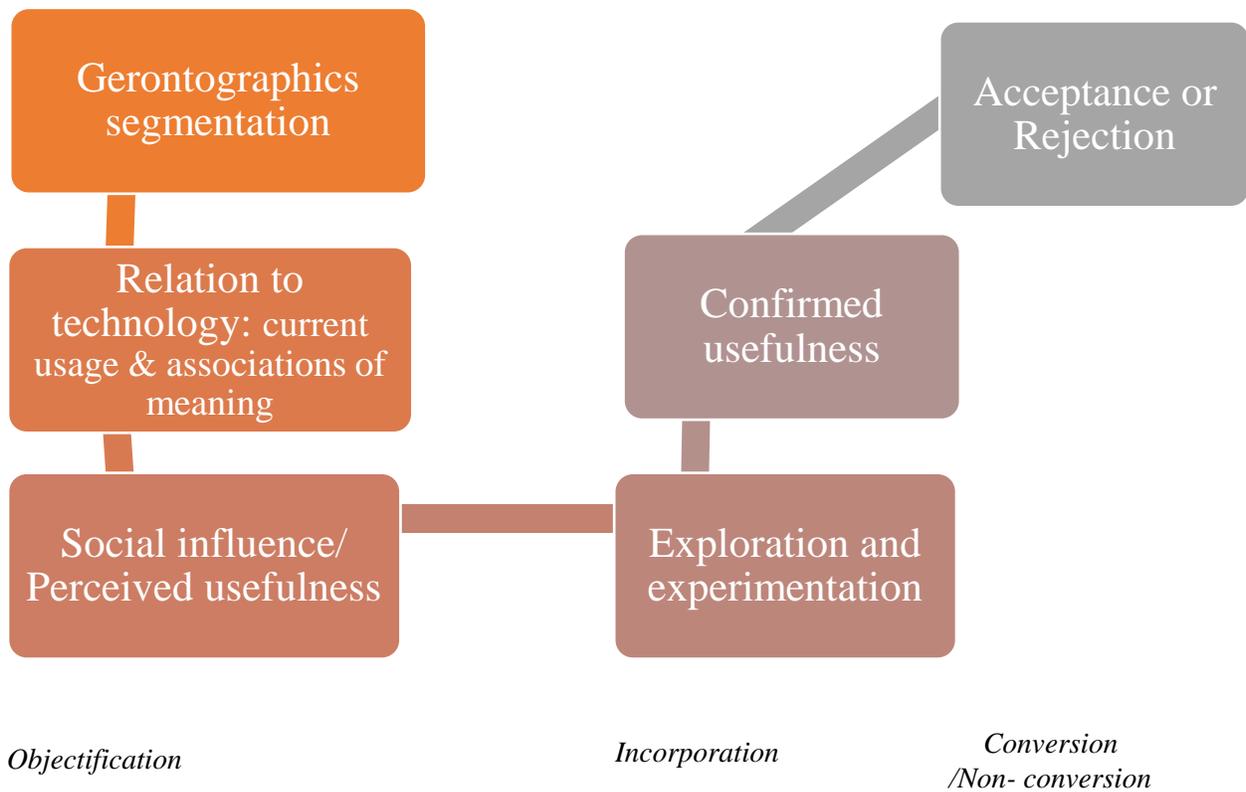
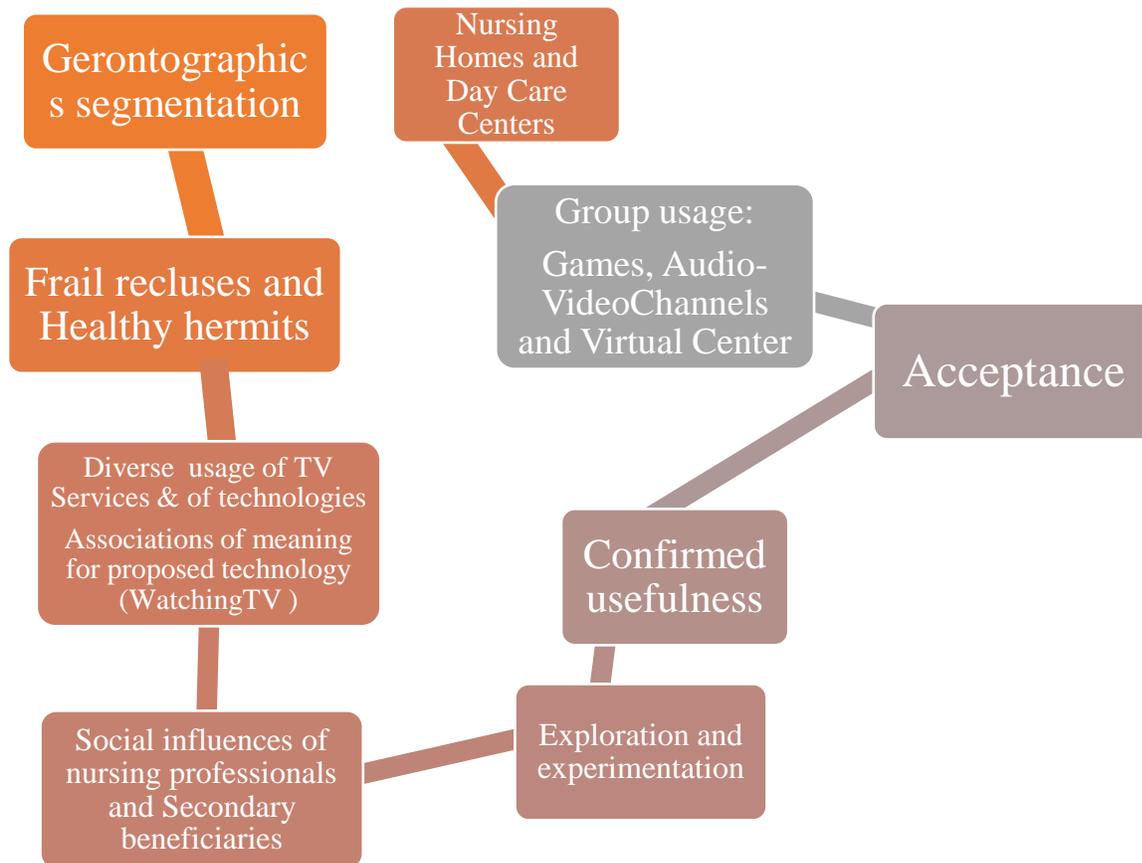


Figure 3 Senior-TV Acceptance Model



5.2. Future Exploitations of Research Results

The framework for understanding seniors' technology acceptance that was developed following the 3rd piloting cycle can be applied in future studies. The relationship between seniors and technology is tremendously informed by the present research. Our conclusion that frail recluses and healthy hermits are the marketing target of gerontechnologies may tremendously inform future marketing strategies. Our proposition is based on the following research findings: 1) frail recluses and healthy hermits' habits of technology usage, 2) frail recluses and healthy hermits' predisposition for new technologies and 3) frail recluses and healthy hermits' usage of diverse TV services (while healthy indulgers and ailing outgoers do not use a TV service). We found that healthy indulgers are those who encounter various technologies earlier in life, comparative to the other three categories, though their anxiety towards technology increases in time as does the perceived irrelevance of technology in their lives. Healthy hermits retain a constant anxiety

towards technology, while frail recluses exhibit the lowest anxiety towards Senior-TV with their anxiety towards technology decreasing over time.

5.2.1. Recommendations for Scholars

The gerontographics segmentation tremendously informs on senior acceptance or rejection of technologies. We found out that frail recluses and healthy hermits are influenced by formal and informal carers in their openness towards new technologies and gerontechnologies exploration. For healthy indulgers and ailing outgoers, the ‘perceived usefulness’ rather than the social influence matters, as it gives the incentive towards the exploration and experimentation stage which, afterwards, confirm or infirm the ‘usefulness’ of the product or service. For the case of frail recluses and healthy hermits the social influence of close relatives and nursing professionals is more relevant than the ‘perceived usefulness’ of the new technologies.

The TV Domestication was a very strong process and no other similar process in technology development occurred. TV is the only technology, which is daily used by all seniors, with a very few exceptions, regardless of their state of health. It is a sole activity for the independent and active seniors, regardless of their living and civic status. As a collective event, TV watching as “the modern fireplace”, it is frequent only in nursing homes. TV watching is associated by all seniors with ‘social integration’, though that matters to a higher degree for frail recluses and healthy hermits to increase their sense of belonging to society. Healthy hermits and frail recluses associate TV watching with decreasing loneliness, companionship and ritualistic habit to a high extent. Healthy indulgers and ailing outgoers associate TV watching only with information, enjoyment and social integration.

Seniors’ entourage and nursing professionals’ perspective needs to be accounted for, even from the very incipient stages of developing a product. As close relatives get older, they tend to offer more technological support to seniors and by virtue of being more educated, one is more likely to believe that TV is negatively affecting seniors’ life. The more educated one is, the more likely he/she is, to support organized walking groups as a beneficial activity for the elderly. Nursing professionals are ranking information, companionship and decreasing loneliness as the top three associations of meaning of TV watching for the seniors.

5.2.2. Recommendations for Practitioners

Nursing homes, day care centers and daily clubs need technological support for group activities. Nevertheless, a need exists for these services to be specifically designed for seniors. Senior-TV's Virtual Center and Audio-Visual Channels target these types of organizations and answer well to their needs.

The ranking of future services preferences is also of importance to technology developers. We found out that seniors in Romania, Cyprus and Slovenia are primarily concerned about their safety, independence and social connectedness. Their top three choices for future services are: 1) sensors which warn about a tap or cooker left open; stove and oven safety control; 2) Sensors for preventing or detecting falls and 3) Organizing walking groups.

There is growing emphasis on delineating between seniors who are socially active and those who are not, and between independent seniors and those with a certain degree of dependency. A top-down approach when designing new technologies for independent users, will not work as they respond better to universal design and not to gerontechnologies. For example, Senior-TV was designed to be an empowering technology for independent seniors, but it proved to be a successful technology for the categories of frail recluses and healthy hermits, people with a certain degree of dependency.

References:

- Alvseike, H. and Brønnick, K., 2012. Feasibility of the iPad as a hub for smart house technology in the elderly; effects of cognition, self-efficacy, and technology experience. *Journal of Multidisciplinary Healthcare*, 5, p.299-306.
- Barnett, K.R. and Adkins, B.A., 2004. Engaging with the future: Older learners see the potential of computers for their lifestyle interests. Paper presented to the Social Change in the 21st Century Conference Centre for Social Change Research, Queensland University of Technology, 29 October 2004.
- Barrett, A.M., 2011. An education Millennium Development Goal for quality: complexity and democracy. *Compare*, 41(1), pp.145-148.
- Bettio, F., Simonazzi, A. and Villa, P., 2006. Change in care regimes and female migration: the 'care drain' in the Mediterranean. *Journal of European Social Policy*, 16(3), pp.271-28
- Bobillier Chaumon, M.E., Michel, C., Tarpin Bernard, F. and Croisile, B., 2014. Can ICT improve the quality of life of elderly adults living in residential home care units? From actual impacts to hidden artefacts. *Behaviour & Information Technology*, 33(6), pp.574-590.
- Boulton-Lewis, G.M., Buys, L., Lovie-Kitchin, J., Barnett, K. and David, L.N., 2007. Ageing, learning, and computer technology in Australia. *Educational Gerontology*, 33(3), pp.253-270.
- Bradley, N. and Poppen, W., 2003. Assistive technology, computers and Internet may decrease sense of isolation for homebound elderly and disabled persons. *Technology and Disability*, 15(1), pp.19-25.
- Cacioppo, J.T. and Hawkey, L.C., 2009. Perceived social isolation and cognition. *Trends in Cognitive Sciences*, 13(10), pp.447-454.
- Chaffin, A.J. and Harlow, S.D., 2005. Cognitive learning applied to older adult learners and technology. *Educational Gerontology*, 31(4), pp.301-329.
- Chen, C.C. and Tseng, Y.D., 2011. Quality evaluation of product reviews using an information quality framework. *Decision Support Systems*, 50(4), pp.755-768.
- Cohen-Mansfield, J. and Biddison, J., 2007. The scope and future trends of gerontechnology: consumers' opinions and literature survey. *Journal of Technology in Human Services*, 25(3), pp.1-19.
- Cotten, S.R., Ford, G., Ford, S. and Hale, T.M., 2012. Internet use and depression among older adults. *Computers in Human Behavior*, 28(2), pp.496-499.
- Delello, J.A. and McWhorter, R.R., 2017. Reducing the digital divide: Connecting older adults to iPad technology. *Journal of Applied Gerontology*, 36(1), pp.3-28.
- Demiris, G., Rantz, M.J., Aud, M.A., Marek, K.D., Tyrer, H.W., Skubic, M. and Hussam, A.A., 2004. Older adults' attitudes towards and perceptions of 'smart home' technologies: a pilot study. *Medical Informatics and the Internet in Medicine*, 29(2), pp.87-94.
- Dickinson, A. and Gregor, P., 2006. Computer use has no demonstrated impact on the well-being of older adults. *International Journal of Human-Computer Studies*, 64(8), pp.744-753.

- Fogel, J., Albert, S.M., Schnabel, F., Ann Ditkoff, B. and Neugut, A.I., 2003. Racial/ethnic differences and potential psychological benefits in use of the internet by women with breast cancer. *Psycho-Oncology: Journal of the Psychological, Social and Behavioral Dimensions of Cancer*, 12(2), pp.107-117.
- Gabriel, Z. and Bowling, A., 2004. Quality of life from the perspectives of older people. *Ageing & Society*, 24(5), pp.675-691.
- Gatto, S.L. and Tak, S.H., 2008. Computer, Internet, and e-mail use among older adults: Benefits and barriers. *Educational Gerontology*, 34(9), pp.800-811.
- Haederle, M., 2011. Technology fear stops older adults from logging on. *AARP Bulletin*.
- Hawkley, L.C., Preacher, K.J. and Cacioppo, J.T., 2010. Loneliness impairs daytime functioning but not sleep duration. *Health Psychology*, 29(2), p.124.
- Hilt, M.L. and Lipschultz, J.H., 2004. Elderly Americans and the Internet: E-mail, TV news, information and entertainment websites. *Educational Gerontology*, 30(1), pp.57-72.
- Hofstede Insights, (2019). *Country Comparison* [Online]. <https://www.hofstede-insights.com/country-comparison/greece,romania,slovenia,spain/>. [Accessed 1 March, 2019].
- Holt-Lunstad, J., Smith, T.B. and Layton, J.B., 2010. Social relationships and mortality risk: a meta-analytic review. *PLoS Medicine*, 7(7), p.e1000316.
- Holwerda, T.J., Beekman, A.T., Deeg, D.J., Stek, M.L., van Tilburg, T.G., Visser, P.J., Schmand, B., Jonker, C. and Schoevers, R.A., 2012. Increased risk of mortality associated with social isolation in older men: only when feeling lonely? Results from the Amsterdam Study of the Elderly (AMSTEL). *Psychological Medicine*, 42(4), pp.843-853.
- Irizarry, C. and Downing, A., 1997. Computers enhancing the lives of older people. *Australian Journal on Ageing*, 16(4), pp.161-165.
- Jones, B.D. and Bayen, U.J., 1998. Teaching older adults to use computers: Recommendations based on cognitive aging research. *Educational Gerontology: An International Quarterly*, 24(7), pp.675-689.
- Khosravi, P. and Ghapanchi, A.H., 2016. Investigating the effectiveness of technologies applied to assist seniors: A systematic literature review. *International Journal of Medical Informatics*, 85(1), pp.17-26.
- Khosravi, P., Rezvani, A. and Wiewiora, A., 2016. The impact of technology on older adults' social isolation. *Computers in Human Behavior*, 63, pp.594-603.
- Kouta, C, Kaite, C, Papadopoulus, I. and Phellas, C., 2015. Evaluation of Home Care Nursing for Elderly People in Cyprus, *International Journal of Caring Sciences*, 8 (2). Pp 376-384.
- Langa, K.M., Foster, N.L. and Larson, E.B., 2004. Mixed dementia: emerging concepts and therapeutic implications. *Jama*, 292(23), pp.2901-2908.
- Laslett, P., 1991. *A Fresh Map of Life: The Emergence of the Third Age*. Harvard University Press.
- Lehnert, T., Heider, D., Leicht, H., Heinrich, S., Corrieri, S., Lupp, M., Riedel-Heller, S. and König, H.H., 2011. Health care utilization and costs of elderly persons with multiple chronic conditions. *Medical Care Research and Review*, 68(4), pp.387-420.

- Lenhart, A., 2000. *Who's not online*. [Online] <https://www.pewinternet.org/2000/09/21/whos-not-online/>, [Accessed: 1 March, 2019].
- Loges, W.E. and Jung, J.Y., 2001. Exploring the digital divide: Internet connectedness and age. *Communication Research*, 28(4), pp.536-562.
- McMellon, C.A. and Schiffman, L.G., 2002. Cybersenior empowerment: How some older individuals are taking control of their lives. *Journal of Applied Gerontology*, 21(2), pp.157-175.
- Melenhorst, A.S., Fisk, A.D., Mynatt, E.D. and Rogers, W.A., 2004, September. Potential intrusiveness of aware home technology: Perceptions of older adults. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 48, No. 2, pp. 266-270). Sage CA: Los Angeles, CA: SAGE Publications.
- Mitzner, T.L., Boron, J.B., Fausset, C.B., Adams, A.E., Charness, N., Czaja, S.J., Dijkstra, K., Fisk, A.D., Rogers, W.A. and Sharit, J., 2010. Older adults talk technology: Technology usage and attitudes. *Computers in Human Behavior*, 26(6), pp.1710-1721.
- Moschis, G.P., 1996. *Gerontographics: Life-stage segmentation for marketing strategy development*. Greenwood Publishing Group.
- Moschis, G.P., 2003. Marketing to older adults: an updated overview of present knowledge and practice. *Journal of Consumer Marketing*, 20(6), pp.516-525.
- Nahm, E.S. and Resnick, B., 2008. Development and testing of the Web-Based Learning Self-Efficacy Scale (WBLSES) for older adults. *Ageing International*, 32(1), pp.3-14.
- Namazi, K.H. and McClintic, M., 2003. Computer use among elderly persons in long-term care facilities. *Educational Gerontology*, 29(6), pp.535-550.
- Opalinski, L., 2001. Older adults and the digital divide: Assessing results of a web-based survey. *Journal of Technology in Human Services*, 18(3-4), pp.203-221.
- Östlund, B., 2010. Watching television in later life: a deeper understanding of TV viewing in the homes of old people and in geriatric care contexts. *Scandinavian Journal of Caring Sciences*, 24(2), pp.233-243.
- Popa, D. (2010). The long-term care system for the elderly in Romania. ENEPRI.
- Rezvani, A., Khosravi, P., Subasinghage, M. and Perera, M., 2012, January. How does contingent reward affect enterprise resource planning continuance intention? The role of contingent reward transactional leadership. In *ACIS 2012: Location, location, location: Proceedings of the 23rd Australasian conference on information systems 2012* (pp. 1-9). ACIS.
- Riedel M. and Kraus M. (2011). Informal Care Provision in Europe: Regulation and Profile of Providers. ENEPRI.
- Saraceno, C., 2010. Social inequalities in facing old-age dependency: a bi-generational perspective. *Journal of European Social Policy*, 20(1), pp.32-44.
- Saunders, P., Patulny, R. and Lee, A., 2004. *Updating and extending indicative budget standards for older Australians*. Sydney: Social Policy Research Centre, University of New South Wales.
- Segrist, K.A., 2004. Attitudes of older adults toward a computer training program. *Educational Gerontology*, 30(7), pp.563-571.

- Selwyn, N., 2004. Reconsidering political and popular understandings of the digital divide. *New Media & Society*, 6(3), pp.341-362.
- Selwyn, N., Gorard, S., Furlong, J. and Madden, L., 2003. Older adults' use of information and communications technology in everyday life. *Ageing & Society*, 23(5), pp.561-582.
- Shankar, A., McMunn, A., Banks, J. and Steptoe, A., 2011. Loneliness, social isolation, and behavioral and biological health indicators in older adults. *Health Psychology*, 30(4), p.377.
- Shiovitz-Ezra, S. and Ayalon, L., 2010. Situational versus chronic loneliness as risk factors for all-cause mortality. *International Psychogeriatrics*, 22(3), pp.455-462.
- Swindell, R., 2002. U3A online: A virtual university of the third age for isolated older people. *International Journal of Lifelong Education*, 21(5), pp.414-429.
- Tennyson, R.D. and Sisk, M.F., 2011. A problem-solving approach to management of instructional systems design. *Behaviour & Information Technology*, 30(1), pp.3-12.
- Verheijden Klompstra, L., Jaarsma, T. and Strömberg, A., 2014. Exergaming in older adults: a scoping review and implementation potential for patients with heart failure. *European Journal of Cardiovascular Nursing*, 13(5), pp.388-398.
- Vianello, F.A., 2016. International migrations and care provisions for elderly people left behind. The cases of the Republic of Moldova and Romania. *European Journal of Social Work*, 19(5), pp.779-794.
- Weatherall, J.W.A., 2000. A grounded theory analysis of older adults and information technology. *Educational Gerontology*, 26(4), pp.371-386.
- White, H., McConnell, E., Clipp, E., Branch, L.G., Sloane, R., Pieper, C. and Box, T.L., 2002. A randomized controlled trial of the psychosocial impact of providing internet training and access to older adults. *Aging & Mental Health*, 6(3), pp.213-221.
- White, H., McConnell, E., Clipp, E., Bynum, L., Teague, C., Navas, L., Craven, S. and Halbrecht, H., 1999. Surfing the net in later life: A review of the literature and pilot study of computer use and quality of life. *Journal of Applied Gerontology*, 18(3), pp.358-378.
- Wilhelmson, K., Andersson, C., Waern, M. and Allebeck, P., 2005. Elderly people's perspectives on quality of life. *Ageing & Society*, 25(4), pp.585-600.
- Wilson, R.S., Yu, L. and Bennett, D.A., 2010. Odor identification and mortality in old age. *Chemical Senses*, 36(1), pp.63-67.
- Winstead, V., Anderson, W.A., Yost, E.A., Cotten, S.R., Warr, A. and Berkowsky, R.W., 2013. You can teach an old dog new tricks: A qualitative analysis of how residents of senior living communities may use the web to overcome spatial and social barriers. *Journal of Applied Gerontology*, 32(5), pp.540-560.
- Zajicek, M., 2004. Successful and available: interface design exemplars for older users. *Interacting with computers*, 16(3), pp.411-430.
- Zickuhr, K. and Smith, A., 2012. Digital differences. [Online] <https://www.pewinternet.org/2012/04/13/digital-differences/>, [Accessed: 1 March, 2019].

aal-2014-171

SENIOR-TV

PROVIDING ICT-BASED FORMAL AND INFORMAL CARE AT HOME

Quality Checklist

Quality Control of D1.3 (Part A and B)

Peer Reviewer	
Reviewer	Partner
Sira López	IMATIA

CRITERIA	VERIFIED
1) Conformity to Standards and Project templates	
Logos (AAL, SENIOR-TV)	yes
Project title, reference, author, version, revision, data	No: the author is missing
Mandatory statements (disclaimer)	yes
Conformance to the standard structure required by EACEA (ex. Disclaimer, Executive summary, Acknowledgement, Introduction, page numbers, etc.)	yes
2) Language check (typing mistakes, grammar, etc.)	yes
3) Coherence with objectives declared in the Technical Annex	

Obj. 1: To elaborate the project's Quality Plan following well-accepted methodologies tailored to the learning domain and based on a detailed description of projects objectives, success indicators and work plan.	yes
Obj. 2: To monitor all project activities and provide quality control of all project results as well as recommendations for improvements and identification of best practices.	yes
4) Reliability of data	
Information and sources well identified	yes
Data and information are free from factual or logic errors	yes
The analysis (if applicable) is reliable, i.e. previous studies have been sufficiently reviewed; qualitative information and quantitative data are balanced and appropriate	yes
5) Credibility of findings	
Findings supported by evidence based on data analysis	yes
Replicability of findings	yes
6) Validity of conclusions	
Conclusions meet evaluation questions and information needs	yes
Conclusions supported by proper evaluation findings	yes
No conclusions missing according to the evidences presented	yes
7) Please indicate any deviations from contractual conditions (WP objectives declared in the technical annex)	
No deviations	
8) Comments/Suggestions for revision	
<i>9) Implementation of revisions/modifications suggested and explanation for eventual rejections (performed by the Responsible of the Deliverable)</i>	
10) Deliverable accepted	
<input checked="" type="checkbox"/> YES	
<input type="checkbox"/> NO	
If NO, please state reasons:	

aal-2014-171

SENIOR-TV

PROVIDING ICT-BASED FORMAL AND INFORMAL CARE AT HOME

Quality Checklist

Quality Control of D1.3 (Part A and B)

Peer Reviewer	
Reviewer	Partner
Aliki Economidou	CNTI

CRITERIA	VERIFIED
1) Conformity to Standards and Project templates	
Logos (AAL, SENIOR-TV)	yes
Project title, reference, author, version, revision, data	yes
Mandatory statements (disclaimer)	yes
Conformance to the standard structure required by EACEA (ex. Disclaimer, Executive summary, Acknowledgement, Introduction, page numbers, etc.)	yes
2) Language check (typing mistakes, grammar, etc.)	Minor corrections made

3) Coherence with objectives declared in the Technical Annex	
Obj. 1: To elaborate the project's Quality Plan following well-accepted methodologies tailored to the learning domain and based on a detailed description of projects objectives, success indicators and work plan.	yes
Obj. 2: To monitor all project activities and provide quality control of all project results as well as recommendations for improvements and identification of best practices.	yes
4) Reliability of data	
Information and sources well identified	yes
Data and information are free from factual or logic errors	yes
The analysis (if applicable) is reliable, i.e. previous studies have been sufficiently reviewed; qualitative information and quantitative data are balanced and appropriate	yes
5) Credibility of findings	
Findings supported by evidence based on data analysis	yes
Replicability of findings	yes
6) Validity of conclusions	
Conclusions meet evaluation questions and information needs	yes
Conclusions supported by proper evaluation findings	yes
No conclusions missing according to the evidences presented	yes
7) Please indicate any deviations from contractual conditions (WP objectives declared in the technical annex)	
None	
8) Comments/Suggestions for revision	
9) Implementation of revisions/modifications suggested and explanation for eventual rejections (performed by the Responsible of the Deliverable)	
None	
10) Deliverable accepted	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If NO, please state reasons:	