

# DELIVERABLE D1.3 – Report on Business Cases



## VALUE AGEING



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# VALUE AGEING

## WP 1

### ICT-Developments Impacting on Dignity and Non-discrimination of Older Citizens

**D1.3 REPORT ON BUSINESS CASES**



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Most of the information included in the report including the ones relative to the selected Business cases have been collected from public sources such as websites and/or documents as well as multimedia contents about each of them.

## **1. Introduction**

### **1.1 Purpose and content of this deliverable**

The purpose of this deliverable is to collect and compare approximately 10 business cases concerning public and private sector projects in the field of eInclusion and eAccessibility. The business cases selected will cover different policy targets and will be geographically selected. From those business cases only the data, which falls into the thematic grid provided in the DoW illustrated below, is collected. The enquiry will be carried out by using Internet search and direct contacts (via mail and phone calls) with people involved in the selected project. This report offers an in depth investigation and analysis of the success of each case in terms of impact, effectiveness and innovation in the area of eInclusion and eAccessibility.

### **1.2 Executive summary**

This deliverable opens with an overview of how the concepts of eInclusion and eAccessibility have developed and have been employed by European actors, networks working in this field and other human rights bodies. The document then outlines the legal framework for equality and dignity in the European Union focussing on the equal access by older people to ICT. This deliverable also describes the directives that have been issued to ensure substantive equality and non-discrimination in the member States of the European Union. Finally the policy context to equality and non-discrimination as well as eAccessibility and eInclusion is described. This provides the context within which the business cases can be analysed to the extent to which they speak to the EU targets on these issues.

The criteria used to elect the included business cases in this deliverable are set out along with a description and analysis of the business cases identified. The criteria rely on three principal factors; effectiveness, impact and innovation. The geographical spread and the type of the project (private, public, or consortia) have been considered in the selection process that displays an overview on the success across the continent. Each business case, hence, has been analysed according to the project's grid system.

Out of initial list of 50 projects that were surveyed according to the project conceptual grid, 10 best business cases were elected for detailed analysis based on the merits of their innovative practices, effectiveness in changing the culture of isolation with evident improved access to technology, and finally their impact

the project has as a row model that has replicated or developed for wider geographical spread.

The analysed 10 best business cases are as follows:

- 1** Good Morning: A public project started in 2000 (Ongoing) and developed in Glasgow (UK) and Northern Ireland. The project consists of pre-arranged daily phone calls to registered older members that aim to develop friendly and trusted relationship that reduces the member's isolation while monitoring his/her well-being at home.
- 2** "Netti-Nysse": A public initiative started in 2001 (Ongoing) in Tampere (Finland) and provides a bus equipped with computers and Internet access that provides outreach free training on basic computer skills to older people in their local communities.
- 3** MediAbility: A public Swedish project started in 2006 and ended in 2009. It aimed to use the idea of digital storytelling, to empower ICT-illiterate older people by providing them with the means to make their own digital video stories.
- 4** Seniornett: A private project started in 2000 (Ongoing) in Norway, encouraging people to use the Internet, teaching it in public places close to them such as clubs, libraries, senior citizen centres, social organisations and community centres, where they can share experience, research and photos.
- 5** Inforum's "Grandparents-Grandchildren Informatics Competitions" is a private initiative started in 2003 (Ongoing) in Hungary. It consist of a competition between pairs composed by grandparents (over 50 years) and their grandchildren (4 - 14 years) that compares their knowledge with the other pairs in different questions using the Internet.
- 6** FRR: Field Test of a user-friendly toilet prototype is an Austrian private start-up project exploiting the outcomes of an EU project started in 2002 and ended in 2006. FRR carried on a study in several European countries in order to develop a toilet system that responds to the needs of older and disabled people.
- 7** The User Centre Group of Dundee (UK) is a public initiative consisting of a friendly and informal computer club for over 60s. In addition to attend the courses, the older members can decide to participate in some researches and/or tests carried on by their trainers from the School of Computing.
- 8** The COGKNOW DayNavigator is a private Start-up project resulting from a consortium project started in 2006 and ended in 2009. The EU project had a Spanish coordination and partners from Spain, Netherlands,

Sweden, UK, Norway and Malta. It consists of embedded customised solution to assisting persons with dementia at their homes and outside, in order to improve their quality of life with independence, safety and social.

**9** PICA V - Personal Intelligent City Accessible Vehicle was an EU project started in 2009 and ended in 2012. The project had an Italian leadership with partners from Italy, Portugal, UK, Spain and Slovakia. It aimed to develop an innovative personal electric vehicle able to extend the accessibility of city transport, even in pedestrian restricted areas, to people with disability as well as older people.

**10** REACH112 - Responding to Citizens needing help was an EU project started in 2009 and ended in 2012. The project had an Italian coordination and partners from Italy, Sweden, UK, Netherlands, France, Spain, Belgium and Greece. REACH112 aimed to make more accessible a communication by phone (person to person and person to emergency services) by creating an alternative way to communicate based on the concept of the Total Conversation.

## **2 Overview on the context**

As detailed in other deliverables of this project, the European population is facing a period of demographic transition characterised by significant increase in the number of older adults in European societies. Analysis of demographic data for the period 1960 to 2008 by Eurostat reveals that this period of transition is set to continue. [Deliverable 3.2] However, there is lack of facilities and tools that support older people to have equal access to modern life tools and facilities that heavily rely on technology, online communications and advanced devices. Furthermore, such access would ease their daily activities and reduce the pressure on public resources.

Previous research confirmed that the main obstacle to enable older people the knowledge, skills and abilities to use technology and IT facilities is the decline in capacity to be introduced to new learning experiences, in comparison to other age groups. Hence, it is central to support ageing population to investigate those business cases that are able to offer effective intervention that enables ageing population equal access to IT systems and tools that impact and improve their daily lives. This would essentially consider maintaining high degree of independence and non-discriminatory, but dignified access to ICT and its advanced transactions without being intimidated by the limited capacity of the ageing population..

## **2.1 eInclusion and eAccessibility definition**

In an attempt to develop well-informed foundation of this report, current definitions of eInclusion and eAccessibility used by European's institutions, associations and official bodies have been reviewed. In addition, this review has been informed by other deliverables of this project [D1.1, D1.2]. An outline of the meaning and the elements included under these concepts and the relation they have with each other enables the analysis of the 10 business cases from policy and scientific fields, public and private sectors from across the European Union.

### **2.1.1 eAccessibility definition**

eAccessibility is an important element to make plans of an Information Society for all reality, including for people who find it more difficult to use new technologies.<sup>1</sup> Historically, the term “accessibility” has been associated in disability studies to the challenges of people with disabilities to overcome the big number of physical obstacles distributed in their surrounding environments.<sup>2</sup> The prefix “e” before the word refers the concept of Accessibility mainly to the world of ICT and digital devices or services. Definitions related to ensuring accessibility for people with disabilities are therefore relevant for definitions of eAccessibility in relation to other disadvantaged groups, including older people.

In today's society, there are more and more interactions and transactions that require to be accessed via internet or electronic devices and of course, each service offered which is not eAccessible for all users, tends to create discrimination and accordingly exclusion. It is therefore important ICTs are be accessible in order to provide equal access and equal opportunity to people with diverse abilities.

Indeed, the UN Convention on the Rights of Persons with Disabilities recognizes access to information and communications technologies, including the Web, as a basic human right. Article 9 of the Convention on the Rights of People living with Disabilities requires States to ensure that persons with disabilities have equal access to communications, including communication technologies. The Article 9 of the UNCRPD is significant in that it is the first International Law document, which includes an article about accessibility to Information and Communication Technologies. While it does not provide a definition on eAccessibility of eInclusion, it does spell out what the outcome of efforts towards achieving these goals may look like.

#### Article 9: Accessibility

1.To enable persons with disabilities to *live independently* and *participate fully* in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities *access, on an equal basis with others*, to information

and communications, including information and communication technologies and systems, both in urban and in rural areas. These measures, which shall include the *identification and elimination of obstacles and barriers to accessibility*, shall apply to, inter alia:

(b) Information, communication and other services, including electronic services and emergency services.

2. States Parties shall also take appropriate measures to:

(g) *Promote access for persons* with disabilities to new information and communication technologies and systems, including in Internet.

(h) Promote the design, development, production and distribution of accessible information and communication technologies and systems at an early stage so that these technologies and systems become accessible at minimum cost.

(Own emphasis added)

This raises the question if older people should be considered *de facto* persons with disabilities.<sup>3</sup> While not every older person is *de facto* a person living with a disability, it must be noted that in relation to the duty to prevent discrimination “age” is not a specified ground.<sup>4</sup> Making assumptions about the abilities of older people has caused older people and disabled people to be one group sharing the same needs. Being part of a generalized a group, can be to the detriment to older persons whose individual, personal abilities will not be considered.<sup>5</sup> There is also the risk that rights and needs of people with overlapping grounds for discrimination, for example those who are elderly as well as living with a disability, are simplified and thus watered down illegitimately.

The Committee on Economic, Social and Cultural Rights has pointed out that the prohibition of discrimination on “any other status” in article 2(2) of the (ICESCR) is likely to cover most instances of age related discrimination and points to a range of national and international policy and legal documents that declare this form of discrimination as unacceptable.<sup>6</sup> In the General Comment on Non-discrimination, the Committee on Economic, Social and Cultural Rights states that “Age” is a prohibited ground of discrimination in several contexts but only spells out limited examples in relation to finding work, accessing professional training or re-training and access to universal old age pensions.

Failing a clear, comprehensive indication of what “discrimination on the basis of age” includes, the language used in relation to the discrimination discourse on the basis of other grounds, such as disability, can prove insightful in understanding age discrimination, while it is important to remember that these are two different groups of people that may at times have distinctly different needs.

The Committee on Economic Social and Cultural Rights has applied “accessibility” in relation to some of the Covenant rights. These applications are

useful in that they indicate the contextual understanding of this term in the broader human rights language, which is relevant also in the European context. Accessibility of housing for example means that disadvantaged groups enjoy continuous and sustainable consideration, in terms of which they should be awarded a priority status.<sup>7</sup> Priority status can include the specific legislative protection or the allocation of additional resources.<sup>8</sup> Applying this to the current context means specific considerations and additional resources have to be applied to protect older people from discrimination by ensuring equal access to ICT. Non-discriminatory “access” also forms part of the normative content of the right to water.<sup>9</sup> Here “accessibility” is considered to have 3 overlapping dimensions, namely physical and economic accessibility (talking about vicinity and affordability of access) as well as access on a non-discriminatory basis. The various dimensions of “access” are relevant in relation to ICT as well. To successfully reduce the digital divide, overcome barriers and promote inclusion into the information society, various forms of “accessibility” including physical, economic, and based on equality, will need to be considered. These forms of “access” are incorporated into the European Policy Framework as discussed further below.

The General Comment on the Rights of Older People specifies the United Nations Principles for Older Persons. The 5 principles are independence; participation; care; self-fulfilment and dignity. Participation refers to the active participation in the formulation and implementation of policies that affect their well-being and share their knowledge and skills with younger generations. These principles ought to inform the definitions around eAccessibility for older people especially with regard to the participation in the policies that affect people’s well being. eAccessibility depends on the lived experiences of the end users and must therefore be informed by the experience of the end users.<sup>10</sup>

In a report carried as part of the study on e-Accessibility2020 (“Study on Implications from Future ICT Trends on Assistive Technology and Accessibility”, SMART 2010/0077) experts in the field provided the following definition of eAccessibility, which included specific mention of access of older persons as well as those with disability:

“e-Accessibility aims at ensuring that people with disabilities and elderly people access ICTs on an equal basis with others.”<sup>11</sup>

The World Health Organization who also considers e-Accessibility from the disability paradigm, refers to the ease of use ICTs, such as the Internet. In practice this means that web sites need to be developed so that disabled users can access the information. For example for people who have low vision, web pages need adjustable sized fonts and sharply contrasting colours. For people who are deaf or hard of hearing, audio content should be accompanied by text versions of

the dialogue. Sign language video can also help make audio content more accessible.<sup>12</sup>

The WC3 consortium on web say that the world wide web must work for all people, whatever their hardware, software, language, culture, location, or physical or mental ability. When the Web meets this goal, it is accessible to people with a diverse range of hearing, movement, sight, and cognitive ability. This understanding of a particular form of ICT thus includes elements of non-discrimination.<sup>13</sup> According to this consortium “Web accessibility” means that people with disabilities can use the Web. More specifically it means that people with disabilities can perceive, understand, navigate, and interact with the Web, and that they can contribute to the Web. This approach delinks disability with older people, saying that web accessibility will also benefit people with changing abilities due to aging.<sup>14</sup> The principles of web accessibility can be extrapolated to ICT accessibility in general.

### ***2.1.2 eInclusion definition***

Each service provided online or each new device or innovative technology that is “not eAccessible for some groups of persons” contributes to “exclude” those groups from the information society. The term “inclusion”, started appearing in the 17<sup>th</sup> century, means “the action or state of including or of being included within a group or structure” accordingly with the Oxford Dictionary<sup>15</sup> As for the term “eAccessibility” the prefix “e” before “inclusion” refers to the inclusion to the ICT development implications in the last decades.

In July 2005 the eEurope Advisory Group, coordinated by Daniel Kaplan, cofounder of the Foundation Internet Nouvelle Generation, defined eInclusion in to refers to the

“effective participation of individuals and communities in all dimensions of the knowledge-based society and economy through their access to ICT, made possible by the removal of access and accessibility barriers, and effectively enabled by the willingness and ability to reap social benefits from such access. Further, e-Inclusion refers to the degree to which ICT contribute to equalizing and promoting participation in society at all levels (i.e. social relationships, work, culture, political participation, etc.).”<sup>16</sup>

Many of definitions focus on e-Inclusion according being essentially about social inclusion in a knowledge society. Social inclusion and participation are closely linked concepts as are accessibility and equality. The e Europe advisory groups argue that the concept is related but different to the notion of accessibility, an issue, which will be dealt with in the next section.

According to the Riga Declaration 2006 “eInclusion” means both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society. eInclusion policy, therefore, aims at reducing gaps in ICT usage and promoting the use of ICT to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion. (paragraph 4)

The Institute for Prospective Technological Studies (IPTS) of the European Commission used the eEurope’s definition in its technical report revisiting eInclusion: from vision to action.<sup>17</sup> In accepting the social inclusion element in a knowledge based society, the report by links eInclusion with Sen’s Capability theory, in terms of which social inclusion is considered a normative imperative, consisting of a set of individual entitlements to fundamental human freedoms, autonomy, dignity and equitable participation in society.<sup>18</sup> With accessibility forming part of the normative content of human rights, and inclusion enabling each citizen to claim these entitlements through the legal process, both of these concepts sit firmly on the footing of the universally agreed canon of human rights.

In June 2006 The Riga Ministerial Conference "ICT for an Inclusive Society" defined “e-Inclusion” to mean

“both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society. E-Inclusion policy, therefore, aims at reducing gaps in ICT usage and promoting the use of ICT to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion.”<sup>19</sup>

This definition is also used in other European projects such as the DfA@eInclusion project<sup>20</sup> and in the epractice.eu portal of the European Commission where it is introduced by a description of the ICT as a nearly essential resource to support the actual daily life in many contexts, from work to social life, from public services to culture, from entertainment to political dialogues.<sup>21</sup>

The Ambient Assisted Living (AAL) programme describes what "e-Inclusion" means for European policy in the ageing society. Europe's e-Inclusion policy for the elderly focuses on people's empowerment and participation in the knowledge society and economy, independently of age, gender, income, education and origin”.<sup>22</sup>

Another definition for eInclusion is used in European projects like CEMSDI, which defines e-Inclusion as

“the term used within the European Union to encompass activities related to the achievement of an inclusive information society. In this vein, new developments in technology turns the risk of a digital divide into "digital cohesion" and opportunity, bringing the benefit of the Internet and related technology into all segments of the population, including people who are disadvantaged due to education, age, gender, disabilities, ethnicity, and/or those living in remote regions (subject to the geographical digital divide) [...].<sup>23</sup>

E-Inclusion has a demand as well as a supply side, meaning that the development, marketing and creation of tools and technologies that promote e-Inclusion is a potentially huge market gap. Hewlett Packard's presents a definition for eInclusion:<sup>24</sup> In HP's FAQ section we read: “e-inclusion is HP's vision of empowering and enabling all the world's people to access the social and economic opportunities of the digital age.”

### ***2.1.3 The relationship between these concepts***

To sum up, the concepts of eAccessibility refers to the normative content of the right that is achieved through ICT. eAccessibility is directly linked to equality and non-discrimination, namely in equal access to ICT. The various existing challenges that older people and people with disabilities have in equally accessing ICTs determine the meaning of this concept. From the human rights framework eAccessibility must include economic and physical concept. In other words to be eAccessible ICT must be affordable and structured in such a way that frail people with limited eye sight or hearing or limited motor functions are able to use them effectively. eInclusion often refers to the participation in ICTs by everyone through the elimination of barriers. In reality it is not possible to distinguish these concepts very neatly from each other. ICT needs to be accessible for inclusion to happen but inclusion is also a prerequisite for accessibility. Either way, both concepts reinforce the human rights framework in that they are both based on the recognition of everyone's inherent human dignity; they are both aimed to achieve substantive equality and the protection against discrimination; and both can only be achieved through the participation in the design, implementation and evaluation of the services.

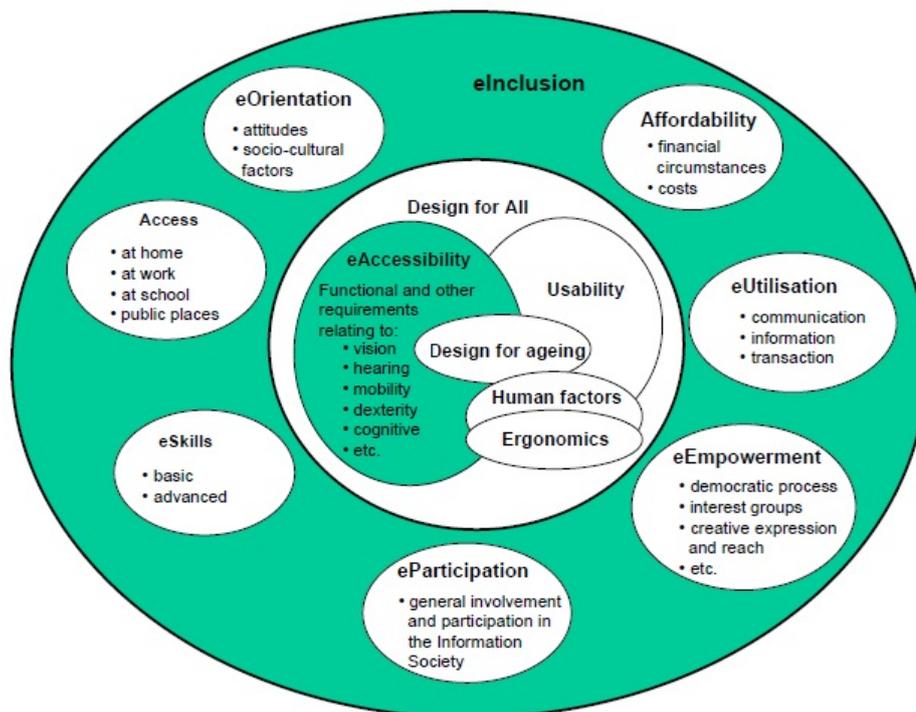


Figure 1 - Factor associated with eAccessibility and eInclusion and the relationship between the two concepts<sup>25</sup>

### 3 EU Law, Policy and Literature trends on dignity, anti-discrimination and equality

Dignity, non-discrimination and equality are interrelated concepts and form part of the basis of all human rights. Legally speaking dignity is a very hard to define concept and has found little directly enforceable application in jurisprudence. The Universal Declaration of Human Rights (1948) states that

“inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world”

Dignity and equality are related in that equality jurisprudence can provide a tangible way to utilize the dignity concept in that everyone has equal human dignity. Jacobson sees dignity as two distinct (though related) phenomena: human dignity and social dignity.<sup>26</sup> Human dignity is the abstract and universal value that belongs to every human being simply by virtue of being human. This is similar to the human rights language originating from the Universal Declaration of Human Rights. “Equal human dignity” does not mean that everyone must be treated equally but that everyone has equal rights to a dignified existence, even if this mandates differential treatment at times. Social dignity on the other hand is argued to exist in the interactions between and amongst individuals, collectives, and societies.<sup>27</sup> This perspective corresponds the concept of substantial equality

as equality compares capabilities between individuals, to assess if they actually enjoy equal dignity. As described below this often requires differential treatment.

The concept of dignity is also directly linked to the concept of equality since violations of dignity are more likely when one party is in a position of vulnerability (for example, when the actor is sick, poor or a member of an oppressed group), and the other is not. In other words dignity violations are more likely when one actor has more power, authority, knowledge, wealth, or strength than the other.<sup>28</sup> If one relates this to the human rights concept of substantive equality, it explains why affirmative action or differential treatment is necessary to ensure equal dignity: By strengthening the more vulnerable party to any “dignity encounter”<sup>29</sup> the playing field is being leveled, and thereby the chances or likelihood of dignity violations to take place is reduced.

Since dignity is a more abstract concept the rest of this discussion focuses on equality, which in law is more concrete and tangible. The intrinsic relationship between dignity and equality must however be kept in mind as it stands with equality in the very center of the human rights framework.<sup>30</sup> The following sections compliment the D1.2 Report in that it spells out in greater detail the EU law and policy on equality and non-discrimination in the context of eInclusion and eAccessibility in order to use them for an assessment of the selected case studies.

### ***3.1 EU Legal Framework***

The framework for anti-discrimination law in the EU is large.<sup>31</sup> The various treaties and documents list different grounds on the basis of which discrimination is assumed to be unfair. The listed grounds are in other words, characteristics, which are recognized as causing groups or individuals a particular kind of disadvantage.<sup>32</sup> While listed grounds ease the identification of what types of characteristics cause disadvantage and give members of that group the benefit of recognition, it is important not to rigidly adhere to these listings to the detriment of other characteristics, which may cause social exclusion or disadvantages to people, yet are not “listed” grounds. Sen’s warns against the rigid adherence to listing capabilities.<sup>33</sup> His objections lie in the fact that it threatens the democratic process by allowing theorists to decide over the lived experiences over others, without them actually being a part of the particular group being defined. It creates the danger that the defined characteristics of a group are divorced from the lived experiences of the people who are a part of it.<sup>34</sup> It also overlooks the fact that most people have many characteristics, which potentially overlap with each other in terms of how they are being defined. With this in mind the discussion now turns to the grounds that are listed in the various EU treaties.

The European Social Charter (1996) speaks about the right of persons with disabilities to independence, social integration and participation in the life of the community in article 15. While most of that article deals with equal right sin employment of people with disabilities, subsection 3 of that article is of particular interest in relation to ICT and older persons, as it requires States to:

“promote full social integration and participation in the life of the community in particular through measures, including technical aids, aiming to overcome barriers to communication [...] cultural activities and leisure.”

Article 23 of the same treaty speaks about the rights of elderly people to social protection. With a view to ensuring the effective exercise of the right of elderly persons to social protection, States should take measures to enable elderly persons to remain full members of society for as long as possible. This includes resources enabling them to play an active part in public, social and cultural life. In a knowledge or information society being able to use ICT is essential to participate in public and private life.

The Charter of Fundamental Rights of the EU (2000) also includes a section on non-discrimination in article 21, which includes “age” as a prohibited ground of discrimination. The European Convention on Human Rights as amended (2002) article 14, states that the enjoyment of the rights and freedoms shall be secured without discrimination on any ground. “Age” is not a specified ground in this treaty. Protocol 12 of this treaty also deals with the discrimination by any public body. The Treaty establishing the European Community (2006) in article 13 includes “age” as a prohibited ground of discrimination. In terms of this treaty, the European Council, acting on a proposal from the Commission and after consulting the European Parliament, may take appropriate action to combat discrimination based on grounds such as disability or age.

Article 2 of the Lisbon Treaty (2009) sets the scene for anti discrimination law in Employment (amending the treaty on the European Union and the Treaty Establishing the European Community). Article 2 of Lisbon states that the Union will establish an internal market which

“shall combat social exclusion and discrimination, and shall promote social justice and protection, [...and], solidarity between generations[...].”

Article 8 of Lisbon entrenches the democratic provisions, stating that the Union shall observe the principles of equality and that every citizen has the right to participate in the democratic life of the Union. Article 8A3 also states that decisions shall be taken as openly and as closely as possible to the citizen.

Democratic participation and proximity to governance are likely to be increasingly influenced by ICT. Any future developments in this area therefore need to be mindful not to exclude persons of age.

### **3.2 Directives**

The EU has various directives aimed at implementing the treaty provisions of non-discrimination set out above. The Directives relevant to eAccessibility and eInclusion are spelt out in the D1.2. document page 32.<sup>35</sup> The following section focuses on the Directives aimed at equality and dignity.

The Racial Equality Directives 2000/43/EC 29 June 2000 implements the principle of equal treatment between persons irrespective of racial or ethnic origin; the Employment Equity Directive 2000/78/EC of 27 November 2000 establishes a general framework for equal treatment in employment and occupation; and Directive 2004/113/EC of 13 December 2004 implements the principle of equal treatment between men and women in the access to and supply of goods and services outside employment.<sup>36</sup>

Through these directives, discrimination based on race or ethnic origin and sex is prohibited in wide range of instances. However, discrimination based on age, religion and belief, sexual orientation and disability is prohibited only in employment, occupation and vocational training. The Racial Equality Directives 2000/43/EC and the Employment Equity Directive 2000/78/EC had to be transposed into national law by 2003. An exception was created in relation to provisions dealing with age and disability discrimination, for which an extra three years was available.<sup>37</sup> The implementation of the Employment Equity Directive 2000/ 78 presented special challenges, as most countries did not have any age equality protection in their national systems.<sup>38</sup> Both disability and age are specified grounds, yet there are still major gaps in protection especially in relation to ICT of older people. Disability in relation to employment refers to a limitation which results from physical, mental or psychological impairments and which hinders the participation of the person concerned in professional life. For the limitation to be considered a “disability”, it must therefore be probable that it will last for a long time’.<sup>39</sup> It is not clear if this definition is exhaustive and only few countries have included potential future disability into their legislative commitments.<sup>40</sup>

In these Directives “age” is generally considered an objective characteristic and is not clearly defined and the implementation of the age provisions of the Employment Equality Directive is an on going process. Article 6 of the Directive permits justification of both direct and indirect age discrimination and most

Member States have decided to exercise this option. A very substantial uncertainty across the Member States as to which forms of age discrimination will be treated as justified by national courts exists as a result. Providing some indication in *Mangold v Helm*<sup>41</sup> the Court of Justice indicated that national courts would carefully scrutinize direct discriminatory practices.

Most Member States adopted the Directive's definition of direct discrimination, which has several common elements: the need to demonstrate less favourable treatment; a requirement for a comparison with another person in a similar situation, but with different characteristics; the possibility to use a comparator from the past or a hypothetical comparator. Direct discrimination cannot be justified. Moreover, most states have taken advantage of the opportunity foreseen in Article 6 of the Employment Equality Directive to permit justification of direct discrimination on the ground of age.<sup>42</sup> Of particular relevance to equal access to ICT is the fact that the Directives foresee positive action to be part of the non-discrimination laws. Positive actions are measures, which are necessary to ensure 'full equality in practice'.<sup>43</sup> Both the exceptions and positive action are optional elements for national law and practice meaning that States are not mandated to include any or all of the possible exceptions, nor are they obliged to permit positive action.

In 2008 a Directive was proposed to deal with age and other forms of discrimination outside of the field of employment.<sup>44</sup> The Directive discusses direct and indirect discrimination, the latter being more relevant to ICT and older people. Indirect discrimination results from rules or practices, which seem neutral on paper but have disadvantageous impact upon a person or a group of persons in reality. The author of the rule or practice may not be aware of the practical consequences, and intention to discriminate is therefore not relevant. At this point Sen's capability theory may prove effective in explaining this very important point further. According to his theory, there are two distinct types of "freedoms". Firstly there is the process freedom, which refers to the freedom to choose what a person wants to do. Then there is the opportunity freedom, which determines what a person is able or *capable* of doing given her set of circumstances.<sup>45</sup> The capability approach is useful in elaborating on the concept of indirect discrimination, because it recognizes the opportunity freedom can be very different for people with exactly the same means. To put it differently, two people with the same resources can have very different level of opportunity freedom, or the capability of doing or not doing certain things. A person living with a disability, therefore, who is in exactly the same surroundings with access to the same resources as a person without a disability has much fewer capabilities and therefore limited choice of what she chooses to do.<sup>46</sup>

The scope of the proposed directive covers social protections and advantages; education; and access to and supply of goods and services which are available to

the public. In terms of access to goods and services, only professional or commercial activities are covered, activities between private parties are not.<sup>47</sup> Article 4 provides that effective access for disabled people to social protection, social advantages, health care, education and access to and supply of goods and services, which are available to the public, shall be provided by anticipation. All of these aspects are relevant in the ICT sphere especially in relation to older people, who may be considered to be living with a disability. Even though this obligation is limited by the defence of a disproportionate burden it is unlikely that products or services that enable equal access in the ICT sphere would qualify for such a limitation considering the disproportionate impact that exclusion can have on a persons equal enjoyment of rights. Like all Equality Directives, positive action is envisaged, even if it not mandated.<sup>48</sup>

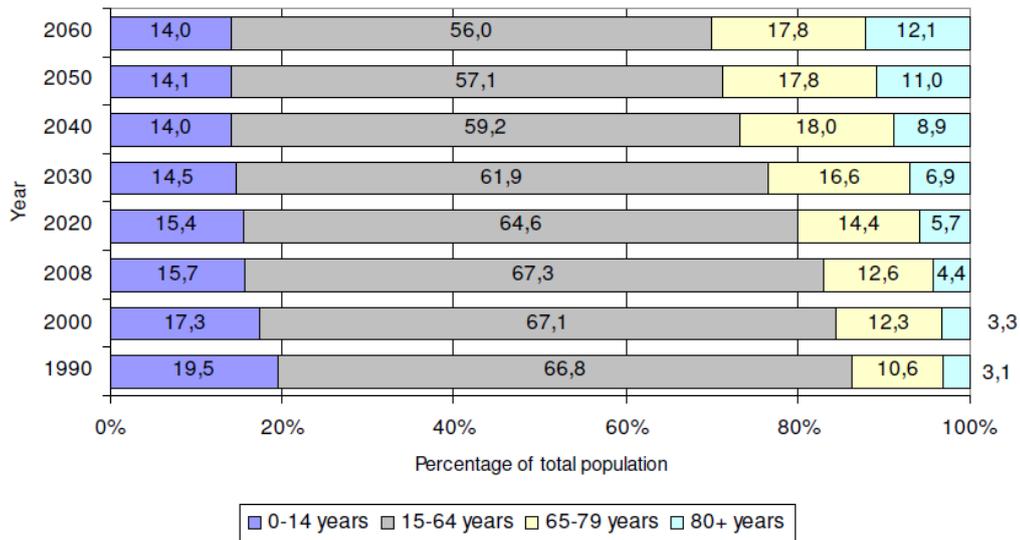
### ***3.3 EU Policy on Equality and eAccessibility and eInclusion***

The eInclusion and eAccessibility policies and trends in the EU have been analysed in depth in the VA D1.2. The following paragraph provides a summary of that report highlighting the relevant areas.

#### ***3.3.1 European Policy about eInclusion and eAccessibility in ageing***

From the analysis carried on in the VA D3.2 it is evident that the European population is ageing. The statistic trends analysed in the document and based on the Eurostat EUROPOP2008 study, shows an important increasing of the percentage of people aged more than 65 years, from 17,1% in 2008 to 29,9% of total in 2060 (representing a growth from 84.6 million to 151.5 million) and consequently a reduction in percentage of the younger and medium aged people. The Figure 2 shows the above mentioned trend for different years and aged groups. It easy to note in the figure that the percentage of people aged 80 years and over is projected to become almost triple, from 4,4% (21.8 million) in 2008 to 12,1% (61.4 million) in 2060.

## Population structure by major age groups, EU-27



Source: Eurostat - Demographic statistics

Figure 2 - Population structure by major age groups EU-27<sup>49</sup>

In this scenario, where an important reduction of the births is joined by a relevant increase in life expectancy, it is easy to predict an augmenting risk for age related disease both physical (cardio vascular disease, diabetes, cognitive impairment and degenerative joint disease) and psychical (social isolation, loneliness and depression). These risks became more important considering that older people are often excluded from the Information society (i.e. because of their lower level of education or for being living far from developed urban centres or as well because of disabilities which correlate strongly with ageing) and cannot get the advantages of ICT related services and benefits. In such scenario it's very important and urgent for European Union to promote the use of ICT among older people, especially ICT solutions oriented to support them in living independently and in dignity at home.

Accordingly, there are a number of ongoing initiatives and policies aimed to increase older user eInclusion, often through an improved eAccessibility of devices and applications to make them being suitable for all. The main container of such initiatives is the Europe 2020 which can be considered as the EU's growth strategy for the coming decade<sup>50</sup> and includes action plans for a smart sustainable and Inclusive grow of the Europe and the relative economic governance aimed to employment, productivity and social cohesion.

The priorities under Europe 2020 are addressed by 7 flagship initiatives targeted to synergic join the effort from national and European authorities. They are:

1. **Digital agenda for Europe** – this is an international action plan promoting the creation of attractive services available online and borderless as well as use them for boost a faster internet and faster networks which will boost in turn

the creation of even more innovative services, starting in this way an innovation circle. The digital Agenda for Europe consists in 7 pillars each addressing a particular group of issues or needs:

- I. **Digital Single Market** – remove the barriers and rules across national border in terms of online services and entertainment, particularly for music download business.
  - II. **Interoperability and Standards** – improve the standard-setting procedures to use internet as a cooperative environment connecting an even bigger number of devices and applications from anywhere and seamlessly.
  - III. **Trust and Security** – identify practical solutions to promote the online economy and its safety, including a coordinated European response to cyber-attacks and reinforced rules on personal data protection
  - IV. **Very Fast Internet** – stimulate the even wider adoption of an even faster Internet, to allow for a wider use of modern applications like high definition television or videoconferencing which require a fast data flow.
  - V. **Research and Innovation** – provide world class infrastructure and adequate funding to promote the best research ideas and turn them into marketable products and services.
  - VI. **Enhancing e-skills** – enhance digital skills to promote the fully participation in the information society as well as to benefice of its services, even for disabled or aged people.
  - VII. **ICT for Social Challenges** – use the ICT to reduce energy consumption, support ageing citizens' lives, revolutionises health services, deliver better public services and disseminate the Europe's cultural heritage providing online access for all.
2. **Innovation Union** – over thirty actions points focused on make Europe into a world-class science performer, remove obstacles to innovation and to the product to market process (i.e. expensive patenting, market fragmentation, slow standard-setting and skills shortages), improve the cooperation between public and private sectors.
  3. **Youth on the move** – support moving of young people to work and study abroad.
  4. **Resource efficient Europe** – provides a long-term framework for actions in many policy areas, supporting policy agendas for climate change, energy, transport, industry, raw materials, agriculture, fisheries, biodiversity and regional development, in order to increase supports the shift towards a resource-efficient, low-carbon economy and accordingly towards a sustainable growth.
  5. **An industrial policy for the globalisation era** – aims to increase the competitiveness and sustainability of industry by promoting an integrated approach which includes trade, innovation and energy.

6. **An agenda for new skills and jobs** – by promoting a number of reforms to improve flexibility and security in the labour market, this action plan aims to support the European working-age population (20-64 years) in work.
7. **European platform against poverty** – aims to reduce the poverty and social exclusion in Europe through the identification of best practices, promotion of mutual learning, setting up EU-wide rules and making funding available.

A 5 years programme (from 2008 to 2013) under the digital agenda for Europe is called **Ambient Assisted Living Joint Programme (AAL JP)** and aims to promote innovative ICT solutions for improve the quality of life of ageing people, in particular by support the social and healthcare/homecare systems as well as industry and the European market. The European Union monitors continuously the outcome of these initiatives to check the effectiveness of the funding provided and the progress towards the expected target.

Figure 2 shows the expectations of the European Union and the relative achieved outcomes in terms of Digital Agenda which includes the broadband coverage and speed, the use of Internet, the eCommerce and the eGovernment practices. Follow two histograms representing respectively the overall eAccessibility status and policy scores compared across EU member states, EU average and Australia, Canada and USA.

### How the EU scores on the Digital Agenda targets

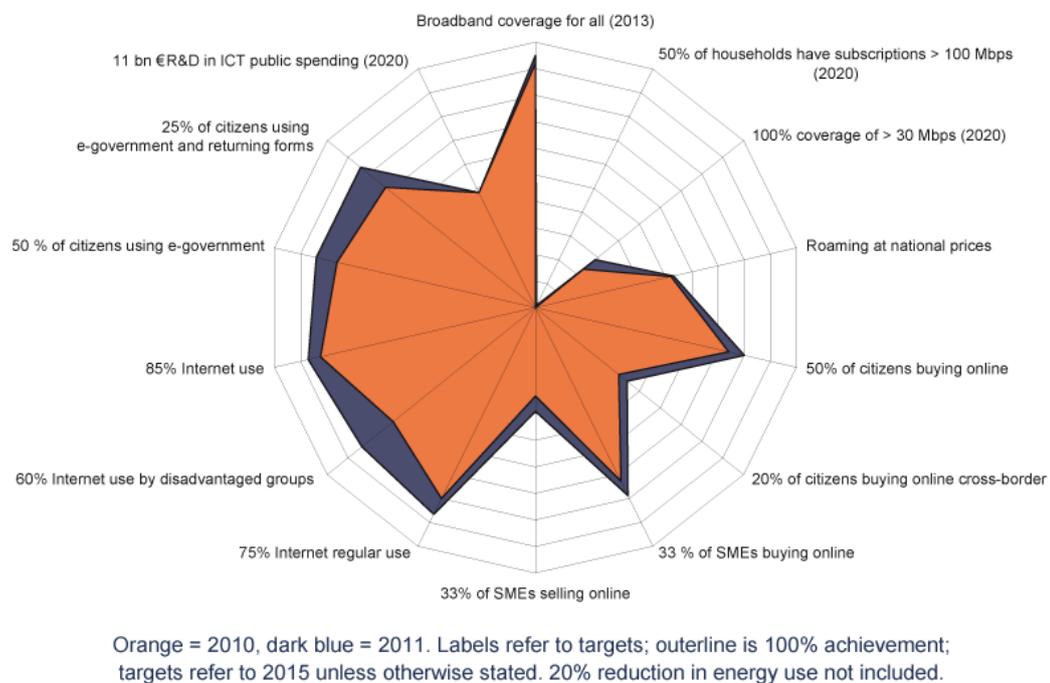


Figure 3 - Digital Agenda for Europe expectations and the relative achieved outcomes (VA D1.2)

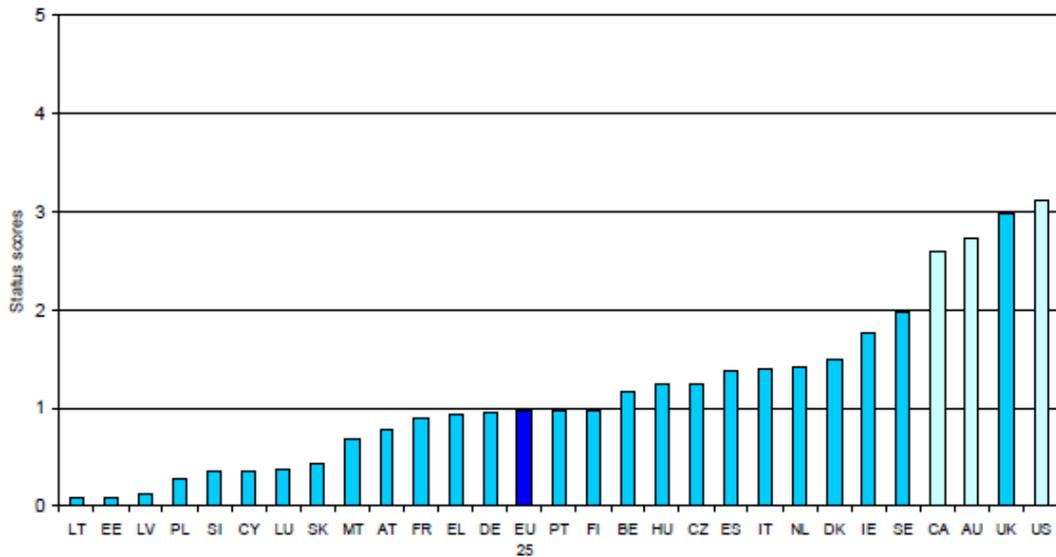


Figure 4 - Overall eAccessibility status scores compared across EU member states, EU average and national averages of Australia, Canada, and USA (VA D3.2)

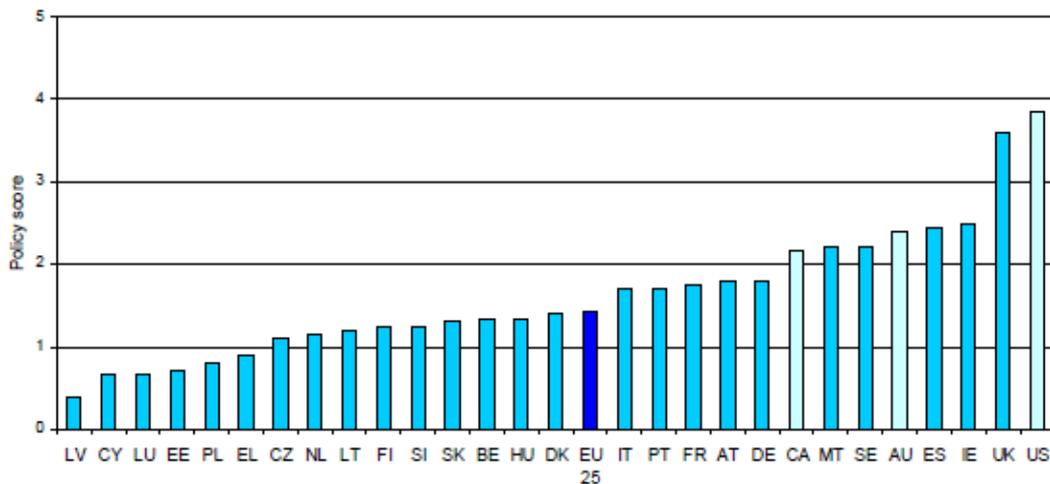


Figure 5 - Overall eAccessibility policy scores compared across EU member states, EU average and national averages of Australia, Canada, and USA (VA D3.2)

The graphics show that there is no uniform situation in EU due to culture, economy, political and social differences between the member states.

### 3.3.2 Summary of the analysis and considerations done

The analysis reported on the VA D1.2 highlighted the lack of reference throughout EU policy documents on human rights, dignity and equality and accordingly a lack of EU level instruments and directives/legislation to guarantee them in goods and services. Although many projects mention these themes as initial contextual overview, in practice they are effectively focused on broadband gap, eGovernance as well as training in ICT and commitment to the promotion of dignity is not reflected in their ongoing activities.

The effort spent in eInclusion and eAccessibility policies seems to be effectively addressed in matters relating to the economy. The projects funded still use a techno-centric design rather than engage older people in research and development in order to better understand their needs and use a user-centred design. This means that often the technology produced is inappropriate and results in invasive or become unused once given to the final older users. It happens because the ICT and ageing market is consumer-oriented and it is driven by stakeholders who are more focused on their profit or to successful exit from the economic crisis than on support dignity and non-discrimination of older people (VA D1.2).

### **3.3.3 Equality**

There are several equality and non-discrimination related policies that have been developed by the European Union, for considerations of clarity only the two most recent ones will be discussed here:

- Renewed commitment for non-discrimination and equal opportunities
- A framework strategy for non-discrimination and equal opportunities for all

The Renewed commitment for non-discrimination and equal opportunities strategy is based on the recognition that fighting for equality is based on a complete legal framework, which has not yet been achieved. The 2008 Directive on age and other forms of discrimination outside of the field of employment was initiated as part of this directive. A range of policy tools are also mentioned all of which are of crucial importance to eAccessibility and eInclusion. The tools are mainstreaming of equality; evaluating progress; use of positive action; awareness raising; and the promotion of diversity in the workplace.

The framework strategy for non-discrimination and equal opportunities for all is based on the Green Paper on equality and non-discrimination in an enlarged European Union (EU). The Commission set out a strategy for the active and positive promotion of non-discrimination and equal opportunities for all. One of the main objectives of this strategy is again to ensure effective legal protection against discrimination across the EU through the full transposition by all Member States of the Community legislation in this field. The strategy also encourages the adoption of additional measures such as the dissemination of information, awareness raising, the sharing of experiences, training and access to justice.

### **3.3.4 eAccessibility and eInclusion**

Policy on eAccessibility and eInclusion has been developing since the 1990s. The historical development is described in some detail in D1.2 EU Policies on eInclusion and eAccessibility and need not be repeated here.<sup>51</sup> Suffice to say that

the Financial collapse which began roughly in 2008 naturally had severe impacts on EU policy decisions – with eAccessibility and eInclusion being no exception. The following paragraphs discuss only the latest policies following the economic meltdown. The 2006 Riga Ministerial Declaration declares Europe's intentions to open barrier free digital technologies available to everyone as a priority to overcome social and economic exclusion.<sup>52</sup> Fighting discrimination through improved access to ICT access for people with disabilities and the elderly is particularly mentioned.<sup>53</sup> Addressing the needs of older persons and people with disability is a priority of the Declaration.<sup>54</sup> This is to be achieved through a mixture of market services and products, improving the employability, working conditions and work-life balance of older workers supporting innovative ICT solutions and developing independent living initiatives and promoting assistive technologies such as the ambient assisted living initiative of the 7th Framework Programme. The Declaration also aims to enhance the active participation of the elderly and people living with disabilities. Innovative ICT-enabled access to goods and services facilitate interactions with public and private entities, entertainment, and social contacts, which can be of crucial importance for this group of people. Another objective is to enhance the eAccessibility and usability particularly for people living with disabilities.<sup>55</sup> Life-long learning initiatives are another priority area<sup>56</sup>, which can be of importance to ensure that ICT enforce equal rights of older people and people with disabilities. The design and delivery of key services is envisaged to happen in a user-centric and inclusive way to ensure that no one is left behind.<sup>57</sup> Through these initiatives, the Riga Declaration promotes the dignity and equality of older citizens through the ICT.

The Riga Declaration was supported by the i2010 initiative. This was the EU policy framework for the information society and media from 2005 until 2009.<sup>58</sup> Guided by the Riga Declaration, this strategy promoted the positive contribution that ICT can make to the economy, society and personal quality of life.<sup>59</sup> This initiative has been replaced by the Digital Agenda for Europe.<sup>60</sup> The Digital Agenda for Europe is one of the seven flagship initiatives of the Europe 2020 Strategy, set out to define the key enabling role that the use of Information and Communication Technologies (ICT) will have to play if Europe wants to succeed in its ambitions for 2020[2].<sup>61</sup>

The Digital Agenda is one of the seven pillars of the Europe 2020 strategy, which sets objectives for the growth of the European Union (EU) by 2020 following the most recent economic recession.<sup>62</sup> The other six pillars are the *Innovation Union*, *Youth on the Move*, *Resource-efficient Europe*, *Industrial Policy for the globalization Era*, *Agenda for New Skills and Jobs* and the *European Platform against Poverty*. The economic downturn has damaged many of the social and economic advantages made by EU countries, but the EU is transforming also due to climate change, globalization and demographic aging.<sup>63</sup>

The Digital Agenda, as one of the pillars of the EU 2020 strategy aims to make better use of the potential of ICTs to foster innovation, economic growth and progress.<sup>64</sup> The aim of this Agenda is to optimize ICT to encourage smart, sustainable and inclusive growth in Europe. The Agenda is based on the virtuous cycle of the digital economy where smart content and services are made increasingly available to ever growing numbers of people, creating higher demand which in turn reinforces the development of smart content and services. The Agenda identifies a number of obstacles to this vision. Specifically the lack of investment in research and innovation; lack of digital skills and literacy; and missed opportunities in addressing societal challenges are of significance in relation to eAccessibility and eInclusion of older people.

To address the lack of research and innovation the Agenda suggests that the public sector expenditures should be used to spur on innovation while raising the efficiency and quality of public services. The Agenda does not mention older people and people with disabilities here, but since this group is very dependent on public services, it is crucial that their right to participate and feedback on these developments are adhered to. The Agenda also recognizes that digital literacy limits access to the internet and ICT. 30% of Europeans are said never to have used the internet and it is assumed that the lack of skills is one reason for this. A large chunk of this 30% are people aged 65 to 74 and people with disabilities who may not have the skills or the ability to use the ICT. Enhancing digital literacy skills is therefore a key point in addressing this challenge. Yet older people and people with disabilities are strikingly absent from the initiatives to enhance digital literacy. The Agenda does mention that digital services must be inclusive and accessible to all. This means that new digital content must also be available to persons with disabilities according to the standards for web accessibility in line with the UN Convention on the Rights of Persons with Disabilities. Lastly the Agenda proposes that sustainable health care and ICT based support will increase the ability of people to live in a dignified and independent manner. To this end the Agenda points to the eHealth lead Market initiative which tests electronic health equipment; the Ambient Assisted Living Technology which enables frail, chronically ill or disabled people in the digital society to live independently and in dignity. ICT solutions for fall prevention, support for dementia sufferers and doubling take up for independent living are of particular importance to older persons.

Other pillars of the EU 2020 initiative that are of relevance to older people is the Innovation Union. The Innovation Union is meant to help put the European economy back on track and tackle societal challenges such as climate change, health and ageing. The Commission has piloted the first European Innovation Partnership in the area of Active and Healthy Ageing.<sup>65</sup> The Strategic Implementation Plan of the pilot partnership was presented in November 2011.<sup>66</sup>

The Strategic Implementation Plan for this Innovative Partnership plans to launch the following actions 2012:

- Innovative ways to ensure patients follow their prescriptions – a concerted action in at least 30 European regions;
- Innovative solutions to prevent falls and support early diagnosis for older people;
- Co-operation to help prevent functional decline and frailty, with a particular focus on malnutrition;
- Spread and promote successful innovative integrated care models for chronic diseases amongst older patients, such as through remote monitoring. Action should be taken in a number of the EU's regions;
- Improve the uptake of interoperable ICT independent living solutions through global standards to help older people stay independent, mobile and active for longer.

Combined with the Digital Agenda pillar of the EU 2020 Initiative, this innovation partnership offers a wide range of incentives of great relevance to the equality and dignity of older people.

#### **4 Business Cases**

The following section of this report aims to demonstrate how it is possible to keep the ICT user-centred and use it to improve older people lives through improving their access to the ICT through best practices of eAccessibility and eInclusion projects.

A selection of 10 business cases described in detail through the following paragraphs is the outcome of an analytical study of ICT-led projects addressing ageing related issues without neglecting dignity and equality.

They are an example of best practices to be used as inspiration or simply transfer in other European countries.

The selection of 10 best cases has been carried on in two phases:

1. A first selection of 50 potential business cases responding to the needs of older people with an ICT inclusive innovation or using an ICT solution as an alternative and effective way to approach them with an inclusive initiative. The schematic descriptive sheets, for each of the initial 50 business cases, can be found enclosed in Annex I.
2. A final selection of the 10 best cases and the detailed description of them in accordance with the dedicated grid proposed in the VA DoW.

#### ***4.1 Criteria used for selection***

A successful case would normally have most of the following characteristics:

- a very simple technology and a very smart use of it
- a very innovative technology able to be easily assimilated by the older people
- a new interface of existing technology or a new user friendly technology working as a gateway towards other technologies and services
- a combination of the above aspects designed to take place in a wider geographical and cultural context
- a new ICT concept of user approach encompassing older and discriminated people
- a technology solution addressing an important issue affecting older population perhaps neglected by the other solutions in the state of the art
- a strategic public help (i.e. a financial support or free training meeting about ICT) even if not innovative in terms of technology, but consisting exactly in the key answer to the eAccessibility and eInclusion needs of the older population in their particular context

Accordingly, there are three-fold parameters criteria that determine a successful business case and have been used as a frame of reference:

**Impact** – Identify an ICT driven solution to help older people comes directly from the feedback such solution achieves among the older users. Often this is the best indicator to understand the importance of an idea, because it represents the spontaneous answer of the final users, in VA the older population. The impact often is over standing of the concept of smart innovation and good designing, being it a mix encompassing also the surrounding aspects such as the perfect local context for a particular solution, irrespective of the level of innovation and technology it contains. If there is a solution which gets a wide spread impact, it deserves to be analysed in order to understand how it is possible to reproduce the same impact elsewhere.

**Effectiveness** – the second criteria is the effectiveness of an ICT solution. It consists in the improvements such technology produces on the older people life, encompassing the direct and the indirect effects. The direct effect represents the effect that the technology is aimed to obtain within the context it being developed and the indirect effect is a consequence of the added value brought by the solution in the eAccessibility and the eInclusion contexts (i.e. the developing of new

eAccessible module or interfaces for online applications can have the indirect effect to increase the number of eAccessible websites and web services).

If some initiative, even if not properly focused on a particular outcome, results to be indeed very effective in achieving that improvement of the older user life, must to be considered a success case and be studied to extend its relative benefits.

**Innovation** – the third criteria consists in the pure innovative aspect of a technology solution. The innovation can be in the level of technology developed or in the way an existing technology being improved to meet discriminated users needs. Some smart solutions are so innovative in this aspect to potentially enhance the paradigms of eAccessibility and eInclusion and pave the way for new standards to be adopted for a future with no discriminations. Sometime it is sufficient to provide the existing technology with few precautions to extend its usability to a larger number of user including older people and people with special needs, as well as sometime, a new futuristic technology developed using a user centred design becomes the new referencing solution (like a new standard) and make the old generation technology “discriminated” by the new ageing generation of users.

#### ***4.2 Business Case 1 – The good morning project***



The Good Morning project aims to support the vulnerable people through regular friendly telephone conversations. Hundreds of older people get a daily call from operators working in the project team who build, day by day, trusting relationships which reduces isolation and monitor the well-being. The project develops collaboration between different organisations with common interest in supporting vulnerable people and each contributes in terms of advices and providing technical and informative assistance.

This project has been considered as a best practice due to the dedication and the qualification of involved team who was able to demonstrate they were reliable to effectively support the target group of older people and achieve high level of member’s satisfaction. The support and popularity this project receives from its target communities of older people has enabled a wide-spread impact on

stakeholders base that reached most of the Northern Ireland and the Glasgow county.

#### **4.2.1 Specific problems addressed by the project**

This initiative identified two principal problems that affect older people's lives:

- Loneliness is a risk for older people living alone
- Relatives or friends are often too busy to visit or take care of their older relatives, who stay alone without being monitored for medical or health problems.

A telephone survey of 3000 adults, in UK at Christmas time in the 2011 , revealed that the 43 percent of people aged 60 and more live alone at home.

48 percent of these people don't have relatives living locally and use to receive a visit once a month, but the 25 percent of them has no family at all.

Richard Jones, Marketing Director of Scottish Widows, said: *“The ageing society is one of the biggest challenges we as a society face. If we don't find ways to help people look after themselves in retirement, there is a danger that we will see increasing numbers of people alone, isolated and unable to cope.”*<sup>67</sup>

In this context, most older people live constantly in a status of social isolation, while they risk daily accidents (Such as falls) or adverse health problems such as including depression as well as cardiovascular diseases, as demonstrated by Dara Sorkin and Co, without being monitored or looked after<sup>68</sup>.

Udell *et. al.* reinforced this theory publishing on 18<sup>th</sup> June 2012 an article about the outcomes of their studies on an international sample of 44,573 participants, 19% living alone<sup>69</sup>. They concluded that living alone is associated with increased mortality due to heart diseases among older patients. More general is the outcome of the team of Carla Perissinotto at UCSF that analyzing a sample of 1604 older adults, 18% living alone, states that loneliness is “a predictor of functional decline and death”<sup>70</sup>.

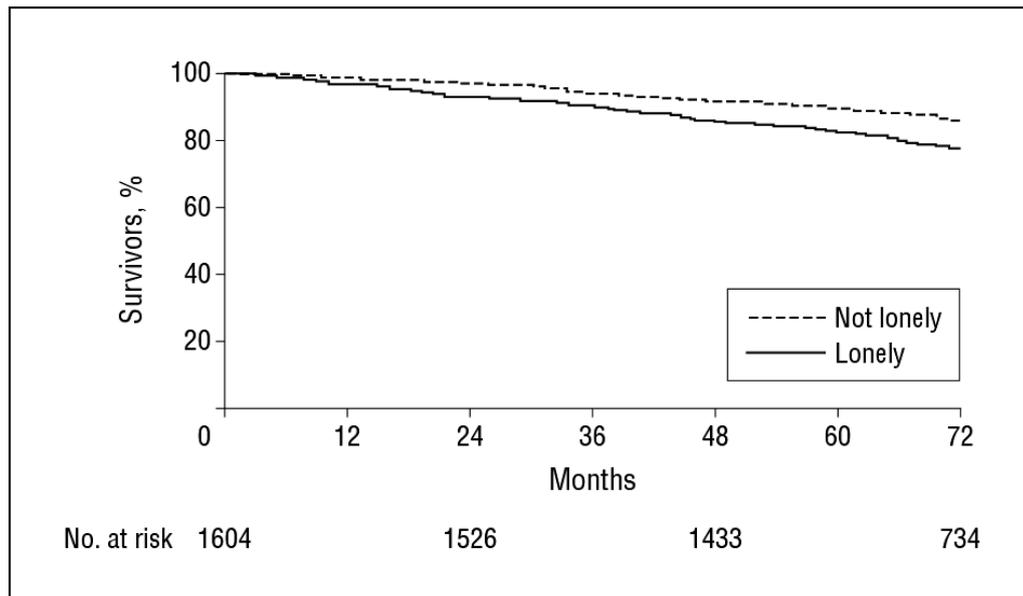


Figure 6 - Impact of lonely on living alone in older people life<sup>71</sup>

#### 4.2.2 Strategic goals of the project

The Good Morning project's main focus is to enable older people to retain their independence as long as possible by improving the living in their own home and community. Each friendly phone calls provided by the project operator aims to:

- **reduce isolation and exclusion** – the continuous call represent a constant training to dialoguing for the older people and a way to maintain longer their social predisposition
- **improve emotional well-being** – every time an operator makes a call, he tries to transmit a friendly and positive mood on the older person, that contributes to his feeling of well-being
- **improve feeling of being safe** – the phone calls are as well a way to check periodically the health status of the older person at home, through the phone calls the older people at home can be reminded to follow their prescribed therapy and guided to assume a safe and healthy behaviour
- **alert to potential health problems** – once the older person refers an health problem and perhaps more than a call remains unanswered, the operator alerts nominated contact persons or the emergency services
- **connect people into their community** – the operators stimulate the older people to join in a community and to enjoy the advantage this bring in their social life

### 4.2.3 Project basis requirement



Figure 7 - Good Morning Operators at work<sup>72</sup>

The Good Morning team calls every day, at a pre-arranged time, hundreds of vulnerable older people and establishes a friendly and trusted relationship with them. The purpose is to reduce isolation of the older member as well as to monitor his/her health status and well-being at home. Conversations do not attempt to be question and answer sessions, or investigative of any kind. Rather, they are meant to be generic socially-based conversation that invites the older member to talk of anything, to ask support for any potential issue as well as to refer his daily feeling and thought.

The project aims to be a “friend on the phone” and basically is a collaboration of people and organisations with an interest in “people”, in particular the most vulnerable: their lives, values, beliefs, in other words “what makes them them”. The continuous and friendly approach helps the members to remain proactive and coping with the daily challenge to ageing well and sometime to get over very difficult moment as the loss of friends or family. Practical methods have been developed by the project for estimating the level of need and supplying the service.

The Good Morning Project provides the member, when needed, with a guide to how to get access to other services available online or in person. If the member refers any kind of problem the operator and the entire community try to give suggestion, advice, or to alert care providers to any health problems. Indirectly, Potential health complications are monitored at early stage, meaning an effective impact on the members’ lives and an increase in the safety of the members. In addition, if a member fails to answer their scheduled telephone call, the operator will attempt to locate him/her and verify their status, and if failed, the nominated contact person will be alerted.

The member’s safety is kept in high consideration by the project with a dedicated package of services and initiatives, including:

- providing the older member with an early warning of fraudsters and thieves operating in the area. The description of the bogus and any used

fake identity is provided by the Police and forwarded to the member as well as the local housing associations

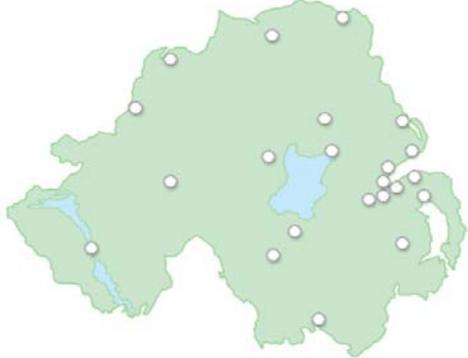
- Warning when temperature in the area drops below 7°C
- providing useful information about medical conditions and emergency contacts to the emergency services on behalf of the householder in case he is confused or unconscious.
- The Good Morning Project in Glasgow provides Personal Attack Alarms that can easily be carried in a pocket and Safe Cans which are small cases that look like the real thing and can be used to keep valuables hidden from burglars
- reminding to not open the door to unknown visitors

The project equally promotes social interaction between their community members through a dedicated services or organising monthly appointments for all members to visit a shared place of interest. A monthly newsletter is released by the Glasgow centre to provide members with news about project and community, promotes local services as well as recipes and quizzes to keep brain active.

#### ***4.2.4 Cost/benefit justification of the project***

The Good Morning project started in Glasgow (Scotland) in 2000 and in less than three years it has been considered a best practice what invited the Northern Ireland Health Estate (NIHE), the Northern Ireland Tenants Action Project (NITAP), and the Community Representatives from the District Housing Community Network, to visit Glasgow project and agree to develop similar services in Northern Ireland.

The picture and the table below show the full list of the town where Good Morning centres are actually located<sup>73</sup>:

Locations in Northern Ireland	
<b>Belfast</b>	<p>Good Morning West Belfast - Belfast  RECALL - East &amp; South Belfast - Belfast  Good Morning North Belfast - Belfast</p>
<b>Northern</b>	<p>Good Morning Antrim - Antrim  Good Morning Ballycastle - Ballycastle  Good Morning Ballymena - Ballymena  Good Morning Carrickfergus - Carrickfergus  Good Morning Coleraine - Coleraine  Good Morning Larne - Larne  Magherafelt, Cookstown &amp; Dungannon -  Magherafelt, Cookstown &amp; Dungannon  Good Morning Newtownabbey - Newtownabbey</p>
<b>Southern</b>	<p>Good Morning Armagh and Dungannon -  Armagh and Dungannon  Good Morning Newry &amp; Mourne - Newry &amp;  Mourne  Good Morning Portadown - Portadown</p>
<b>South Eastern</b>	<p>Good Morning Down - Down  Good Morning North Down - Down  Colin &amp; Greater Dunmurry - Dunmurry  Good Morning - Ards</p>
<b>Western</b>	<p>Chit Chat (Fermanagh) - Fermanagh  Good Morning North West  Good Morning Omagh - Omagh  Good Morning Strabane - Strabane</p>
Locations in Scotland	
<b>Glasgow</b>	Good Morning Project - Glasgow

During the 2009 the Department of Justice Community Safety Unit (DOJ CSU) provided the core funding of the Good Morning network, allowing the project to get further training, IT and its website as well as a Facebook page, which have been significant to its objectives as a social communicative system.

The Good Morning Project's partners and sponsors includes, the Tudor trust, NSH Greater Glasgow and Clyde, Strathclyde police, the Robertson trust and Glasgow community planning partnership for the Glasgow centre, while the Northern Ireland Good Morning Network is funded and supported by The Atlantic Philanthropies, the South Eastern Health and Social Care Trust, Northern Ireland Housing Executive, Down District Council, Down Community Safety Partnership, Supporting Communities N.I., the Community Safety Unit, P.S.N.I., East Down Rural Network, Flying Horse Ward Community Forum, Langley Community Association, Corrigs Avenue Community Association, Shrigley Community Association, Killyleagh Community Association, Saintfield Rural Community Estates, Marian Park Community Association, Castlewellan Circular Rd Res Association, Ballyhornan & District Com Association, friends and family.

The equipment needed to make the calls is very basic and consists of PCs, phones and software which provides technical assistance for the Good Morning Centre in Glasgow. Human resources involved are mainly volunteers (10) and some part-time staff (only three part-time staff: the project Co-ordinator and two Telephone Carers). Calls are being made by both staff and volunteers and they serve about 100 members with from 1 to five call per week. Each operator has to be caring and friendly and have a genuine empathy for the needs of the older member. They are required to have skills to handle the unpredictable situation they will find on the other side of the phone and enough information to effectively inform users to local statutory, initiatives, community resources or upcoming events.

The operational time change from one place to another, but mostly centres operate seven days per week, including all public holidays. Older people and/or with a physical disability or recently discharged from hospital who live alone or on their own for long periods, would naturally benefit from such particular attention made by the centre. The project policy foresees to alert a number of user's nominated contacts (usually family, friends, neighbours etc) in case a call remains unanswered, in order to check the member status and avoid the risk of helpless accidents like a fell or any other emergency. In this way the project aims to provide users with safety and accordingly their families with peace of mind.

Each centre is able to pass on information about local services and Community events in their area as well as telephone support to older members in get access to other activities and tools provided by public or private local institutions and available online or in person, increasing accordingly the relative business. In other words the Good Morning Project works also like a gateway of facilities making

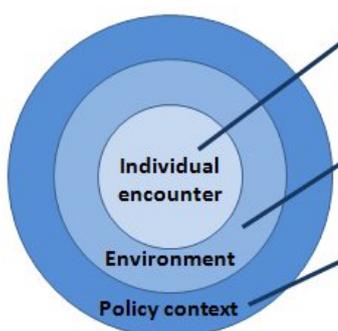
eAccessible the services maybe not accessible but needed by the older members. For example, The Project cooperates with the Victim Support NI and the PSNI to deliver of Crime Prevention Training and with CM Works to deliver Alcohol Abuse training and Older People and Vulnerable Adults/Elder Abuse training.

The following table resumes the quantitative indicators relatives to the year 2010/2011 in the Glasgow area only.

Annual Review 2010/2011 - Quantitative Indicators	
<b>Telephone Befriending</b>	
Number of Good Morning calls made	50,000+
Members receiving a Good Morning call	281
Number of Good Night calls made	2500+
Members receiving a Good Night call	48
Members who are Carers	18
<b>Emergency alerts to</b>	
Nominated contacts	91
Strathclyde Police	4
Health professionals	4
Members receiving hospital treatment following a Good Morning® intervention	6
<b>Other Services</b>	
Number of monthly Good Morning newsletters sent out	3500+
Home befriending visits carried out	44
Average attendance at a Good Afternoon Get Together	20
Bogus caller alerts from Strathclyde Police	3
Number of people supported as a result of being a victim of crime	15

Table 1 - Annual Review 2010/2011: quantitative Indicators<sup>74</sup>

#### 4.2.5 How does the project protect human dignity of elderly people?



Feedback from older members is positive. They feel more secure and motivated thank to the friend at the phone. In some cases a Good Morning call saved the life of older members. The Good Morning Project often supports older people in getting access to some services in their surrounding environment and takes them updated about any local social initiatives in order to motivate them to get involved. The project has as target group the older people which is a group at high risk of discrimination and accordingly they are a target group of several policy actions at EU level. In particular the project contributes to make them able to live longer

independently at home which is one of the objectives in the eInclusion EU policy.

*Figure 8 - Good Morning project analysis in accordance with the Jacobson's model*

The diagram above uses Jacobson's model to examine the impact of the Good Morning project on dignity of older people. Since February 2010, a satisfaction survey has been submitted annually to the members of NI Good Morning Network as disposed by the Management Committee. The surveys stated that the Good Morning Project improved the quality of life for almost the 100% of the clients<sup>75</sup>. The members resulted completely agreed with the successful impact of the service in:

- Reducing the feelings of isolation and exclusion
- Increasing the feeling of safety at home and to being cared about
- Boost self-confidence and self-esteem
- Improve health and well being
- Improve the connection with the community as well as the knowledge of community services and events
- Help family, neighbours and friends by giving them peace of mind

In addition, there are a number of spontaneous declarations coming from the registered members and confirming the importance of the project. Follow some relevant examples linked in particular to the concept of self-confidence, self-esteem and dignity, reported using the original word<sup>76</sup>:

**Jane, 84 years** – *“My independence means a lot to me. I can rely on a call every morning, and it makes me feel good. Being a member is helping me to live independently without fear.”*

**Harriet, 91 years** – *“Overall I feel a lot better and more alert. Their voices cheer me up and I do love to tell them how I'm keeping. I feel we are one with each other.”*

**Jean, 87 years** – *“I'm less isolated, it does you good to tell them your problems... I don't feel so vulnerable. You don't feel like another number. Four words to describe Good Morning: 'never let you down'.”*

**John, 89 years** – *“I'm registered blind and I like the sound of another voice. All the callers are very chatty and interested in you. They don't just give you a call, they want to know about your life: it's wonderful.”*

**Jim, 77 years** – *“They're special people...like my crutch, y'know — keep my mind off the drink.”*

#### **4.2.6 How does the project oppose discrimination against older people?**

By attracting older people every day to take part in active conversations about certain topics/issues, the project acts as an integrative tool, through which members integrated in the issues and topics that concern the society. The daily calls are very effective mechanism that keep older people engaged with their society and transfer to them the feeling of being part of the discussion, decision and debate. Being aware that their opinion and thoughts count would in return encourage them to read and listen more to the ongoing debates and arguments. In that sense, the project has had a positive impact on the person's mood as well as self-esteem. Each user feels him/herself more involved in the society and accordingly he predisposes himself to participate more and more actively in groups initiatives, training day by day the right social approach and the well-being in society.

This is a used bilateral mechanism: from one side, the society is more open to welcome a positive and experienced senior citizens in the debates that concern them and from another, old people retain the believe an hope in a better future that is informed by their views. In addition, and above all they do not feel discrimination.

Users view of the project could be best seen through their own words. These are just samples of soe users' views [Reference]:

**Dorothy, 87 years** – *“My life has inevitably slowed down, but Good Morning has helped me feel re-connected to life as it used to be. My children live abroad, old friends are mostly no longer alive and so I find Good Morning has opened up a lovely new world for me.”*

**Nora, 83 years** – *“It makes me feel safe knowing that someone cares about me.”*

**Nancy, 82 years** – *“I do not feel I am on my own since I joined and I have made friends. I'm more confident now: I feel I can talk freely with people in general now. I look forward to my call each morning and in spite of inclement weather, it brightens up my day - you do feel someone cares for you. I do not feel so tensed up about things so much now and I feel more calm.”*

**Helen, 81 years** – *“It's just like a having a member of the family. I've had a rotten time health wise recently, the team gave me a great boost and helped me so much just by their kind words and caring ways.”*

**Marion, 81 years** – *“I think of you as my family...you take time with me and all look after me.”*

#### 4.2.7 Lesson learned from the project

Central to the success of this project was the simple tools used to access a large group of older and potentially isolated people who were largely disconnected from daily life and active matters of the contemporary society. Using the phone and frequent communication times was a very simple concept that was able to impact the lives of many older people's daily interaction significantly. The commitment invested in the initiative and the interest in people transform a developing such simple idea into a best practice and effective strategy of eInclusion is seen as noteworthy to circulate to wider audience in other European countries.

For over one decade, this project has set software, procedures and guidelines that became informed standards for a popular concept in social care that have been transferred from Scotland to the Northern Ireland with further plans of further spread across all over Ireland.

The project has received several awards for best practices such as an award winning charity, the SURF award for Best Practice in the category of People, the Telephone Help lines Association / BT award for Innovative Use of Technology to Provide a Service, the Evening Times Community Champion Team award, the Guardian Newspaper UK Public Services of the Year and the Herald Newspaper Society Awards. In addition, the project got a recognition also in Parliament where it has been acknowledged that *“the service contributes to better mental health, reduces isolation, promotes social inclusion and potentially enables elderly and vulnerable people to stay in their own homes for longer.”*<sup>77</sup>



Figure 9 - Good Morning Recognition in Parliament<sup>78</sup>

On the other hand, the project provides evidence on the effectiveness of a phone call rather than a visit as a strategy of communication that helps older people to interact with others, while maintaining their privacy and security of their homes. Through undertaken surveys, the project staff noted that, due to the non-intrusive nature of a telephone call, the users prefer it rather than a visit on person.

It was very important for the older users to be notified and be confident that helpers will be alert if they are not able to answer the scheduled phone call. The no-answer call on the other hand, means non-direct non-intrusive way of checking on older people without renouncing to their dignity.

Mrs G, aged 75 years, has been registered to this Service by her daughter in 2007 and she gets a call 5 days per week. In September 2011 Mrs G failed to answer a Good Morning Call and the operator checked that she hadn't any doctor or hospital appointments before alerting her daughter. On visiting the house, Mrs G was found lying on the living room floor, unable to get herself up because of a fall. The doctor had been called and she received a treatment from minor injuries. The same incident happened two months later, and she was referred to the Falls Prevention Service and she wears her pendant alarm most (but not all) of the time.

Mrs M, aged 70, self-referred in 2006, he receive 5 morning calls per week plus an evening call over the winter months. In December 2011 Mrs M failed to answer a scheduled call and after a check for any medical appointment, the service alerted her neighbour with keys (Nominated Contact). Mrs M was found lying on the kitchen floor hurting her back and elbows because of a fall, unable to move and needing for an ambulance.

#### **4.3 Business Case 2 – Netti - Nysse**



Elina Harju a teacher-trainer by background and now coordinator of the Netti-Nysse service had the idea in 2000 when together with her colleagues submitted the proposal to the city council. They liked and agreed to fund the so called eTampere project (2001-2005) which encompassed the Internet bus. An old city bus was turned into an Internet bus by Local 18 and it started in June 2001. The bus was introduced in the city of Tampere (Finland) in 2001.

The Netti-Nysse bus is equipped with ICT technology including computers and internet access and travels throughout Tampere city to provide a service to groups

of older and digitally excluded people. The service is delivered to them in their local communities and provides people with free training courses in basic computer and internet skills.



Figure 10 - First version (2001) of the Netti-Nysse bus outside (on the left) and inside (on the right)<sup>79</sup>

In September 2005, the bus was replaced by a more modern internet bus Netti-Nysse II. The service is free and is mostly provided in Tampere and sometimes outside the city. Following the success of this initiative and the eTampere project, the Netti-Nysse is still being used and is now funded by the IT department, some business partners including TeliaSonera AB, (the main telephone company and mobile network operator in Sweden and Finland) Nokia and the Ministry of Education and regional government.

The service has only five people working full time and each group of participants is supported by at least two tutors.

Netti-Nysse has been selected as a case study due to the important impact it has had on e-accessibility and e-inclusion for older people. This is evidenced by the number of requests it receives for the service and by the positive comments of the participants at the training courses. This initiative was appreciated by the participants and it introduced them to the Information Society.

#### **4.3.1 Specific problems addressed by the project**

- Under-representation of older people in use of the internet
- Social and economic inequality
- Worries and lack of motivation among older people in using Internet

A statistical study carried out in December 2011 by Internet World Stats states that 22.1% of the world's Internet users live in Europe and that internet use in Europe stands at 61.3%. In the last decade the number of internet users in Europe

rose from approximately 105.1 million to 500.7 million. That is an increase of around 476.4%. (<http://www.internetworldstats.com/stats.htm>)

This increase shows that it is important for older people to take part in the Informative Society to improve the quality of their lives. It also declares that the number of internet users changes with age.

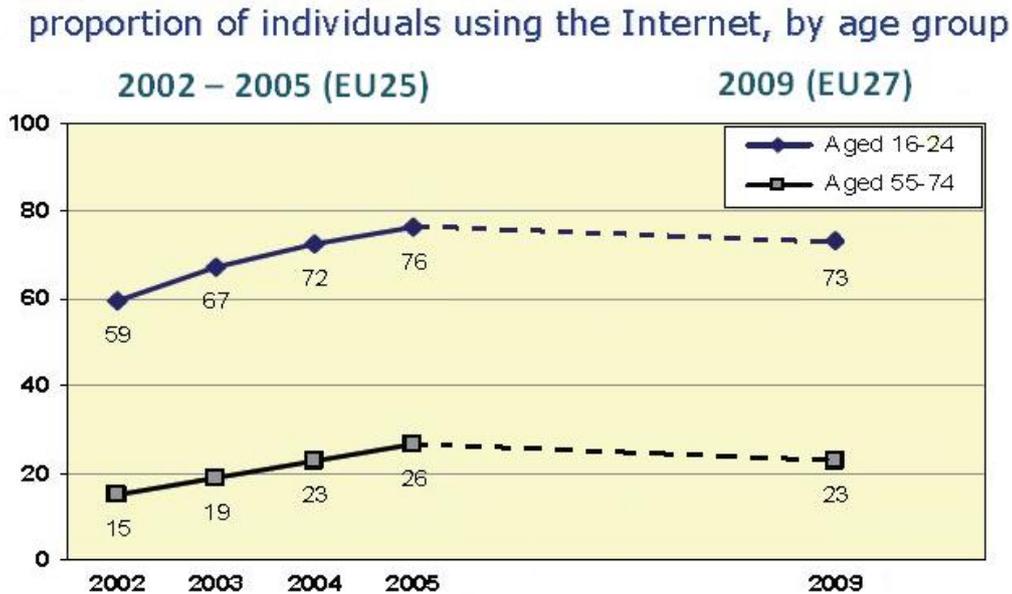


Figure 11 - an elaboration of the outcomes from an Eurostat 2005 study<sup>80</sup> (based on 11 old Member States, namely DK, DE, EL, ES, IT, LU, NL, AT, PT, FI, SE) and an Eurostat 2009<sup>81</sup>

Figure 11 depicts the outcomes from the Eurostat 2005<sup>80</sup> (based on 11 old Member States, namely DK, DE, EL, ES, IT, LU, NL, AT, PT, FI, SE) and the Eurostat 2009 studies<sup>81</sup> about the percentage of Internet users by age groups in Europe across the years 2002 – 2005 (EU25) and 2009 (EU27). From the 2002 - 2005 the percentage of users aged from 16 to 24 years rose by 17% while the percentage of users aged from 55 to 74 years rose only of 11%. In addition the gap between the two groups represented remains the same in the 2009 after further 4 years.

As Internet use is one of the main priorities of eInclusion, it is important to support new users at any age. While young people can be thought IT skills at school, new initiatives need to be set up to teach older people. Another Eurostat study carried out in 2010 investigated the reasons why some people do not have the Internet at home. They discovered that people aged from 55 to 74 years did not have computer skills (64%) and some people were not motivated to learn (47% answered “I don’t need it” thinking it is useless or not interesting and 43% “I don’t want it” worried about the harmful contents of the web)<sup>82</sup>.

It means that there is a considerable need to increase the public's awareness of the benefits of the internet for its users and of the educational courses that are available to them.

#### **4.3.2 Strategic goals of the project**

The main goal of Netti-Nysse is to help people to see the possibilities and the benefits of Internet use and to enable them to make their own choices concerning their role within the Information Society.

In many countries free internet connections and PCs are available to surf the web. The aim is to support people and to encourage citizens to use computers and the internet. For example the Tampere City Library in Finland started the "Netti-Nysse" service. It consists of a bus that is equipped with computers and Internet access. They provide free training in basic computer skills to the digital excluded people in local communities.

#### **4.3.3 Project basic requirement**

The Netti-Nysse bus is a purpose-built bus. It is 18 meters long. It is equipped with a net of 11 PCs Internet provided and can accommodate 10 learners at any one time. The bus is painted with bright colours. The reason for this is two-fold (1) to create a friendly non-threatening environment and (2) to generate interest amongst people who see it.

Figure 12 - The Netti-Nysse bus



Figure 12 - The Netti-Nysse bus<sup>83</sup>



Figure 13 - The computer workstations inside the Netti-Nysse bus<sup>84</sup>

Inside the bus there are 11 computer workstations, 10 are used by the people attending the courses and one is the server. All the PCs are wirelessly connected to each other and the server provides a 13 Mb Internet connection.



Figure 14 - The auditorium inside the Netti-Nysse bus<sup>85</sup>

The back of the bus hosts an auditorium including 10 seats a projector and audio-video equipments.

The Netti-Nysse service is available for groups of people, clubs and societies. The official website gives people the chance to find out when the bus will be travelling to their neighbourhoods and to book a new course which will be held in their local area.

Each group typically consists of 7 to 10 people and each training session includes 5 lessons for two hours each. The service starts at 9 am and ends at 8 pm providing 4 training lessons per day. The first lessons are focused around teaching the group how to use a mouse. To help with that it has produced a 'Catch the mouse' tutorial which can be downloaded for free in six different languages

(Finnish, Swedish, Spanish, Portuguese, Polish and English) from the official website.



Figure 15 - Catch the mouse software<sup>86</sup>

#### 4.3.4 Cost/benefit justification of the project

Successful initiatives like Netti-Nyssa are able to provide a concrete contribution to eAccessibility and eInclusion for older people and people with disability. The effectiveness of this contribution is evident in Figure 16 of the Statistic Finland portal (the Finland statistic centre) that shows the trend of the percentage of internet users by age group in Finland from the 2001 to the 2007.

Internet users, spring 2001 to spring 2007, percentage of 15 to 74-year-olds by age group

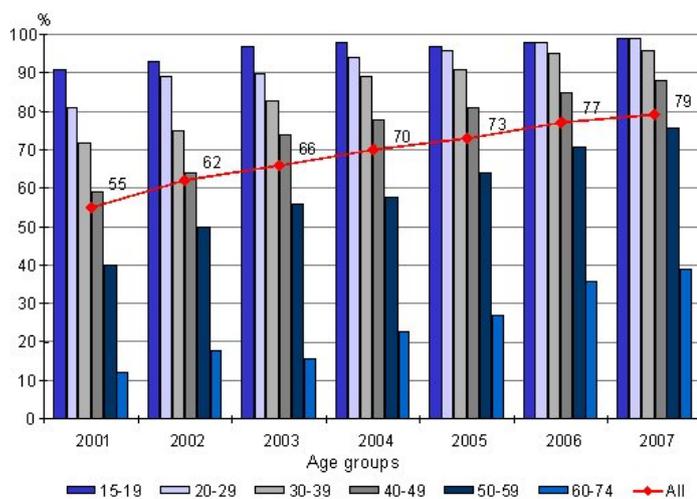


Figure 16 - Percentage of internet users by age group in Finland from the 2001 to the 2007<sup>87</sup>

In fact in the figure it is possible to note that the gap between the younger users and the older users being reduced across the years which is the opposite of the tendency represented in Figure 11.

The Netti-Nessy contribution and effect can be evident in the increased use of the internet and its diverse facilities by older people as appear in Table 2 which is also taken from the Statistic Finland portal.

<b>Purpose of use of the Internet</b>	<b>All</b>	<b>16-29 yrs</b>	<b>30-49 yrs</b>	<b>50-74 yrs</b>
Sending or receiving e-mails	90	95	91	83
Finding information about goods or services	88	92	92	79
Internet banking	87	84	92	82
Browsing travel and accommodation websites	70	63	75	68
Reading or downloading online magazines	69	68	73	66
Seeking health-related information	62	60	66	57
Obtaining information from public authorities' web sites	56	54	63	49
Looking for information about education, training or course offers	44	57	46	28
Listening to web radios or watching web television	40	53	41	25
Listening to music online or downloading music on PC or other device	39	64	37	16
Reading weblogs	38	53	35	28
Consulting the Internet with the purpose of learning	37	60	34	18
Instant messaging	35	69	28	12
Looking for a job or sending a job application	32	55	31	11
Downloading programmes to the PC	32	45	32	18
Chatting or writing on discussion boards	30	54	26	11
Using browser based news feeds e.g. RSS for reading new content on websites	23	31	23	14
Buying secondhand goods at online auctions or flea markets	23	30	25	13
Internet phone calls	18	19	18	16
Selling goods or services e.g. via auctions	17	22	19	10
Doing an online course	17	29	15	8
Playing games online	14	31	8	4
Subscribing to news services or products to receive them regularly	14	11	17	12
Videoconference	10	12	10	7
Downloading games to the PC	9	17	7	3

Using peer-to-peer file sharing for exchanging movies, music, video files	7	18	5	0
Creating or maintaining own weblog or blog	5	9	4	2

*Table 2 - Purposes of the use of the Internet in spring 2008, per cent of Internet users by age group<sup>88</sup>*

Through the table it is possible to see that in 2008 the main purposes of the older people in internet were:

1. Sending or receiving e-mails (83%)
2. Internet banking (82%)
3. Finding information about goods or services (79%)
4. Browsing travel and accommodation websites (68%)
5. Reading or downloading online magazines (56%)
6. Seeking health-related information (57%)
7. Obtaining information from public authorities' web sites (49%)

These uses are highlighted in yellow in the table and what is important to note is that the percentage of people aged between 50 to 74 years using internet is almost the same as the percentage of people aged between 16 to 29 years. Older people are more active than younger people in browsing travel and accommodation websites.

Finally as part of the Netti-Nysse scheme, training lessons about the safe and responsible use of the internet are aimed at preventing the new users from worrying about their lack of experience with using the eCommerce services. In this way older people are encouraged to use online shopping.

The Figure 17 shows the percentage of online shoppers from 2001 to 2007 in Finland by their age group and shows an increase in the number of online shoppers aged between 50 and 74 years (there are three times as many in 2007 as there are in 2001).

Online shoppers during the past three months in spring  
2001 - 2007, per cent of total age group

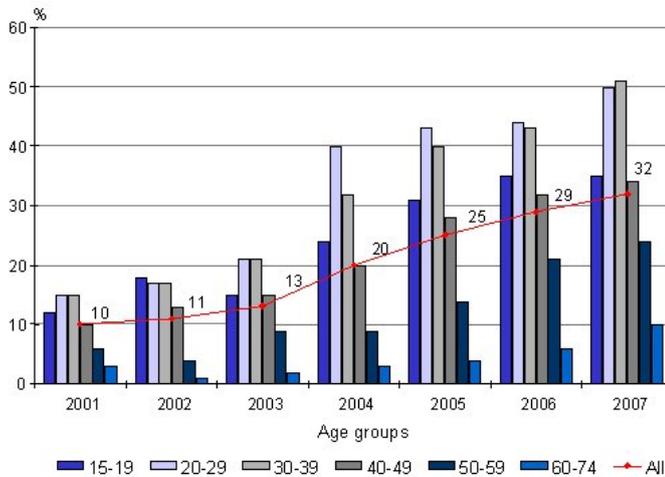


Figure 17 - Percentage of online shoppers from the 2001 to the 2007 in Finland by age group<sup>89</sup>

#### 4.3.5 How does the project protect human dignity of elderly people?

Jacobson argues that every encounter is a dignity encounter – promotes or violates dignity. She argues that there are three distinct but inter-related levels at which the dignity encounter is influenced: Individual, Environment and the policy context

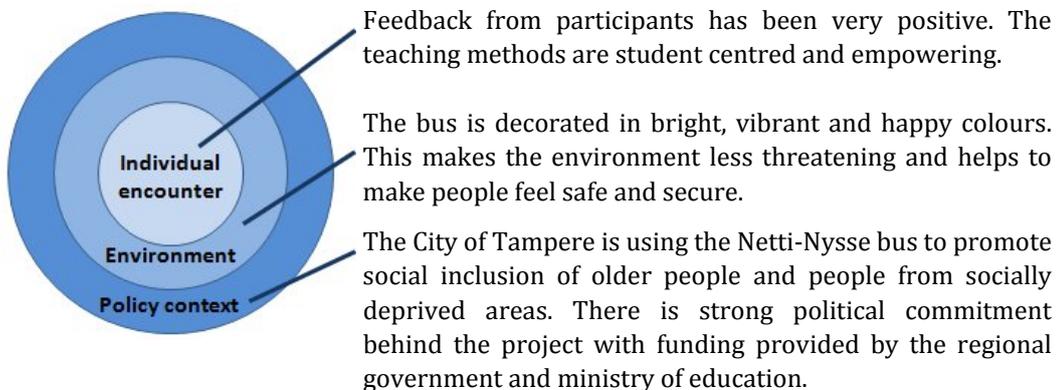


Figure 18 - Netti-Nysse project analysis in accordance with the Jacobson's model

The diagram above uses Jacobson's model to examine the impact of the Netti-Nysse bus on the dignity of older people.

Once the older people who had never surfed the web before, learned how to use it correctly and got used to dealing with search engines, they could decide if they wanted to become involved in the Information Society or not.

More than 80 percent of those who took part in the training said that they were going to use computers after the course.

Often what happens is that they became unexpectedly interested in the benefits of technology. These benefits include online banking, customer services, social networks, video communication with relatives and friends, entertainment, real time information etc... The Netti-Nysse has been promoted by the participants as they often discuss and share their opinions with friends to encourage them to join the Information Society.



Figure 19 - Curious people attracted by the Netti-Nysse bus in occasion of its 10th anniversary<sup>90</sup>

#### **4.3.6 How does the project oppose discrimination against older people?**

The Netti-Nysse bus promotes equity and opposes discrimination against older people by enabling older people to have access to services and facilities that they were previously unable to access. For example:

- Using of research engine
- e-banking
- e-commerce
- download specific form from e-government website
- using of video-communication software
- using help online services in websites where it is available

After the training session people are encouraged to carry on practising and they were informed about local free internet access points. They can use the internet to build social relationships and to overcome loneliness (a big problem for all age groups in Finland).

The participants learn how to use e-banking, to search for help info and demos from banks as well as for other public online services. Therefore unlimited resources, which are import for eAccessibility and eInclusion are available to the new user.



Figure 20 - A Netti-Nysse teacher during a lesson<sup>91</sup>

About 200 different groups attended the service in the first two years. The groups included senior citizens, groups of mothers, truck drivers, home aids, young unemployed people, people with hearing problems & Parkinson's disease, immigrants, entrepreneurs, extended families and many different associations. About 65 percent of the course participants are over 56 and two thirds are women. The feedback of the participants is an indication of the success of the initiative.

The Netti-Nysse coordinator Elina Harju said *“Our customers take care of our marketing since the bus is fully booked for three months in advance”* and that they used to receive positive comments such as: *“I’m going to tell all of my friends about this opportunity. It’s good to get such professional instruction from one’s taxes. The tutors were really patient in guiding those of us who have never had anything to do with computers before.”*

#### **4.3.7 Lesson learned from the project**

Among the important lessons learned by this business case is the importance of some certain factors that helped the success of the initiative. These precautions include:

- The bright painting of the Netti-Nysse bus. Some participants noted the bus in their neighbourhood, thanks to its striking colours, and decided to ask for information because the painting let them suppose something funny.
- The sense of humour of the trainers and the enthusiasm that they have with the participants was appreciated.
- The service was close to people's homes. Many older people and people with disabilities are not able to walk far from their home and a bus that brings the internet to their door step was welcomed. This enabled older people to try new experiences, it allowed them to meet new people and it helped to reduce boredom.

In order to promote this kind of initiative and to share the lessons that they have learned, in August 2009 a Netti-Nysse tour was organised in 5 different European countries:

Milan, Italy  
Ljubljana, Slovenia  
Budapest, Hungary  
Lodz, Poland  
Kaunas, Lithuania

Internet bus initiatives already exist in other countries like Belgium, France and Germany, in particular:

**Belgium** – A CyberniBus has been organised to host 10 workstations for IT-Training plus one for the trainer and one table for group talks. The Bus offers a free internet services and internet Training to youngsters as well as senior citizens and it is promoted by the Wallonian government within the Espaces Publics Numeriques strategy<sup>92</sup>.



Figure 21 - The CyberniBus in Belgium<sup>93</sup>

**France** – Also the French government is taking part in the Espaces Publics Numeriques initiative and have organised bus tours similar to Belgium's CyberniBus. This also offers IT-training and public access.

**Germany** – In Germany the service is called Media-Bus and it is available throughout the country. Usually it stays at one location for two subsequent weekends before moving elsewhere, it hosts twelve workstations plus one for the trainer, a beamer, a scanner and a printer for free use. All workstations are also equipped with IBM Home Page Reader (a speaking web browser which reads text content to people) to cater for the needs of visually impaired participants. The free IT-Training courses provided teach people how to use the internet, office software (Microsoft) and Linux<sup>94</sup>.



Figure 22 - The Media-Bus in Germany<sup>95</sup>

In November 2001 the Netti-Nysse has been recognised as an example of good practice from the European Commission and the city of Tampere got an award for "Best eGovernment Practice".

At European level the Netti-Nysse was placed among five finalists in the e-learning category for the e-Inclusion Awards in December 2008.

At a national level the initiative won a national prize for its “innovative adult education practices” from the Ministry of Education and a Special Recognition Award for “a people centred application that exploits the World Wide Web and Internet Technology” in 2004 from the Millennium Technology Prize Foundation.

#### **4.4 Business Case 3 - MediAbility**



MediAbility an initiative inspired by the 15 year old idea of digital storytelling developed in California and modified in order to make it easy and inexpensive for excluded people.

The MediAbility project took place in Sweden from February 2006 to June 2009 and empowered e-excluded people by providing them with the tools to make their own digital video stories.

The project has been selected because of its effectiveness in both:

1. Finding an engaging way to involve digitally excluded people and to provide them with digital training and access to technology. During the 22 training-workshops sessions the participants learned and collaborated with each other. They discussed issues that they were not familiar such as informatics and digital video editing.
2. To encourage them to become more interested in the media and eInclusion, the participants produced 160 videos and 150 of them have been published, with their consent. They can be accessed from the UR Swedish Educational Broadcasting website.

##### **4.4.1 Specific problems addressed by the project**

The MediAbility project addresses the following problems:

- Lack in the use of PC among older people
- Disinterest of the media at the eInclusion matters

The problem addressed by MediAbility project has much in common with the problem analysed in the paragraph **Errore. L'origine riferimento non è stata trovata.** which is the lack in the use of Internet among older people. This project

in particular focuses the attention on the lack in the use of a personal computer at all.

In the modern society the first idea comes up thinking about a pc is the possibility to navigate on the web and it is hard to imagine what rather is possible to do with a standalone system.

Actually the performance of a pc improves if it is connected to the internet as a result of the huge number of free tools and web services available online, but many programs are designed to be installed on a pc and work offline. These programs include the whole Office package, graphic programs to edit photo and video, drawing programs, develop environment, accountancy programs, games, organisers, content managing etc...

Nevertheless, some European people are unfamiliar with PCs. In Sweden in 2011 11% of people had never used a PC. The trend of both the people who never used a pc and Internet is shown in Figure 23.

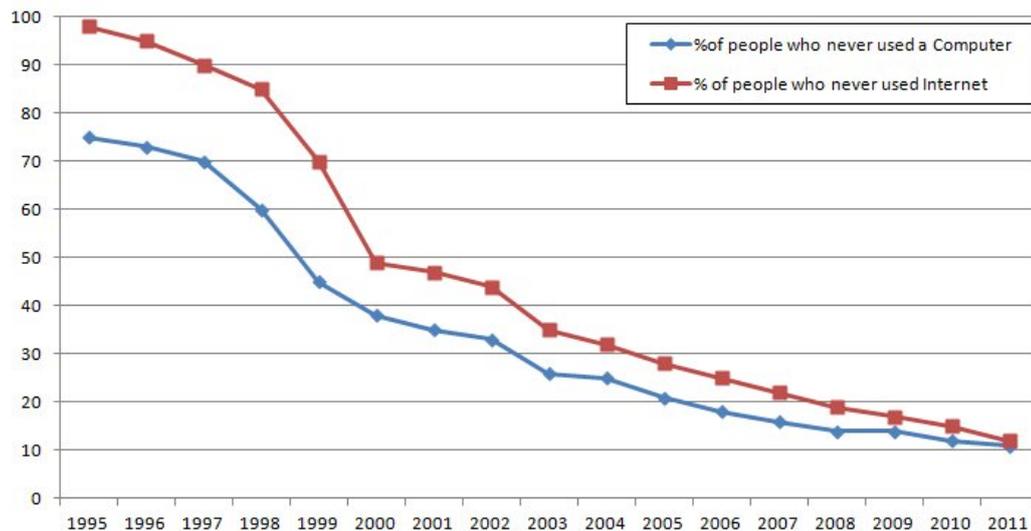


Figure 23 - Percentage of Sweden people who never used a PC or Internet from 1995 to 2011<sup>96</sup>

The data which shows the percentage of Swedish people who have never used a PC and their age group are only available for 2004 as per Figure 24.

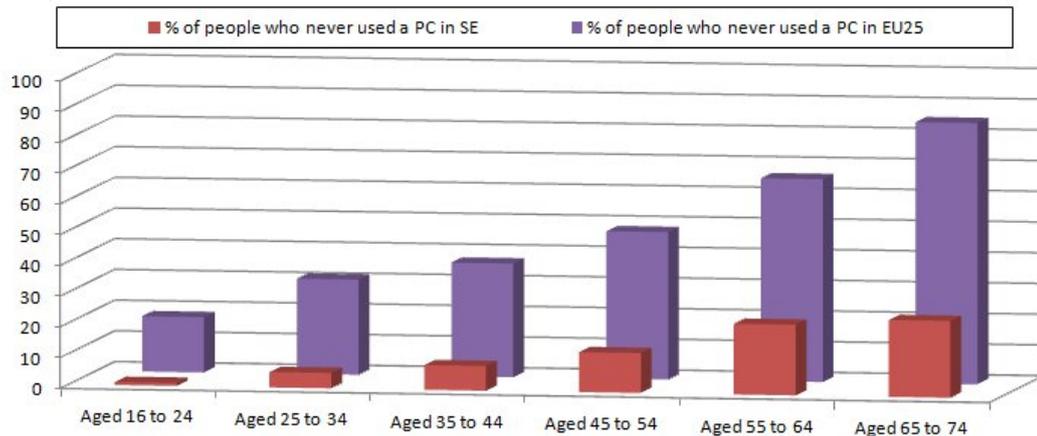


Figure 24 - Percentage of Sweden and EU25's people who never used a PC by age group in 2004 (elaboration of the Eurostat 2005 study<sup>97</sup>)

The figure shows that the percentage of people who don't use the pc at all rises with the age in Sweden (where they are about 20% in the groups of people aged 55 to 64 and 65 to 74) as well as in the EU25 average (where they are respectively over 60% and over 80% in the same groups of age).

The second problem that the project addresses is a lack of interest from the media towards eInclusion matters and a lack of non-discriminatory messages among the broadcast palimpsest. A study carried out in 2007 by the head of The Department of Journalism and Mass Communication (JMG) Marina Ghersetti showed that only 0.07% of people in the news had a disability<sup>98</sup>.

Media attention is an effective way to inform people about eInclusion and it could encourage the growth of new initiatives for older and disadvantaged people. The core of the problem is that the needs of disabled people are not promoted enough by the media.

#### 4.4.2 Strategic goals of the project

The Swedish project MediAbility had two aims:

- To empower e-excluded people by providing them with the tools to make their own digital video stories.
- To get the media to focus its attention on eInclusion and to use it as a voice for the e-excluded to the rest of the world

#### 4.4.3 Project basis requirement

The project is inspired by the 15 year old idea of digital storytelling developed in California. This was modified by making it easy and inexpensive for the excluded to use digital technology.

The project organised 25 workshops where people were motivated and then helped to learn about video production. Each workshop lasted 2 days. They started with oral story-telling without mentioning anything about computer skills. They created small groups where they took part in peer-to-peer discussions and the participants had things in common. The only limit was that each story needed to end with something that the participant had learned. After that, the workshop leaders coached the participants in “story-telling and technology”, so once they created a story, the participants made storyboards and determined the types of images they would need, then they were provided with a digital camera and they made a video.

The workshop leaders thought the participants how to use video making software programs such as MovieMaker for PCs or iMovie for Macs. This helped the participants to overcome any difficulties that they had with regard to digital communication. Finally, each video, typically 2 minutes long, has been mastered on a CD and it was shown to the other participants.



Figure 25 - Windows Movie Maker on the left side<sup>99</sup> and iMovie for MAC on the right side<sup>100</sup>

This procedure can be used for different and mixed groups of people, both young and old people as well as people with cognitive disabilities and mental illnesses. Different groups interacted with each other to exchange knowledge.

The project website is available in English (Figure 26) and contains all the information about the project, the news and one section in Swedish (Figure 27) where they are still available some selected videos.

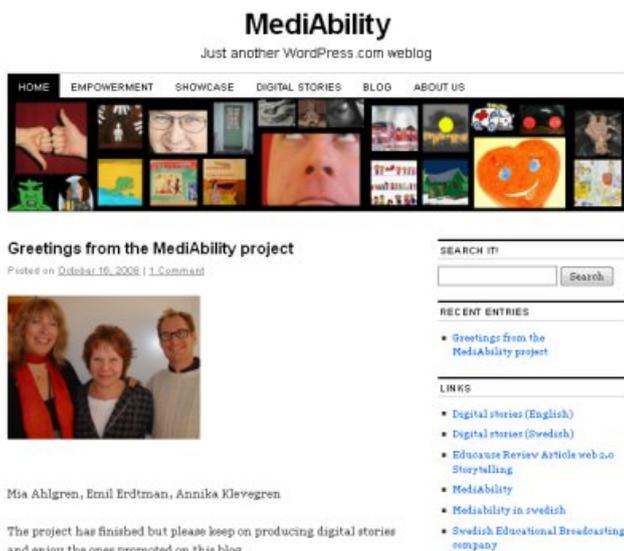


Figure 26 - The English MediAbility website<sup>101</sup>



Figure 27 - The Swedish MediAbility section accessible from the official website<sup>102</sup>

The cooperation with the Swedish public educational broadcasting company UR (they have a Web project, where they were already working with digital TV storytelling), made the publication of the short videos produced on the UR website possible (Figure 28).

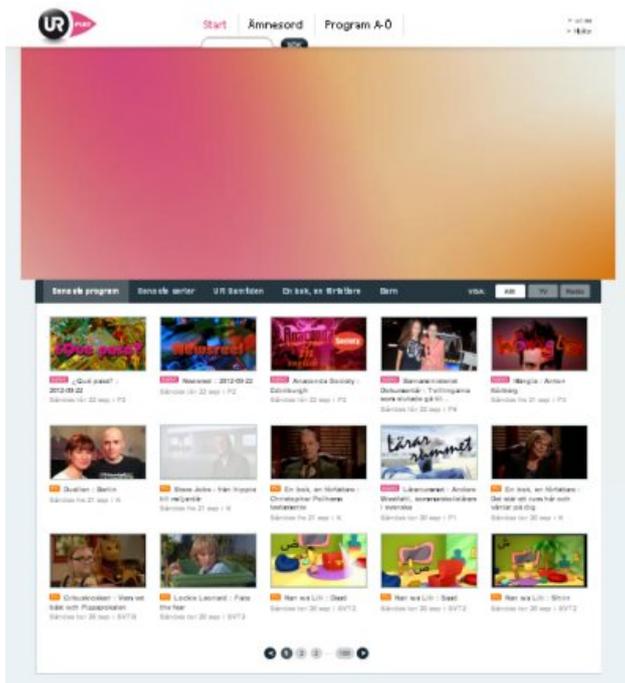


Figure 28 - The Swedish UR educational broadcasting website<sup>103</sup>

#### 4.4.4 Cost/benefit justification of the project

The project was started in February 2006 by the Swedish Disability Federation, a Swedish umbrella organisation, representing 43 national disability organisations and 460,000 individual members. The Federation obtained funding for the project from the Swedish Inheritance Fund. The project concluded with a final report in June 2009.

There were 160 participants in total and to reduce the cost of the workshops they have used other people's computers and meeting places. There have been a total of 25 workshops in different places in Sweden and most of them were held where groups had already been formed.

The benefits for the participants include developing their computer skills. These skills can be used after the workshop to develop new hobbies or to become a part of the Information Society.

The cooperation with the Swedish educational broadcasting UR is a strategic component of the project. The UR (Swedish Educational Broadcasting Company) is part of the public service broadcasting group in Sweden, with Swedish Radio (SR) and Swedish Television (SVT). UR is financed by household radio and television licence payments and one of their focuses includes improving accessibility for disabled people through educational programmes (to support teaching staff, pupils, students and parents).

#### 4.4.5 How does the project protect human dignity of elderly people?

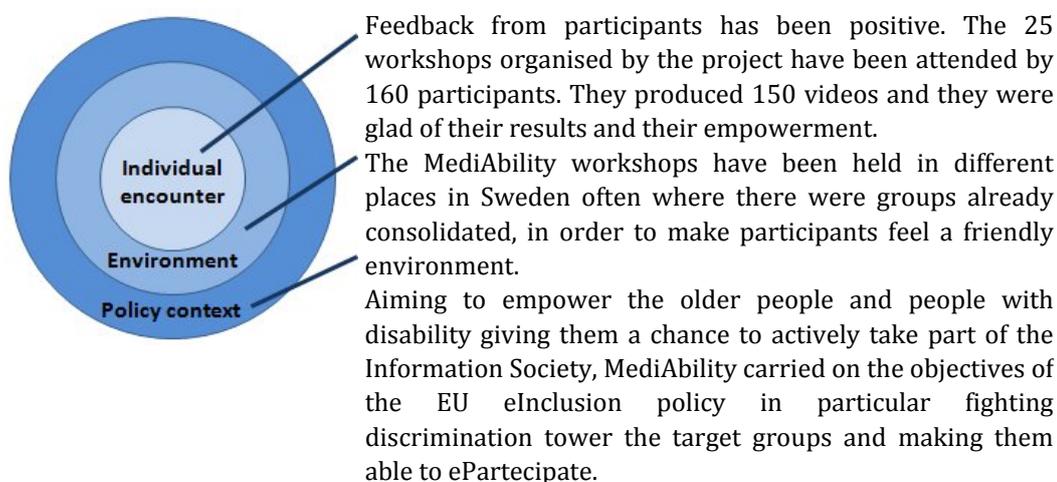


Figure 29 - MediAbility analysis in accordance with the Jacobson's model

The diagram above uses Jacobson's model to examine the impact of the MediAbility project on the dignity of older people.

Another benefit for the participants is the opportunity to feel included in the world in the following manners:

- Each story allows the authors to voice their opinions and this is important in terms of dignity.
- The participant describes their life experiences in their own words and the popularity of their story can be seen online through a ranking system and by the number of views their video receives.
- The project allows for individuals who are usually marginalised in the media domain (especially older people) to post their stories of business, movies, news, programs on the online public domain.

In the UR website they have published 927 videos in the 2009<sup>104</sup> and 150 of them are the ones produced by the MediAbility participants.

After three years their voice is still being heard and their accounts will remain online until the broadcaster decides to delete them. Throughout this time some stories can encourage people to write new ones or motivate the people watching it, who may be facing problems such as isolation, feelings of loneliness and loss of self-esteem etc...

At the end of each workshop the participants have been asked to compile an evaluation questionnaire which had a positive impact. From the results it is clear that all participants learned something new about storytelling and technology and

they were happy to make their own films. They were also happy to show the videos to family and friends. The questionnaire also showed that the participants' confidence towards the use of technology and storytelling had increased. The Participants stated that they had enjoyed reviewing each other's videos, giving suggestions and helping the supervisors.

Another important result is that many participants stated that they also learned something about themselves in terms of self-image and identity. Someone suggested that a video should be developed to show people who cannot attend the course how to use movie maker.

Someone else suggested that the workshops should take place over a longer period of time (saying 2 days are too short time) and that they should cover more advanced tasks.

Many of the participants would like to be involved in the creation of new courses in Digital Storytelling and to contribute to future efforts to change the media's image of people with disabilities.

#### ***4.4.6 How does the project oppose discrimination against older people?***

Perhaps for young people, the MediAbility experience is just another way of telling a story, but for some older people, it has changed their lives.

From the evaluation questionnaires that they compiled, each participant has been willing to share their stories with each other. They felt like they were learning something together. Someone was inspired by the initiative; they bought a camcorder and intended to use it frequently to produce more movies with movie maker<sup>105</sup>.

Producing a film in two days to put on a public broadcaster's web-site has been a good experience for all the participants, including those who had no knowledge of computers. Developing a story was the motivation for them to use technology as a group and once they got used to the PC, they became interested and some participants started to use computers for other purposes.

This is the case of Barbara, a 59 year old participant who was not familiar with PCs before taking part in a MediAbility workshop in August 2006 and even if she was not interested in digital communication, she felt she had "a story to tell" and she made her first two-minute film as well as made new friends in the workshop. A few weeks later, she decided to join a course to learn how to produce documentary films. Barbara made a digitally edited documentary about a person she had met in the workshop.

She joined another MediAbility workshop on how to start your own blog and she passed a course for training future workshop leaders, so she set up a course on digital storytelling in her local community, where she is the tutor.

Today she uses a computer to surf the web and to send e-mails as well as to pay bills electronically.

Mia Ahlgren said “*One of the older participants had brain damage 40 years ago. He wanted to tell a story about how he had recovered. He made a six-minute video. After the workshop, he sent us an e-mail with a one-minute video about how he appreciated the workshop.*”<sup>106</sup>

The MediAbility initiative contributes to a change in the public’s perception of disabled people and older adults and it also gives them training about technology.

#### **4.4.7 Lesson learned from the project**

One lesson learned in this project is how to engage with older and disabled people to equip them with computer and storytelling skills. The method used by the project used mixed groups of people of different ages, gender, disability, ethnic background and prior experience of using computers. They developed their skills both individually and as a group.

Another lesson relates to the storytelling itself, each story must be based on real life, something happened in the world and it must be told by the original voice of the person who experienced such story. The requirements used by the trainers to make a story become a video are:

- The story must have a message, something to convey.
- The story may have an emotional content and reach the audience in a way that engages them.
- The narrative should be dramatic because this attracts more viewers.
- Giving an individual account of the story is important because it makes it personal.
- Sounds and illustrations may be used to reinforce the story's emotions.

Finally, another lesson comes directly from the words of Mia Ahlgren the project coordinator who said “*It has been quite eye-opening, asking people what they wanted to do. Everyone has a story to tell. Their stories are so different. A challenge for some participants was to make a short story.*”<sup>106</sup>

The project has been a finalist in the e-inclusion good practice awards at the Ministerial e-inclusion conference in Vienna in December 2008.



Figure 30 - MediAbility at the Ministerial eInclusion Conference in Vienna in December 2008<sup>107</sup>

#### **4.5 Business Case 4 – Seniornett**



The Norway project Seniornett is a voluntary organisation encouraging seniors (55+) to try the Internet. It teaches people how to use the internet in local public places such as clubs, libraries, senior citizen centres, social organisations and voluntary centres.

Seniornett receives funding on annual basis from The Ministry of Education and Research and the Ministry of Government Administration and Reform, and some funding from the industry and local authorities, as well as from the club member fees.

The project has been selected as a business case because of its positive impact and the success that it has achieved among the Norwegian older population.

Founded in 2000, Seniornett has already established 156 clubs all over Norway and in the first 6 years, the initiative had about 30000 participants. The project trains people in computer skills in familiar places. This is to encourage the participants to associate ICT with socialising, sharing experiences and with helping each other during and after any lessons.

##### **4.5.1 Specific problems addressed by the project**

- Low or no computer skills among older people
- net-banking and delivering tax returns via the Internet are not accessible by people with low computer skills

- Older people prefer a learning environments which allow them to meet like minded people rather than eLearning courses to be attended from home
- Older people and people with disability can't cover long distances to get a PC or Internet course

The population of Norway is over 5 million. Life expectancy in Norway is increasing and it is now over 83 years for women and 79 for men.

As a consequence of this, the monitoring service carried out by Statistic Norway shows that 25% of population is younger than 20 and 62% are between the age of 20 and 66 years and 13% is over 66 years<sup>108</sup>.

The figure below shows a more detailed distribution of the Norwegian population by age and sex.

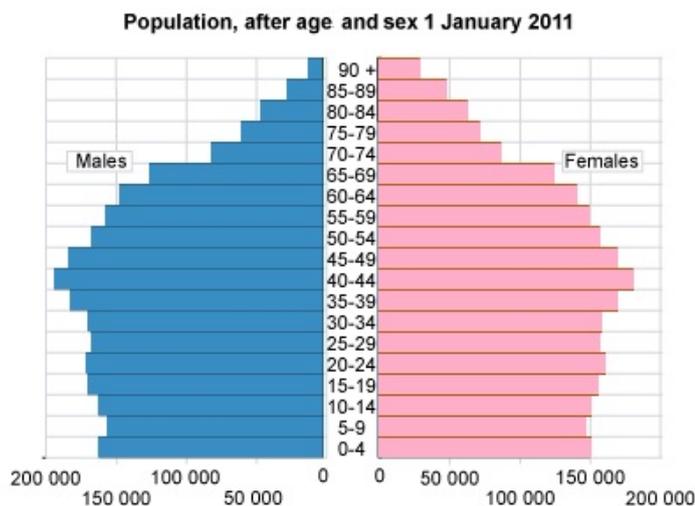


Figure 31 - Population by age and sex in Norway in 2011 – (Elaboration of Statistic Norway<sup>109</sup>)

Statistic Norway also showed that the level of PC, internet and broadband use has increased in the past 6 years, but they still have not reached 100% of population as Figure 32 shows.

**Share of households with PC, Internet and broadband. 2005-2011**

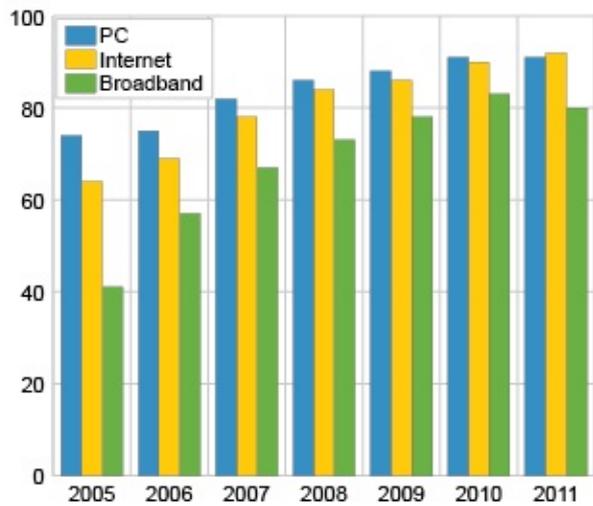


Figure 32 - Share of households with PC, Internet and broadband in Norway from 2005 to 2011<sup>110</sup>

Using data from a Eurostat 2005 study it is possible to compare the computer skills for different age groups in Norway and the whole EU25. The outcome is shown in Figure 33 where it is clear that a lack of PC and Internet skills increases with the age both in Norway and EU25.

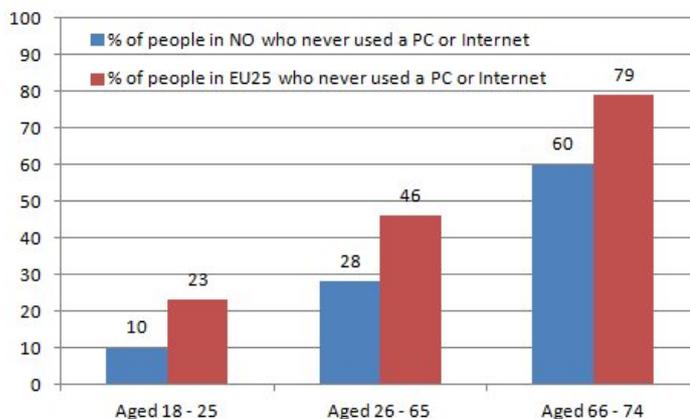


Figure 33 - Percentage of people who never used PC or Internet in NO and EU25 in 2005 (Elaboration of data from Eurostat 2005<sup>111</sup>)

It is possible to better understand the situation in Figure xx by considering that the age group from 55 to 74 consists of about 830,000 people and that the relative percentages of those who do not use ICT and the internet corresponds to about 500,000 people<sup>112</sup>.

In this case, the Norwegian government and private enterprises, are promoting net-banking and delivering tax returns via the internet in order to reduce the relative costs, but the thousands of people who still do not have computer skills risk being discriminated against by this campaign. They can use eLearning

courses or participate in some classes, but many of them do not because of a negative self-image (i.e. lack of confidence), a lack of interest, an inaccessible learning environment, too few co-learners of the same age and the cost of courses. From a study carried out by Dr. KOTSIPOULO'S team about the use of online services oriented to eGovernment, it showed that older people with no computer skills prefer learning environments which allow them to meet like minded people rather than using eLearning courses at home<sup>113</sup>, but it is not easy for them to reach a learning centre which is too far from their home.

#### **4.5.2 Strategic goals of the project**

The Senionett objective is to encouraging people to try the Internet experience by delivering it in public places near their homes like clubs, where they are used to meeting other people and they can learn from each other, share experience, genealogy searches and photos.

By attending these courses older people can develop their learning skills and it gives them the opportunity to also develop their cognitive functions and to keep their brain active for longer.

In fact taking part in learning in later life has been identified as a key element for aging well, just as movement is a key element for keeping physically active and fit.

#### **4.5.3 Project basis requirement**

The project has two main activities:

- The 'Senior-surf day' which is an annual open house event held at libraries and community centres nationwide for the older adults to learn about ICT.
- It gives adult members the possibility to book a training course in their nearest club or training centre to continue their learning.

The 'Senior-surf day' is an important ICT national event. It includes a preparatory phase, which describes how the internet is not just for youngsters and it provides an introduction to using the keyboard, the mouse, icons, links, world wide web and e-mail as well as Facebook, Twitter, Wikipedia, tablets, smart phones and digital library services.

This phase takes about 24 hours and at the end the participants get a free newspaper that summarises the content of the event and the new skills that they have gained.

The seniors who are interested in being given further information about the 156 local clubs available in the country, can book the nearest one through the dedicated web page on the official website<sup>114</sup>.

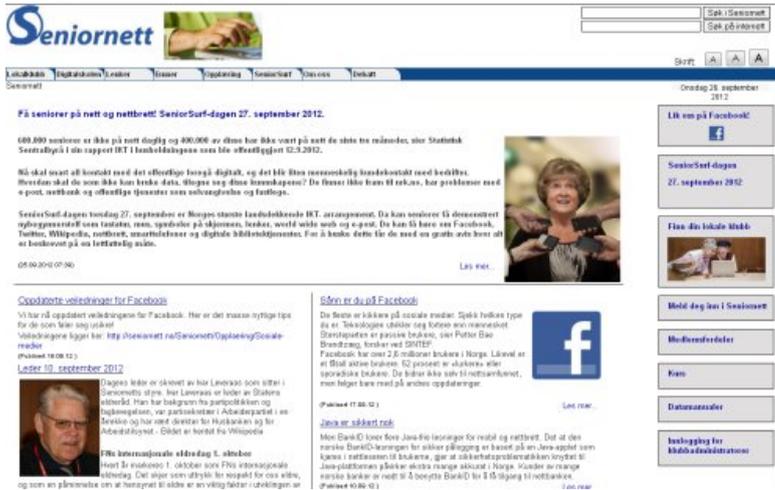


Figure 34 - The Seniornett website<sup>115</sup>

The website also allows people to find out the availability of future and ongoing courses<sup>116</sup>. They can also download some guidelines in PDF form about how to play movies on computers, capture a screenshot, select emails, prepare holiday travel, navigate on [www.nav.no](http://www.nav.no) (the national government website), claim electronically the tax returns for the year, using online banking by mobile phone or tablet, search for health online, register in social network i.e. Facebook, Twitter, Skype, Youtube, Wikipedia and Blogg.no.

The teachers get in their turn training courses in order to improve their experience and share their best practice in matter of training. The aim of the project is to train the teachers to teach other instructors, in order to increase the number of users.



Figure 35 - Seniornett lesson about [www.nav.no](http://www.nav.no) in an office<sup>117,118</sup>



Figure 36 - Seniornett meetings in bars<sup>119 120</sup>

#### **4.5.4 Cost/benefit justification of the project**

Seniornett Norway is a non-government organisation that was founded in 2000 and is now directed by Tore Langemyr Larsen.

There are permanent employees working for the organisation and about 1,000 volunteer instructors. Therefore people from a variety of ages and backgrounds are working in the senior citizen clubs, where Seniornett provides broadband lines (in places where it was not provided before) and equipment.

Each participant must pay a membership subscription which costs 250\$ per year. It is possible to register through the website (<http://seniornett.no/Info/Hoeyre-spalte/Innmelding>) or by phone and the membership allows the participant to choose their favourite club for meeting and to receive the training magazine.

The government (The Ministry of Education and Research and the Ministry of Government Administration and Reform) funds about the 50% of the Seniornett project on annually through government grants. The rest of the funding is provided by private donations and from banks, which are encouraging seniors to use their net-banking services.

In addition, institutions like Telenor, the Norwegian telecoms carrier, and the Bill and Melinda Gates Foundation contribute to the project by providing it with free software licences. The commercial return for Telenor is an increase in the number of broadband services sold.

Almost all the Seniornett guideline brochures are available online for free, with the exception of brochures that were more expensive to develop such as the Pikasa manual which costs 375\$.

The clubs are usually libraries, senior citizen centres, social organisations like the Kiwanis and Rotary clubs and volunteer centres. They don't have to pay rent and this makes the initiative cheaper and more sustainable.

The benefits for the members are the same as those discussed for the Netti-Nysse case in **Errore. L'origine riferimento non è stata trovata.** and also the potential use of the internet, from “e-services” to the infinite information available online and most of all to get access to the Norway eGovernment benefits i.e. electronic tax return.

#### 4.5.5 How does the project protect human dignity of elderly people?

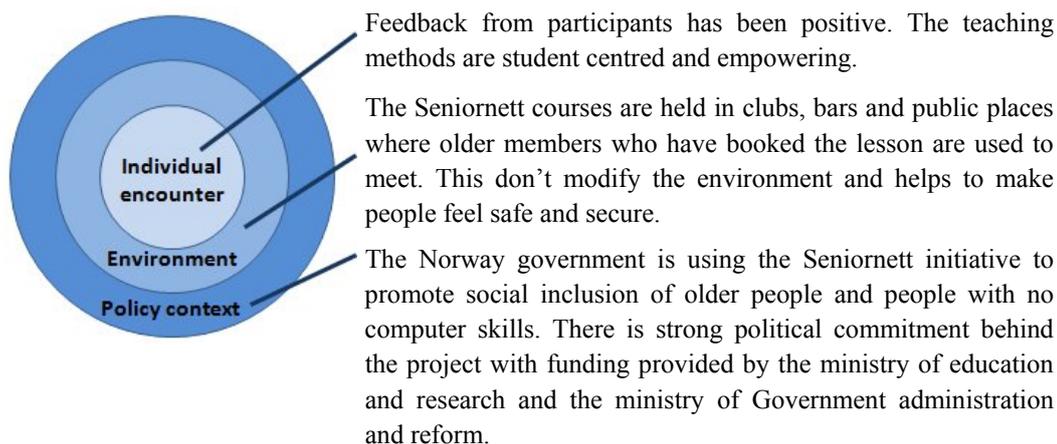


Figure 37 - Seniornett analysis in accordance with the Jacobson's model

The diagram above uses Jacobson's model to examine the impact of the Seniornett project on the dignity of older people.

The feedback from members is positive, even though there are 156 clubs and more than 1000 trainers, the courses are booked 3 months early because of the number of requests and the trainer's availability.

In the first 6 years the clubs achieved an attendance of over 30,000 members.

This means that the training is appreciated by the learners.

Seniornett gives its members the possibility to chose the club that they are most used to attending, it could be a bar, a pub, an office as well as a private house and this means that they are learning in a comfortable and friendly environment.



Figure 38 - Seniornett meeting in a club<sup>121</sup>



Figure 39 - Seniornett meeting in a private house<sup>122</sup>

Seniornett is a strategic tool for the Norwegian government to match and apply the European policy about eInclusion and eAccessibility. It is a way to empower target groups that are often discriminated against by the Information Society, such as older and disabled people.

The government benefits from progressing with their eGovernment targets and it also reduces the costs of information services.

#### ***4.5.6 How does the project oppose discrimination against older people?***

The project supports older people who want to take part in the Information Society by providing them with the basic skills to overcome the barrier of discrimination and to access services such as online banking as well as entertainment, eGovernment services as well as social networks, etc...

The Seniornett meetings are a way for the members to meet new people of similar ages and to start new friendships. This shows that there is a particular interest for users to become more familiar with social networking.

There is also an increase in the number of older people who have registered and regularly use Facebook, Twitter and other social network sites to communicate with their friends and family as well as to meet new people and to feel less loneliness.

Pingdom in America observed that a considerable percentage of older people are now using the main social networking sites. A summary of Pingdom analysis is shown in figure xx and shows that 8 to 29% of people aged over 55 and 2 to 8% of people aged over 65 are using social networking sites.

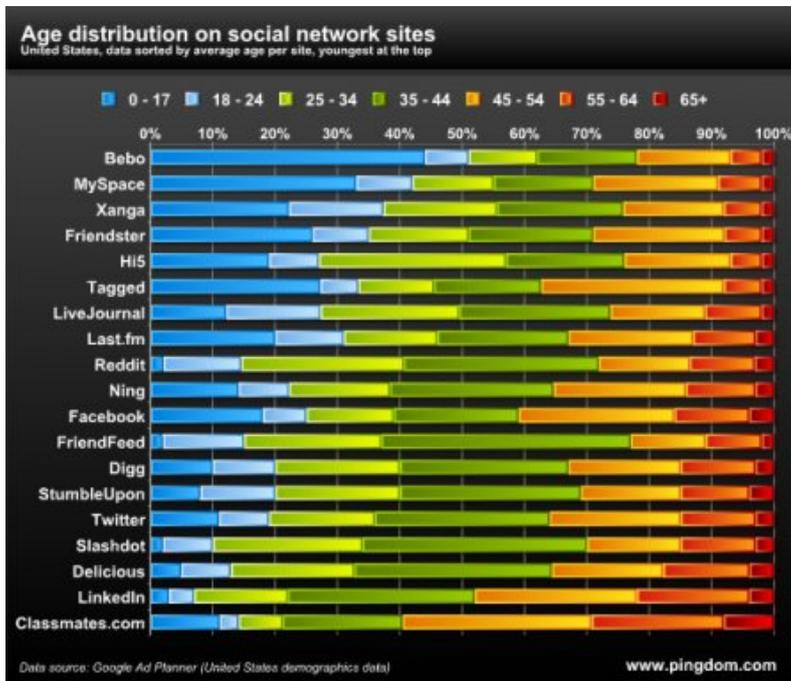


Figure 40 - Social network users by age group<sup>123</sup>

This is understandable, considering that many older people live alone and the social networking is a stimulating alternative to the TV. They are also more interactive and social and they can be used to overcome distances and to feel closer to friends and relatives.

In Norway 30.7% (about 190000 individuals) of people aged between 67 and 79 years live alone and the percentage rose to 57.9% (about 350000 individuals) for people aged 80 years and older<sup>124</sup>.

For people who do not have computer skills Seniornett is an opportunity to get familiar with tools that can improve their social life in clubs as well as remaining in their home and chatting to friends and family through a social networking site.

#### **4.5.7 Lesson learned from the project**

A key lesson learned by the Seniornett project is that it is important to continuously teach the trainers to keep them updated about the course contents and to improve their teaching techniques and approaches. Some of these updates come from their experience of teaching courses, some others are a result of studies and progress in teaching science.

Another lesson learned is the importance of using a learning environment that the participants are familiar with and most of all the classes must be organised so that the older learners can meet with like minded people from the same age group.

Seniornett has gained the interest of the media because of its success among the older participants. The “senior surf day” held in October 2011 has been followed by the media which carried out interviews and described the ongoing work.

The project got a number of awards along the years, they include:

- The Rosing Practice Award in 2006 – for the great effort that they have made to fight discrimination in the Society, for respecting equality & basic human rights and for the great result achieved with modest financial support.
- Selected as one of five finalists at the EU e-Inclusion Ageing Well Award in December 2008 – It was chosen from hundreds of candidates and the project administrators attended the award ceremony at the 2008 eInclusion Ministerial Conference in Vienna



*Figure 41 - Seniornet finalist at EU eInclusion ageing well award at the 2008 eInclusion Ministerial Conference in Vienna<sup>125</sup>*

## **4.6 Business Case 5 – Inforum - Grandparents-Grandchildren Informatics**

**Comp.**



Inforum (Forum of Hungarian IT Organisations for Information Society) is an organisation founded in Hungary in 1997. It aimed to end the discrimination of seniors from the Information Society. From the beginning Inforum studied the Information Society in Hungary, the digital divide, its social consequences, eInclusion, ICT policies and intergenerational problems.

As a result Inforum produced 8 books, 50 studies, more than 100 articles, radio shows, 3 newspapers, 15 researchers and an active and effective lobby with the Hungarian charter of information technology (2000) in the civic national action plan.

Inforum in addition to its official website: [www.inforum.org.hu](http://www.inforum.org.hu), developed further three websites: 50plusz.net in 2007 about e seniors and informatics, eInclusion.hu in 2008 about the eInclusion knowledge base, and intergeneracio.hu in 2011 relative to the Hungarian intergenerational solidarity and movement.

Inforum also produced four movies: People and Mice (IT mentors in Hungary), Einclusion year in Hungary, Public advertisement (IT competition and EU day of intergenerational solidarity) and Computer is a child play (TV serial in 30 episodes where grandchildren teach grandparents how to use the internet).

The most important initiative carried out by Inforum is the Grandparents-Grandchildren Informatics Competitions, which is a competition where grandparents and their grandchildren take part in a quiz using the PC and the Internet.

The Inforum case has been selected because of its popularity and the effectiveness of the Grandparents-Grandchildren Informatics Competitions which was appreciated by families and older people in Hungary.

In 9 years (from December 2003) the competition has become a tradition involving 1350 families, with media coverage and it was followed by decision-makers. In this way it has promoted the elderly agenda as a political, welfare, quality of life and eInclusion issue.

### **4.6.1 Specific problems addressed by the project**

- Low or no computer skills among older people
- Low availability of learning places dedicated to older people

- Low motivation and awareness of the benefits Internet can provide into the daily older people life

As the three previous cases also the Grandparent-Grandchild Competition of Informatics is an alternative initiative to face the problem of the digital divide so widely evident in Europe in particular among the older people and people with disability.

In Hungary more than a quarter of people still never used a PC or Internet, the Figure 42 shows the trend of ICT use across the years from 2005 to 2011 and to better understand the problem's entity it should be considered that in 2010 the Hungarian population was about 10 millions of people<sup>126</sup> so at least 3 millions of them never used a pc.

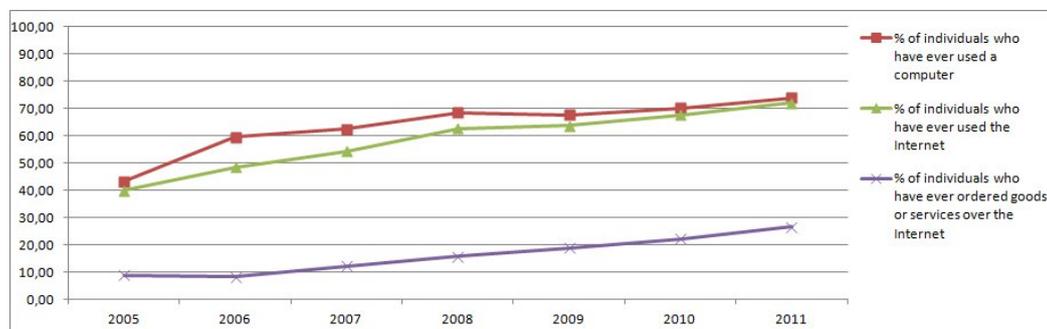


Figure 42 - Percentage of people who never used a PC, Internet or eCommerce in Hungary from 2005 to 2011 (Elaboration of data from Hungarian central statistical office<sup>127</sup>)

Many of these people aged over 50 years and, as analysed in the paragraph **Errore. L'origine riferimento non è stata trovata.**, an effective initiative is needed to encourage them to learn about ICT because they are often not motivated or unaware that Internet could be the cheapest way to access information, services, e-business, culture, entertainment, democratic public life, fight against loneliness and as a way to keep and to advance quality of life.

In addition there are not enough learning places in Hungary that are dedicated to older people even though the older generation could benefit from using the Internet.

#### 4.6.2 Strategic goals of the project

The project aims to highlight the importance of including older people in the Information Society. The Grandparent-Grandchild Competition of Informatics joins families, seniors, children, decision makers and other organizations together to create a synergy to activate a change in society, in particular in terms of discrimination towards the older generation.

The Competition uses the stimulating influence that children can have on their grandparents in order to motivate people to use s ICT. The will to win the competition with their grandchildren is strong and it encourages grandparents to become interested in technology. It helps them to learn how to interact with technology.

Inforum wants to be a reference for the information society in Hungary, it aims to lead the eInclusion movement in the country, fighting the digital divide and defending the user's interest.

#### **4.6.3 Project basis requirement**

The Grandparent-Grandchild Competition of Informatics is an intergenerational competition involving children aged between 4-14 and their grandparents. They compete with other grandparent-grandchild couples in a quiz game.

To answer the questions in the quiz each couple of participants need to become more familiar with technology by using the PC and the internet.

The competition makes use of the grandparent's life experience and the energy, the curiosity and the early computer skills of the grandchildren to create a mutual support during the game. This gives the grandparents an incentive to learn basic computer skills.

The grandchildren themselves, pushed by the desire to win, teach their grandparents how to surf the web using a browser and the grandparent in return, do their best to learn rather than disappointing their grandchildren.

Figure 43 shows some images taken at the competition. The pictures show the spirit of the competition, where both the generations are engaging with technology.





Figure 43 - Moments taken from the Grandparent-Grandchild Competition of Informatics<sup>128</sup>

There have been eight Grandparent-Grandchild Competitions of Informatics at the moment, respectively in:

- 2003 Budapest
- 2004 Budapest
- 2005 Budapest
- 2006 Kecskmet, Miskolc, Budapest
- 2008 Budapest
- 2009 Budapest

1350 families have been involved from three different countries. In 2009 the semi-final match was transmitted online and the media's interest has risen. Many of them are linked on the official web page<sup>129</sup>.



Figure 44 - Moments of media attention during the Grandparent-Grandchild Competition of Informatics<sup>128</sup>

The Grandparent-Grandchild Competition of Informatics is part of the Inforum programme which is the first intergenerational program in EU started in 2003 and involving IT, children, seniors and the internet.

#### **4.6.4 Cost/benefit justification of the project**

The first Grandparent-Grandchild Competition of Informatics took place in Budapest (Hungary) in 2003. It is an awareness-raising information initiative for eInclusion and the topic of ICT and Ageing. In particular the target groups of the Competition are people aged 60 years and older. The cost for implementing the first competition is between 15,000 and 49,000 euro, while the yearly cost is between 49,000 and 299,000 euro.

Inforum is a private body and the Grandparent-Grandchild Competition of Informatics is a non-profit initiative which was founded by public bodies including the ICT committee in the Hungarian Parliament and the Commission of Information Technology (2000) the Ministry of Informatics and Communication (2002) the eInclusion Committee in Hungarian Parliament (2007) and many private partners.

The private companies as well as policy makers also follow and support the competition because of the attention that it has received from the media, which has helped to raise an awareness of the e-Inclusion issue. The winner's prizes are sponsored by the private companies that support the competition.

The participants gain more than the prizes, the grandparents who take part in the competition learn from their grandchildren. They find out about the internet, how to use a PC and how to get information through a browser. Through the competition they have been introduced to ICT in a practical way and they became aware of the benefits of ICT through the internet.

#### 4.6.5 How does the project protect human dignity of elderly people?

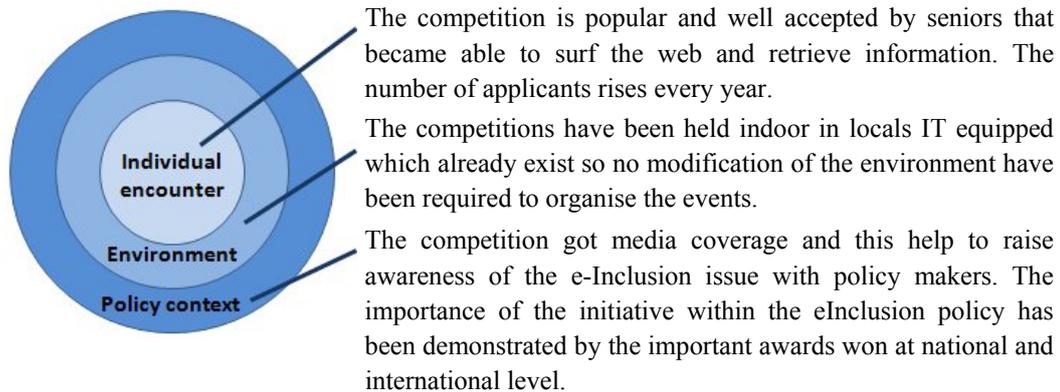


Figure 45 - The Grandparent-Grandchild Competition of Informatics analysis in accordance with the Jacobson's model

The diagram above uses Jacobson's model to examine the impact of the Grandparent-Grandchild Competition of Informatics on dignity of older people. Older people in Hungary felt that the Grandparent-Grandchild Competition of Informatics represented good practice. 1350 families have already participated in the eight events organised so far. The grandchildren are happy to play and perhaps win the prizes provided by the sponsors and the grandparents get the opportunity to sample the web and the services available online.

The attention of the media and decision makers is a boost for eInclusion. The competition became a social movement in 2003, when the initiative started, the number of internet users over 60 in Hungary was 20,000 and in 2012 it reach 300,000.

The use of the PC to improve the quality of life for older people is even more accepted thanks to the Grandparent-Grandchild Competition of Informatics. It represents the first intergenerational program in the EU and has been identified as the best practice in Hungary. Across these years Inforum has been awarded at national and international level, the awards won include:

-  Award for senior idol Pannon Peldakep foundation
-  Efestival award 2008
-  Award medalist Einclusion 2008
-  Good practice label 2009
-  Runned up in eInclusion 2012



Figure 46 - The EU e-Inclusion Ageing Well Award, Gold Medal, 2008 won by Inforum<sup>130</sup>



Figure 47 - Inforum got the eInclusion award at the 2008 eInclusion Ministerial Conference in Vienna<sup>131</sup>

#### **4.6.6 How does the project oppose discrimination against older people?**

The Grandparent-Grandchild Competition of Informatics is also broadcast by the media and it is available online. In this way the competition is contributing to the fight against the digital discrimination of older people and it encourages both themselves and their friends and family to become involved in the Information Society.

In addition to taking part in the competition, older users can benefit from using ICT and the internet.

Through surfing the web and looking for information online, any worries that the older users had with regards to the internet and information technology (such as the fear of damaging the PC or getting a virus) are reduced.



Figure 48 - Grandparent and grandchildren hand over the mouse during the Grandparent-Grandchild Competition of Informatics<sup>128</sup>

During the competition, the grandparents learn how to communicate through ICT (by email, chat, social networks or video-communicating software) with their grandchildren, relatives and friends. This helps them and their friends to feel less isolated. It is a social event where old and young people can meet each other to learn about ICT.

#### **4.6.7 Lesson learned from the project**

The main lesson learned from this case is that older people needed to be motivated to learn about ICT and to help them to take part of the Information Society. The programme encouraged them to use technology.

Another lesson learned was that there are benefits towards using an intergenerational approach. It gave them the chance to compete in an ICT competition with their grandchildren (but they also learned valuable lessons that can be used in areas other than ICT). This incentive is encouraging older people to learn about ICT.

The third lesson from the competition is that there is no age limit for learning about ICT and grandparents were able to teach their grandchildren about ICT.

#### **4.7 Business Case 6 - FRR**



Friendly Rest Room is a consortium project which was partly funded by the European Commission in 2002 with the aim to carry out a study in several European countries in order to develop a more user friendly toilet system for older and disabled people. The project developed several prototypes of smart toilets and tested them with end users.

After the project concluded in 2005, they launched the production of two of the best prototypes. They were produced for the European and the Austrian markets. FRR has been selected as a business case because of their user centred approach throughout each phase of the project, from the research studies to the design, and during the tests and evaluation of prototypes. The project had a positive impact for the end user.

#### 4.7.1 Specific problems addressed by the project

- Often public toilets do not meet the needs of disabled people.
- Many older people find hard to leave home due to a lack of adequate toilet facilities
- Rest room cannot be used safely by people with special needs

About the 15% of the population of Europe is affected by a form of disability. According to analysis carried out by Applica & CESEP & European Centre, most disabled people are older than 55 (as shown in Figure 49) and the percentage of physically disabled people is more than the percentage of cognitively impaired people (as shown in Figure 50).

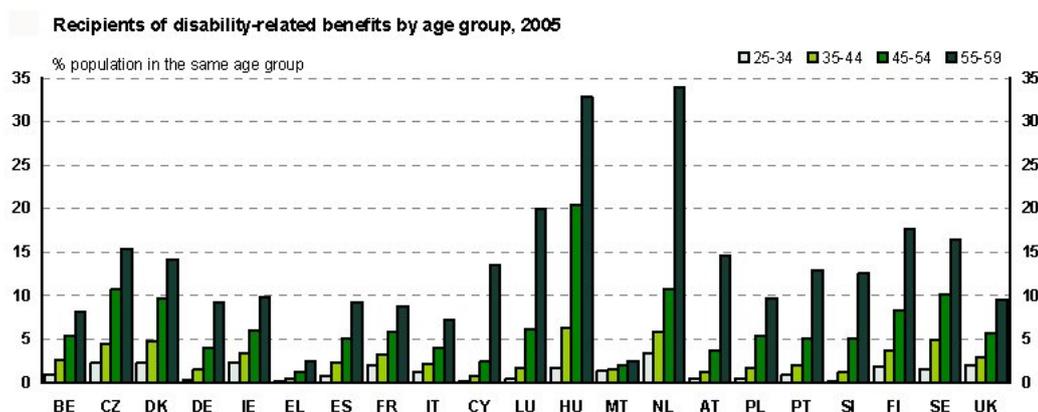


Figure 49 - Percentage of people with disability by age group EU25 in 2005<sup>132</sup>

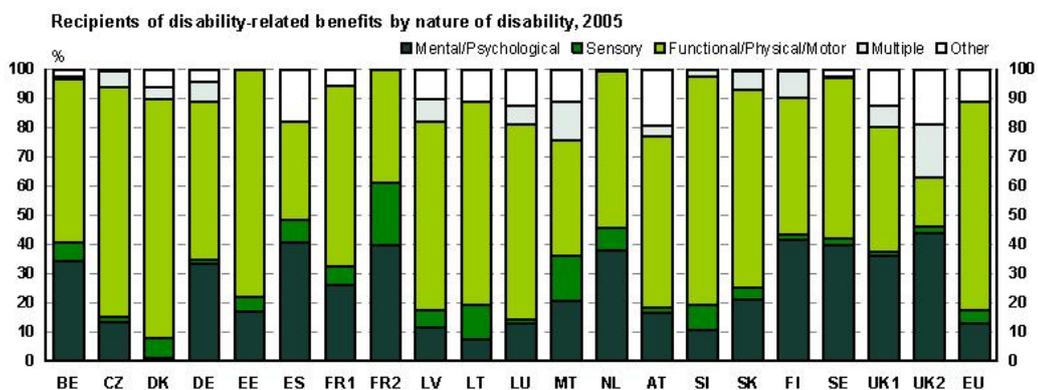


Figure 50 - Nature of disability in percentage in EU25 in 2005<sup>132</sup>

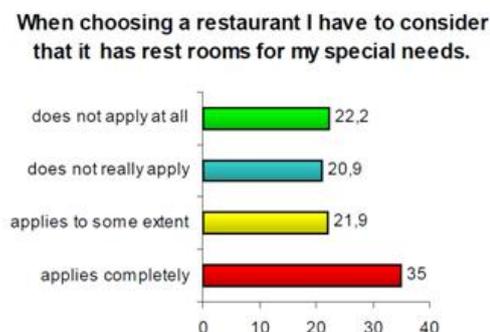
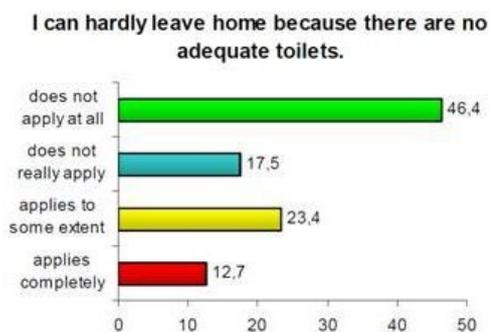
Considering that people with disability have specific needs, it is easy to understand how they can find it difficult to use the toilet facilities in private and public places that are not designed to suit their needs.

Often public toilets do not meet the needs of physically disabled people and from a quantitative study carried out by the FRR project, involving more than 350 people from different European countries, it was shown that 54% of the respondents have difficulties in using the rest room and the 36% find hard to leave home due to lack of adequate toilet facilities.

About 57% of respondents stated that they make choices such as what restaurant to eat in based on whether the toilet is accessible or not<sup>133</sup>.

The study evidences that the main problems for the users include:

- Getting up and sitting down
- Lack of a right support
- Reaching the toilet
- Undressing
- Injuries from in the bathroom
- Hygiene
- Balance problems



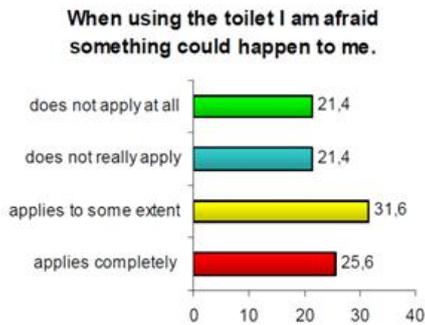


Figure 51 - People worries about rest room<sup>133</sup>

#### **4.7.2 Strategic goals of the project**

The FRR project carried out the research into the design, the engineering and the evaluation of prototypes for a more user Friendly Rest Room (FRR) for older and disabled people.

By involving people from the target group in the design phase of the prototypes the project aimed to respond to the needs of a large number of older and disabled people. In this way this project increased their independence, self-esteem and dignity.

#### **4.7.3 Project basis requirement**

The user centred approach of the project began with the analysis of 316 toilet-session involving 255 people of different ages and disabilities. The project analysed their behaviours, their preferences and their needs as well as the impact that product specification has on disabled people.

They have also produced a questionnaire in five different European countries to investigate the need for innovative toilet design across a variety of geographical, cultural or gender differences and to evidence the main difficulties found by the people using a normal restroom.

The difficulties mentioned by the respondents are highlighted in the follow figure.

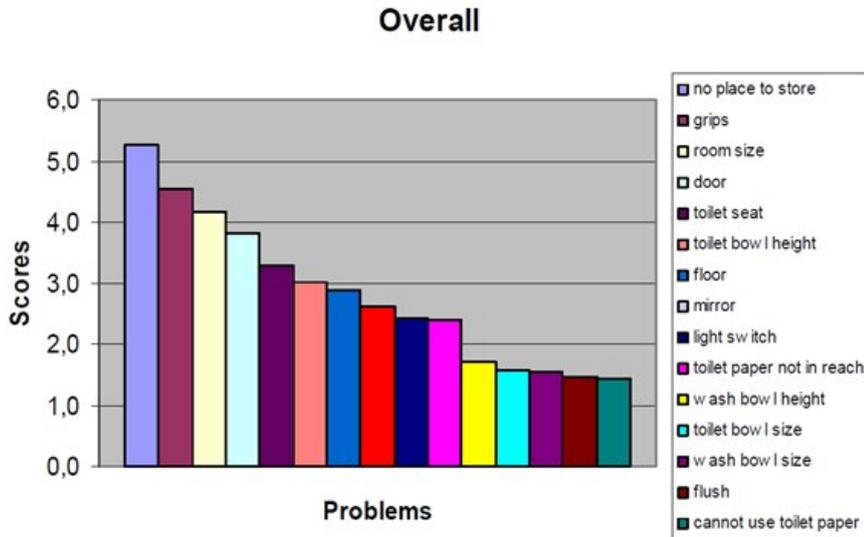


Figure 52 - Problems highlighted by the public toilet users<sup>133</sup>

Further studies have been done about the preferences people have for kind of supports and their position.

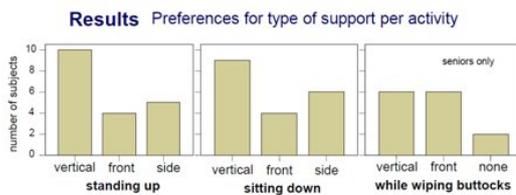


Figure 53 - Study of preferences for type of support per activity<sup>133</sup>

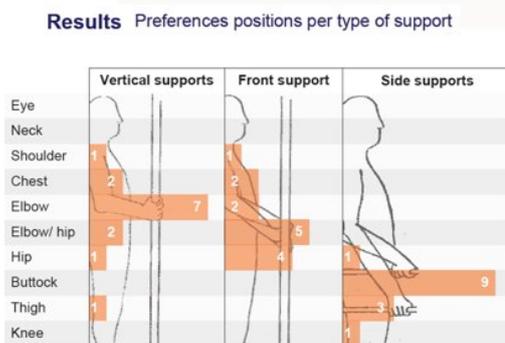


Figure 54 - Study of the preferences for support position per type of support<sup>133</sup>

This information has been used as a starting point in the design phase.

The resulting five prototypes have a number of adjustable elements including: a toilet bowl that is adjustable in height and tilt, transfer seat with “wings”, vertical and horizontal grip bars, movable wash basin, multilingual speech control, speech output and touch screen interface as well as smart card detection to automatically adapt the toilet to the user’s preferences.

In the follow figures shows some of the prototypes that were developed.



Figure 55 - Design phase<sup>134</sup>



Figure 56 - Some prototypes developed by the FRR project<sup>135 136 137</sup>

In order to test and validate the project results, one of the toilet prototypes was installed for two months (from December 2004 to February 2005) at a day care centre for Multiple Sclerosis patients in Vienna.

The prototype toilet bowl had an adjustable height (between 44.6 cm and 76.8 cm), steering wash hand basin between 0 and 6.5 degrees, a remote control with a button to call for the nurse, an RFID reader to recognise the patient using the toilet and a monitoring unit able to log every 100ms any signal from the toilet sensors.



Figure 57 - Monitor unit installed in the toilet prototype at tested at the Day care centre for MS patients in Vienna<sup>138</sup>

The data collected during the test was used to design and produce successive prototypes of “Friendly Rest Rooms” where more components are adjustable to the specific needs of the older user (who may have varying degrees of functional impairments). Additional laboratory tests and real life evaluation have been arranged in five European sites for all the prototypes developed as a result of the project.

#### **4.7.4 Cost/benefit justification of the project**

The Friendly Rest Room commenced in January 2002 and finished in March 2005, lasting 39 months and was partly funded by the European Union in conjunction with the Fifth Framework Programme’s key action: “The Ageing Population and Disabilities.”

The FRR consortium consisted of a number of end-user organizations representing more than 30 European countries, universities, research and rehabilitation centres as well as industrial partners from design and sanitary industry. They include:

- Delft University of Technology (Netherlands) Coordinator
- forttec - Research Group for Rehabilitation Technology, Wien (Austria)
- Certec - Division of Rehabilitation Engineering Research, Lund University (Sweden)
- Eurag - European Federation of Older Persons (Austria)
- University of Athens, Faculty of Nursing (Greece)
- University of Dundee, Dept. of Applied Computing (UK)
- Landmark Design for Public (Netherlands)
- Siva - Centro IRCCS S.Maria Nascente (Italy)
- Hellenic Association of Gerontology and Geriatrics (Greece)
- Clean Solution Kft. (Hungary)
- Institute for Design & Assessment of Technology, Multidisciplinary Design Group, TU Wien (Austria)

The cost for the implementation of the project is between €49 000 and €299 000. After the contract with the European Commission ended in March 2005 FRR continued to be funded by national administration, private societies, charities and voluntary donations. In January 2006 a first product version was launched on the European market by the Hungarian company Santis Kft with an end user price of about €3950 and a delivery time of three to four weeks after the order was received. A different version was also used as basis for design in the FRR project and is available on the Austrian market via the company HOBI. In addition, in mid 2011 the entire studies and the FRR project results have been published in a book.

The success of the innovative toilets prototypes was confirmed through the tests and the user satisfaction questionnaire. It was particularly evident that the user frequently utilised the new features of adjustable tilt (operational between 0 degrees and 6.5 degrees) and height (operational between 43.6 cm and 67.9 cm). The tests also detected an increase in the rate of use of the rest room due to the new features available (as shown in Figure 58).

The questionnaires indicated a satisfaction rate of approximately 80%.

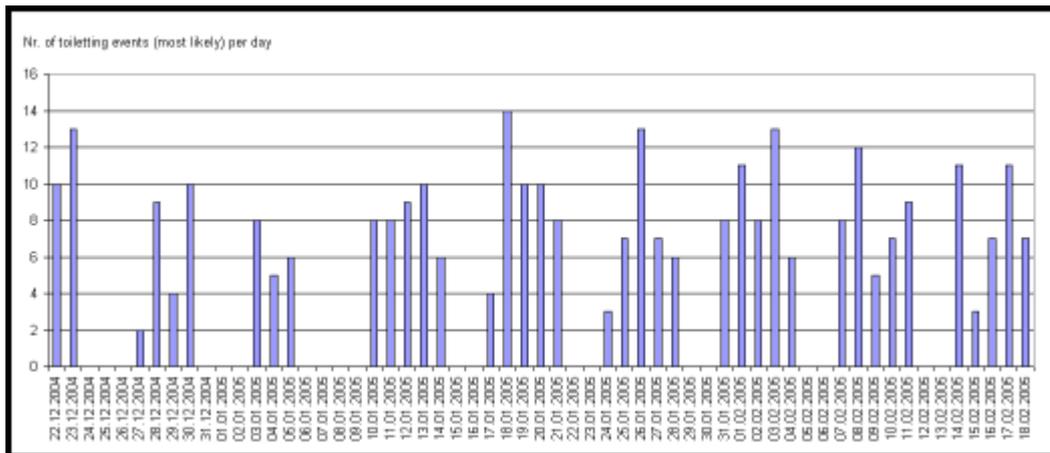


Figure 58 - Rate of use of the FRR prototype tested at the Day care centre for MS patients in Vienna<sup>138</sup>

The end user reported that the FRR toilet prototypes made a number of improvements that simplified their toilet experience. This was due to the presence of an alarm device linked with the several grips distributed throughout the rest room, better lighting to the adjustable elements, and the personalization of settings through RFID recognition to the voice control system.

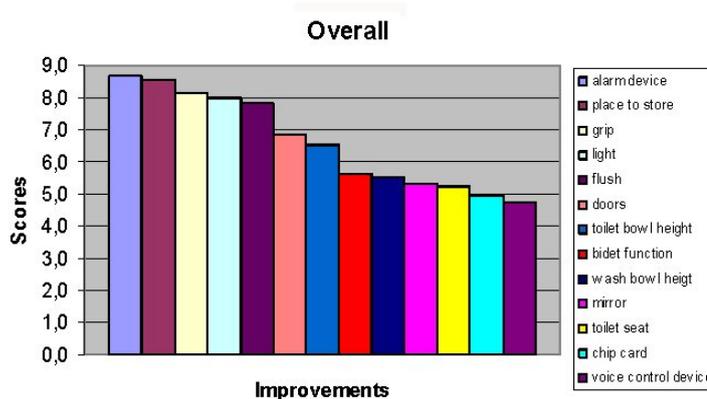


Figure 59 - Improvement found by the end users in the FRR prototypes<sup>133</sup>

The main benefits the users reported an increase of their autonomy and safety in using the rest room in public areas, which has a direct impact on their quality of life and their dignity.

#### 4.7.5 How does the project protect human dignity of elderly people?

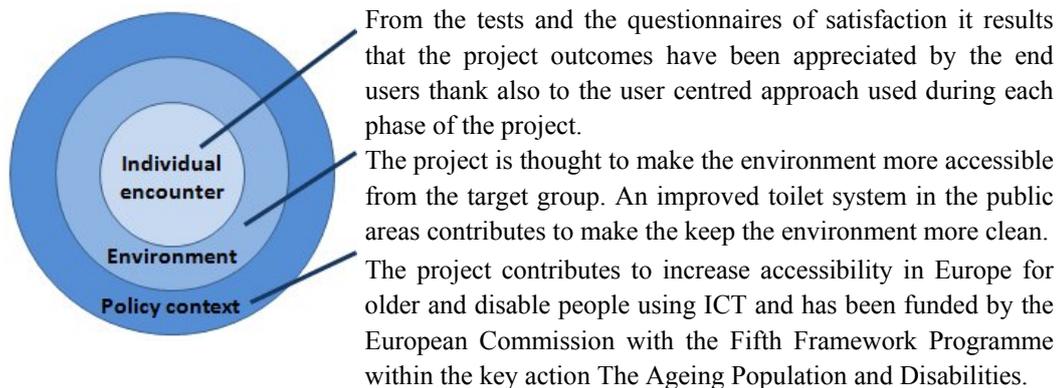


Figure 60 - The FRR project analysis in accordance with the Jacobson's model

The diagram above uses Jacobson's model to examine the impact of the FRR project on dignity of older people. Ethical guidelines were developed and followed by the FRR project in order to protect the rights of vulnerable users who were involved in boards, focus groups and prototype testing.

The involvement of the end user in the design and evaluation during the iterative steps was aimed to create user centred solutions which was achieved as the older people were reported to appreciate the outcomes experienced through the use of the developed prototypes. Their enthusiasm was manifest in their responses to the questionnaires (approx 80% of satisfaction rate) and increased in the daily use of the prototypes during the test phase.

The prototypes developed with respect to the various needs of the end users. The FRR project makes the toilet experience more accessible and allows the users to be independent, comfortable and adapt to the individual surrounding environments. The fact that the adjustable elements in the prototypes were moved by the end user during the tests (the toilet tilt was moved between 0 degrees and 6.5 degrees and its height between 43.6 cm and 67.9 cm) means that such possibility was a need for them that they were unable to satisfy before the FRR intervention. The same is true for the grips and the alarm device which made the users feel safe contributing to their dignity and quality of life.

#### 4.7.6 How does the project oppose discrimination against older people?

It is possible to understand how the project opposes discrimination against older people and people with disabilities by observing Figure 51 and then the Figure 58. In the Figure 51 the 36% of the respondents declared that they find it difficult to leave home because there are no adequate toilets in the place where they desire to go. 57% of the respondents stated that their choice of restaurant depends on the rest room facilities available because the target group may experience a type of discrimination in this instance. However, in Figure 58 it is evident that an

increased uptake of the toilet prototype tested would mean that these issues may be overcome. If solutions like the FRR prototypes were distributed in public areas, the users would benefit as they would not be forced to choose their restaurant or their destination based on the availability of a suitable toilet.

#### ***4.7.7 Lesson learned from the project***

A lesson learned by FRR project is the possibility to personalize the height and tilt of toilet elements in order to fit the individual users' needs was considered to be important through the successful integration of ICT feature as the end users could benefit from everyday situations. Other lessons include that an improved toilet system can provide benefits not only for older people and people with disabilities, but also for their carers who are facilitated by the ICT in helping them to use the toilet. The older or disabled person can take advantage of the alarm device installed to enjoy privacy with the added reassurance that they may call for further support if required. Finally, it is important that a user centred approach is employed at each stage of the project, realized by involving the end users in consultation, focus groups and prototype testing. The outcomes of FRR project would not be as effective without such an important contribution informed by real experiences.

#### ***4.8 Business Case 7 – User Centre Group - Dundee***

The User Centre Group opened in 2005 in the School of Computing at the University of Dundee (Scotland) and it consists of a friendly and informal computer club for over 60s.

The User Centre Group currently meets for two hours of a training session about ICT topics three times a week and the official website is a sort of social network for the members as well as their friends. The User Centre Group has been selected as Business case for the positive impact on the older members and for its effectiveness in combining research and training.

The School of Computing has a long history of working on technologies for older and disabled people and the User Centre Group represents a resource for the researcher working in the school. Many researchers actually volunteer as trainers in the classes, taking the opportunity to involve learners in some of their research they are conducting. Through this, the older members are both learners and precious sources of user feedback which can inform the researcher's projects within the School of Computing. Consequently, each older participant involved in the research has the potential to contribute in the development of associated products, making them more accessible for the group that they represent.

#### 4.8.1 Specific problems addressed by the project

- Lack of computers skills among the older people
- lack of motivation among senior persons in learn about ICT
- physical and cognitive difficulties in using PC and Internet for older people
- isolation of the older adults living in their own feel loneliness and isolation

In 2004, a survey in Scotland (Morris, Goodman and Brading, 2007) showed that 27% of people over 65 never used a PC and this percentage increased significantly with age.

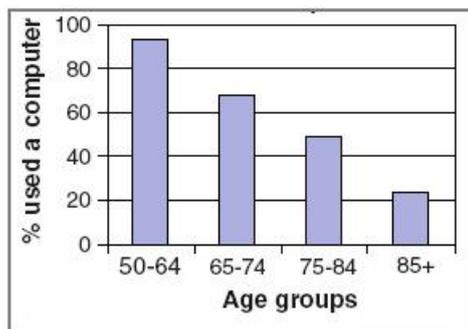


Figure 61 - PC use Scotland in 2004 by age group<sup>139</sup>

Two years later in the whole UK, LK design found that only 18% of people over 65 use Internet.

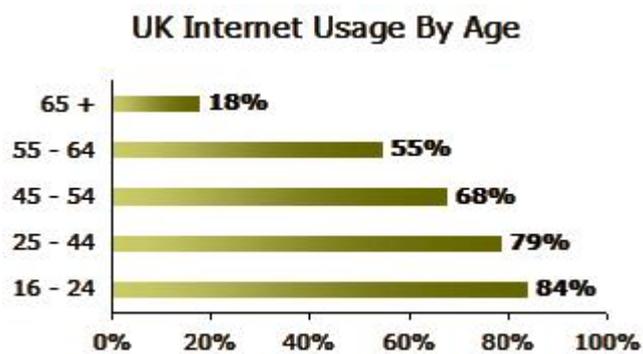


Figure 62 - Internet use in 2006 by age group<sup>140</sup>

The internet is an important means to provide access to interesting courses which are often free. Several websites offer a variety of eLearning program aimed to increase the computer skills of the visitors and their ICT skills in general. Some of these programs are also designed for older people but only few older users reap the benefits of them. The percentage of people aged between 65 and 74 in the UK who followed an online course in 2011 is 2% and this percentage is representative of the same group throughout Europe<sup>141</sup>.

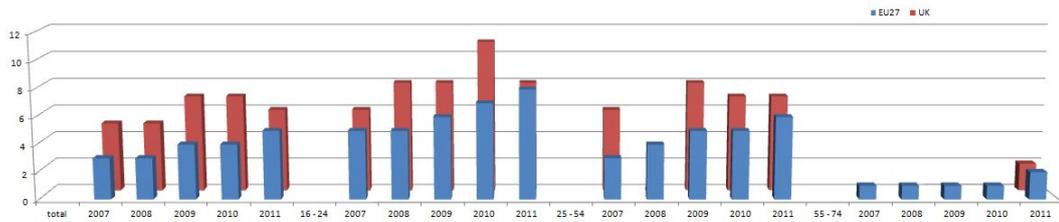


Figure 63 - Percentage of people who followed an online course in UK and EU27 from the 2007 to 2011 by age group<sup>141</sup>

As reported in the paragraph **Errore. L'origine riferimento non è stata trovata.** the lack of computer skills among older people is partly due to a lack of interest in ICT. 47% of older adults said that they don't need of Internet and therefore they are not motivated to follow a course or in get a PC<sup>142</sup>.

Another reason related to this are the difficulties the older users encounter when they use a PC and particularly a browser. Some of these difficulties can be physical, like the mobility and dexterity issues with input devices, including:

- Using the mouse to point and click on small targets
- Keeping the hand steady when navigating
- Move into a multi-level menu
- Losing the cursor
- Moving in the desired direction
- Running out of room on the mouse mat
- The mouse ball getting stuck
- Making slight mouse movements while trying to press the button

Or visual problems including:

- Not enough contrast in the screens
- Sizes of objects and text being too small to be distinguished
- Letters in the font used are not easy to read

Some other difficulties are cognitive and include:

- Confusing format of texts
- Distracting page or screen structure
- Unused and complex menus or website architectures
- “Change blindness” phenomenon where changes on a page are too small to be noticed by the user
- Confusion due to many choices available in a website home page, in a browser as well as in an user interface in general
- Short-term memory problems
- Fear of making a mistake - losing data or ‘breaking something’
- Stress about unclear advertisements and prevalence of ‘pop-up’

The Pingdom analysis Figure 40 illustrates that despite the aforementioned issues there is a considerable number of older users (ranging between 8 to 29% of people aged over 55 and between 2 to 8% of people aged over 65) that use a PC to access in one or more social networks.

While older people may be motivated by the social incentives that social networks offer, using these may take considerable effort on their part to cope with their age related impairments which may negatively affect their experience in using ICT.

It has been demonstrated in the paragraph **Errore. L'origine riferimento non è stata trovata.** that loneliness felt by an older person living alone has been linked with heart disease and an increased risk of death.

Social networks have the potential for older and disabled people as a means of communication with those outside their home without needing to move from it and thus contribute positively by alleviating feelings of loneliness.

#### ***4.8.2 Strategic goals of the project***

The main goal of the User Centre at the University of Dundee is to provide a space for older people to become familiar with technology and benefit from learning opportunities, social interaction and research. Training courses can overcome the lack of computer skills among older people and encourage their participation in the digital world. Such courses can take the form of formal class-based training, but also informal training by friends and family who act as “coaches”.

This is the strategy behind the User Centre at the University of Dundee, in other words they created a space where older people can meet up and teach each other or follow lessons provided by the trainers. The space is both physical, represented by the classrooms where the lessons being held and virtual, represented by the online social network embedded in the official website.

There are no reasons not to use a social network as a channel to teach about ICT, contrarily there are a number of advantages that the older users may appreciate. Another objective of the User Centre Group is to involve older people as reviewers of some software, projects and initiatives in courses which have older users as their target group. The project aim in this way to make the registered members became potential protagonists in removing discrimination of older people in the Information Society.

#### ***4.8.3 Project basis requirement***

The User Centre Group of Dundee is a university environment where older adults and Human Computer Interaction researchers come together to learning from each other. The User Centre opened in 2005 and is located at the ground floor in the

Queen Mother Building at the University of Dundee. It consists of a room specifically designed for older people, equipped with a mixture of computers including desktops, laptops (including Macs and PCs), printers, scanners, large screen televisions, Nintendo Wii and Wii Fit board.

The room is arranged to look informal and inviting, there are a number of tables hosting groups of three to four computers plus one for coffee breaks<sup>143</sup>.



Figure 64 - The user centre room at the Queen Mother Building at the University of Dundee<sup>144</sup>

The User Centre Group organises three learning sessions of two hours per person per week, two of them are drop-in sessions where the content is decided by the learners (such as looking up train times or the best deal for insurance), one session is organised by the trainer in accordance with the programme of study and repeated for two weeks consecutive. The coffee break in the middle of the lessons is a social platform which enables the members to take the opportunity to chat and get to know each other which is intended to encourage peer learning as they become familiar and comfortable with one another. Every month a special lesson is dedicated to help older people to solve personal technical issues related to ICT (for instance connecting their digital camera to the computer). The attendance is free and not essential, but booking is required before the class commences. It can be used by new members to join the group with the primary intention to solve a particular issue or to learn a specific task and through this they may become interested in the other courses, creating the opportunity to learn more.

The Queen Mother Building, University of Dundee is based in the School of Computing where a number of projects have older adults as their target group which conducts Human Computer Interface Research. It is not mandatory to join the group but members of the User Centre Group can choose to participate in the ongoing projects of the School providing their feedback as volunteers representing the target group. This allows users to become involved in the research and development of innovative solutions that may contribute and improve their future or prospective generations of older users.

Before engaging with the group the researchers obtain ethical approval and informed consent from all participants.

The older volunteers can be involved in a variety of research projects, ranging from focus groups on social networking to usability evaluations of health information online, as well as discussing new video-communication systems over the digital television protocol and defining the user requirements for an older user oriented browser interface.

An example of the feedback from the older volunteers regarding their suggestions to reduce the complexity of the software and enhance ease of internet use for seniors includes:

- Simpler and fewer buttons
- Clearer back/forward option, including having the Back button in a new window
- Display the results of research in associated groupings
- Fewer pop-ups

The UTOPIA team at the University of Dundee simplified the interfaces of the browser Internet Explorer (IE) accordingly as shown in Figure 65.



Figure 65 - The simplified IE interface used at the University of Dundee matching the suggestion of the older voluntaries **Errore. Il segnalibro non è definito.**

The University of Dundee has an annual open day to promote the User Centre Group and entice new members. This event was organised to coincide with the National Silver Surfer Day (also hosted at the University).

Another aspect of the User Centre Group initiative consists of the official website, which is a multifunctional portal and embeds a social network populated by the older members of the centre as well as some of their friends and other people from the same age group.

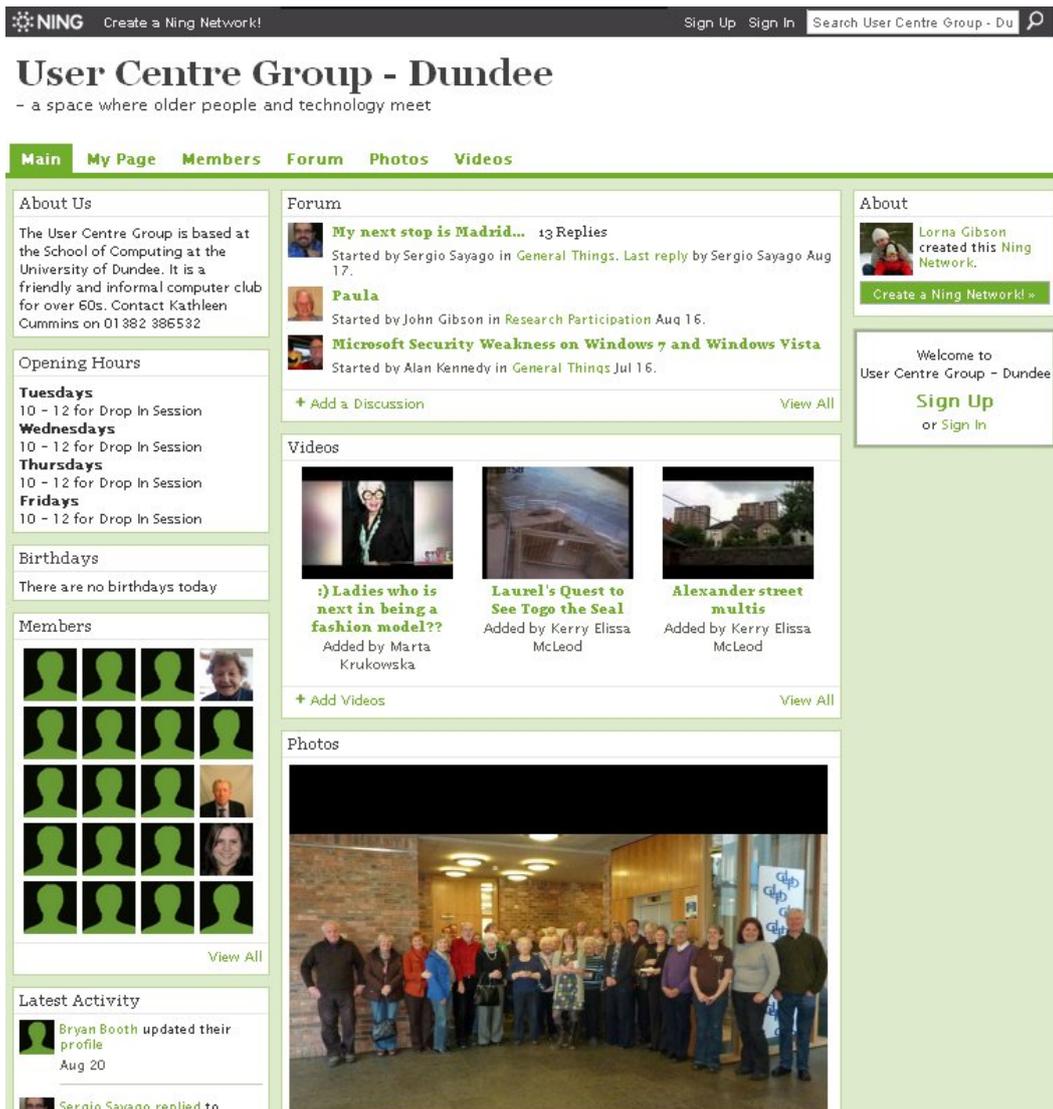


Figure 66 - The User Centre Group official website<sup>144</sup>

Among its functions, the website provides the possibility to monitor the availability of the classes which may be viewed and booked online. The website is also another outlet to involve older people in ongoing research as visitors may complete questionnaires and leave comments in forums relating to particular topics.

This portal is also utilised to provide information regarding local events for older people, about health, general information and to share comments and tips.

The User Group Initiative benefited from media coverage due to its success which was indicated by the older users' satisfaction rating. This acted as a platform to share the older volunteers' enthusiasm about their personal experience and knowledge gained throughout the project.

#### **4.8.4 Cost/benefit justification of the project**

The User Centre Group was established following funding in 2005 and takes place in a room called the User Centre in the Queen Mother Building, University of Dundee. The group meets three times per week for two hours sessions, plus once a month to support older members with personal questions about ICT. There is also an annual Open Day in conjunction with the National Silver Surfer Day.

John Gibson is one of those responsible for The User Centre and is now over 74 years of age.



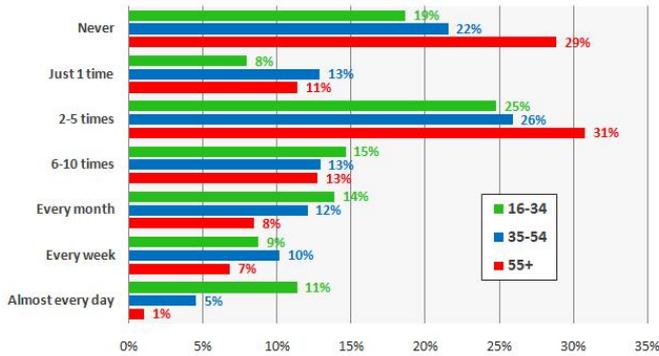
*Figure 67 - John Gibson interviewed by the STV broadcast<sup>145</sup>*

Until 2009, three thousands hours of volunteering had been completed in the User Centre by the older, postgraduate and academic volunteers who help out during the sessions. The User Centre Group is part of a twelve million pound project launched in the city of Dundee to make the digital media available to everyone regardless of their age or background.

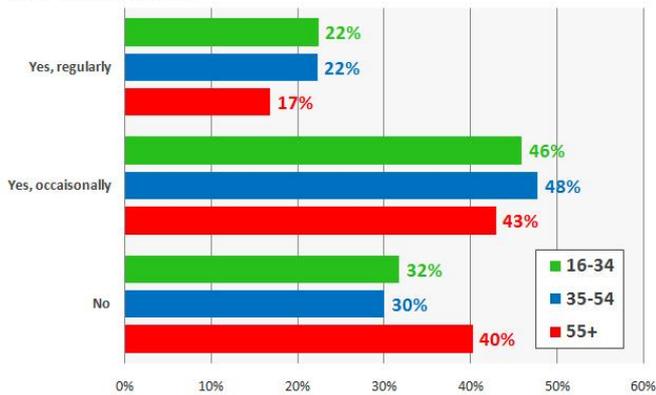
The beneficiaries of the initiative are both the older members and the researchers of the School of Computing involved in the training. While the older members participating at the classes have the opportunity to learn about ICT and how it can improve their daily life, their trainers who are Human Computer Interface researchers and students can take the opportunity to learn and understand user preferences and needs. The older users are an imperative resource for the university as they provide feedback which could inform the industry and future projects. Students are equipped with willing volunteers and older people may benefit from continued learning by becoming part of the university community.

An example of one of the topics taught in the classes relates to internet searches for finding and evaluating the convenience of local businesses. The following figure shows the outcome of a survey completed in October 2010 by Bright Local which polled 2012 online consumers (1138 from the USA and 874 form the UK) about their habits in using Internet as a supportive shopping tool.

**How many times have you used the internet to find a local business in the last 12 months?**



**Have you ever read online customer reviews to determine whether a local business is a good business?**



**How do online customer reviews influence your decision to use/select a local business?**

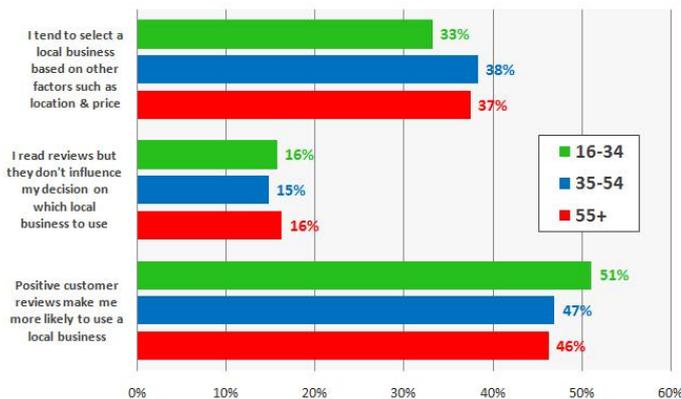


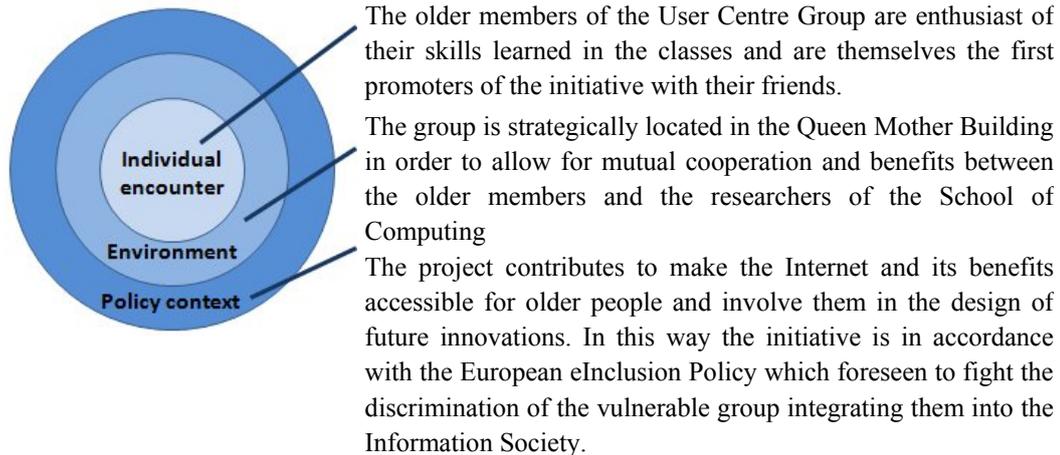
Figure 68 - Survey about use of Internet as a support for shopping well in UK and US by age group<sup>146</sup>

Figure 68 indicates that older users (aged over 55) are less inclined than younger users (aged between 16-34) to use the internet to find desirable businesses, however, 60% of older people who read online customer reviews to determine whether a local business is a good business and 46% of those take other user's comments into consideration when purchasing a product. This suggests the importance of integrating the older population in the information society so they may gain from the cooperative knowledge of other consumers who have rated products based on their performance.

Such cooperation overcomes age barriers and the classes in the user centre group can contribute in an increase in the number of older people who benefit from it.

Group membership is dynamic, new members come, and some of those who acquire the desirable skills no longer attend. Frequently members of the group are the chief promoters of the initiative among their friends. The open day held within the university is another platform which coincides with the National Silver Surfer Day. Additionally, the User Centre Group continuously renews research and seeks new volunteers with ICT skills who can assist members of the group.

#### **4.8.5 How does the project protect human dignity of elderly people?**



*Figure 69 - The User Centre Group analysis in accordance with the Jacobson's model.*

The diagram above uses Jacobson's model to examine the impact of the User Centre Group on dignity of older people.

Social networks may be used as a channel to educate older users about ICT and there are a number of advantages pertaining to them. The classes enable older users to learn to solve ICT problems and enhance their skill set. There are social advantages to the classes as they may meet others and feel valued as they are involved in university research projects. This can improve self esteem and dignity as they are learning ICT skills as an older citizen and bringing their opinions and values which will inform future progress and advancements of the information society.

#### **4.8.6 How does the project oppose discrimination against older people?**

By participating in the focus groups and the design phases of new innovative technologies, older members have the chance to become potential protagonists in removing discrimination about themselves and people that they represent in the development of upcoming entering the market. The User Group website is another aspect of the initiative intended to oppose discrimination against older people, it provides free registration of the group and classes, represents a place for members in the form of social network who may ask for ICT support.

The website is a duplex channel, which means that in addition to acting as a source of information (with help available 24 hours) and has the potential to promote communication for older people where they may share issues and information about local news or events. This may assist in reducing feelings of loneliness not only during the classes but also when the users are at home in their own.

#### ***4.8.7 Lesson learned from the project***

The lessons learned from the User Centre Group initiative are:

- The older people prefer learning to use a computer to help with practical aspects of their life, something that they can benefit from everyday, rather than a specific piece of software such as Microsoft Word
- The layout and the informal look of the user room where lessons are held contributes to the success of the initiative because tables are dispersed throughout the room and host a small number of computers (three to four) which avoids a typical lab space with rows of computers.
- A strategic component of the initiative is the coffee break as it allows the learners to meet and become friends willing to help each other, in ICT matters as well as in life. This has potential to extend beyond the classroom through the use of the website.
- It is important to give the learners the option to choose topics they want to address as this was found to be linked with attention, their mood and interest in learning.
- To successfully involve the older members into research it is important to make them aware of their valuable input. The participants often have to overcome a lack of confidence in their abilities and instilling a sense of worth in them can help to generate enthusiasm and promote their dignity.
- Giving feedback to the older volunteers about the outcomes of the project due their participation acts as an incentive which may encourage them to be involved in future research.
- During a lesson it is important to avoid computer jargon in order to avoid confusion and give the participants the time to elaborate their doubts and formulate questions as it was shown that older adults can take up to 25% longer to complete tasks than younger people.
- The trainer must be able to interpret the trainee's response to tasks, eg. if the task becomes complicated, participants may stop talking and it may be worth revisiting the lesson.
- Using different computers and Operating Systems (OS) could present a problem when the participants try to practice their learned skills at home, in this case the social network aspect of the website may assist the user by provide online support particular to their OS.

#### **4.9 Business Case 8 – COGKNOW DayNavigator**



The Cogknow project started in 2006 as a 36 month long IST-FP6 EU funded project with Spanish coordination and consortium members from Spain, Netherlands, Sweden, UK, Norway and Malta.

The project comprised of various professionals including: medical doctors, and software researchers and developers. Together they worked to address the daily needs of those with mild dementia including the most frequently identified issues of memory problems, communication and psychological distress. The outcome of the project was the Cogknow DayNavigator, a holistic embedded solution (including a stationary touch screen, a mobile device, home-based sensors and actuators) designed to assist persons with mild dementia to take care of themselves within their own homes and outdoors. The aim was to improve their quality of life by promoting independence, safety and social interaction.

The project has been selected as business case because of its particular target group and the effectiveness of the solution developed. Alzheimer Europe has estimated that the yearly direct care cost for dementia in Europe is approximately 7 billion euro. Cogknow devices have the potential to reduce these costs by enabling the person with dementia to live independently in the community for longer.

The Cogknow prototypes were tested in Belfast (Northern Ireland), Luleå (Sweden) and Amsterdam (Netherlands) in 2007. During the tests, both users and caregivers noted improvements and benefits, in particular, the devices successfully supported the residents with dementia to get through their day.

The vision of the project spread on a European level following these tests, gaining recognition through several academic publications and national media coverage in various countries. In 2008 Cogknow was selected as a showcase for the European Commission Smart Home at the e-Inclusion Ministerial Conference and in 2009 it was awarded the ACCESS-IT Best Practice label.

Since the project continued to generate interest from dementia care, dementia experts, investors and the media, some of the original partners decided to fulfil the potential of Cogknow in the commercial realm and founded the CK DayNavigator Ltd Company.

#### 4.9.1 Specific problems addressed by the project

- Short-term memory loss is one of the first symptoms of dementia and it is sufficient to compromise an individual's independence.
- A dementia sufferer can experience insecurity and unwillingness to connect with people socially which can increase the risk of death due to loneliness and isolation.
- The dementia symptoms increase exponentially with the age, in particular people aged over 85 years have about 25% of probability to suffer of dementia.
- The number of people worldwide with dementia was estimated to be 35.6 million in 2010 and is expected to rise 65.7 million by 2030 and further to 115.4 million by 2050. The reason for the significant increase in numbers is due to the global ageing demographic.

*Dementia is a chronic or persistent disorder of the mental processes caused by brain disease or injury and marked by memory disorders, personality changes, and impaired reasoning<sup>147</sup>.*

One of the first symptoms of dementia is short-term memory loss, which is a single contributing factor in compromising the individual's independence. The person with dementia becomes unable to perform everyday functions, despite having the physical ability but because they find it difficult to complete tasks due to memory loss. Consequently, this can lead to feelings of insecurity and reduced social interactions which can cause negative implications, including feelings of loneliness, isolation and a reduced life expectancy.

Other symptoms of dementia are impairments of speech, thought, perception and reasoning.

In 2009 the World Health Organization carried on a study based on the data collected in 2004<sup>148</sup> about the existing diseases and their impact on the world population. These were expressed as the number of years lost due to ill-health, disability or early death. The Wikipedia user Lokal Profil mapped these data in a world map obtaining the scenario showed in Figure 70.

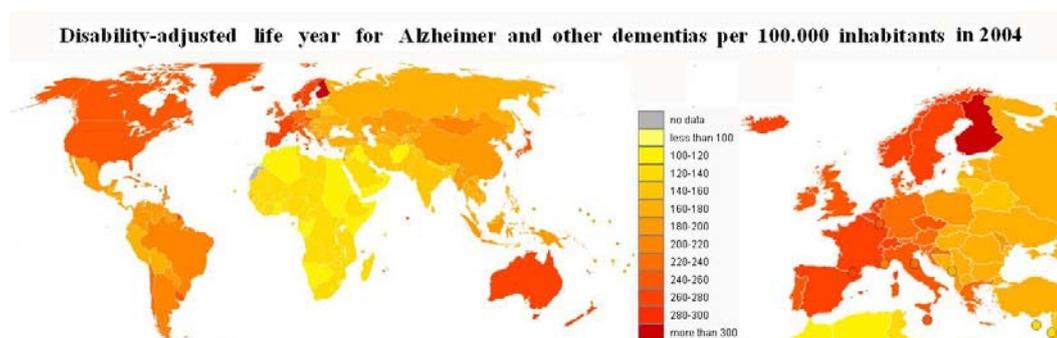


Figure 70 - Disability-adjusted life year for Alzheimer and other dementias per 100.000 inhabitants in 2004<sup>149</sup>

The World Alzheimer's Report 2010 published by Alzheimer's Disease International (ADI) reports that dementia prevalence among people aged over 60 years across the world by regions and forecasts possible trends in accordance with the global ageing population phenomena. The Table 3 summarize these calculations.

Total population over 60, crude estimated prevalence of dementia (2010), estimated number of people with dementia (2010, 2030 and 2050) and proportionate increases (2010-2030 and 2010-2050) by GBD world region							
GBD Region	Over 60 population (millions)	Crude estimated prevalence (%)	Number of people with dementia (millions)			Proportionate increases (%)	
	2010	2010	2010	2030	2050	2010-2030	2010-2050
<b>ASIA</b>	<b>406.55</b>	<b>3.9</b>	<b>15.94</b>	<b>33.04</b>	<b>60.92</b>	<b>107</b>	<b>282</b>
Australasia	4.82	6.4	0.31	0.53	0.79	71	157
Asia Pacific High Income	46.63	6.1	2.83	5.36	7.03	89	148
Oceania	0.49	4.0	0.02	0.04	0.10	100	400
Asia, Central	7.16	4.6	0.33	0.56	1.19	70	261
Asia, East	171.61	3.2	5.49	11.93	22.54	117	311
Asia, South	124.61	3.6	4.48	9.31	18.12	108	304
Asia, Southeast	51.22	4.8	2.48	5.30	11.13	114	349
<b>EUROPE</b>	<b>160.18</b>	<b>6.2</b>	<b>9.95</b>	<b>13.95</b>	<b>18.65</b>	<b>40</b>	<b>87</b>
Europe, Western	97.27	7.2	6.98	10.03	13.44	44	93
Europe, Central	23.61	4.7	1.10	1.57	2.10	43	91
Europe, East	39.30	4.8	1.87	2.36	3.10	26	66
<b>THE AMERICAS</b>	<b>120.74</b>	<b>6.5</b>	<b>7.82</b>	<b>14.78</b>	<b>27.08</b>	<b>89</b>	<b>246</b>
North America High Income	63.67	6.9	4.38	7.13	11.01	63	151
Caribbean	5.06	6.5	0.33	0.62	1.04	88	215
Latin America, Andean	4.51	5.6	0.25	0.59	1.29	136	416
Latin America, Central	19.54	6.1	1.19	2.79	6.37	134	435
Latin America, Southern	8.74	7.0	0.61	1.08	1.83	77	200
Latin America, Tropical	19.23	5.5	1.05	2.58	5.54	146	428
<b>AFRICA</b>	<b>71.07</b>	<b>2.6</b>	<b>1.86</b>	<b>3.92</b>	<b>8.74</b>	<b>111</b>	<b>370</b>
North Africa / Middle East	31.11	3.7	1.15	2.59	6.19	125	438
Sub-Saharan Africa, Central	3.93	1.8	0.07	0.12	0.24	71	243
Sub-Saharan Africa, East	16.03	2.3	0.36	0.69	1.38	92	283
Sub-Saharan Africa, Southern	4.66	2.1	0.10	0.17	0.20	70	100
Sub-Saharan Africa, West	15.33	1.2	0.18	0.35	0.72	94	300
<b>WORLD</b>	<b>758.54</b>	<b>4.7</b>	<b>35.56</b>	<b>65.69</b>	<b>115.38</b>	<b>85</b>	<b>225</b>

Table 3 - Expected worldwide dementia future scenario<sup>150</sup>

In 2010 they estimated there were 35.6 million people with dementia worldwide and will rise 65.7 million in 2030 and 115.4 million in 2050. Dementia increases every 20 years by almost 100% and it is foreseen as likely that in developing countries that the percentage of people with dementia of the total population is expected to rise from the current 58% to 71% by 2050. In 2009 there were 7.7 million new cases of dementia in total, implying that there has been a new case of dementia somewhere in the world every four seconds.

Demographic ageing is a worldwide phenomenon due to the advancements in health care over the twentieth century. Since dementia mainly affects older people, the ageing of the population will accordingly increase the prevalence of dementia both in absolute figures, but equally as a percentage of the overall population.

The Figure 71 visualizes the growth in the numbers of people with dementia, highlighting the link to the level of national income. From this it is possible to understand that a high national income delays the onset of dementia.

**The growth in numbers of people with dementia in high income countries and low and middle income countries**

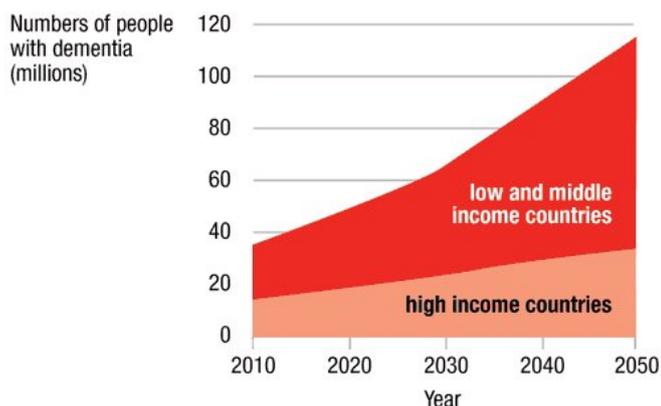


Figure 71 - The grow in numbers of people with dementia by level of national income<sup>150</sup>

In 2005 Ferri et al. on behalf of Alzheimer’s Disease International (ADI) analysed the proportion of people with dementia in the European countries in relation with their age. Through this work summarised in Figure 72 it is possible to see that, irrespective of the geographical area and the adult mortality rate, dementia symptoms increase exponentially with the age, in particular one out of four people aged 85 years and more suffer from dementia.

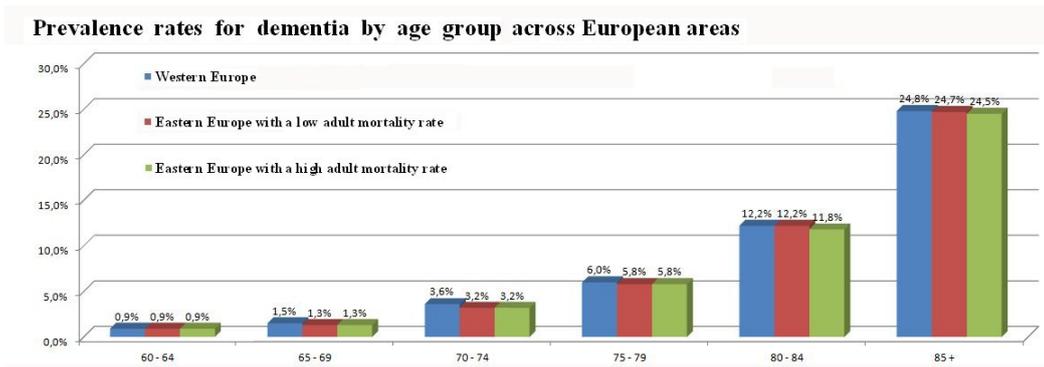


Figure 72 - Prevalence rates for dementia by age group across European areas in 2005<sup>151</sup>

**4.9.2 Strategic goals of the project**

The project aimed to:

- Breakthrough with research that addresses the daily needs of mild dementia sufferers in order to address the most frequently identified neglected needs in the areas of information (on treatment, care and

support, appointments), memory problems, communication and psychological distress.

- Prototype a portable, remotely-configurable, user-validated cognitive assistive technologies which are able to help people with the initial symptoms of dementia (including memory loss) to remember, maintain social contact, perform activities of daily living and enhance their feelings of safety for longer.
- Promote associated services which are intended to interact with people who have mild dementia through the developed prototype. These should be unobtrusive in the provision of information, further support and reassurance and in the reinforcement of their cognitive functions.

#### 4.9.3 Project basis requirement

The project started by analyzing the results of an initial study about people with dementia in order to investigate their neglected needs. Following this, the Cogknow consortium developed two prototypes, one to be installed and used at home and a mobile version to be carried with the patient.



Figure 73 - The Cogknow portable device<sup>152</sup>



Figure 74 - The Cogknow home device<sup>153</sup>

Both the versions are equipped with touch-screen technology and the software installation can be limited to desirable modules only so as not to

over complicate it or create unnecessary confusion for the use (modules may be added if the person with dementia becomes familiar with the technology or removed if they decline). The setup of the devices can be completed remotely through a dedicated application. This also allows to check and control the device status and it deny the user to activate more complex functions available, in order to preserve the simplicity and prevent confusion.

Different instructions can be installed on the in-home device in accordance with the effective user's daily routine, eg. reminders may include when to brush their teeth, to do the laundry and warm pre-prepared meals.



Figure 75 - Cogknow examples of instruction reminder function<sup>153</sup>

The device embedded the Radio Frequency Identification (RFID) technology to track the movements of the person with dementia and send out an alarm, for instance in case they forget they opened the fridge door, an appointment or need to take medicine..

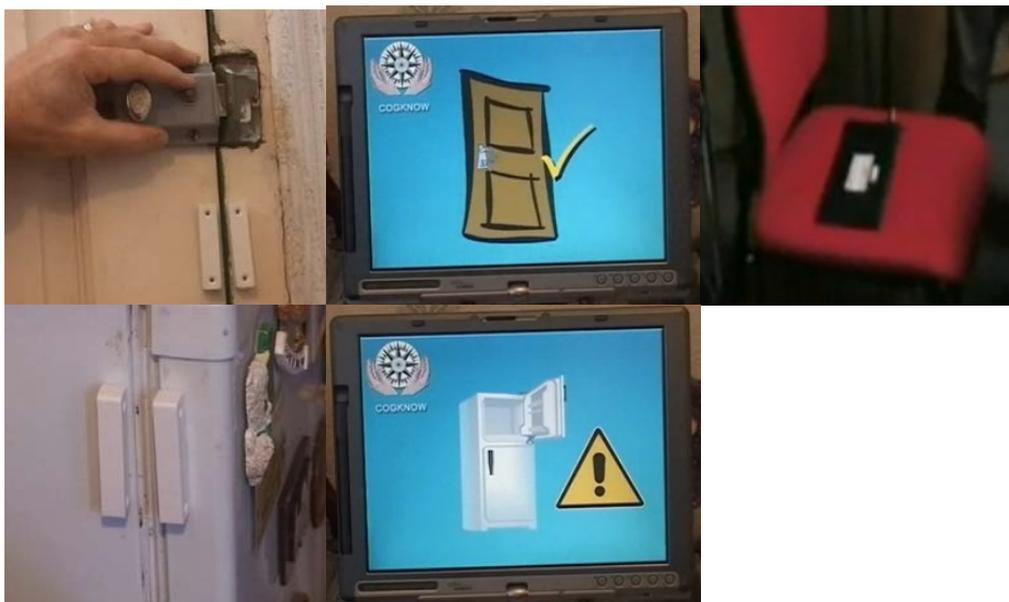


Figure 76 - Cogknow examples of RFID sensors and relative notification screens<sup>153</sup>

The mobile device was also designed to help with information, communication, safety and reminders. It includes a global position system (GPS) to monitor the user's position in case of an emergency and to guide him safely at home in case they become disorientated outdoors.



Figure 77 - Cogknow example of direction guidance on the mobile device<sup>154</sup>

A function called “picture dialling” allows the user to directly start a phone call to a carer or a member of family by pressing their picture shown on the screen.

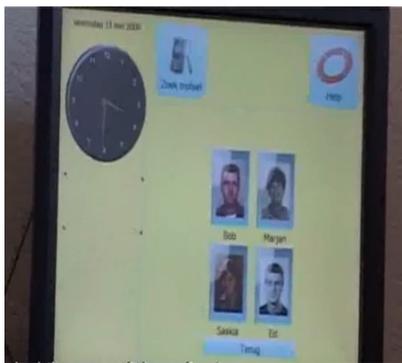


Figure 78 - Cogknow Picture dialling function<sup>153</sup>

The Overall Cogknow system architecture is shown in figure xx. Both versions are networked together with the Cogknow server, the home based device through a home hub and the mobile device through a broadband connection (or the home wireless when it is at home). The sensors installed at home are connected either wirelessly or wired to the home based device and the mobile device is also connected to the internet. The server has the capacity to relay information between the patient and their carers through a dedicated web interface.

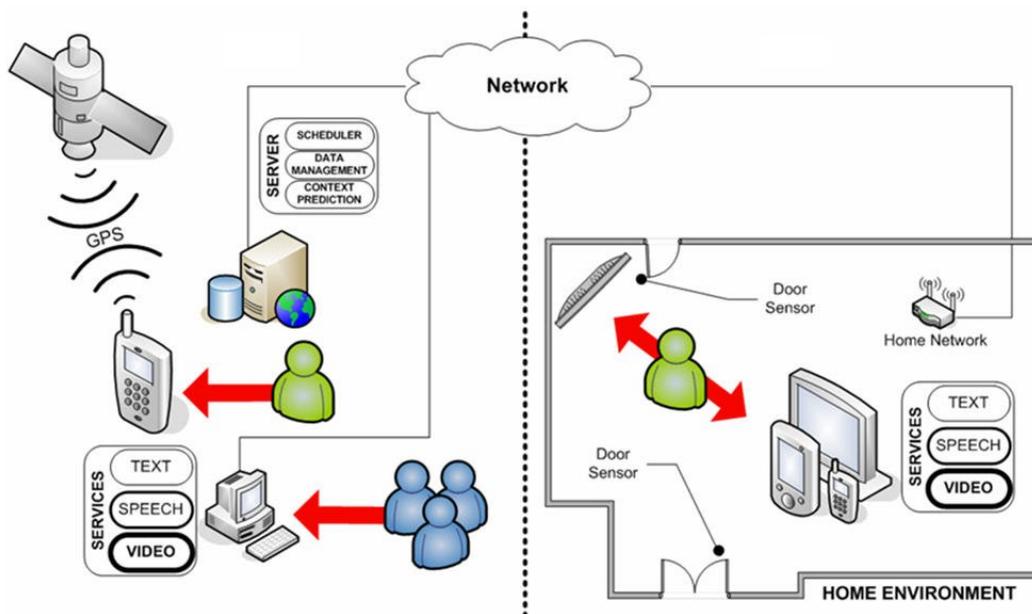


Figure 79 - Overall Cogknow system architecture<sup>155</sup>

The user's data and all communications with the server are encrypted and certified according with the Trusted Computer System Evaluation Criteria (TCSEC) standard level C2.

Cogknow technology is developed with Open Services Gateway Initiative (OSGI) concepts, and is compatible with the new services developed by third-parties within the Android environment which are intended to address issues experienced of people with dementia.

The Cogknow prototypes have been successfully tested in Belfast (Northern Ireland), Luleå (Sweden) and Amsterdam (Netherlands) in 2007. During the tests both users and caregivers noted an improvement in their quality of life and in particular for supporting activities of daily living in those with dementia..

#### 4.9.4 Cost/benefit justification of the project

The Cogknow project started in September 2006 as a 36 month long consortium project funded by European Commission under the FP6-IST Programme in the Thematic area of Information Society Technologies (IST).

The consortium lead by a Spanish coordination was composed of:

1. Telefonica, Spain (coordinator)
2. University of Ulster, Northern Ireland
3. Center for Distance-spanning Healthcare/Lulea University of Technology, Sweden
4. Novay, the Netherland
5. VU University Medical Center, the Netherland
6. AcrossLimits Ltd, Malta

7. Belfast City Hospital/Queen's University of Belfast, Northern Ireland
8. Mobi Solutions, Estonia
9. Groupes des Ecoles des Telecommunications/Institut National des Telecommunications, France
10. University Hospital of North Norway/Norwegian Centre for Telemedicine, Norway
11. Norbottons Lans Landsting, Sweden

The 36 month (September 2006 – August 2009) European Contract funded €1899995 out of the total cost of €2660035<sup>156</sup>.

During the European Contract the Cogknow prototypes were tested and evaluated by 42 users in Sweden, Netherlands and Northern Ireland. The foundation of the CK DayNavigator Ltd company was due to the success and interest from dementia care, dementia experts, investors and the media, some of the original partners. The company is based in Belfast, Northern Ireland and it is the main contact point for people interested in the commercial aspect of the Cogknow devices.

The total estimated worldwide cost of dementia was 604 billion of dollars in 2010 and the majority of this expense (approximately 70%) occurs in Western Europe and North America. This amount is composed of:

- 42% is attributed to informal care costs (unpaid care provided by family and others),
- 42% are direct costs of social care (professional care in the community, and the costs of residential and nursing home care)
- 16% are direct costs of medical care (the costs of treating dementia and other conditions in primary and secondary care).

Dementia statistics showing the distribution of the costs of dementia in relation to World Bank income groups (Figure 80) found that lower income countries spend more on informal care and conversely in higher income countries the direct costs are predominantly linked with social care.

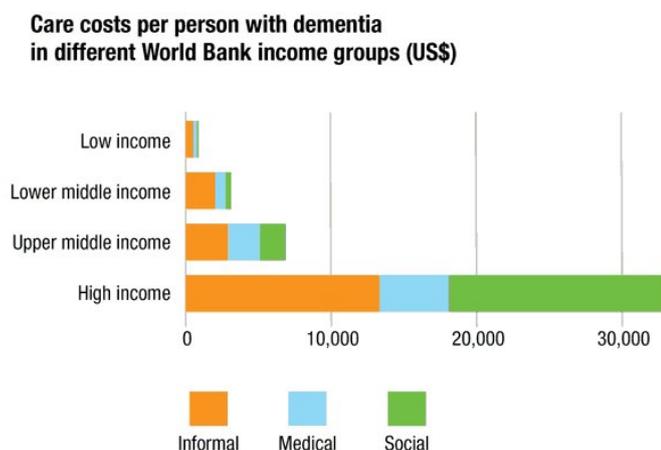


Figure 80 - Cost per person with dementia by different world bank income groups <sup>157</sup>

In Europe in 2009 there were 3,7 million (5%) of older people with a mild form of dementia (European Collaboration on Dementia - EuroCoDe, 2009). When a older person starts suffering from dementia, their remaining life expectancy is reduced by half that of a normal person of the same age<sup>158</sup>.

The yearly cost of older people with dementia in Europe (calculated as prevalence divided by average disease duration) is approximately €740 000. In 2005 the yearly average care costs for each patient suffering of dementia was €21 000 of which €9 300 euro were resultant of direct care costs. By enabling a person with mild dementia to remain living at home longer rather than move to institutional care, they can be save approximately:

$$740.000 \times 9.300 = 6882.000.000 \text{ euro}$$

It should therefore be considered the potential European market for Cogknow in reducing these costs. The Cogknow partners are oriented to make the CogKnow Day Navigator available as a commercially to dementia care, the pricing information is not be precise, but a renting fee (including support) ranges between €2 400 and €3 600 euro per year. This compared with the average direct care costs per persons with dementia would result in a quick return on investment<sup>159</sup>.

#### 4.9.5 How does the project protect human dignity of elderly people?

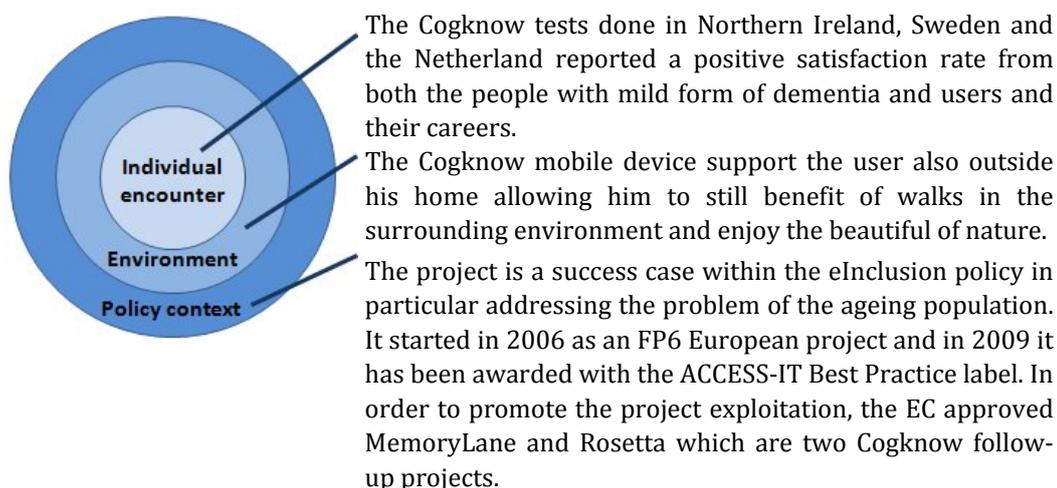


Figure 81 - The Cogknow project analysis in accordance with the Jacobson's model

The diagram above uses Jacobson's model to examine the impact of the Cogknow project on dignity of older people.

The people with dementia who participated in the Cogknow tests in Northern Ireland, Sweden and the Netherland gave positive feedback, especially

regarding the reminding functionality, picture dialling, appliance control and the mobile component which was determined by the people with dementia to be user friendly, easy to operate and simple to understand. The people with dementia who were using the Cogknow system found easier to cope with the dementia related difficulties and navigate through their day. This subsequently was shown to increase self-confidence, dignity and quality of life. Positive feedback was also registered among the associated carers of the people with dementia using the devices who reported considerable improvements in terms of independence for the dementia user and in accordance with this less effort was required from them as a carer.

The project represents a successful example of the European eInclusion policy. This is manifest as the project was approved in 2006 under the 6<sup>th</sup> Framework Program because of its accordance with the Strategic Objective on the development of innovative solutions for persons with cognitive disabilities, with a specific aim to support the ageing population. The project achievements meant that Cogknow was subsequently selected as a showcase for the European Commission Smart Home at the e-Inclusion Ministerial Conference in 2008. In the 2009 was further acknowledged because of its contribution to eInclusion in Europe, consisting in the ACCESS-IT Best Practice label<sup>160</sup>.

In addition to this, the European Commission has already approved Cogknow follow-up projects aimed to develop further products and strategic marketing activities based on Cogknow technology, two of them are 7<sup>th</sup> Framework Program project *MemoryLane* ([www.memorylane.nu](http://www.memorylane.nu)) and the Ambient Assisted Living project *Rosetta*.

#### **4.9.6 How does the project oppose discrimination against older people?**

Short term memory loss is one of the first symptoms experienced by people with mild forms of dementia which can make any activity become more complicated to complete as they become forgetful during these processes, for instance they may forget what direction to go to get home or forget where they have placed objects. This can result in a loss of self-confidence, feelings of insecurity, reduced willingness to socially interact with others, a decline physical movement or activity resulting in the person becoming more sedentary and have other negative psycho-social implications.

The Cogknow solution is intended to alleviate difficulties experienced by those with mild dementia and thus promote independence and self-confidence. Through this the project may contribute in reducing discrimination by encouraging older users to remain socially active for

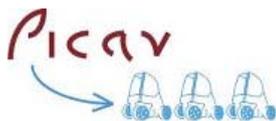
longer. Additionally, the mobile devices can support the older user outside their home, allowing them to meet friends and establish new friendships.

#### **4.9.7 Lesson learned from the project**

The following lessons were learned from the Cogknow project:

- Dementia is a huge threat to society due to our ageing population and is also a challenging area in the development of innovative technology and the potential business prospects.
- The Cogknow project has a multidisciplinary and multi-lingual consortium which presented the issue of the need to develop a shared a frame of reference in the form of a common language. In Cogknow this was presented in the form of a video (<http://www.youtube.com/watch?v=t-QusY-uVOM>).
- Another important point is to inform all the project members about the target group, their specific needs and the scenarios in which they would have a practical application of the system functionalities. This may be achieved by illustrating these in realistic examples to clarify the concepts.
- A successful way of proceeding is an iterative manner, through adding more detail at each stage and between the disciplines.
- In designing new technology for people with dementia, it is important to consider not only dementia-related problems, but also other age-related impairment such as mobility issues and sensory impairments (for instance, hearing and vision difficulties)..

#### **4.10 Business Case 9 - Picav**



PICAV (Personal Intelligent City Accessible Vehicle System) is a 38 months European FP-7 project (from August 2009 to September 2012) and aimed to develop an innovative personal fully-electric Vehicle specifically to extend the accessibility of city transport to weak, older or impaired people. It has been designed to be ergonomic, small, manoeuvrable, comfortable, stable, assisted in driving, eco-sustainable, and easy to parking and move.

The vehicle runs at a maximum speed of 6 m/s for approximately 173 km and is equipped with four driving wheels connected by special frame-suspension structure that allow PICAV to run over an incline or a max tilt of 25° as well as to overcome steps up to 180 mm.

Accordingly PICAV can access pedestrian areas including areas with uneven pavements, interactions with high pedestrian flows and zones where no

other vehicle, off-road or wheel chairs can go, especially a conventional public transport.

Each unit is networked with a control centre as well as with city infrastructure, public transport and emergency services allowing high level of intermodal integration. This transport system is on-demand and based on the car-sharing concept, but differently from the conventional car sharing, PICA V provides instant access, open-ended reservation and one-way trips.

The project has been selected as it introduces a new concept of personal mobility transport, specifically designed to be accessible for older people and people with disability, which overcome the existing barriers in urban environments and pave the way for a full integration of the accessible transport with the existing infrastructures outdoor as well as indoor large buildings.

#### ***4.10.1 Specific problems addressed by the project***

- Walking outside their home for older people could be risky, due to age related physical conditions that impair mobility or balance and the hazards disseminated into the outdoor environment.
- One third of people aged over 64 years fall yearly in the world and the frequency of falls increase with age and frailty.
- Many older people, after experiencing a fall, develop a fear of fall again due to the injuries reported and start to reduce their movements increasing actually so the risk of further falls.
- Public transports can't circulate in the restricted pedestrian areas and can't bring older people everywhere in the town
- The public transport represents a frequent source of hazards for older people

Walking outside their home for older people can be healthy because it represents a good physical exercise to keep their body active especially in case it is a daily habit. Unfortunately, it represents also a risk, because an older person walking on the streets has to cope with a hazardous environment and age-related physical impairments.

It should not surprise the prevalence of falls among older people registered every year. A world wide study reports that about one third of people aged over 64 years fall yearly and that the frequency of falls increase with age and frailty. In addition, many older people, after experiencing a fall, develop a fear of fall again due to the injuries reported (broken bones, most of all in subjects with osteoporosis, or bruises). Accordingly they start to reduce their movements and avoid walking outside their home reducing their daily physical training and increasing actually so the risk of further falls.

## Distribution of older people falls

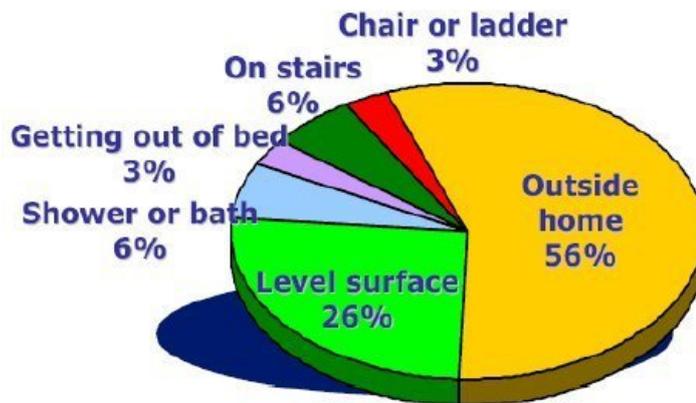


Figure 82 - Distribution of older people falls<sup>161</sup>

Hazards in the environment that can increase the risk of falling include:

- Inadequate lighting
- Throw rugs
- Slippery floors
- Physical obstacles that are in the way of walking
- Uneven sidewalks and broken curbs

Age related physical impairments that can increase the risk of falling include<sup>161</sup>:

- Balance
- Vision
- Sensation in the foot
- Muscle strength
- Cognition
- Use of drugs that affect attention
- Low blood pressure

Many older people used to take a public transport, but also in this case there are two things to be considered:

- The public transports can't bring them everywhere in the town, they have their stops which are outside from the restricted pedestrian areas, such as the centre of the town.
- When an older person takes a public transports he has to be able to use the automatic door and the relative steps, the stop request (and accordingly recognise it timely to request it), some crowded situations with no availability for a seats (used at peak hours) and last but not least the potential presence of snatchers.

A study carried out in 1996 by Organisation for Economic Co-operation and Development (OECD) about the difficulties found by older people in their

mobility evidences that almost 70% of older women aged 85 years and more report difficulties of any sort, as it shows the follow figure.

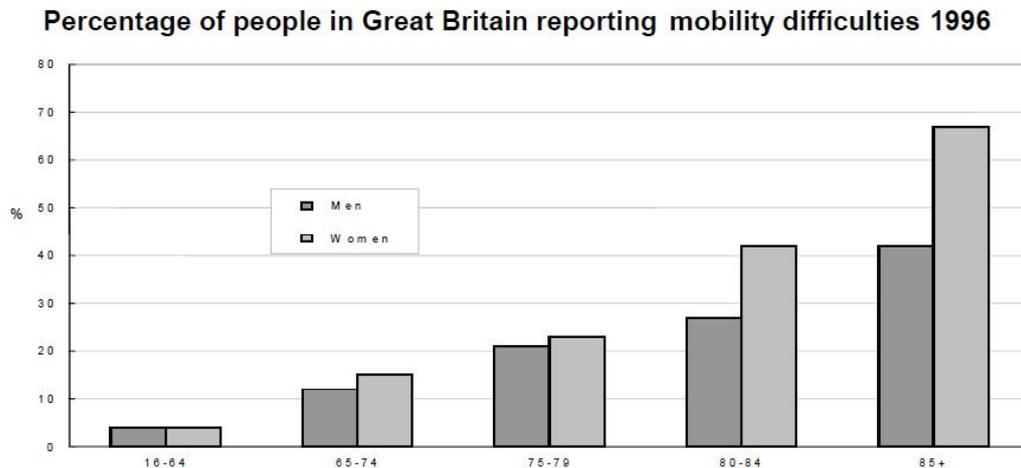


Figure 83 - Percentage of people in Grain Britain reporting mobility difficulties of any sort in 1996<sup>162</sup>

Since the 1996 the rhythm of life as well as the stress and frenzy of people on the road is increased and accordingly also the difficulties reported in the figure above.

#### **4.10.2 Strategic goals of the project**

The strategic goals of the project have been:

- To provide accessibility for all in urban pedestrian environments creating a new mobility concept for passengers.
- To create an example of clean energy, efficiency, safety and Personal Intelligent City Accessible Vehicle (PICA V)
- To integrate in the existing urban transport system a fleet of PICA V units acting as a smooth link between walking, bicycle and conventional public transport.
- To develop PICA V units with a number of features including ergonomics, comfort, stability, small size, mobility, dexterity, step overcoming, on-board intelligence, assisted driving, eco-sustainability, parking in narrow places, vehicle/infrastructures intelligent networking, specifically designed for people weak or with restricted mobility but enjoyable for all.

#### **4.10.3 Project basis requirement**

The PICA V project started with the definition of user, vehicle and system requirements that have been used for the design of the two main aspects of the project which are the single vehicle and the fleet system including interaction and networking.

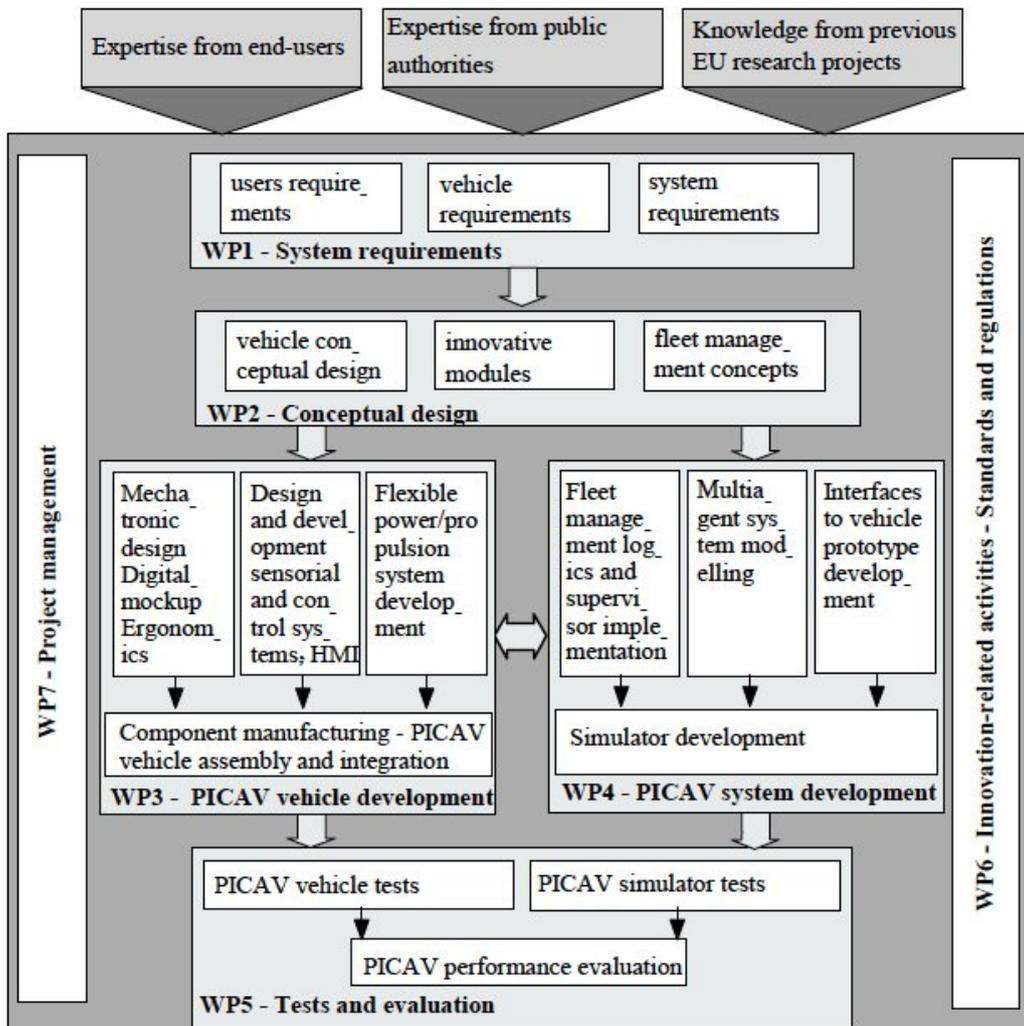


Figure 84 - PICAV Program Evaluation and Review Technique PERT diagram<sup>163</sup>

The outcomes of the design phase have been a prototype design for the single vehicle and a simulator for the fleet system showed respectively in Figure 85 and Figure 88.

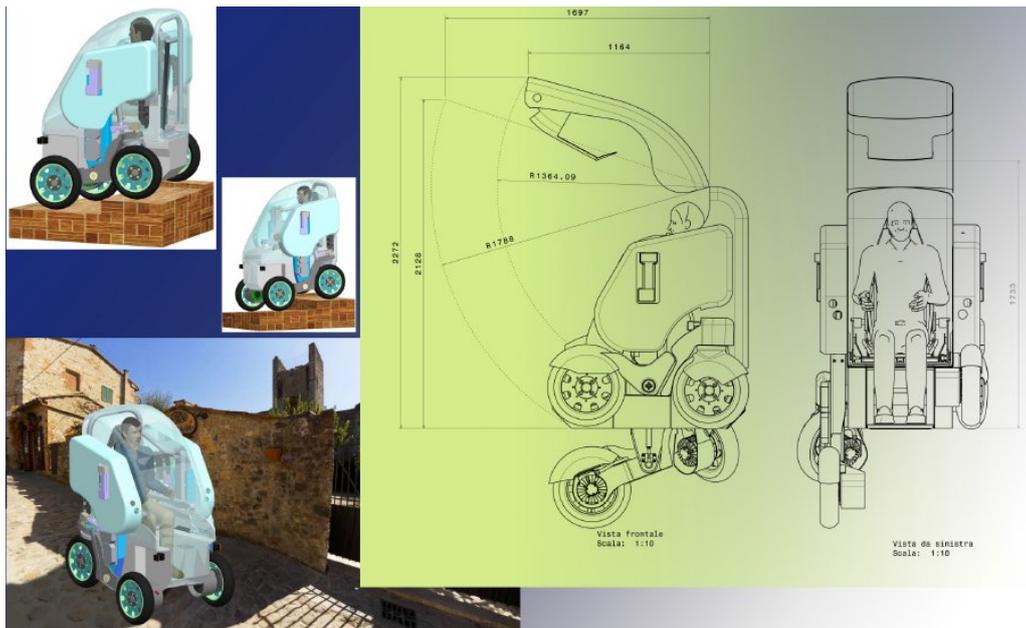


Figure 85 - The PICAV single unit design<sup>164</sup>

The prototype has been designed small and agile in order to be accessible over very tight streets in the centre, it is 800 mm wide and 1100 mm ( $\pm 20\%$ ) long and its turning radius is only 1 m.

The vehicle is environment friendly because it is composed by eco-sustainable metals like aluminium for the frame and plastics that make its total weight less than 250 kg, and also because it is a fully electric vehicle with zero emission of air pollution and less than 45 dBA of noise emission. The energy efficiency of the electric engine and the power supply module has been improved of more than 25% respect of the actual market electric vehicles. The vehicle runs at a maximum speed of 6 m/s and has battery life longer than eight hours that make it able to cover approximately 173 km. The traction is obtained by four driving wheels connected by new frame-suspension structure (based on kinematics/dynamics) that allow the vehicle to run over an incline or a max tilt of  $25^\circ$  and also to overcome steps up to 180 mm.



Figure 86 - PICAV prototype<sup>165</sup>

Thanks to the dynamic and intelligent model that controlled the centre of gravity, PICAV is able to bring the user even up and down through stairs without lose stability, ride comfort and safety.

Also the variable height of the vehicle contributes to its stability control as well as increases the PICAV accessibility.

An auto-reconfigurable seat for varying levels of ergonomic support and different positions allows for a personalized user comfort and for an accessibility improved more than 90% respect to the average current personal vehicles, in particular for weak users and people with physical impairment.



Figure 87 - PICAV seating system<sup>166</sup>

The vehicle is suitable for a single person or child; they can control the car direction through a joystick. The driving is supported by a number of sensors and a driving control system able to detect and avoid collision as well as to parking the vehicle automatically.

PICAV is designed to provide an improved safety (more than 65% respect to average current personal vehicles) both for people inside and outside the vehicle. A security system is embedded onboard and controls the access to the car through a driver recognition feature and the auto-locking of the car when it is not in use.

The critical equipment is protected inside the vehicle body in order to prevent damage by vandals and users as well. In addition PICAV is equipped with GPS in order to locate the vehicle on a embedded navigation systems as well as from a control centre for security purpose.



Figure 88 - The PICAV fleet simulator<sup>167</sup>

A model of urban pedestrian environments including small steps, narrow roads, etc, has been embedded into the PICAV simulator to test the how a fleet of PICAVs can serve the transport system in a real use case.

The simulator consists in a 3D immersive room located in the Robotics Center of Ecole des Mines, LaRA Member (Paris) and the Pisa University, the University College in London and La cruna (the Genoa association) carried on the phase of testing with different Human Machine Interfaces HMI involving old and disabled people.

Each PICAV in the fleet is networked with:

- the other PICAV units
- the control centre
- city infrastructures
- the public transport of the surrounding area
- the emergency services

Through different connection channels including radio, GSM and Bluetooth. The vehicle is able to send automatic alarm to the control centre in case of failed battery, broken down components or any other problem and the centre

can provide help and support at distance also opening a voice over IP or a two ways radios connection.

The networking and the traffic information are managed directly from the control centre.

The navigation system embedded allows the user to choose the desired destination and path.

PICAV does not require for human intervention (authorized operator) to be hired by a user from the origin points.

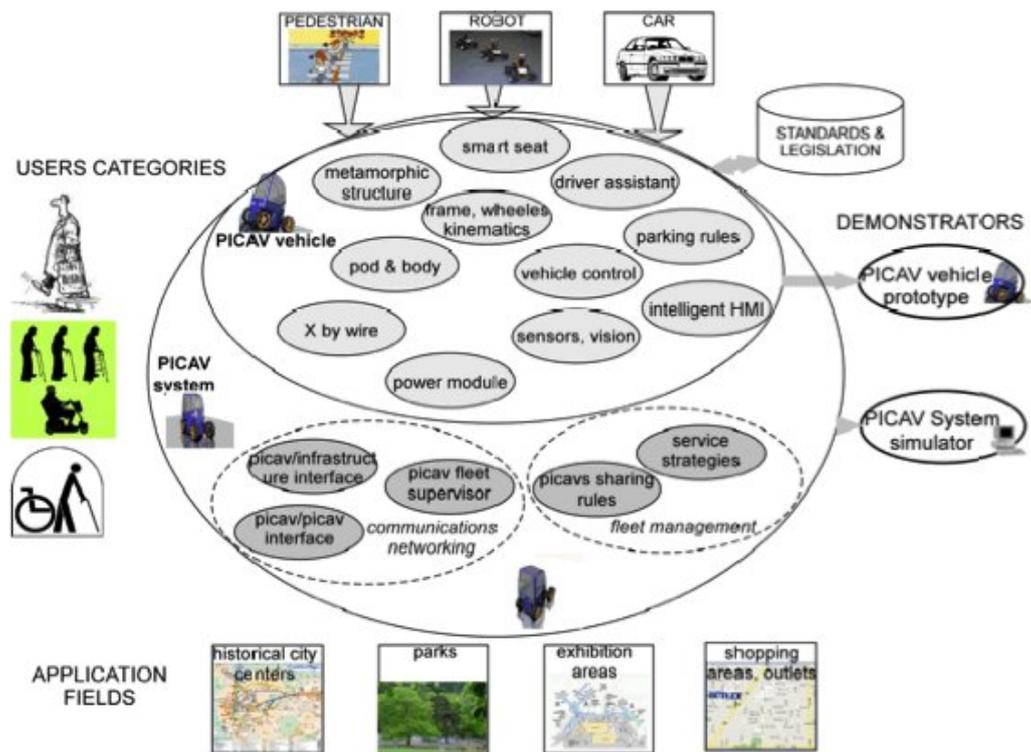


Figure 89 - PICAV scheme<sup>168</sup>

The PICAV prototype tests have been done in Genova (Italy) and Barreiro (Portugal) involving a number of Interest Groups including:

- Genoa municipality
- Liguria Region
- Santa Margherita municipality (Marche Region)
- Sanpierdarena Project
- Università Roma – La Sapienza
- Mestská část' Košice-Barca
- Centre de Ressources et d'innovation Mobilité Handicap (CEREMH)
- Urad Kosickeho Samospravnego Kraja



Figure 90 - PICAV test in Barreiro, Portugal<sup>169</sup>

The test in Barreiro got a positive feedback in terms of media coverage (i.e. Camara Municipal de Barreiro online newspaper<sup>170</sup>, Rostos online newspaper<sup>171</sup>) and evaluation of participants. The test has been held in coincidence with the 2<sup>nd</sup> and 3<sup>rd</sup> exhibition in Barreiro respectively on the 24<sup>th</sup> and 25<sup>th</sup> of September 2012.

The project has been seen by Barreiro's Mayor and by the chair of the Board of Municipal Services as *"a way to empower all citizen in seeking fairness situations"*.

According to Rui Lopo, a member of the Board of Directors of Serviços Municipalizados de Transportes Colectivos do Barreiro (SMTCB), *"PICAV can play an important role in the preservation of public space, not just the energy level, because it is consistent with more sustainable use of city centres"*

Also the European Commissioner for Urban Mobility Sector, Natascia Lai praised the project, in particular as regards its internationalisation and its participation to various events in the world of new technologies (such as Brussels and the Transport Research Arena in Greece). He said *"I can say that in some cases was beyond expectations"*<sup>170</sup>.

#### **4.10.4 Cost/benefit justification of the project**

Personal Intelligent City Accessible Vehicle System PICAV is a 38 months consortium project started in the August 2009 and ended in September 2012. The project has been funded by the European Commission under the Seventh Framework Programme - Transport in the theme of New mobility concepts for passengers ensuring accessibility for all.

The total cost of the project was 3938761 euro and the funding has been 2797050 euro<sup>172</sup>.

The project had an Italian coordination and the partnership includes:

- University of Genova DIMEC – Coordinator (Italy)
- National Institute for Research in Computer Science and Control INRIA (France)
- University College London UCL (United Kingdom)
- University of Pisa UNIPI (Italy)
- Servicos Municipalizados de Transportes Colectivos do Barreiro TCB (Portugal)
- VVÚ Vyskumno-vyvojovy ustav Kosice ZTS (Slovakia)
- Mazel Ingenieros MAZEL (Spain)

The fleet of PICA Vs has been designed to fully integrate and empower the existing traditional public transport network (including car parking) as well as to strategically integrate the urban environment and its points of interest. The urban environment has been studied in advance through questionnaires and the expertise of the consortium partners, in order to better match the interest of the target group living in the pilot areas.

The PICA V services accordingly have been located in order to make their distance shorter than the maximum walking distance for older people and the waiting time to get a free unit less than the public waiting time.

The networking between PICA Vs, the control centre, the city infrastructures, the public transport of the surrounding area and the emergency services, represent for the PICA V users, not only a safety measure, but most of all a source of information about traffic and available possibilities to move faster and save time, perhaps using a mix of different alternatives i.e. PICA V plus bus, or PICA V plus metro, etc...

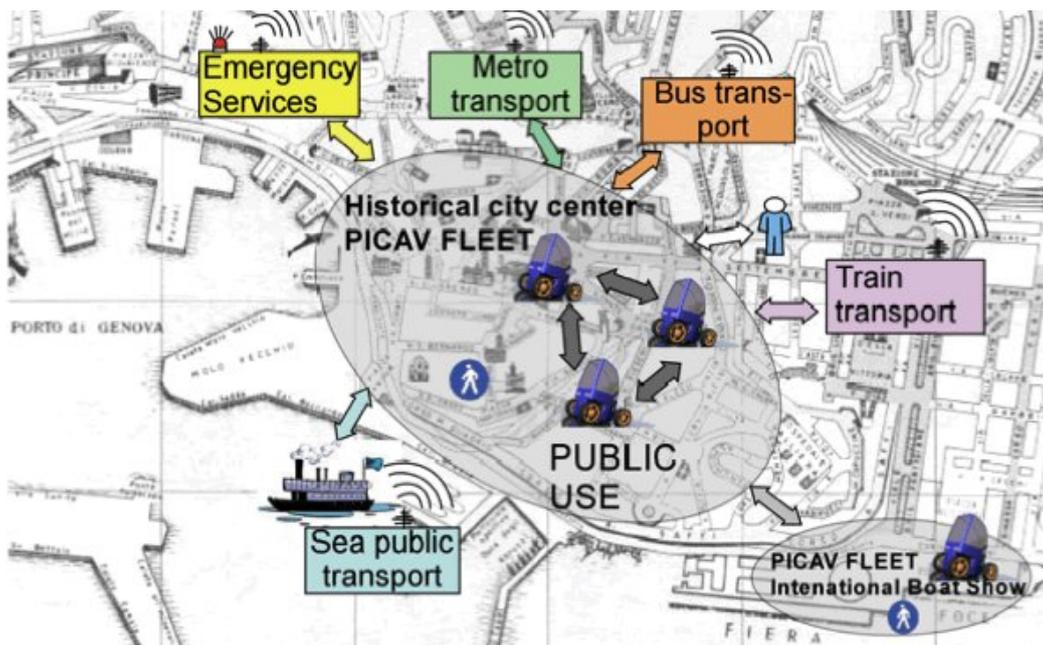


Figure 91 - Example of PICA V connections with the urban existing infrastructures<sup>173</sup>

The information about traffic and timetable of other services are an important part of the data visualized in the vehicle together with the GPS location, the map and the drive indicators.

In this way the project already paved the way to become an extension on-demand of the traditional public transport based on the car sharing concept and covering the outdoor pedestrian environments where the usual public transport cannot operate because of the width and slope of the roads, uneven pavements and the interactions with high pedestrian flows.

The PICA V car sharing system is based on three principles:

- instant access
- open-ended reservation
- one-way trips

And they represent the main difference between PICA V and a used car sharing system.

The benefits for PICA V older users consist in:

- save time
- safety
- save energy without give him to reach the desired destination
- independency (because PICA V allows the user for self care i.e. to go for personal shopping or for medical appointment)
- daily training (because it incentive the user to exit from home)
- Social (because PICA V allow the user to go to meet friends or familiars)

Accordingly the project contributes to include many users who otherwise would have remained at home, in the social life of the town.

The users in return became not only further customers of PICA V and the integrated traditional transport, but also potential customers of shops, pubs, social centres etc, providing their contribute to the local economy. In fact, it could be part of a PICA V sustainability allowing some sponsors to send publicity messages to the vehicles.

Since the specifications of the city centres in terms of accessibility requirements are similar to the specifications needed for other applications such as hospitals, airports or indigenou s driven robots, PICA V can be intended as multipurpose vehicle.

#### 4.10.5 How does the project protect human dignity of elderly people?

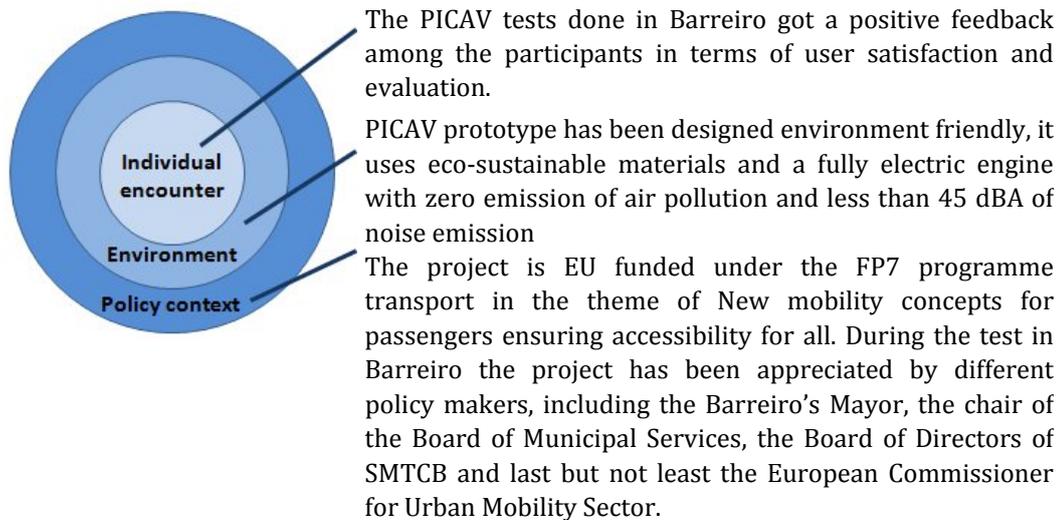


Figure 92 - The PICAV project analysis in accordance with the Jacobson's model.

The diagram above uses Jacobson's model to examine the impact of the PICAV project on dignity of older people.

PICAV contributes to include weak users, older people and people with disability in the active life of their town, encouraging them to exit from their home and enjoy the possibility to move independently in the urban context where they live.

In terms of environmental impact, the project focused to be fully compatible with the urban environment, especially the city centres, often characterised by very tight street, steps and irregular streets.

The PICAV prototype has been designed small and agile, composed by eco-sustainable materials and moved by a fully electric engine with zero emission of air pollution and less than 45 dBA of noise emission.

The participants at the test appreciated the project solution presented and returned positive feedback, in special way the project has been appreciated by the local policy makers because it represent a way to empower all citizen in seeking fairness situations and an important contribute in the preservation of public space allowing for a more sustainable use of them.

The project has been funded by the European Commission under the Seventh Framework Programme - Transport in the theme of New mobility concepts for passengers ensuring accessibility for all and it has been praised by European Commissioner for Urban Mobility Sector, Natascia Lai, as it respected the objectives described in the original proposal and in some cases it goes also beyond them.

#### ***4.10.6 How does the project oppose discrimination against older people?***

Get in a bus, grip to the bars, move between the crowd in the peak time and get down at the desired stop could be risky for older people who decide to move alone in the town.

In addition, regular public transports are not able to circulate in the restricted pedestrian areas and this represents itself discriminating people who need to go in that areas and are not in condition to walk safely to get them.

Older people, with age related disabilities or weakness in particular, often decide to stay at home instead to go outside because they feel not confident in afford the risks represented by a long walk in an environment including throw rugs, slippery floors, uneven sidewalks and broken curbs typical of a historical centre.

The PICA V project aimed to oppose this kind of discrimination against older people with an ICT solution designed to be accessible for older users and to make accessible for them the above mentioned areas.

The PICA V solution works as an empowerment for the user, it has no urban limitations, it can run up and down stairs, it can steer in less than two meters, it corrects automatically the assets and the seat position and tilt in order to guarantee the user comfort and bring him where he desire.

The project gives the older users the possibility to go alone to meet their friends, their familiars or just to go for some shopping and being so more independent for longer.

#### ***4.10.7 Lesson learned from the project***

The lesson learned by PICA V project consists in the importance of the integration of the innovative solution with the already existing infrastructure of transports and services.

PICA V didn't aim to replace a service with another one more accessible; it aimed to provide accessibility simply empowering the existing service.

The project could be seen as an accessible link to join each other the existing services of regular transport overcoming the pedestrian area limitation and the obstacles in environment.

The link is not only relative to the networking aspect; also the sustainability of the project itself is based on concept of integration.

The size and the manoeuvrability of the PICA V units make them suitable to be used outdoor as well as in large places (i.e. airports or hospitals), accordingly PICA V could pave the way to extend indoor the public personal accessible transport.

#### **4.11 Business Case 10 – Reach112**



Responding to All Citizens needing Help, REACH112 is a three year EU funded consortium project which started in 2009 and aimed to implement more accessible person-to-person communications as well as person-to-emergency service 112 communications, based on the concept of “Total Conversation”.

Total Conversation consists of a simultaneous combination of voice, video (including sign language or lip reading communication) and real-time text forms of communication. The project’s target groups was for individuals for whom visual communication represents a significant improvement respect of voice only communication, in particular deaf and people with hearing impairments, for instance older adults suffering from hearing loss, people with a speech impairment and deaf blind.

The solution developed by the project was tested in five pilot countries including France, the Netherlands, Spain, Sweden and the UK.

The project has been selected as business case because it allows for communication between the end users by successfully using ICT to provide them with access to the emergency services 112, which is a service that should be accessible to all, regardless of disability. The studies and the solution developed by REACH112 paved the way for the deployment of the Next Generation 112 ("NG112") in Europe.

##### **4.11.1 Specific problems addressed by the project**

- Emergency services (in particular the European 112 number) are not fully accessible to people suffering of hearing impairment.
- 22% of the European adult population suffers from a hearing impairment and for 444 million of them this is considered to be a severe and profound level of hearing impairment, making it difficult or impossible to have a vocal conversation over the phone.
- The prevalence of hearing impaired increases exponentially with age.
- The level of hearing impairment increases with the age at a rate of loss of 3dB (for the under 55s) to 9 dB (over the age of 55) per decade.

- The demographic ageing phenomenon in Europe means an increased number of people with hearing impairments.
- Hearing impaired people often have to contend with a number of other difficulties that can negatively affect them and isolate them from society.

The problem addressed by REACH112 is that emergency services and in particular the European number for emergency calls 112 are not fully accessible to people suffering from hearing impairments which is a commonly associated problem and is more prevalent in older adults.

In Table 4 a summary of the level of hearing impairment is presented which is in accordance with the most important organisations in the world treating the issue

	None	Mild	Moderate	Moderate - severe	Severe	Profound
WHO	≤ 25	26 - 40	41 - 60		61 - 80	≥ 81
European Commission	≤ 20	21 - 39	40 - 69		70 - 94	≥ 95
ANSI	≤ 26	27 - 40	41 - 55	56 - 70	71 - 90	≥ 91
RNID	≤ 24	25 - 39	40 - 69		70 - 94	≥ 95
BSA	≤ 19	20 - 40	41 - 70		71 - 95	>95
NIDCD	<25		~ 40			≥ 75

*Table 4 - Levels of hearing impairment expressed in dB of Hearing Loss according with the most important reference organisations in the world<sup>174</sup>*

More qualitative definitions for the hearing impairments levels are provided in the follow table.

Level of hearing loss	Qualitative definition	Problem related
None	No or very slight hearing problems	
Mild	Able to hear and repeat words spoken in normal voice at 1 metre	Difficulty following speech
Moderate	Able to hear and repeat words using raised voice at 1 metre	Difficulty following speech, even at close range, without a hearing aid. Satisfactorily hearing over the telephone.
Severe	Able to hear some words when shouted	Great reliability on lip reading, even with a

	into better ear	hearing aid. Difficulty hearing over the telephone.
Profound, including deafness	Unable to hear and understand even a shouted voice	Communication by lip reading, Sign Language may be first or preferred language, Cannot use telephone with any acoustical aid

Table 5 - Qualitative definitions for the hearing impairments levels<sup>174</sup>

According to these definitions, in 2002 the World Health Organisation estimated that there were 250 million people with moderate or more severe form of hearing impairment (this consisted of a Better Ear Hearing Level (BEHL) of 41 dB or greater). By examining and comparing the main studies from the past, Shield (2006) estimated that around 22% of the European adult population suffers from a hearing impairment of 25 dB BEHL or greater. In the Shield's report there is also the subdivision of average percentages by level of hearing impairment, this is shown in Table 6.

Grade of HI	Mild	Moderate	Severe	Profound
BEHL	21-39	40-69	70-94	95+
% of population	16.9	4.6	0.7	0.2

Table 6 - Prevalence among adults in Europe of different grades of hearing impairment<sup>174</sup>

By considering that the European Population in 2006 was 493.210.397 people<sup>175</sup> this implies that 444 million people will have a severe or profound level of hearing impairment making it difficult to have a verbal conversation over the phone. For these people, a normal emergency call is not accessible and the anxiety they would be subjected to during this type of call could further disturb their ability to communicate. In it important to note that hearing loss is an age related impairment and understand the impact of this problem in the context of older people.

In an evaluation of the social and economic costs of hearing impairments, Shield compared age related data from UK (1995), Finland (1999) and Sweden (2003) in the EU and within the various hearing loss categories. The outcome of these is shown in Table 7.

Age	Study	Hearing loss grade (dBHL)				
		Mild (21-39)	Moderate (40-69)	Severe (70-94)	Profound ( $\geq 95$ )	All grades
18-30	UK	2.4	0.2	0.0	0.0	2.6
	Finland	0.4	0.4	0.0	0.0	0.8
	Sweden					
31-40	UK	4.5	0.4	0.1	0.6	5.6
	Finland	1.7	0.0	0.0	0.3	2.0
	Sweden					
41-50	UK	11.2	2.0	0.2	0.1	13.5
	Finland	6.1	0.5	0.0	0.0	6.6
	Sweden					
18-50	UK*	18.1	2.6	0.3	0.7	21.7
	Finland*	8.2	0.9	0.0	0.3	9.4
	Sweden**	4.0	0.0	0.0	0.0	4.0
51-60	UK	23.2	5.0	0.5	0.1	28.8
	Finland	14.0	1.7	0.2	0.0	15.9
	Sweden	16.9	1.3	0.0	0.0	18.2
61-70	UK	40.1	8.9	1.2	0.6	50.8
	Finland	31.2	5.8	0.2	0.0	37.2
	Sweden	48.9	7.6	0.0	0.0	56.5
71-80	UK	44.3	26.5	3.1	0.1	74.0
	Finland	45.1	16.7	2.7	0.0	64.5
	Sweden	54.5	28.8	1.0	0.0	84.3

Table 7 - Comparison of age related data from UK (1995), Finland (1999) and Sweden (2003) in EU hearing loss categories<sup>174</sup>

The graphic illustrates this in a simpler manner which indicates the total percentage of the hearing impaired persons in relation to their age group. This is shown in Figure 93.

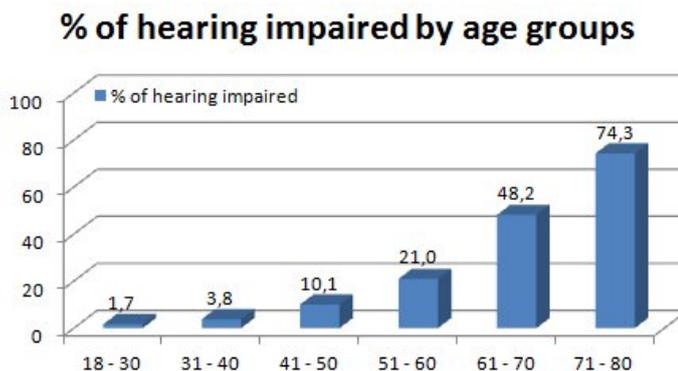


Figure 93 - Percentage of hearing impaired by age group<sup>174</sup>

From the figure it is evident the prevalence of hearing impairments increase exponentially with age. In addition to this, table xx supports this by showing that the level of hearing impairment increases with the age and particularly over the life span of a person, hearing deteriorates at a rate of 3 (for people under 55) to 9 dB (over the age of 55) per decade. The ageing demographic suggests a rise in the numbers of those with hearing impairments and it

estimates a possible 20 year trend (from 2005 to 2025) which is shown in Table 8.

Year	Hearing threshold in dBHL				
	≥25	≥35	≥45	≥65	≥95
2005	82	49	27	8	2
2015	91	54	30	10	2
2025	100	61	34	11	2

Table 8 - Estimated numbers (to nearest million) of hearing impaired adults in Europe<sup>174</sup>

From a social point of view, those with hearing impairments cope with a number of difficulties that can have a negative impact on them and isolate them from rest of the society. The main difficulties include<sup>174</sup>:

- Embarrassment for not hearing or misunderstanding that can often lead to withdrawal from scenarios involving communication
- Fatigue caused by trying to hear and to make themselves understood to others
- Increased irritability associated with experiences of failure to understand and being understood
- Avoidance and withdrawal from communication due to fear of failure
- The hearing impaired individual may engage in a monologue and avoid communication due to their inability to interact effectively which may cause boredom and present them as boring to others.
- Social rejection may result due to the inability to communicate and similar to the previous point-they may experience boredom or come across as boring to others.
- The person with a hearing impairment may become depressed and they may have associated feeling of paranoia or suspicions about other in social or communicative situations.

#### **4.11.2 Strategic goals of the project**

The strategic goals of the REACH112 project are to:

- Demonstrate that 112 emergency call centres could be more accessible if they were supported by more technologies
- Demonstrate that the next generation communication solutions can allow deaf community to access to emergency services which are currently inaccessible to them
- Represent a flagship project for the EC in promoting the accessibility of the 112 emergency service
- Promote the extension of IP-based communication and Total Conversation
- Implement an accessible alternative to traditional voice telephony based on the concept of Total Conversation that can be applied to all situations.

- Guide improvements in communication between citizens in particular those with disabilities.

REACH112 focuses on supporting those where visual communication is a necessity or a significant improvement rather than voice only communication. In particular:

- Older people with hearing impairments
- Deaf sign language users
- People with speech impairments
- Deaf-blind

#### ***4.11.3 Project basis requirement***

REACH112 was an implementation of Total Conversation (TC) standard for telecommunications which was to make it possible for the user with a hearing disability to communicate one other, in hearing others and with the emergency centres. Total Conversation is a standardised concept where a communication between two or more individuals is supported with a number of channels involving as many of the other sense as possible. To better understand this concept, we should consider the following forms of communication occurring together:

- the audio for the verbal communication for the participants
- the video through which transmit the text of the communication and the translation into sign language for the participants
- a Braille display where the text is transformed into points which are detected by the fingers of the participants
- the possibility to involve a third participant in the communication whose role is to interpret a different language, such as sign language
- further data like the location of the caller, characteristics of the surrounding environment and record of the communication in the case of an emergency call



Figure 94 - Example of a Total Conversation emergency call involving three participants, the end user (on the left), the sign language interpreter (at centre) and the PASP operator (on the right)<sup>176</sup>

People with these sorts of disabilities, such as deaf, hearing impaired and the deaf-blind and those without impairments can benefit from Total Conversation because understanding and the use of effective forms of communication can be made possible between all of the parties involved.

The REACH112 project developed hardware/software solutions allowing people to call each other and share videos, voice and text or any given combination of these. Five pilot sites were selected to test the solutions developed for twelve months, these were:

- Sweden
- United Kingdom
- The Netherlands
- France
- Spain

The project commenced with a questionnaire created by European Emergency Number Association (EENA) and sent to the pilot countries in order to investigate the existing infrastructure which was the existing communication infrastructure of the emergency services. Following this, the responses were discussed together and compared to a selection of what is considered to be the best practices in the field of routing, caller-location and caller-ID.

An appropriate routing is required to allow emergency call being connected with the appropriate Public-Safety Answering Point (PSAP) which should have an automatic caller-location and caller-ID notification.

The location and identification of the individual calling are important pieces of data to firstly establish. The knowledge of where the person is means that an intervention may occur if required and other relevant information about the caller, eg. blood group, existing illnesses or allergies should be noted in case the emergency is related. A call-back service was also deemed as important.

The next step of the project was to identify the deficiencies in the pilot's routing structures in order to help place an emphasis on the matter so that the relevant local governments may address this by upgrading which will allow for a quick integration. Personal contacts were also established (including phone numbers and emails) between EENA (already involved in different standardisation groups in the field including NG112, IETF ECRIT, NENA NG911) and pilots governmental authorities involved.

This action was in accordance with the new European telecommunication rules adopted for December 2009 which requested that the Member States pursued improvements related to the 112 service provision, in particular:

- To ensure a quicker location of the caller
- To promote the awareness of 112 service amongst travellers
- To improve access to 112 for people with disabilities

The Europe Union ascertained that these rules should be implemented in all European countries by June 2011.

To test the solution developed for computers and mobile phones, the pilot sites were provided with IP devices in the homes, workplaces and on the move while the awareness of the innovative service was disseminated through the various channels. Thousands of users were recruited including hearing impairment associations and a dedicated relay service was created. Training sessions were organised for PSAP's operators and online help was published in sign language and text. These were created and published on YouTube, some sample videos of how the service works in the case of an emergency.



Figure 95 - Demonstration of REACH112 use in case of emergency respectively from client pc and mobile<sup>177</sup>

The devices and the dedicated software installed were integrated with the existing pilots' telecommunication platforms and emergency service frameworks. REACH112 allowed the users to connect simultaneously in video, voice and text between the pilot countries and service providers (irrespective of whether they were mobile or at a fixed IP network address) and directly with the emergency service nearest to them.

The hearing impaired users who registered with the obtained their credentials which could be used to connect to the online REACH112 platform, both from a PC or through the mobile application. Alongside this, ten free invites were given to allow them to connect with other people who they may find helpful in an emergency, such as friends or doctor's surgeries where they could use it to make an appointment. An important feature embedded in the developed solutions was the possibility to connect one or more users to the nearest PSAP, as well as a third-party relay service, in particular:

- Text relay services which make a two-way translation between the speech and text and vice versa
- The captioning relay similarly creates text rapidly from voice or audio and is always transmitted through the service (this service can be fully automated with no human interaction required).
- The sign relay services translate between speech and sign language.

The service also worked for others, including voice telephone users which made it possible for the hearing impaired to communicate with their friends or relatives who are able to hear and vice versa, reducing their fatigue, stress or embarrassment during the phone call. During the piloting phase 478 966 person-to-person calls and 74 emergency calls have were successfully completed. This figure is indicative of progress of the calls during the first six months of tests where the success can be seen from the positive trend across the months.

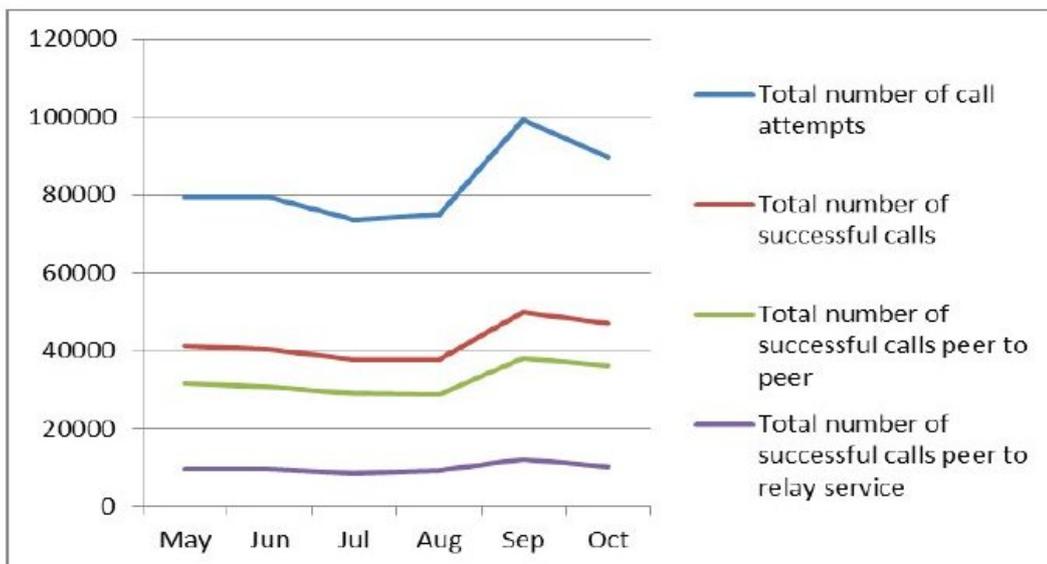


Figure 96 - Trend of the calls done during the first 6 months of tests<sup>178</sup>

#### 4.11.4 Cost/benefit justification of the project

REACH112 was a 36 months consortium project started in July 2009 and ended in June 2012. This was partially funded by the European Commission under the ICT Policy Support Programme (ICT PSP) as part of the Competitiveness and Innovation Programme in the theme of “ICT for user friendly administrations, public services and inclusion.” REACH112 responds to the European initiative: “Emergency Services Accessible to All - Total Conversation.”

The coordination of the project has been in Italian and the consortium was composed by 22 organizations from 9 different European countries, including:

- IES Solutions (Italy) – coordinator
- Omnitor (Sweden)
- University of Bristol - Centre for Deaf Studies (UK)
- AuPix (UK)
- Royal National Institute for Deaf People (UK)
- Avon Fire and Rescue (UK)
- Avon and Somerset Police (UK)
- National Police Authority (Netherlands)
- 4C Holding (Netherlands)
- AnnieS (Netherlands)
- Grenoble Hospital (France)
- Ivès (France)
- France Telecom (France)
- WebSourd (France)

- Siemens (Spain)
- Vodafone (Spain)
- Sertel (Spain)
- Nokia (Finland)
- European Emergency Number Association (Belgium)
- e-Isotis (Greece)
- SOS Alarm (Sweden)
- Agencia Galega de Emerxencias (Spain)

The total cost of the project was €8.80 million of which €4.40 million was funded by the EC. To understand the economic effect that REACH112 can bring to the lives of hearing impaired people, it is necessary to estimate the cost of the hearing impairment from a quality of life approach. In Europe the used measure unit to quantify the quality of life level is the Health Utility Index (HUI) which is an index ranging from 0 to 1 where 1 represents the highest status of well being. The average HUI of people aged over 60 years without hearing problems in Europe is 0.85.

It was manifest from the studies investigating those with a hearing impairment that they were subject to associated detrimental psychosocial effect. The overall deterioration of quality of life of an individual has a linear relationship with an increased of level of hearing loss. In particular, people with mild hearing impairments were reported to have a psychosocial effect which resulted in a loss of 0.05 HUI that increased to 0.15 HUI for a moderate hearing impairment and 0.25 HUI for a severe and/or profound level hearing impairment. The follow table shows this for people aged over 60 years.

	Mild	Moderate	Severe/Profound
Health utility index	0,8	0,7	0,6
Loss in HUI due to HI	0,05	0,15	0,25

*Table 9 - Health Utility Indices and loss in HUI assigned to grades of hearing loss in individuals aged over 60 years<sup>174</sup>*

In health economics a year lived in a perfect quality of life (HUI=1) is called Quality Adjusted Life Years (QALY) and the Europe Union established that the monetary value of a QALY is €44 000<sup>179</sup>.

Table 10 uses the European QALY value to evaluate the individual yearly cost in euro of psychosocial effects due to the different levels of hearing impairment.

Grade of HI	Mild	Moderate	Severe/Profound
Loss in HUI due to HI	0.05	0.15	0.25
Cost in euro	2.200	6.600	11.000

*Table 10 - Annual cost of hearing impairment in euro per person<sup>174</sup>*

The results in table xx show the estimated numbers (to the nearest million) of hearing impaired adults in Europe and the associated psychosocial effects due to the extent of their hearing impairment which has been equated or converted to the approximate yearly costs in euros.

Year	Hearing threshold in dBHL				
	mild	mild	moderate	severe	profound
	≥25	≥35	≥45	≥65	≥95
2005	180,4	107,8	178,2	88	22
2015	200,2	118,8	198	110	22
2025	220	134,2	224,4	121	22

*Table 11 - Estimated trend of hearing impairment related psychosocial effects annual cost (to nearest billion of euro)*

As reported in the paragraph **Errore. L'origine riferimento non è stata trovata.** the majority of detrimental psychosocial effects of hearing impairment are due to the difficulties experienced during communication with other individuals. During the REACH112 test phase, hearing impaired people were allowed to register for free on an online platform and invite ten others to join (who may or may not be able to hear). Resultantly, the project statistics revealed that 478966 person to person calls were made assisting people with hearing impairments in communicating with other. REACH112 provided an effective ICT solution which can facilitate communication with hearing impaired people.

The project therefore contributes to reduction in HUI due to the hearing loss and consequently the above mentioned costs. It is important to highlight that those costs did not consider the feeling of helplessness a person with a hearing impairment may have previously experienced in an emergency. This equips the hearing impaired with power and avoids the situation where they are unable to communicate in an emergency which would result in an inestimable cost.

In the project test phase, 74 emergency calls were complete and these calls enabled people with a hearing impairment to help themselves or others who were in danger and perhaps save lives.

#### 4.11.5 How does the project protect human dignity of elderly people?

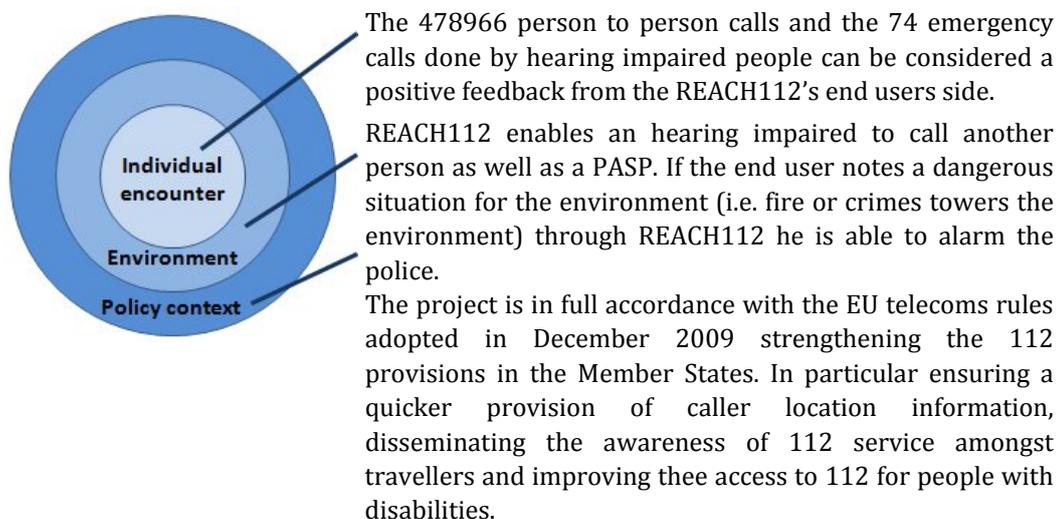


Figure 97 - The REACH112 project analysis in accordance with the Jacobson's model.

The diagram above uses Jacobson's model to examine the impact of the REACH112 project on dignity of older people.

The end users consisted of older people with hearing impairments including: deaf sign language users, speech impaired people and deaf-blind. The project received positive enthusiasm facilitates communication with friends and others through the project platform. The large number of calls during the test phase in the five pilot countries confirms the effectiveness of the developed solution. The service provided by the project enables the hearing impaired to access the emergency service 112 and is an important progress in terms of inclusion because it gives the end users the right to safety as well as the possibility to be helpful in case of dangerous situations for others.

The funding REACH112 comes from a number of European actions oriented to provide more safety to the European citizens including the people with disabilities. Further initiatives are the new EU telecommunication rules which were adopted in December 2009 which were to be implemented in all EU countries by June 2011. The new rules strengthened the 112 provisions further, in particular by requiring Member States to have a quicker provision of caller location information and promote a wider awareness of the emerging 112 service amongst travellers and improved access to it for people with disabilities.

he same objectives were reaffirmed by the European Union of the Deaf (EUD) and this was also supported by the Members of the European Parliament (MEPs), who coordinated the Written Declaration 35/2011 campaign on accessible 112 emergency services. The Written Declaration was formally

adopted by the President of the European Parliament on 17th November 2011 with 483 signatures from MEPs<sup>180</sup>.

#### ***4.11.6 How does the project oppose discrimination against older people?***

During the REACH112 test phase, many of the deaf and hearing impaired users referred to the simplicity of the platform and how they have no expectation of communicating via telecom services as they were used to their discriminated role in the society. Similarly, they would avoid the use of relay services in their current daily lives because they avoided to conversing with people not able to understand or communicate with them.

The possibility to communicate with the rest of the world (even via web application) results in a better quality of life for the end users because it represents itself a way to be reintegrated in the society. Another important aspect of the project's effectiveness in opposing discrimination against the end users consists of providing them with access to the 112 emergency services. The end users welcomed the service, but they initially reported that they did not immediately consider it as a useful application unless they would be faced with an emergency and prior to them having the application they would have considered themselves as helpless in such circumstances due to the barriers they faced with their impairment.

The right of safety and the right to feel safety is an inviolable human right, no impairments should present a barrier and if the Information Society has the potential to restore this right and in the context of Europe it should be seen as an essential or urgent matter.

In the case of an emergency, after accessibility, time is the second priority. The project improved the routing of emergency calls in the countries it had been piloted in and allowed the users to make direct calls to police and fire PSAPs which optimised the time required for people with hearing impairments to make emergency calls.

#### ***4.11.7 Lesson learned from the project***

The lessons learned from the REACH112 project are:

- There are different legislations and most of all different infrastructures between countries as well as between regions and there is an impetus on standardisation to ensure the protection of all citizens regardless of their disabilities. For instance in some countries, the relay services are not allowed to handle emergency calls.

- One of the main challenges is linked with poorly defined responsibilities in the rules adopted by the EU because they require the Member States to strengthen the 112 service provisions, however, they do not prescribe specific business models or solutions/approaches for emergency services and so the result is slow and not standardised.
- One of the requirements imposed by the European Commission is relative to a quicker retrieval of caller location information, but the quickest way to identify a caller's location requires an IP-based communication infrastructure (currently only available in France). The Internet Service Provider (ISP) is the entity that determines the host's location due to the physical proximity, however, the ISPs need incentives and/or appropriate regulations to support the IP-access to emergency services. This means that only an intervention from high level authorities, either on a national or supranational level such as the European Commission can make such empowerment faster.

## **5 Conclusions**

“Age” is not always a specified ground in the various EU treaties and laws set out above. Overall it is clear that older people are recognized as a vulnerable group who are entitled to enjoy equality and non-discrimination just like everyone else. Overall this means that they have the right to be integrated and be an active part of society of which democratic participation is a key element. The treaties recognize that differential treatment is sometimes necessary to ensure equal outcomes and also recognize that inequality can result from direct and indirect discrimination. States must therefore take a proactive role in identifying and addressing discrimination and discriminatory practices.

The EU directives designed to enable Member states to incorporate these principles into their national laws were initially directed at racial and ethnic minorities and discrimination in relation to work. The latest directive, which is still under discussion, aims to tackle discrimination on a range of factors including age and disability outside of the employment sphere. The recognition of direct as well as indirect discrimination is significant for older people access and inclusion to ICT because equal treatment (ignoring older people's special needs) are likely to result in exclusion, which constitute indirect discrimination. Older people and people with disabilities have to be involved in identifying, monitoring and evaluating eAccessibility and eInclusion challenges that they experience.

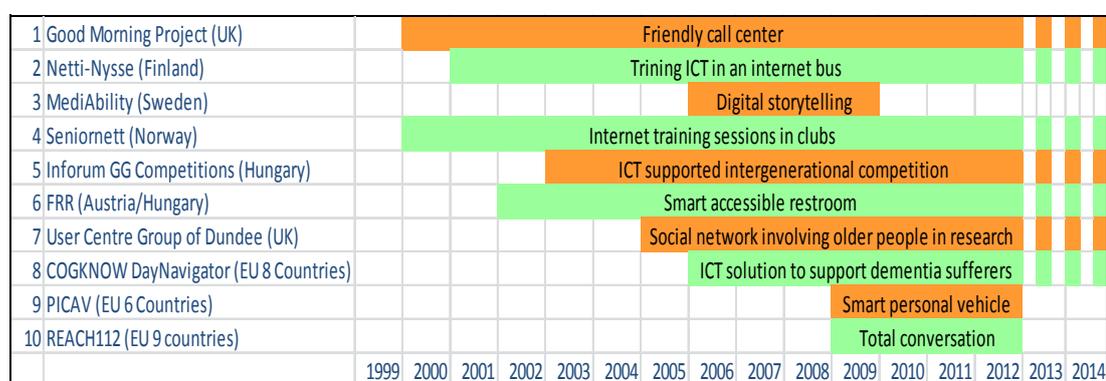
The policies on eAccessibility and eInclusion focus on enabling active participation in the digital world. eAccessibility and eInclusion are not only seen as benefitting older people and people with disabilities. They also have the

potential to ease the administration (and cost) of public service delivery and present a considerable market gap. Filling this market gap is seen to drive demand for more and improved services. The Europe 2020 Strategy was designed to help Europe out of the economic recession and foresees the digital world as contributing to economic growth and social inclusion. Older people's access and inclusion in ICT are a part in the Digital Agenda of the EU 2020 strategy) and play a key role specifically in relation to research and innovation; the improvement of digital literacy and the development of sustainable health care. The Innovation Union, which is also part of the EU 2020 strategy also has a considerable impact on the rights of older people.

Through their genuine means of promoting eAccessibility and eInclusion, each one of the selected business cases has contributed to the much developed ICT-integrated living environment for older people. In fact, giving older people access to technology has proved effective in improving their attitudes towards interaction, taking on new challenges and helped to support their social life on daily basis. Projects that focused on supporting older people through online technology, network, media recording and communications, have substantially contributed to the increase in older people's awareness of technology and the improvement of communications with wider cycle of social networks. In addition, projects that used technology to facilitate services such as PICA V do help older people to reach areas and places safely and independently that were otherwise beyond their reach.

This report aimed to explore the way technology could be influential in improving older people's lives through practical examples of existing and successful business cases in Europe. It is evidence from the analyzed cases that while technology has enabled genuine and effective innovation for facilities and services that enhanced a better living experience for older people, there are still many possibilities and opportunities yet to be explored and could further contribute to well-connected and better-served ageing population.

The following diagram displays the chronological order and duration of the selected business cases.



## **6 Abbreviations and acronyms used in the document**

AAL Ambient Assisted Living  
ADI Alzheimer's Disease International  
AT Austria  
BE Belgium  
BEHL Better Ear Hearing Level  
BG Bulgaria  
CESEP Civic Engagement and Service Education Partnerships  
CH Switzerland  
CPU Central Processor Unit  
CY Cyprus  
CZ Czech Republic  
DA Digital Agenda  
DALY Disability-Adjusted Life Year  
DE Germany  
DG Direction General  
DK Denmark  
DOJ CSU Department of Justice Community Safety Unit  
DoW Description of Work  
EC European Commission  
EE Estonia  
EL Greece  
ES Spain  
EU European Union  
EUD European Union of the Deaf  
FAQ Frequently Asked Questions  
FI Finland  
FP Framework Programme  
FX Metropolitan France  
GMT Greenwich Mean Time  
GP General Practitioner  
GPS Global Position System  
GR Greece  
HL Hearing Loss  
HU Hungary  
HUI Health Utility Index  
ICT Information Communication Technology  
IE Ireland  
IPTs Institute for Prospective Technological Studies  
IS Information Society  
IST Information Society Technologies  
IT Italy  
IR Infrared  
JMG Journalism and Mass Communication  
JP Joint Programme

LT Lithuania  
LU Luxembourg  
LV Latvia  
MEP Members of the European Parliament  
MT Malta  
NL the Netherlands  
NI Northern Ireland  
NIHE Northern Ireland Health Estate  
NO Norway  
NSH National Health Service  
OECD Organisation for Economic Co-operation and Development  
OSGI Open Services Gateway Initiative  
PC Personal Computer  
PL Poland  
PSNI Police Service of Northern Ireland  
PSP Policy Support Programme  
PT Portugal  
QALY Quality Adjusted Life Years  
RFID Radio Frequency Identification  
RO Romania  
SE Sweden  
SI Slovenia  
SK Slovakia  
SMTCB Serviços Municipalizados de Transportes Colectivos do Barreiro  
SR Swedish Radio  
SVT Swedish Television  
TCSEC Trusted Computer System Evaluation Criteria  
UK United Kingdom  
USA United States of America  
VA Value Ageing  
WHO World Health Organization

## 7 References & Notes

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<sup>1</sup> K. Cullen, L. Kubitschker, and input from P Blanck, W. N Myhill, G. Quinn, P.O Donoghue, and R. Halverson, *Accessibility to ICT Products and services by Disabled and Elderly People. Towards a framework for further development of EU legislation or other co-ordination measures on eAccessibility*, Bonn, November 2008.

<sup>2</sup> empirica Gesellschaft fuer Kommunikations- und Technologieforschung mbH (coordination action under FP6) *Strengthening eInclusion & eAccessibility across Europe* ([http://www.kpk.gov.pl/pliki/2187/Description\\_PROJECT\\_eInclusion@EU.pdf](http://www.kpk.gov.pl/pliki/2187/Description_PROJECT_eInclusion@EU.pdf))

<sup>3</sup> This question was also raised in D.12 page 14.

<sup>4</sup> See article 2(2) of the International Covenant on Social Economic and Cultural Rights (ICESCR); article 14 of the European Convention of Human Rights; and the Preamble of the European Social Charter.

<sup>5</sup> D12 page 14.

<sup>6</sup> Committee on Economic, Social and Cultural Rights General Comment No. 6 *The economic, social and cultural rights of older* U.N. Doc. HRI/GEN/1/Rev.6 at 34 (2003) at paragraph 12

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- <sup>7</sup> Committee on Economic Social and Cultural Rights *General Comment No. 4, The Right to Adequate Housing* U.N. Doc. E/1992 /23 annex III at 114 (1991) paragraph 8(e).
- <sup>8</sup> Extra protection against discrimination.
- <sup>9</sup> Committee on Economic, Social and Cultural Rights *General Comment No. 15, The right to water* U.N. Doc. E/C.12/2002/11 (2002) at paragraph 12(c).
- <sup>10</sup> D1.2 EU Policies on eInclusion and eAccessibility page 18.
- <sup>11</sup> From CEUR-WS.org: fast and cost-free provision of online proceedings for scientific workshops --> Preliminary Findings from <http://ceur-ws.org/Vol-792/Kouroupetroglou.pdf>
- <sup>12</sup> WHO *What is e-accessibility* <http://www.who.int/features/qa/50/en/index.html> 2010.
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- <sup>16</sup> [http://ec.europa.eu/information\\_society/eeurope/2005/doc/all\\_about/kaplan\\_report\\_einclusion\\_final\\_version.pdf](http://ec.europa.eu/information_society/eeurope/2005/doc/all_about/kaplan_report_einclusion_final_version.pdf) page 7. This definition has been taken up by a number of European based projects, for example NETIS Elissa Mancinelli *E-Inclusion in the Information Society* Budapest NETTIS 2007, page 9 [http://www.ittk.hu/netis/doc/ISCB\\_eng/10\\_Mancinelli\\_final.pdf](http://www.ittk.hu/netis/doc/ISCB_eng/10_Mancinelli_final.pdf).
- <sup>17</sup> <http://ftp.jrc.es/EURdoc/22549-ExeSumm.pdf> page 1
- <sup>18</sup> <http://ftp.jrc.es/EURdoc/22549-ExeSumm.pdf> page 2
- <sup>19</sup> ([http://ec.europa.eu/information\\_society/activities/einclusion/events/riga\\_2006/index\\_en.htm](http://ec.europa.eu/information_society/activities/einclusion/events/riga_2006/index_en.htm) paragraph 9.
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- <sup>38</sup> European Network of Independent Experts in the non-discrimination field Developing Anti-Discrimination Law in Europe - the 25 Member States compared European Commission 2007 page 11.
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# **ANNEX I**

## 1 Annex I - Collection of potential business cases analysed

This annex contains the description sheets of the selection of the 50 potential business cases that have been used for selecting the final 10 best cases. Each description includes geographical financial and historical information as well as the reference for further investigation and the criteria that made it a potential business case.

1 - SMART 2008-0066 "Monitoring eAccessibility in Europe		
Location		Spain (Coordination) Ireland Norway Italy
Public or private	Consortium project with Spanish leadership and funded by EC	
Target groups	EU and organisations working in eAccessibility able to transfer ideas between countries	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.eaccessibility-monitoring.eu/">http://www.eaccessibility-monitoring.eu/</a>	
Date	From 2006 to 2008	
Description	The project monitors and analyses how legislation, policies, practices and any implementation within the European Union policies impacts on the eAccessibility state of the art, in order to identify best practices to be transferred wider at EU level.	
Importance as potential business case	The two annual reports produced by the project include comparisons among technology, policy and impact, by country and over time. They represent an “impact validation” of the policy and the initiatives ongoing in Europe and it makes the EU as well as each organisation working in eAccessibility able respectively, to apply corrective measures and to develop solutions to fill up identified leaks in eAccessibility.	

2 – The good morning project		
Location		Glasgow County (UK) Northern Ireland
Public or private	Public, funded by public bodies and private donations	
Target groups	Older or vulnerable people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://gmni.co/default.aspx">http://gmni.co/default.aspx</a> <a href="http://www.goodmorning.org.uk/">http://www.goodmorning.org.uk/</a>	
Date	2000 (Ongoing)	
Description	Good Morning Project consist in calling every day, at a pre-arranged time hundreds of vulnerable older people and establish with them a friendly and trusted relationship focused to reduce member’s isolation and monitor his well-being at home.	
Importance as potential business case	The ICT in the project consists in a simple software to provide the phone calls, but the idea is very important in terms of older members satisfaction and cases stories, so that in only 10 years the Good Morning project has been considered a best practice and transferred from the Glasgow county to all over the NI (22 centres already present). The operators also support by phone older people in overcome also eAccessibility barriers.	

3 – Age NI / Cymru / Scotland / UK		
Location		Northern Ireland Cymru Scotland UK
Public or private	Charity	
Target groups	Older and disadvantaged people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.ageuk.org.uk/northern-ireland/">http://www.ageuk.org.uk/northern-ireland/</a> <a href="http://www.ageuk.org.uk/cymru">http://www.ageuk.org.uk/cymru</a> <a href="http://www.ageuk.org.uk/scotland">http://www.ageuk.org.uk/scotland</a> <a href="http://www.ageuk.org.uk/">http://www.ageuk.org.uk/</a>	
Date	2009 (Ongoing)	
Description	The organisation is involved in a list of activities, including: carry on campaigns to influencing policy and decision-makers to ensure that older people are represented, help to fund and aiding with funds raised by the national will-making scheme Will aid, support older people in their communities, provide a range of products and services for independent living and financial older people security, carry on a medical research to unlock the causes of age-related mental decline.	
Importance as potential business case	The Group is very active in producing useful tools and documentation to be available on the official websites. It consists in a gateway of services and a reference older people (for more than 150.000 in 2011) to be used in any circumstance, from social to entertainment as well as from financial to bureaucratic issues.	

4 – Senior project		
Location		Italy (Coordination) UK Belgium Denmark
Public or private	Consortium project with Italian leadership and funded by EC	
Target groups	EU and organisations focused in creating eAccessible and eInclusive innovations.	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://www.seniorproject.eu">http://www.seniorproject.eu</a>	
Date	From January 2008 to December 2009	
Description	Through its strategic and multidisciplinary consortium and a number of thematic expert meetings, the project investigated ICT systemic solutions and technology trends in order to define how they can meet the needs of senior citizens without compromising privacy and ethics.	
Importance as potential business case	The project produced a strategic plan for governing future trends and a collection of lessons learned in terms of privacy and ethics by the past and the ongoing projects, initiatives and technological innovations. These lessons are important in terms of eAccessibility and eInclusion because, if respected in the design phase of new technologic systems intended to enter into the older people lives, they can contribute to avoid that eAccessibility and eInclusion being get to the detriment of ethics and privacy.	

5 - MediAbility		
Location		Sweden
Public or private	Public, funded by Swedish Inheritance Fund	
Target groups	Older people, people of any age, disadvantaged, digital illiterates	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://mediability.wordpress.com/">http://mediability.wordpress.com/</a>	
Date	From February 2006 to June 2009	
Description	By using the idea of digital storytelling, MediAbility empowered e-excluded people by providing them with the tools to make their own digital video stories.	
Importance as potential business case	The idea is important because it is an original way to provide digital training and accordingly eAccessibility. In addition, the project got the interest of the medias and the added value in terms of eInclusion is represented not only by the 22 training-workshops sessions as a way to learn and collaborate all together, but also by the possibility for each of the 160 participants to see published his own made film and get his story seen from all the visitors of the UR Swedish Educational Broadcasting.	

6 - Netti-Nysse		
Location		Tampere (Finland) Similar initiatives in: Belgium France Germany Italy
Public or private	Sponsored by the Tampere council, Business partners, Finland's Ministry of the Education and regional government IT department	
Target groups	Older people, digital excluded people	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://kirjasto.tampere.fi/index.php/kirjastot-ja-aukiolot/netti-nysse/">http://kirjasto.tampere.fi/index.php/kirjastot-ja-aukiolot/netti-nysse/</a>	
Date	2001 (Ongoing)	
Description	The "Netti-Nysse" service consists in a bus equipped with computers and Internet access to provide free training in basic computer skills to the digital excluded people into local communities.	
Importance as potential business case	The importance of the initiative is due to the success it got within the older people and the effectiveness in introducing them with the informatics world. The ICT innovation is on board the bus which his provided with PCs, monitors, desks, software and broadband.	

7 - ConnectMK		
Location		Milton Keynes (UK)
Public or private	Private, wholly owned by the Milton Keynes Council	
Target groups	Older people, digital excluded people, poor people	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.connectmk.com/">http://www.connectmk.com/</a>	
Date	2006 (Ongoing)	
Description	ConnectMK refurbished hundreds of PC from the desks of local authority employees and rents them to the citizens for a very cheap weekly rental.	
Importance as potential business case	<p>The importance of this initiative is due to the number of older users adhering that means it is a good idea matching their needs. The software installed in the rented PCs is very simple in order to be easy approachable by the digital illiterates including older people, but consents to get practice with the use of the PC and Internet as well as to use them for social aims (communication tools, social networks etc...).</p> <p>The PC configuration is robust in order to prevent malfunctions due to any wrong command and the IT maintenance is included in the rent, so the user can have a more relaxed approach without the concerns to compromise the system with some wrong operations.</p>	

8 - Seniornett		
Location		Norway
Public or private	Private, funded by government (50%), banks and private donations	
Target groups	Older people, digital excluded people, poor people	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://www.seniornett.no/">http://www.seniornett.no/</a>	
Date	2000 (Ongoing)	
Description	<p>Seniornett aims to encouraging people to try the Internet experience, bringing and teaching it in public places close to them such as clubs, libraries, senior citizen centres, social organisations and voluntary centres, where they can learn from each other and share experience, genealogy research and photos.</p>	
Importance as potential business case	<p>The innovation of this initiative in the field of the eInclusion, consist into bringing the world of informatics and digital services directly in places where the target groups are used to meet and socialise. In this way they became argument of socialising, during as well as after the lessons which being so more effective.</p> <p>The courses teach also how to get used with the online services such as managing a bank account (the banks are in the sponsor group) including how to obtain online guide, supports and demos for any form of eAccessibility tool embedded in a public online service which require a minimum of familiarity.</p>	

<p>9 – Grandparents-Grandchildren Informatics Competitions (Inforum)</p>		
<p>Location</p>		<p>Hungary</p>
<p>Public or private</p>	<p>Private, funded by public national bodies</p>	
<p>Target groups</p>	<p>Older people</p>	
<p>eInclusion or eAccessibility</p>	<p>eInclusion</p>	
<p>Website URL</p>	<p><a href="http://www.inforum.org.hu/unoka-nagyszulo-versenyek/grandparent-grandchild-competition-of-informatics/">http://www.inforum.org.hu/unoka-nagyszulo-versenyek/grandparent-grandchild-competition-of-informatics/</a></p>	
<p>Date</p>	<p>December 2003 (Ongoing)</p>	
<p>Description</p>	<p>The "Grandparents-Grandchildren Informatics Competitions" is a competition between pairs composed by grandparents (over 50 years) and their grandchildren (4 - 14 years) that compare their knowledge with the other pairs in different questions and using the Internet as an aid to find information.</p>	
<p>Importance as potential business case</p>	<p>The competition is organised by The Forum of the Hungarian IT Organisations Inforum and it became a tradition in Hungary which is very interesting in terms of eInclusion not only for the big success it had (1350 families so far) and for the attention by the media (more than 1000 appearance), but most of all for the alternative way to push the ICT between the older users by matching two opposite generations.</p> <p>The competition incites children to help their grandparents overcome the barriers of the information society and get used with the surf of the web. Viceversa the collaboration with their grandchildren and the competitive spirit work as a strong incentive to make the grandparents move their first step in the informatics world.</p>	

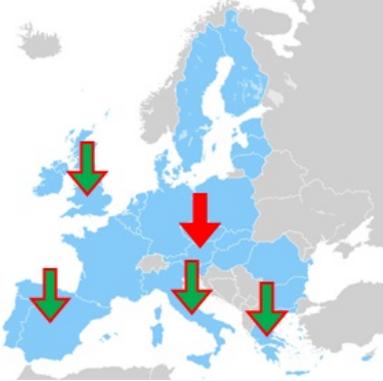
10 - Mijnabc.nl		
Location		Netherlands
Public or private	Private used by Public administration	
Target groups	Older people , people with disability, people with no or poor digital literacy, minorities and migrants	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.mijnabc.nl/">http://www.mijnabc.nl/</a>	
Date	January 2006 (Ongoing)	
Description	The Reading and Writing Foundation has realised a simple-to-navigate web portal which provides illiterates with access to relevant and practical information.	
Importance as potential business case	<p>The Reading and Writing Foundation has used the best practices and guidelines about web site construction, including texts easy to read (level A2/B1, Common European Framework), clear navigation, the possibility to ear the text read by an automatic speech, the possibility to get help from a dedicated person called Steffie who explains the website whenever needed (i.e. for adults that have problems with reading and writing).</p> <p>It is a good example of eAccessibility and a reference for government, public organisation like Sociale Verzekeringsbank SVB (which is responsible for the administration of Dutch state pensions, survivor and child benefit and other social insurance schemes for more than 4.6 million clients worldwide) and companies wanted to make their current website more accessible.</p> <p>The Mijnabc.nl is also a gateway of links to a number of other different websites where low literate people can practise.</p>	

11 - Eldy		
Location		Italy
Public or private	Private	
Target groups	Older people, people with no or poor digital literacy, minorities and migrants	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://www.eldy.eu">http://www.eldy.eu</a>	
Date	September 2007 (Ongoing)	
Description	Eldy is a free software package that can be downloaded in 27 languages for pc and tablet by the official website and simplifies the PC use and the Internet access for senior Citizens	
Importance as potential business case	<p>The software is specifically designed to provide eAccessibility for older people. The simplified software makes the seniors acquire basic technological skills very quickly and without particular problems.</p> <p>The importance of Eldy is due as well to the very big number of users (400.000 all over the world) registered to the platform, which moved also the interest of the public administration in considering the project as an opportunity to train citizens on eGovernment services in accordance with the eInclusion policy.</p>	

12 - IT-huis		
Location		Belgium
Public or private	Non-profit	
Target groups	People with no or poor digital literacy	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.ithuis.be">http://www.ithuis.be</a>	
Date	January 2008 (Ongoing)	
Description	<p>IT-huis aims to reduce the digital divide and provide eAccessibility for the digital disadvantaged through four different approaches:</p> <ul style="list-style-type: none"> <li>• promoting and supporting the schools to held basic ICT courses for parent and grandparents to make them able to help their (grand)children with their schoolwork (iSchool)</li> <li>• providing free training equipment (40 laptops, 1 beamer, 1 camera, 1 video, 10 headphones, etc), train-the-trainer sessions, learning resources and other staff to other projects and organisations working with disadvantaged groups. (iBuurt – iBib)</li> <li>• producing monthly a brochure that shows step by step how to use certain complex technologies and websites, i.e. Gmail, online banking, etc. (iThema)</li> </ul>	
Importance as potential business case	<p>The project is important because it attacks the digital exclusion from different points (training, equipments and procedures) in order to obtain a more effective outcome resulting by the synergy of each different impact. In addition IT-huis works also as a facilitator for other projects and organisations involved into enhancing the eInclusion of disadvantaged people.</p>	

13 - APSIS4all		
Location		Spain (coordination) Austria France Germany Greece Italy UK
Public or private	Consortium project funded by EU	
Target groups	Older people, people with no or poor digital literacy, minorities and migrants, any citizens	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.epractice.eu/en/cases/apsis4all">http://www.epractice.eu/en/cases/apsis4all</a>	
Date	April 2011 (Ongoing)	
Description	APSIS4all is a project aimed at personalising Public Digital Terminals (PDTs) such as ATMs and Ticket Vending Machines for all making them able to adapt their interfaces automatically according to the needs and preferences of the user and overcoming so the existing accessibility barriers.	
Importance as potential business case	<p>The way the project uses ICT to provide eAccessibility is very innovative and makes it a selected case.</p> <p>The project goes over the concept of eAccessible introducing the term “personalisation” for ICT, which means to make ICT adapt to the user needs. It means to break the barrier between people with and without disabilities when dealing with technology.</p>	

14 - e-Access II		
Location		Greece (Coordination) Bulgaria Cyprus Romania
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged/deprived communities	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.eaccess2learn.eu/">http://www.eaccess2learn.eu/</a>	
Date	November 2007 (Ongoing)	
Description	eAccess II project to developed an online repository platform where it's possible to search, deliver and share Accessible e-Training Resources and e-Training Courses that can be reusable between different e-Training Platforms and Programmes.	
Importance as potential business case	The project is important for the great number of e-Training Resources and Courses available on the website and easy searchable by the search tool or through the alphabetic list. The courses are oriented to overcome the barriers of different disadvantaged people and they can be transferred on different portals in order to facilitate eTraining Courses Suppliers in developing their own Accessible eTraining Courses.	

15 - HERMES		
Location		Austria (Cordination) Spain Israel UK Greece Italy
Public or private	Consortium project funded by EU	
Target groups	Older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.fp7-hermes.eu">http://www.fp7-hermes.eu</a>	
Date	January 2008 (Ongoing)	
Description	HERMES developed a combination of a home-based and mobile assistive and training technology for older people, focused to support their mobility outdoor, their conversation skills, their memory and reduce the age-related decline of cognitive capabilities.	
Importance as potential business case	The importance of this project is due to the merging in a unique integrated system both assistive technology useful to support older people in their living social and a training technology dedicated to keep their mind active and in health status.	

16 - FRR		
Location		Austria
Public or private	Start-up in partnerships between administration and/or private sector and/or non-profit sector in Austria, initially funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URLs	<a href="http://www.is.tuwien.ac.at/fortec/reha.e/projects/frf/frf_reallife.html">http://www.is.tuwien.ac.at/fortec/reha.e/projects/frf/frf_reallife.html</a> <a href="http://www.is.tuwien.ac.at/fortec/reha.e/projects/frf/frf.html">http://www.is.tuwien.ac.at/fortec/reha.e/projects/frf/frf.html</a>	
Date	January 2002 (Ongoing)	
Description	FRR - Field Test of a User Friendly Toilet Prototype - The aim of the FRR project was to carry on a study in several European countries in order to develop a more user friendly toilet system matching the needs of older and disabled people.	
Importance as potential business case	The project is important because it is a good example of user centred approach achieved intensively involving disabled persons and older people in the project via user boards, focus groups and prototype testing.	

17 - LCOL		
Location		Leicestershire and East Midlands (UK)
Public or private	Public funded by local administration	
Target groups	Older people, people with disability, people with health and long-term care problems, minorities and migrants, people with no or poor digital literacy, disadvantaged/deprived communities	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.leicscareonline.org.uk">http://www.leicscareonline.org.uk</a>	
Date	June 2001 (Ongoing)	
Description	LCOL – Leicestershire CareOnLine is focused to reduce the social isolation for older vulnerable adults by providing them with a very large number of services for any need through an easy and accessible website.	
Importance as potential business case	The website is a nice example of Usability and eAccessibility because of its features such as simplicity, clear and easy to read interface, the number of information content and available in only 2-3 clicks, the number of services available for different fields and sectors (from training to health and from social to safety as well as from Assistive technology to community events and news, etc...), the possibility to get support and share experience or advices through the forum and the possibility to socialise with the embedded chat section.	

18 - SeniorLearning		
Location		Spain (Coordination) Hungary Austria Norway Germany
Public or private	Consortium project funded by EU	
Target groups	Older people, people with no or poor digital literacy	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.seniorlearning.eu">http://www.seniorlearning.eu</a>	
Date	October 2006 (Ongoing)	
Description	SeniorLearning system is an e-learning system designed specifically for senior citizens and providing online courses for enabling older users to get used with Internet and its services.	
Importance as potential business case	This case is a good example of how it is possible to teaching the Internet via an e-learning approach older people-centred designed. The platform is easy to use and uses simple language (located in English and Norwegian) full of clipart and animations.	

19 - Skype		
Location		Luxembourg (with offices also in Europe, the US and Asia)
Public or private	Private owned by Microsoft	
Target groups	All	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.skype.com">www.skype.com</a>	
Date	2002 (Ongoing)	
Description	<p>Skype is an application focused to enhance the audio and video communication experience by using the Voice over IP (VoIP, or Voice over Internet Protocol) technology.</p> <p>Recently Skype has introduced also further features (like embedded games and multimedia object sharing) aimed to make the communication between the members more social and funny.</p>	
Importance as potential business case	<p>Skype is an interesting potential business case in the field of eInclusion for older people because its technology enables them to keep in contact with all their family breaking down the barrier of distance and costs. Skype is free in its basic version, but can be cheaply enhanced with several optional and the possibility to call or text land phones and mobiles.</p> <p>In addition it is available for PC, mobiles phones and TVs, it is easy to install and has more than 40 millions of users all over the world.</p>	

20 – ElderGames		
Location		Spain (Coordination) UK Norway Italy Germany
Public or private	Consortium project funded by EU	
Target groups	Older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.eldergames.eu/">http://www.eldergames.eu/</a>	
Date	From September 2006 to February 2009	
Description	ElderGames aimed to involve and motivate the older people in get used with the ICT as well as train their cognitive skills by creating an hybrid entertainment-therapeutic ICT environment.	
Importance as potential business case	ElderGames is a potential business case because of it innovative approach in using ICT to mix entertainment with therapeutic exercises oriented to improve cognitive skills in old age. This approach is less invasive than other and gets three very important outcomes in the same time: introduce the older user into the informatics society, make the ICT a way to socialise with other senior users and keep their mind active longer.	

21 - User Centre Group - Dundee	User Centre Group - Dundee	
Location		Dundee (UK)
Public or private	Public	
Target groups	Older people, people with no or poor digital literacy	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://usercentre.ning.com/">http://usercentre.ning.com/</a>	
Date	Ongoing	
Description	<p>The User Centre Group is based at the School of Computing at the University of Dundee and it consists in a friendly and informal computer club for over 60s.</p> <p>The User Centre Group currently meets for 2 hours of training session 3 times a week. Two of the sessions are drop-in sessions where attendees can choose what they want to do, learn or ask and the third is an informal class.</p>	
Importance as potential business case	<p>This case is important because it makes the ICT an argument to discuss, to meet and socialise. The User Centre Group online platform is actually a social network for older people focused to explore the ICT world together socialising each other.</p>	

22 – Listening books	 <b>Listening</b> books	
Location		London (UK)
Public or private	Charity	
Target groups	Older people, people with visual impairment	
eInclusion or eAccessibility	eInclusion	
Website URLs	<a href="http://www.listening-books.org.uk/our-history.aspx">http://www.listening-books.org.uk/our-history.aspx</a> <a href="http://www.cogknow.eu/1/FP6_COGKNOW/index.html">http://www.cogknow.eu/1/FP6_COGKNOW/index.html</a>	
Date	2005 (Ongoing)	
Description	<p>Listening Books is a very large repository of audio books resources. The charity has a long experience in audiobook technology including streaming (from 2005), MP3 CD production (from 2007) and secure online download (from 2010).</p>	
Importance as potential business case	<p>The case is important because Listening Books can be considered a forefront of the audiobook technology, which provide to people with sight impairment as well as older people who want to keep themselves updated and literally in their interested fields, a more personalized alternative than listening the TV or radio.</p> <p>In addition the service is the result of the idea and the commitment of Norma Skemp who became herself a visual impaired in 1954 because of a car accident.</p>	

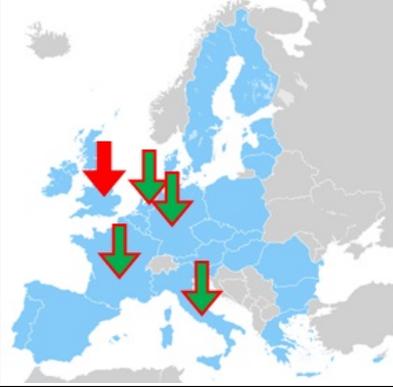
23 – COGKNOW DayNavigator	 <b>COGKNOW</b> <small>Helping people with mild dementia to navigate their day</small>	
Location		Spain (Coordination) Netherlands Sweden UK Norway Malta
Public or private	Private Start-up resulting from a consortium project funded by EU	
Target groups	Older people, people with dementia	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.cogknow.eu/">http://www.cogknow.eu/</a>	
Date	September 2006 (Ongoing)	
Description	<p>The COGKNOW DayNavigator is a holistic embedded solution (including a stationary touch screen, a mobile device, home-based sensors and actuators) focused on assisting persons with dementia within their own homes and outside in order to improve their quality of life with independence, safety and social.</p> <p>The system can be customised to address the individual needs of each person and his career.</p>	
Importance as potential business case	<p>The case is important as potential business case because it aims specifically to eInclude a particular group of older disadvantaged people, which is often not considered into the target groups of eInclusive technology.</p> <p>It is interesting to note how the project surrounds and integrates the user life encompassing also the maintaining of his social contacts in respect of his dignity.</p> <p>After the project ended, in August 2009 COGKNOW was awarded the ACCESS-IT Best Practice label and continued to generate interest from dementia care, dementia experts, investors and the media. This inspired some of the original partners to exploit the project outcomes into the commercial realm funding the actual Cogknow company.</p>	

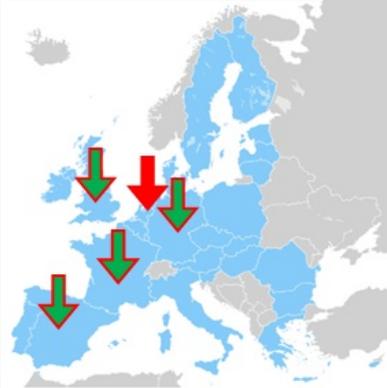
24 - Vital		
Location		Germany (Coordination) France Spain UK Portugal Czech Republic
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.ist-vital.org/index.php">http://www.ist-vital.org/index.php</a>	
Date	From January 2007 to September 2010	
Description	<p>VITAL project developed an embedded solution which combines several ICT modules specifically designed for older people and uses TV as the main vehicle for their delivery in home environments and mobile phones for the outdoor.</p> <p>The VITAL modules allow the older user to use his TV (or his mobile) for:</p> <ul style="list-style-type: none"> <li>• Search and access to audio books and multimedia courses specific for older people (cooking, household activities, etc) to be listen by the system</li> <li>• Peer-to-peer Gaming for online socialising and entertainment</li> <li>• Read a personal newspaper and multimedia contents suggested on base of the user profile configuration</li> <li>• get a real time Audio Guide about his destination and place he desire to visit like description, presence of facilities, physical conditions and time required for the visit.</li> <li>• Video communicate with family, other users or assistance services as well as with his personal video diary.</li> </ul>	
Importance as potential business case	<p>The project is important because it take in consideration several older people needs including information, inter-personal communication, personal advice, edutainment, safe mobility and social integration. All these needs and accordingly the linked services implemented by the project are a direct result of the user-centred approach used. The older final users involved in the design phase have tested on person and selected each module of the platform.</p> <p>The project is also important for the idea to use the TV, which is an ICT object very familiar with the older people, as a vehicle to provide eAccessibility towers other services and consequently also eInclusion.</p>	

25 - NACODEAL		
Location		Spain (Coordination) Italy France
Public or private	Consortium project funded by EU	
Target groups	Older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.nacodeal.eu/en/">http://www.nacodeal.eu/en/</a>	
Date	2011 (Ongoing)	
Description	<p>NATURAL COMMUNICATION DEVICE FOR ASSISTED LIVING aims to develop a portable device able to support the older people, specifically these with memory disorder. The NACODEAL device, by integrating Augmented Reality technologies, will be able to give the user instructions of how to proceed during different activities of daily living.</p>	
Importance as potential business case	<p>This project is important because it is expected to find a new way to use the ICT progresses in the field of the Augmented Reality, which is to capture the environment surrounding the older user through a portable device and reproducing an elaboration of it specifically designed for assist the user to cope with memory problems.</p>	

26 - SRS		
Location		UK (Coordination) Austria Germany Italy Spain Bulgaria Czech Republic
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://srs-project.eu/">http://srs-project.eu/</a>	
Date	From February 2010 to January 2013	
Description	<p>The project focuses on the development and prototyping of a remotely-controlled and semi-autonomous robotic solution for domestic environments to support older people.</p> <p>The system aimed to be realised is called "shadow robot" and can be personalised for home care as well as to be remotely controlled by the relatives of the older user in order to help him physically (i.e. with tasks such as getting up or going to bed, doing the laundry and setting up ICT equipment etc.) as if they were resident in the house.</p> <p>The system will be also designed to be able to follow the older user as a shadow and to execute for him some commands like lift object or switch on and off lights etc.</p> <p>In addition the robot will be provided with self-learning mechanism which will enable it to learn from its experience.</p>	
Importance as potential business case	<p>This case is important because of the innovative scenario expected to realise.</p> <p>The robot-system, not only will be a social support for the older user keeping him "video connected" with his relatives (and viceversa making them able to monitor him), but also it will act as a "remote arm" to support him in case of need and this will enhance the concept of communication at an higher level.</p>	

27 - CompanionAble		
Location		UK (Coordination) Austria Spain France Netherland Germany Belgium
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.companionable.net/">http://www.companionable.net/</a>	
Date	From January 2008 to June 2012	
Description	CompanionAble aims to addresses the issues of social inclusion and homecare of older persons needed for constant monitor and support, by combining a mobile robotic companion and a stationary smart home environment in a unique embedded and synergic system.	
Importance as potential business case	This case is important because it is the first time ICT temps to merge the two different world, smart home and robotic in a unique solution. The fusion of the two different technologies is expected to produce a great outcome able to change the world of the homecare.	

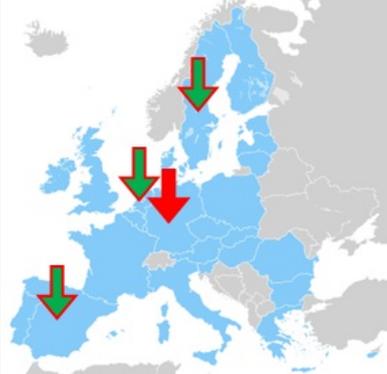
28 - ACCOMPANY		
Location		UK (Coordination) Italy France Netherland Germany
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://accompanyproject.eu/">http://accompanyproject.eu/</a>	
Date	From October 2011 to September 2014	
Description	<p>ACCOMPANY - Acceptable robotiCs COMPanions for AgeiNg Years – aims to realise a system robotic companion as part of an intelligent environment focused to motivate and support the independent living at home for older people.</p> <p>The ACCOMPANY system will provide physical, cognitive and social assistance in everyday home tasks.</p>	
Importance as potential business case	<p>This case is important because it propose an innovative way to face the social isolation. The robot systems is expected to use a friendly empathic interaction with the older user through with stimulate him and training his cognitive functions.</p> <p>An important aspect of this project is how the dignity of the user is taken into account in order to make him not to be dominated by the technology, but just to be empowered, physically, cognitively and socially.</p>	

29 - Florence		
Location		Netherland (Coordination) Spain Germany UK France
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.florence-project.eu/">http://www.florence-project.eu/</a>	
Date	From February 2010 to January 2013	
Description	<p>Florence project aim to develop a robot-system able to provide the older users with a number of services including:</p> <ul style="list-style-type: none"> <li>• Social Connections through social networks, web-2.0 and synchronous communication tools</li> <li>• Coaching for physical exercises including feedback the execution and advise on daily activities</li> <li>• Care support for log care-related activities at home that are shared among professional or volunteer caretakers</li> <li>• Safety representing additional ears and eyes ready to alert helps provider for any emergency</li> </ul>	
Importance as potential business case	<p>The project is important because it is expected to produce a more efficient alternative in care, while reducing the relative cost.</p> <p>The robot-system will be specifically designed to provide social, physical, health and safety support, becoming so an artificial carer always ready to interact with his older user.</p>	

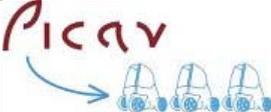
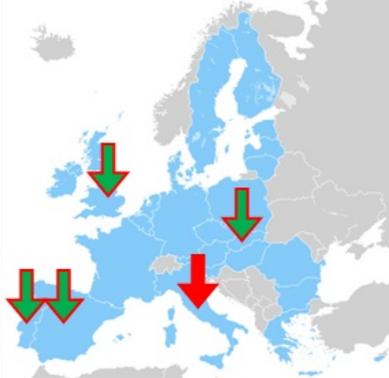
30 - WIISEL		
Location		Spain Israel Italy Switzerland Germany Ireland
Public or private	Consortium project funded by EU	
Target groups	Older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.wiisel.eu/">http://www.wiisel.eu/</a>	
Date	From November 2011 to October 2014	
Description	<p>The WIISEL project aim to decrease the issue of falls among the older people by proposing an innovative and ICT provided insole, able to detect, analyse and constantly monitor the posture of an older individual and evaluates gait dynamics via a matrix of printed pressure sensors.</p> <p>In addition, the system will interact firstly with the user through a near element (e.g., smartphone) and secondly with a remote control management system which incorporates intelligent prediction architecture able to discover patterns and make predictions based on historical and real-time daily behavioural data.</p>	
Importance as potential business case	<p>The case is important for different reasons:</p> <ul style="list-style-type: none"> <li>• It considers a seriously increasing problem in the older population, which is the falls. They represent a real risk for older people to lose their independence or even die.</li> <li>• It aims to produce a unobtrusive, self-learning and wearable prevention and warning system in fully respect of the individual dignity</li> <li>• It concentrates on the prevention of the falls rather on their care, in order to avoid them through rehabilitation exercises, or other corrective interventions.</li> </ul>	

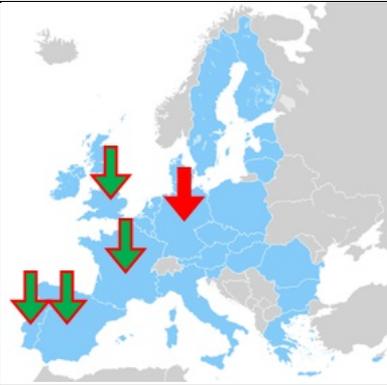
31 - ARGUS		
Location		Spain (Coordination) Germany UK Austria
Public or private	Consortium project funded by EU	
Target groups	People with visual impairment, older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://projectargus.eu">http://projectargus.eu</a>	
Date	From October 2011 to March 2014	
Description	<p>ARGUS project aims to develop an assisting personal guidance system for people with visual impairment.</p> <p>The innovation proposed by the project consists in a portable satellite-based navigation device including acoustic and haptic user interfaces able to provide the user with a 3D spatial insight of their surrounding environment.</p>	
Importance as potential business case	<p>This case is important because it represents a commitment to create a more inclusive technology for blind or people with visual impairment oriented to increase their perception of the surrounding environment and accordingly their safety and independence as well as inclusion.</p>	

32 - SpaceBook	SpaceBook	
Location		Sweden (Coordination) UK Spain
Public or private	Consortium project funded by EU	
Target groups	People with visual impairment, older people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.spacebook-project.eu/">http://www.spacebook-project.eu/</a>	
Date	From March 2011 to February 2014	
Description	The SpaceBook project aims to develop a speech-driven, hands-free, eyes-free device for pedestrian navigation and exploration.	
Importance as potential business case	SpaceBook project is important in terms of eInclusion because it is expected innovating the science of the navigation and exploration systems paving the way for enhanced and more eInclusive tourism applications for older people mobility.	

33 - HaH		
Location		Germany (Coordination) Sweden Netherlands Spain
Public or private	Consortium project funded by EU	
Target groups	People with hearing impairment, older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.hearing-at-home.eu/">http://www.hearing-at-home.eu/</a>	
Date	From December 2006 to July 2009	
Description	<p>HaH - Hearing at home - focused to enhance the eInclusion of older people and hearing-impaired in home environments.</p> <p>The project developed an hearing support applications and integrate assistive technologies (basically an Home Information and Communication platform - HIC) which “ears” sounds from different sources (radio and TV antennas, LAN net-work and TV screen, PC, other hardware), analyzes them with a supportive audio signal processing (SASP) and reproduces them through a visual support such as captions support or synthesized face expressions for lip-reading, on the TV screen.</p>	
Importance as potential business case	This case is important because it consists in a simple but innovative idea to provide eInclusion for older people and hearing impairment, most of all considering that TV is very important in older people life; it makes them company and represents a way to get news from the world; if they should renounce to TV because of some hearing problems, many of them would feel discriminated and lone.	

34 – I2Web		
Location		Germany (Coordination) UK Ireland Italy Slovenia
Public or private	Consortium project funded by EU	
Target groups	Older people, people with disability, professional developers	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://i2web.eu/">http://i2web.eu/</a>	
Date	From November 2010 to April 2013	
Description	I2Web - Inclusive Future-Internet Web Services - will provide inclusive ready-to-use techniques and tools to develop eAccessible Future Internet services including Social Networks, Web 2.0 applications, Mobile Websites and Internet Protocol TV.	
Importance as potential business case	The project is important because it will offer ready to use tools to be easy implemented by further web developer to create more eAccessible web applications and accordingly to increase the number of online services eAccessible for all.	

35 - PICA V		
Location		Italy (Coordination) Portugal UK Spain Slovakia
Public or private	Consortium project funded by EU	
Target groups	Older people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://ec.europa.eu/research/innovation-union/ic2011/index_en.cfm?pg=project_details&amp;project=picav">http://ec.europa.eu/research/innovation-union/ic2011/index_en.cfm?pg=project_details&amp;project=picav</a>	
Date	From August 2009 to September 2012	
Description	<p>PICAV - Personal Intelligent City Accessible Vehicle – is an innovative electric Vehicle developed specifically to extend the accessibility of city transport to people with disability as well as older people.</p> <p>PICAV has been designed to be ergonomic, comfortable, stable, assisted in driving, eco-sustainable, easy to parking and move.</p> <p>In addition, each unit is networked with the other as well as with city infrastructure, public transport on the surrounding area and emergency services allowing high level of intermodal integration.</p>	
Importance as potential business case	<p>This project is important because it introduce a new concept of personal mobility transport (based on car sharing), specifically designed to be accessible for older people and people with disability, which overcome the existing barriers in urban pedestrian environments where no other vehicle including off-road wheel chairs can go.</p>	

36 - GUIDE		
Location		Germany (Coordination) Spain UK Portugal France
Public or private	Consortium project funded by EU	
Target groups	Older people, people with disability, professional developers	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.guide-project.eu/">http://www.guide-project.eu/</a>	
Date	From February 2010 to January 2013	
Description	<p>GUIDE - Gentle User Interfaces for Disabled and Elderly Citizens – will develop a software framework and design tools to facilitate developers in integrating accessibility and automatic personalisation features into their applications Web &amp; TV.</p> <p>The tools will be able to join with various old and new-generation of user interface technologies, including gesture interaction, voice control, avatars, second screen multi-touch devices and gyroscopic remote controls.</p> <p>The tools will include home automation, video conferencing, tele-learning, media access and simulation features.</p>	
Importance as potential business case	<p>The importance of this case is due to the enhanced level of eAccessibility it aims to put available for further developers. The tools developed by the project will provide the new applications with automatic personalisation features; it means that ageing people or with mild visual, auditory, speech and motor impairments will be automatically recognised by the new technologies and the best configuration matching their impairment will be automatically settled.</p>	

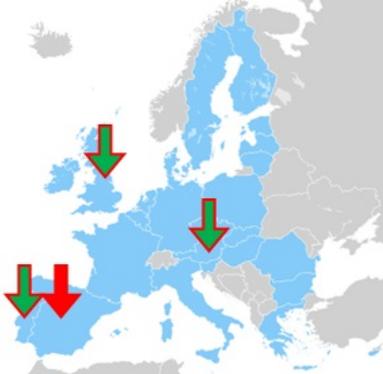
37 - OASIS		
Location		Italy (Coordination) Belgium Germany Greece Spain Switzerland UK Romania Bulgaria China Mexico
Public or private	Consortium project funded by EU	
Target groups	Older people	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://www.oasis-project.eu/index.php">http://www.oasis-project.eu/index.php</a>	
Date	From January 2008 to December 2012	
Description	OASIS - Open architecture for Accessible Services Integration and Standardization – aims to use ICT and other key technologies to provide holistic services (home control, mobility, work-ability, socialising, nutrition, safety, etc...) to older people in order to support their independence and well being as well as stimulate their social or psychological engagement.	
Importance as potential business case	The interesting point in this project focused to facilitate the ageing well and independent for older people, is its big and strategic consortium, which include a number of large technology providers, research centre and universities from several countries in and out from EU. The synergy among all these partners involved cans produce successful outcomes and pave the way for standardisation of the best practices and lessons learned in terms of interoperability, quality and usability of services for older people.	

38 – Cloud4all		
Location		Spain (Coordination) Switzerland Greece UK Germany Canada Italy Bulgaria Northern Ireland Sweden US
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.cloud4all.info/">http://www.cloud4all.info/</a>	
Date	From 2012 to 2015	
Description	Cloud4all aims to use cloud technologies to enhance eAccessibility in products and services by adding them automatic personalization features. The project will also develop a tool to locate accessible solutions from any different sources in a single search.	
Importance as potential business case	The importance of this project in terms of eAccessibility comes from the commitment to change the eAccessibility paradigm itself. The possibility to augmenting and activating automatically any natural built-in accessibility feature of products and services already existing on the base of the user profile and without any particular action required to the user, is the best way to make him forget the physical and social barriers due to any disability	

39 – ASK-IT		
Location		<p>Greece (Coordination)</p> <p>Spain</p> <p>Romania</p> <p>UK</p> <p>Belgium</p> <p>Finland</p> <p>Germany</p> <p>Italy</p> <p>Netherlands</p> <p>Ireland</p> <p>France</p> <p>Poland</p> <p>Cyprus</p> <p>Portugal</p>
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.ask-it.org/">http://www.ask-it.org/</a>	
Date	2004 - 2008	
Description	<p>The ASK-IT project created a platform through which the user with disability cans organise a desired trip according with the particular accessibility he needs.</p> <p>The platform suggests the accessibility features of the places intended to visit (including home installation specific for any disability and usable/controllable by the platform itself) as well as any different possible transportation means or paths.</p>	
Importance as potential business case	<p>The importance of this case consists in give the possibility to older or disadvantaged people to “navigate” into the accessible possibilities already presents in the world and get their destination in a secure and suitable way, avoiding to impact on physical barrier. It provides eAccessibility to accessible solution in mobility.</p>	

40 - accessible		
Location		Greece (Coordination) Czech Republic Germany Portugal Italy Bulgaria Spain
Public or private	Consortium project funded by EU	
Target groups	ICT developers for older, disadvantaged or disable people	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.accessible-eu.org/">http://www.accessible-eu.org/</a>	
Date	From September 2008 to August 2012	
Description	ACCESSIBLE - Accessibility Assessment Simulation Environment for New Applications Design and Development aimed to create an integrated simulation assessment environment through which supporting, checking and validate new accessible software applications (Mobile applications, Web applications, Web services and description languages).	
Importance as potential business case	The project is important because: It exploits the technologies already existing and the latest innovations in terms of accessibility tools and standardisation methodologies. It helps to identify the problems coming by merging different technologies focused on eAccessibility It empowers the large organisations, SMEs or individuals developers/designers to produce software products of superior accessibility and quality.	

41 - inCASA		
Location		Italy (Coordination) UK Sweden Denmark France Greece Germany Spain
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.incasa-project.eu/">http://www.incasa-project.eu/</a>	
Date	April 2010 – November 2012	
Description	<p>inCASA - Integrated Network for Completely Assisted Senior citizen's Autonomy – aims to develop and integrate ICT solutions and services for health and environment monitoring in order to help and protect older people in their own homes as well as profile their behaviour.</p> <p>The technology to be integrate includes environmental wireless sensors, portable/wearable human monitoring devices and a Base Station for collect and send data.</p> <p>The data gathered by the system will be made available to professional care service providers through a Smart Personal Platform with an embedded Behaviour Analysis Application which will include:</p> <ul style="list-style-type: none"> <li>• access policies to preserve privacy</li> <li>• planning for day-by-day activities and therapies with multiple alerts</li> <li>• co-ordination of local public Social and Health Care Services</li> <li>• help to deploy specialist community based services</li> </ul>	
Importance as potential business case	<p>This case is important because the integrated system developed will allow a deeper investigation of the older user's behaviours, to be used to improve the designing of specialist services and support community based activities.</p> <p>In addition the number of countries involved in the project will allow to determine optimum clinical models among the different health systems.</p>	

42 - BrainAble		
Location		Spain (Coordination) UK Portugal Austria
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://www.brainable.org/en/Pages/Home.aspx">http://www.brainable.org/en/Pages/Home.aspx</a>	
Date	from January 2010 to December 2012	
Description	BrainAble focuses on research, design, implement and validate an ICT-based Human Computer Interface (HCI) composed of Brain/Neuronal Computer Interaction (BNCI) sensors combined with affective computing and virtual environments oriented to provide eAccessibility and eInclusion to people with disabilities due to elderly or traumatic events.	
Importance as potential business case	The project is important because it represents an innovative way to bring eAccessibility and eInclusion in the life of older and disadvantaged people, consisting in connecting them directly with an ICT system that interprets their thoughts and translate them in actions into the real world. In this way the ICT empowers people with disabilities allowing them the control of their mobility, their home as well as their social life (the project even allows to write text in a chat window or to manage the user's account in a social network) directly through their mind.	

43 - AEGIS project	 <b>Open Accessibility Everywhere</b> <small>Groundwork, Infrastructure, Standards</small>	
Location		Spain (Coordination) Greece Czech Republic Belgium Germany Romania Sweden UK Canada
Public or private	Consortium project funded by Eu	
Target groups	Older people, disadvantaged people, people with disability, ICT developers for older, disadvantaged or disable people	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.aegis-project.eu/">http://www.aegis-project.eu/</a>	
Date	From September 2008 to August 2012	
Description	The AEGIS project investigates whether it is possible to create access techniques as well as open source toolkits able to be directly exploitable and embeddable in existing devices and ICT systems (desktop, rich Internet and mobile applications).	
Importance as potential business case	<p>The project (carried on by a consortium including several large industrial companies) is an example of how it is possible work with final users (users with visual, hearing, motion, speech and cognitive impairments as well as application developers) since from the design phase putting their needs at the centre of the ICT developments.</p> <p>The project propose an open concept of eAccessibility, with open source embedded and built-in accessibility solutions that will remain available to be used, configured and personalised by other developers for various contexts.</p>	

44 - Reach112		
Location		Italy (Coordination) Sweden UK Netherlands France Spain Belgium Greece
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.reach112.eu/view/en/project.html">http://www.reach112.eu/view/en/project.html</a>	
Date	From July 2009 to June 2012	
Description	REACH112 - REsponding to All Citizens needing Help – aimed to make more accessible a communication by phone by creating an alternative way to communicate based on the concept of the Total Conversation (real-time text conversation, with sign language, with lip reading, with voice or with any simultaneous combination of these modes).	
Importance as potential business case	The project is important because it has focused on an important aspect for older or disadvantaged people, which is their safety. Even if it is a right for all (Since 2002, EU telecom rules required that the 112 emergency number is available free-of-charge everywhere in the EU), today not all people are able to get access to emergency services in an emergency situation. By implementing a more accessible alternative to traditional voice telephony to be integrated with existing telecommunication platforms and emergency service frameworks, the project de facto aimed to provide to older and disadvantaged people the right of safety.	

45 - HaptiMap		
Location		Sweden (Coordination) UK Spain Germany France Finland Netherlands
Public or private	Consortium project funded by EU	
Target groups	Older people, disadvantaged people, people with disability	
eInclusion or eAccessibility	eAccessibility	
Website URL	<a href="http://www.haptimap.org/">http://www.haptimap.org/</a>	
Date	September 2008 (Ongoing)	
Description	HaptiMap, Haptic, Audio and Visual Interfaces for Maps and Location Based Services, aims to include the use of several senses like touch, hearing and vision to make digital maps and mobile location based services more accessible	
Importance as potential business case	The project is important because it aims to put in practice guidelines existing in design practices relative to accessibility issues and create a new generation of Location Based Services (a very important feature embedded in ever more mobile devices). In this way the project pave the way for a new concept of mobility for older and disadvantaged people as well as for further development based on Location Services.	

46 – TTfone TT180		
Location		London (UK)
Public or private	Private	
Target groups	Older people, people with visual impairment	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://ttsims.co.uk/index.php?route=product/product&amp;manufacturer_id=38&amp;product_id=315">http://ttsims.co.uk/index.php?route=product/product&amp;manufacturer_id=38&amp;product_id=315</a>	
Date	Unavailable (ongoing)	
Description	<p>The TTfone TT180 is a mobile phone specifically designed for older people. It is provided with a large display with an high contrast of text, FM radio, torch function, big buttons with big letters, a dedicated SOS emergency button</p>	
Importance as potential business case	<p>This case is important because it is an example evidencing how few and very simple precautions can make the difference in discriminating or including older people from ICT.</p>	

47 – VM150 Amplified Answering Machine		
Location		UK
Public or private	Private	
Target groups	People with hearing impairment, older people	
eInclusion or eAccessibility	Both	
Website URL	<a href="http://sereneinnovationsamplifiedansweazu.blogspot.co.uk/">http://sereneinnovationsamplifiedansweazu.blogspot.co.uk/</a> <a href="http://www.sereneinnovation.co.uk/">http://www.sereneinnovation.co.uk/</a>	
Date	Not available (ongoing)	
Description	<p>Serene Innovations Amplified Answering Machine is a specific answering machine focused to facilitate older people and hearing impaired individuals.</p> <p>In addition to the used feature of a normal answering machine, it allows the user to slow playback speeds in order to facilitate the understanding of all message's words; the HDS (Hi-Definition Sound) embedded technology elaborates the sounds with filters emphasizing vocal signal and the amplifier and the large speaker increases audio output up to 40dB+. Audio output can be collect also by the output jack for connect telecoil or neckloop for hearing aid and cochlear implant users.</p>	
Importance as potential business case	This case another important example of simple precious precautions able to make the difference in discriminating or including older people from an ICT service.	

48 – ACORN Stairlift		
Location		Steeton (UK) ( with offices also in USA, Canada, Australia and Germany)
Public or private	Private	
Target groups	Older people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.acornstairlifts.co.uk/">http://www.acornstairlifts.co.uk/</a>	
Date	1992 (ongoing)	
Description	<p>The ACORN Stairlift is a ICT device specifically designed to facilitate older people and people with disability into cope with the problem to go up and down over the stairs of their home.</p> <p>The device includes safety sensors, smooth starting and stopping, DC power (that means that in the event of a power cut, the stairlift will continue safely to work), remote controls to allows the user to call and send the stairlift, simple switch or paddle controls, a digital diagnostic display.</p>	
Importance as potential business case	This case is important because it consists in a simple idea resulting in a very big impact in terms of number of users (50,000 new units per annum worldwide) and their satisfaction.	

49 – KSERA		
Location		Netherland (Coordination) Italy Germany Austria Israel
Public or private	Consortium project funded by EU	
Target groups	Older people, people with disability	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://ksera.ieis.tue.nl/">http://ksera.ieis.tue.nl/</a>	
Date	From February 2010 to January 2013	
Description	<p>KSERA - Knowledgeable SERVICE Robots for Aging – aims to seamlessly integrate smart home technology with Socially Assistive Robot (SAR) in order to assist older people, and people with Chronic Obstructive Pulmonary Disease (COPD), with their daily activities and care needs as well as to self manage their disease.</p> <p>The robot acting as a companion and assistant will be a pleasant and easy-to-use format to provide older user with mobile assistant to follow and monitor the health and behaviour of a senior, useful communication (video, internet) services including needed alerts to caregivers and emergency personnel integration with smart household technology to monitor the environment and advise the senior or caregivers of anomalous or dangerous situations.</p>	
Importance as potential business case	The importance of this project is the research carried on to obtain a successful, effective interaction between the human and the mobile robot to guarantee acceptance and adoption of service robotics technology and offer added value of the ubiquitous monitoring services.	

50 – Anziani.it		
Location		Italy
Public or private	Charity	
Target groups	Older people	
eInclusion or eAccessibility	eInclusion	
Website URL	<a href="http://www.anziani.it/">http://www.anziani.it/</a>	
Date	Not available (ongoing)	
Description	Anziani.it is a social network specifically dedicated to older people, providing them a chat service, an entertainment section and a repository of multimedia content and useful information about local events, tourism, health and education	
Importance as potential business case	The case is important because it is a nice example of eInclusion being it a portal completely dedicated to the third age and being successfully used daily by several older people to communicate as well as read the information contained.	