INFORMATION TECHNOLOGIES AND OLD AGE

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SUMMARY

Aging seems to be a relentless phenomenon, not only in developed countries but also throughout the world in general, albeit in different degrees.

On the other hand, today, elderly people frequently live separated from their offspring who, quite often, do not have time to look after them, especially in societies where women are fully integrated in the labour market.

This demographic and social turn of events is giving rise to the need for changes in welfare and health care models, among others.

Furthermore, when mobility problems arise, their world is often limited to their own homes. In particular, Internet (access to information, electronic mail, chats, forums...) opens a whole new world of relationships.

These new methods of communication can also improve welfare and heath care for the elderly. In this sense, tele-care services are usually highly valued by the elderly who feel better accompanied and safer. These services improve welfare quality and require fewer resources than other options.

However, elderly people, who were not born in the world of new technologies and who have never needed them until now, are, in many cases, reluctant to use these new systems and do not benefit from their advantages. Consequently, public administrations, certain non-governmental organisations and private initiatives are contributing to improving the awareness and knowledge elderly people have of new technologies and making their benefits easier to perceive.

Experience tells us that this reluctance can be overcome by speaking to the elderly about their lives and interests and, then, analysing how new technologies can contribute to those interests with specific and relevant examples.

Moreover, the need to adapt new telecommunications services to all possible users, including the elderly who, in certain cases, may be suffering from some kind of disability affecting their vision, hearing or movement, is becoming increasingly evident. It is therefore now a regular practise to take the elderly into consideration when designing services intended for their benefit.

1 Introduction

An inherent aspect of present society is the gradual aging of the population. Year after year, life expectancy increases, especially, in developed countries. The Spanish rate is one of the highest in the world (76.7 for men and 83.3 for women) (28).

Today, aging is no longer a demographic process that only affects developed countries. Although neither the rate of aging nor its level can be compared between countries, we can state that all nations in the world, to a certain extent, are experiencing this phenomenon.

...*"From here to 2050, the number of people over 60 years of age will rise from 600 million to almost 2,000 million and it has been anticipated that the percentage of people who will be 60 or older will double, from 10% to 21%. This increase will be greater and faster in developed countries, where forecasts show that aging population will multiply by four over the next 50 years."*...

(Political Statement from the Second World Assembly on Aging) **(15)**

The document "Towards a Europe for All Ages" **(43)** states that "The growing number of retired people constitutes a wealth of under-utilised experience and talent. They also create new needs to be met by enterprises, public organisations and NGOs".

The significance of this population group will gradually increase. It has been estimated that, in Spain, they will hold 25% of the money in circulation by the year 2010 **(1)**, and they are also the most loyal of voters, representing between 25 and 30% of the electoral register.

Additionally, the aging of the population and the change in family models that has taken place over recent years has had an effect on the demand for health care and welfare services for the elderly. The elderly are demanding an improved quality of life, to a greater extent than years before, placing a greater demand on the health care system, among others.

This implies that the structure of society has changed and is still changing and, therefore, town development, building, transport and social life criteria, in general, should adapt to the new reality.

All the above-mentioned aspects lead us to redefine current social, economic, labour and health care models that affect this sector of society. A key factor is the application of policies that cater for their needs using the lowest possible amount of resources in order to be able to reach the greatest number of elderly people as possible.

In this article, we are going to analyse how telecommunications and information technologies can contribute to improving the quality of life of the elderly and the difficulties senior citizens encounter when faced with these technologies that are unfamiliar to them.

2 Opportunities for improvement in the daily lives of elderly people

☺ The struggle against loneliness

Key changes linked to aging (loss of the spouse, children leaving home, retirement....) frequently bring about a feeling of loneliness. This feeling increases if an illness or disability, quite normal at advanced ages, makes elderly people homebound, limiting their relationships with other people and isolating them.

The "2004 Report: the elderly in Spain" ("Informe 2004: las personas mayores en España") states that 15% have difficulty in climbing ten steps or in moving around, catching a bus or doing the shopping. This limits their vital space to their own home and restricts their social relationships **(35)**.

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Internet presently offers many communications options: electronic mail, chats, etc., which can be added to those offered by telephones. And, although this type of communication does not make up for personal relationships, it can complement them.

> *A survey affecting 206 people over 65 years of age in Manhattan (with an average age of 80) concluded that elderly people who used computers displayed fewer symptoms of depression than those who did not use computers.*
>
> *The use of tools offered by information technologies can be beneficial for their mental health, including the use of electronic mail, chats or access to health care information.* **(13)**

Tele-care services sometimes also act as companions covering the needs that elderly people who live alone have of speaking to someone.

> *Tele-care services receive more calls from elderly people at night and on Mondays, after a week-end spent by themselves.* **(19)**

> *Of the calls received at tele-care switchboards, only 7% are due to emergency situations.*
>
> *64% of the calls are motivated by a feeling of loneliness: holding a conversation, greeting service staff and so on.* **(18)**

The aim of many initiatives is to keep the elderly integrated in their community, preserving their personal independence and quality of life as far as possible.

> *The Golden Telephone (Teléfono Dorado) of the "Asociación Edad Dorada-Mensajeros de la Paz" struggles against the loneliness of the elderly. Its aim is to mitigate problems caused by loneliness or lack of communication.*
>
> *This telephone service, supported by the Telefonica Foundation (Fundación Telefónica), has been available to all elderly people for free since 1995 and is operated by volunteers (about 200 throughout Spain). It offers relief against loneliness and information on social services. It also helps to detect situations of alienations and abandonment.*
>
> *Older people suffering from hearing problems may communicate with the Golden Telephone using a special telephone that features a keyboard to write messages.*

The social function that some associations perform over the telephone could be extended to virtual environments by the use of chats or electronic mail.

Some elderly people also use Internet to look for a partner.

> *Match.com, an Internet portal dedicated to finding partners, has recorded a 340% increase in registrations of people over 50 years of age since the year2000.* **(36)**
>
> *Other sites, such as enplenitud.com (dedicated to people over 40 years of age) also offer the possibility of meeting people.*

☺ Making communication with friends and family easier

Information and Communication Technologies (ICT) can improve contact between the elderly and their families, which may improve their well-being and care.

> *A new project is going to be introduced in the Autonomous Region of Madrid aimed at providing public residential homes for the elderly with a computer room.*
>
> *This project, known as "Family Window" ("Ventana Familiar"), aims at improving communication between older people and their families. This will be achieved by enabling elderly people to contact their families via Internet, e-mail or video-conferences.* **(25)**

According to data from 2005, electronic mail is the most widely used service amongst Internet users, reaching 66% among people between 65 and 74 years of age and 71.4% for those who are 75 or older. **(24)**

> *A survey performed in the USA concluded that almost half of the older people who use e-mail consider it greatly improves contact with their friends and family.* **(4)**

Telefónica

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☺ Help in emergency situations

Telephones have been used for years to comfort people, not only the elderly, who need to be listened to in order to ease their anguish or loneliness. In the 60s, a large number of experiments were undertaken to help people in emergency situations.

> *Teléfono de la Esperanza (Telephone of Hope) is an NGO that provides people who need to be listened to, not only the elderly, with emergency aid over a hotline or personally in crisis situations.*
>
> *The Spanish Telephone of Hope Association (ASETES) was established in 1971 and has extended to other countries : Argentina, Bolivia, Chile, Colombia, Ecuador, Honduras and Switzerland.***(16)**

The key changes we mentioned above, together with illnesses, create the conditions in which the elderly may suffer from depressions and may even consider suicide. At world level, men over 75 years of age hold the highest suicide rate.**(37)**

In Spain, more than 1000 people over 65, most of whom can be considered as elderly people, commit suicide each year.**(38)**

> *A study undertaken in Italy displayed a fall in deaths due to suicide among elderly people who used hotlines and an emergency service implemented for people at risk, including the elderly (TeleHelp, TeleCheck Services).***(23)**

☺ Greater leisure opportunities

Not all elderly people feel alone or depressed. As life expectancy is constantly increasing and people reach advanced ages in better health conditions, it is also increasingly common for pensioners, some under 65 years of age, to look for new leisure activities.

Everyone requires leisure and enjoyment, more so elderly people who usually have more free time than when they were younger.

At present, there are many Internet sites specifically dedicated to the elderly, offering them information that may be of interest. Web sites dedicated to the elderly include, among other aspects, news, health-related issues and sections on leisure (travel, books, magazines, debates...). Forums and chats, which encourage people to communicate, are also important facilities offered by the said sites.

According to 2005 data from the National Statistical Institute, 12% of people between 65 and 74 years of age who have used Internet in recent months have accessed chats, conversations or forums. The percentage drops to 9.6% in the case of people over 75. **(24)**

As an example of portals dedicated to the elderly, we can mention Club Estrella (http://www.clubestrella.com), part of the Social Contribution of the Caixa Foundation, or Grupo Júbilo (http://www.jubilo.es), supported by the Telefónica Foundation and the Ministry of Industry, Tourism and Commerce.

> *The Australian government has created a web site specifically dedicated to people over 50 years of age: http://www.seniors.gov.au/ as a single point of access to obtain governmental or non-governmental information targeted at this age group. The site provides, among other aspects, information on employment, health and games.*
>
> *Concerning health matters, it links to specific sites for different groups: native peoples, country people, etc.*

Apart from these specialised portals, the elderly, and their activities, must be fully integrated within society. Consequently, regular portals that offer the possibility of purchasing products, planning trips or performing virtual visits to museums, must be accessible for this user group.

Pay per view television and video options may offer the elderly wide-ranging leisure opportunities. They are also offered in an environment that is more familiar for them than computers: television and videos.

🙂 An improvement in the safety and comfort of the elderly

Generally speaking, elderly people do not want to leave their homes. Therefore, the introduction of information technologies in their homes may provide them with services that improve their quality of life, although, in many cases, those who would benefit most are reluctant to accept them as they have lived their entire lives without needing them.

Solutions devised for intelligent homes would enable the implementation of many services that would improve the quality of life of elderly people by integrating services offered by different agents: security services, tele-care, health care, leisure, etc. **(12)**

Concerning security matters, the control of domestic devices and the installation of alarms (anti-intrusion, gas, water, fire alarms) could be improved. Concerning mobility matters, remote purchase and remote banking services, for example, would enable people to purchase products and perform banking transactions without having to go out unnecessarily.

Security is one of the main concerns elderly people have, especially in the case of those who live alone. They are equally anxious about unwanted intrusions and domestic accidents related to water or gas leaks that may be brought about by minor oversights. **(12)**

The automation of domestic devices, which provides great benefits for people of any age, offers greater possibilities for elderly people. Domotics may make certain household tasks, that the elderly have difficulty in doing, easier, such as controlling the heating/air conditioning, lights, lifting or lowering blinds.

It is also possible to group functions by people's routines. For example, when leaving the house, tasks such as switching off lights, closing windows, closing taps, gas and so on can be programmed.

Certain devices also check whether the elderly person is well by detecting any atypical behaviour. Among these, we can mention fall detectors (worn on a belt and that generate a signal when a person falls), devices that detect when someone is in bed and others based on behavioural patterns.

3 Opportunities to improve health care for the elderly

🙂 Improved welfare and access to health care

Tele-medicine can be a useful tool to standardise access to health care, avoiding geographical, orographic or other types of difficulties and it is particularly important to improve access to health care in country areas.

Elderly people are the main users of health care. The aging of the population implies new challenges for health care systems, which have to improve the way they respond to the illnesses suffered by elderly patients without overlooking elderly people who are healthy. It has been estimated that, in Europe, investments in these matters will cause an increase in public health care spending by around 3% of GDP. **(11)**

Tele-medicine and tele-care services provide faster and more efficient assistance in emergency situations, they reduce hospitalisation time (part of the follow-up can be performed from home) and, in general, improve the quality of life of elderly people.

Telecare Project

This project was developed between 2001 and 2004 within the V Framework Programme and was aimed at designing technological tele-care and tele-supervision solutions for the elderly.

It uses miniature vital sign monitoring devices that are easy to use (that can even be implanted) in order to cause patients the least possible inconvenience. It enables the constant monitoring and the selection of possible rescue actions is an alarm is triggered.

*The system provides real-time and on-line transmission, via mobile technologies, of critical parameters to doctors and experts regardless of their location.***(8)**

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Although one of the main applications of tele-care services is the supervision of alarms, the monitoring of chronic diseases is also an available option for some of the said services, providing significant benefits for users, as they enhance illness monitoring capabilities, avoid routine trips to health care centres and, consequently, provide benefits for the health care system: lower costs and an improved use of resources.

The Home TeleCare service offered by the company Telecom Salud provides communications between the elderly, from their homes or residences, 24 hours a day using image and sound systems, with a medical team. The system is also capable of transmitting biological parameters.

The monitoring centre, provided with a screen and video-conference camera, can be connected to devices to measure vital parameters: glucose meters, blood pressure, auscultation, electrocardiographs, total cholesterol meters...

This service provides the possibility of monitoring people suffering from asthma, high blood pressure, arrhythmia, heart attacks, pulmonary diseases, diabetes, Alzheimer (control of activities and memory exercises), kidney failure, post-hospitalised patients or patients who require medication controls on a daily basis...

(8)

ICTs may also be applied to improve the treatment and monitoring of elderly people suffering from mental illnesses.

The INTRAS Foundation has developed a multimedia computer programme, known as GRADIOR, aimed at training and recovering cognitive functions such as concentration, perception and memory, aimed at people suffering from a decline in cognitive abilities.

Later projects have adapted the programme to other languages and geographical environments as well as for remote use.

- *The COGNI-HELP Project concluded with the use of the GRADIOR programme in English and French speaking environments.*

- *The TELECOG Project, part of the PROFIT 2000 programme, helped to develop health care technologies aimed at people with special needs, including the elderly, and was capable of providing remote therapeutic advice.*

- *The TELEGRADIOR Project adapted the GRADIOR Project to enable remote cognitive rehabilitation for patients living in remote areas. This project was awarded a subvention by the Telefónica Foundation.***(22)**

New technologies also offer the elderly living in dependency situations services that improve their welfare and contribute to their safety. One of the problems Alzheimer patients suffer from is disorientation, which may cause them to lose their way or to be unable to return to their home or residence.

The Roaming Control (Control de Errantes) service, implemented by the Junta de Andalucia, uses an alarm system to prevent Alzheimer patients living in residences for the elderly from leaving the premises.

The system intends to improve their safety; it is also a guarantee for relatives and a support for the staff in charge of their welfare.

This system is to be operating at 18 Residences for the elderly belonging to the Department of Social Equality and Welfare of the Junta de Andalucia by the end of 2005.

*Elderly people will carry a device that will provide information on their identity and that will trigger an alarm at the control centre if they leave the controlled area.***(5)**

Mobile technology makes it easier to locate elderly people or Alzheimer patients if they are lost or if they fall. Mobile locating technologies (based on cells) are used in combination with GPS.

The Telefónica Móviles Localízame Service (Locate Me Service) can help find Alzheimer patients who have lost their way by providing their family with information on the area where they are.

Among the services provided within the MovilForum initiative by Telefónica Móviles, we can mention:

- *Ariadna by Indevol, an application to locate people suffering from mental illnesses if they should get lost. A mobile terminal worn on a belt provides, via GSM, the location of a person via a Call Centre or Internet,*

- *Mobitel by Ingeniería de Sistemas y Servicios, provides information on whether a patient has fallen or fainted without the patients having to alert emergency services themselves.* **(9)**

New technologies are already being implemented at certain residences for the elderly to improve monitoring capabilities and the safety of the residents.

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The Santa Gema Group is going to implement a communications and domotic system at its residences to improve the care provided to its residents.

Small terminals (bracelets, chains or pendants) will provide monitoring capabilities, enabling staff to know where the residents are or to communicate with them if necessary.

*The Neat Care domotic system integrates the remote control of roaming patients, the temperature in the rooms, wireless alerts or fire alarms.***(27)**

In 2003, the pilot tele-care project, VICUX, ended. It was launched in 2001 at the Residence for the elderly in Vigo and was supported by the Xunta de Galicia, Telefónica de España and the Telefónica Foundation.

This initiative intended to encourage preventive self-assistance and to reduce loneliness and isolation levels perceived by the elderly. In Europe, a similar experience is being developed in Sweden.

Seven end users who require round the clock monitoring and the permanent presence of health care worker with them took part in the project. They suffered from serious disabilities and required assistance not only for instrumental activities but also for basic daily activities. They also suffered from chronic diseases (dementia, heart diseases, breathing illnesses, etc.) that require periodic and specialised care.

The patients had biomedical sensors in their homes that control their health conditions. Communications between the Residence and the each patient's homes were provided by a Telefonica Integrated Service Digital Network, which can provide television video-conference services.

Additionally, patients' homes have been provided with domotic sensors that can handle alarms if anything atypical is detected such as smoke, patient immobility, etc. **(20)**

At the end of the experiment, technical, economic, welfare and social results were assessed. Economically, the results were very favourable, considering the cost of a place in a residence, or comparing the costs of staff and infrastructure required to care for an elderly person at a residence or from home using tele-care services. **(21)**

☺ Improved social care and alarm management

Tele-care is one of the most powerful resources available to improve health care in the case of elderly people without incurring in excessive costs for the health service.

Home tele-care offers telephone contact (24 hours a day), using specific equipment, with a health care centre staffed by professionals who are capable of responding to users' needs using their own resources or those provided by society.

Cases of elderly people who die by themselves or who do not know who to turn to if they need assistance, confirm the importance of tele-care services.

In Madrid, according to data provided by the Town Council for the first nine months of the year, 61 people over 65 years of age were alone when they died. Furthermore, a survey ordered by the Council shows that 1.8 per cent of the people surveyed have nobody to turn to if they need help.**(34)**

En Madrid, the Regional and Council social services have implemented a free tele-care service specifically targeting elderly people who live alone. The Madrid Acompaña service is offered by means of a device connected to the telephone and to a button that connects people with a telephone care centre 365 days a year, 24 hours a day.

Mobile technology has made it possible for tele-care to extend beyond domestic environments to other scenarios, improving the autonomy of dependent people and helping them to remain in their usual environment.

Spain, Germany and the United Kingdom are participating in Mobilalarm, a European project within the context of the European Commission's TEN programme (electronic Trans-European Networks). Its aim is to test an innovative trans-European emergency care service based on a tele-care device that is similar to a mobile phone and that combines GPS (Global Positioning System) and GSM (Global System for Mobile Communications) technologies. **(6)**

The elderly are among the target groups of this new development. It will cater for elderly people suffering from any type of disability or chronic disease and for those who present any type of health limitations and that may suffer an accident or an emergency away from home.

This service improves on alarm services by extending them geographically, even across borders.

*The pilot test for this project includes 50 users from the Andalusian Tele-Care Service.***(7)**

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MoviFriend is a hand-free telephone developed by SIDSA, which provides users with a tele-care system based on GSM technology. It enables users to contact the care centre by simply pressing a button.

*This development has been included in the Telefónica Móviles MovilForum initiative.***(40)**

☺ Medical reminders

Errors or oversights when taking medication are commonplace and may give rise to many medical problems. It has been estimated that between 30 and 50% of elderly patients do not follow prescribed treatments (10). It is also known that one out of three people who visit hospital emergency units do so in relation to problems with their medication.

The consumption of medicines increases with age, although this is the time of life when people's memories tend to deteriorate.

New technologies are being used to remind people of medical appointments and to supervise the way they take their medication.

The Telefónica Móviles MovilForum initiative has supported companies that offer services that may be useful in this field.

The Medirecordator application by IT Deusto uses short messages to send patients or carers medication alerts. This development forms part of the MovilForum initiative, by means of which Telefónica Móviles España encourages companies to integrate mobile technologies in their businesses.

☺ Greater access to information on health

Internet is a very powerful tool to complement health-related information, help in the prevention of diseases and learn about new treatments. However, elderly people, one of the groups that could most benefit from this information, do not usually have access to these contents and, therefore, do not benefit from them.

In Spain, 24.4% of elderly people (between 65 and 74 years of age) who use Internet have searched for health-related information and 5.5% have searched for a doctor to obtain advice on health issues. **(24)**

Based on the results of a study performed in the USA in 2004 (on 1450 adults who were 50 or older) one in every 5 people surveyed who were 65 or older had searched for health-related information on the Net. Although they feel they are better informed thanks to Internet, most recognise that the specific information found has not been very useful and that books and television are still the main sources of information. **(4)**

But ICTs can not only contribute to improving the knowledge of elderly people but also that of their carers. Some health-related portals are specifically dedicated to supporting people who have to look after patients, for example Alzheimer patients.

4 Aspects that make the use of ICTs burdensome por ederly people

☹ Generation gap

Although the advantages of ICTs for the elderly are greater every day, they are still not very extended. While 85.6% of young people (between 16 and 24) use computers, only 11% of people over 50 and only 1.6% of those over 75 use them. **(3)**

Age is a determining factor in access to new technologies. This can be seen in Internet use, among other indicators. In certain cases, reference is made to a generation gap, as most users are young people. The percentage of people over 50 who use Internet is low; most because they are not interested in tools they have never needed before.

In the USA, Internet also seems to be dominated by young people, at least if we take into account those that use it most.

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In February 2004, 22% of Americans who were 65 or older used Internet and seemed to be as enthusiastic as young people: 66% used it to search for health-related or medical information and 94% used it to send or receive e-mails. Furthermore, a gradual increase in the number of elderly people who are "connected" has been identified; an increase of 7 points compared with data from the year 2000. In future years, generations that have regularly used Internet will get older and the proportion of users in this age-group will probably increase considerably. **(14)**

A study directed by José Yuni, an researcher belonging to Conicet, performed at 10 universities in Argentina on 1,500 students between 50 and 86 years of age revealed the following data:

- *85% of the people surveyed stated they had discovered new ways of learning*
- *80 % confessed they experienced greater vitality and desires to enjoy life*
- *76 % became interested in subjects they had never been interested in before* **(30).**

However, there are still many people who are not aware of the possibilities offered by Internet and other services based on new technologies. Their lack of interest and their unease at having to face something unknown excludes them, voluntarily in part, from any advantages these systems may provide. However, they should be made aware of their existence and provided with them.

This rejection of new technologies due to the effort required to learn how to use them may exist but this is exactly why we have to implement actions to encourage the elderly to "desire" to use the said technologies. In this sense, we have to promote "active" aging, encouraging the elderly to get involved by all possible means. One method would be to take advantage of the possibilities provided by new technologies.

In order to encourage this adaptation of the elderly to new technologies, both public and private institutions are developing specialised programmes and services to involve the elderly in the information society. The Spanish public administration is implementing measures aimed at avoiding the "digital" gap.

In a study prepared in the United States, the elderly stated that they did not use Internet because they had not learned how to use it (44 per cent); it is too complicated (33 per cent); or because there is nothing of interest for them on the Web (27 per cent).

Furthermore, the elderly do not trust the Net. One in every four stated that it cost too much and that someone would try to mislead or rob them via Internet. **(4)**

The Spanish Ministry of Industry, Tourism and Commerce has launched a campaign "All on Internet" (Todos.es), via Red.es, aimed at promoting the use of Internet among groups that do not usually access the net, including the elderly.

The campaign has a budget of 16 million euros and intends to encourage 1.5 million citizens with the aid of 25 fixed and mobile Internet Classrooms (provided with 25 computers and satellite broadband connections) that will visit 3,250 Spanish towns between September 2004 and February 2006.

In Zaragoza, the Town Council has extended the "All on Internet" campaign by installing a Fixed Classroom in the San José Centre for the Elderly that will remain operational until December 15th.

Over 47,331 people from Zaragoza have visited the said classrooms between November 2004 and April 2005. **(39)**

☹ Lack of interest and training

Everything aimed at keeping the elderly active, learning new disciplines, widening their knowledge and developing different abilities are key issues to optimise their adaptation to their age. Elderly people, who may not initially show much interest in new technologies, start to value them when the get to know them.

Internet may, among other aspects, improve communication between residences and residents and may have a positive effect on contacts with friends and family by the use of e-mail. The barrier, in this case, can probably be found in the people or organisations that have not taken this possibility into consideration.

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Among the strategic actions considered by the Junta de Andalucia to encourage digital equality, we can mention the transformation of libraries, residences and centres for the elderly into tele-centres with Internet access, as well as the implementation of programmes such as "Let's Learn Together" aimed at the digital literacy of grandparents and grandchildren using joint leisure projects.

The development of Public Internet Access Centres (CAPIs) in areas where social exclusion rates are highest in large cities has also been proposed as well as the implementation of projects, such as "Digital Family" aimed at connecting Andalusian families with their elders via CAPIs.

Similar initiatives are being implemented in other countries, promoted by public administrations and by other public and private agencies.

In Switzerland, several institutions, including Pro Senectute and the Seniorweb platform (which was launched in 1998), offer computer and Internet courses to encourage the use of use new technologies among the elderly.

Furthermore, Cyber-cafes dedicated to elderly customers have been operating for years. The first one opened in 2002. In 2003, there were already 30 cyber-cafes in 30 Swiss cities in 14 cantons. These are centres where elderly people can meet and their motto is: "better together than alone".

In October 2003, the federal institution launched the "Tour-de-Clic" campaign to encourage awareness of Internet use, especially among the elderly.(2)

Maimónides University in Argentina has just closed a workshop where the main purpose was to enable over 180 people over 60 years of age to overcome their apprehension for new technologies. They have learned how to use computers, write texts, prepare spread sheets and browse Internet.

In words of the director of the workshop, María Alcira Scarpone, "the experience has not only enabled people over 60 to become familiar with new communication technologies, it has also enabled those who took part in the course to meet".(29)

The elderly have to realise that the use of ICTs is a useful and economical way of communicating with their loved ones via e-mail, an opportunity to take part in virtual communities where they may make new friends and a way of being part of the family because, in many instances, grandchildren teach their grandparents how to use computers.

EuCoNet (European Computer Network), is a project sponsored by the European Union within the framework of the Sócrates-Grundtvig Project. It was launched in 2002 and will extend until 2005.

The purpose of this project is to provide Internet access, mainly for elderly people, and includes elderly students from the following universities: Ulm (Germany), Brno and Prague (Czech Republic), Glasgow (United Kingdom), Vicenza (Italy), Bratislave (Slovakia) and Alicante (Spain).(26)

Mayores Internautas Solidari@s aims at encouraging elderly people to use Internet by creating a network of centres for the elderly, a solidarity network, and take part in Elderly Networks throughout Europe.

Telefónica is participating in this project through an cooperation agreement signed with the Madrid Town Council, the Obra Social of Caja Madrid, the Antonio de Nebrija University, the Professional Association of Telecommunications Engineers and the Mensajeros de la Paz-Edad Dorada Association.

One of the actions undertaken by the Telefónica Grupo de Mayores (Elderly Group), in cooperation with the Ministry of Science and Technology, is to open a computer classroom for the elderly, with three main objectives:

- Support the personal development of elderly people after retirement by the use of New Technologies in order to encourage them to become active people instead of passive citizens.

- Train elderly people in the practical use of Internet for their daily lives.

- Promote voluntary services, creating a real voluntary culture among the elderly and developing systems within Organisations for the Elderly to coordinate volunteers and to enhance their effectiveness.(41)

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☹ The labour market

Within the labour market, elderly people frequently resist changes more than younger people, especially when the said changes imply the introduction of new technologies. Therefore, the introduction of ICTs in companies may create difficulties for elderly people.

On the other hand, the labour market must take the aging process into account and increase continuous training programmes and new possibilities, as opposed to the trend that incites the early retirement of workers.

Consequently, the European Union feels it is necessary to increase the employment level of elderly workers, invest in their continuous training, especially within the scope of information technologies. **(11)**

In Australia, the BITES (Basic IT Enabling Skills) Programme offers workers who are 45 or older the opportunity to train in Information Technologies (Internet, the use of e-mail, text processors).

Since the project was launched, approximately 2,000 courses have been imparted in 425 towns and over 17,000 Australians have taken part. **(17)**

☹ Design is not always good for everyone

The gradual miniaturisation of mobile terminals is an obstacle for elderly people. Keyboards are often too small, include keys that are difficult to press and read, although the market is already offering units that take these difficulties into account and offer solutions.

The Spanish company, NTEC, has manufactured a new "Coco" handset that is shock resistant, water resistant and light. It has been designed for children and elderly people. The device can be operated with just one button. **(33)**

The EASY 5 handset has also been designed for children and elderly people. It only features five large keys and only five pre-recorded telephone numbers can be called. In order to call a pre-recorded number or to call emergency services, users only have to press a button. The hand-free speaker can be activated by pressing the call button. It is 8.7 centimetres long and weighs 60 grams. **(42)**

Among the different solutions that Telefónica offers for the elderly, often suffering from sight or hearing problems, we can mention the TECLON and the OWASYS 22c telephones.

The TECLON features large keys that makes dialling easier for people with impaired motor functions. It also provides better speaker features, especially in noisy environments and, therefore, improving the reception of the signal.

The OWASYS 22c is a mobile handset which has been designed jointly with the ONCE (Blind Peoples Association). It has been specifically designed for blind people. The handset interacts with users through announcements and the design of the keys has been adapted for use by people with limited motor functions in their hands.

One of the great problems that elderly people encounter when using new technologies is accessibility.

The EU, within the eAccessibility Project, intends to encourage the manufacture and distribution of devices that feature larger data screens for people with eyesight problems, speech-to-text converters for deaf people or screens that use Braille and texture simulators for the blind. In order to achieve this, the EU is promoting standardisation in the different member states by issuing quality labels that will help users when purchasing these products. **(31)**

At Dundee University, Doctor Mckenna is working on the GestAID Project that consists in the development of a new generation of digital computers capable of recognising the gestures and expressions of users' faces and responding to them accordingly. This will enable users to define their own vocabulary with the computer. Additional peripherals required for the PC will include a digital video camera and a sequential digitiser. The computer could also generate an alarm signal if a person did not move for a given period of time. **(32)**

Television seems to be a more accessible piece of equipment for the elderly and can be used to access new telecommunications services.

Manufacturers and web site designers must be made aware that the text included in many web sites is difficult to use (complex and small font size) for people with impaired vision.

The portal www.jubilo.es, aimed at the elderly includes sound in its contents to make access easier for people with impaired vision.

On the other hand, the standardisation of the position of keys and functions on computers would be desirable in order to make it easier for people to change units.

5 Conclusions

Improvements in quality of life are aspects that often arise when analysing social benefits provided by telecommunications. This advantage is especially obvious if we analyse the effects linked to the gradual integration of services into many of the daily activities of the elderly, especially those related to health care, leisure, safety at home, etc.

Certain organisations for the elderly are starting to demand a global project to implement a network of associations, to extend training at the said associations and to launch group actions to consolidate what has been learned. This initiative should be sponsored by the public Administrations and supported by operators and equipment manufacturers.

The incorporation of elderly people into the Information Society implies an extra effort when compared with other population groups, due to their reluctance to introduce changes in their daily lives. However, the public administrations and the telecommunications industry (operators, manufacturers, etc.) should make an effort in this direction. Elderly people deserve the highest levels of wellbeing and new technologies can play their part.

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