



**European SeniorWatch Observatory and Inventory -**  
*A market study about the specific IST needs of older and disabled people  
to guide industry, RTD and policy*

[www.seniorwatch.de](http://www.seniorwatch.de)

IST-1999-29086

# Older people and Information Society Technology

## *Factors Facilitating or Constraining Uptake*

Relates to WP5 / Deliverable no. 5.3

|                          |                                 |
|--------------------------|---------------------------------|
| Report Version:          | 1.0 by empirica                 |
| Report Preparation Date: | 11 <sup>th</sup> July 2002      |
| Classification:          | public                          |
| Contract Start Date:     | 1 <sup>st</sup> of October 2000 |
| Duration:                | 21 Months                       |
| Project Co-ordinator:    | <i>empirica</i>                 |
| Partners:                | WRC, STAKES, EURAG, NPOE        |



Project funded by the European Community under the  
"Information Society Technology" Programme (1998-2002)

## DELIVERABLES SUMMARY SHEET

Project Number: IST-1999-29086  
Project Acronym: SeniorWatch  
Title: European SeniorWatch Observatory and Inventory - A market study about the specific IST needs of older and disabled people to guide industry, RTD and policy

Deliverable N°: 5.3  
Due date: May 2002  
Delivery Date: July 2002

### Short Description:

The first analysis step undertaken within work package five was to draw together an overall European picture about current IST utilisation among older Europeans and about policies pursued in this context (D5.1). To this end, information from the SeniorWatch user surveys and from EU-wide country studies was utilised to make projections of the likely future penetration of IST applications relevant to the field across Europe. The second step was to take a more global perspective through benchmarking Europe against the leading nations in the field, namely Japan and the USA. The global perspective allowed to apply a "SWOT" approach highlighting strengths and weaknesses of Europe and the opportunities and threats faced here (D5.2). This deliverable (D5.3) emphasises those factors that constrain or facilitate uptake in order to identify possible fields for strategic actions. To this end, data gathered within the SeniorWatch user surveys and country reports will be re-analysed.

This starts with an analysis of factors facilitating or constraining IST demand among older Europeans on the individual (consumer) level (chapter 2). Following to this, chapter 3 then focuses on factors facilitating or constraining what we have called "institutional demand". Here, the focus shifts to demand for ISTs amongst the institutions that provide services for older people. Such support can be provided in different contexts and by a range of organisations. Within SeniorWatch, the focus is on organisations providing home care services, including social and health care. The re-analysis of data available from the SeniorWatch user surveys presented so far is then augmented by an analysis of facilitators and constraints with respect to relevant policies pursued in the individual Member States (chapter 4). Finally, chapter 5 provides a summary assessment of the facilitators and constraints identified in the previous work steps and highlights a range of current deficits to be considered when formulating strategic policy recommendations in a further work step (D5.4).

Overall, a range of factors facilitate or constrain broader uptake of IST-based services and systems among older people in the European Union. These concern personal needs and attitude of older Europeans, but also socio-economic circumstances they live in. Apart from this, more environmental factors such as structural characteristics of the care sector and policy related aspects are concerned.

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## Executive Summary

A range of factors facilitate or constrain broader uptake of IST-based services and systems among older people in the European Union. These concern personal needs and attitude of older Europeans, but also socio-economic circumstances they live in. Apart from this, more environmental factors such as structural characteristics of the care sector and policy related aspects are concerned. A detailed listing of these factors is provided in chapter five of this report (Table 13). With respect to identifying options for strategic actions aiming at accelerating IST uptake among older Europeans, a number of conclusions can be drawn.

To begin with, it can be concluded that considerable user potentials have not yet been adequately addressed by IST manufacturers and service providers. In particular, the design-for-all philosophy has obviously not yet won enough recognition at the IST manufacturer's and service provider's side. The wide prevalence of functional restrictions calls for ubiquitous design for all solutions, and this does not only concern the older age cohorts.

Lack of skills and of IST-related knowledge hinders many older Europeans – even those who have already gained hands-on experience with computer technology – to fully exploit ISTs for their purposes. Also, for most older Europeans the Internet is still something rather unspecific that they do not yet associate concrete benefits with.

The digital divide among older Europeans is currently an expression of an overall social divide rather than a cause of it. Coaction of various dimension of socio-economic stratification has an impact on whether or not older Europeans utilize ISTs for their purposes. Generally speaking, those who use ISTs tend to be younger and better educated, they tend to have an active life style and are usually better off in economic terms. Since the use of digital technologies will continue to play a key role in the future Information Society there is however a danger of mutual reinforcement. Older people from disadvantaged social groups who cannot afford and/or do not want to utilise ISTs are threatened to fall further behind and to become excluded from emerging Information Society opportunities. The “digitally challenged” – currently about one third of the EU 50+ population - are thus at risk of being left behind as the so called knowledge-based society further progresses.

There are considerable national disparities as regards current diffusion of IST applications and devices among the European 50+ population. However, untapped user potentials are considerable in some Member States due to the relative high share of “technologically open minded” (i.e. the share of people who are generally interested in ISTs although they actually not use them) in their overall 50+ populations. This offers opportunities to alleviate the north/south gradient which can currently be observed with respect to IST diffusion among the EU 50+ population. Some Member States are however at risk of falling even further behind, due to the relative high share of “want-nots” in their overall 50+ population.

Despite considerable potential demand, the market for care-related IST applications is still in its infancy. In particular structural characteristics of the care sector hamper broader adoption of IST based solutions within this arena. Particularly with respect to smaller care establishments, cost considerations and lack of perceived benefits, as well as lack of intra-organisational knowledge hamper utilisation of IST-based solutions within day-to-day care practice. Also, IST solutions currently on the market do obviously not always meet the requirements care service provider organisations actually have.

Main stream services and devices – even if they were designed in accordance with the design-for-all philosophy – are not capable of catering for all functional restricted. However, structural characteristics of the assistive technology sector hamper provision of innovative IST-based solutions to older people with severe functional restrictions. In particular, funding mechanisms involved do not appear very clearly defined and are often dependent on more specific aspects of eligibility for financial support for equipment. The existence of strict eligibility criteria is a significant constraining factor to the uptake of IST-based AT devices, prod-

ucts and services across Europe. From a supply side perspective, the EU-wide market place remains fragmented due to the diversity of national AT delivery systems and regulations currently in place across the EU.

There is a considerable amount of positive activity across the European Union in relation to policy aiming at accelerating IST uptake among older people and/or car service providers. It appears that EU initiatives such as the e-Europe Action Plan have been a main driver behind this acceleration in IST-related national policies. Across Europe there is also an emerging acknowledgment of the so called 'digital divide' as a genuine threat to the acceleration of the Information Society and related national policies. However, there is a lack of integration of policies pursued on the national level and on the EU level.

# 1 Introduction

This introduction provides a brief overview of the SeniorWatch project, its aims and methodological approach. First, the social and economic background to the study is discussed and its aims and objectives are outlined. The next section provides a short review of the methodological approach. Finally, the contents of this deliverable will be outlined and placed in context with the other deliverables of work package five.

## 1.1 Background and aims of the SeniorWatch project

There exist widely differing expectations of how the emergence of the Information Society (IS) will affect social and economic life in the industrialised countries. With regard to older citizens, applications of Information Society Technologies (IST) are increasingly seen as an opportunity to develop new products and services particularly useful for and useable by older persons. Such applications are also expected to lead to new supportive tools to cope with the social and economic challenges posed by demographic developments. As reflected in the EU's recent paper on its eEurope initiative, large potential is seen for enriching everyone's life, e.g. by bringing communities closer together or sharing knowledge.<sup>1</sup> Here it is also stated that managing the transformation of the current societies into Information and Knowledge Societies is both an economic and a social challenge. In particular, it needs to be ensured that the information society is cohesive and not divisive. This implies that all Europeans should benefit from the advanced applications that IST potentially offers and not just those who are already digitally literate and live in good economic and healthy situations. This is particularly applicable to older citizens because they missed the opportunity to gain experiences with IST during their working or educational life. As revealed by recent research, older citizens are particularly at risk of being left behind on the "Information Highway".<sup>2</sup>

Current demographic trends also present significant market opportunities. Terms such as "silver market" or "golden market segment" which have been adopted in other economic sectors (e.g. consumer industries) reflect the importance of older consumers in some industry segments. With regard to IST, there are two somewhat different market segments which need to be considered. On the one hand, there is a market for mainstream products and services (telecommunications and computer equipment, online services, multimedia products etc.) in which older and disabled people are - in principle - as interested in as any other user group. Particularly since more and more services and products are now being offered electronically, e.g., via the Internet. In view of demographic developments, European industry would miss huge business opportunities if these population groups were not to be appropriately targeted, e.g., by electronic commerce activities. On the other hand, there is a market for IST-products and services which specifically aim at meeting the particular requirements of older and disabled users - the so-called Care and Assistive Technology sectors. Here the situation is characterised by a high degree of market fragmentation and a preponderance of SMEs.

This is the background against which the SeniorWatch project aims to improve the understanding of the market dynamics of IST-based products and services geared towards older people. Its objectives are to support the development of a competitive industry and market

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<sup>1</sup> CEC (2000): eEurope - An Information Society for All. Communication on a Commission initiative for the Special European Council of Lisbon, 23 and 24 March, Brussels.

<sup>2</sup> This is suggested by literature on Digital Divide in Europe, USA, Japan cited in sections 3.2 to 3.4. and also Mark. N. Cooper: Does the Digital Divide Still Exist?, Consumer Federation of America, May 2002 (accessible at <http://www.consumerfed.org/DigitalDivideReport20020530.pdf>)

across Europe for IST related products and services, both designed-for-all and assisting older people to participate in the Information Society to the fullest extent possible.

## 1.2 Methods applied

Earlier research has shown that the market environment within which the diffusion of IST applications relevant for older and disabled people occurs is quite complex<sup>3</sup>. Different actors are involved (user organisations, policy makers, industry, social services, the end users themselves), and a variety of factors (technological, psychological, sociological, political, economic) influence up-take of IST products and services. Bearing this in mind, the Senior-Watch methodology integrates three different research perspectives into one single approach as follows:

- an environmental perspective (country reports, case studies),
- a supply-side perspective (technology watch) and
- a demand-side perspective (user surveys).

Availability of representative data is a cornerstone in assessing the market potential for relevant applications. Therefore, two separate Europe-wide user surveys were conducted during the early summer of 2001. In order to be able to assess the demand potential for IST applied in the private context - i.e. on those products and services which are predominantly purchased by the end users themselves - representative EU-wide survey data from almost 10,000 citizens aged 50 years and older was gathered through the SeniorWatch Older Population Survey (OPS). In order to assess the demand potential for ICT applications of benefit to the care and assistive technology sector, 500 decision makers from organisations providing care to older people were interviewed EU-wide within the SeniorWatch Decision Maker Survey (DMS).

## 1.3 Contents of this deliverable

The first analysis step undertaken within work package five was to draw together an overall European picture about current IST utilisation among older Europeans and about policies pursued in this context (D5.1). To this end, information from the SeniorWatch user surveys and from EU-wide country studies was utilised to make projections of the likely future penetration of IST applications relevant to the field across Europe. The second step was to take a more global perspective through benchmarking Europe against the leading nations in the field, namely Japan and the USA. The global perspective allowed to apply a “SWOT” approach highlighting strengths and weaknesses of Europe and the opportunities and threats faced here (D5.2). This deliverable (D5.3) emphasises those factors that constrain or facilitate uptake in order to identify possible fields for strategic actions. To this end, data gathered within the SeniorWatch user surveys and country reports will be re-analysed.

This starts with an analysis of factors facilitating or constraining IST demand among older Europeans on the individual (consumer) level (*chapter 2*). Following to this, *chapter 3* then focuses on factors facilitating or constraining what we have called “institutional demand”. Here, the focus shifts to demand for ISTs amongst the institutions that provide services for older people. Such support can be provided in different contexts and by a range of organisa-

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<sup>3</sup> Cullen K., Robinson S. Telecommunications for older people and disabled people in Europe. Amsterdam: IOS Press, 1997.

tions. Within SeniorWatch, the focus is on organisations providing home care services, including social and health care<sup>4</sup>. The re-analysis of data available from the SeniorWatch user surveys presented so far is then augmented by an analysis of facilitators and constraints with respect to relevant policies pursued in the individual Member States (*chapter 4*). Finally, *chapter 5* provides a summary assessment of the facilitators and constraints identified in the previous work steps and highlights a range of current deficits to be considered when formulating strategic policy recommendations in a further work step (D5.4).

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<sup>4</sup> For details see SeniorWatch deliverable no. 1.2: SeniorWatch Analytical and Methodological Framework, final version, January 2002.

## 2 Factors influencing residential IST uptake

In the following, facilitators and constraints are analysed that relate to IST demand on the individual level. In this context, we refer to needs and requirements in core areas of life that arise as a result of age-related changes in social circumstances, functional abilities and/or health status, such as need for support with activities of daily living or for other forms of social or health care. Also, interests/lifestyles of older people are considered here. These refer to more or less discretionary variations in the ways that older people live their lives and what they hold important, such as preferring an active or a quiet life. Needs (as defined above) and interests/lifestyles may also interact, for example, lifestyles may be constrained by unmet needs, and needs and/or interests can give rise to potential requirements and demand for applications of IST.

### **Skills and attitudes towards IST**

More than half of the current EU 50+ population is keen on staying informed about new technological developments. But older people also feel that they are not adequately recognised as a potential user group as regards IST-based services and systems. More than 70 % say that new technologies are always connected with young people in the media and almost half of the older population do not see their interest in adequate design being considered by IST manufacturers. These critical concerns are expressed irrespective of the actual personal involvement in IST, as they are uttered by both groups, computer users as well as non-users. Regardless of this criticism, about one third wishes however to improve their computer skills.

**Table 1 Computer involvement typology according to average no. of IST devices/applications used among the EU 50+ population**

| Computer involvement type         | Average no. of IST devices/applications used (mean) |
|-----------------------------------|---|
| "The digitally challenged"        | 2.6   |
| "The technologically open minded" | 3.3   |
| "The old age beginners"           | 4.5   |
| "The experienced frontrunners"    | 8.0   |

$r = .681$ ,  $\tau b = .443$ ,  $\alpha < .01$

Source: © SeniorWatch, 2002

From available survey data on actual IST usage as well as on IST-related skills and attitudes a generic user/non-user typology was derived (see D5.1). This typology includes four generic types of IST involvement:

- computer users with professional or advanced skills and/or using a computer at least once a week, the so called "*experienced frontrunners*";
- computer users with less than advanced skills and/or using a computer less often than once a week, the so called "*old age beginners*";
- non-computer users who are keen on learning about new technology and/or who wish to improve their computer skills, the so called "*technologically open minded*"

- non-computer users who are not interested in learning about technology and/or who do not wish to improve their computer skills, the so called “*digitally challenges*”

Although this typology mainly relies upon information referring to computer usage (apart from general attitudes towards IST), it can indeed be interpreted with respect to IST involvement in general. The more people are involved in computer technology, the more they tend to be involved in other ISTs also. While the “digitally challenged” use only 2.6 different IST applications/devices on average the “experienced frontrunners” utilise 8.0 devices/applications for their purposes (Table 1).

**Table 2 Generic IST involvement typology of the EU 50+ population (in %)**

| Generic type                      | Description   | Share in the EU 50+ population (in %) |
|-----------------------------------|---|---------------------------------------|
| "The experienced frontrunners"    | Computer users with professional or advanced user skills and/or using computers at least once a week    | 26.7                                  |
| "The old age beginners"           | Computer users with less than advanced computer user skills using computers less often than once a week | 13.0                                  |
| "The technologically open minded" | Non-users but keen on learning about technology and/or wishing to improve their computer skills         | 29.1                                  |
| "The digitally challenged"        | Non-users who are not interested in learning about technology and/or wishing to improve computer skills | 31.3                                  |

Base: All respondents.

Source: © SeniorWatch, 2002

**Table 3 Generic IST involvement types of the EU 50+ population by age (in %)**

| Computer involvement              | Age   |       |       |      | Total |
|-----------------------------------|-------|-------|-------|------|-------|
|                                   | 50-59 | 60-69 | 70-79 | 80+  |       |
| "The experienced frontrunners"    | 45.6  | 22.8  | 11.3  | 6.0  | 26.7  |
| "The old age beginners"           | 13.5  | 15.9  | 10.7  | 6.0  | 12.9  |
| "The technologically open minded" | 22.8  | 30.5  | 33.9  | 36.7 | 29.1  |
| "The digitally challenged"        | 18.1  | 30.9  | 44.1  | 51.2 | 31.3  |
| <i>Total</i>                      | 100   | 100   | 100   | 100  | 100   |

Base: All respondents.

Source: © SeniorWatch, 2002

It is obvious that with respect to IST applications and interests, older people are not at all a homogeneous group. The majority of older Europeans are however open-minded towards new technologies and about 40% have even gained hands-on experience with a computer (Table 2). Even within the age range between 70 to 79 years more than one half are at least

interested in IST (Table 3), and among those who are 80 years and above interest is not much lower (49%). At the same time, about one third of the EU 50+ population are heavily at risk of being left behind in this respect, and this does concern not only the older age cohorts. Nearly one fifth of the respondents who are in their 50ies belong to the "want-nots", and even 30% of those in the age range between 50 and 60 years belong to this group.

Taking a supply-oriented perspective, the four generic types of IST involvement constitute population segments that differ with respect to the "degree of reluctance" that may have to be overcome when tendering IST-based products and services to them. In this sense, the "experienced frontrunners" can be regarded as the "early adopters"<sup>5</sup> within the 50+ market, and are most receptive for new IST-based systems and services. The "old aged beginners" can be seen as the "followers", and are likely to be approachable with products/services which meet their needs and interests in an adequate manner. The "technologically open minded" may however make greater demands on the utility and/or usability of IST-products, and the "digitally challenged" represent a customer segment which may be most difficult to address.

Nevertheless, many older people – despite their general interest in IST – lack the necessary skills to fully utilise IST products and services, which they may in principle be interested in. For instance, about one half of those 50+ who have hands-on experience with a computer possess merely rudimentary computing skills, and 10% even say that they 'virtually do not have a clue'. Experience gained with computer technology in an occupational context turns out to have a major impact of older European's propensity to engage themselves in this technology. As can be seen from Table 4, three quarter of those who have gained hands-on experience with a computer at the work place are regular computer users today (the extraordinary influence of this factor finds its expression in a Phi value<sup>6</sup> of .654<sup>7</sup>). On the contrary, only 10% of those who had no computer access at work are regular computer users.

**Table 4 Regular computer users by use of computer at workplace**

| Frequent computer users | Use of computer at workplace |              |              |
|-------------------------|------------------------------|--------------|--------------|
|                         | yes                          | no           | Total        |
| <b>Yes</b>              | <b>1882</b>                  | <b>688</b>   | <b>2570</b>  |
| <b>%</b>                | <b>75.7%</b>                 | <b>9.6%</b>  | <b>26.6%</b> |
| <b>No</b>               | <b>605</b>                   | <b>6486</b>  | <b>7091</b>  |
| <b>%</b>                | <b>24.3%</b>                 | <b>90.4%</b> | <b>73.4%</b> |
| <b>Total</b>            | <b>2487</b>                  | <b>7174</b>  | <b>9661</b>  |
| <b>%</b>                | <b>100%</b>                  | <b>100%</b>  | <b>100%</b>  |

$\phi = .654 \alpha < .001$ )

Source: © SeniorWatch, 2001

### **Functional restrictions impeding IST utilisation**

Up to now, the lack of robust and credible data on IST usage among older people has contributed to a tendency to view the sector as a "worthy" one, without appreciating its enormous significance from the economic perspective. In reality, in fact, older people already make up

<sup>5</sup> In current diffusion theory generic categories of technology adoption are used to describe diffusion processes of innovations. Rogers differentiates between five ideal types, i.e. innovators, early adopters, early majority, late majority and laggards. see Rogers E. M., Diffusion of Innovations, 4<sup>th</sup> edition, New York, 1995.

<sup>6</sup> Phi is the coefficient of correlation for two dichotomies, calculative equivalent to Pearson's r.

<sup>7</sup> Here actually, the Phi value reaches even higher values when considered per country, with coefficients higher than .7 in Portugal, Italy, and Spain.

a considerable proportion of the overall market for IST applications and devices, and this market segment will grow considerably. For instance, the market for computer sales to older citizens will grow by about 22% within the next two years. However, many computer customers have particular user requirements due to their restricted ability to hear, to see or to manipulate computer equipment with their hands. Overall, some 10 million older computer users will be severely restricted in this regard<sup>8</sup> by the end of 2003.

When it comes to computer usage in particular, older persons who are functionally restricted (visually, dexterity) are significantly less likely to frequently use a computer (see Annex), and this is not the case because they were less interested in computer technology (Table 6). In fact, they tend to be even more keen on learning about new technologies or to improve their computer skills than those who do not suffer from any functional restriction. Their share in the group of the “technologically open minded” significantly higher than the share of those without any functional restrictions.

**Table 5 Prevalence of functional restrictions when using IST among the EU 50+ population by age (in %)**

| Restricted vision, hearing, dexterity                          | Age     |         |         |      | Total |
|--|---------|---------|---------|------|-------|
|  | 50 – 59 | 60 - 69 | 70 - 79 | 80+  |       |
| At least one: somewhat difficult / little trouble <sup>9</sup> | 41.1    | 43.9    | 44.6    | 39.7 | 42.7  |
| At least one: very difficult / lot of trouble <sup>10</sup>    | 16.7    | 19.3    | 25.1    | 38.6 | 21.4  |
| Total  | 57.7    | 63.2    | 69.7    | 78.3 | 64.1  |

Base: all respondents

Source: © SeniorWatch, 2002

<sup>8</sup> For the purposes of SeniorWatch it was important not just to rely on official statistics on disabilities, but rather to know to what extent respondents are specifically functionally restricted in using IST applications. Therefore - apart from question relating to their ability to hear and to see (e.g. reading fine print on instructions) - the respondents were asked whether they have any dexterity problems with their fingers when using a key board, a smart card or a touch screen. As this approach goes beyond usually applied official definitions of impairment, SeniorWatch figures on functional restrictions tend to be higher compared with data available from official statistics

<sup>9</sup> but none 'very difficult' / 'a lot of trouble'; the two values are disjunctive.

<sup>10</sup> including 'blind' .

**Table 6 Functional restrictions among the EU 50+ population by computer involvement (in %)**

|                                 | Vision      |                 |                 | Hearing     |                 |                 | Dexterity   |                 |                 | All 50+ |
|---------------------------------|-------------|-----------------|-----------------|-------------|-----------------|-----------------|-------------|-----------------|-----------------|---------|
|                                 | no problems | some difficulty | severe problems | no problems | some difficulty | severe problems | no problems | some difficulty | severe problems |         |
| The digitally challenged        | 29.6        | 31.4            | 39.5            | 30.0        | 33.9            | 35.7            | 28.6        | 30.8            | 52.1            | 31.3    |
| The technologically open minded | 27.7        | 31.9            | 29.6            | 28.3        | 31.1            | 30.4            | 26.9        | 36.4            | 31.0            | 29.1    |
| The old age beginners           | 13.0        | 13.1            | 12.4            | 13.5        | 11.9            | 11.2            | 13.7        | 12.6            | 8.1             | 13.0    |
| The experienced frontrunners    | 29.7        | 23.6            | 18.5            | 28.3        | 23.2            | 22.7            | 30.8        | 20.2            | 8.8             | 26.7    |
|                                 | 100         | 100             | 100             | 100         | 100             | 100             | 100         | 100             | 100             | 100     |
| Tau b                           |             |                 | -.077           |             |                 | -.056           |             |                 | -.150           |         |
| Spearman Rho                    |             |                 | -.087           |             |                 | -.062           |             |                 | -.167           |         |
| Sig.                            |             |                 | .000            |             |                 | .000            |             |                 | .000            |         |

Base: all respondents (N=9661)

Source: © SeniorWatch

### **Coaction of demographic, socio- economic and life style dimensions**

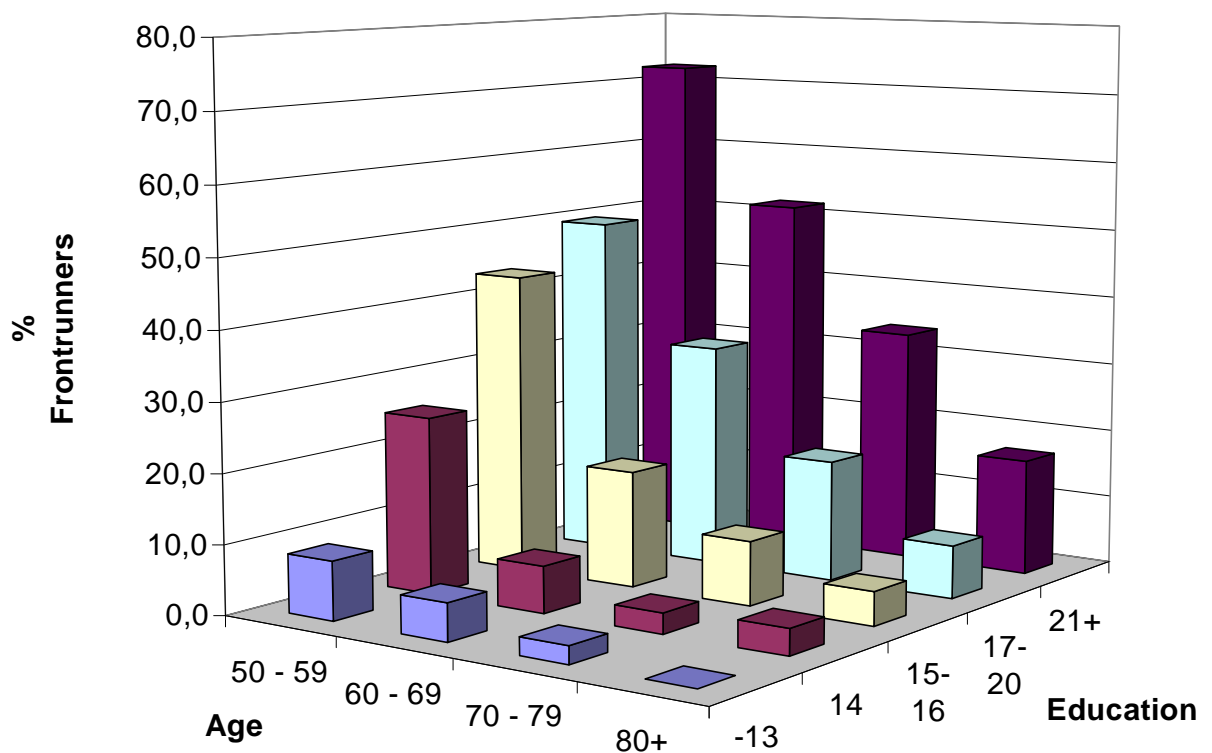
Previous analyses of the SeniorWatch survey data (D2.3 and D5.1) indicate that socio-demographic factors appear to have a strong impact on older European's propensity to get involved in ISTs (see Annex). Those who utilise IST for their purposes tend to be younger but also better educated; they tend to have a rather active life style and are on average better off in economic terms. In other words, whether or not older Europeans wish to engage themselves in IST cannot merely be regarded as a matter of age, but is largely associated with several dimensions of social stratification. As for instance illustrated by Figure 1, the better educated "older old" are more likely to belong to the group of "experienced frontrunners" than the less educated "younger old". Both factors, i.e. age and educational attainment, exhibit an independent influence on the propensity to utilise ISTs. Keeping the age factor constant, IST involvement increases with educational attainment and - vice versa - keeping educational attainment constant IST involvement decreases with age. Similar patterns can be observed with respect to further personal characteristics such as income and life style<sup>11</sup> (see Annex).

It is obvious that a older persons' propensity to utilise ISTs is influenced by coaction of various socio-economic dimensions. As illustrated by Figure 2, a person's educational attainment has the strongest influence in this context. IST uptake can be supposed to be largely

<sup>11</sup> For our purposes this variable was operationalised in terms of active vs. passive lifestyles. In this context, a factor analysis revealed that the leisure activities surveyed can be grouped into three different factors: A first factor comprises "public life" activities (and also night activities) like going out to restaurants, pubs or cinema and theatre. A second factor comprises physical activities like "do it yourself" activities, sporting and also home activities like reading books, visiting/having visitors and making phone calls with less time spent watching TV. A third factor includes items such as seeing family members, religious activity and visiting/having visitors, and may be called the "traditional" activities factor. Based on the results of the factor analysis an four ary index was generated reflecting the quartiles of the overall distribution (for details see D2.3).

ascribed to so called cultural capital<sup>12</sup> features, and a person’s education can be seen as a major aspect in this context. Income, which is also a very discriminating factor supposedly takes effect in the same direction. Together, both dimension not at least refer to occupational participation and professional characteristics that facilitate or obstruct access to and/or usage of ISTs during the working life. Furthermore, educational background and consequently occupational status may affect personal capabilities required when coping with technology-related innovations. This may for instance concern the acquisition of required skills, but also habitual strategies in coping with problems in one’s working life.

**Figure 1 Computer involvement - percentage of experienced frontrunners by age and educational attainment**



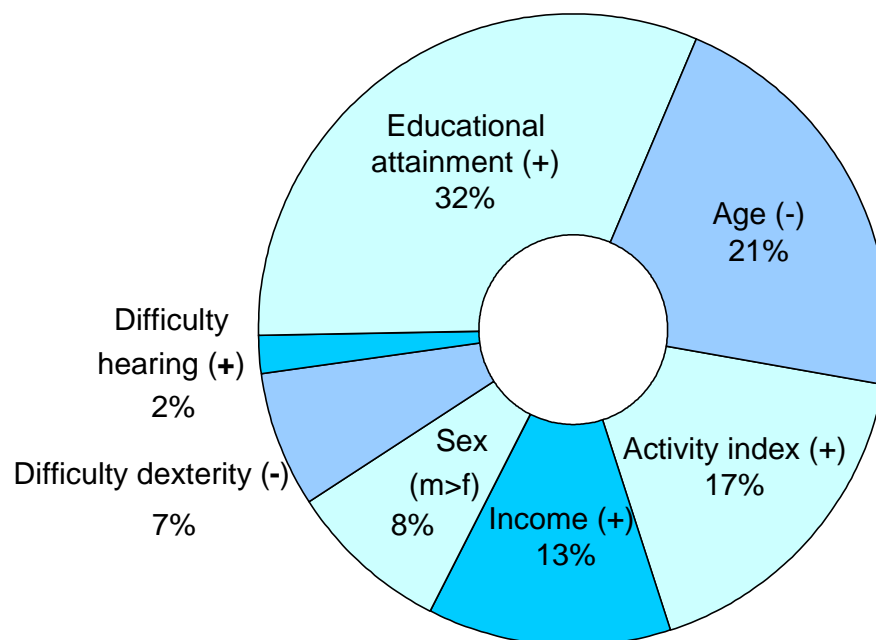
Base: All respondents

Source: © SeniorWatch, 2002

<sup>12</sup> See for instance:

Bourdieu P., 1986, The Forms of Capital, in: Handbook of Theory and Research for Sociology of Education, J.G.Richardson (ed.). New York. Westport, Connecticut. London: Greenwood Press, pp.117-142.  
 Bourdieu, P. (1977). "Cultural reproduction and social reproduction." In J. Karabel and A. H.alsey, eds., Power and ideology in education. New York, NY: Oxford University Press.  
 Coleman, J. S. (1990). Foundations of Social Theory. Cambridge, Mass.: Harvard University Press.  
 J.S. Coleman (1988), "Social capital in the creation of human capital," American Journal of Sociology, Vol. 94 (supplement) p95-p120.

Figure 2 IST involvement - multiple regression - relative contributions of independent variables<sup>13</sup>



Source: © SeniorWatch, 2002

A further dimension influencing older European's propensity to utilise ISTs is their activity orientation. For our purposes, an activity index was generated from time spending patterns and from subjective valuations of several activities<sup>14</sup>. Multivariate analysis revealed that the more withdrawn older people lead their life the less likely they are to adopt ISTs, regardless of their physical condition and socio-economic circumstances they live in (see Annex).

Further dimensions such as income and gender – although still statistically significant – have less influence on IST utilisation when compared with educational attainment. In particular, the remaining explanatory power of functional restrictions is quite small within our regression model. Despite the fact that bivariate analyses revealed that the prevalence of functional restrictions indeed has an impact on IST utilisation among older Europeans (Table 6), only hearing restrictions and restricted dexterity remain statistically significant factors in this context. This may be due to the fact that the prevalence of functional restrictions generally tends to be aligned with the previously investigated dimensions of social stratifications and in particular with growing age, and that these dimensions tend to obscure the impact functional restrictions may have on IST uptake within the population group in question. Nevertheless, the slight positive influence hearing restrictions still have within our regression model (Figure 2)

<sup>13</sup> In order to assess the influence that different factors have on IST involvement a linear multiple regressions was calculated including the following variables age, gender, educational attainment, in-come, impairment and activity lifestyle index. Together, the six variables included in the regression model explain 38% of variance observed with respect to IST involvement with our sampel. For details see also the respective tables in the Annex.

<sup>14</sup> In a first step a statistical factor analysis revealed three activity-related factors, namely the so called "importance of being active in one's older age" factor, the so called "physical and at home activities" factor and the so called "outgoing and entertainment" factor. From these factors a four ary activity index was derived which reflects a continuum between leading a "very active life" and leading a "withdrawn life" (for details see Annex ??).

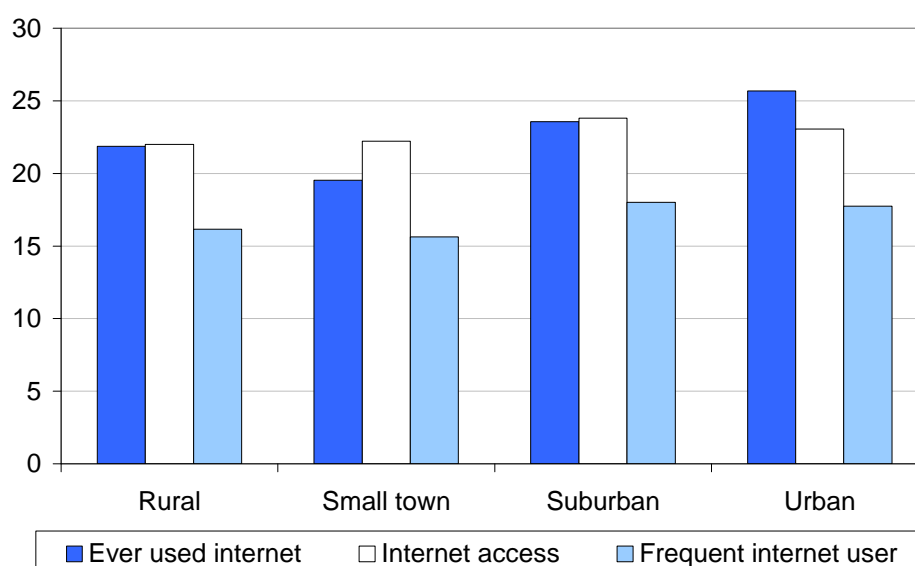
points into the directions that people with sensory impairments may indeed utilise particular ISTs for the purpose of compensating particular problems they may have in accessing other media (e.g. using email instead of making a telephone call).

### **Regional aspects and national peculiarities**

Generally speaking, the place of living in terms of different special categories (urban vs. rural) has almost no impact on IST utilisation among older Europeans (Figure 3SEQARABIC). However, as revealed by earlier analyses (see D5.1), IST uptake among the European 50+ population is quite unevenly distributed across the European Union at large. The 50+ population of the Nordic countries and of the Netherlands uses the largest variety of IST applications. Austria, Belgium, Germany, Luxembourg and the United Kingdom show penetration figures above the EU average while Italy, France and Ireland show values which are somewhat below. Spain, Greece and Portugal lack considerably behind (see Annex). However, when investigating facilitators and constraints regarding IST utilisation from a geographic perspective it is useful not merely to rely on actual penetration figures but rather to consider the distribution of skills and attitudes which may affect IST uptake among the population in questions.

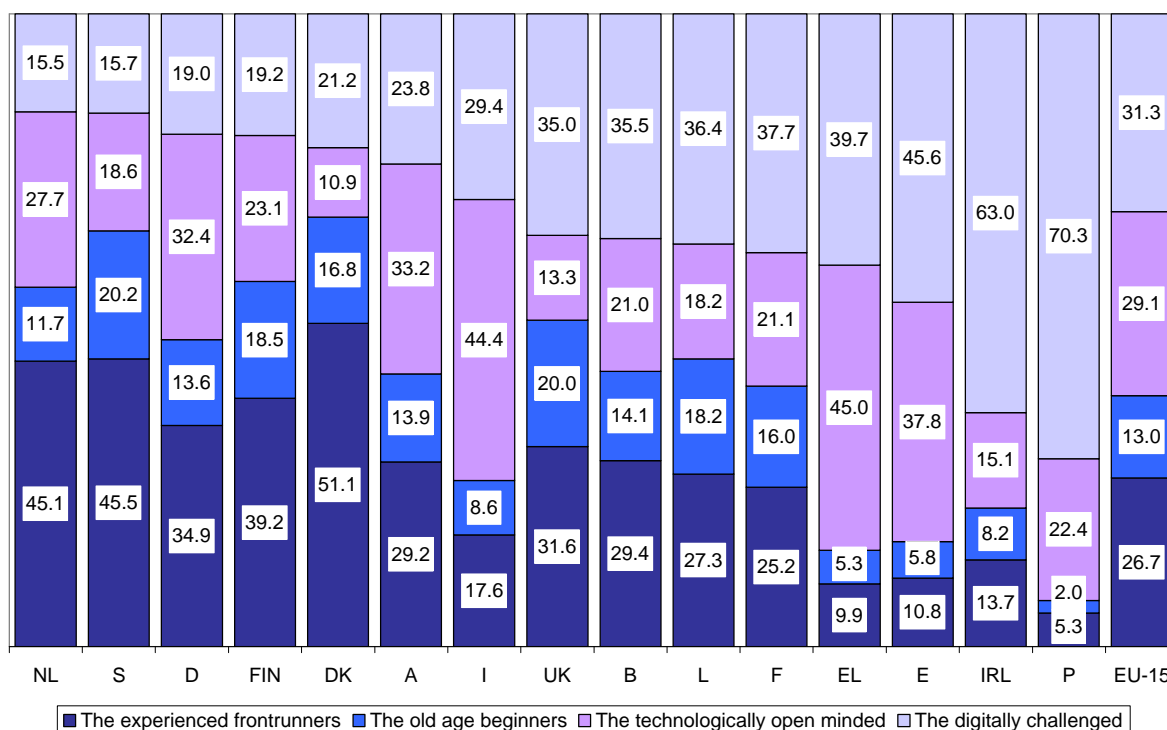
In particular, the share of those who do not possess any IST-related skills and who are not at all interested in getting involved in ISTs are of particular concern in this context as they represent a population segment which may be most difficult to address when aiming at accelerating IST uptake among older people. As illustrated by Figure 4, Portugal has the highest share of “want-nots” within its overall 50+ population. Here, nearly three quarter of the older population belong to the so called “digitally challenged”. Ireland follows with a share of more than 60%. In the remainder of the European Member States the share of “want-nots” in the overall 50+ population is considerably lower. For instance, Spain and Greece follow with shares below 50% and 40% respectively. With not even one fifth, the Netherlands have the lowest share of “digitally challenged”. Generally speaking, those countries in which actual IST penetration among their 50+ population is relatively high also tend to have relatively low shares of “want-nots”.

**Figure 3 Internet utilisation among the EU 50+ population according to special type (in %)**



Source: © SeniorWatch, 2002, OPS

**Figure 4 Generic types of IST involvement according to EU Member States (in %)**



Base: all respondents

Source: © SeniorWatch, 2002, OPS (OPS00145)

However, when considering those who – despite their general open mindedness towards these technologies – are not (yet) involved in ISTs considerable user potentials remain unexploited in some Member States. In this respect, Italy and Greece show the highest potential. Their share of the so called “technologically open minded” in their overall 50+ population, reaches about 45%. Spain and Germany follow with a share of 37% and 32% respectively, and the Netherlands arrive at a share of somewhat below 30%. The remainder of the European Member States reach shares of about 20% or even less than this. With a share of merely 10%, Denmark’s untapped user potential appears most of all exploited Here, actual IST penetration figures may have already approached the saturation level.

Overall, these results indicate that considerable untapped user potentials offer the opportunity to alleviate the existing EU-wide north/south gradient concerning IST usage among older people. However, some countries are at risk to fall even further behind due to their relative high share of “want-nots” in their overall 50+ population.

**Interests in individual on-line applications**

As revealed by previous analyses the interest in general purpose IST among the European 50+ population is considerable (see D5.1). Overall, 8.2% or some ten million older people across Europe say that they are likely to purchase a computer during the next one or two years, and about 10% are likely to purchase mobile phones. These figures do not include those who already have such a device and who plan a renewal of their equipment. 9.1% are interested in having internet access, and twice as many (18.8% or about 23 m) are interested

in videophones. When it comes to concrete applications of the Internet, the number of people - even of non-users - who are interested in it increases considerably (Table 7)

**Table 7 Interest in generic internet applications**

| Application                                       | All respondents |                                   |               | frequent internet-users |                          | non-users  |
|---|-----------------|-----------------------------------|---------------|-------------------------|--------------------------|------------|
|   | Interested      | Done within the last three months | DK what it is | Interested              | Done within three months | Interested |
| Info on places to visit/ hotels/ timetables       | 33.0            | 10.2                              | 2.5           | 21.8                    | 60.3                     | 35.2       |
| Search for product info                           | 28.4            | 12.3                              | 3.0           | 12.4                    | 72.8                     | 31.7       |
| E-mailing   | 26.1            | 14.1                              | 3.5           | 8.8                     | 83.3                     | 29.6       |
| Consulting local town web sites                   | 34.8            | not surveyed                      | 2.9           | 68.5                    | not surveyed             | 28.0       |
| Info on local leisure activities?                 | 28.6            | not surveyed                      | 2.3           | 48.9                    | not surveyed             | 24.6       |
| Getting educational material                      | 20.9            | 7.1                               | 2.7           | 18.8                    | 42.5                     | 21.3       |
| On-line banking                                   | 14.2            | 5.5                               | 2.6           | 18.5                    | 32.9                     | 13.3       |
| Downloading any music                             | 18.2            | not surveyed                      | 4.1           | 29.3                    | not surveyed             | 16.0       |
| Interest in Internet: on-line shopping            | 9.9             | 4.3                               | 2.4           | 14.0                    | 25.4                     | 9.1        |
| Interest in Internet: participate in on-line chat | 9.7             | not surveyed                      | 3.2           | 15.5                    | not surveyed             | 8.5        |
| Purchasing groceries                              | 8.3             | not surveyed                      | 2.3           | 13.5                    | not surveyed             | 7.3        |

Percentage. Base: All respondents, DK/refusals excluded (N between 9423 and 9483, N between 7831 and 7893 for non-users and N between 1578 and 1593 for users). Note that interest was not surveyed if the respondent stated usage within the last three months. Non-users include non-frequent-users.

Source: © SeniorWatch, 2001

This indicates that *the Internet* still is something rather unspecific which many older people do not yet associate concrete benefits with. Another remarkable finding is that internet users reveal a sort of halo effect: they are generally more interested in applications because internet applications are tangible for them, they have experienced what benefits can be derived, e.g., from on-line services, and they can thus more easily grasp the potentials of other services they do not yet use. Considering these two results together it becomes obvious that there is very considerable potential of internet take-up among the elderly - but that a prerequisite for activating it is massive and targeted awareness raising among the older population. On the other hand, there exists also a considerable group of older people who are not at all interested in the internet as yet. As these tend to be the less educated and the economically deprived rather than the well educated who are better off in economic terms, it can hence be concluded from the above findings that the socio-economic stratification of Internet utilisation is going to be reinforced by the lack of subjectively perceived benefits.

Quite independent of access to telecommunications and information/entertainment devices and their usage, the interest in various e-health applications is considerable (Table 8) though

declining considerably with age. Particular in those countries were the 50+ Internet market has already matured to a considerable degree interest in e-health applications is high. For instance, older people in Sweden - with 58% - show the highest rate of interest in health information on the Internet, whereas for Portugal, Spain and Ireland the figure is only 17%, 17% and 18% respectively. General health information meets the greatest interest, though with increasing age (and morbidity) interest becomes more focused on individual, currently relevant health issues and electronic communications with their physician about these. In spite of its wide application in telemedicine, video telephony achieves the lowest values; older people are simply not yet familiar with this technology. The interest in IST applications in general and in e-health information and services in particular is correlated to various socio-demographic variables like age (mostly reflecting experience gained at the work place), gender, socio-economic status/education, or income. However, the strongest relationship exists to experience with and interest in IST applications as reflected by the generic IST involvement typology (Table 8) described earlier in this report.

These results also indicate that there is considerable interest in health-related applications within both groups, internet users as well as non-users. But the potential of the Internet as a health information source has to be communicated to the target group as a key benefit of being on-line. The large market potential for internet-based health information services is obviously not yet appropriately exploited. Also for services supporting the physician and patient relationship, appropriately designed supply would fall on fertile ground. But it must be taken into account that the (economic) relationship between doctor and patient is highly administered and usually not controlled by the patients themselves. Assessing the likelihood that patient interest eventually turns into actual demand is therefore not easy, and it may depend on various external factors which can hardly be investigated on the basis of the data available from the SeniorWatch user surveys.

**Table 8 Interest in e-health applications (%) by age and computer literacy**

| Interested in:      |  | information about health issues on the Internet | Information about on-going medical treatment displayed on computer or TV screen | Getting a doctor's advice on a health problem by e-mail | Getting a doctor's advice on a health problem by video-telephone |
|---------------------|--|---|---|---|--|
| <b>Total</b>        |  | 38  | 30  | 27  | 22   |
| <b>Age</b>          | <b>50 – 59</b>                         | 52  | 39  | 33  | 27   |
|                     | <b>60 – 69</b>                         | 38  | 31  | 28  | 23   |
|                     | <b>70 – 79</b>                         | 25  | 20  | 19  | 16   |
|                     | <b>80+</b>                             | 15  | 18  | 14  | 13   |
| <b>IST interest</b> | <b>The digitally challenged</b>        | 15  | 15  | 14  | 12   |
|                     | <b>The technologically open minded</b> | 38  | 31  | 28  | 26   |
|                     | <b>The old age beginners</b>           | 45  | 35  | 31  | 26   |
|                     | <b>The experienced frontrunners</b>    | 61  | 44  | 37  | 27   |

Source: © SeniorWatch, 2001

### 3 Factors influencing IST uptake within the care sector

In the following, factors that have an impact on IST uptake in the European home care sector are analysed. Here the focus shifts to demand for ISTs amongst the institutions that provide services for older people. In this context, we focus on organisations providing home care services to older people, including social and health care.

Factors that may stimulate demand for ISTs at the institutional level include those related to the nature of the services that are provided and the profile of the client base that is served, as well as the organisational structure and its institutional context. Some services, such as meals on wheels, cannot be directly delivered through ISTs although the logistics of ordering and delivery can be supported by ISTs. Whereas other services, such as social alarm systems or health monitoring can be delivered via ISTs. The profile of the client base is also relevant, as this will determine the range of needs that have to be met as well as logistical requirements in relation to meeting these needs (e.g. geographical distribution of clients). Finally, characteristics of the organisation itself are also important, including logistical aspects (e.g. number of sites) and the nature and frequency of communications with other organisations.

The range of services that may be provided by home care organisations includes health/social care, home help, social support, transportation, shopping, housing and housing adaptation, meal delivery, alarms/security, information/advice services and support for carers. There is a lot of diversity in relation to the organisation and levels of provision of these various services across Europe and the range of organisations providing home care differ considerably across Europe with regard to their legal status, their organisational profile and the scope of service delivery. Service providers may be public bodies, voluntary (non-profit) organisations and private (for-profit) organisations. In some countries, public bodies (e.g. municipalities) are the main providers of home care services, in others there is a growing market for private care services and in others the focus tends to be towards encouraging and supporting informal/family care.

#### ***Health-related needs of older Europeans***

Older people are in more need for health care than the average citizen. Our data indicate that of those 50+ in Europe, 62% suffer from *at least one* chronic disease (high blood pressure 34%, joint/bone/muscle disease 26%, heart disease 17%, diabetes 9%, chronic respiratory disease 8%, other long-term condition 19%), 9% see their doctor at least once a week, 27% at least once a month, 53% less often, but only 11% “not at all”. The older they get, the more they depend on medical and social care, and the more they tend to live alone, i.e. without a family member to look after them. And the relative percentage of the older population will continuously increase over the next 30 to 50 years.

To cope with the resulting challenges to our societies, telemedicine and e-health applications hold promise to provide better care, lead to improved medical outcome and, at the same time, render more quality of life to older people and allow for independent living<sup>15</sup>. In parallel, the costs per service can be expected to decrease<sup>16</sup>. Whether this will also hold for overall absolute costs is unclear because both the number of older people in need of services in-

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<sup>15</sup> Porteus, J, Brownsell, S. Using telecare - Exploring technologies for independent living for older people. Kidlington, UK: Anchor Trust, 2000. Tang, P, Venables, T. ‘Smart’ homes and telecare for independent living. *Journal of Telemedicine and Telecare* 2000;6:8-14

<sup>16</sup> Wootton, R. Recent advances - *Telemedicine*. 2001;323:557-560

creases as well as the incidence of more costly diseases like diabetes, heart insufficiency or renal failure. Also, as health services and medical outcomes improve, and older people become more wealthy, demand will increase.

Our survey results indicate that older people in Europe already have access to a wide variety of standard and advanced telecommunications networks and devices. And our data indicate that between 20% and 40% of them will buy a mobile phone or a PC for the first time during the coming two years. They have expressed interest in various e-health services to a surprisingly large extent, and this interest can be expected to grow rapidly. Actual usage, on the other hand, is still relatively low, and this may well reflect that the available services do not yet adequately take into account the functional and computer literacy restrictions these people have to cope with<sup>17</sup>. And, not to forget, in most countries the (national) health care system is not yet prepared for the technical, organisational, financial and social challenges the wider application of e-health implies<sup>18</sup>.

Nevertheless, the market potential is there, and it is substantial as the data in Table 9 indicate: of the 62% of the older population in the European Union suffering from at least one chronic disease, 22% or 17 million persons are what we have called "experienced frontrunners" many of whom have expressed a serious interest in various e-health applications. And appropriately targeting the "old age beginners" and "technology open minded" will considerably enlarge the number of potential customers.

In particular, telemonitoring of vital data is a promising new application field. As the data in Table 10 show, already 36% of all older people measure their blood pressure regularly or sometimes, and even 74% their weight.

**Table 9 Market opportunities for e-health services: Chronically ill citizens and computer literacy (in %)**

| Skills and attitudes                       | Chronically ill citizens |         | All 50+ citizens |  |
|--|--------------------------|---------|------------------|--|
|  | Percent                  | million | Percent          |  |
| Experienced frontrunners                   | 22%                      | 17 m    | 31%              |  |
| Old age beginners + technology open minded | 43%                      | 32 m    | 42%              |  |
| Digitally challenged                       | 35%                      | 26 m    | 27%              |  |

Source: © SeniorWatch, 2001

**Table 10 Use of conventional health devices by age (in %)**

| Measurement device |           | Age     |         |         |     | Total |
|--------------------|-----------|---------|---------|---------|-----|-------|
| Type               | usage     | 50 - 59 | 60 – 69 | 70 – 79 | 80+ |       |
| blood pressure     | regularly | 13      | 15      | 19      | 15  | 15    |
|                    | sometimes | 23      | 22      | 19      | 19  | 21    |
| Scales             | regularly | 39      | 38      | 37      | 28  | 37    |
|                    | sometimes | 37      | 37      | 39      | 36  | 37    |

Source: © SeniorWatch, 2001

<sup>17</sup> See Stephanidis, C, Savidis, A. Universal access in the Information Society: methods, tools and interaction technologies. International Journal Universal Access in the Information Society 2001;1:40-55

<sup>18</sup> See Harris, G. Home telecare and its discontents. Telemedicine Today 1999; Aug:27-35. Stanberry, B. Telemedicine: barriers and opportunities in the 21st century. Journal of Internal Medicine 2000;247:615-628

User-friendly interfaces and design-for-all features are however key considerations when developing e-health applications. Table 11 reports on the prevalence of three impairments (vision: reading small print, hearing, dexterity: using a touch screen, a smart card and/or a keyboard) which need to be considered in this context. In total, 43% older people say that they have at least some difficulties, and 21% considerable difficulties, and as discussed earlier in this report these disabilities also influence preferences for using a PC (or not), a mobile phone or the Internet.

**Table 11 Prevalence of impairments by age (in %)**

| Impairment: vision hearing tactile functions      | Age       |           |           |           | Total     |
|---|-----------|-----------|-----------|-----------|-----------|
|   | 50 - 59   | 60 - 69   | 70 - 79   | 80+       |           |
| At least one: somewhat difficult / little trouble | 41        | 44        | 45        | 40        | 43        |
| At least one: very difficult / lot of trouble     | 17        | 19        | 25        | 39        | 21        |
| <b>Total</b>                                      | <b>58</b> | <b>63</b> | <b>70</b> | <b>78</b> | <b>64</b> |

Source: © SeniorWatch, 2001

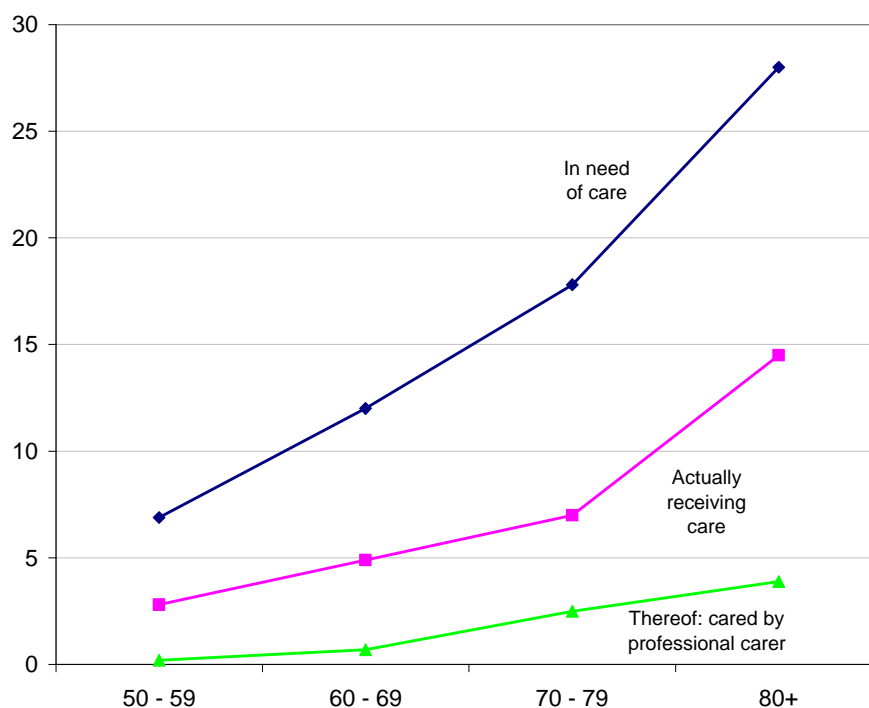
### ***Needs in respect of coping with activities of daily life***

Chronic diseases, frailty and mobility restrictions lead to a demand for various care services which grows rapidly by age. And this demand will further grow with current demographic developments. According to our data there is however a gap between the proportion of people that regularly need care and those who actually receive care (Figure 5). Our narrow operationalisation of 'in need of care' only includes having either difficulties with getting dressed or undressed or difficulties taking a bath or a shower - independent of the reason for this situation. The operationalisation of receiving care implies the existence of anyone regularly helping the respondent with these activities, whether informal (family) or professional carers.

Apart from the problems in coping with the activities (dressing, personal hygiene) discussed above, mobility restrictions are widespread amongst older European seniors. Overall, about 30% have at least some difficulties to walk longer distances, climb stairs or get onto a train (see Annex). A great deal of older people with mobility restrictions are however, not at all involved in IST at the moment (Table 122). Only 20 % are beginning to use IST or are experienced users. Especially as regards the tele-services that are computer or internet supported meet obstacles here.

Older people who live in single-person households or with their partner in two-person households are less likely to receive care in case of dependency than those living in larger households. According to our data, nearly 30 million (22%) Europeans aged 50 years and above currently live alone and another 50 million (53%) live with a spouse only (see Annex).

In view of the obviously unmet care needs described above, our data illustrate that care-related IST applications such as social support services, alarm services, remote monitoring and remote health care would presumably fall on fertile ground if adequately implemented.

**Figure 5 Percentage of older people in need of care services, 2001**

Source: © SeniorWatch, 2001

**Table 12 IST involvement of people with mobility restrictions among the EU 50+ population (in %)**

| IST involvement                 | Share of mobility restricted persons aged 50+ |
|---------------------------------|---|
| The experienced frontrunners    | 11.7  |
| The old age beginners           | 9.9   |
| The technologically open minded | 35.4  |
| The digitally challenged        | 43.0  |
| Total                           | 100.0   |

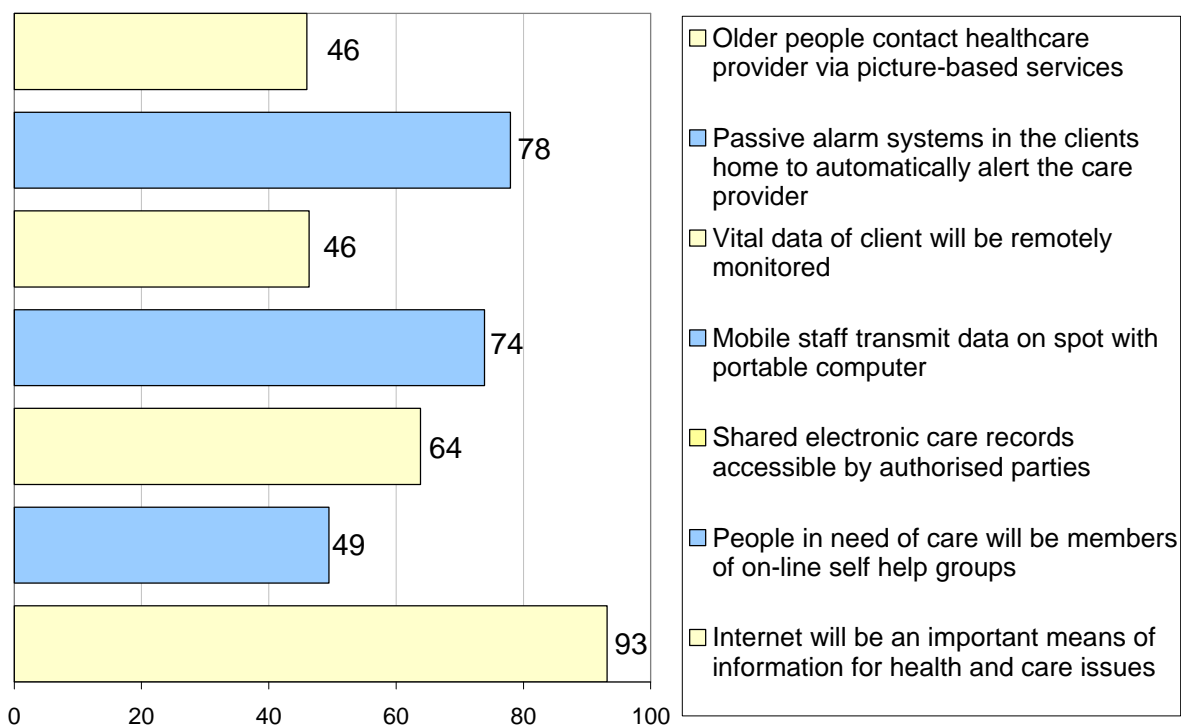
Base respondents with mobility restrictions (N=2950)

Source: © SeniorWatch, 2001

**Attitudes towards IST within the care sector**

Decision makers' attitudes towards IST implementation in care delivery processes as well as their expectations as to where the industry is moving in the field of IST are very positive. The care sector can today be described as very open-minded towards the implementation of innovative, IST-based care applications. Decision makers expect better and broader services that are empowering older people to lead an independent life for a longer time. They are sceptical, however, about the acceptance of IST-based services by their clientele (which is in considerable contrast to the attitudes of the majority of older people, see above), and about knowledge and skills among their staff. Nevertheless, they see that the road leads towards more intensive and widespread IST adoption within the industry. And a mid-term assessment of trends shows wide recognition of IST potentials (Figure 6).

**Figure 6 Assessment of future trends by home care services decision makers (in %), 2001**



Source: © SeniorWatch, 2001

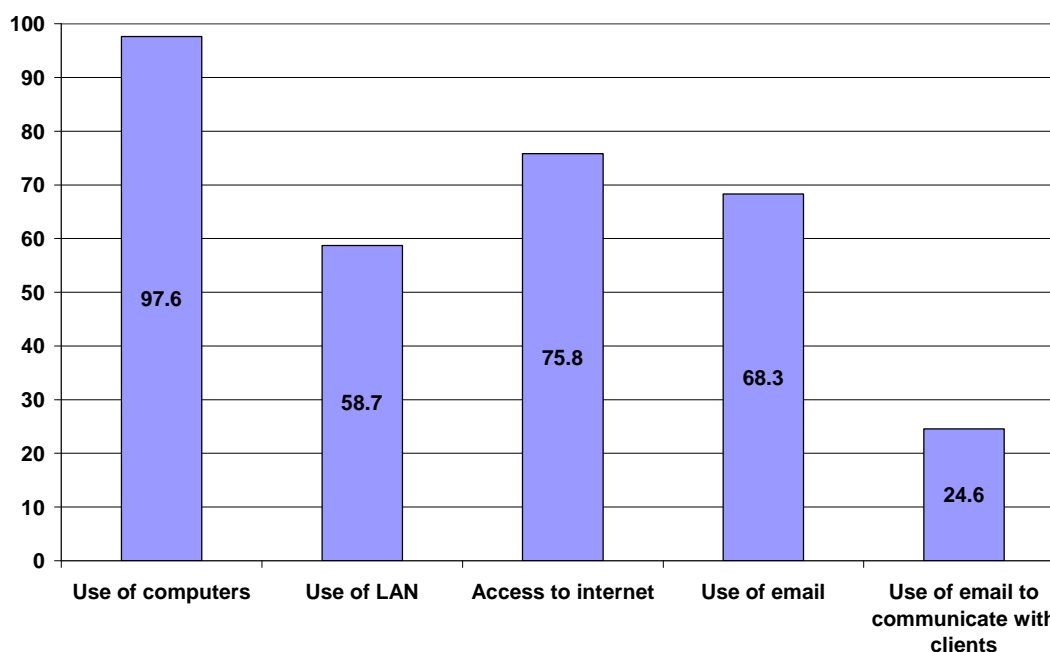
Thus, service organisations providing home care to older people appear to have by now recognised - at least at the management level - the potential which IST applications and services offer to improve their services, to streamline delivery processes, to reduce costs, and to gain competitive advantage. The market potential is considerable, and the market volume will grow rapidly in coming years. But it is not yet adequately addressed by both the ICT industry and service providers. New products and equipment have tended to be developed in an ad hoc manner with a dedicated functionality, such as bio-medical monitoring systems or device control technology. While these are useful in themselves, they so far offer little opportunity for “packaging”. Frail and disabled older people tend to have multiple needs and problems that change over time. Problems also occur in many different contexts, which makes each case unique. Thus technology solutions need to be flexible and responsive to individual needs. They must also offer comprehensive solutions with some degree of integration to allow multiple needs to be serviced within a unifying framework. In general, Issues of individualisation and adaptability (design-for-all) will become even more pressing as IST intelligence becomes more and more integrated into networked devices supporting all activities and needs of daily living including health care (ubiquitous networked computer intelligence).

### ***Intra-organisational characteristics of care service provider organisations***

Virtually all care establishments throughout the European Union are at least to some extent experienced with IST as regards administrative work. Actual home care delivery applications however - although decision makers are consciousness about the potential - are only just beginning to enter service delivery processes. Usage of IST products and software for internal processes is however becoming more and more pervasive. Computers and basic office applications are used in virtually every care enterprise today (Figure SEQARABIC7). Access

to the internet is also rapidly approaching full coverage with 76% connected today and another 12% planning to do so in the next one or two years.

**Figure 7 Usage (in %) of basic IST applications in European care establishments, 2001**



Source: © SeniorWatch, 2001

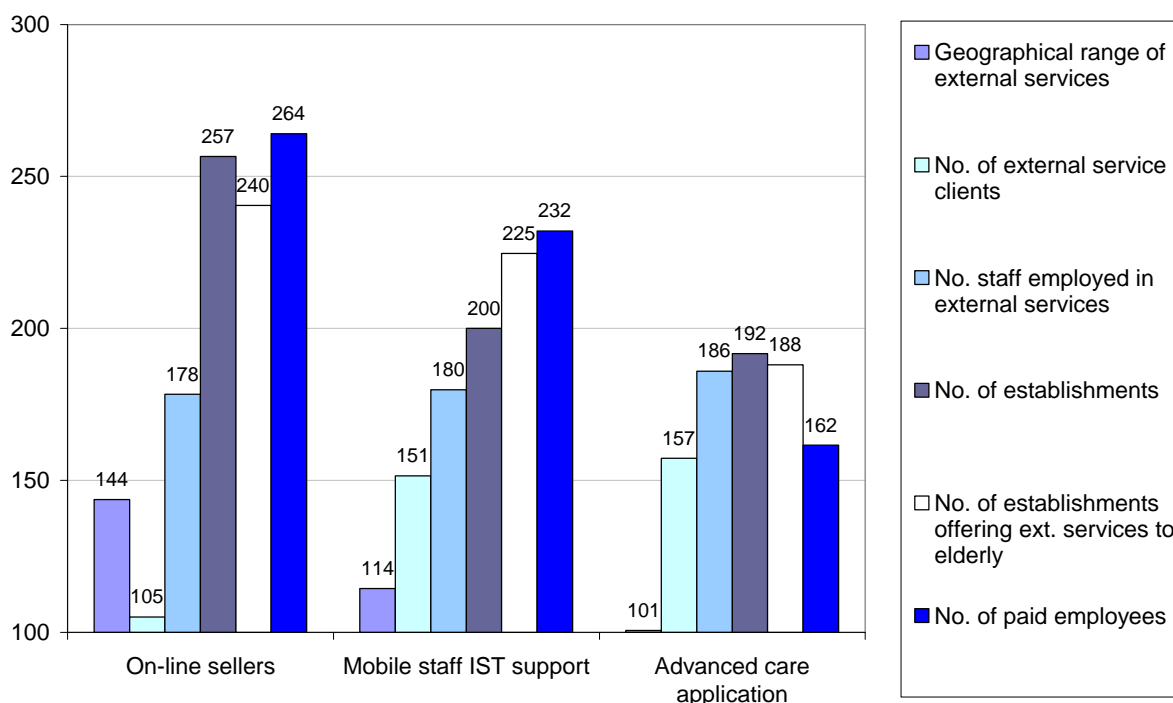
Business networks of care providers cover co-operation with partners like public authorities, medical professionals (physicians, therapists, hospitals) and other care services. However, IST mediated communication structures are hardly found within the sector as yet. Even use of e-mail and/or Electronic Data Interchange (EDI) with reimbursers - in other contexts often a standard application these days - is restricted to only a quarter of establishments, but it is on the investment agenda of many organisations currently. The majority of establishments (52%) have set up their own web site (see Annex). The functionality most often deployed is the most basic feature of any web site: advertising and marketing. Interactive services are only slowly taken up: 16% offer on-line service ordering opportunities, and another 14% plan to do so in the near future.

When it comes to ISTs applied in care delivery processes itself, support of mobile staff is the most relevant application field today. Mobile phones have become almost ubiquitous (82%) and growth in the up-take of laptops (from presently 24% to 35% within two years) and of hand-held computers (from 13% to 32%) for mobile workers is impressive. Decision makers expect an increased service quality from equipping mobile workers with such devices with respect to the speed to respond to emergencies, service delivery to rural areas and overall quality assurance. As to actual care applications of IST, social alarm services have gained a considerable market penetration with almost half of the establishments offering such services. Passive sensor alarm systems, electronic transfer of vital data, smart home technology and picture based tele-services have roused awareness of over half of the European decision makers, but uptake is merely in its initial phase.

Those who deploy advanced applications or offer advanced services are usually the large players in the home care market with many branch establishments, an above average number of staff and a geographically wider market (Figure SEQARABIC 8). Public enterprises are forerunners as regards the deployment of innovative care support applications, whereas pri-

vate enterprises and non-profit organisations more often use web-based e-commerce applications, and the latter also lead as regards mobile staff support (see Annex).

**Figure 8 Advanced IST users among European home care providers according to organisational size (index, total average = 100)**

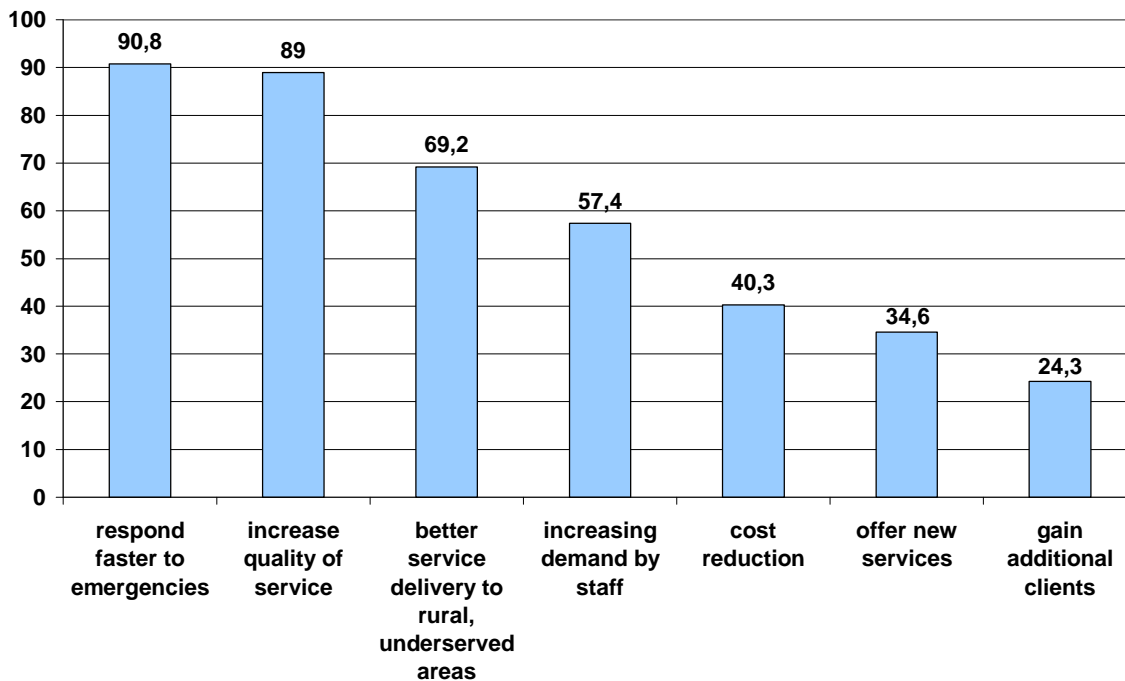


Standardised differences from the average values. The total arithmetic mean was set to 100. Reading example: The average geographical range of service delivery of on-line sellers is 144 percent of the total average, or 1.44 times as high as the total sample mean.

Source: © SeniorWatch, 2001, DMS (DMS00024)

As can be seen from Figure 9SEQARABIC, those decision makers who have decided to equip their care staff with mobile computing devices ground their decision in the first instance on arguments relating to the quality of service and not to cost saving potentials. In contrast, cost arguments are going to be put forward primarily by those organisations which have not utilised any mobile IST devices up to now (Figure 10). Here, about one half considers costs for mobile equipment as being too high for their organisation. Also one half states that their care establishment works well without applying such technologies. Other reasons for not applying mobile IST devices include the lack of knowledge about IST within the own organisation (26%), insufficient capabilities of the systems and devices currently available on the market (25%), and supposed reluctance of the care staff employed (17%).

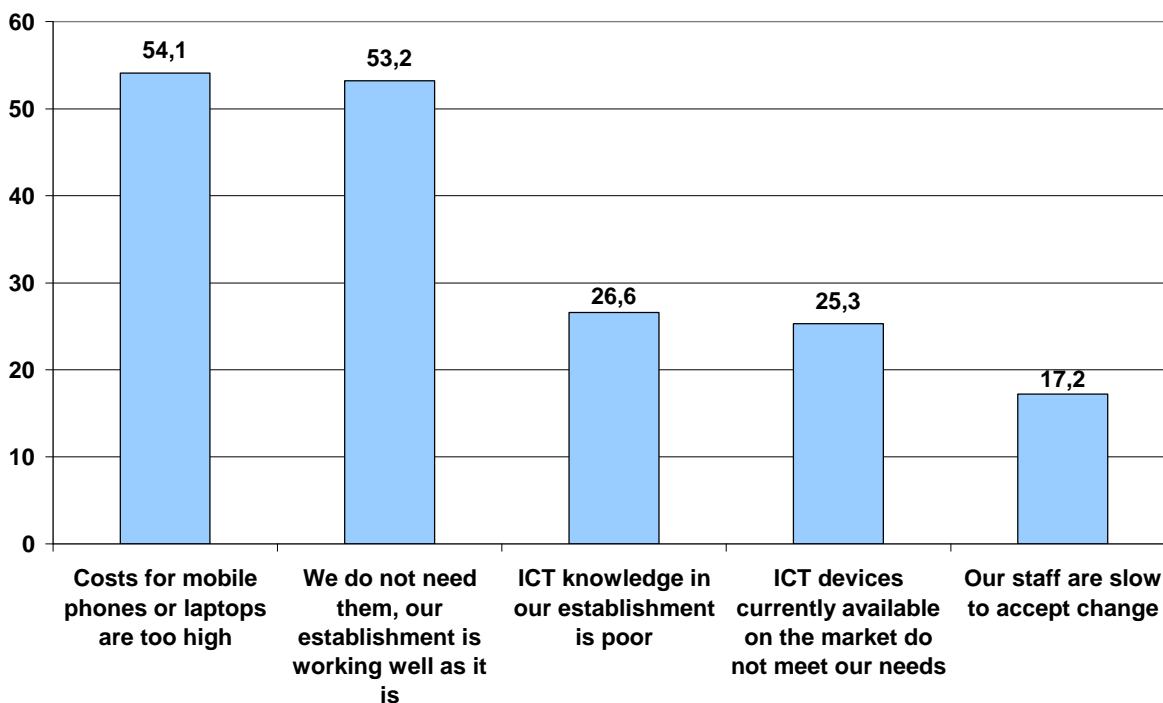
**Figure 9 Reasons for equipping field staff of European care establishments with IST (in %)**



Percentage base: Establishments that equip mobile workers with mobile phones, laptops or hand held computers, weighted according to European market share.

Source: © SeniorWatch, 2002, DMS (DMS00023)

**Figure 10 Reasons for not equipping field staff of European care establishments (in %)**



Percentage base: establishments that do not equip mobile workers with mobile phones, laptops or hand held computers, weighted according to European market share)

Source: © SeniorWatch, 2002, DMS (DMS00023)

## 4 Policy-related aspects influencing IST uptake among older people and carers

### *IST uptake among older Europeans*

The situation across Europe appears relatively uniform with regard to the presence of IS and ICT related plans and/or strategies with most Member States having such plans in place. It appears from the country reports that one of the main facilitating factors behind this acceleration in IS and ICT-related policies has been the e-Europe Action Plan. Across Europe there is also an emerging acknowledgement of the so-called 'digital divide' as a genuine threat to the acceleration of the Information Society and national policy. The main factor behind this cause for concern is the ever-increasing population of older Europeans, which is facilitating the recent implementation of initiatives and measures to decrease the digital divide. There is an increased political awareness of these demographic trends and a growing reformation of domestic legislation to extend the benefits of the IS to all with several countries specifically targeting older people in IS, ICT and IST policies and initiatives. Another facilitating factor is the significant contribution that the public sector has provided to the promotion of e-accessibility and the increasing awareness amongst the public sector that web-based services must not further exclude older people or increase the digital divide. General IST policies across Europe indicate that older people are also addressed in these policies in different ways, e.g., ICT access to all citizens, in particular ensuring access to ICTs through lifelong learning or in relation to the so-called 'digital divide'.

Current labour market shortages are also considered as a facilitating factor to the uptake of IST among older Europeans. Many European countries are experiencing significant labour shortages and some are actively encouraging older people to reconsider returning to the workforce. If this trend continues, the increased participation of older people in a labour market that demands knowledge of ISTs will create opportunities for training in the use of IST for older workers. This will lead to an older population that is increasingly knowledgeable about IST products, which in turn will lead to a more demanding older consumer. This growing penetration and familiarity will impact on other older people, especially the 'younger old' already within workforce. Labour market shortages are also driving policy and strategic measures in lifelong learning, IT training and education.

In general, there is an increased awareness of the role that ISTs and ICTs have to play in promoting active ageing, aiding communication, widening access to cultural opportunities, fostering interest and motivation, increasing the quality of life of older people, etc. However, perhaps the single most significant constraining factor existing within Europe is the absence of legislation to implement and enforce what have been significantly positive policy and regulatory moves. For example, there is almost a total absence of anti-discrimination, procurement and design-for-all/universal design legislation. This is due in part to a lack of coordination between the different policy lines to generate single pieces of legislation to meet the needs of older and disabled people in this area.

Other important pieces of legislation are also absent in most European countries, for example, telecommunications-related regulations. Such legislation generally enforces telecom suppliers to provide equipment and services aimed at meeting peoples' general needs and also any special needs, e.g., needs related to auditory, visual or tactile-related disability. Telecoms liberalisation legislation creates a more competitive environment with regard to call charges, and in some cases special pricing structures for older and/or disabled people. In several European countries, the high costs of telecoms persist and the lack of high-speed access remains a constraining factor to IST uptake. On the other hand, in those countries

with liberalisation legislation, costs of all telecoms (land and mobile) have been dropped, which in turn has increased usage rates amongst all population segments.

The absence of legislation is also removing the private sector from their responsibility to implement e-accessibility guidelines, universal design principles, procurement policy, etc. Because of this private market for ICT- and IST-based products and devices is construed as 'specialist' and not universal, which is maintaining high costs for so-called 'specialist products'. This economic issue does not seem relevant, as user-friendly design does not impose additional costs when considered at the early stages of product development. There is also a lack of awareness amongst industry of the market opportunities that the growing population of older people presents; for example, older people are often reported as the fastest growing Internet user group. However, some of these issues may be resolved by increasing consumer knowledge and subsequent demand for better products and services, increased access to ISTs and for reduced costs.

Another constraining factor to the uptake of IST amongst older Europeans is the absence of significant lobbying pressure from groups for older people. The existence of pressure groups lobbying at the policy level for older people is an important variable influencing whether the specific needs and rights of older people are addressed in IS or ICT-related policy or not. Almost all European countries reported the existence of lobby groups for older people and most reported that pressure groups were very active in lobbying issues for older people generally. However, the level of interest shown in ICT issues was generally not high and as a result, policy is formulated at a top-down level with little observed input from lobby groups. In general across Europe, no specific reference to empowering older people was found in public policy papers, nor is there any social welfare legislation or regulation taking into consideration ICT and older people, unless they are disabled or very frail that they are included in the healthcare sector. In the US, on the other hand, lobby groups are the most important catalyst influencing American policy and almost all pieces of new ICT- or IST-related legislation refer directly to older people.

### ***IST uptake in the European care sector***

The emphasis of current health and social care policy across Europe is to support independent living in the community and potential value of ISTs to support this endeavour has been recognised. Once again, one of the main facilitating factors is the rapid ageing of the European population and the need to find new means of providing care to this growing segment. A conflict of priorities within European nations in terms of healthcare resources is also evident and the uptake of IST within the care sector as a cost-effective solution to the care needs of older people is not been perceived as a priority. There is an absence of cost-benefit/effectiveness research to facilitate the introduction of IST as a possible resolution to meeting the increasing costs of an ageing European society.

In relation to care-related policy, there is a considerable amount of positive activity in this area, with existing and recent policies that address ICTs in general healthcare policy. However, the integration of IST in the care sector continues to be hampered by a continued lack of awareness amongst older people, family carers, professionals of the benefits that IST have to offer to older people from a healthcare and social perspective. This could be offset by the introduction of new care models that incorporate the integration of ISTs and ICTs as part of care strategies.

New approaches to care have also been constrained by licensing and privacy issues. Legislation is required to ensure that ISTs and ICTs are integrated in a sensitive way and that the introduction of new technology-based services that protect personal information and that do not imply loss of human contact. Despite the lack of legislation, there is an increased interest in telemedicine and telecare services and several countries have provided increased funding into research and development in this area. However, many successful pilot research and

development initiatives into telemedicine and ISTs/ICTs often cease after the pilot phase without any technology or knowledge transfer.

A less positive picture emerges in relation to ICT/IST policy in this area addressing older people or family carers. Family carers were reported as the main providers of homecare across Europe. Most countries have no explicit policy or initiatives in relation to the use of ISTs as an empowering tool for family carers, i.e., only two member states make specific reference to the use of ICTs in policy documents empowering family carers. . A conflict is emerging in relation to family carers, which could act as a considerable facilitating factor to IST uptake. On the one hand pressure is mounting from consumers for an alternative to long-term and institutional care and on the other hand family members are no longer willing to relinquish work etc., to take on the role of carer. IST has the potential to take up the 'slack' in this area, so to speak, because IST systems, such as passive alarm technology, telemedicine and telecare allow the older person to remain at home and can remotely inform family members of emergencies.

Despite the observed potential of IST products in the homecare market, this market remains unexploited. IST uptake within the homecare and telecare sector was examined as part of the country report task and the overall impression of the market is one of low maturity. The only significant IST-related activity in this sector is within the European active alarm services market, which showed that these are widely used in about half of the Member States. In general, the more advanced IST applications, such as passive alarm services, are only partially used and considered as 'an emerging technology' despite the use of relatively simple technology that has been available for several years. Other reported activity in this area included experimental work with smart home technology, domotica and telemedicine services. A major constraining factor to the uptake of IST equipment to support homecare is the limited availability of funding. The absence of legislation to provide carers with financial support must be addressed if the potential of ISTs as an alternative to long-term care is to have any impact on decreasing costs of care.

### ***Uptake of assistive technology in Europe***

Provision schemes of assistive technology (AT) vary considerably across Europe. To summarise, in some countries legislation is in place that explicitly deals with the AT issue and most Member States appear to have a relatively clearly defined AT service delivery process. Several players or sectors appear to be involved depending on the type of AT required and AT delivery processes are predominantly based at regional or local level with final decisions regarding eligibility based at this level also. However, in another cluster of EU countries processes range from very centralised and rigorous systems to poorly co-ordinated delivery processes.

Overall, the country reports highlighted an almost total absence of legislation in relation to AT, which was reflected by a poorly developed AT service and complicated AT delivery systems and processes in most Member States. In terms of actual access to and provision of care-related AT and ICT, one country (DK) appears to be the leading nation with all accessibility- and care-related technologies provided free of charge and almost no eligibility criteria being applied.

In relation to financial support, it is generally available in one form or another for AT equipment in most EU countries. However, the funding mechanisms involved do not appear very clearly defined and are often dependent on more specific aspects of eligibility for financial support for equipment. For example, the existence of a 'list' of AT (often outdated and not including IST/ICT-based devices) equipment, disability classification, financial circumstances, the usage context for the device, e.g., occupational, educational, daily living, etc., or may be based on price limits, i.e. support only provided up to a certain cost limit. The existence of

these strict eligibility criteria is a significant constraining factor to the uptake of IST and AT devices, products and services across Europe.

The increasing costs of healthcare are prompting governments' needs to diversify care solutions. Information from the country reports suggests that well-developed healthcare insurance systems are in place in most European countries, however reimbursement schemes generally do not provide for IST/ICT-related care equipment. Care-related ICTs remain expensive and the lack of a single European protocol for design standards for such equipment is constraining the implementation of reimbursement schemes. There is an almost complete absence of legislation in all areas pertinent to AT, including design-for-all, insurance, equality of access, delivery processes, reimbursement procedures, etc., which is obviously the major constraining factor to the uptake of AT in Europe.

## 5 Summary assessment

A wide variety of factors facilitate or constrain broader uptake of IST-based services and systems among older people in the European Union. These concern personal needs and attitude of older Europeans, but also socio-economic circumstances they live in. Apart from this, more environmental factors such as structural aspects of the care sector and policy related aspects are concerned. A Summary assessment of these factors is provided in Table 13 below. With respect to identifying options for strategic actions aiming at accelerating IST uptake among older Europeans, the following can be concluded from this:

1. Considerable user potentials have not yet been adequately addressed by IST manufacturers and service providers. In particular, the design-for-all philosophy has not yet won enough recognition. The wide prevalence of functional restrictions calls for ubiquitous design for all solutions, and this does not only concern the older age cohorts.
2. Lack of skills and of IST-related knowledge hinders many older Europeans – even those who have already gained hands-on experience with computer technology – to fully exploit ISTs for their purposes. Also, for most older Europeans the Internet is still something rather unspecific that they do not yet associate concrete benefits with.
3. The digital divide among older Europeans is currently an expression of an overall social divide rather than a cause of it. Coaction of various dimension of socio-economic stratification has an impact on whether or not older Europeans utilise ISTs for their purposes. Generally speaking, those who use ISTs tend to be younger and better educated, they tend to have an active life style and are usually better off in economic terms. Since the use of digital technologies will continue to play a key role in the future Information Society there is however a danger of mutual reinforcement. Older people from disadvantaged social groups who cannot afford and/or do not want to utilise ISTs are threatened to fall further behind and to become excluded from emerging Information Society opportunities. The “digitally challenged” – currently about one third of the EU 50+ population - are thus at risk of being left behind as the so called knowledge-based society further progresses.
4. There are considerable national disparities as regards current diffusion of IST applications and devices among the European 50+ population. However, untapped user potentials are considerable in some Member States due to the relative high share of “technologically open minded” (i.e. the share of people who are generally interested in ISTs although they actually not use them) in their overall 50+ populations. This offers opportunities to alleviate the north/south gradient which can currently be observed with respect to IST diffusion among the EU 50+ population. Some Member States are however at risk of falling even further behind, due to the relative high share of “want-nots” in their overall 50+ population.
5. Despite considerable potential demand, the market for care-related IST applications is still in its infancy. In particular structural characteristics of the care sector hamper broader adoption of IST based solutions within this arena. Particularly with respect to smaller care establishments, cost considerations and lack of perceived benefits, as well as lack of intra-organisational knowledge hamper utilisation of IST-based solutions within day-to-day care practice. Also, IST solutions currently on the market do obviously not always meet the requirements care service provider organisations actually have.
6. Main stream services and devices – even if they were designed in accordance with the design-for-all philosophy – are not capable of catering for all functional restricted. However, structural characteristics of the assistive technology sector hamper provision of innovative IST-based solutions to older people with severe functional restrictions. In particular, funding mechanisms involved do not appear very clearly defined and are often dependent on more specific aspects of eligibility for financial support for equipment. The

existence of strict eligibility criteria is a significant constraining factor to the uptake of IST-based AT devices, products and services across Europe. From a supply-side perspective, the EU-wide market place remains fragmented due to the diversity of national AT delivery systems and regulations currently in place across the EU.

7. There is a considerable amount of positive activity across the European Union in relation to policy aiming at accelerating IST uptake among older people and/or car service providers. It appears that EU initiatives such as the e-Europe Action Plan have been a main driver behind this acceleration in IST-related national policies. Across Europe there is also an emerging acknowledgement of the so called 'digital divide' as a genuine threat to the acceleration of the Information Society and related national policies. However, there is a lack of integration of policies pursued on the national level and on the EU level.

**Table 13 Factors facilitating and constraining IST uptake among older Europeans**

|   |   |
|---|---|
| <b>Skills &amp; attitudes</b>   | <p><b>C</b> With respect to IST involvement, older Europeans are indeed no homogeneous population group. The majority (about two third) of older Europeans is however generally pen minded towards IST, and even about one half of the 70+ is at least interested in IST.</p> <p><b>C</b> A considerable proportion (40%) of the EU 50+ population has already gained hands-on experience with computer technology. In particular, experience gained within an occupational context has a major impact on older people's propensity to generally engage themselves in ISTs. In other words, those who use ISTs at their work place are very likely to keep on using these technologies when they retire. However, those who have no opportunity to get in touch with IST at the work place are less likely to become involved later on.</p> <p><b>C</b> There is a considerable untapped user potential within Europe's 50+ population. About 35 million older Europeans (29%) who do currently not use computer technology wish to improve their computer skills or are at least keen on learning about new technologies.</p> <p><b>D</b> About one third of the EU 50+ population belongs to the "want nots". This group may be most difficult to address when aiming at accelerating IST uptake among older people.</p> <p><b>D</b> Many older people – despite their general interest in IST – lack necessary skills to fully utilize IST products and services for their purposes. For instance, the majority of those who have already gained hands-on experience with computer technology possess merely rudimentary computing skills or even states to have 'virtually do not have a clue'.</p> |
| <b>Functional restrictions impeding IST usage</b>                         | <p><b>C</b> According to our data, older people suffering from severe functional restrictions are not less interested in ISTs than their non-restricted counter parts. Those who have only slight restrictions are even more keen on leaning about new technologies than those who have no restrictions at all.</p> <p><b>D</b> When it comes to computer usage in particular, older people with functional restricted are less likely to utilize this technology for their purposes compared with those who are not restricted in this respect.</p>  |
| <b>Coactions of demographic, socio-economic and life style dimensions</b> | <p><b>C</b> Involvement in ISTs cannot merely be regarded as a matter of age. Rather, various dimension of socio-economic stratifications have an impact on whether or not older Europeans utilize ISTs for their purposes. For instance, the better educated "older old" are more involved in ISTs than the less educated "younger old". Generally speaking, those who use IST tend to be younger and better educated, they tend to have an active life style and are usually better off in economic terms.</p> <p><b>C</b> The interest in ISTs among the European 50+ population can be expected to increase over the coming years due to cohort effects. For instance, computer technology has increasingly diffused throughout all kinds of working environments during recent years, and – according to our data – this will inevitably have a strong impact on older employee's propensity also to utilize ISTs as retirees. The emergence of a more active generation of older people (which have occasionally be called the "new old") may take effect in the same direction, as an active life style facilitates IST usage according to our data.</p> <p><b>D</b> The digital divide among older Europeans is currently an expression of an overall social divide rather than a cause of it. Since the use of digital technologies will continue to play a key role in the future Information Society there is however a danger of mutual reinforcement. People from disadvantaged social groups who cannot afford/do not want to use ISTs are threatened to fall</p>   |

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|   | <p>further behind and to become excluded from emerging Information Society opportunities. This can be understood as an interconnected social process of exclusion. Thus, the cohort effects described above will – by themselves - not lead to entire disappearance of the current digital divide among older Europeans.</p>  |
| <b>Regional aspects and national peculiarities</b>              | <p><b>C</b> With respect to special dimensions (urban vs. rural) the place of living has almost no effect on older European’s propensity to become involved in ISTs.</p> <p><b>C</b> Untapped IST user potentials are considerable in some Member States due to the relative high share of “technologically open minded” (i.e. the share of people who are generally interested in ISTs although they actually not use them) in their overall 50+ populations. This offers opportunities to alleviate the north/south gradient currently observable with respect to IST utilization among the EU 50+ population.</p> <p><b>D</b> Some Member States are at risk of falling even further behind, due to the relative high share of “want-nots” in their overall 50+ population.</p>  |
| <b>Interest in on-line-applications</b>                         | <p><b>C</b> When it comes to concrete applications of the Internet ( i.e. in things which can be done online) interest in the online world increases considerably when compared with interest in Internet access as such. In particular on-line information concerning local and health issues receive high interest among both groups, Internet users as well as non-users. This indicates that there is a considerable untapped user potential for online-applications.</p> <p><b>D</b> For most older Europeans the Internet is still something rather unspecific that they do not yet associate concrete benefits with. People already using on-line applications can more easily grasp the potentials of new services they do not yet use. Owing to previously experienced benefits, the benefits they may be able to derive from new applications appear more tangible to them.</p>   |
| <b>Health-related needs of older Europeans</b>                  | <p><b>C</b> Care-related IST applications are of particular interest for older people as they tend to be more in need of care than the average citizen. According to our data the potential demand is considerable among the EU 50+ population. For instance, of the 62% of the older population in the European Union suffering from at least one chronic disease, 22% or 17 million persons are what we have called “experienced frontrunners” many of whom have expressed a serious interest in various e-health applications. And appropriately targeting the “old age beginners” and “technology open minded” will considerably enlarge the number of potential users.</p> <p><b>D</b> Actual usage of health-related applications is still relatively low, and this may well reflect that the available services do not yet adequately take into account the functional and computer literacy restrictions potential users have to cope with. And, not to forget, in most countries the (national) health care system is not yet prepared for the technical, organizational, financial and social challenges the wider application of e-health implies.</p> |
| <b>Needs in respect of coping with activities of daily life</b> | <p><b>C</b> Due to currently unmet care needs, IST applications aiming at adequately supporting older people who have problems in coping with activities of daily life would presumably fall on fertile ground. According to our data, there is a gap between the proportion of people who regularly need care and those who actually receive care, and the overall demand for support will increase due to demographic developments and due to developments concerning older people’s living arrangements (e.g. prevalence of single households)</p> <p><b>D</b> The prime target groups for IST-based support services such as the mobility restricted tend to belong to the “want-nots” or have to cope with considerable functional and computer literacy restrictions. Thus, they can be supposed to put high demands on the usability of IST systems and devices involved. Moreover, the benefits they may be able to gain through IST applications</p>   |

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| <p><b>Attitudes towards IST within the care sector</b></p>                    | <p>needs to be communicated to them in an adequate manner.</p> <p><b>C</b> Overall, the care sector can today be described as very open-minded towards the implementation of innovative, IST-based care applications. Decision makers' attitudes towards IST implementation in care delivery processes as well as their expectations as to where the industry is moving in the field of IST are very positive. They expect concrete benefits from applying IST-based solutions within the care arena, and expect better and broader services that are empowering older people to lead an independent life for a longer time.</p> <p><b>D</b> Decision makers are skeptical about the acceptance of IST-based services by their clientele (which is in considerable contrast to the attitudes of the majority of older people according to our data). Moreover, they assess lacking knowledge and skills among their staff as a hindering factor for rapid IST implementation within the care process.</p>  |
| <p><b>Intra-organisational aspects at the side of care establishments</b></p> | <p><b>C</b> Virtually all care establishments throughout the European Union are at least to some extent experienced with IST as regards administrative work. Usage of IST products and software for internal processes is becoming more and more pervasive. Computers and basic office applications are used in virtually every care enterprise today. Access to the Internet is also rapidly approaching full coverage with 76% connected today and another 12% planning to do so in the next one or two years.</p> <p><b>C</b> When it comes to ISTs applied in care delivery processes itself, particularly IST support of mobile staff is gaining in importance within the care arena. Mobile phones have become almost ubiquitous (82%) and growth in the uptake of laptops (from presently 24% to 35% within two years) and of hand-held computers (from 13% to 32%) for mobile workers is impressive. Decision makers expect an increased service quality from equipping mobile workers with such devices with respect to the speed to respond to emergencies, service delivery to rural areas and overall quality assurance. Expected cost reductions do however not play a prominent role in this context.</p> <p><b>C</b> Social alarm services are going to become wide spread within the care sector (at least in some countries). Overall, almost half of the establishments surveyed offer such services, and this may open up opportunities for extending existing services in terms of more advanced service concepts and IST systems. For instance, passive sensor alarm systems, electronic transfer of vital data, smart home technology and picture based tele-services have roused awareness of over half of the European decision makers (but uptake is merely in its initial phase).</p> <p><b>C</b> Actual home care delivery applications - although decision makers are consciousness about the potential - are only just beginning to enter service delivery processes, and IST mediated communication structures between the various institutional parties involved are hardly found within the sector as yet. Even use of e-mail and/or Electronic Data Interchange (EDI) with reimburses - in other contexts often a standard application these days - is restricted to only a quarter of establishments surveyed. Those who deploy advanced applications or offer advanced services are usually the large players in the home care market with many branch establishments, an above average number of staff and a geographically wider market</p> <p><b>D</b> Those decision makers who have equipped their care staff with mobile devices ground their decision in the first instance on arguments relating to the quality of service and not to cost saving potentials. In contrast, for those who have not yet utilized ISTs within the care process cost arguments and lack of perceived benefits appear to play the major role. Other hindrances include the lack of intra-organizational knowledge about IST, insufficient capabilities</p> |

of relevant devices and systems currently available on the market, and presumed reluctance at the side of the care staff.

**Policy-related aspects concerning IST uptake among older Europeans**

- C** Most European Member States have plans and/or strategies in place related to the Information Society (IS) and Information and Communications Technology (ICT). It appears from the country reports that one of the main facilitating factors behind this acceleration in IS and ICT-related policies has been the e-Europe Action Plan. Older people are addressed in these policies in different ways, e.g., ICT access to all citizens, in particular ensuring access to ICTs through lifelong learning or in relation to the so-called 'digital divide'. Overall, there is an emerging acknowledgment of the 'digital divide' as a genuine threat to the acceleration of the Information Society and national policy.
- C** There is an increased political awareness of demographic trends and a growing reformation of domestic legislation to extend the benefits of the IS to all with several countries specifically targeting older people in IS, ICT and IST policies and initiatives.
- C** The public sector has provided significant contribution to the promotion of e-accessibility and the increasing awareness amongst the public sector that web-based services must not further exclude older people or increase the digital divide.
- C** Many European countries are experiencing significant labour shortages and some are actively encouraging older people to reconsider returning to the workforce. If this trend continues, the increased participation of older people in a labour market that demands knowledge of ISTs will create opportunities for training in the use of IST for older workers.
- C** In general, there is increased awareness of the role that ISTs have to play in promoting active ageing, aiding communication, widening access to cultural opportunities, fostering interest and motivation, increasing the quality of life of older people, etc.
- C** Telecoms liberalization legislation creates a more competitive environment with regard to call charges, and in some cases special pricing structures for older and/or disabled people. Costs of all telecoms (land and mobile) have been dropped, which in turn has increased usage rates amongst all population segments. In several European countries, relatively high costs of telecoms however prevail.
- D** Almost all European countries reported the existence of lobby groups for older people and most reported that pressure groups were very active in lobbying issues for older people generally. However, the level of interest shown in IST issues was generally not high and as a result, policy is formulated at a top-down level with little observed input from lobby groups.
- C** In general across Europe, no specific reference to empowering older people was found in public policy papers, nor is there any social welfare legislation or regulation taking into consideration IST and older people, unless they are disabled or very frail that they are included in the healthcare sector. In the US, on the other hand, lobby groups are the most important catalyst influencing American policy and almost all pieces of new IST-related legislation refer directly to older people.
- D** A significant constraining factor existing within Europe is the absence of legislation to implement and enforce what have been significantly positive policy and regulatory moves. For example, there is almost a total absence of anti-discrimination, procurement, design-for-all/universal design and telecommunications-related legislation that enforces telecom suppliers to provide equipment and services aimed at meeting older peoples' needs. This is due

in part to a lack of co-ordination between the different policy lines to generate single pieces of legislation in order to meet the needs of older and disabled people in this area.

- D** The absence of legislation is also removing the private sector from its responsibility to implement e-accessibility guidelines, universal design principles, procurement policy, etc. Because of this private market for IST-based products and devices is construed as ‘specialist’ and not universal, which is maintaining high costs for so-called ‘specialist products’.

**Policy-related aspects concerning IST uptake in the care sector**

- C** The increasing costs of healthcare are prompting governments’ needs to diversify care solutions.
- C** Information from the country reports suggests that well-developed healthcare insurance systems are in place in most European countries which –at least in principle – constitute a suitable (legal, financial, etc.) framework for broader implementation of IST-based solutions.
- C** The emphasis of current health and social care policy across Europe is to support independent living in the community and potential value of ISTs to support this endeavor has been recognized. Once again, one of the main facilitating factors is the rapid ageing of the European population and the need to find new means of providing care to this growing segment.
- C** There is an increased interest in telemedicine and telecare services and several countries have provided increased funding into research and development in this area.
- D** A conflict of priorities within European nations in terms of healthcare resources is evident and the uptake of IST within the care sector as a cost-effective solution to the care needs of older people is not being perceived as a priority. There is an absence of cost-benefit/effectiveness research to facilitate the introduction of IST as a possible resolution to meeting the increasing costs of an ageing European society.
- D** Many successful pilot research and development initiatives into telemedicine and ISTs often cease after the pilot phase without any technology or knowledge transfer.
- D** Reimbursement schemes generally do not provide for IST-related care equipment. Care-related ISTs remain expensive and the lack of a single European protocol for design standards for such equipment is constraining the implementation of reimbursement schemes.
- D** New approaches to care have also been constrained by licensing and privacy issues. Legislation is required to ensure that ISTs are integrated in a sensitive way and that the introduction of new technology-based services that protect personal information and that do not imply loss of human contact.
- D** Family carers were reported as the main providers of homecare across Europe. Most countries have however no explicit policy or initiatives in relation to the use of ISTs as an empowering tool for family carers, i.e., only two member states make specific reference to the use of ISTs in policy documents empowering family carers.
- D** A major constraining factor to the uptake of IST-based solutions to support homecare is the limited availability of funding. The absence of legislation to provide carers with financial support must be addressed if the potential of ISTs as an alternative to long-term care is to have any impact on decreasing costs of care.

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**Policy-related aspects concerning IST uptake in the assistive technology sector**

- C** Assistive technology (AT) delivery schemes are in place in all European Member States, and financial support is generally available in one form or another for AT equipment in most EU countries.
- D** Funding mechanisms involved do not appear very clearly defined and are often dependent on more specific aspects of eligibility for financial support for equipment. For example, the existence of a 'list' of AT (often outdated and not including IST/ICT-based devices) equipment, disability classification, financial circumstances, the usage context for the device (occupational, educational, daily living, etc.), or may be based on price limits (support only provided up to a certain cost limit). The existence of these strict eligibility criteria is a significant constraining factor to the uptake of IST and AT devices, products and services across Europe.
- D** There is an almost complete absence of legislation in all areas pertinent to AT, including design-for-all, insurance, equality of access, delivery processes, reimbursement procedures, etc., which is obviously the major constraining factor to the uptake of AT in Europe.
- D** Due to the diversity of national AT delivery systems the EU-wide market place remains fragmented. Several players or sectors appear to be involved depending on the type of AT required and AT delivery processes are predominantly based at regional or local level with final decisions regarding eligibility based at this level also. Overall, AT delivery processes range from very centralised and rigorous systems to poorly co-coordinated delivery processes. This situation makes it difficult to address EU-wide markets with IST-based AT products.
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# **Annex**

## **Selected data from the SeniorWatch user surveys**

**Table 14 General Demography of Survey Respondents**

|  | n           | %           |  | n    | %    |
|--|-------------|-------------|--|------|------|
| <b>Sex</b>   |             |             | <b>Type of household</b>   |      |      |
| Female   | 5368        | 55.6        | single, living alone   | 2128 | 22.0 |
| Male   | 4293        | 44.4        | single, other household members  | 846  | 8.8  |
| <b>Age</b>   |             |             | couple, no other household members   | 4231 | 43.8 |
| <b>50 – 59</b>   | <b>3434</b> | <b>35.5</b> | couple, other household members  | 2402 | 24.9 |
| <b>60 – 69</b>   | <b>3018</b> | <b>31.2</b> | missing data   | 54   | .6   |
| <b>70 – 79</b>   | <b>2449</b> | <b>25.3</b> | <b>Number of persons in household aged 50 and older (incl. respondent)</b> |      |      |
| <b>80+</b>   | <b>761</b>  | <b>7.9</b>  | one person   | 3127 | 32.4 |
| <b>Marital status</b>  |             |             | two persons  | 5995 | 62.0 |
| Married  | 6507        | 67.3        | three persons  | 390  | 4.0  |
| Living with partner  | 226         | 2.3         | four persons   | 123  | 1.3  |
| Single, never married  | 488         | 5.1         | five persons +   | 20   | .2   |
| Divorced   | 427         | 4.4         | missing data   | 7    | .1   |
| Separated  | 119         | 1.2         | <b>Persons in household aged 15 and younger</b>                            |      |      |
| Widowed  | 1631        | 16.9        | none   | 9133 | 94.5 |
| Living alone n.o.s. <sup>19</sup>                                    | 193         | 2.0         | one person   | 349  | 3.6  |
| missing data   | 70          | .7          | two persons  | 98   | 1.0  |
| <b>Number of Children (living, not necessarily in the household)</b> |             |             | three persons  | 24   | .3   |
| 0  | 1504        | 15.6        | four persons   | 19   | .2   |
| 1  | 1967        | 20.4        | five persons +   | 5    | .1   |
| 2  | 3278        | 33.9        | missing data   | 33   | .3   |
| 3  | 1573        | 16.3        | <b>Household members (at least one...)</b>                                 |      |      |
| 4  | 686         | 7.1         | child / child in law   | 2751 | 28.5 |
| 5  | 287         | 3.0         | parent / parent in law   | 368  | 3.8  |
| 6  | 124         | 1.3         | other family member / relative   | 471  | 4.9  |
| 7+   | 125         | 1.3         | non-relative   | 122  | 1.3  |
| missing data   | 117         | 1.2         | <b>Type of area respondent lives in</b>                                    |      |      |
| <b>Household size</b>  |             |             | Rural  | 3156 | 32.7 |
| one person   | 2128        | 22.0        | Small town   | 3137 | 32.5 |
| two persons  | 4661        | 48.2        | Suburban   | 1607 | 16.6 |
| three persons  | 1473        | 15.2        | Urban  | 1684 | 17.4 |
| four persons   | 876         | 9.1         | missing data   | 77   | .8   |
| five persons +   | 517         | 5.4         |  |      |      |
| missing data   | 6           | .1          |  |      |      |

Base: All respondents (N=9661).

<sup>19</sup> n.o.s.: not otherwise specified.

Source: © SeniorWatch, 2001

**Table 15 Computer involvement by demographics**

|  | The experi-<br>enced front-<br>runners | The old age<br>beginners | The techno-<br>logically open<br>minded | The digitally<br>challenged | Total | N    | H      |
|--|--|--------------------------|---|-----------------------------|-------|------|--------|
| <b>Age (mean)</b>                          | 59.2                                   | 63.2                     | 66.4                                    | 68.5                        | 64.7  | 9662 | .375** |
| <b>Sex<br/>(% female)</b>                  | 41.3%                                  | 58.9%                    | 58.6%                                   | 63.5%                       | 55.6% | 9662 | .165** |
| <b>Social grade<br/>(% A<sup>20</sup>)</b> | 40.3%                                  | 29.2%                    | 15.4%                                   | 8.9%                        | 22.6% | 8327 | .420** |
| <b>Income<br/>(% ++)</b>                   | 37.1%                                  | 19.3%                    | 11.5%                                   | 6.6%                        | 17.9% | 9306 | .404** |

\*\*:  $\alpha < .01$

Source: © SeniorWatch, 2002

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<sup>20</sup> Managers and professionals

Table 16 Computer access and usage (row %)

|                             |  | computer at home | Ever used computer | Frequent computer user | Use of computer at work-place |
|-----------------------------|--|------------------|--------------------|------------------------|-------------------------------|
| <b>Total</b>                |  | 36.1             | 39.6               | 26.6                   | 25.7                          |
| <b>Age</b>                  | 50 – 59  | 56.8             | 59.1               | 46.3                   | 43.4                          |
|                             | 60 – 69  | 31.6             | 38.7               | 22.0                   | 23.8                          |
|                             | 70 – 79  | 19.0             | 22.0               | 11.0                   | 10.5                          |
|                             | 80+  | 16.0             | 12.1               | 6.2                    | 2.6                           |
| <b>Gender</b>               | Female   | 31.6             | 33.5               | 19.7                   | 20.1                          |
|                             | Male   | 41.8             | 47.2               | 35.2                   | 32.8                          |
| <b>Social Grade</b>         | unskilled manual workers and other less well educated worker | 21.9             | 22.7               | 13.1                   | 12.5                          |
|                             | skilled workers and non-manual employees                     | 40.6             | 49.3               | 31.2                   | 33.5                          |
|                             | well educated non-manual and skilled workers                 | 49.4             | 58.9               | 40.9                   | 39.7                          |
|                             | managers and professionals                                   | 61.1             | 69.2               | 50.5                   | 49.3                          |
| <b>Income</b>               | --   | 12.9             | 17.4               | 7.6                    | 8.4                           |
|                             | -  | 29.9             | 33.2               | 19.6                   | 18.8                          |
|                             | +  | 48.6             | 51.2               | 35.7                   | 33.1                          |
|                             | ++   | 64.9             | 69.8               | 55.6                   | 54.2                          |
| <b>Activity index</b>       | --   | 21.0             | 16.7               | 10.0                   | 9.9                           |
|                             | -  | 33.8             | 36.1               | 23.8                   | 22.5                          |
|                             | +  | 41.4             | 47.1               | 32.0                   | 31.6                          |
|                             | ++   | 47.8             | 59.8               | 41.3                   | 40.6                          |
| <b>Computer involvement</b> | The experienced frontrunners                                 | 81.6             | 100.0              | 87.4                   | 75.2                          |
|                             | The old age beginners  | 33.1             | 100.0              | 6.3                    | 43.9                          |
|                             | The technologically open minded                              | 20.7             | 0.0                | 0.0                    | 0.0                           |
|                             | The digitally challenged                                     | 12.9             | 0.0                | 0.0                    | 0.0                           |
| <b>Impairment</b>           | not at all   | 42.4             | 47.0               | 32.9                   | 33.1                          |
|                             | at least one light impairment                                | 35.6             | 38.7               | 26.2                   | 24.0                          |
|                             | at least one serious impairment                              | 26.5             | 28.9               | 16.9                   | 16.9                          |
|                             | serious impairment: vision                                   | 28.7             | 30.9               | 18.2                   | 18.0                          |
|                             | serious impairment: hearing                                  | 30.4             | 33.8               | 21.9                   | 16.1                          |
|                             | serious impairment: dexterity                                | 17.4             | 16.9               | 8.2                    | 9.4                           |

Base: All respondents

Source: © SeniorWatch, 2002

**Table 17 Computer involvement - percentage of experienced frontrunners by age and educational attainment**

| educational attainment<br>(age finishing full time education) | Age     |         |         |      |
|---|---------|---------|---------|------|
|   | 50 - 59 | 60 - 69 | 70 - 79 | 80+  |
| -13   | 8.5     | 5.4     | 2.6     | 0    |
| 14  | 25.5    | 6.7     | 3.0     | 3.7  |
| 15-16   | 43.5    | 16.8    | 9.3     | 4.9  |
| 17-20   | 49.5    | 32.3    | 17.5    | 7.7  |
| 21+   | 72.3    | 51.7    | 33.8    | 16.7 |

Base: All respondents

Source: © SeniorWatch, OPS

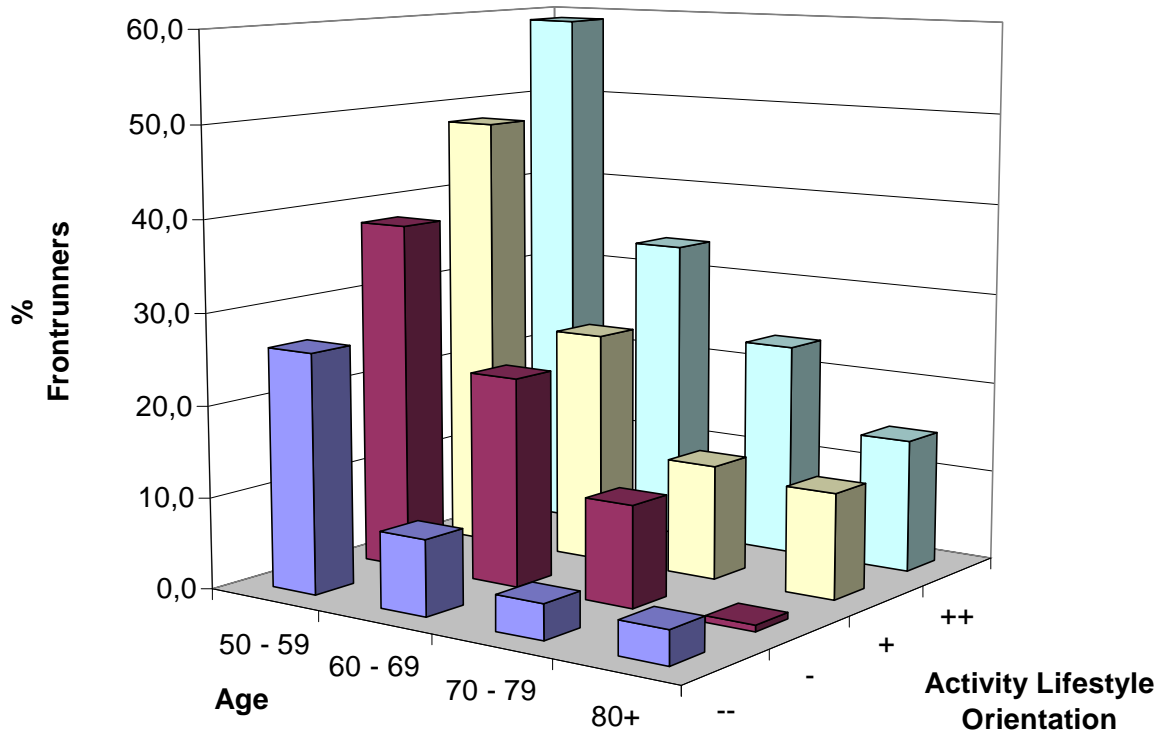
**Table 18 Computer involvement - percentage of experienced frontrunners by age and activity orientation**

| activity lifestyle orientation | Age     |         |         |      |
|--------------------------------|---------|---------|---------|------|
|                                | 50 - 59 | 60 - 69 | 70 - 79 | 80+  |
| --                             | 26.2    | 8.3     | 3.9     | 3.7  |
| -                              | 38.1    | 22.8    | 11.1    | 0.7  |
| +                              | 48.1    | 25.3    | 12.5    | 11.6 |
| ++                             | 59.0    | 33.6    | 23.5    | 14.6 |

Base: All respondents

Source: © SeniorWatch, 2002

**Figure 11 Computer involvement - percentage of experienced frontrunners by age and activity orientation**



Base: All respondents

Source: © SeniorWatch, 2002

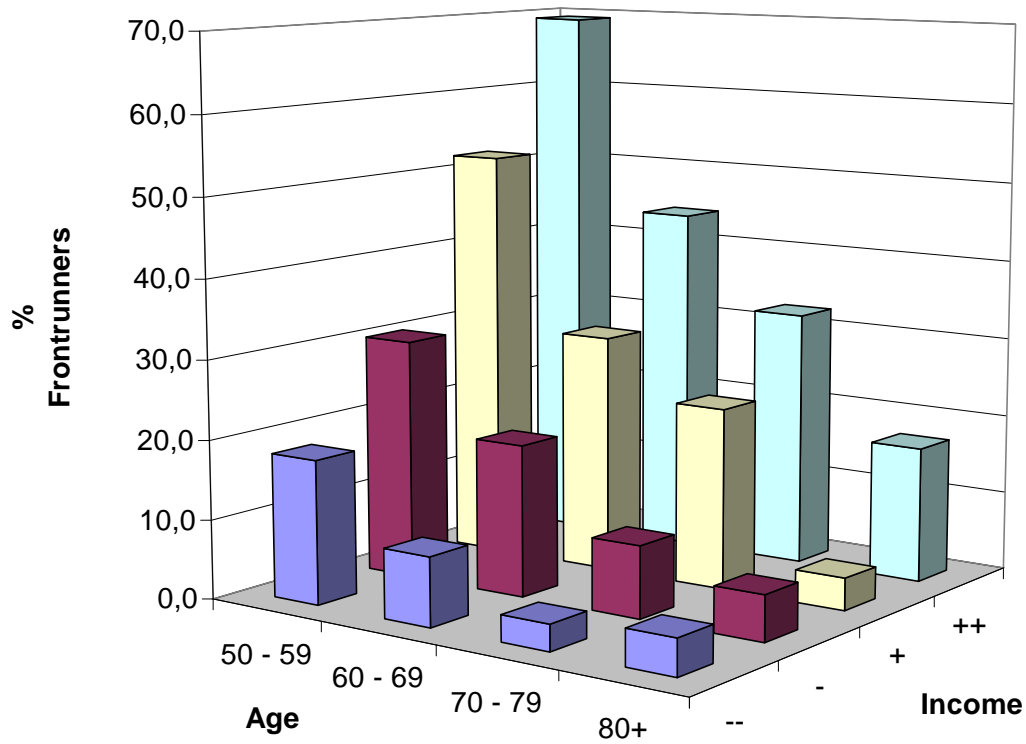
**Table 19 Computer involvement - percentage of experienced frontrunners by age and income**

| Income | Age     |         |         |      |
|--------|---------|---------|---------|------|
|        | 50 - 59 | 60 - 69 | 70 - 79 | 80+  |
| --     | 18.1    | 8.7     | 3.3     | 4.6  |
| -      | 30.3    | 19.1    | 9.1     | 5.8  |
| +      | 52.1    | 30.1    | 22.9    | 4.1  |
| ++     | 69.3    | 44.1    | 32.4    | 17.1 |

Base: All respondents

Source: © SeniorWatch, 2002

**Figure 12 Computer involvement - percentage of experienced frontrunners by age and income**



Base: All respondents

Source: © SeniorWatch, 2002

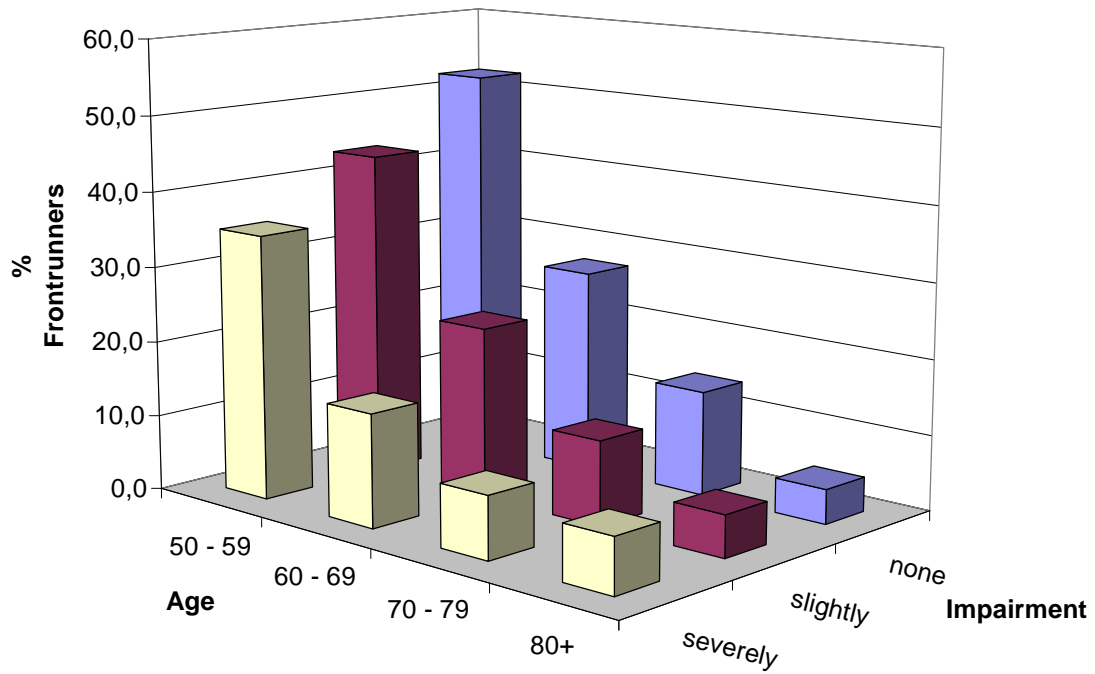
**Table 20 Computer involvement - percentage of experienced frontrunners by age and impairment**

| Impairment | Age     |         |         |     |
|------------|---------|---------|---------|-----|
|            | 50 - 59 | 60 - 69 | 70 - 79 | 80+ |
| none       | 52.2    | 27.1    | 13.9    | 4.6 |
| slightly   | 43.2    | 22.6    | 11.2    | 5.6 |
| severely   | 35.1    | 14.9    | 8.2     | 7.3 |

Base: All respondents

Source: © SeniorWatch, 2002

**Figure 13 Computer involvement - percentage of experienced frontrunners by age and impairment**



Base: All respondents

Source: © SeniorWatch, 2002

**Table 21 Logistic regression - Computer usage among the European 50+ population<sup>21</sup>**

|                                | <b>B</b> | <b>Sig.</b> | <b>Exp(B)</b> | <b>Operationalisation</b>  |
|--------------------------------|----------|-------------|---------------|--|
| Constant term                  | .946     | .023        | 2.575         |  |
| <b>Demographics</b>            |          |             |               |  |
| Sex                            | .683     | .000        | <b>1.979</b>  | 0 / 1 (male = 1)   |
| Income                         | .537     | .000        | <b>1.711</b>  | 4-point scale (country-wise approx. quartiles)                   |
| Educational attainment         | .394     | .000        | <b>1.483</b>  | 5-fold classification of age at end of full time education       |
| Age                            | -.096    | .000        | <b>.909</b>   | Age in years   |
| Class                          | .132     | .000        | <b>1.141</b>  | 8-fold classification of SES of head of household                |
| <b>Activity</b>                |          |             |               |  |
| Activity lifestyle orientation | .162     | .000        | <b>1.176</b>  | continuous index derived from factor scores                      |
| <b>Impairment</b>              |          |             |               |  |
| Vision                         | -.076    | .126        | .927          | 3-point scale (no problem, some difficulty, severe restrictions) |
| Hearing                        | .023     | .717        | 1.023         | 3-point scale  |
| <b>Dexterity</b>               | -.403    | .000        | <b>.668</b>   | 3-point scale  |
| <b>Member State</b>            |          |             |               |  |
| <b>EL</b>                      | -1.458   | .000        | <b>.233</b>   | 0 / 1  |
| <b>P</b>                       | -.907    | .026        | <b>.404</b>   | 0 / 1  |
| <b>E</b>                       | -.653    | .048        | <b>.521</b>   | 0 / 1  |
| IRL                            | -.361    | .311        | .697          | 0 / 1  |
| A                              | -.062    | .850        | .940          | 0 / 1  |
| I                              | -.047    | .883        | .954          | 0 / 1  |
| F                              | .055     | .862        | 1.056         | 0 / 1  |
| B                              | .086     | .795        | 1.089         | 0 / 1  |
| <b>D</b>                       | .625     | .046        | <b>1.868</b>  | 0 / 1  |
| <b>FIN</b>                     | .656     | .043        | <b>1.927</b>  | 0 / 1  |
| <b>UK</b>                      | .950     | .002        | <b>2.586</b>  | 0 / 1  |
| <b>DK</b>                      | 1.316    | .000        | <b>3.728</b>  | 0 / 1  |
| <b>NL</b>                      | 1.544    | .000        | <b>4.685</b>  | 0 / 1  |
| <b>S</b>                       | 1.659    | .000        | <b>5.255</b>  | 0 / 1  |
| Cox-Snell R square             | .350     |             |               |  |
| Nagelkerke R square            | .489     |             |               |  |
| % correct                      | 80.2     |             |               |  |

Dependent variable: frequent computer usage.

<sup>21</sup> The logistic regression is a technique to estimate the influence of independent variables on a (naturally or artificially) dichotomous dependent variable (i.e. 0/1 coded). The coefficient  $\exp(b) = 1$  means that there is no (logistic) influence on the dependent variable,  $\exp(b) > 1$  ( $< 1$ ) means that the likelihood of being a frequent internet user increases (decreases) with increasing values of the independent variable, with the others variables being held constant.

**Table 22 Internet access and usage (row %)**

|                                   |  | Internet-<br>access at<br>home | Ever used<br>the Internet | Frequent<br>internet user |
|-----------------------------------|--|--------------------------------|---------------------------|---------------------------|
| <b>Total</b>                      |  | 22.4                           | 21.9                      | 16.5                      |
| <b>Age</b>                        | 50 - 59  | 37.9                           | 38.3                      | 30.0                      |
|                                   | 60 - 69  | 19.1                           | 18.3                      | 12.8                      |
|                                   | 70 - 79  | 9.8                            | 8.1                       | 5.6                       |
|                                   | 80+  | 7.0                            | 6.7                       | 5.2                       |
| <b>Gender</b>                     | female   | 18.8                           | 16.6                      | 11.2                      |
|                                   | male   | 26.9                           | 28.6                      | 23.1                      |
| <b>Social Grade</b>               | unskilled manual workers and<br>other less well educated<br>worker | 11.3                           | 9.9                       | 6.5                       |
|                                   | skilled workers and non-<br>manual employees                       | 23.7                           | 21.8                      | 16.1                      |
|                                   | well educated non-manual<br>and skilled workers                    | 33.4                           | 33.8                      | 27.6                      |
|                                   | managers and professionals   | 43.3                           | 46.6                      | 36.1                      |
| <b>Income</b>                     | --   | 5.7                            | 6.4                       | 3.5                       |
|                                   | -  | 17.6                           | 14.4                      | 10.1                      |
|                                   | +  | 30.0                           | 30.0                      | 22.7                      |
|                                   | ++   | 46.1                           | 48.8                      | 39.6                      |
| <b>Activity index</b>             | --   | 10.8                           | 7.2                       | 5.6                       |
|                                   | -  | 20.5                           | 17.7                      | 13.6                      |
|                                   | +  | 26.8                           | 26.0                      | 19.7                      |
|                                   | ++   | 32.3                           | 37.1                      | 27.2                      |
| <b>Computer involve-<br/>ment</b> | The experienced frontrunners                                       | 59.0                           | 69.6                      | 58.5                      |
|                                   | The old age beginners  | 15.5                           | 17.9                      | 4.3                       |
|                                   | The technologically open<br>minded                                 | 10.3                           | 2.8                       | 1.1                       |
|                                   | The digitally challenged   | 5.4                            | .7                        | .1                        |
| <b>Impairment</b>                 | not at all   | 28.4                           | 28.0                      | 21.6                      |
|                                   | at least one light impairment                                      | 21.1                           | 20.9                      | 15.5                      |
|                                   | at least one serious impair-<br>ment                               | 15.1                           | 13.8                      | 10.0                      |
|                                   | serious impairment: vision   | 15.3                           | 15.3                      | 10.7                      |
|                                   | serious impairment: hearing  | 20.4                           | 19.2                      | 15.8                      |
|                                   | serious impairment: dexterity                                      | 8.8                            | 6.3                       | 3.8                       |

Base: All respondents

Source: © SeniorWatch, 2002

**Table 23 Logistic regression - Internet usage among the European 50+ population**

|                                 | <b>B</b> | <b>Sig.</b> | <b>Exp(B)</b> | <b>Operationalisation</b>   |
|---------------------------------|----------|-------------|---------------|---|
| Constant term                   | -.027    | .955        | .974          |   |
| <b>Demographics</b>             |          |             |               |   |
| Sex                             | .761     | .000        | <b>2.141</b>  | 0 / 1 (male = 1)  |
| Income                          | .592     | .000        | <b>1.808</b>  | 4-point scale (country-wise approx. quartiles)                      |
| Educational attainment          | .356     | .000        | <b>1.427</b>  | 5-fold classification of age at end of full time education          |
| Age                             | -.093    | .000        | <b>.911</b>   | Age in years  |
| Class                           | .168     | .000        | <b>1.184</b>  | 8-fold classification of SES of head of household                   |
| <b>Activity</b>                 |          |             |               |   |
| Activity lifestyle orientation  | .153     | .000        | <b>1.165</b>  | continuous index derived from factor scores                         |
| <b>Impairment</b>               |          |             |               |   |
| Vision                          | -.111    | .055        | .895          | 3-point scale<br>(no problem, some difficulty, severe restrictions) |
| Hearing                         | .069     | .333        | 1.072         | 3-point scale (ditto)   |
| <b>Dexterity</b>                |          |             |               |   |
|                                 | -.439    | .000        | <b>.645</b>   | 3-point scale (ditto)   |
| <b>Member State</b>             |          |             |               |   |
| <b>EL</b>                       | -2.189   | .000        | <b>.112</b>   | 0 / 1   |
| <b>P</b>                        | -1.594   | .002        | <b>.203</b>   | 0 / 1   |
| <b>E</b>                        | -1.145   | .002        | <b>.318</b>   | 0 / 1   |
| IRL                             | -.682    | .087        | .506          | 0 / 1   |
| B                               | -.552    | .126        | .576          | 0 / 1   |
| F                               | -.515    | .131        | .597          | 0 / 1   |
| I                               | -.349    | .307        | .706          | 0 / 1   |
| A                               | -.323    | .358        | .724          | 0 / 1   |
| D                               | .138     | .678        | 1.149         | 0 / 1   |
| FIN                             | .230     | .506        | 1.259         | 0 / 1   |
| UK                              | .558     | .094        | 1.747         | 0 / 1   |
| <b>DK</b>                       | 1.142    | .001        | <b>3.131</b>  | 0 / 1   |
| <b>NL</b>                       | 1.154    | .001        | <b>3.170</b>  | 0 / 1   |
| <b>S</b>                        | 1.521    | .000        | <b>4.578</b>  | 0 / 1   |
| <b>Cox-Snell R square</b> .290  |          |             |               |   |
| <b>Nagelkerke R square</b> .456 |          |             |               |   |
| <b>% correct</b> 85.1           |          |             |               |   |

Dependent variable: frequent internet usage.

**Table 24 Reasons why internet subscription unlikely among the EU 50+ population (in %)**

| Can you tell me why it is unlikely? Which of these four fits best: | Percent    |
|--|------------|
| Internet is too complex to me                                      | 33.4       |
| It is too expensive to me  | 25.4       |
| I have too little time   | 12.1       |
| I'm too ill  | 1.2        |
| Other reason (spontaneous)   | 27.8       |
| <b>Total</b>   | <b>100</b> |

Base: Respondents who are interested in having internet access at home but unlikely to use the internet over the next one or two years, DK/refusals excluded (n=141).

Source: © SeniorWatch, 2002

**TABLE 25 MOBILE PHONE ACCESS AND USAGE (ROW %)**

|                                   |  | Possession<br>mobile phone | Used mobile<br>phone last<br>month | Ever sent/ re-<br>ceived SMS |
|-----------------------------------|--|----------------------------|------------------------------------|------------------------------|
| <b>Total</b>                      |  | 48.2                       | 41.7                               | 18.5                         |
| <b>Age</b>                        | 50 - 59  | 63.7                       | 57.3                               | 32.6                         |
|                                   | 60 - 69  | 49.4                       | 42.8                               | 15.6                         |
|                                   | 70 - 79  | 34.7                       | 27.8                               | 7.2                          |
|                                   | 80+  | 16.8                       | 11.4                               | 3.0                          |
| <b>Gender</b>                     | female   | 44.4                       | 37.1                               | 15.6                         |
|                                   | male   | 52.9                       | 47.4                               | 22.0                         |
| <b>Social Grade</b>               | unskilled manual workers and<br>other less well educated<br>worker | 39.2                       | 32.9                               | 12.1                         |
|                                   | skilled workers and non-<br>manual employees                       | 55.1                       | 48.3                               | 22.5                         |
|                                   | well educated non-manual<br>and skilled workers                    | 58.4                       | 51.0                               | 24.9                         |
|                                   | managers and professionals   | 65.6                       | 59.5                               | 30.9                         |
| <b>Income</b>                     | --   | 27.6                       | 21.9                               | 7.0                          |
|                                   | -  | 45.7                       | 38.8                               | 15.2                         |
|                                   | +  | 58.4                       | 52.3                               | 21.5                         |
|                                   | ++   | 69.5                       | 61.7                               | 37.5                         |
| <b>Activity index</b>             | --   | 29.1                       | 22.6                               | 8.2                          |
|                                   | -  | 46.9                       | 40.7                               | 15.6                         |
|                                   | +  | 54.3                       | 48.2                               | 22.5                         |
|                                   | ++   | 65.1                       | 57.8                               | 28.6                         |
| <b>Computer in-<br/>volvement</b> | The digitally challenged   | 27.2                       | 22.3                               | 4.9                          |
|                                   | The technologically open<br>minded                                 | 41.1                       | 33.0                               | 10.5                         |
|                                   | The old age beginners  | 59.3                       | 51.7                               | 21.5                         |
|                                   | The experienced frontrunners                                       | 75.1                       | 69.0                               | 41.6                         |
| <b>Impairment</b>                 | not at all   | 53.9                       | 47.5                               | 23.3                         |
|                                   | at least one light impairment                                      | 49.3                       | 42.5                               | 17.5                         |
|                                   | at least one serious impair-<br>ment                               | 36.4                       | 30.4                               | 12.3                         |
|                                   | serious impairment: vision   | 37.5                       | 31.1                               | 13.0                         |
|                                   | serious impairment: hearing  | 34.8                       | 31.0                               | 10.9                         |
|                                   | serious impairment: dexterity                                      | 29.3                       | 24.5                               | 8.9                          |

Base: All respondents

Source: © SeniorWatch, 2002

**Table 26 Logistic regression - Mobile phone ownership among the European 50+ population**

|                                | <b>B</b> | <b>Sig.</b> | <b>Exp(B)</b> | <b>Operationalisation</b>   |
|--------------------------------|----------|-------------|---------------|---|
| Constant term                  | 1.875    | .000        | 6.520         |   |
| <b>Demographics</b>            |          |             |               |   |
| Sex                            | .256     | .000        | <b>1.291</b>  | 0 / 1 (male = 1)  |
| Income                         | .390     | .000        | <b>1.478</b>  | 4-point scale (country-wise approx. quartiles)                      |
| Educational attainment         | .015     | .660        | 1.015         | 5-fold classification of age at end of full time education          |
| Age                            | -.053    | .000        | <b>.948</b>   | Age in years  |
| Class                          | .097     | .000        | <b>1.102</b>  | 8-fold classification of SES of head of household                   |
| <b>Activity</b>                |          |             |               |   |
| Activity lifestyle orientation | .140     | .000        | <b>1.151</b>  | continuous index derived from factor scores                         |
| <b>Impairment</b>              |          |             |               |   |
| Vision                         | -.033    | .415        | .968          | 3-point scale<br>(no problem, some difficulty, severe restrictions) |
| Hearing                        | -.133    | .009        | <b>.876</b>   | 3-point scale (ditto)   |
| Dexterity                      | -.089    | .052        | .915          | 3-point scale (ditto)   |
| <b>Member State</b>            |          |             |               |   |
| <b>IRL</b>                     | -.746    | .012        | <b>.474</b>   | 0 / 1   |
| <b>P</b>                       | -.737    | .013        | <b>.479</b>   | 0 / 1   |
| <b>EL</b>                      | -.724    | .011        | <b>.485</b>   | 0 / 1   |
| <b>E</b>                       | -.571    | .036        | <b>.565</b>   | 0 / 1   |
| F                              | -.264    | .328        | .768          | 0 / 1   |
| A                              | -.107    | .702        | .899          | 0 / 1   |
| B                              | .053     | .851        | 1.054         | 0 / 1   |
| D                              | .103     | .700        | 1.109         | 0 / 1   |
| I                              | .271     | .318        | 1.311         | 0 / 1   |
| DK                             | .283     | .314        | 1.327         | 0 / 1   |
| UK                             | .372     | .165        | 1.451         | 0 / 1   |
| <b>NL</b>                      | .608     | .032        | <b>1.836</b>  | 0 / 1   |
| <b>FIN</b>                     | .905     | .001        | <b>2.472</b>  | 0 / 1   |
| <b>S</b>                       | 1.044    | .000        | <b>2.841</b>  | 0 / 1   |
| Cox-Snell R square             | .211     |             |               |   |
| Nagelkerke R square            | .282     |             |               |   |
| % correct                      | 70.4     |             |               |   |

Dependent variable: mobile phone ownership

Source: © SeniorWatch, 2002

**Table 27 Average no of IST devices/applications<sup>22</sup> used among the EU 50+ population by Member States**

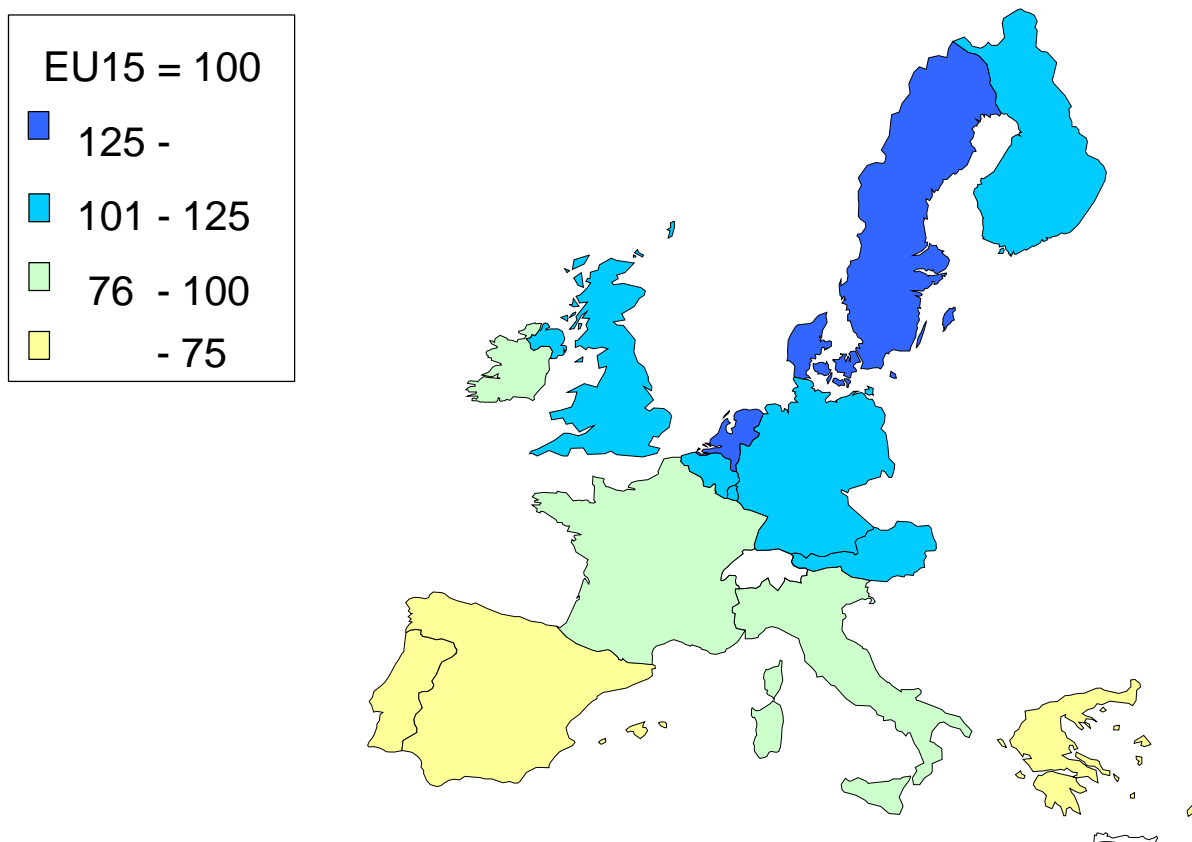
| Member State | Mean       | EU15=100   |
|--------------|------------|------------|
| P            | 2.2        | 48         |
| EL           | 2.8        | 62         |
| E            | 3.3        | 74         |
| IRL          | 3.7        | 81         |
| F            | 3.9        | 86         |
| I            | 4.0        | 89         |
| <b>EU15</b>  | <b>4.5</b> | <b>100</b> |
| L            | 4.7        | 106        |
| A            | 5.0        | 111        |
| UK           | 5.0        | 111        |
| D            | 5.2        | 115        |
| B            | 5.2        | 116        |
| FIN          | 5.5        | 123        |
| DK           | 6.0        | 134        |
| S            | 6.1        | 137        |
| NL           | 6.5        | 145        |

Base: all respondents

Source: © SeniorWatch, 2002, OPS (ICTsum.xls)

<sup>22</sup> In order to condense the hitherto reported information on individual applications an index on IST access and usage was calculated on the basis of the following variables: TV access, CaTV access, tele-text usage, digital TV access, DVD (TV) access, telephony, owning mobile phone, mobile phone usage, SMS usage, answering machine access, fax access, computer access, internet access, regular computer usage, regular internet user.

**Figure 14 Index for average no. of IST devices/applications used among the EU 50+ population by Member State**



Source: © SeniorWatch, 2002, OPS (ICTsum.xls)

**Table 28 Valuation of activities among the EU 50+ population**

| Different people find different things important in life as they get older or retire. What do you expect will be important to you in coming years?<br>For instance ... | Very important | Fairly important | Fairly unimportant | Very unimportant |
|--|----------------|------------------|--------------------|------------------|
| To be able to stay in contact with family and friends that live elsewhere  | 69.3           | 22.3             | 5.5                | 2.8              |
| To keep yourself informed about new developments in your interests and hobbies   | 33.7           | 40.7             | 14.8               | 10.7             |
| To be able to enjoy live entertainment such as concerts or plays   | 29.7           | 33.2             | 19.8               | 17.3             |
| To find new people who share your interests  | 23.9           | 33.1             | 28.9               | 14.1             |
| To be able to do voluntary work, for example in sports, politics or welfare  | 21.9           | 28.1             | 23.3               | 26.7             |
| To learn something new through a course of instruction   | 17.8           | 29.1             | 26.9               | 26.2             |

Base: All respondents, DK/refusal excluded (N between 9449 and 9591).

Source: © SeniorWatch, 2001

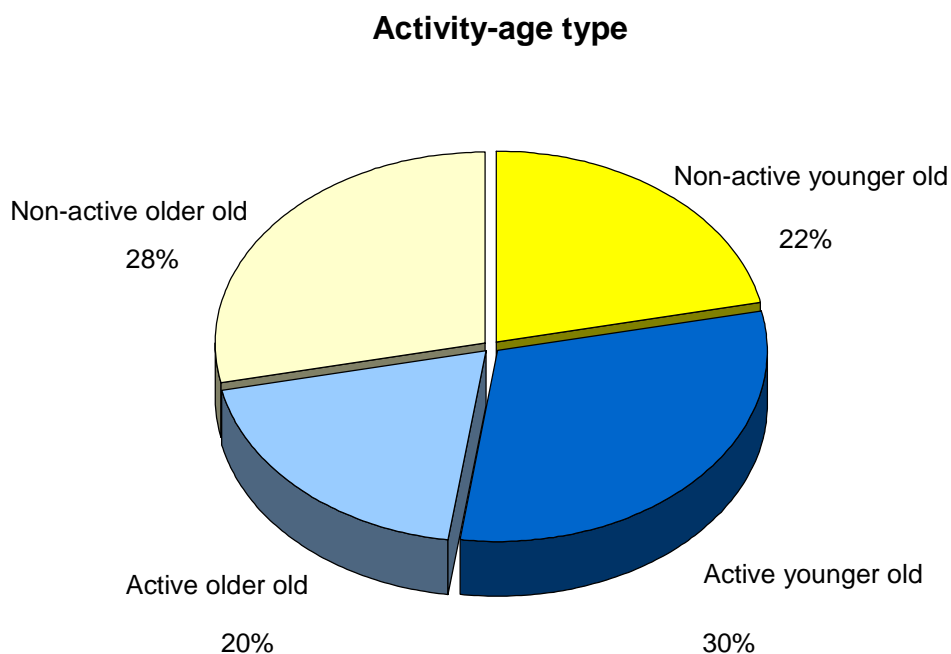
**Table 29 Activities pursued among th EU 50+ population**

| I am going to read out a list of activities that you may or may not do and ask how often you do them... | Daily | Almost daily | At least once a week | At least once a month | More seldom than once a month | Never / Currently not at all |
|---|-------|--------------|----------------------|-----------------------|-------------------------------|------------------------------|
| see members of family living elsewhere  | 14.5  | 13.3         | 34.7                 | 18.4                  | 16.0                          | 3.1                          |
| gardening/DIY   | 27.4  | 16.5         | 21.0                 | 6.0                   | 5.4                           | 23.7                         |
| sporting activities   | 7.9   | 7.0          | 18.1                 | 3.6                   | 7.4                           | 56.0                         |
| go to restaurant/café   | 3.8   | 4.0          | 20.7                 | 29.3                  | 22.7                          | 19.5                         |
| go to a social club/pub   | 1.5   | 2.6          | 14.1                 | 15.4                  | 16.3                          | 50.1                         |
| go to event/club for people same age  | 1.1   | 2.1          | 9.1                  | 11.2                  | 12.3                          | 64.1                         |
| go to cinema/theatre/concert  | .2    | .5           | 3.8                  | 19.4                  | 33.8                          | 42.3                         |
| go to church/religious meeting place  | 1.6   | 2.8          | 27.4                 | 13.5                  | 21.5                          | 33.2                         |
| read books  | 29.2  | 13.4         | 14.9                 | 11.0                  | 13.0                          | 18.4                         |
| visit/have visitors   | 9.9   | 13.8         | 42.1                 | 20.2                  | 9.2                           | 4.8                          |
| private phone calls   | 48.9  | 20.4         | 16.9                 | 4.2                   | 3.5                           | 6.1                          |

Percentage base: all respondents, DK refusals excluded (N= 9593 to 9637)

Source: © SeniorWatch, 2001

**Figure 15 Empirical distribution of activity-age types among the EU 50+ population (in %)**



Source: © SeniorWatch, 2001

Table 30 IST involvement type by activity-age type

| % activity type<br>% IST type<br>% total | IST involvement type                |                              |  |                                 |              |              |
|--|-------------------------------------|------------------------------|--|---------------------------------|--------------|--------------|
|  | <i>Experienced<br/>frontrunners</i> | <i>Old age<br/>beginners</i> | <i>Technologi-<br/>cally open<br/>minded</i> | <i>Digitally<br/>challenged</i> | Total        |              |
| activity-age type                        | Active                              | 48.3                         | <b>15.9</b>                                  | <b>24.3</b>                     | <b>11.5</b>  | <b>100.0</b> |
|  | younger                             | 54.8                         | <b>37.0</b>                                  | <b>25.4</b>                     | <b>11.4</b>  | <b>30.5</b>  |
|  | old                                 | 14.7                         | <b>4.8</b>                                   | <b>7.4</b>                      | <b>3.5</b>   | <b>30.5</b>  |
|  | Non-<br>active                      | <b>27.7</b>                  | <b>12.0</b>                                  | <b>26.8</b>                     | <b>33.6</b>  | <b>100.0</b> |
|  | younger                             | <b>22.5</b>                  | <b>19.9</b>                                  | <b>20.0</b>                     | <b>23.6</b>  | <b>21.8</b>  |
|  | old                                 | <b>6.0</b>                   | <b>2.6</b>                                   | <b>5.8</b>                      | <b>7.3</b>   | <b>21.8</b>  |
|  | Active                              | <b>19.1</b>                  | 17.6   | <b>38.6</b>                     | <b>24.7</b>  | <b>100.0</b> |
|  | older                               | <b>13.9</b>                  | 26.3   | 25.9                            | <b>15.6</b>  | <b>19.5</b>  |
|  | old                                 | <b>3.7</b>                   | <b>3.4</b>                                   | <b>7.5</b>                      | <b>4.8</b>   | <b>19.5</b>  |
|  | Non-<br>active                      | <b>8.4</b>                   | <b>7.8</b>                                   | <b>29.6</b>                     | 54.2         | <b>100.0</b> |
| older                                    | <b>8.8</b>                          | <b>16.8</b>                  | <b>28.7</b>                                  | 49.5                            | <b>28.2</b>  |              |
| old                                      | <b>2.4</b>                          | <b>2.2</b>                   | <b>8.4</b>                                   | <b>15.3</b>                     | <b>28.2</b>  |              |
|  | <b>26.8</b>                         | <b>13.1</b>                  | <b>29.1</b>                                  | <b>31.0</b>                     | <b>100.0</b> |              |
| Total                                    | <b>100.0</b>                        | <b>100.0</b>                 | <b>100.0</b>                                 | <b>100.0</b>                    | <b>100.0</b> |              |
|  | <b>26.8</b>                         | <b>13.1</b>                  | <b>29.1</b>                                  | <b>31.0</b>                     | <b>100.0</b> |              |

Base all respondents except where no activity age type applicable (N= 9063). Chi square = 1733.3\*\*.

The table reads as follows: 48.3% of the active younger young are experienced forerunners, 54.8% of the experienced forerunners are active younger young, 14.7% of the total older population are active younger young and experienced forerunners. Bold font to emphasise high (positive) deviance from average.

Source: © SeniorWatch, 2001

Table 31 IST involvement of (family) carers

| IST involvement                        | %     |
|--|-------|
| <i>The experienced frontrunners</i>    | 25.1  |
| <i>The old age beginners</i>           | 14.7  |
| <i>The technologically open minded</i> | 30.5  |
| <i>The digitally challenged</i>        | 29.7  |
| Total                                  | 100.0 |

Base respondents providing care to another adult (N=1560)

Source: © SeniorWatch, 2001

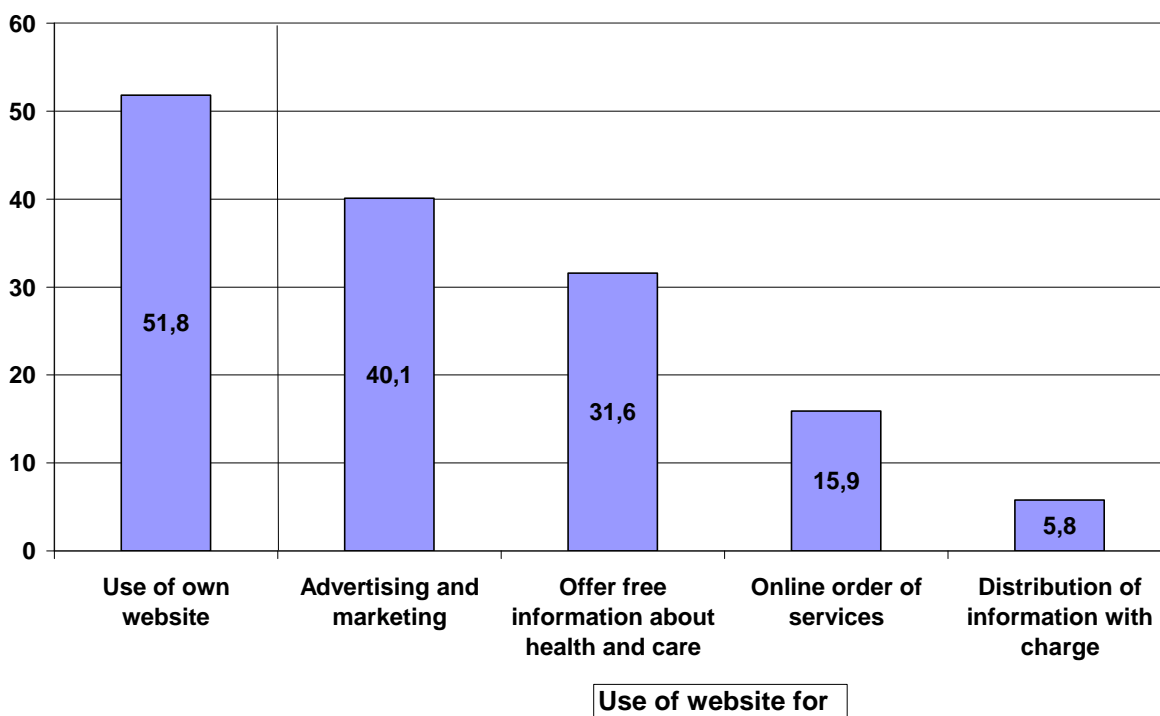
**TABLE 32 MOBILITY RESTRICTIONS AMONG THE EU 50+ POPULATION BY AGE (IN %)**

| Do you find it easy, somewhat difficult or very difficult to move around - I mean, for example... | Age     |         |         |      | Total |
|---|---------|---------|---------|------|-------|
|   | 50 - 59 | 60 - 69 | 70 - 79 | 80+  |       |
| Easy  | 81.7    | 69.9    | 53.6    | 34.5 | 67.2  |
| somewhat difficult  | 12.5    | 18.9    | 27.8    | 29.7 | 19.7  |
| very difficult  | 4.5     | 9.1     | 15.1    | 30.1 | 10.6  |
| has not tried / no experience   | 1.0     | 1.9     | 2.7     | 5.4  | 2.1   |
| cannot walk at all  | 0.2     | 0.2     | 0.8     | 0.3  | 0.4   |
| total   | 100     | 100     | 100     | 100  | 100   |

Base: All respondents, DK/refusal excluded

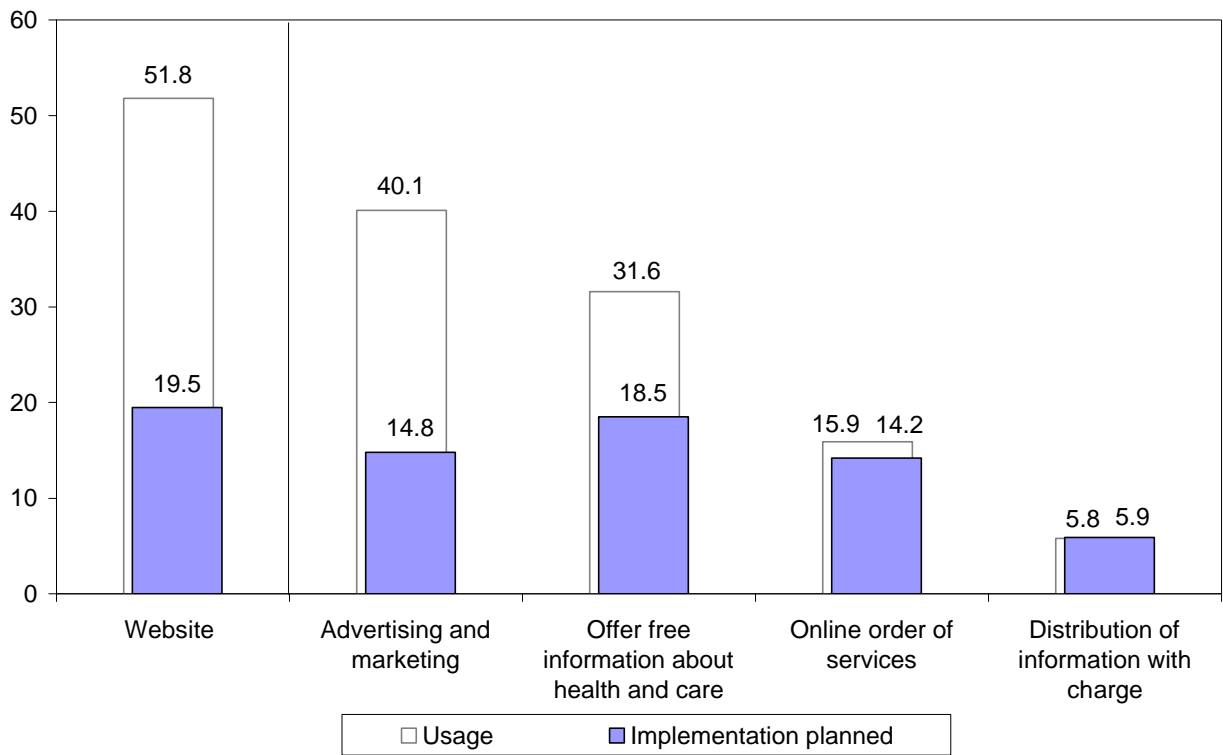
Source: © SeniorWatch, 2001

**Figure 16 Marketing and services provided on website among European home care provider organisations, 2001 (in %)**



Source: © SeniorWatch, 2001

**Figure 17 Implementation of websites and content intended (in %)**



Percentage. Base: all respondents (weighted according to European market share)

Source: © SeniorWatch, 2002, DMS (DMS00021)