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Supporting Digital Literacy
Public Policies and Stakeholder Initiatives

Topic Report 2

Final Report

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Reader's Guide

In recognition of the increasing importance of digital literacy and in an effort to promote e-inclusion, the European Commission has launched the project "Supporting Digital Literacy: Public Policies and Stakeholders' Initiatives" of which the present document constitutes the second topic report. The study is aimed at improving the quality of life for disadvantaged groups by suggesting what can be done to help them acquire stronger ICT skills and a better understanding of their potential uses for private and professional ends.

The study has produced 4 Topic Reports which contain a detailed analysis of Digital Literacy (DL). The topic reports are:

Topic Report 1
It provides an overview and comparative analysis of past and present digital literacy (DL) initiatives in each of the 27 Member States as well as in Norway and Iceland, USA, Canada, and India. A total of 464 different initiatives were identified, ranging from large-scale public programmes rolled out nationally and targeting the entire population, to very small-scale third sector actions with very specific target groups. The report describes on the one hand how these initiatives are distributed across key dimensions of DL (rationales, sustainability, motivational measures, platforms, content, accessibility, and usability), and on the other hand what tends to characterise initiatives aimed at specific disadvantaged groups (people with low educational attainment, unemployed, disabled, elderly, young people at risk, women, rural populations, inner city residents, ethnic and cultural minorities, and criminals and substance abusers). Moreover, differences in approaches between country groupings are identified.

Topic Report 2
It investigates indicators and measurement tools employed in the EU27 and beyond with a particular focus on the results of the special module on digital literacy contained in the 2007 edition of the Eurostat Community Survey on ICT usage in Households and by Individuals. This overview and analysis provides information on the current level of digital skills in the European countries. It comprises a discussion on the most relevant barriers to a more intensive use, and it includes an analysis on learning environments conducive to the acquisition of digital skills. The report compares the Eurostat results with findings from other recent studies and it comprises an overview of the most interesting alternative monitoring and measurement initiatives identified alongside the 464 initiatives described in Topic Report 1.

Topic Report 3
It is based on the findings of the first two topic reports, describes and analyses in more detail 30 selected good practice cases. It contains a comprehensive presentation of main enablers of digital literacy analysed in terms of setting relevant objectives, providing effective structure, design, and implementation, maintaining the motivation of target groups, addressing potential barriers, planning and measuring impacts, securing sustainability, and focusing on innovation in approaches, methods, and technologies.

Topic Report 4
Topic report 4 summarises briefly the findings of Report 1, 2, and 3. It situates digital literacy in a broader context as a central measure in forward looking inclusion policies and concludes

by drawing up a list of policy recommendations particularly conducive to achieving i2010 goals.

For further information about the structure and content of each topic report please see the respective tables of contents.

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Introduction

This second topic report is an analytical review of monitoring and measurement tools and indicators. The report addresses the following key issues (as listed in the initial proposal and now complemented by additional input from the digital literacy experts) focusing on three main areas:

- A comparison of 2006-2007 Eurostat data including new variables in the special 2007 digital literacy module to the Community Survey on ICT usage in Households and by Individuals (also referred to in the text as the Eurostat Community Survey)[1]
- Comparing the results of Eurostat and the recent experiences of a selection of other monitoring and measurement initiatives in Europe and beyond
- Review of a selection of identified monitoring and measurement initiatives compiled in the digital literacy country reports.

Thus the report goes beyond the country status and the individual initiatives to provide an analytical review of core dimensions of digital literacy– both across countries and within the countries – in relation to monitoring and measurement.

That said, data are not always available for specific countries, parameters and/or indictors and may thus result in observations, trends and conclusions which potentially would have been different if a full data set was available.

1.1 Methodology

The methodology for the second topic report is outlined for each of the three main focus areas, which also constitutes the main structure of the report.

1.1.1 Past and present data

The objective of this section is twofold:

- To introduce the new Eurostat survey indicators from the Community Survey on ICT usage in Households and by Individuals
- To present 2006-2007 Eurostat survey figures on digital literacy with a focus on potentially marginalised groups.

Where relevant data have been broken down by gender, age, education, occupation, population density, objective 1 or 2 and 3 regions, age/education and age/employment, in order to highlight digital literacy issues in relation to potentially marginalised and disadvantaged individuals and groups. To illustrate key points, country examples will be utilised as based on the Eurostat (and other) data represented graphically or enclosed in the more detailed tables in the annexes.

[1] The Community Survey on ICT usage in Households and by Individuals has since 2006 contained a revolving module focusing on a specific topic each year – thus, in 2006 e-government, in 2007 skills and digital literacy, in 2008 use of advanced services, in 2009 e-commerce and trust, and in 2010 internet security (from 2002 to 2005 module "D" concerned e-commerce).

To examine the status as of 2007 and developments since 2006, the following Community Survey data on ICT usage in Households and by Individuals (specific questions from the Eurostat community survey in brackets) are included[2]:

- Computer and internet skills development in EU from 2005 to 2007 (relates to questions E3 and E4 of the Eurostat Community survey)
- Never used a computer vs. never used the internet (B1 and C1)
- No computer skills, low and medium/high level of computer skills (E3)
- No internet skills vs. low, medium and high level internet skills (E4)
- Age, education and computer skills by country (E3)
- Age, employment and computer skills by country (E3)
- Age, education and internet skills by country (E4)
- Age, employment and internet skills (E4)
- Barriers to more intensive use including:
    - Potential barriers to internet access in the home (A5)
    - Competence development – reasons for not taking a computer course (E2)
    - Skills perceptions (E6)
    - Using the internet more (C8 and C9)
- Actual learning processes (E5) se
- Online activities (C5, C11 and D1)
    - Using the internet for seeking health-related information
    - Internet banking
    - Using the internet to access public websites
    - Using the Internet for seeking for job
    - Making use of eCommerce
    - Making safety copies or back-up files.

As the analysis focuses on monitoring and measurement of digital literacy, two categories of Eurostat data are included; activities and type of online services accessed, and data indicating users' motivation. The purpose of looking at these data is to check for differences in the quality of use, to investigate whether they tell us anything about the motivation of the target groups in relation to digital literacy development, and to examine the possible emergence of a "second" digital divide in relation to skills and competences[3].

1.1.2 Comparing the results from Eurostat with other recent surveys

The objective of this section is to compare the data contained in the Eurostat Community Survey special module on digital literacy with that of other monitoring and measurement initiatives.

Potential one-off reports and surveys, regional, national and international studies in Europe, India, Canada, the USA, and beyond have been reviewed, and a selection of the monitoring

[2] For exact wording of questions see questionnaire at europa.eu.int/estatref/info/sdds/en/isoc/isoc_hh_model_questionnaire_2007.pdf

[3] Note: Up to four types of digital divide have been suggested by Marshall (2007):
1) Accessibility
2) Skills and critical analysis competences
3) Personal utility
4) Social, cultural and norm based

and measurement initiatives are examined in depth. The most relevant initiatives in relation to the topic of potentially marginalised and disadvantaged groups are compared to the Eurostat data with a view to similarity, complementarities and potential improvements of the latter. The emphasis is on those dimensions which are different or may add value to Eurostat if introduced into the Eurostat Community Survey. These dimensions include:

- Computer use, internet use, and digital literacy
- Age
- Gender
- Education
- Employment and occupation
- Income
- Ethnic background
- Sufficiency of skills and barriers to improvement.

1.1.3 Monitoring and Measurement initiatives identified

This section provides a brief review of identified monitoring and measurement initiatives and offers a cross-cutting analysis of identified initiatives. Where relevant, initiatives from non-European countries have been included - in particular from the USA, Canada, and India - where digital literacy country reports have been compiled with focus on monitoring potentially marginalised individuals and communities.

The analysis examines the methodological approaches of the various types of monitoring and measurement tools and indicators in relation to the purpose, regularity, scope, size, method, groups targeted, and apparent breakdowns.

The analysis also examines whether the identified methodologies cover issues raised in relation to disadvantaged groups, and whether any of the initiatives identified include relevant ways forward concerning more theoretically comprehensive tools and indicators for monitoring the digital literacy conditions of disadvantaged groups.

2 Past and present data – comparing trends in Eurostat data including the new variables in the special 2007 digital literacy module to the Community Survey

2.1 Computer and internet skills development in EU from 2005 to 2007[4]

The level of computer and internet skills in the EU has improved in the period 2005 to 2007 as illustrated in figure 1 below. It is interesting to note that the percentage for the two categories has converged and is now roughly the same for both no computer skills and no internet skills (i.e. approx. 40% of the EU population in 2007). The proportions of individuals with no computer skills and medium/high computer skills respectively have decreased from 43% to 40% and increased from 44% to 47% during the period. For internet skills the proportion of individuals with no skills has decreased from 46% in 2006 to 40% in 2007, while the increase for people with medium/high skills has been from 22% in 2006 to 31% in 2007[5].

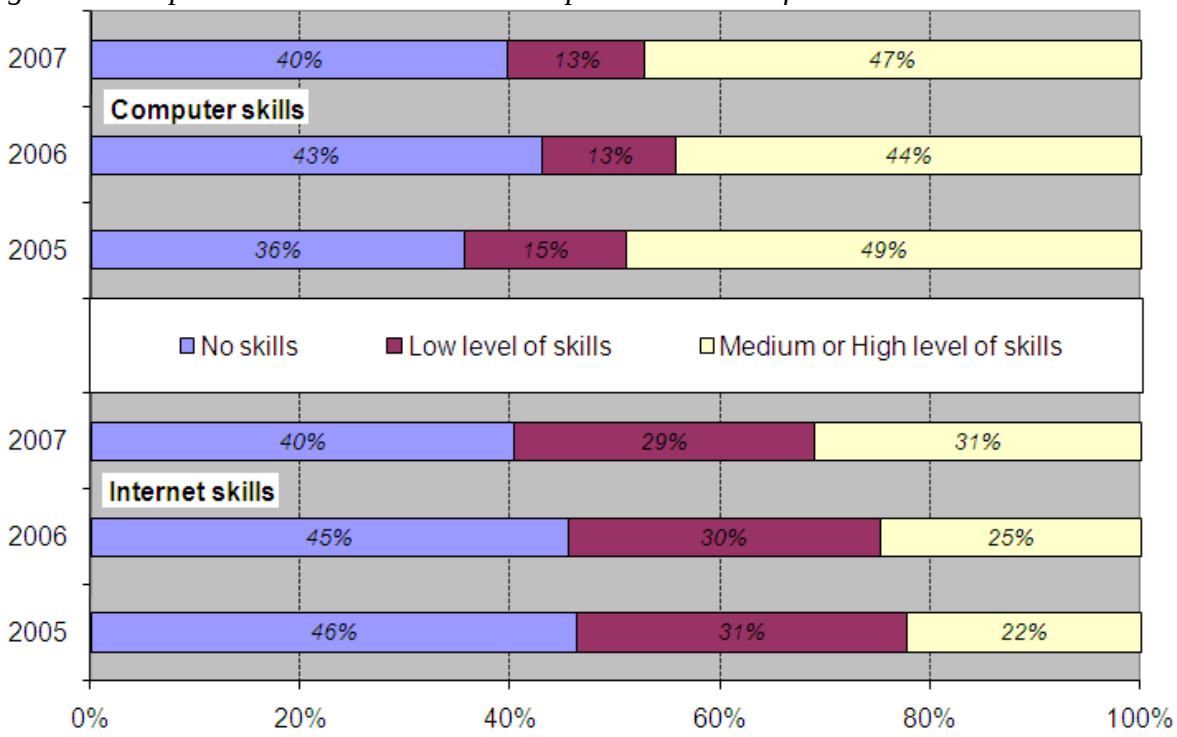
Despite generally improved computer and internet accessibility (through greater availability at public internet access points (PIAPs), schools, work places, and the home, plus generally falling prices of hardware, software, and access), it is interesting to see that the proportion of individuals with low computer skills seems to be relatively constant. There are two potential explanatory factors. One may be that the entry of persons who previously had no skills is more or less equal to the proportion of individuals who upgrade from low competence levels to a medium level. This thus relates to general efforts to improve competence levels combined with an awareness among those individuals with low skills levels of the importance of gaining further ICT competences. The second may be that this is due to efforts from stakeholders (public and private employers, schools, etc.) to improve the general digital literacy levels of the population by actively targeting those with no- rather than low skills levels imparting these users at once with medium level skills.

A table containing national data for the aggregated, or indexed, computer and internet skills levels is enclosed as annexes 1 and 2 respectively.

[4] These data are related to the questions E3 and E4 of the "Community Survey on ICT usage in Households and by Individuals".

[5] It should be noted that the apparent increase in the share of individuals with no computer skills and simultaneous decrease of people with a medium/high level skills from 2005 to 2006 likely is due to the substitution of one of the underlying skill questions forming the index (see annex 1 and 2 for exact data and breakdowns).

Figure 1: Computer and internet skills development in the EU from 2005 to 2007



Index composition: No skills = 0 of 6 skills performed, low level of skills = 1-2 of 6 skills performed, medium or high level of skills = 3-6 of 6 skills performed. Related to questions E3 for computer skills and E4 for internet skills in the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 1 and 2 for exact data and breakdowns.

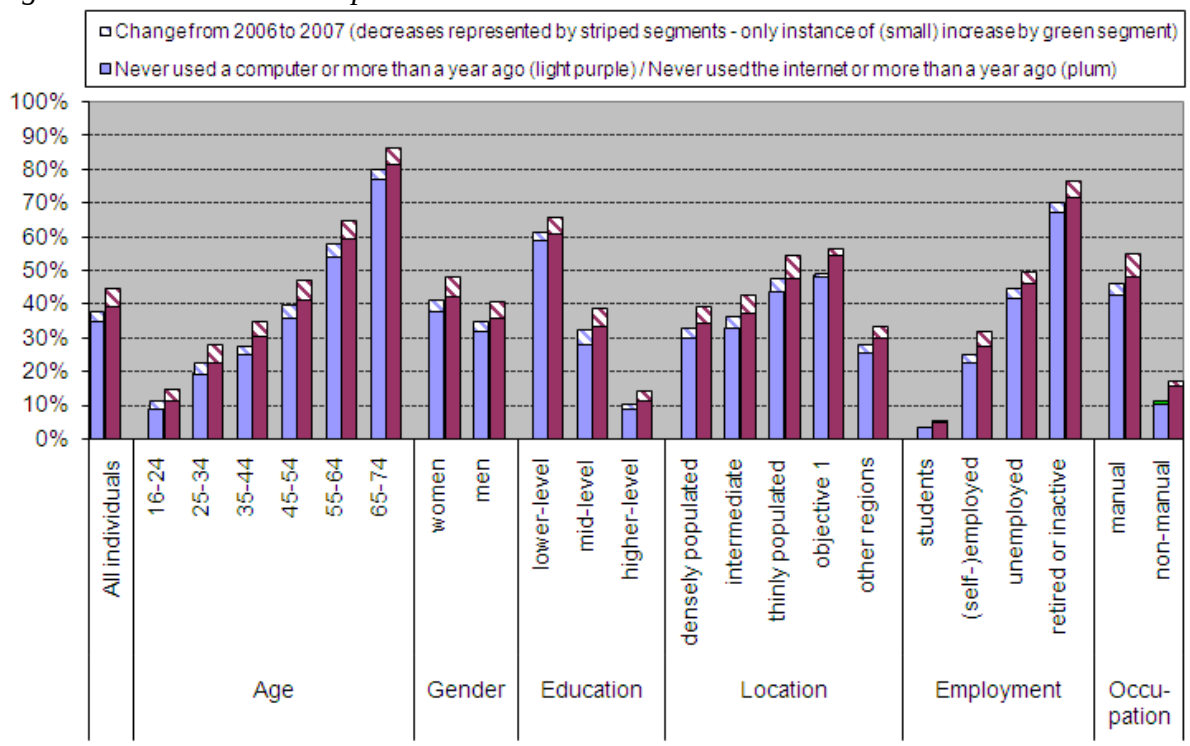
Note that index skill questions regarding computer skills differed in 2005 with the simple item related to the ability to use a mouse to open programs being substituted with the somewhat more demanding item related to the ability to connect and install new devices such as a printer or a modem. Percentages of all individuals aged 16-74.

2.2 Never used a computer vs. never used the internet[6]

When reviewing the population segments which have never used a computer or the internet, Eurostat figures show improvements of 3 and 6 percentage points for computer and internet use respectively for the general population as presented in Figure 2 below (left bar (light purple) in each pair depicts computer non-use while right bar (plum) depicts internet non-use – see annex 3 for specific figures and breakdowns).

[6] These data are related to the questions B1 and C1 of the "Community Survey on ICT usage in Households and by Individuals".

Figure 2: Never used a computer vs. never used the internet



Percentages of all individuals in population group (unless otherwise noted the age group is 16-74). Related to questions B1 and C1 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 3 for exact data and breakdowns.

When the data illustrated in figure 2 are broken down in age groups between 16 and 74 years of age, the data show that the overall improvements almost equally comprise all age groups. There are only slight variations in the percentage change from 2006 to 2007 relating to the level of computer and internet use for each of the age groups. Improvements in computer and internet take-up (i.e. drop in the share of non-users in the last 12 months) have been as follows when looking at the country level (see annex 3 for exact country figures and breakdown):

- 16-24 year-olds: The proportion of non-computer users decreased by 2 percentage points to 9% in the EU27, with Romania having had the greatest improvement with a drop of 7 to 28%. The proportion of non-internet users decreased by 2 percentage points to 12% in the EU27 in 2007, with Bulgaria having experienced the largest decrease of 9 to 33%[7].
- 25-54 year-olds: The proportion of non-computer users decreased by 3 percentage points to 27% in the EU27 in 2007, and non-internet users decreased by 4 percentage points to 32% in the EU27 in 2007. Romania has done well with a decrease of 7 percentage points, though it still has a majority of non-computer users for that age group (57%). Slovakia has experienced a decrease of 9 percentage points to 30% for non-computer users.

[7] Note: Although this and subsequent sections highlight a number of individual countries as having done well in lowering the proportion of non-computer and –internet users in the period 2006-2007 this is solely based on the percentage point changes from 2006-2007 and should be seen as purely illustrative. It does neither reflect the proportional change nor any form of ranking amongst the countries.

- 55-64 year-olds: The proportion of non-computer users decreased by 4 percentage points to 54% in the EU27 in 2007, and non-internet users decreased by 5 percentage points to 60%, with Luxembourg having achieved the greatest decreases in both non-computer and non–internet users, respectively decreasing by 8 to 32% and 12 to 34%.
- 65-74 year-olds. The proportions of non-computer users and non-internet users were reduced respectively by 3 percentage points to 77% and 5 percentage points to 82% in the EU 27 in 2007, with Norway having achieved the greatest decreases for both non-computer and non–internet users, respectively decreasing by 17 to 44% and 20 to 50%.

Interestingly, the proportion of women who are non-computer users has decreased by 3 percentage points to 38% and the proportion of non-internet users has decreased by 5 to 43%. The same figures for male non-computer and -internet users are -3 percentage points to 32% and -5 to 36% respectively. Luxembourg seems to have achieved the best improvement of computer and internet take-up in the period 2006-2007 for women who had not previously used these media. The proportion of female non-computer and -internet users decreased by 6 percentage points to 25% and 9 percentage points to 28% respectively. For men, no particular country stands out in terms of decreases in the proportion of non-computer and -internet users, although Norway and Austria have achieved significant decreases even from already low proportions of male non-computer and -internet users (see annex 3 for exact country figures and breakdown).

Concerning education levels, improvements at EU level have been the greatest in relation to reducing the percentage of non-internet users among those with medium educational attainment levels, with -5 percentage points to 34% of non-internet users in the EU27 compared to -2 to 64% for low educational levels and -2 to 12% for high educational levels. For people with low educational levels, Norway seems to have performed particularly well with a decrease of 26 percentage points to 21% for non-internet use in 2007, and also Luxembourg has improved the proportion of non internet users significantly by -14 percentage points to 35% of people with low educational levels. By comparison Luxembourg (-8% to 10%) and Slovakia (-8 to 44%) have managed to make good progress in decreasing the proportion of non internet users with middle educational levels, while Bulgaria (-11 to 27%) stands out with the largest improvements vis-à-vis non-internet users amongst persons with higher educational levels.

The level of computer use has also improved: The improvement in the proportion of non-computer users has been largest for individuals with middle educational level compared to people with lower and higher educational levels (i.e. -4 percentage points to 28% vs. -2 to 59% for low educational levels and -2 to 12% for high educational levels). This reasonably reflects the difficulty of motivating people with lower educational levels to develop computer skills, and the already very low proportion of individuals with higher education levels who never use computers or the internet (9% and 12% respectively). For individuals with lower educational levels Norway has performed particularly well with a change in the proportion of non computer users of -21 percentage points to 18% in 2007. By comparison, Romania has managed to make good progress in the proportion of individuals with middle educational level who do not use computers (-11 percentage points to 58%), while Bulgaria (-8 to 22%) stands out again with the largest improvements for non-computer use amongst individuals with higher educational levels.

In relation to population density and objective 1 regions (i.e. regions with low levels of economic activity) the Eurostat data are somewhat more mixed in terms of the proportion of non-computer and internet users. Changes in the proportion of non-computer and -internet users from 2006 to 2007 in relation to population density are as follows:

- Densely populated areas: the proportion of non computer users dropped 3 percentage points to 30%, while for non-internet users the drop was 4 percentage points to 35% in 2007 with Luxembourg having achieved the greatest percentage point improvements with drops of 7 to 19% and 8 to 23% for non-computer and -internet users respectively.
- Intermediate density areas: the proportion of non computer users dropped 3 percentage points to 33%, while for non-internet users the drop was 5 percentage points to 38% in 2007. Slovenia achieved the greatest percentage point improvements with drops in the proportion of non-computer and -internet users of 8 to 34% and 9 to 38% respectively.
- Thinly populated areas: the proportion of non computer users dropped 4 percentage points to 44%, with Poland having had the greatest improvement of -9 to 51%. The proportion of non-internet users decreased 5 percentage points to 50% in 2007, with Luxembourg and Poland both having experienced the largest decreases of 9 percentage points to 17% and 59% respectively.

While there have been improvements in the proportion of computer and internet users across the different population density areas, it is nonetheless interesting to see that improvements in the proportion of internet users in thinly populated areas have been numerically greater. This may be a result of increased accessibility to the internet in thinly populated areas due to improved connectivity in the regions, establishment of PIAPs and lowering of connectivity costs. On the other hand, improvements in thinly populated areas have occurred from a higher proportion of non-computer and –internet users. Nevertheless, there is still room for improvement in objective 1 regions as proportions of computer and internet users are disproportionately lower in comparison to non-objective 1 regions - densely, middle and thinly populated areas - and also have changed the least[8].

In relation to employment and occupations, the 2006 to 2007 take-up of computer and internet use also shows improvements, but the figures are somewhat mixed (see annex 3 for specific data and breakdowns).

In relation to the self-/employed[9] segment, figures show improvement with a -3 percentage point change in non-computer use to 22% from 2006-2007, with Romania doing particularly well (-7 percentage points to 54%). For the proportion of non-internet self-/employed users the decrease is 4 percentage points to 28% for the same period, with Bulgaria having experienced the largest decrease (9 to 56%) closely followed by Hungary (-8 percentage points to 31%). See annex 3 for specific data and breakdowns).

[8] NOTE: Eurostat figures are not referred to as a number of countries have not provided data (see annex 3 for specific data and breakdowns).
[9] NOTE: The term ”self-/employed” refers to both self-employed and employed individuals. This definition also covers family employees who would either be defined as employed by a given business owned by a family member or actually self-employed i.e. the owner of a given business.

By comparison the proportion of unemployed non-computer users has at 42% experienced a 3 percentage point decrease in the period 2006-2007. Similarly the proportion of unemployed non-internet users shows a decrease of only 1 percentage point to 48%. In both cases Cyprus has experienced the largest decreases (-14 percentage points to 44% and -16 to 55% in terms of the proportion of non-computer and –internet users respectively), but also countries such as Norway, Iceland, Luxembourg, and Italy have achieved significant improvements in relation to the unemployed between 2006 and 2007 (see annex 3 for specific data and breakdowns).

The proportion of the retired/inactive segments of the population that use computers and the internet has also increased between 2006 and 2007. These improvements include a 3 percentage point decrease to 67% from 2006 to 2007 in the proportion of retired/inactive individuals who have not used a computer. The same figures for the proportion of non-internet users show a 4 percentage point decrease to 72%. In both cases Norway, as above regarding the older age groups, has seen by far the greatest percentage point decrease in the period (-21 percentage points to 32% and -26 to 39% for the proportion of retired/inactive individuals who are non-computer and –internet users respectively) (see annex 3 for specific data and breakdowns).

The 2007 proportion of the unemployed and especially the retired or inactive sections of the population that have become computer and internet users are still much lower than for the self-/employed segment. This is unfortunate in light of an ageing population and a growing need for old and young and employed and unemployed to be digitally literate. It could be argued that further resources and/or improved initiatives are required to increase the skills level of the unemployed. This could contribute to improving their employability, their access to electronic services and general inclusion in the knowledge and information society. The same arguments may be applied to the retired and economically inactive persons with no computer or internet skills. Potential benefits for this segment include a prolonged period of employment and economic activity compared to current levels (where desirable), access to online public and private services, and the use of ICT-based tools for assisted living (see annex 3 for specific data and breakdowns).

For the above three employment categories it should be noted that the retired/inactive segment has a larger proportion of non-computer (67%) and non-internet users (72%) than the unemployed segment (42% and 48% respectively). The retired and economically inactive population segment in the EU27 may therefore be considered the most digitally illiterate and potentially most excluded from the information society (given the population categories specified to date and closely followed by the group of with lower levels of educational attainment). The EU 27 average does not reflect the large variation between different European countries, with the proportion of non-computer users among the retired/inactive ranging from 32% in Norway to 89% in Greece and 95% in Bulgaria and non-internet users from 38% in the Netherlands to a high of 96% in Bulgaria and Romania (see annex 3 for specific data and breakdowns).

The proportion of the unemployed segment of the population in the EU27 that are non-computer users is almost the same as for the proportion of manual workers that are non-computer users, 42% and 43% respectively. In relation to the proportion of non-internet users, a slightly greater proportion of manual workers are non-internet users compared to the unemployed, 50% versus 48% respectively. The above EU27 average figures do not reflect

the variation across different countries. The proportion of unemployed who are non-computer and non–internet users varies from as low as 4% and 9% respectively in Norway to a high of 83% and 86% respectively in Bulgaria, while the same proportions for manual workers vary from 6% and 9% in Norway to 80% and 87% in Cyprus (see annex 3 for specific data and breakdowns).

The student segment of the population still leads in relation to computer and internet take-up, with 3% not having used a computer and 6% not having used the internet at all in 2007. This is likely to be a natural consequence of the student segment having grown up and been taught ICT-related skills in educational institutions and thus having acquired a familiarity with these technologies which older population groups have not had to the same extent. This is evident from the questions in the Eurostat Community Survey on ICT usage in Households and by Individuals covering the ways in which competences are acquired involving technologies such as PCs, mobile telephones, the internet, etc. (see also sections 2.7 on skills and 2.8.2 on competence development). Another factor which is likely to have influenced the high degree of computer and internet use among students is the increased focus on ICT and broadband connectivity within the formal educational system. This of course leaves limited room for further improvements in terms of basic digital literacy, as the proportions of non-computer and -internet users among students are already in single digits at 3% and 5% respectively.

It is also noteworthy that improvements in terms of computer and internet use have been significant among persons in manual jobs. Nevertheless, the proportion of non-internet users (50%) in manual jobs is still much higher than for those in non-manual occupations (16%). Contrary to expectations, computer take-up by people in non-manual jobs has deteriorated marginally, although this may be because non-manual computer skills levels are relatively closer to saturation (i.e. the higher the initial take-up, the lower the growth) and/or due to a change in the number of countries for which data are available (see annex 3 for specific data and breakdowns).

The proportion of women who are non-computer and non-internet users is larger than that of men. The reason for this gender difference may partly be found in a higher rate of formal economic inactivity (i.e. women not working outside the home or only part time) and generally lower levels of education among women (see also section 2.3 below) – though this cannot be substantiated by Eurostat data. In fact, for the younger age groups the proportion of non-computer and -internet using women is similar to that of men. In other words, gender differences at EU level mainly persist in the older age groups, although the situation across countries varies significantly.

In relation to population density, the Eurostat data also highlight a well documented trend. The urban/densely populated and/or the more economic affluent areas (i.e. non-objective 1 areas) are also the areas with the lowest proportion of non-computer and internet users. Similarly the higher the educational level the lower the proportion of non computer and non-internet users. The proportion of non-users is also higher among manual workers than among non-manual workers. This illustrates the positive effect that the level of education, and work related IT exposure, have on digital literacy levels. The reason for this may be found in generally better economic conditions, greater access to ICT resources and internet access points, faster and cheaper internet connectivity, more choice of ICT training opportunity and competition in the labour market. Naturally national and regional differences prevail with

"old" Member States generally having lower proportions of non-computer and non internet users than "new" Member States (see annexes 1, 2 and 3 for specific figures and breakdowns). There are, however, positive developments in "new" Member States in that both Estonia and Slovenia perform better than other "new" Member States and compared to the EU27 averages.

2.3 No computer skills, low and medium/high level of computer skills[10]

This section looks at 2006 and 2007 developments in Eurostat data for individuals who have no computer skills as compared with those with low, medium and high computer skills levels, in order to identify trends which may shed light on the situation for potentially marginalised and disadvantaged groups (see annex 1 for exact data and breakdown).

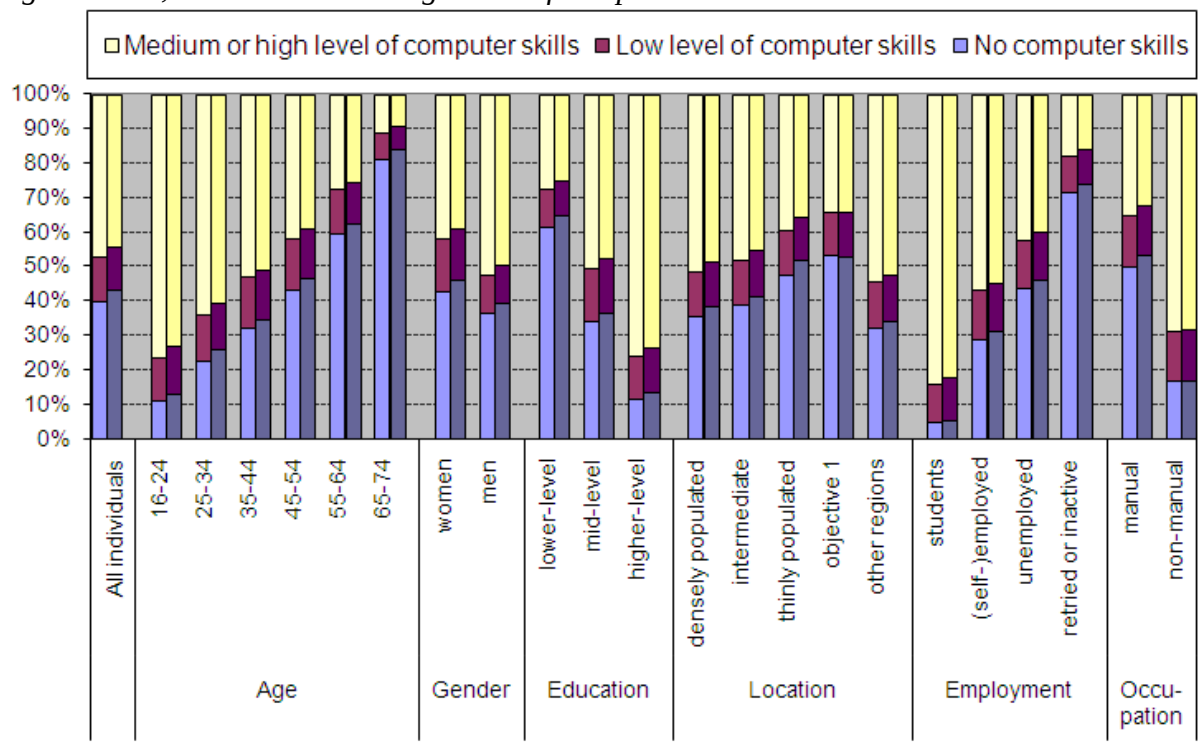
The number of persons who have no computer skills at all has fallen 3 percentage points from 2006 to 2007 to 40%. For the medium/high computer skills level the EU27 average has increased 3 percentage points to 47%. The data, represented graphically in figure 3 below[11], also show that recent trends are more or less stable when comparing European averages across various population groups. For the different age groups Eurostat data for 2007 show that the proportion of people with medium/high computer skills levels is highest for those aged 16-24 (76%), and is also quite high for the age groups 25-34 (64%) and 35-44 (53%). High shares equally are found among men (53%), individuals with medium and high levels of education (51% and 76% respectively), where population density is high or middle (52% and 48%) and in non-objective 1 regions (54%), for students and the self-/employed (84% and 57%), and those in non-manual forms of occupation (69%).

As a general trend the proportion of individuals in Europe who have never used a computer has decreased slightly faster than the proportion of people with medium/high computer skills has increased in the period 2006 to 2007 (-3% and +1% respectively), as illustrated in figure 3 below. Exemptions to this trend include younger groupings, as reflected by the proportionally higher increase in medium/high computer skills segment for the 16-24 years old and students than the EU27 average. Together with individuals with a high level of education, these two groups are also the only ones where the proportion of those with high computer skills levels exceeds 40%. To see if cross-tabulating age and educational level as well as age and type of employment reveal any correlation to computer and internet skills, these assessments have been carried out in sections 2.5 and 2.6. Unfortunately, the trend in objective 1 regions is going against the general trend, showing a marginal increase from 2006 to 2007 in the proportion of people with no computer skills. This may be due to demographic changes such as an aging population in economically deprived areas combined with the fact that economically active population segments such as youth and the better skilled etc. are moving to more economically attractive areas. This suggests a combination of objective 1 regions, age, levels of education and type of occupation as potential indicators of the digital literacy levels of potentially marginalised and disadvantaged groups.

[10] These data are related to the question E3 of the "Community Survey on ICT usage in Households and by Individuals".

[11] In figure 3, the left hand (lighter) columns represent 2007 data while the right hand (slightly darker) columns represent 2006 data

Figure 3: No, low and medium/high level of computer skills



Percentages of all individuals in population group (unless otherwise noted the age group is 16-74). The left hand (lighter) columns represent 2007 data while the right hand (slightly darker) columns represent 2006 data. Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 1 for exact data and breakdown.

Figure 3 above also shows that the share of people with no computer skills has fallen by between 1-5 percentage points in all segments, with a corresponding decrease in low computer skills levels for the same groups of between 1-3 percentage points, while the increases in medium/high computer skills levels have been 0-4 percentage points, with most segments showing 2-3 percentage point increases. The reason for this improvement may be due to a general focus on digital literacy initiatives for people who had previously not used computers. This focus is likely to have been reflected in training incentives targeting individuals with no computer skills aged 35-74 (decreases in the range of 2-4 percentage points depending on the age group), individuals with low or medium level of education (both showing decreased proportions of people with no computer skills of 3 percentage points), people in manual jobs (decreased 3 percentage points) and individuals in thinly populated areas (decrease of 4 percentage points). In other words, the figures do provide some information - although basic - on the level of computer skills for potentially marginalised and disadvantaged groups defined by age groups, general level of education (defined by low, middle or high level of education), occupation (manual or non-manual) and geographical location (defined by population density and country).

Interestingly the change from "no computer skills" to "low computer skills" is almost equal to that of "low skills" to "medium/high skills", which results in the low-skilled proportion remaining more or less constant for most segments from 2006-2007. The exception is the categories for those aged 16-24 years of age, men and middle density population areas where there is a somewhat greater increase in "medium/high skills" compared to the rate of decrease

for the "no skills" category. The reasons are hard to deduct from the Eurostat data, but may in general relate to accessibility and familiarity with ICT for the 16-24 year-olds as well as demographic change. For men it could be a result of a more extensive work-related ICT exposure and increasing demands from employers. For middle density population areas the reason may be a consequence of a diminishing 1st digital divide (i.e. accessibility to ICT) as a result of improved access to computers, PIAPs and better internet connectivity combined with increased competition and generally decreasing prices for internet connections, ICT hardware and software. It should nonetheless be noted that there are proportionally more women with medium level computer skills than men.

In relation to population density the Eurostat data show that the more urban/densely populated and/or economic affluent (i.e. non-objective 1 areas) an area is, the higher the likelihood of medium/high computer skills. Self-/employed and students are more likely to possess medium/high computer skills. This also holds true for the level of education and whether a person holds a manual or non-manual job, thus illustrating the positive effect that the level of education, location, work related exposure and employment have on digital literacy levels.

Minimal changes have occurred for persons with low educational levels, the unemployed, the economically inactive, individuals in non-manual jobs, and students. The first two are effectively illustrations of the 2nd (skill as a barrier) and 3rd (lack of critical analysis competences as a barrier) digital divides, plus the lack of motivation i.e. understanding the importance of competence levels and understanding the importance of ICT in relation to job searches and employability. Also, the minimal improvements from 2006 to 2007 in computer use and skills levels may likely be linked to a lack of resources, educational levels, motivation, and possibly to a lack of opportunities to improve skills through access to computers, the internet and work-related training. With medium/high computer skills levels of 84% and 69% for students and people in non-manual jobs respectively, the marginal improvement may simply be the result of already high computer skills levels which leaves little room for further improvement, especially for students.

The Eurostat data illustrate that computer skills levels are generally better the younger the person is and, that men are generally better equipped with computer skills than woman. However, as evidenced in figure 4, when combining information on age and gender, the computer skills gap between male and female individuals is largest for the older age group of 55+. For the groups aged 16-54, the proportions of individuals with no or low computer skills are almost the same for women and men, although men have a higher percentage with high skills levels compared to women, who have a higher percentage with medium computer skills levels. There are many different reasons for this, but one such reason may be that many women tend to operate a narrower set of computer and internet tasks in their work or leisure situations and therefore have good computer skills around fewer computer tasks than men, who are more likely to operate a wider range of programmes and tasks. The lower computer skills levels of the larger proportion of women to some extent also may be explained by a larger proportion of women with low educational attainment levels. The difference between women and men vis-à-vis general computer skills may also partly be explained by the fact that men as a population group constitute a larger proportion of the workforce than women and may therefore be exposed more to ICT through employment.

The16-24 year-olds with lower educational attainment also have the lowest computer skills levels (63%) for that age group, when compared to those with middle (72%) and higher educational attainment levels (84%).

While figure 3 shows that the young generally are among the most ICT literate in Europe, it may be argued that the 11% of the 16-24 year old men and women with no computer skills are at risk of being excluded from the information society and future ICT intensive employment opportunities - that is unless they gain computer skills in the future to avoid this.

Figure 4: Computer skills by gender and age for the EU27 (2007)

		No skills	Low skills level	Medium skills level	High skills level
EU27	All Men	37%	11%	22%	31%
	Men aged 16-24	11%	11%	27%	51%
	Men aged 25-54	31%	12%	23%	34%
	Men aged 55-74	63%	10%	15%	12%
	All Women	43%	15%	27%	16%
	Women aged 16-24	11%	15%	43%	31%
	Women aged 25-54	35%	17%	30%	18%
	Women aged 55-74	74%	11%	11%	3%

Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals.

2.4 No internet skills vs. low, medium and high level internet skills[12]

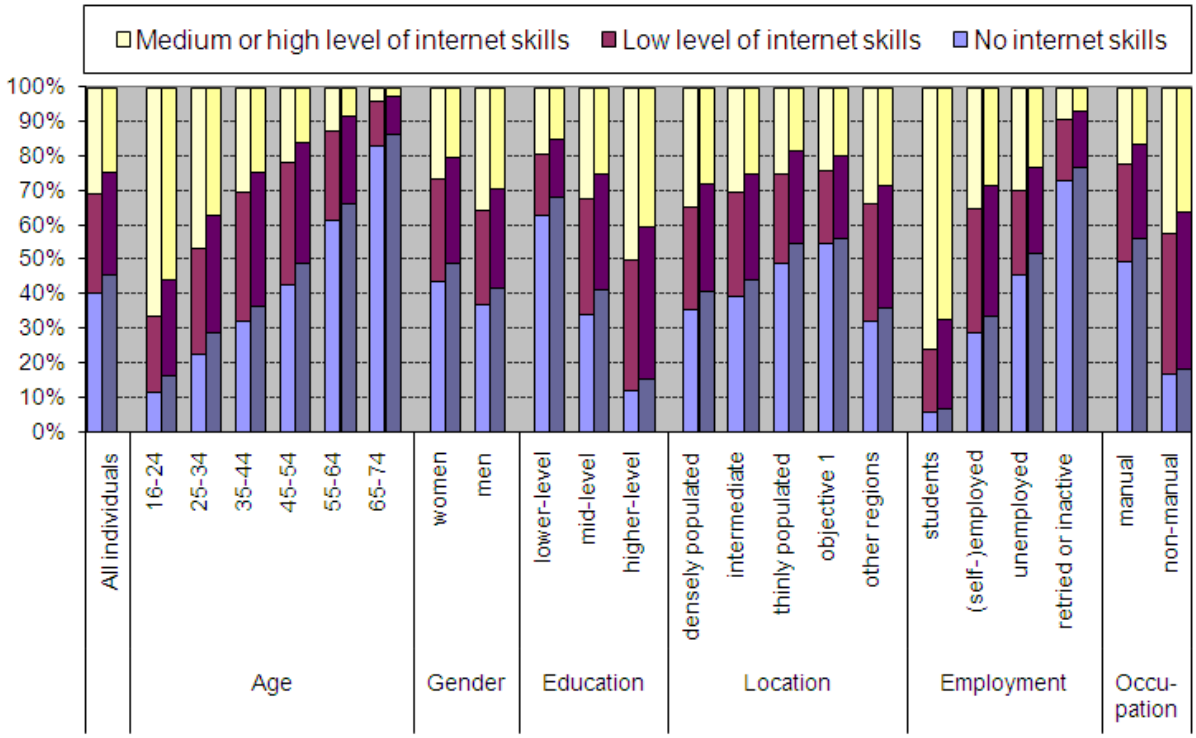
This section looks at 2006 and 2007 change in Eurostat data for people who have no internet skills as compared with those with low and medium/high internet skills levels (see annex 2 for exact data and breakdown). The purpose of this analysis is to examine whether there are any relevant trends observable which may shed light on the situation for potentially marginalised and disadvantaged groups.

The review of data, represented graphically in figure 5 below (Note: The left hand (lighter) columns represent 2007 data while the right hand (slightly darker) columns represent 2006 data), shows that the EU27 average for no internet skills has decreased by 5 percentage points to 40% in 2007 while the proportion of people with medium/high internet skills levels has increased 6 percentage points to 31%. The data also show that recent trends more or less continue when comparing the European averages across various population groups. For the different parameters, Eurostat data for 2007 show that above-European-average medium/high internet skills are to be found for those aged 16-24 (66%), 25-34 (47%), 35-44 years of age (31%), and for men (36%). The same is observed for those with medium and high levels of education (32% and 50%), in areas of high or middle population density (35% and 30%), in non-objective 1 regions (34%), for students and employed/self-employed (76% and 35%), as well as those in non-manual forms of occupation (43%). When comparing internet skills to the levels of computer skills it is found that the proportion of individuals with no computer skills (33%) is lower than the proportion with no internet skills (40%). Although this may

[12] These data are related to the question E4 of the "Community Survey on ICT usage in Households and by Individuals".

imply that 7% of people who have some computer skills do not have any internet skills, this cannot be automatically deducted from the Eurostat data (i.e. a lack of internet skills does not necessarily imply that you have no computer skills). Furthermore, the proportion of those with medium/high internet skills (31%) is lower than the proportion of those with medium and high computer skills (47%). Another interesting observation is the fact that the proportion of people with low levels of internet skills (29%) is generally larger than the proportion with low computer skills (13%). Note however that to some extent these differences may reflect differences in the difficulty of threshold levels between the two indexes.

Figure 5: No, low and medium/high level of internet skills



Percentages of all individuals in population group (unless otherwise noted the age group is 16-74). The left hand (lighter) columns represent 2007 data while the right hand (slightly darker) columns represent 2006 data. Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 2 for exact data and breakdown.

Figure 5 above shows the same tendencies as with computer skills, i.e. the lower the age the better the internet skills. Moreover the younger age groups (16-34) have the greatest gains in medium/high skills levels and an average or above average decrease in the proportion of (non-)users with no skills. The groups to address in relation to marginalised and disadvantaged groups are those aged 55-74, the retired or inactive, individuals with lower levels of education, and people living in objective 1 regions.

As outlined in the previous sections, the high levels of internet skills among the youngest age groups may be a result of factors such as exposure to media and computers from an early age, increased access to ICT in the formal educational system, exposure to ICT through work related tasks, and/or the increasing prevalence of digitally supported transactions. This is further supported by the above-average improvements in skills levels for segments of the population with medium level educational qualifications and those in manual jobs. This all

adds to the argument that exposure and access to computers and the internet through studies and work and through general interest as a result of medium and high levels of education support the development of digital literacy. This argument is further substantiated by the fact that improvements in the proportion of individuals with low or no internet skills are smallest in the segments with low levels of education and living in objective 1 regions.

Figure 5 above also shows that in general a greater proportion of men than women have medium/high internet skills, but that the gains in medium/high skills levels and the decrease in the number of non-internet users are similar for both men and women. When looking at the differences in relation to age and gender, the pattern observed for computer skills also holds for internet skills (see figure 6 below). The proportion of men and women aged 16-24, with some level of internet skills is the same, the only difference being that a bigger proportion of men have high internet skills and a bigger proportion of women have medium internet skills. Men aged 25-54 generally have better internet skills, and as for the younger segment the percentage of highly skilled men is especially high. The biggest observable difference between the genders is in the group aged 55-74. Internet skills in this group are generally low, with 76% of women and 65% of men having no internet skills. One explanation for this gender gap may be that within this age group a bigger proportion of women than men is economically inactive, and therefore has not become acquainted with internet through work. The combination of gender and age thus seem to reflect the observation already seen in relation to computer skills (see section 2.3).

Figure 6: Internet skills by gender and age for the EU27 (2007)

		No skills	Low skills level	Medium skills level	High skills level
EU27	All Men	37%	27%	24%	12%
	Men aged 16-24	12%	21%	38%	29%
	Men aged 25-54	30%	31%	26%	12%
	Men aged 55-74	65%	23%	11%	2%
	All Women	44%	30%	21%	5%
	Women aged 16-24	12%	23%	47%	18%
	Women aged 25-54	35%	38%	23%	5%
	Women aged 55-74	76%	18%	5%	1%

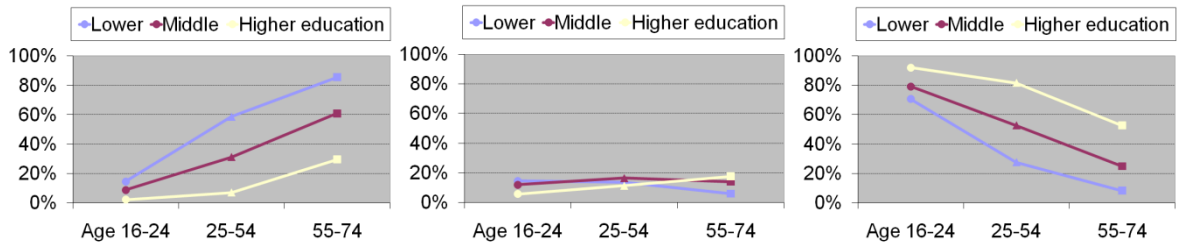
Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals.

2.5 Age, education and computer skills by country

The combination of age and educational attainment shows some interesting results that can shed light on factors influencing the level of digital literacy for potentially marginalised and disadvantaged groups. This section will therefore review trends coming out of the Eurostat 2007 special module on digital literacy – a module which allows for a number of cross tabulations by educational attainment level, gender, and age groups, not previously obtainable for issues related to computer skills. Thus this section will look specifically at the Eurostat parameters related to question E3 of the 2007 Eurostat Community Survey on ICT usage in Households and by Individuals in order to identify any trends concerning computer skills (no skills, low skills and medium/high skills) at different educational levels in relation to age and education background.

Figure 7 shows the 2007 average computer skills level by age and educational attainment level in the EU27. For each level of computer skills, the figure depicts how shares vary for people with different educational attainment levels (the lines) within age groups (plotted along the x-axis). Age differences are apparent as sloping lines while the vertical separation of lines shows differences related to education. The EU27 average will be used as a reference point for the subsequent analysis of 2007 Eurostat survey data (see also annex 4 for specific data and breakdowns).

Figure 7: Computer skills by age and education level, EU27



Percentages of all individuals in EU27 in a particular age group and with a particular educational attainment level. Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals 2007. See annex 4 for exact figures and breakdown.

From figure 7 a number of tendencies may be observed. These include[13]:

- Among those aged 16-24, educational attainment seems to have limited impact on the level of computer skills.
- Among those aged 25-54 and 55-74, however, a more substantial positive impact of educational attainment on computer skills levels is apparent (indicated by the larger vertical separation between lines).
- Among those with a high level of educational attainment, age seems to become a negative factor at a relatively high age only in relation to having at least some degree of computer skills (as indicated by the break in the line from those aged 25-54 to those aged 55-74 in the left-hand panel).
- For individuals as a whole, age and educational attainment appear to not significantly impact the share of people with a low level of computer skills.

It can be concluded that educational attainment has a relatively minor effect on the level of computer skills for the youth cohort, whereas the level of computer skills of an individual increases with the educational attainment with an increasingly positive impact on computer skills as age increases.

The following sections examine the correlation between levels of computer skills and age and educational levels as key factors that influence digital literacy in each of the European member states as well as in Norway and Iceland.

[13] NOTE: This section serves to highlight trends, so specific figures have not been included, but will be in the subsequent sections.

2.5.1 Age and educational attainment for individuals with no computer skills

Figures 8a-c illustrate the relationship between the proportion of individuals with no computer skills at different ages as well as at different levels of educational attainment for the EU27 and for selected countries. Each figure displays how proportions in countries vary with educational attainment for a particular age group. In figure 8a, for example, three colours are used to distinguish young persons aged 16-24 with no computer skills with regard to their educational attainment (lower = light purple, middle = plum, and higher = cream). Horizontal lines indicate EU27 averages (corresponding to the vertical data entries for a particular age group in figure 7).

Figure 8a: No computer skills levels – 16-24 year-olds and education level

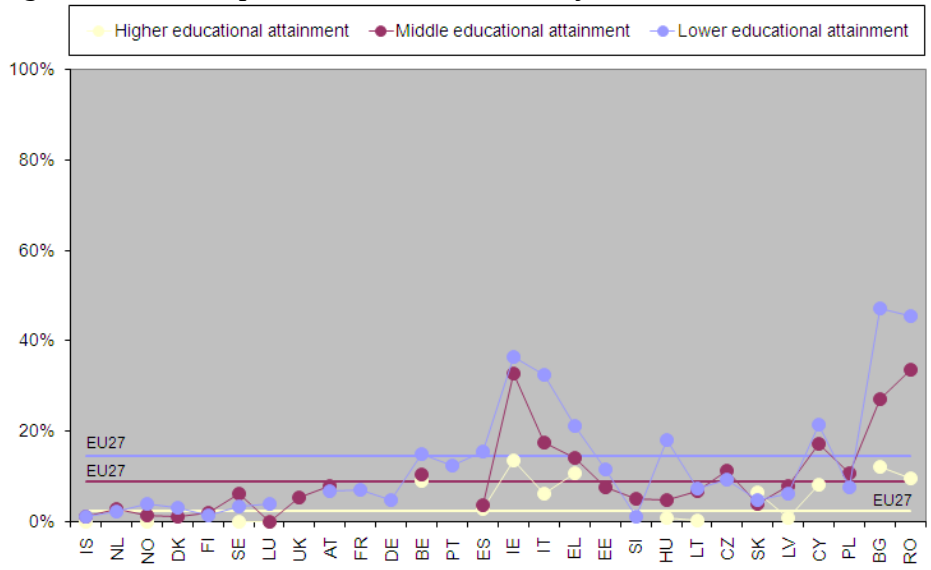


Figure 8b: No computer skills levels – 25-54 year-olds and educational attainment

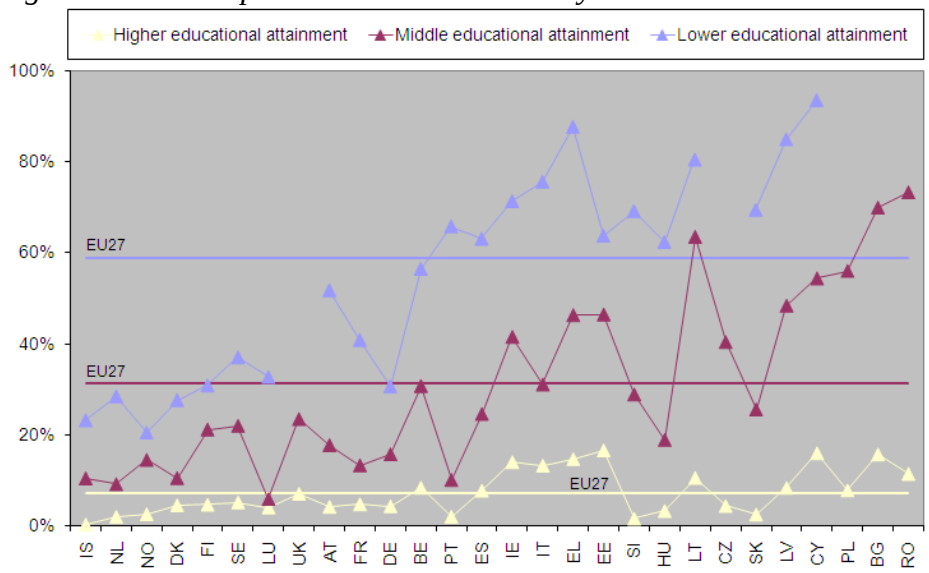
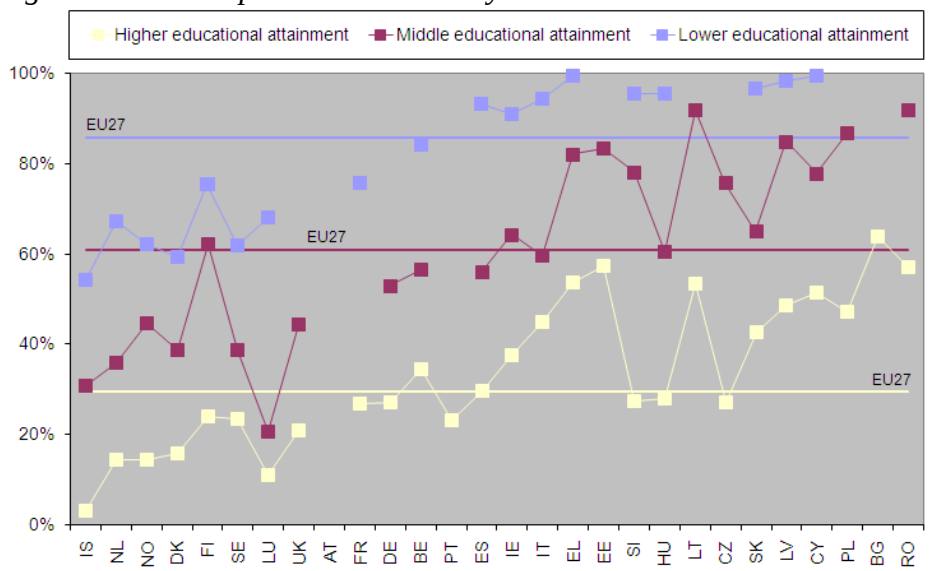


Figure 8c: No computer skills– 55-74 year-olds and educational attainment



Relates to question E3 of the Community Survey on ICT usage in Households and by Individuals. See annex 4 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with no computer skills are 15%, 9% and 2% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 16-24 year-olds with low levels of educational attainment, the share with no computer skills ranges from 1% in Iceland, Finland and Slovenia to 36% in Ireland, 47% in Bulgaria, and 45% in Romania.
- Of 16-24 year-olds with medium levels of educational attainment, the share with no computer skills ranges from 1% in Iceland and Denmark to 33% in Ireland and 34% in Romania).
- Of 16-24 year-olds with high levels of educational attainment, the share with no computer skills ranges from 0% in Iceland, Norway, Sweden, and Luxembourg, to 13% in Ireland. It is important to note that Eurostat 2007 data breakdowns for this latter category are not available for 12 countries[14].

Among 25-54 year-olds, the EU27 average shares with no computer skills are 59%, 31% and 7% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 25-54 year-olds with low levels of educational attainment, the share with no computer skills ranges from 20% in Norway to 94% in Cyprus. It should be noted that data are missing for five countries[15].
- Of 25-54 year-olds with medium levels of educational attainment, the share with no computer skills ranges from 6% in Luxembourg to 73% in Romania.
- Of 25-54 year-olds with high levels of educational attainment, the share with no computer skills ranges from 0% in Iceland to 17% in Estonia.

[14] Data not available for: NL, DK, FI, UK, FR, AT, DE, PT, EE, SI, CZ and PL
[15] Data not available for: UK, CZ, PL, BG and RO

Among 55-74 year-olds, the EU27 average shares with no computer skills are 86%, 61% and 30% for low, medium and high educational levels respectively. Notable national deviations exist:

- Of 55-74 year-olds with low levels of educational attainment, the share with no computer skills ranges from 54% in Iceland to 100% in Greece, where the entire group surveyed seems to have no computer skills whatsoever. Data not available for ten countries in relation to this category[16].
- Of 55-74 year-olds with medium levels of educational attainment, the share with no computer skills ranges from 21% in Luxembourg to 92% in both Lithuania and Romania.
- Of 55-74 year-olds with high levels of educational attainment, the share with no computer skills ranges from 3% in Iceland to 64% in Bulgaria.

What figures 8a-c and the data for the various age groups above show is that the proportion of individuals in the EU27 with no computer skills increases with age. In contrast, educational attainment counterbalances this to some extent. In fact, as age increases, educational attainment becomes increasingly influential as a factor positively reducing the number of individuals with no computer skills. This is illustrated by the increasing vertical distance between the lines (depicting educational attainment levels within particular age group) in each of the above figures 8a-c.

To put it simply, the higher the educational attainment level is in a population, the more likely it is that the number of individuals with no computer skills will be low, but differences in computer skills are smaller among the youngest. As observed in previous sections, an invisible line divides Europe from the south-west to the north-east, with countries in north and Western Europe generally having smaller percentages of inhabitants with no computer skills and arguably higher computer skills levels compared to the EU27 average. This is observable for all age groups and for all levels of educational attainment. Slovenia, Iceland and Finland have a mere 1% of 16-24 year-olds with at the same time low educational attainment and no computer skills; these countries have likely benefited from integrating ICT into primary and secondary education, promoting regular use, providing targeted training and/or running effective promotional initiatives.

Looking at the individual age groups it is interesting to see that the national variance among the countries in the middle quartiles (i.e. the 50% of countries deviating the least from the average) for each education level decreases with age, i.e. the lower the age the smaller the variation between countries. This shows that younger people irrespective of their country of residence are more likely to have better computer skills than older people. This may also be a result of the increased exposure to ICT and the internet as well as an increased focus on ICT skills in the formal educational systems. For all three age groups, moreover, the greatest deviations from the EU27 average seems to be in the skills levels of individuals with low or middle educational levels.

[16] Data not available for: UK, FR, DE, PT, EE, LT, CZ, PL, BG and RO

Only in the oldest age group from 55-74 do the national averages among individuals with higher levels of educational attainment start differ significantly. This holds regardless of their level of education with the exception of highly educated 25-54 year-olds, as illustrated by the aggregate averages for this particular group. This therefore supports the trend identified in section 2.4 which highlighted that the proportion of individuals who have never used a computer has decreased relatively more for younger people. This is also reflected by the higher increase of the proportion of the 16-24 year-olds and students with medium/high computer skills.

Notable national differences can be observed. The countries with the most advanced computer skills are represented by small northern and western Member States. However, there is relatively little variance between countries in the middle quartiles (i.e. the 50% of countries diverting the least from the average). There are a number of exceptions to this trend when looking at individual countries. Slovenia does well in relation to the 16-24 and 25-54 year old, whereas Ireland for all three age groups has a substantially higher proportion of inhabitants with no computer skills compared to the EU27 averages (see annex 4 for details).

Concluding from the above, trends observed for the EU27 include:

- There is a positive correlation between the level of educational attainment and the level of computer skills; in addition, the lower the age the more likely it is that an individual possesses computer skills.
- An invisible line that divides Europe from the south-west to the north-east is confirmed – particularly as age increases – with those countries in the north and west generally having fewer inhabitants with no computer skills than those in the south and east when compared to the EU27 average.
- National differences also confirm a general geographical trend, with the most computer skilled countries being relatively small northern and western Member States such as Iceland, Finland, Norway, Sweden, Denmark, Luxembourg, and Slovenia, whereas countries such as Romania, Bulgaria, Ireland, Cyprus, and Greece are found at the other end of the spectrum.

The findings indicate that early introduction and integration of ICT in primary and secondary education, promotion of regular use, and targeted training and dissemination initiatives, may lead to improved computer skills even for individuals with low educational attainment.

Previous analysis of PISA data[17], however, raises the question of to what extent extending the use of computers within schools can contribute to higher standards and greater equity in student performance. Students in PISA who used computers most widely tended to perform slightly worse on average than those with moderate usage. This in turn raises the issue of whether students who are using computers more are necessarily using them to best effect. In countries where basic computer access is approaching a universal level, policy needs to turn its attention from providing the technology to ensuring that its usage is effective, focusing on

[17] OECD (2005). *Are Students Ready for a Technology-Rich World? What PISA Studies Tell US*. www.oecd.org/dataoecd/28/4/35995145.pdf

the quality of ICT usage rather than the quantity. This has been advocated in the recent review of Digital Literacy in Europe.

2.5.2 Age and education level for individuals with low computer skills

Figures 9a-c show the proportion of individuals with low levels of computer skills at different ages and educational attainment levels for the EU27 and selected countries. Each figure displays how country shares vary with educational attainment within a particular age group. For instance, in figure 9a three colours are used to distinguish the low computer skills levels of young people with lower (light purple), middle (plum) and higher (cream) education levels. Horizontal lines indicate EU27 averages.

Figure 9a: Low computer skills levels – 16-24 year-olds and education level

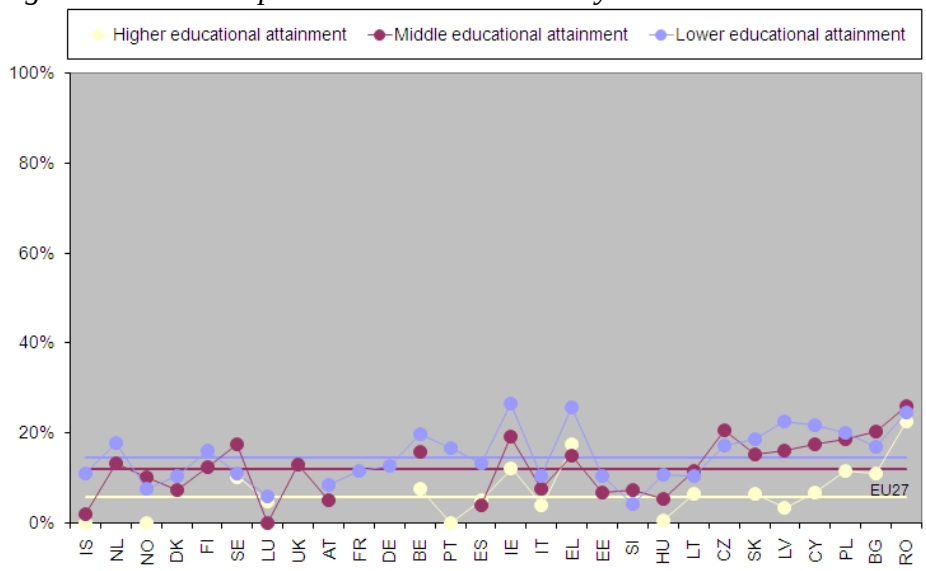


Figure 9b: Low computer skills levels – 25-54 year-olds and education level

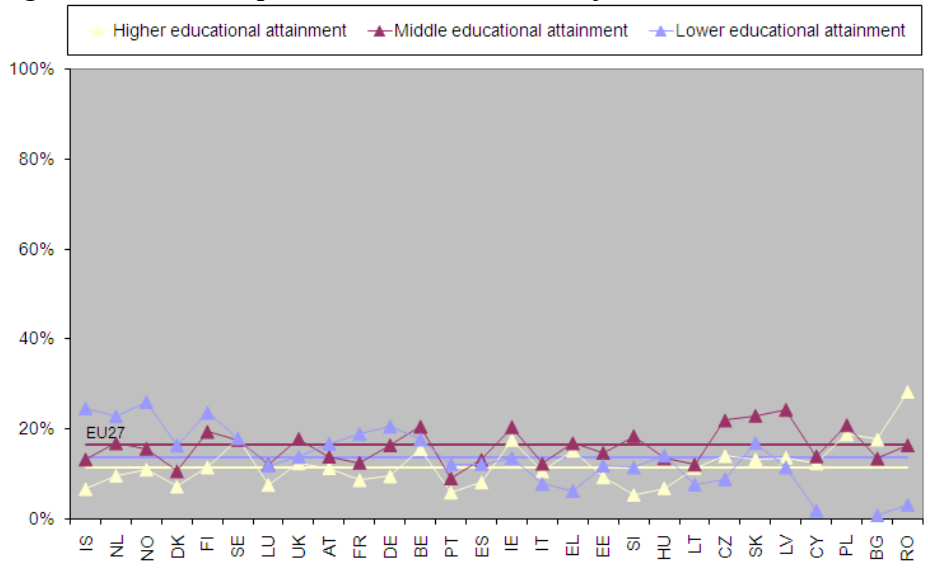
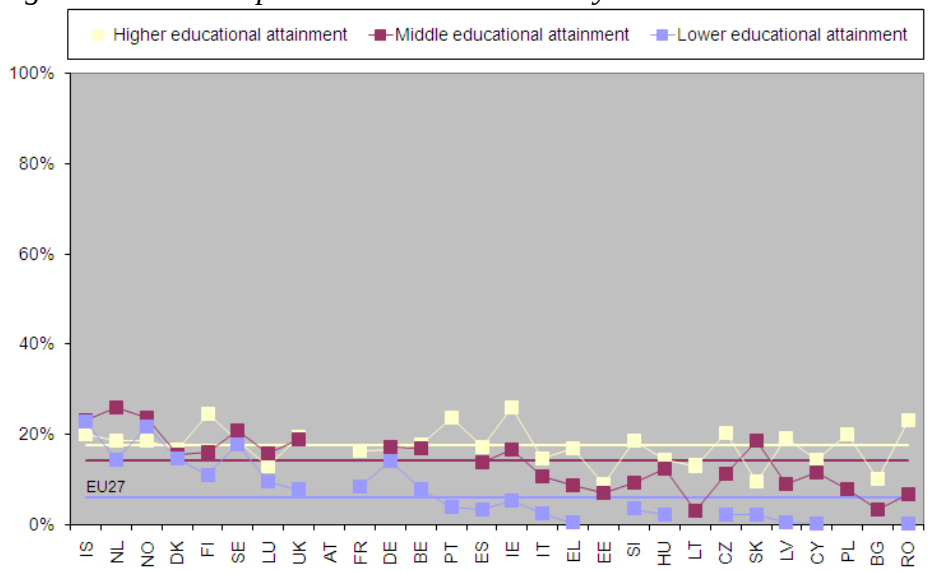


Figure 9c: Low computer skills levels – 55-74 year-olds and educational attainment level



Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 4 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with low computer skills are 15%, 12% and 6% for low, medium, and high educational attainment levels respectively. Minor national deviations exist:

- Of 16-24 year-olds with low levels of educational attainment, the share with low computer skills ranges from 26% in Ireland and Greece to 4% in Slovenia.
- Of 16-24 year-olds with medium levels of educational attainment, the share with low computer skills ranges from 0% in Luxembourg and 2% in Iceland to 26% in Romania.
- Of 16-24 year-olds with high levels of educational attainment, the share with low computer skills ranges from 0% in Iceland, Norway, Sweden, and Luxembourg, to 23% in Romania. It should be noted that data for this category are not available for ten countries[18].

Among 25-54 year-olds, the EU27 average shares with low computer skills are 14%, 17% and 11% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 25-54 year olds with low levels of educational attainment, the share with low computer skills ranges from 26% in Norway to 8% in Italy and 6% in Greece.
- Of 25-54 year olds with medium levels of educational attainment, the share with low computer skills ranges from 26% in Slovakia and 24% in Latvia to 9% in Portugal.
- Of 25-54 year olds with high levels of educational attainment, the share with low computer skills ranges from 28% in Romania to 6% in Portugal and 5% in Slovenia.

[18] Data not available for: NL, DK, FI, UK, FR, AT, DE, EE, SI and CZ

Among 55-74 year-olds, the EU27 average shares with low computer skills are 6%, 14% and 18% for low, medium, and high educational attainment levels respectively. Notable national deviations exist:

- Of 55-74 year-olds with low levels of educational attainment, the share with low computer skills ranges from 0% in Greece, Latvia, Cyprus, and Romania to 22% in Norway and 23% in Iceland.
- Of 55-74 year-olds with medium levels of educational attainment, the share with low computer skills ranges from 3% in Bulgaria and Lithuania to 26% in the Netherlands.
- Of 55-74 year-olds with high levels of educational attainment, the share with low computer skills ranges from 95% in Estonia to 25% in Finland and 26% in Ireland.

These data must be interpreted within the context of each country's overall digital literacy strategy and the general educational attainment level. It will also be appropriate to assess country development within the framework of digital literacy levels 1, 2, and 3. For countries in the north and north-west of Europe with relatively lower percentages of individuals with low levels of computer skills, low percentages of persons with low computer skills levels could be interpreted positively since these countries at the same time have a relative higher percentage of inhabitants with medium/high computer or internet skills. In contrast, for countries in the south and south-east of Europe, the existence of a small percentage of the population with low computer and internet skills may be considered positive because the majority of citizens in these countries have no computer or internet skills at all.

Figures 9a-c show that there is a dual relationship between age, educational attainment, and computer skills. As educational attainment increases, the percentage with low computer skills falls among those aged 16-24, whereas among the elderly the share with low computer skills rises with increases in educational levels. As with the geographical differences above, these differences reasonably should be interpreted in light of the overall digital literacy levels within these two age groups.

Figures 9a-c highlight a smaller spread, or variance, in the national levels of low computer skills than in the levels of no computer skills as illustrated in section 2.5.1 and figures 8a-c. Again, an invisible line seems to divide Europe from the south-west to the north-east with countries such as Iceland, Norway, Finland and the Netherlands generally scoring higher with fewer inhabitants with low levels of computer skills in comparison with the EU27 average among the youngest and more inhabitant with low levels of computer skills among the elderly, although clearly this trend is less observable than in the figures 8a-c for the category no computer skills. Reasons could be manifold, but it lends further support to a trend observed elsewhere – that digital literacy levels are generally higher in north-western European countries as highlighted by the lower proportion of citizens found in the no and low computer skills categories.

To conclude, general trends observed for the EU27 include:

- Educational attainment for youth (16-24 year-olds) and the elderly (55-74 year-olds) vis-à-vis the likelihood of having low levels of ICT skills show inverse relationships. As educational levels increase, the likelihood of having only a low level of ICT skills decreases among the youngest, but increases among the elderly.

- A minor virtual border runs through Europe, with those countries above this border generally having relatively fewer inhabitants with low levels of computer skills compared to the EU27 average among the younger and more inhabitants among the elderly. This trend is particularly evident among those aged above 54 who do not have a higher education.
- National differences confirm this divide with the most computer-skilled countries being the relatively small northern and western economies such as Iceland, Norway, Finland, and the Netherlands.

2.5.3 Age and educational attainment for individuals with medium/high computer skills

Figures 10a-c examine the proportion of individuals with medium/high levels of computer skills, at different age and educational levels for the EU27 and for selected countries. Each figure displays how country shares vary according to the level of educational attainment for a particular age group. For instance, in figure 10a three colours are used to distinguish the proficiency levels for young persons with low (light purple), middle (plum) and high (cream) educational attainment. The horizontal lines indicate EU27 averages.

Figure 10a: Medium/high computer skills levels – 16-24 year-olds and education level

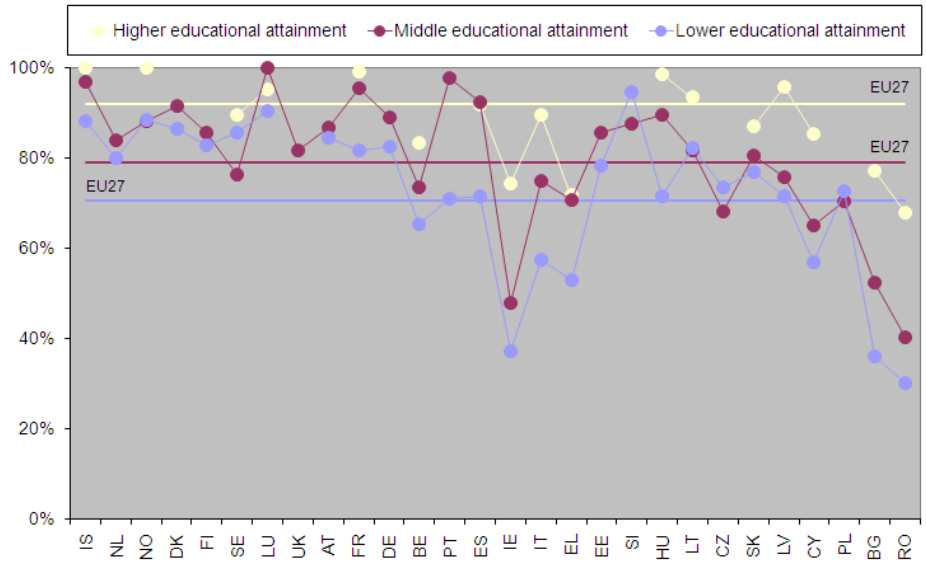


Figure 10b: Medium/high computer skills levels – 25-54 year-olds and education level

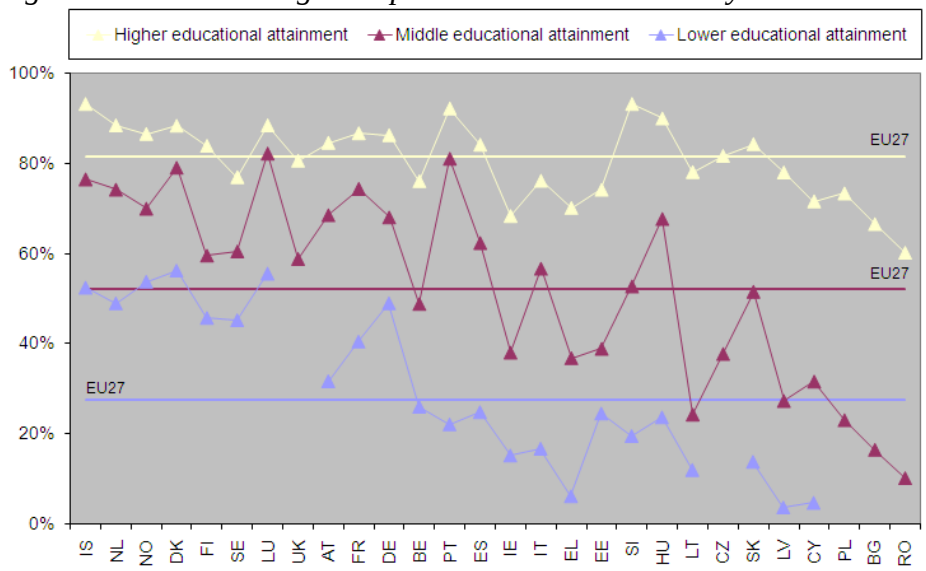
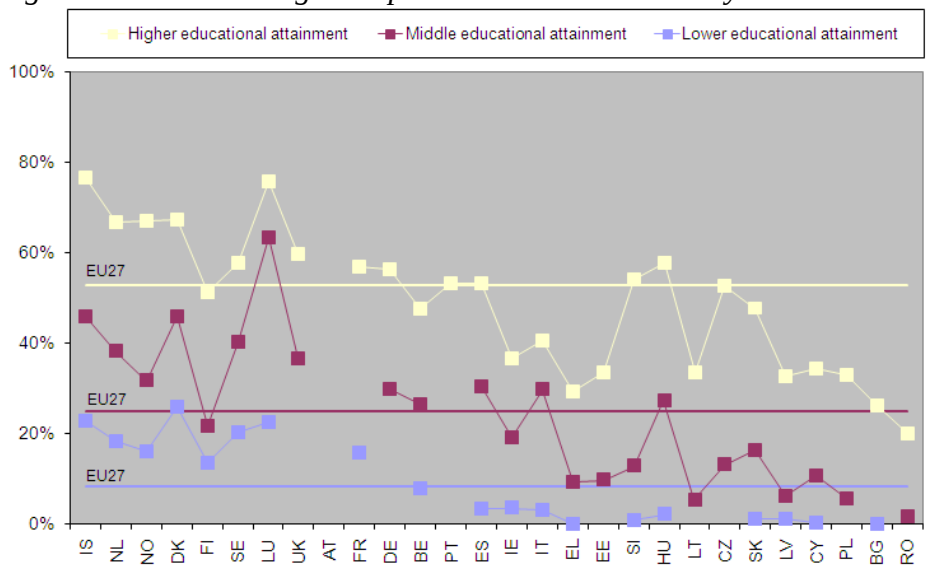


Figure 10c: Medium/high computer skills levels – 55-74 year-olds and education level



Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 4 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with medium/high computer skills are 71%, 79% and 92% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 16-24 year-olds with low levels of educational attainment, the share with medium/high computer skills ranges from 90% in Luxembourg and 88% in both Iceland and Norway to 37% in Ireland and 36% in Romania.
- Of 16-24 year-olds with medium levels of educational attainment, the share with medium/high computer skills ranges from 100% in Luxembourg and 98% in Portugal to 48% in Ireland and 40% in Romania.

- Of 16-24 year-olds with high levels of educational attainment, the share with medium/high computer skills ranges from 100% in Iceland and Norway and 99% in Austria to 72% in Greece and 68% in Romania. Data do not exist for this category for 11 countries[19].

Among 25-54 year-olds, the EU27 average shares with medium/high computer skills are 28%, 52% and 82% for low, medium, and high educational attainment levels respectively. Notable national deviations exist:

- Of 25-54 year-olds with low levels of educational attainment, the share with medium/high computer skills ranges from 56% for both Denmark and Luxembourg to 5% in Cyprus and 4% in Latvia.
- Of 25-54 year-olds with medium levels of educational attainment, the share with medium/high computer skills ranges from 82% in Luxembourg and 81% in Portugal to 17% in Bulgaria and 10% in Romania.
- Of 25-54 year-olds with high levels of educational attainment, the share with medium/high computer skills ranges from 93% in Iceland and 92% in Portugal to 68% in Ireland, 67% in Bulgaria, and 60% in Romania.

Among 55-74 year-olds, the EU27 average shares with medium/high computer skills are 8%, 25% and 53% for low, medium, and high educational attainment levels respectively. Notable national deviations exist:

- Of 55-74 year-olds with low levels of educational attainment, the share with medium/high computer skills ranges from 26% in Denmark to 1% in Slovenia, Slovakia and Latvia and 0% in Bulgaria, Greece and Cyprus. It should be noted that data are not available for 9 countries in relation to this category[20].
- Of 55-74 year-olds with medium levels of educational attainment, the share with medium/high computer skills ranges from 63% in Luxembourg to 2% in Romania.
- Of 55-74 year-olds with high levels of educational attainment, the share with medium/high computer skills ranges from 77% in Iceland and 76% in Luxembourg to 26% in Bulgaria and 20% in Romania.

Figures 10a-c for individuals with medium/high computer skills levels show trends corresponding with those observed in figure 8a-c for individuals with no and low computer skills – i.e. if the proportion of individuals in a group or country with no computer skills is low, the proportion of individuals with medium/high computer skills will, *ceteris paribus*, be high. This further supports previous observations which show that the proportion of individuals with medium/high computer skills levels in the EU27 is the highest for the young age group (i.e.16-24 year old) and generally tends to fall with age although mediated by levels of educational attainment. Thus, educational attainment levels become an increasingly important factor influencing the level of computer skills as age increases.

Figures 10a-c highlight that there is a larger spread, or variance, in the national levels of medium/high computer skills than is the case for the low levels of ICT skills illustrated in

[19] Data not available for: NL, DK, FI, UK, FR, DE, PT, EE, SI, CZ and PL
[20] Data not available for: UK, FR, DE, PT, EE, LT, CZ, PL and RO

figures 9a-c. On the other hand, the national variations for medium/high skills levels on the surface mirror that of no computer skills in section 2.5.1 and figures 8a-c. The previously observed line dividing Europe from the south-west to the north-east also is applicable to figures 10a-c and medium/high computer skills. Countries above this dividing line generally have higher digital literacy levels – as deduced from a higher proportion of inhabitants with medium/high computer skills – when compared to the EU27 average. Countries that generally do well, and lie above the EU27 average and the geographical dividing line in Europe include Iceland, Luxembourg, Portugal, Denmark, and Norway. By comparison, Romania, Bulgaria, Greece, and Cyprus do less well.

It is also interesting that the national variance across countries in the middle quartiles (i.e. the 50% of countries diverting the least from the average) seems even smaller for the 25-54 year-olds and that the variation – as highlighted above – between the countries performing well and less well is relatively smaller in north-western European countries than in the south-eastern countries. This holds for all educational levels, but with a variation as age increases (see annex 4 for figures and breakdowns).

To sum up, the trends observed for the EU27 show:

- If the proportion of individuals in a group or country with no computer skills is low, the proportion of individuals with medium/high computer skills will be high.
- The 16-24 year-olds as a group have the best computer skills levels in the EU27 regardless of their educational attainment level.
- Educational attainment becomes an increasingly important determinant of the level of computer skills, the older the age groups.
- Europe is divided from the south-west to the north-east. Countries such as Iceland, Luxembourg, Portugal, Denmark and Norway above this line generally have relatively more inhabitants with medium/high computer skills levels compared to the EU27 average: by comparison, countries such as Romania, Bulgaria, Greece, and Cyprus are below the EU27 average.

2.6 Age, employment and computer skills by country[21]

The combination of age and employment status (or type) shows some potential for shedding light on factors that influence the level of digital literacy for potentially marginalised and disadvantaged groups. This section therefore reviews data derived from the Eurostat 2007 special module on digital literacy – a module which allows for a number of cross tabulations including employment status, gender, and age groups, not previously possible for questions related to computer skills. Three employment categories are covered i.e. the employed or self-employed (self-/employed), the unemployed, and the retired or otherwise inactive employment status (retired/inactive). Although being enrolled in education may rightly be considered an employment status, unfortunately, age and employment status data from the 2007 Eurostat Community Survey have not been combined regarding students.

[21] These data are related to the question E3 of the "Community Survey on ICT usage in Households and by Individuals".

Figure 11 shows the 2007 average computer skills level by age and employment status in the EU27. For each level of computer skills, the figure depicts how shares vary for people with different employment status (the lines) within age groups (plotted along the x-axis). Age differences are apparent as sloping lines while the vertical separation of lines shows differences related to employment. The EU27 average is used as a reference point for the subsequent analysis of Eurostat survey data (see annex 5 for specific data and breakdowns).

Figure 11: Computer skills by age and employment status, EU27

Percentages of all individuals in EU27 in a particular age group and with particular educational attainment. Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals, 2007. See annex 5 for exact figures and breakdown.

Figure 11 shows a number of tendencies. These include[22]:

- Within all age groups, employment status appears to have a similar and moderate impact on the level of computer skills (as indicated by the even vertical separation of lines) – skills being highest among the self-/employed and lowest among the retired and inactive.
- Within all employment status groups, age appears to have a similar and slightly more significant negative impact on the level of computer skills (as indicated by the steady slope of each line).
- Both age and employment status (i.e. self-/employed, unemployed or retired/inactive) appear to have practically no effect on the share of people with low computer skills.

It can be concluded that both the age of an individual and that individual's connection to the labour market have an effect on the level of computer skills irrespective of age and employment status.

The following sections examine the level of computer skills in relation to age and employment status as key factors influencing the level of computer skills in each of the European member states as well as in Norway and Iceland.

2.6.1 Age and employment status for individuals with no computer skills

Figures 12a-c present the relationship between the group of individuals with no computer skills to their age and employment status for the EU27 and selected countries. Each figure displays how country shares vary with employment status for a particular age group, for instance, in figure 12a three colours are used to distinguish the proficiency levels of young

[22] NOTE: This section serves to highlight trends so specific figures have not been included, but will be in the subsequent sections.

people who are (self-employed (cream), unemployed (plum) and retired or inactive (light purple). Horizontal lines indicate EU27 averages.

Figure 12a: No computer skills levels – 16-24 year-olds and employment status

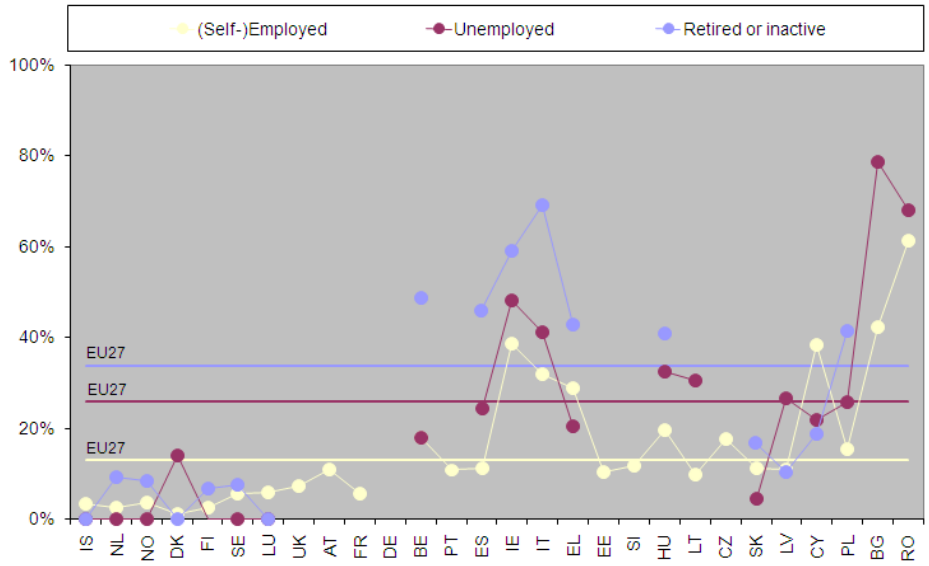


Figure 12b: No computer skills levels – 25-54 year-olds and employment status

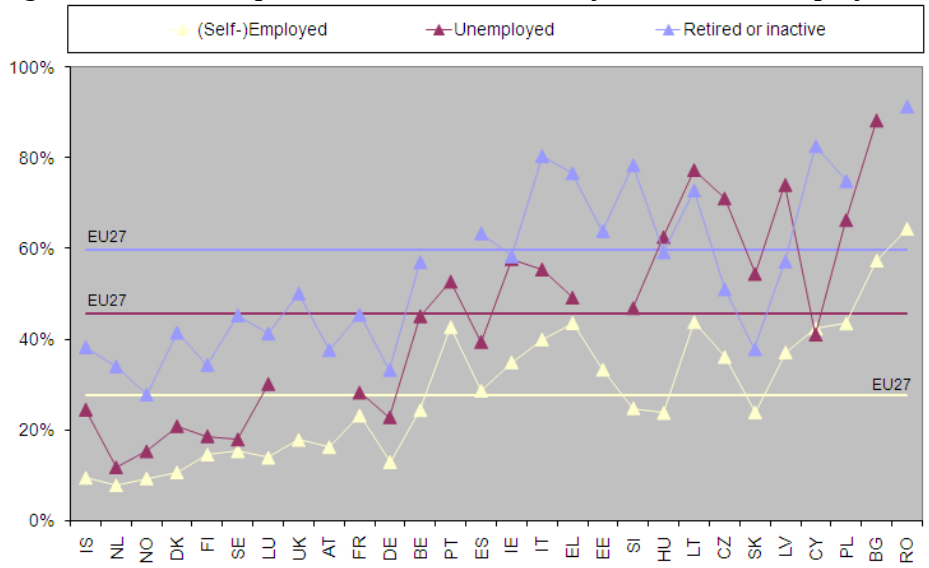
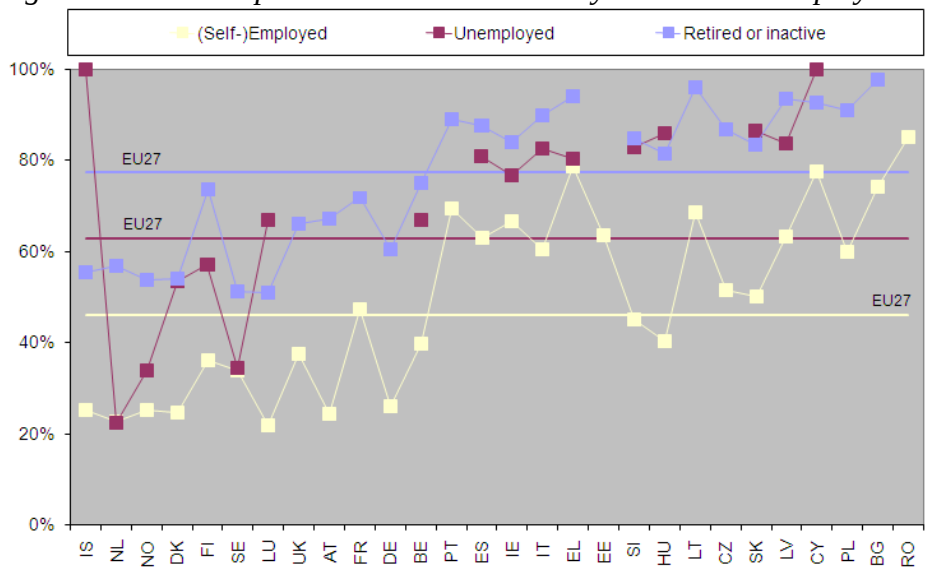


Figure 12c: No computer skills levels – 55-74 year-olds and employment status



Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 5 for exact figures and breakdown.

Among 16-24 year-olds, EU27 average shares with no computer skills are 13%, 26% and 34% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 16-24 year-olds who are self-/employed, the share with no computer skills ranges from 1% in Denmark to 28% in Romania.
- Of 16-24 year-olds who are unemployed, the share with no computer skills ranges from 0% in Iceland, the Netherlands, Norway, Finland, Sweden, and Luxembourg, to 79% in Bulgaria. It should be noted that for this category data are not available for 8 countries[23].
- Of 16-24 year-olds who are retired/inactive, the share with no computer skills ranges from 0% in Iceland, Denmark, and Luxembourg, to 69% in Italy. Data are not available for this category for 11 countries (including Bulgaria and Romania)[24].

Among 25-54 year olds, the EU27 average shares with no computer skills are 28%, 46% and 60% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of the 25-54 year-olds in the Netherlands who are self-/employed, 8% have no computer skills. In Romania, 64% of this group have no computer skills.
- Of the 25-54 year-olds in the Netherlands who are unemployed, 12% have no computer skills. In Bulgaria, 88% of this group have no computer skills.
- Of the 25-54 year-olds who are retired/inactive in Norway, 28% have no computer skills, while this figure in Romania is 91%.

[23] Data not available for: UK, FR, AT, DE, PT, EE, SI and CZ
[24] Data not available for: UK, FR, AT, DE, PT, EE, SI, LT, CZ, BG and RO

Among 55-74 year-olds, the EU27 average shares with no computer skills are 46%, 63% and 77% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of the 55-74 year-olds who are self-/employed, 22% in Luxembourg and 23% in the Netherlands have no computer skills, whereas the corresponding figure for Romania is 85%.
- Of the 55-74 year-olds in the Netherlands who are unemployed, 22% have no computer skills. The corresponding figure for both Iceland and Cyprus is 100%. It should be noted that data are not available for 11 countries[25].
- Of the 55-74 year-olds who are retired/inactive, 51% in both Sweden and Luxembourg have no computer skills. The corresponding figure for both Bulgaria and Lithuania is 96%.

For individuals with no computer skills the data and figures 12a-c above (see annex 5 for specific data and breakdowns) show that there is a correlation between computer skills levels, age, and employment status – i.e., whether a person is employed (self-/employed), unemployed, or retired or otherwise economically inactive. As a general rule the likelihood of having no computer skills increases with age. The likelihood of having no computer skills is also higher for individuals who are unemployed or retired/inactive. That said, a current connection to the labour market to some extent counterbalances the influence of age.

The above figures show that the south-west to north-east divide persists. Countries such as Iceland, the Netherlands, Norway, Sweden, and Luxembourg north of this divide generally have better computer skills levels as illustrated by having fewer inhabitants with no computer skills. By comparison, countries such as Romania and Bulgaria in the south and south-east of Europe do less well, although Iceland is an exception to this geographical rule for the unemployed aged 55-74 where all surveyed inhabitants have no computer skills (i.e. 100% of all unemployed Icelanders aged 55-74 have no computer skills). These geographical observations also apply to the national variance among countries in the middle quartiles (i.e. the 50% of countries diverting the least from the average), although this variance generally increases with age. In addition, there is an observable difference regarding the degree to which countries in the middle quartiles deviate from the EU27 average with countries in the southern and south-eastern parts of Europe deviating relatively more from the EU27 median compared to nations in the north, north-west (see annex 5 for data and specific breakdowns).

The figures also show that the number of persons with no computer skills is particularly low for the young economically active age group (as illustrated by e.g. the 16-24 year-olds being self-/employed). Age and present employment status are thus important factors influencing the level of computer skills positively. This becomes even more evident when looking at the EU27 averages for the individual age groups with no computer skills i.e.:

- 13%, 26% and 34% for individuals aged 16-24 being self-/employed, unemployed and retired/inactive respectively
- 28%, 46% and 60% for individuals aged 25-54 being self-/employed, unemployed and retired/inactive respectively

[25] Data not available for: UK, FR, AT, DE, PT, EE, LT, CZ, PL, BG and RO

- 46%, 63% and 77% for individuals aged 55-74 being self-/employed, unemployed and retired/inactive respectively.

In conclusion, the general trends observed for the EU27 are:

- A correlation between individuals with no computer skills, age, and employment status. That is, the younger the person the less likelihood of having no computer skills, and that past and present employment (self-/employed) lowers the likelihood of a person having no computer skills. In contrast, mature age, unemployment, retirement or economic inactivity (i.e. retired/inactive) increases the likelihood of the individual having no computer skills.
- Smaller north and north-western countries such as Iceland, the Netherlands, Norway, Sweden, and Luxembourg have fewer inhabitants with no computer skills compared to countries such as Bulgaria and Romania in the south-east. Although Iceland is an exception to this geographical rule for the unemployed aged 55-74 where all surveyed inhabitants have no computer skills.
- Countries in the south and south-east of Europe deviate more from the EU27 average than those in the north and north-west (see annex 5 for details).
- For individuals outside the labour market and who are not in education, access to ICT infrastructures enabling them to practice their skills may still be an issue in some European countries.

2.6.2 Age and employment status for individuals with low computer skills

Figures 13a-c examines the situation for individuals with low computer skills by age groups and employment status for the EU27 and for selected countries. Each figure displays how country shares vary with employment status within a particular age group. For instance, in figure 13a three colours are used to distinguish the proficiency levels of young people who are self-/employed (cream), unemployed (plum) and retired or inactive (light purple).

Figure 13a: Low computer skills levels – 16-24 year-olds and employment status

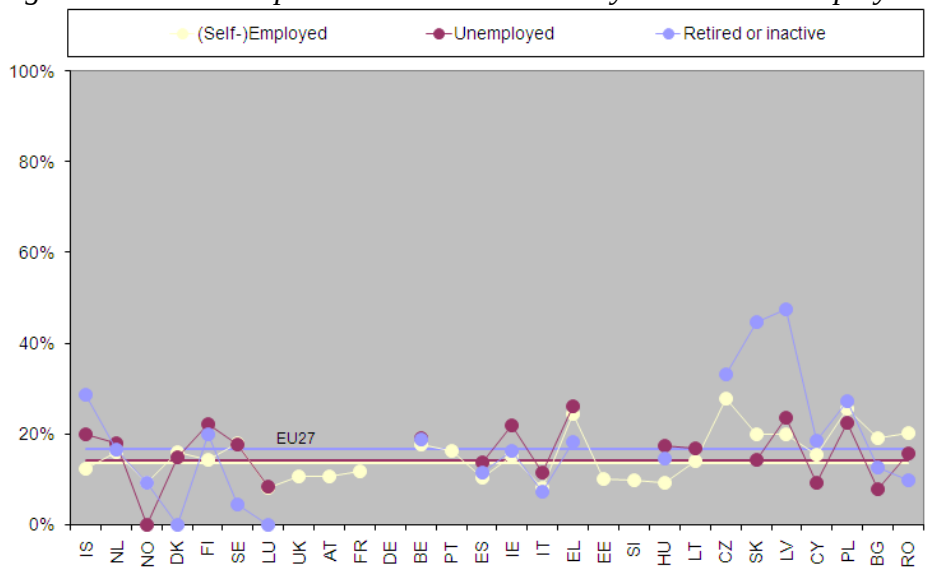


Figure 13b: Low computer skills levels – 25-54 year-olds and employment status

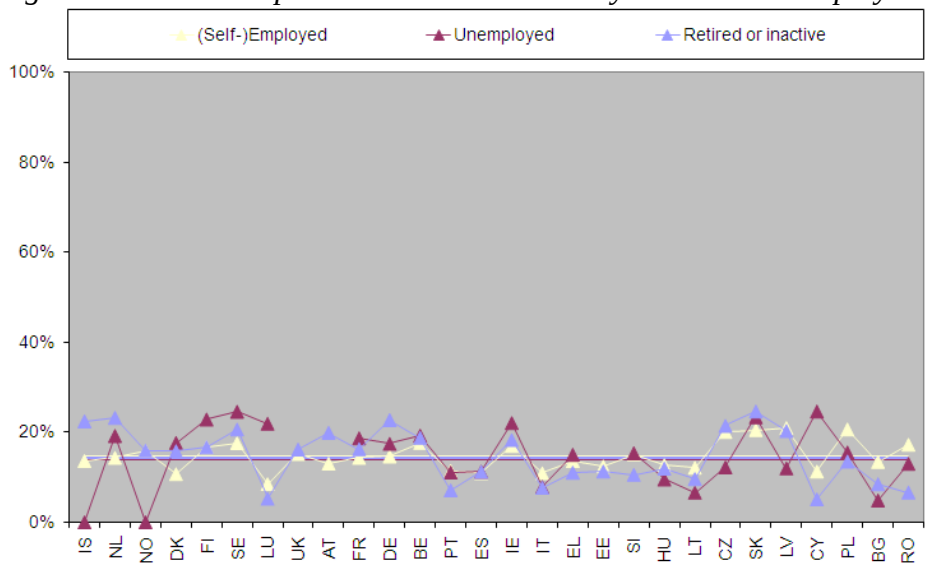
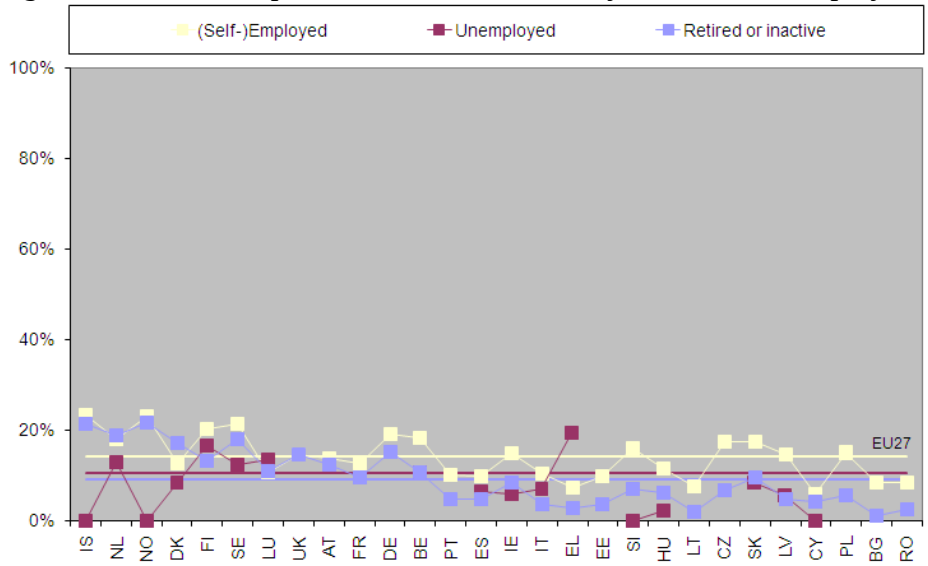


Figure 13c: Low computer skills levels – 55-74 year-olds and employment status



Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 5 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with low computer skills are 14%, 14% and 17% for self-/employed, unemployed and retired/inactive respectively. Only minor national deviations exist:

- Of 16-24 year-olds who are self-/employed, the share with low computer skills ranges from 18% in Belgium and Sweden to 8% in Luxembourg.
- Of 16-24 year-olds who are unemployed, the share with low computer skills ranges from 0% in Norway to 26% in Greece. Date not available for 8 countries in relation to this category[26].

[26] Data not available for: UK, FR, AT, DE, PT, EE, SI, and CZ

- Of 16-24 year-olds who are retired/inactive, the share with low computer skills ranges from 0% in Denmark and Luxembourg to 45% in Slovakia and 48% in Latvia. Data not available for 8 countries in relation to this category either[27].

Among 25-54 year-olds, the EU27 average shares with low computer skills are 15%, 14% and 14% for self-/employed, unemployed and retired/inactive respectively. Only minor national deviations exist:

- Of the 25-54 year-olds who are self-/employed, the share with low computer skills ranges from 8% in Luxembourg to 21% in Slovakia, Latvia, and Poland.
- Of the 25-54 year-olds who are unemployed, the share with low computer skills ranges from 0% in Iceland and Norway to 24% in both Sweden and Cyprus.
- Of the 25-54 year-olds who are retired/inactive, the share with low computer skills ranges from 5% in both Luxembourg and Cyprus to 23% in both the Netherlands and Germany and 24% in Slovakia.

Among 55-74 year-olds, the EU27 average shares with low computer skills are 14%, 11% and 9% for self-/employed, unemployed and retired/inactive respectively. Only minor national deviations exist:

- Of the 55-74 year-olds who are self-/employed, the share with low computer skills ranges from 6% in Cyprus and 8% in both Lithuania and Bulgaria, to 23% in both Iceland and Norway.
- Of the 55-74 year-olds who are unemployed, the share of low computer skills ranges from 0% in Iceland, Norway, Slovenia and Cyprus, to 19% in Greece. It should be noted that data are not available for this category for 11 countries[28].
- Of the 55-74 year-olds who are retired/inactive, the share of low computer skills ranges from 1% in Bulgaria and 2% in Lithuania to 19% in the Netherlands and 22% in Norway.

The data in figures 13a-c show very small deviations between the EU27 averages for the group of individuals with low computer skills. This variation is particularly small for the self-/employed and unemployed aged 16-24, 25-54 and to a lesser extent for 55-74 (see also annex 5 for specific data and breakdowns). For the 16-24 year-olds the EU27 average for retired/inactive population segments is higher in numerical terms than for the other age groups (i.e. the 25-54 and 55-74 year-olds). This becomes particularly clear when looking at the EU27 averages for the individual age groups with low computer skills i.e.:

- 14%, 14% and 17% of 16-24 year-olds who are self-/employed, unemployed and retired/inactive respectively have low computer skills
- 15%, 14% and 14% of 25-54 year-olds who are self-/employed, unemployed and retired/inactive respectively have low computer skills
- 14%, 11% and 9% of 55-74 year-olds who are self-/employed, unemployed and retired/inactive respectively have low computer skills.

[27] Data not available for: UK, FR, AT, DE, PT, EE, SI, and LT
[28] Data not available for: UK, FR, AT, DE, PT, EE, LT, CZ, PL, BG and RO

Note also, as was the case with educational attainment, that although a minor effect, the share of people with low computer skills increases with distance to the labour market among the youngest (aged 16-24) while it increases among the elderly (aged 55-74) the closer their connection.

The above highlights that employment status becomes an increasingly important influence for the proportion of individuals with low computer skills and as age increases, thus lending support to the argument that exposure to ICT e.g. at work or in school is an important lever for digital literacy development. For persons outside the labour market and not enrolled in education and training, public access to ICT remains important so as to reduce risks of exclusion both from an employment and a civic perspective.

Whether to consider the proportion of citizens with low computer skills as positive or negative development is, as pointed out in section 2.5.2, relative to the number of inhabitants who have either no or medium/high computer skills.

A combination of age and employment status for individuals with low computer skills shows that the 'traditional' geographical differences previously observed is less clear. For the 16-24 year-olds with low computer skills the 'traditional' geographical picture largely holds irrespective of the employment status. Countries such as Belgium, Sweden, Norway and Denmark do well, while countries such as Greece, Slovakia and Latvia by comparison do less well (see annex 5 for details). For the 25-54 year-olds with low computer skills there are a number of exceptions to the geographical trends observed in e.g. section 2.5.1 with Cyprus having large population segments with low computer skills whilst Sweden, the Netherlands and Germany have relatively few citizens in the low computer skills category. For the 55-74 year-olds the 'traditional' geographical picture is practically opposite to that seen for no and medium/high computer and internet skills. Countries in the south, south-east like Cyprus, Lithuania, and Bulgaria have relatively larger proportions of inhabitants with low computer skills- than Iceland, Norway and the Netherlands (see annex 5 for details). The explanation is likely that countries above the European south-west to north-east dividing line generally have larger population segments within the medium/high computer skills category regardless of the employment status, as seen in section 2.5.3 below. This last point therefore supports the 'traditional' geographical observations despite the more muddled picture for the individual countries.

The above point is supported indirectly be the national variance among countries in the middle quartiles (i.e. the 50% of countries diverting the least from the average). A variance which on average is relatively small as shown in figures 13a-c above.

In conclusion the trends observed for the EU27 are:

- There is little variation in national averages compared to the EU27 average regardless of the age group or type of employment status.
- The geographical trends for computer skills observed elsewhere – e.g., for age, educational attainment levels and computer skills in section 2.5 or age and employment status and no computer skills in section 2.6.1 – are more muddled when combining age and employment status for low computer skills. When seen in light of the findings in sections 2.6.1 and 2.6.3 for no and medium/high computer skills the

'traditional' geographical observations nonetheless hold. Countries above the south-west/north-east dividing line generally have fewer citizens with no computer skills and more with low and medium/high computer skills than those south-southeast of the divide. This represents a variation in national skills levels from being mainly no- and low skills levels in the south, south-east to low and medium/high computer skills levels in the north, north-west of Europe. A shift which generally holds regardless of the employment status and age group.

2.6.3 Age and employment status for individuals with medium/high computer skills

Figures 14a-c analyses the proportion of individuals with medium/high computer skills, in relation to age groups and employment status for the EU27, and for selected countries. Each figure displays how country shares vary with employment status within a particular age group. For instance, in figure 14a three colours are used to distinguish the proficiency levels of young people who are (self-/employed (cream), unemployed (plum) and retired or inactive (light purple).

Figure 14a: Medium/high computer skills levels – 16-24 year-olds and employment status

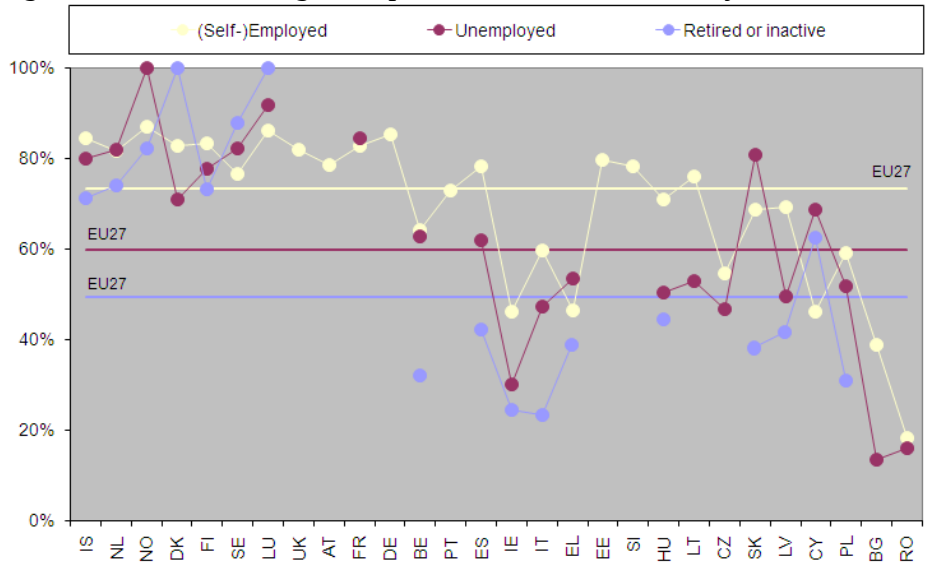


Figure 14b: Medium/high computer skills levels – 25-54 year-olds and employment status

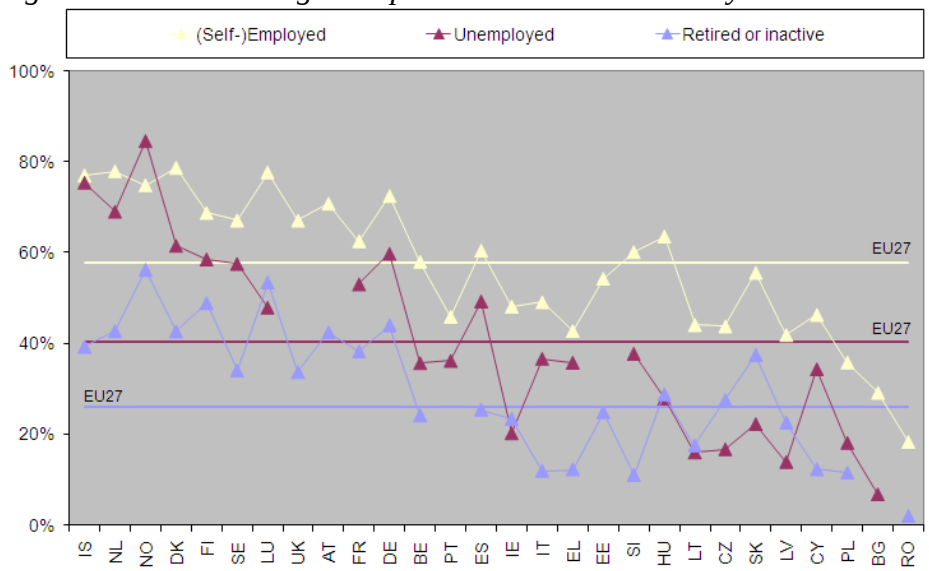
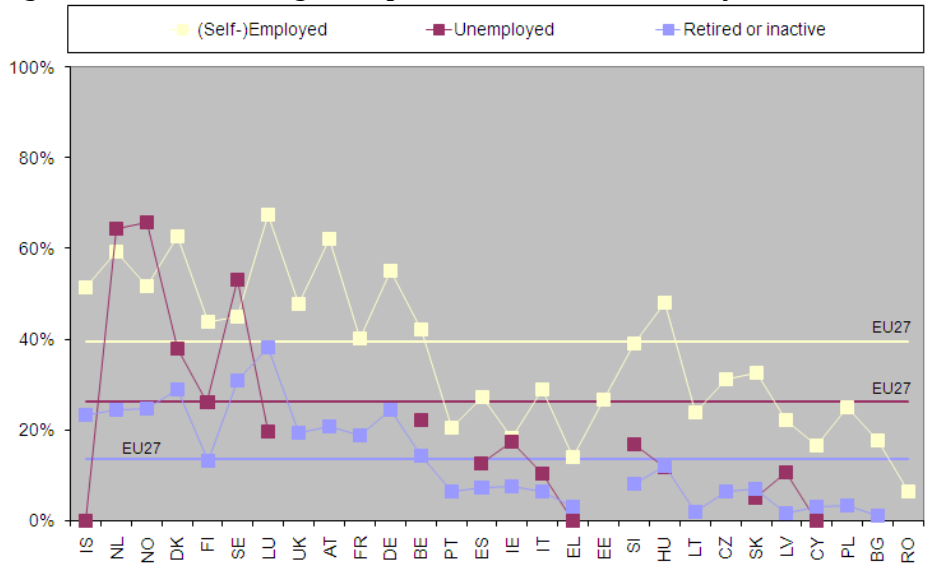


Figure 14c: Medium/high computer skills levels – 55-74 year-olds and employment status



Relates to question E3 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 5 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with medium/high computer skills are 74%, 60% and 50% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of the 16-24 year-olds who are self-/employed, the share with medium/high computer skills ranges from 87% in Norway and 86% in Luxembourg to 63% in Romania and 62% in Bulgaria.
- Of the 16-24 year-olds who are unemployed, the share with medium/high computer skills ranges from 100% in Norway to 13% in both Romania and Bulgaria.
- Of the 16-24 year-olds who are retired/inactive (mainly the latter in the case of this age group), the share with medium/high computer skills ranges from 100% in

Denmark and Luxembourg to 23% in Italy. It should be noted that data are not available for this category for 11 countries[29].

Among 25-54 year-olds, the EU27 average shares with medium/high computer skills are 58%, 40% and 26% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of the 25-54 year-olds who are self-/employed, the share with medium/high computer skills ranges from 79% in Denmark and 78% in both the Netherlands and Luxembourg, to 18% in Romania.
- Of the 25-54 year-olds who are unemployed, the share with medium/high computer skills ranges from 86% in Norway to 7% in Bulgaria.
- Of the 25-54 year-olds who are retired/inactive, the share with medium/high computer skills ranges from 56% in Norway to 2% in Bulgaria.

Among 55-74 year-olds, the EU27 average shares with medium/high computer skills are 40%, 26% and 14% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of the 55-74 year-olds who are self-/employed, the share with medium/high computer skills ranges from 67% in Luxembourg, 63% in Denmark, and 62% in France, to 6% in Romania.
- Of the 55-74 year-olds who are unemployed, the share with medium/high computer skills ranges from 66% in Norway and 64% in the Netherlands, to 0% in Iceland, Greece, and Poland. It should be noted that data are not available for this category for 11 countries[30].
- Of the 55-74 year-olds who are retired/inactive, the share with medium/high computer skills ranges from 38% in Luxembourg and 31% in Sweden, to 2% in both Latvia and Lithuania and 1% in Bulgaria.

When looking at figures 14a-c for individuals with medium/high levels of computer skills (see also annex 5 for specific figures and breakdowns) there is an apparent correlation between medium/high computer skills levels, age, and the employment situation of the individual.

It also becomes clear that the south-west/north-east geographical divide persists. The highest proportions of medium/high computer skills levels are found in countries such as Denmark, Norway, Sweden, the Netherlands, Luxembourg, and France, all located to the north of this dividing line. An exception to this is Iceland where none of the (surveyed) unemployed 55-74 year-olds have medium/high computer skills; a similar situation is only found in Bulgaria and Romania in the south-east of Europe.

The figures show that the level of medium/high computer skills is higher for young people and for those that are economically active. Age and employment status are factors that are correlated with the level of medium/high computer skills. This becomes even more evident

[29] Data not available for: UK, FR, AT, DE, PT, EE, SI, LT, CZ, BG and RO
[30] Data not available for: UK, FR, AT, DE, PT, EE, LT, CZ, PL, BG and RO

when comparing the EU27 averages for the individual age groups with medium/high levels computer skills according to employment status which are:

- 74%, 60% and 50% respectively for 16-24 year-olds who are self-/employed, unemployed, and retired/inactive
- 58%, 40% and 26% respectively for 25-54 year-olds who are self-/employed, unemployed, and retired/inactive
- 40%, 26% and 14% respectively 55-74 who are self-/employed, unemployed, and retired/inactive.

In conclusion the trends for the EU27 are:

- The geographical differences are persistent, with high proportions of medium/high computer skills levels found in small north-western countries such as Denmark, Luxembourg and Norway. An exception in this regard is Iceland, where none of the unemployed 55-74 year-olds have medium/high computer skills, a situation also found in Bulgaria and Romania (i.e. 0% of unemployed 55-74 year-olds in all three countries have medium/high computer skills).
- Age and employment status are important factors in relation to the computer skills levels of citizens, i.e. the younger a person is, and/or the longer a person has been self-/employed, the greater the likelihood for having attained medium/high computer skills.

2.7 Age, education and internet skills by country[31]

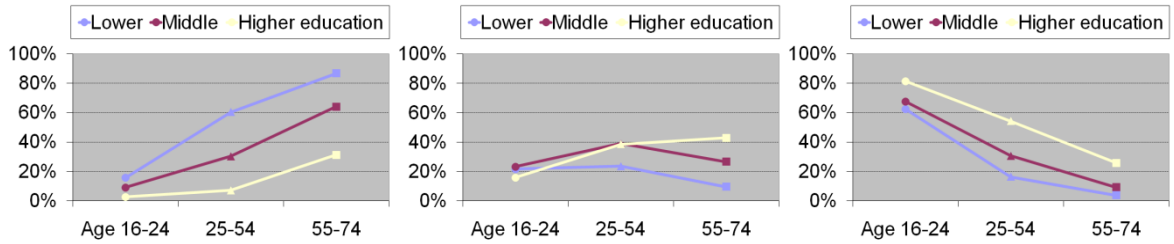
Having focused on computer use and skills, the 2007 Eurostat Community Survey data also shed light on factors influencing the level of internet skills. This section, like sections 2.5 and 2.6, reviews findings from the Eurostat 2007 special module on digital literacy. It includes a number of cross tabulations covering education, gender, and age groups linked to internet skills and not previously available for analysis.

This section analyses internet skills in relation to age and educational attainment levels in Europe and takes into account age and employment situation in relation to an individual's internet skills. The aim, as in section 2.5 for computer skills, is to shed light on factors influencing the level of digital literacy for potentially marginalised and disadvantaged groups by looking at combinations of age and educational attainment levels, but this time with focus on internet skills.

Figure 15 shows the 2007 average internet skills level by age and educational attainment levels in the EU27. For each level of internet skills, the figure depicts how shares vary for people with different educational attainment levels (the lines) within age groups (plotted along the x-axis). Age differences are apparent as sloping lines while the vertical separation of lines shows differences related to education. The EU27 average is used as a reference point for the subsequent analysis of 2007 Eurostat Community Survey data (see annex 6 for specific data and breakdowns).

[31] These data relate to the question E4 of the "Community Survey on ICT usage in Households and by Individuals".

Figure 15: Internet skills by age and educational level, EU27



Percentages of all individuals in EU27 in a particular age group and with particular educational attainment. Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 6 for exact figures and breakdown.

From figure 15 the following observations can be drawn[32]:

- Among those aged 16-24 the level of education seems to have very little impact on the level of internet skills.
- Among those aged 25-54 and 55-74, however, a more substantial positive impact of the level of education on the level of internet skills is apparent (indicated by the larger vertical separation between lines).
- Among those with a high level of educational attainment, age seems to become a negative factor only at a relatively high age in relation to having at least some degree of internet skills (as indicated by the break in the line from those aged 25-54 to those aged 55-74 in the left-hand panel).
- Among those with a low level of educational attainment, conversely, age seems to be most important at young age in relation to having medium/high internet skills (as indicated by the break in the line from those aged 16-24 to those aged 25-54 in the right-hand panel).
- Compared to low computer skills, age and educational attainment appear to have more of an impact on low internet skills.

It can be concluded that educational attainment has a relatively minor effect on the level of internet skills for younger people, whilst educational attainment has an increasingly positive impact on internet skills as age increases.

This section examines further the level of internet skills in relation to age and educational attainment level as key factors influencing digital literacy levels in each of the European member states as well as in Norway and Iceland.

2.7.1 Age and educational level for individuals with no internet skills

Figures 16a-c look at the relationship between the number of individuals with no internet skills and their age and educational level for the EU27 and selected countries. Each figure displays how country developments vary with the educational attainment level within a particular age group. For instance, in figure 16a three colours are used to distinguish the proficiency levels of young people with lower (light purple), middle (plum) and higher (cream) educational attainment levels. Horizontal lines indicate EU27 averages.

[32] NOTE: This section serves to highlight trends so specific figures have not been included, but will be included in the subsequent sections.

Figure 16a: No internet skills levels – 16-24 year-olds and educational level

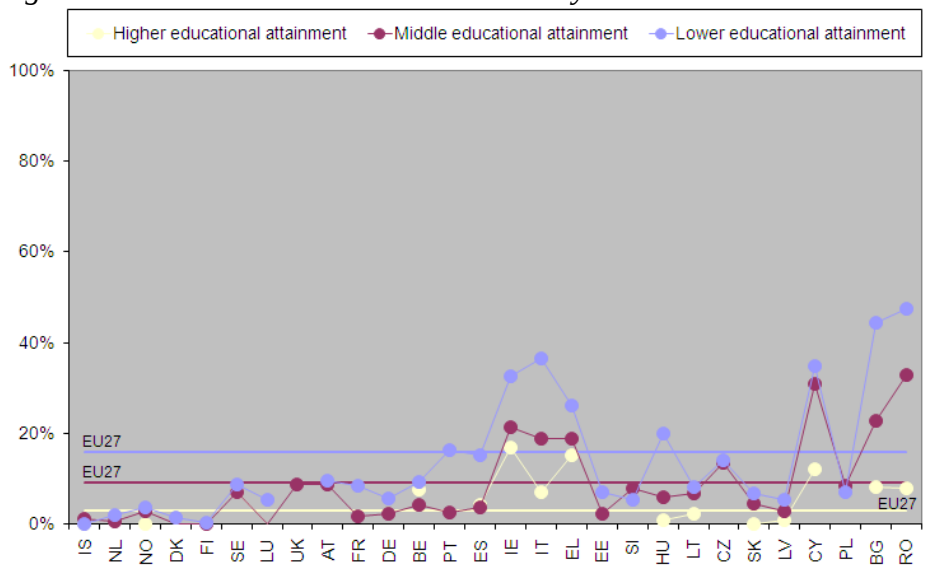


Figure 16b: No internet skills levels – 25-54 year-olds and educational level

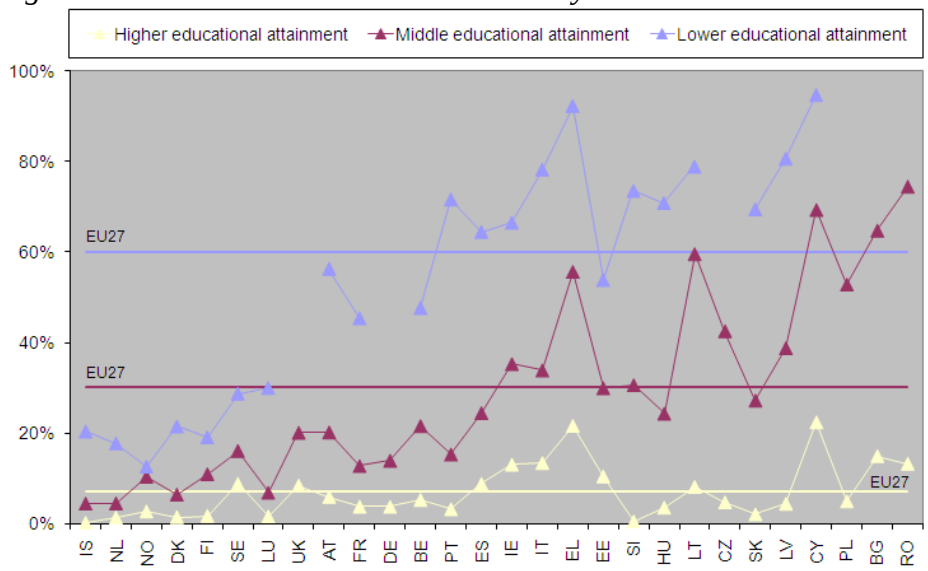
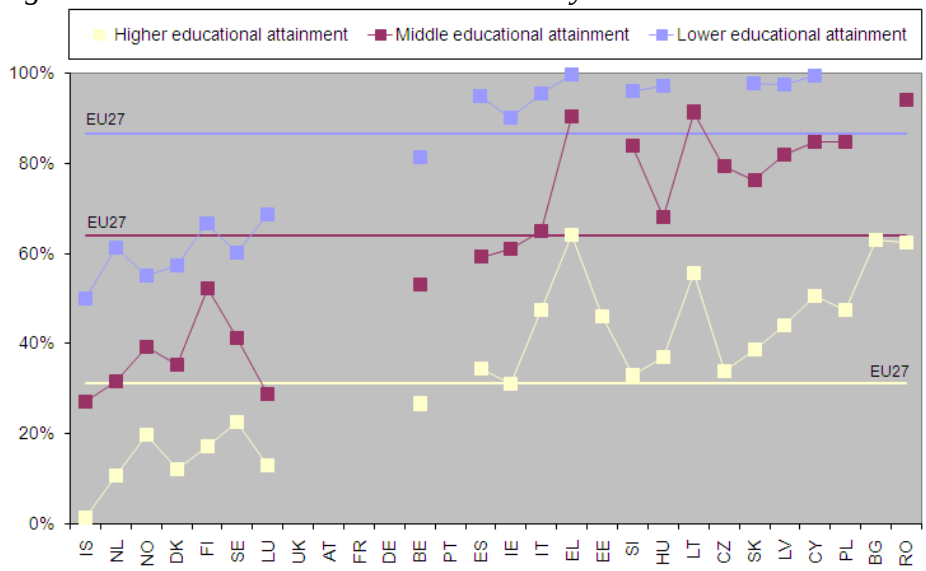


Figure 16c: No internet skills levels – 55-74 year-olds and educational level



Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 6 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with no internet skills are 16%, 9% and 3% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 16-24 year-olds with low educational attainment levels, the share with no internet skills ranges from 0% in Iceland and Finland to 44% in Bulgaria and 47% in Romania.
- Of 16-24 year-olds with medium educational attainment levels, the share with no internet skills ranges from 0% in the Netherlands, Denmark, Finland to 31% in Cyprus and 33% in Romania.
- Of 16-24 year-olds with high educational attainment levels, the share with no internet skills ranges from 0% in Iceland, Norway and Luxembourg, to 15% in Greece and 17% in Ireland. However, in relation to this category data are not available for 12 countries[33].

Among 25-54 year-olds, the EU27 average shares with no internet skills are 60%, 30% and 7% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 25-54 year-olds with low educational attainment levels, the share with no internet skills ranges from 95% in Cyprus to 13% in Norway.
- Of 25-54 year-olds with medium educational attainment levels, the share with no internet skills ranges from 75% in Romania and 69% in Cyprus (69%) to 5% in both Iceland and the Netherlands.
- Of 25-54 year-olds with high levels of educational attainment, the share with no internet skills ranges from 22% in both Greece and Cyprus to 1% in both Slovenia and the Netherlands and 0% in Iceland.

[33] Date not available for: NL, DK, FI, UK, FR, AT, DE, PT, EE, SI, CZ and PL

Among 55-74 year-olds, the EU27 average shares with no internet skills are 87%, 64% and 31% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 55-74 year-olds with low educational attainment levels, the share with no internet skills ranges from 100% of the surveyed population in Greece to 50% in Iceland. Data are not available for 11 countries in relation to this category[34].
- Of 55-74 year-olds with medium educational attainment levels, the share with no internet skills ranges from 94% in Romania to 27% in Iceland.
- Of 55-74 year-olds with high levels of educational attainment, the share with no internet skills ranges from 64% in Greece to 1% in Iceland. It should be noted that for this category no data are available for 7 countries[35].

What is evident from the above and figures 16a-c is the correlation between the trends observed for each of the three age groups, i.e. as age increases so does the vertical distance between the lines, showing the increased importance of education at higher ages. Figures 16a-c also show that there is a correlation between age and the prevalence of no internet skills at the national level. That is, the higher the age, the more likely you are to have no internet skills irrespective of educational attainment. Both trends are clearly reflected in the EU27 averages in terms of proportions with no internet skills for each age group and educational attainment level:

- 16%, 9% and 3% for the 16-24 year-olds with low, medium and high educational levels respectively
- 60%, 30% and 7% for the 25-54 year-olds with low, medium and high educational levels respectively
- 87%, 64% and 31% for the 55-74 year-olds with low, medium and high educational levels respectively.

It also becomes clear that the north-east/south-west geographical divide seen for computer skills in sections 2.5 and 2.6 once more persists. The lowest proportions of individuals with no internet skills are found in the countries such as Iceland, Finland, Denmark, Norway, the Netherlands, Luxembourg and Slovenia. These are all countries north of the geographical dividing line and it may be argued that these countries have higher levels of digital literacy. An exception to this is Ireland, where 17% of 16-24 year-olds with high educational attainment levels have no internet skills, as compared to the 3% EU27 average for the same population segment. Of the countries in the south and south-east, Romania and Greece consistently have large groups of citizens with no internet skills, regardless of their age or educational attainment levels. For Cyprus this also holds true for citizens aged 25-74 (see annex 6 for details).

Concluding from the above, trends for the EU27 include:

[34] Date not available for: UK, FR, AT, DE, PT, EE, LT, CZ, PL, BG and RO
[35] Data not available for: UK, FR, AT, DE, PT, EE and BG

- A positive correlation between the level of educational attainment and the level of internet skills; in addition, the lower the age the more likely it is that an individual possesses internet skills.
- An invisible line that divides Europe from the south-west to the north-east is confirmed – particularly as age increases – with those countries in the north and west generally having fewer inhabitants with no internet skills than those in the south and east when compared to the EU27 average.
- Geographical observations show that relatively small countries such as Iceland, Finland, Denmark, Norway, the Netherlands, Luxembourg and Slovenia in the north and north-west of Europe have smaller proportions of inhabitants with no internet skills. Countries in the south and south-east such as Romania, Greece and Cyprus on the other hand have relatively larger proportions of citizens with no internet skills. The exception to this trend is Ireland which has an above-EU27 average number of citizens with no internet skills.

2.7.2 Age and educational level for individuals with low internet skills

Figures 17a-c look at the relationship between the number of individuals with low internet skills and their age and educational level for the EU27 and selected countries. Each figure displays how country shares vary with the educational attainment level within a particular age group. For instance, in figure 17a three colours are used to distinguish the proficiency levels of young people with lower (light purple), middle (plum) and higher (cream) educational attainment levels. Horizontal lines indicate EU27 averages. The three educational levels covered are low, middle, and high educational attainment levels.

Figure 17a: Low internet skills levels – 16-24 year-olds and educational level

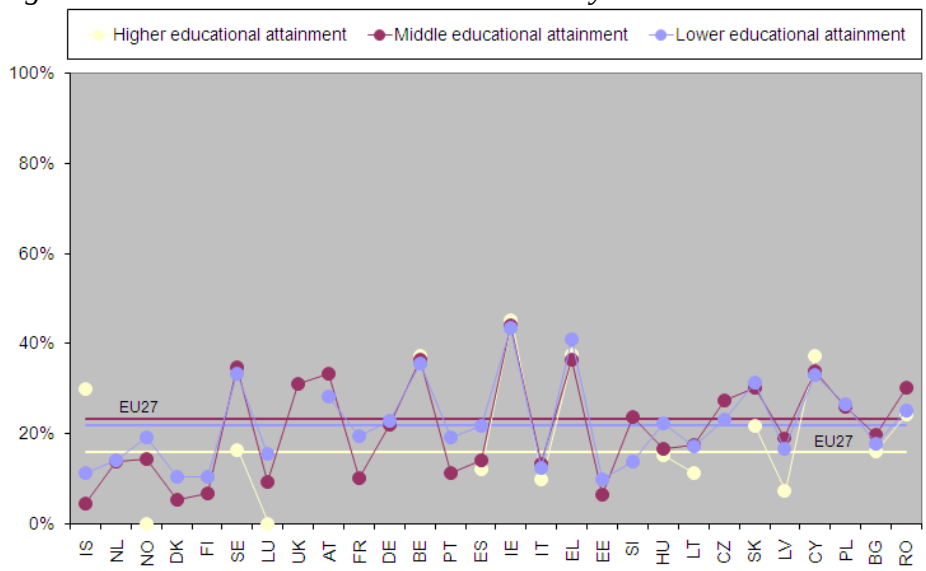


Figure 17b: Low internet skills levels – 25-54 year-olds and educational level

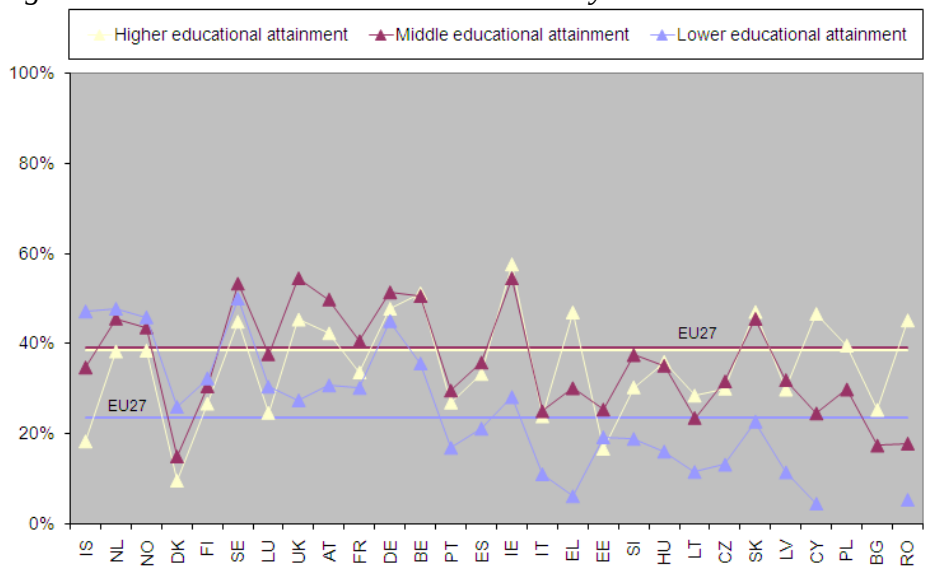
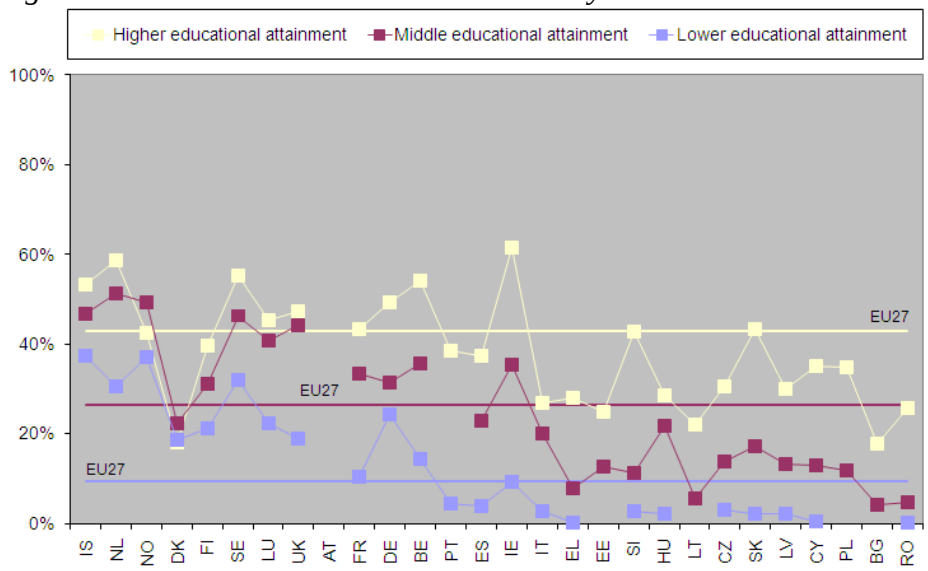


Figure 17c: Low internet skills levels – 55-74 year-olds and educational level



Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 6 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with low internet skills are 22%, 23% and 16% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 16-24 year-olds with low levels of educational attainment, the share with low internet skills ranges from 44% in Ireland to 10% in Denmark, Estonia and Finland.
- Of 16-24 year-olds with medium levels of educational attainment, the share with low internet skills ranges from 44% in Ireland to 0% in Iceland.
- Of 16-24 year-olds with high levels of educational attainment, the share with low internet skills ranges from 45% in Ireland to 0% in Norway and Luxembourg It should be emphasised that there are no data available for 12 of the countries surveyed by Eurostat[36].

Among 25-54 year-olds, the EU27 average shares with low internet skills are 24%, 39% and 39% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 25-54 year-olds with low levels of educational attainment, the share with low internet skills ranges from 50% in Sweden to 10% in both Cyprus and Romania.
- Of 25-54 year-olds with medium levels of educational attainment, the share with low internet skills ranges from 55% in the UK and Ireland to 18% in Romania and 17% in Bulgaria.
- Of 25-54 year-olds with high levels of educational attainment, the share with low internet skills ranges from 58% in Ireland (58%) to 18% in Iceland and 17% in Estonia.

[36] Data not available for: NL, DK, FI, UK, FR, AT, DE, PT, EE, SI and PL

Among 55-74 year-olds, the EU27 average shares with low internet skills are 10%, 27% and 43% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 55-74 year-olds with low educational attainment levels, the share with low internet skills ranges from 37% in Iceland and Norway to 0% in Greece and Romania.
- Of 55-74 year-olds with medium educational attainment levels, the share with low internet skills ranges from 51% in the Netherlands to 4% in Bulgaria.
- Of 55-74 year-olds with high levels of educational attainment, the share with low internet skills ranges from 62% in Ireland and 59% in the Netherlands (59%) to 18% in both Denmark and Bulgaria.

Figures 17a-c above show a tangled relationship between age and the number of people with low internet skills dependent on the educational attainment of the individual citizen as well. Thus, while the share of people with low internet skills seems to increase with age among the higher educated, this only appears to be true among the middle educated until they become middle-aged (i.e., aged 25-54) and not at all true among the lower educated among whom the share unilaterally decreases with age. These divergent patterns at least to some extent reflect that internet skills generally are less frequent than computer skills and are a later development often foreign to the elderly and lower educated while still under development among many other population groups (explaining that the share with low internet skills keeps increasing with age also among the higher educated, even when the share with low computer skills practically does not[37]).

Combining age and educational attainment levels for individuals with low internet skills shows that the 'traditional' geographical differences previously observed are less clear cut. Whether the proportion of citizens with low internet skills should be interpreted as a positive or negative state of development, as pointed out in section 2.5.2 and 2.6.2 for low computer skills, therefore depends on the proportion of inhabitants who have either no or medium/high internet skills. For instance, people aged 16-24 and 25-54 with low internet skills in countries such as Iceland, Norway, Denmark, Finland, Estonia and Luxembourg constitutes relatively small groups of inhabitants compared to the EU27 average (see annex 6 for details and breakdown) regardless of the level of educational attainment, but is not deemed a critical issue because the remainder of individuals in these two age groups mainly have medium/high internet skills (see section 2.7.3). That said, the 'traditional' geographical picture does become somewhat unclear as e.g. Ireland has a high number of inhabitants with low internet skills regardless of the educational attainment level while Sweden and the UK (in relation to the 25-54 year-olds) and Iceland, Norway and the Netherlands (for the 55-74 year-olds) also experience above EU27 average percentages of inhabitants with low internet skills. By comparison, countries such as Estonia and Iceland have low proportions of 25-54 year-olds inhabitants with low internet skills, whereas this is not the case for Danes aged 55-74 (i.e. a relatively large proportion of 55-75 year-olds have low internet skills) (see annex 6 for details). The explanation for the somewhat unclear geographical picture is found in the fact that countries above the south-west/north-east European dividing line, regardless of the educational attainment levels, generally have very high proportions of inhabitants with

[37] Though note that differences in skills levels also might reflect differences in the difficulty of thresholds between skills levels in the computer and internet indexes.

medium/high internet skills levels as seen in section 2.7.3 below. This last point therefore supports the 'traditional' geographical observations for individual countries.

In conclusion the trends observed for the EU27 are:

- A correlation between the trends observed for each of the three age groups, i.e. as age increases so does the variation between the EU27 averages for low internet skills.
- A positive correlation between the level of educational attainment and internet skills, i.e. as the educational attainment levels increase the likelihood of having low levels of internet skills increases (this is true particularly when looking at difference between the lower educated on the one hand, and people with middle or higher educational attainment levels on the other).
- Geographical observations are more unclear and should take account of the level of no- and medium/high internet skills for the different countries in order to make sense. If data for levels of no and medium/high internet skills in sections 2.7.1 and 2.7.3 is taken into account, the 'traditional' geographical picture observed in other sections holds. Having relatively small proportions of 16-24 year old citizens with low internet skills in countries such as Iceland, Norway, Denmark, Finland, Estonia and Luxembourg is a positive development due to generally high proportions of inhabitants with medium/high internet skills as outlined in section 2.7.3 and annex 6. By comparison the low proportion of citizens with low internet skills in southern and south-eastern European countries such as Romania, Bulgaria, Greece and Cyprus may be viewed as critical because these countries also have relatively few inhabitants with medium/high internet skills, but relatively large proportions with no internet skills (see section 2.7.1, 2.7.3 and annex 6 for details).

2.7.3 Age and educational level for individuals with medium or high internet skills

Figures 18a-c looks at the relationship between the number of individual with medium/high internet skills, age and educational level for the EU27 and selected countries. Each figure displays how country shares vary with the educational attainment level within a particular age group. For instance, in figure 18a three colours are used to distinguish the proficiency levels of young people with lower (light purple), middle (plum) and higher (cream) educational attainment levels. Horizontal lines indicate EU27 averages. The three educational levels covered are low, middle and high educational attainment levels.

Figure 18a: Medium/high internet skills levels – 16-24 year-olds and educational level

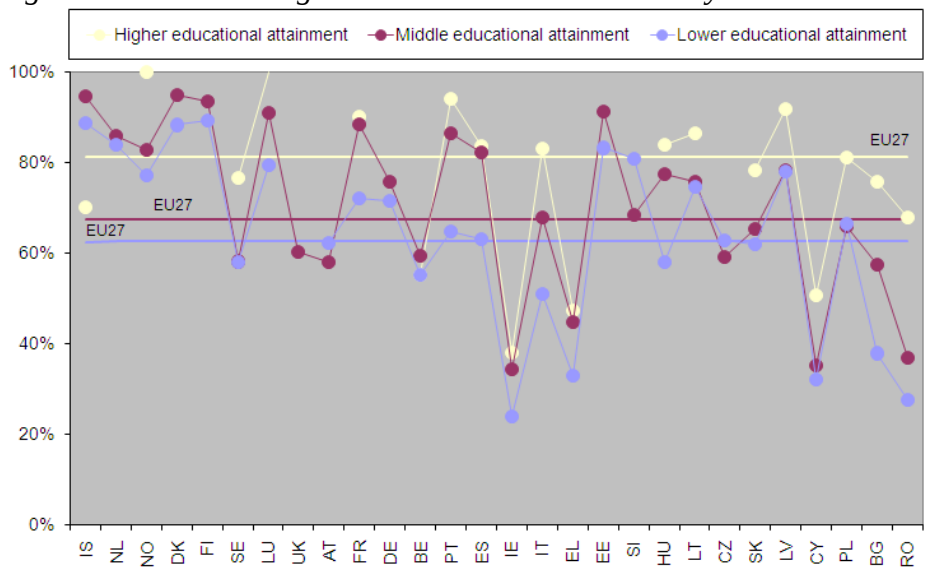


Figure 18b: Medium/high internet skills levels – 25-54 year-olds and educational level

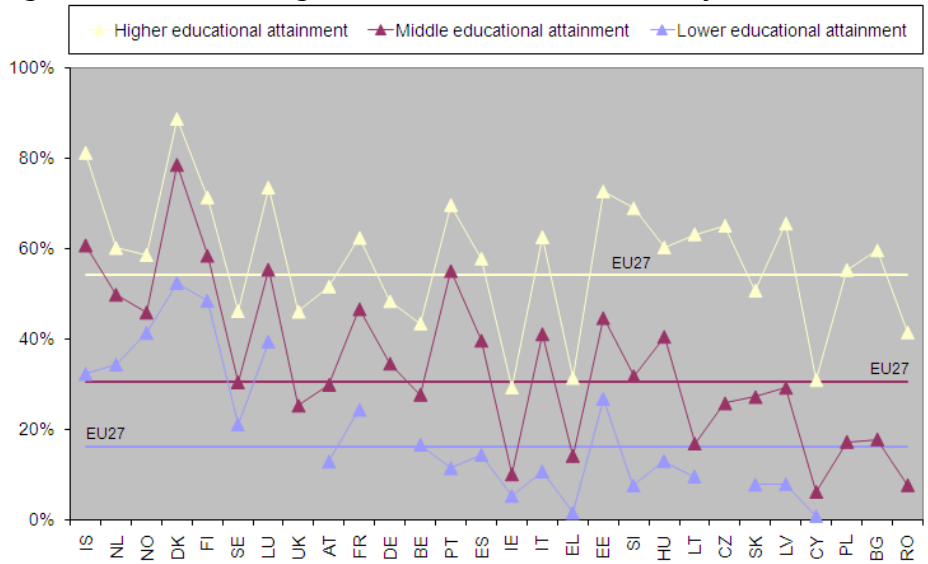
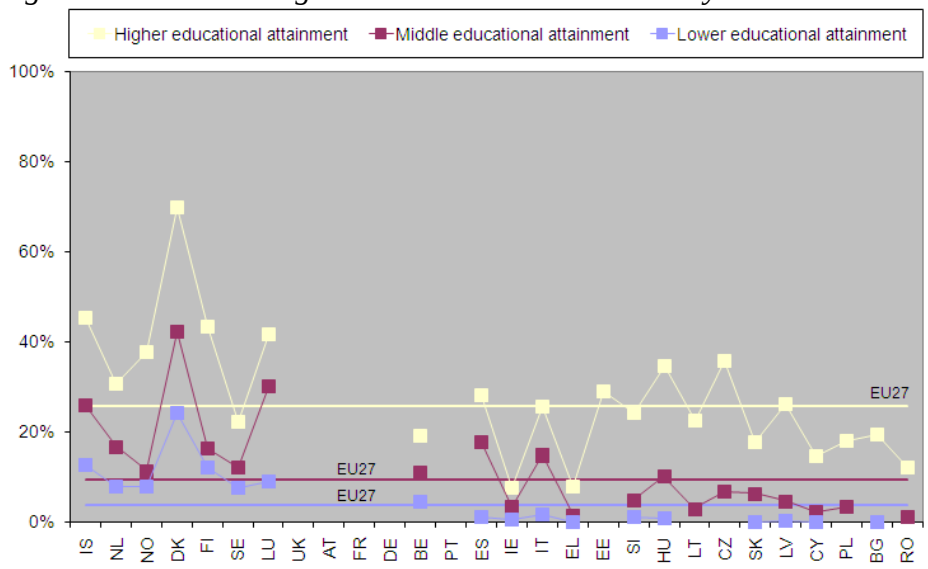


Figure 18c: Medium/high internet skills levels – 55-74 year-olds and educational level



Relates to question E4 of the Eurostat Community survey on ICT usage in Households and by Individuals. See annex 6 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with medium/high internet skills is 62%, 69% and 81% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 16-24 year-olds with low levels of educational attainment, the share with medium/high internet skills ranges from 89% in Iceland and Sweden to 24% in Ireland.
- Of 16-24 year-olds with medium levels of educational attainment, the share with medium/high internet skills ranges from 95% in Iceland and Denmark to 35% in Cyprus and 34% in Ireland.
- Of 16-24 year-olds with high educational attainment levels, the share with medium/high internet skills ranges from 100% in Norway and Luxembourg to 38% in Ireland. It should be noted that in this category data are not available for 9 of the countries surveyed[38].

Among 25-54 year-olds, the EU27 shares with medium/high internet skills are 16%, 31% and 54% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 25-54 year-olds with low levels of educational attainment, the share with medium/high internet skills ranges from 52% in Denmark to 1% in both Cyprus and Greece.
- Of 25-54 year-olds with medium levels of educational attainment, the share with medium/high internet skills ranges from 79% in Denmark to 8% in Romania and 6% in Cyprus.

[38] Data not available for: NL, DK, FI, UK, FR, DE, EE, SI and CZ

- Of 25-54 year-olds with high levels of educational attainment, the share with medium/high internet skills ranges from 89% in Denmark to 31% in both Greece and Cyprus.

Among 55-74 year-olds, the EU27 shares with medium/high internet skills are 4%, 9% and 26% for low, medium and high educational attainment levels respectively. Notable national deviations exist:

- Of 55-74 year-olds with low levels of educational attainment, the share with medium/high internet skills ranges from 24% in Denmark to 0% in Ireland, Greece, Slovakia, Latvia, Cyprus and Bulgaria. Data are not available for this category for 10 of the surveyed countries[39].
- Of 55-74 year-olds with medium levels of educational attainment, the share with medium/high internet skills ranges from 42% in Denmark to 1% in Romania.
- Of 55-74 year-olds with high educational attainment levels, the share with medium/high internet skills ranges from 70% in Denmark to 8% in Greece and 7% in Ireland. Data are not available for 7 countries in relation to this category[40].

Figures 18a-c above follow the same general trend as observed in other parts of section 2.7. Irrespective of the age group, the general direction of trends for medium/high internet skills remains the same regardless of the level of educational attainment. The likelihood of having medium/high internet skills decreases as age increases, and the higher the level of educational attainment the more likely an individual is to have medium/high internet skills. This is also reflected in the EU27 averages for medium/high internet skills:

- Persons aged 16-24 with low, medium and high educational levels correspond to 62%, 68% and 81%
- Persons aged 25-54 with low, medium and high educational levels correspond to 6%, 31% and 54%
- Persons aged 55-74 with low, medium and high educational levels correspond to 4%, 9% and 26%.

The above EU27 averages for medium/high internet skills are also of interest in relation to the national variance among countries in the middle quartiles (i.e. the 50% of countries deviating the least from the average). Looking at the individual age groups, the national variance of the middle quartiles is the lowest for people with low and middle levels of educational attainment.

The above and figures 18a-c illustrate that the variation between the three age groups is smaller in north and north-western countries than in countries in south and south-eastern Europe. Geographical trends observed elsewhere in sections 2.5, 2.6 and 2.7 are confirmed yet again for medium/high internet skills, age and education. Relatively small countries in north and north-western Europe generally have larger proportions of the population with medium/high internet skills irrespective of age or educational attainment level than countries in the south and south-east of Europe. Iceland for instance does particularly well in relation to

[39] Data not available for: UK, FR, AT, DE, PT, EE, LT, CZ, PL and RO
[40] Data not available for: UK, FR, AT, DE, PT, EE and BG

the 16-24 year-olds, while Denmark does very well for the 25-54 and 55-74 year-olds regardless of the level of educational attainment. By contrast Cyprus has a low proportion of citizens with medium/high internet skills for all age groups regardless of the level of educational attainment, and medium/high internet skills levels are particularly low for the 25-54 year-olds. Similarly, Greece has very low proportions of inhabitants aged 25-54 and 55-74 with medium/high internet skills. Exceptions to the geographical trend are again found in Ireland for the 16-24 and 55-74 year-olds independent of the educational attainment level (see annex 6 for details).

In conclusion the trends observed for the EU27 are:

- A negative correlation between age and the level medium/high internet skills, i.e. irrespective of educational attainment, as age increases the likelihood of having medium/high internet skills decreases.
- A positive correlation between the level of educational attainment and the level of medium/high internets skills, i.e. irrespective of age, as the educational attainment levels increase the likelihood of having medium/high internet skills also increases.
- Geographical observations seen for computer and internet skills once more hold for medium/high internet skills. Small northern and north-western countries such as Denmark, Iceland, Sweden and Norway have relatively more inhabitants with medium/high internet skills independent of the educational attainment level and age. By comparison, southern and south-eastern countries such as Cyprus, Greece, and Romania have relatively small percentages of residents with medium/high internet skills. The exception to this geographical observation is again Ireland for the 16-24 and 55-74 year-olds independent of the educational attainment level (see annex 6 for details and breakdowns).

2.8 Age, employment and Internet skills by country[41]

To shed light on factors influencing the level of digital literacy for potentially marginalised and disadvantaged groups this section analyses the combination of age and employment status (or type) in relation to internet skills. The Eurostat digital literacy module includes a number of cross tabulations by type of employment status, gender and age groups not previously available for the questions related to internet skills levels. Three employment categories are covered i.e. the employed or self-employed (self-/employed), the unemployed, and the retired or otherwise inactive employment status (retired/inactive). Although being enrolled in education may rightly be considered an employment status, unfortunately, age and employment status data from the 2007 Eurostat Community Survey have not been combined regarding students.

Figure 19 shows the 2007 average level of internet skills by age and employment status in the EU27. For each level of internet skills, the figure depicts how shares vary for people with different employment status (the lines) within age groups (plotted along the x-axis). Age differences are apparent as sloping lines while the vertical separation of lines shows differences related to employment. The EU27 average is used as a reference point for the

[41] These data relate to the question E4 of the "Community Survey on ICT usage in Households and by Individuals".

subsequent analysis of 2007 Eurostat Community Survey data (see also annex 7 for specific data and breakdowns).

Figure 19: Internet skills by age and employment status, EU27

Percentage share of all individuals in EU27 in a particular age group and with particular educational attainment. Relates to question E3 of the Eurostat Community Survey of ICT usage in Households and by Individuals, 2007. See annex 7 for exact figures and breakdown.

From figure 19 a number of trends may be observed, including[42]:

- Within all age group, employment status appears to have a moderate impact on the level of internet skills (as indicated by the vertical separation of lines) – skills being highest among the self-/employed and lowest among the retired and inactive.
- The impact of a direct connection to the labour market would seem to be largest in relation to having at least some degree of internet skills and somewhat smaller in relation to also having a medium/high level of internet skills (comparing the line separation in the left-hand panel to the line separation in the right-hand panel).
- Within all employment status groups, age appears to have a similar and equally moderate but negative impact on the level of internet skills (as indicated by the steady slope of each line).
- In relation to the share of people with low internet skills, only being self-/employed would appear to have a significant (positive) impact.

From the above it can be concluded that both the age of an individual and that individual's connection to the labour market have an effect on the level of computer skills irrespective of age and employment status.

The following sections will take a closer look at the influence of age and employment status on the level of internet skills in each of the European member states as well as in Norway and Iceland.

2.8.1 Age and employment status for individuals with no internet skills

Figures 20a-c examine the proportion of individuals with no internet skills, in relation to different ages and employment status (or types) for the EU27 and selected countries. Each figure displays how country shares vary with the employment status within a particular age group. For instance, in figure 20a three colours are used to distinguish the proficiency levels of young people who are self-/employed (cream), unemployed (plum), and retired or inactive (light purple).

[42] NOTE: This section serves to highlight trends so specific figures have not been included, but will be in the subsequent sections.

Figure 20a: No internet skills levels – 16-24 years old and employment status

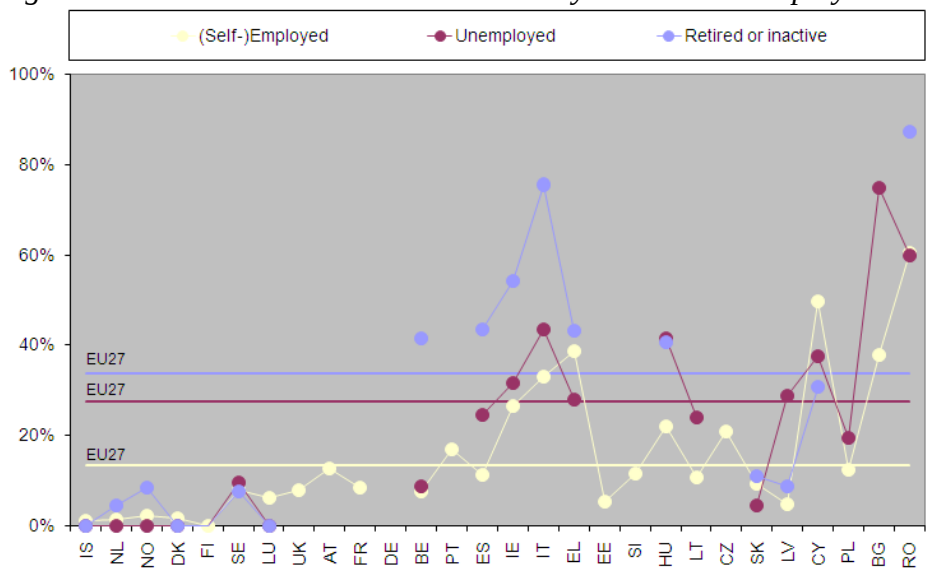


Figure 20b: No internet skills levels – 25-54 years old and employment status

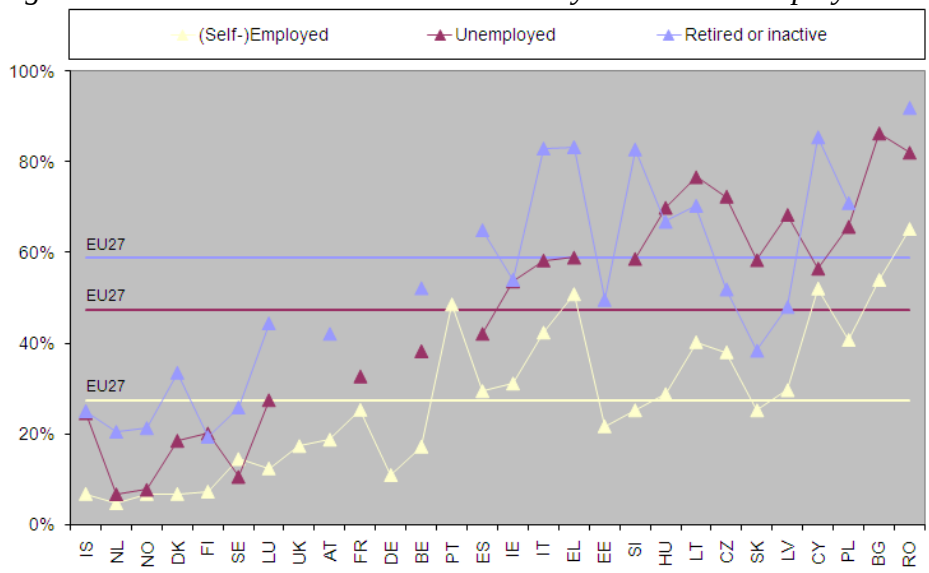
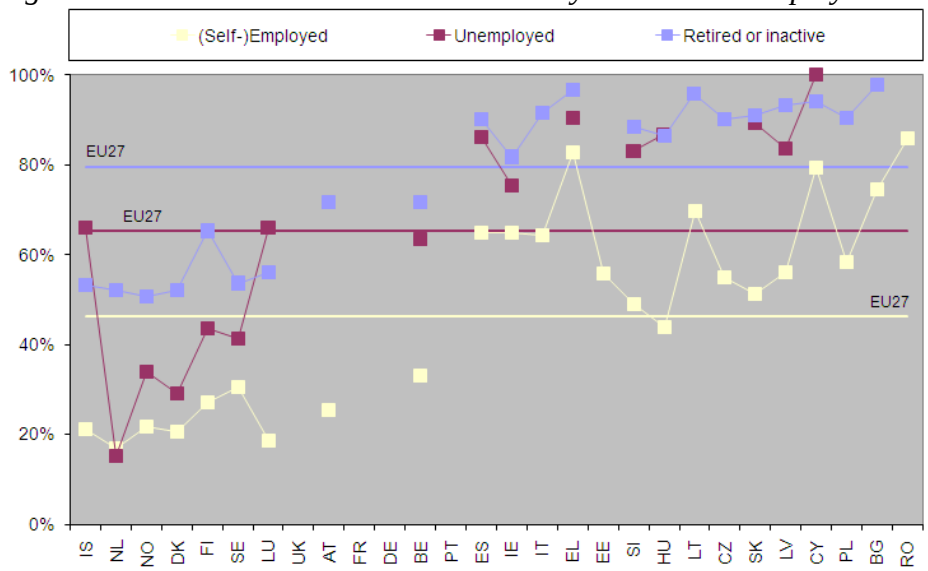


Figure 20c: No internet skills levels – 55-74 years old and employment status



Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 7 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with no internet skills are 13%, 27% and 34%.for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 16-24 year-olds who are self-/employed, the share with no internet skills ranges from 0% in Finland to 61% in Romania.
- Of 16-24 year-olds who are unemployed, the share with no internet skills ranges from 0% in Iceland, the Netherlands, Norway, Finland and Luxembourg, to 75% in Bulgaria. It should be noted that data are not available for this category for 8 countries[43].
- Of 16-24 year-olds who are retired/inactive (for the 16-24 year-olds mainly inactive), the share with no internet skills ranges from 0% in Iceland, Denmark, and Luxembourg, to 87% in Romania. Data for this category are unavailable for 11 countries[44].

Among 25-54 year-olds, the EU27 average shares with no internet skills are 28%, 47% and 59% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 24-54 year-olds who are self-/employed, the share with no internet skills ranges from 5% in the Netherlands to 65% in Romania.
- Of 24-54 year-olds who are unemployed, the share with no internet skills ranges from 7% in the Netherlands to 86% in Bulgaria.
- Of 24-54 year-olds who are retired/inactive, the share with no internet skills ranges from 19% in Finland to 92% in Romania.

[43] Data not available for: UK, FR, AT, DE, PT, EE, SI and CZ
[44] Data not available for: UK, FR, AT, DE, PT, EE, SI, LT, CZ, PL and BG

Among 55-74 year-olds, the EU27 average shares with no internet skills are 46%, 65% and 80% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 55-74 year-olds who are self-/employed, the share with no internet skills ranges from 19% in Luxembourg (19%) to 86% in Romania.
- Of 55-74 year-olds who are unemployed, the share with no internet skills ranges from 15% in the Netherlands (15%) to 100% in Cyprus. Data are not available for 12 countries in relation to this category[45].
- Of 55-74 year-olds who are retired/inactive, the share with no internet skills ranges from 52% in Denmark and 51% in Norway to 97% in Greece and 98% in Bulgaria.

For individuals with no internet skills, the above figures 20a-c show that there is a correlation between the existence of no internet skills, age, and employment situation i.e. whether a person is self-employed or employed (self-/employed), unemployed, or retired or otherwise economically inactive. It becomes clear from figures 20a-c that the south-west/north-east geographical divide once again persists, with countries lying to the north of this dividing line generally having lower proportions of inhabitants with no internet skills. This is particularly clear when looking at individuals aged 16-24 in figure 20a, where countries such as Iceland, the Netherlands, Norway, Denmark, Finland, and Luxembourg do well independent of the type of employment. This is contrasted by trends for the unemployed and retired/inactive 55-74 year-olds in figure 20c and particularly countries in eastern and south-eastern Europe where 100% of the 55-74 year old unemployed Cypriots and 98% and 97% of 55-74 year-olds retired/inactive Bulgarians and Greeks respectively have no internet skills (see also annex 7 for figures and breakdowns).

The figures also show that the number of individuals with no internet skills is lower for young people (i.e. 16-24 year-olds), that is, age and economic activity are both important factors influencing the level of internet skills This becomes even more noticeable for the EU27 averages for the specific age groups with no internet skills and in relation to their employment status. The distribution is:

- 13%, 27% and 34% for people aged 16-24 who are self-/employed, unemployed and retired/inactive
- 28%, 47% and 59% for individuals aged 25-54 who are self-/employed, unemployed and retired/inactive
- 46%, 65% and 80% for people aged 55-74 who are self-/employed, unemployed and retired/inactive.

The EU27 averages above and the national data in annex 7 also show that the national variance among countries in the middle quartiles (i.e. the 50% of countries diverting the least from the average) generally increases with age, but that active involvement on the labour market counterbalances this to some extent and in particular for the 55-74 year-olds. In addition there is an observable difference in the level with which the middle quartiles deviate from the EU27 average. That is, countries in southern and south-eastern Europe deviate relatively more from the EU27 median compared to nations in the north and north-west. This

[45] Data not available for: UK, FR, AT, DE, PT, IT, EE, LT, CZ, PL, BG and RO

deviation thus supports the geographical observations and the correlation between age and employment type seen in this and other sections (particularly sections 2.5-2.7).

In conclusion the trends observed for the EU27 are:

- A correlation between age and the proportion of people with no internet skills, i.e. the lower the age, the lower the general likelihood of having no internet skills irrespective of employment status.
- A correlation between the employment situation and having no internet skills, i.e. if a person is or has been self-employed or employed, the likelihood of having no internet skills decreases compared to individuals who are unemployed, retired or otherwise economically inactive irrespective of age.
- An observable dividing line runs through Europe from the south-west to north-east. Countries such as Iceland, the Netherlands, Norway, Denmark, Finland and Luxembourg to the north generally having fewer citizens with no internet skills regardless of the employment situation. This is contrasted by countries in the south and south-east of Europe, and in particular Cyprus in relation to the retired/inactive inhabitants aged 25-54, and Greece and Bulgaria in relation to unemployed and retired/inactive citizens aged 55-74.

2.8.2 Age and employment status for individuals with low internet skills

Figures 21a-c examine the proportion of individuals with low internet skills, in relation to different age groups and employment status for the EU27 and selected countries. Each figure displays how country shares vary with the employment status within a particular age group. For instance, in figure 21a three colours are used to distinguish the proficiency levels of young people who are self-/employed (cream), unemployed (plum), and retired or inactive (light purple).

Figure 21a: Low internet skills levels – 16-24 year-olds and employment status

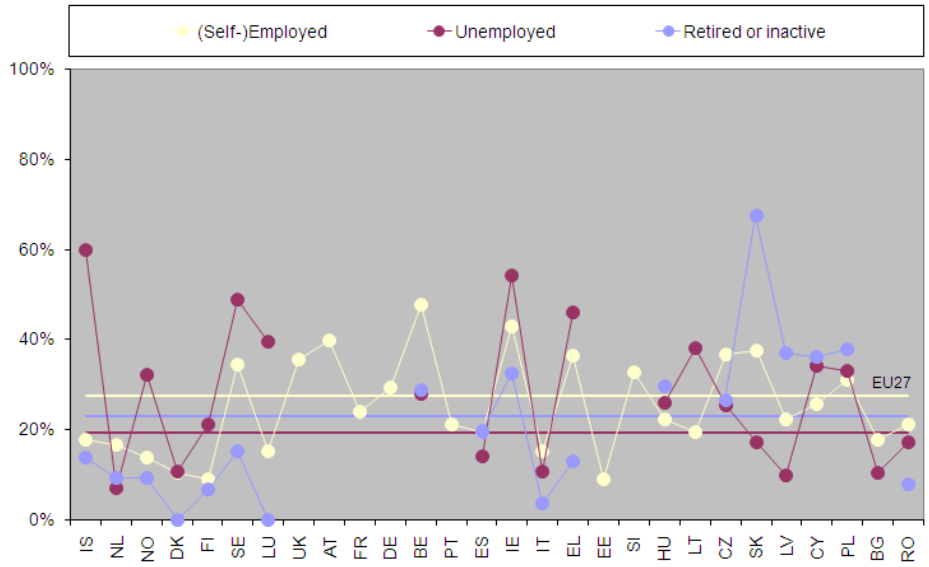


Figure 21b: Low internet skills levels – 25-54 year-olds and employment status

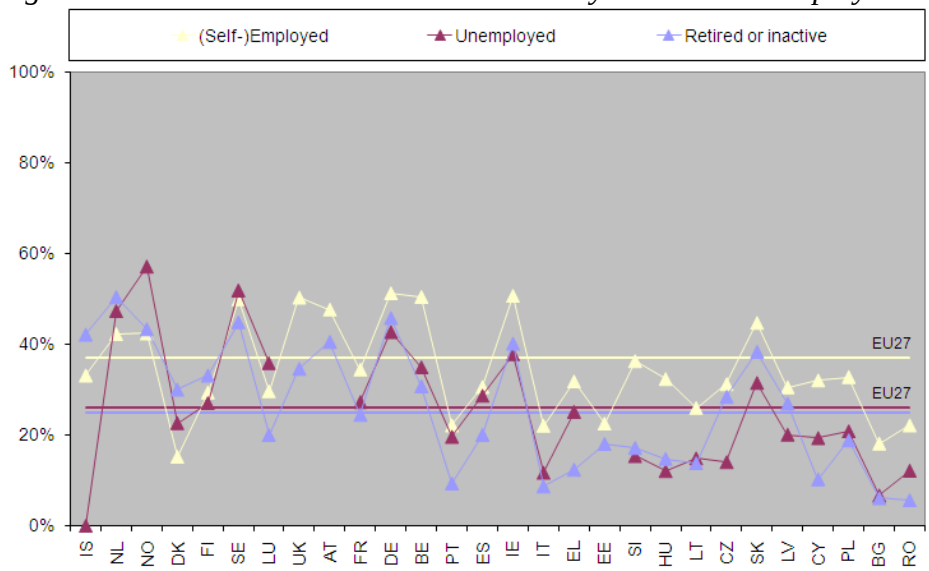
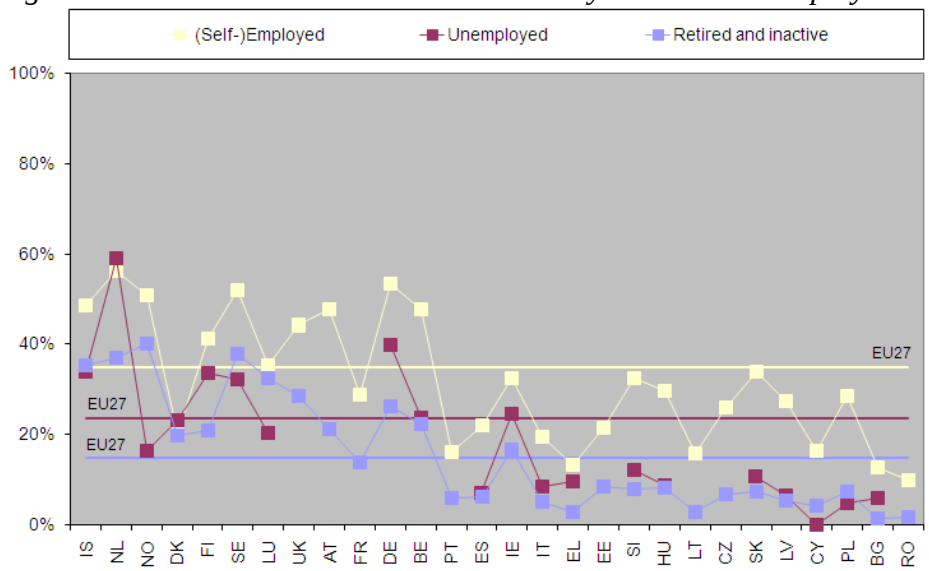


Figure 21c: Low internet skills levels – 55-74 year-olds and employment status



Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 7 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with low internet skills are 28%, 19% and 23% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 16-24 year-olds who are self-/employed, the share with low internet skills ranges from 48% in Belgium to 9% in Finland and Estonia.
- Of 16-24 year-olds who are unemployed, the share with low internet skills ranges from 60% in Iceland to 7% in the Netherlands. It should be noted that for this category data are not available for 7 countries[46].

[46] Data not available for: UK, FR, AT, DE, PT, EE and SI

- Of 16-24 year-olds who are retired/inactive (mainly the latter for this age group), the share with low internet skills ranges from 0% in Denmark and Luxembourg to 67% in Slovakia. Data are not available for 9 countries in relation to this category[47].

Among 25-54 year-olds, the EU27 average shares with low internet skills are 37%, 26% and 25% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 25-54 year-olds who are self-/employed, the share with low internet skills ranges from 50% in Sweden and the United Kingdom to 15% in Denmark.
- Of 25-54 year-olds who are unemployed, the share with low internet skills ranges from 57% in Norway to 0% in Iceland.
- Of 25-54 year-olds who are retired/inactive, the share with low internet skills ranges from 50% in the Netherlands to 6% in both Bulgaria and Romania.

Among 55-74 year-olds, the EU average shares with low internet skills are 35%, 24% and 15% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 55-74 year-olds who are self-/employed, the share with low internet skills ranges from 56% in, the Netherlands to 10% in Romania.
- Of 55-74 year-olds who are unemployed, the share with low internet skills ranges from 59% in the Netherlands to 0% in Cyprus. It should be noted that for this category data are unavailable for 8 countries[48].
- Of 55-74 year-olds who are retired/inactive, the share with low internet skills ranges from 40% in Norway to 1% in Bulgaria.

The above figures 20a-c illustrate that at the national level there would appear to be little relationship between employment status and internet skills within age groups. While clear national variations exist, there is no clear pattern in the lines among those aged 16-24, and the apparent differences between the EU27 averages to a large extent only seem to reflect such erratic national variations (and missing values). Similarly, among those aged 25-54 and 55-74, there overall is no significant separation between the unemployed and the retired or inactive when looking at the national values. Within these age groups, though, the self-/employed do stand out with notably better internet skills – and more so among the elderly (i.e. aged 55-74) than among the middle-aged (those aged 25-54).

With regards to age, there is no clear pattern in figures 20a-c either, suggesting that age also has little impact on the share of people with low internet skills.

At the same time, however, the figures confirm the existence of a dividing line running from the south-west to the north-east of Europe, which becomes increasingly apparent as age increases. Countries lying to the north of the line in general have better internet skills, but whether a big or a small proportion of citizens with low internet skills should be considered as positive or negative depends on the proportion of people which have no or medium/high

[47] Data not available for: UK, FR, AT, DE, PT, EE, SI, LT and BG
[48] Data not available for: UK, FR, AT, PT, EE, LT, CZ and RO

internet skills in a given country. More specifically, it may be considered a positive state of affairs if a large proportion of inhabitants have low internet skills when there is a significant proportion of citizens with medium/high internet skills and a smaller proportion with no internet skills or vice versa. The ultimate objective is to equip an individual with a level of computer and internet skills which is appropriate for interacting and participating in the society.

In conclusion, the trends observed for the EU27 are:

- Age appears to have little impact on the share of individuals with low internet skills;
- Employment status also appears to have limited impact on the share of individuals with low internet skills, but as age increases people in employment increasingly stand out with higher shares of low internet skills.
- Geographically, northern and north-western countries such as Denmark increasingly feature higher shares than for example Romania and Bulgaria in the south and south-east as age increases, but the extent to which this represents better performance is relative to overall level of internet skills in each country.

2.8.3 Age and employment status for individuals with medium or high internet skills

Figures 22a-c examine the proportion of individuals with medium/high internet skills, in relation to different ages and types of employment status for the EU27 and selected countries. Each figure displays how country shares vary according to employment status and within a particular age group. For instance, in figure 22a three colours are used to distinguish the proficiency levels of young people who are self-/employed (cream), unemployed (plum), and retired or inactive (light purple).

Figure 22a: Medium/high internet skills levels – 16-24 year-olds and employment status

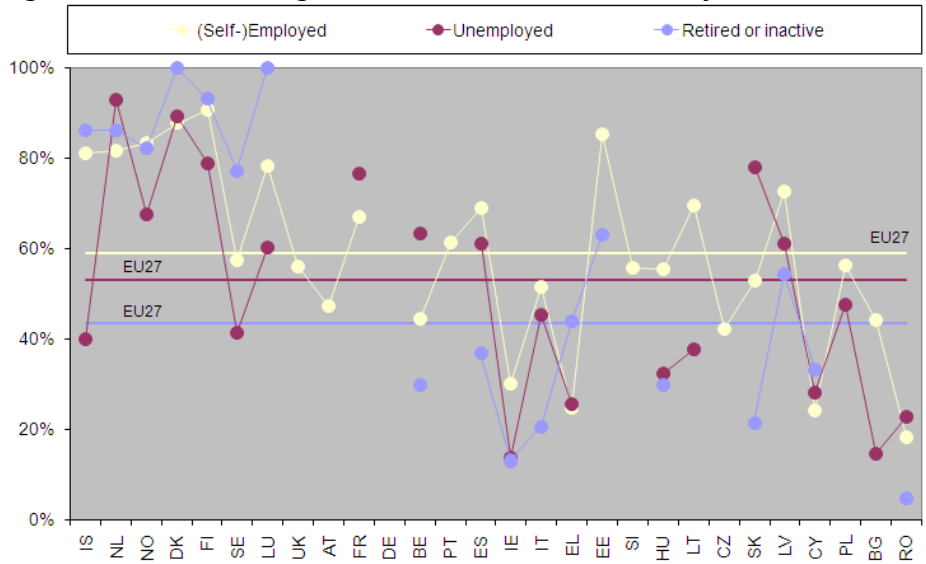


Figure 22b: Medium/high internet skills levels – 25-54 year-olds and employment status

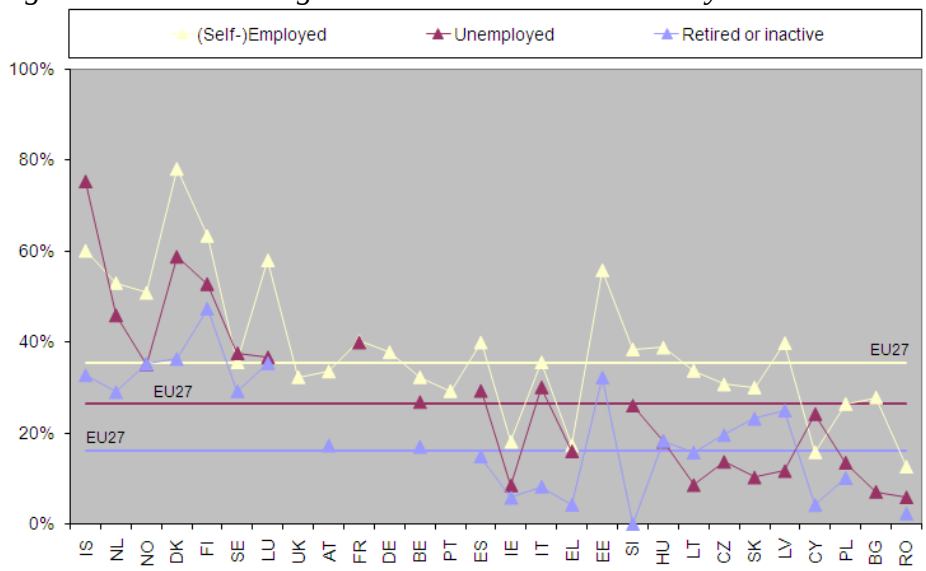
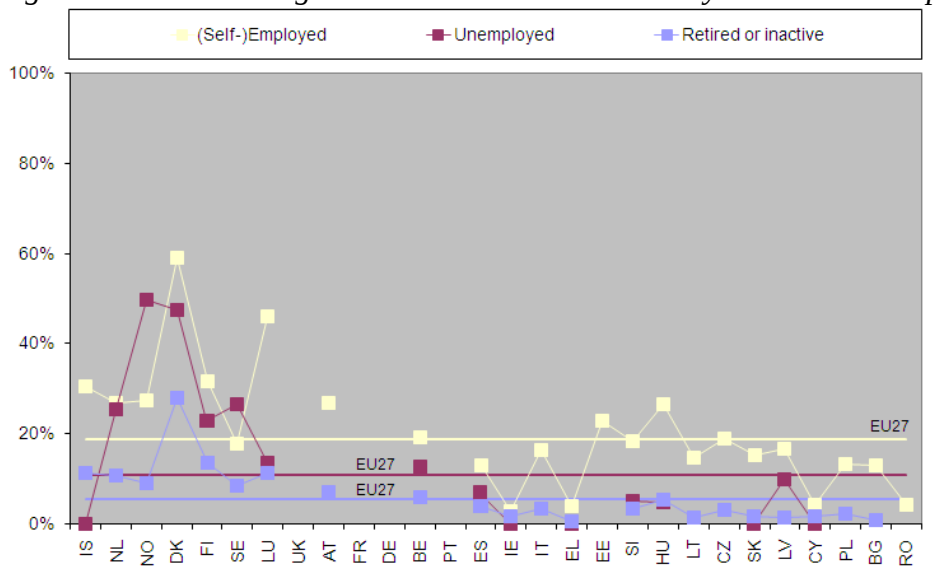


Figure 22c: Medium/high internet skills levels – 55-74 year-olds and employment status



Relates to question E4 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 7 for exact figures and breakdown.

Among 16-24 year-olds, the EU27 average shares with medium/high internet skills are 59%, 53% and 43% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 16-24 year-olds who are self-/employed, the share with medium/high internet skills ranges from 91% in Finland to 18% in Romania.
- Of 16-24 year-olds who are unemployed, the share with medium/high internet skills ranges from 93% in the Netherlands to 14% in Ireland. Data are not available for 7 countries in relation to this category[49].

[49] Data not available for: UK, FR, DE, PT, EE, SI and CZ

- Of 16-24 year-olds who are retired/inactive, the share with medium/high internet skills ranges from 100% in both Denmark and Luxembourg to 5% in Romania. Data are not available for 10 countries in relation to this category[50].

Among 25-54 year-olds, the EU27 average shares with medium/high internet skills are 35%, 27% and 16% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 25-54 year-olds who are self-/employed, the share with medium/high internet skills ranges from 78% in Denmark to 13% in Romania.
- Of 25-54 year-olds who are unemployed, the share with medium/high internet skills ranges from 75% in Iceland to 6% in Romania.
- Of 25-54 year-olds who are retired/inactive, the share with medium/high internet skills ranges from 47% in Finland to 0% in Slovenia.

Among 55-74 year olds, the EU27 average shares with medium/high internet skills are 19%, 11% and 5% for self-/employed, unemployed and retired/inactive respectively. Notable national deviations exist:

- Of 55-74 year-olds who are self-/employed, the share with medium/high internet skills ranges from 59% in Denmark to 3% in Ireland.
- Of 55-74 year-olds who are unemployed, the share with medium/high internet skills ranges from 59% in Norway to 0% in Iceland, Ireland, Greece, Slovakia and Cyprus. It should be noted that data are not available for 12 countries[51].
- Of 55-74 year-olds who are retired/inactive, the share with medium/high internet skills ranges from 28% in Denmark to 1% in Ireland, Lithuania, Latvia and Bulgaria.

The figures 22a-c indicate that trends for each age group follow almost identical patterns regardless of the employment situation. That said, the self-/employed generally do better than the unemployed and retired/inactive when it comes to medium/high internet skills. It is also interesting to see that medium/high internet skills for the 16-24 year-olds vary far more for the different employment situations compared to the EU27 average as illustrated by figure 22a. This observation also holds for those aged 55-74 in north-western European countries such as Iceland, the Netherlands, Norway, Denmark, Finland, Sweden and Luxembourg, as shown in figure 22c (see annex 7 for details and break downs).

In relation to medium/high internet skills levels, the general geographical trend outlined in sections 2.5-2.7 and elsewhere in section 2.8 also holds for all three age groups (i.e. 16-24, 25-54 and 55-74 years of age) across the three types of employment (i.e. self-/employed, unemployed and retired/inactive). Figures 22a-c illustrate that the geographical dividing line from the south-west to the north-east of Europe persists also for medium/high internet skills. Countries such as Denmark, Finland, Norway, Iceland, the Netherlands and Luxembourg placed north of the dividing line show comparatively better internet skills as illustrated by bigger proportions of the population with medium/high internet skills. There are again a number of exceptions to this rule. Ireland stands out as a north-western country which

[50] Data not available for: UK, FR, AT, DE, PT, SI, LT, CZ, PL and BG
[51] Date not available for: UK, FR, AT, DE, PT, IT, EE, LT, CZ, PL, BG and RO

underperforms compared to the EU27 average for 16-24 and 55-74 year-olds independent of their employment status. An additional exception to the 'traditional' geographical trends observed is that none of the retired/inactive 25-54 year-olds in Slovenia have medium/high internet skills (i.e. 0%), with Latvia showing a similar trend for retired/inactive 55-74 year old citizens (i.e. 1%) and Iceland showing an exception for the unemployed 55-74 year-olds (i.e. 0%).

In conclusion, the trends observed for the EU27 are:

- There is a correlation between age, employment status, and the likelihood of having medium/high internet skills. Among the segment of young persons, e.g. the 16-24 year-olds, and the self-/employed, there are higher proportions of individuals with medium/high internet skills than among for example the 55-74 year-olds, the unemployed and retired/inactive. Past and present involvement in the labour market (i.e. self-/employed) increases the likelihood of having medium/high internet skills independent of age.
- Geographical trends show that small northern and north-western countries such as Denmark, Finland, Norway, Iceland, the Netherlands, and Luxembourg, have large population segments with medium/high internet skills regardless of age or employment situation, especially when compared to the smaller percentages in southern and south-eastern countries such as Romania. Exceptions to this geographical observation include Ireland which performs poorly compared to the EU27 average for 16-24 and 55-74 year-olds, Slovenia for retired/inactive 25-54 year-olds, Latvia for retired/inactive 55-74 year old citizens, and Iceland for the unemployed 55-74 year-olds.

2.9 Barriers to more intensive use

Following the overview of the development and current state of computer and internet skills within the EU27 in the sections 2.5-2.8, it seems pertinent to examine the question of why skills levels have not improved faster. As already evidenced, part of the problem is that a significant although diminishing share of the European population does not seem to use computers or the internet at all. This existence of non-users obviously precludes the acquisition of necessary and sufficient ICT skills for a significant proportion of the population. Beyond the group of non-users the question is what keeps existing users from improving their skills at a faster rate than currently. The aim of this section therefore is to examine the limited data available from Eurostat regarding the physical and mental barriers to more intensive use of computers and the internet.

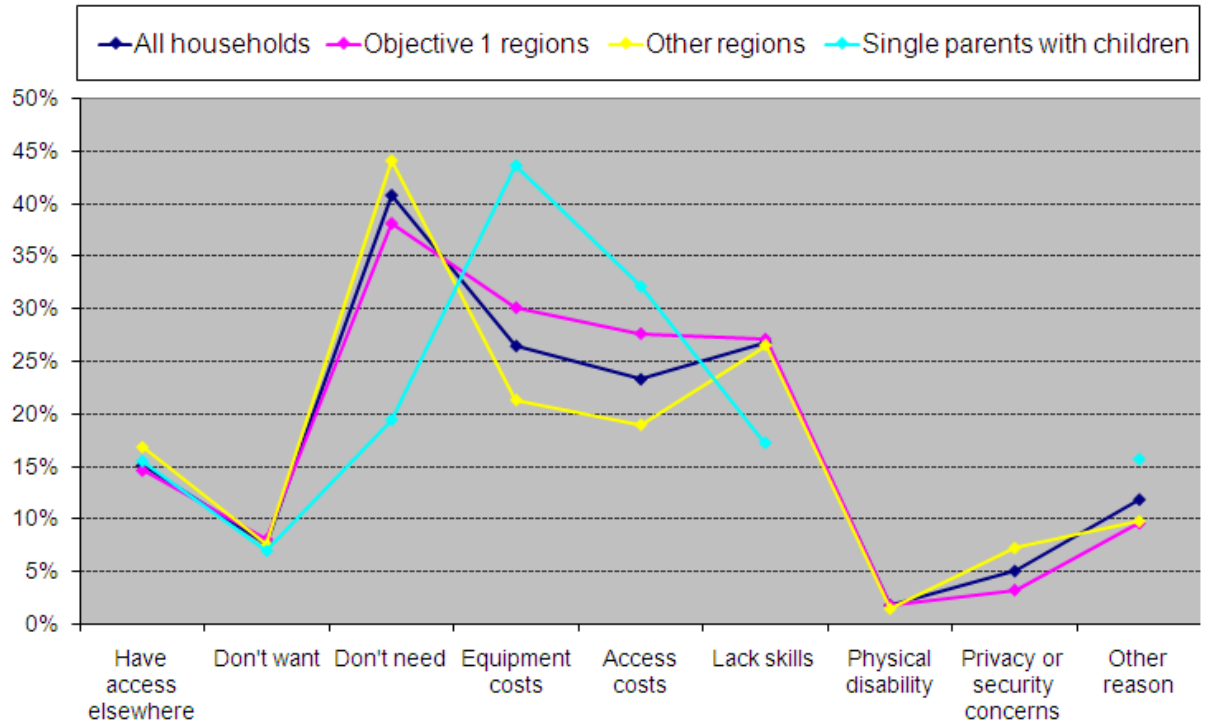
2.9.1 Potential barriers to internet access in the home[52]

Unfortunately, not much information is available concerning the reasons of non-users for not using computers and the internet. However, arguably, home access is a considerable factor influencing the take-up and continued use of such equipment – not least in rural and poorer areas – and on this particular issue the Eurostat Community Survey does provide some insights by asking households not connected to the Internet in 2006 to explain their lack of

[52] These data relate to the question A5 of the "Community Survey on ICT usage in Households and by Individuals".

internet access (note that the wording of this question was changed in 2007 to exclusively concern broadband access). Household responses are displayed in figure 23, plotted against the possible response categories available to respondents on the x-axis (see 9 for all breakdowns and values).

Figure 23: Barriers to internet access – selected parameters



Households with no internet access. Data from 2006. No data available regarding physical disability and privacy or security concerns for single parent households with children. Relates to question A5 of the Eurostat ICT Community Survey on ICT usage in Households and by Individuals. See annex 9 for exact figures and breakdown.

Interestingly, by far the single most important reason in the EU27 for households not having internet access in 2006 was not equipment costs (26%) or access costs (23%), but a perceived lack of need (41%), followed by the perceived lack of skills (27%). This very well illustrates the complex nature of the issue, irreducible to monetary or physical factors alone (responses do not point to *access elsewhere* (15%) as a main reason, either). Moreover, it is notable that these differences vary only marginally across economic regions, although costs are slightly more important within objective 1 areas (30% and 28% for equipment and access cost respectively). On a positive note as well, only 2% of households without internet access indicate that physical disabilities represents a significant barrier to their use.

Yet for some population groups, namely single parent households with children, costs obviously do appear to be the overshadowing barrier (44% and 32% for equipment and access cost respectively). This is also evidenced by the markedly lower frequencies of responses indicating lack of need (19%) or lack of skills (17%). That is, these households may have the basic skills and recognise the benefits of the internet and its related content and services, but simply cannot afford to prioritise internet access in the home. For this group of respondents it is particularly urgent that a new digital divide does not develop for their children as access to

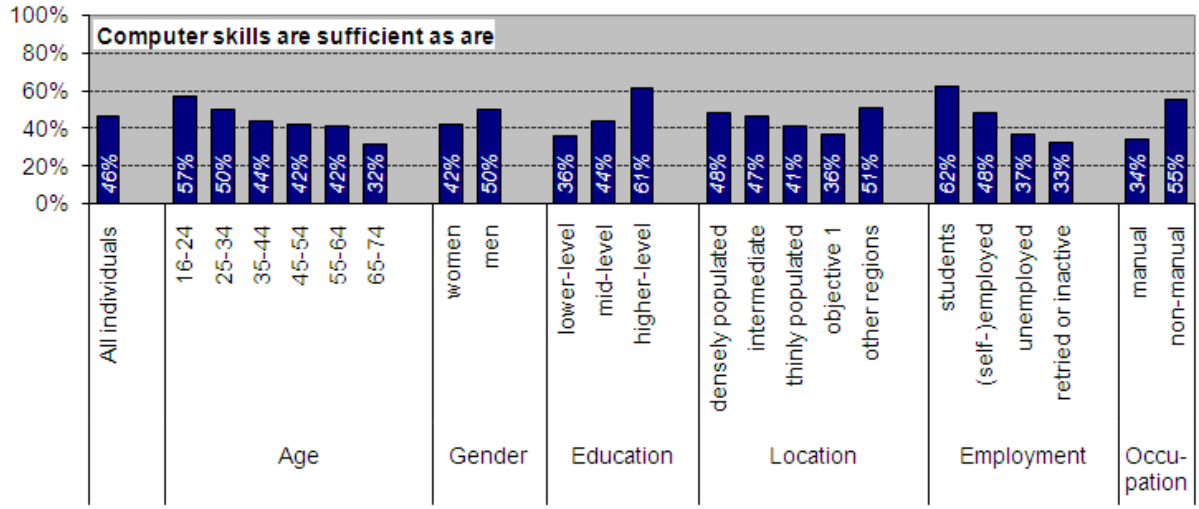
ICT from households otherwise becomes more widespread, including assumptions that children at school or students have access to ICT from home.

Furthermore, some differences exist between countries in relation to costs, which seem to be more of a concern for respondents in Estonia (69% and 64% of respondents indicate equipment and access cost respectively as reasons for lack of internet access) and Germany (34% and 33% for equipment and access cost respectively) than elsewhere. Only in Estonia do costs as a reason for lack of access exceed lack of need (53%) and lack of skills (59%) in importance[53]. For barriers to internet access by country - see data and breakdowns in annex 8 for reference.

2.9.2 Competence development – reasons for not taking a computer course[54]

For those Europeans who do use the computer but have not actively developed their ICT skills further, a mix of reasons can be observed, but especially one reason dominates. At the EU27 level in 2007, 46% of computer users responded that their main reason for not having taken a computer course within the last three years was because they found their computer skills to be at a sufficient level. Examining the socio-economic segments in figure 24, it is notable that this reason is less frequent among the elderly (32% in the age group from 65-74), among retired or inactive (33%) and the unemployed (37%), among manual workers (34%), and among persons with lower levels of educational attainment (36%). In addition, obvious differences exist across economic regions (approximately 15 percentage points) and gender (approximately 8 percentage points).

Figure 24: Competence development – reasons for not having taken a computer course recently – computer skills are sufficient as they are



Individuals who have used the computer but have not taken a computer course within the last 3 years (unless otherwise noted the age group is 16-74). Relates to question E2 in the Eurostat ICT Community Survey on ICT usage in Households and by Individuals. See annex 10 for exact figures and breakdowns.

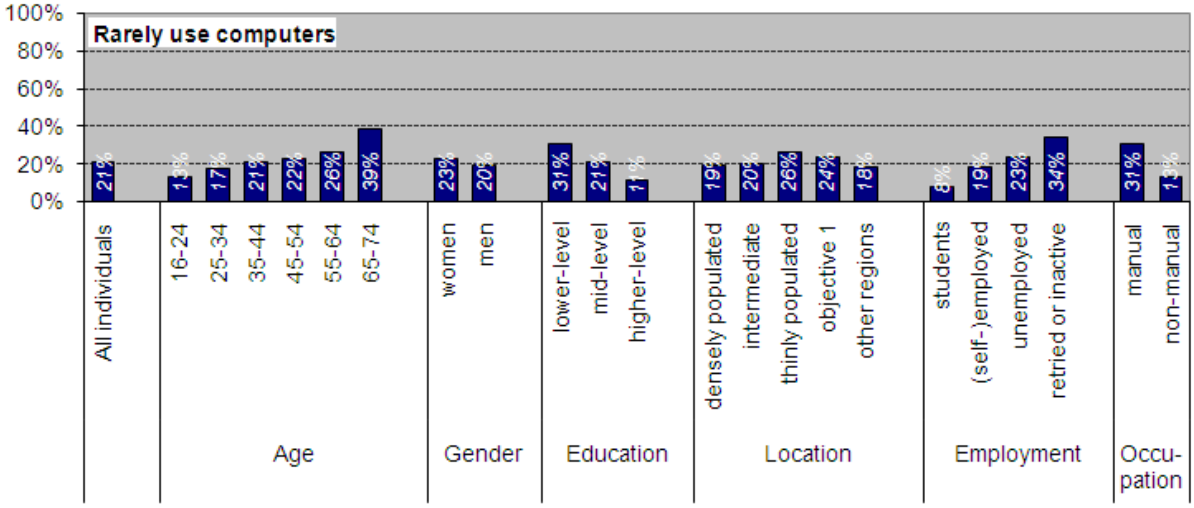
These groups instead seem to find that learning new and more skills is somewhat irrelevant given their limited use of computers, as shown in figure 25 below. Thus, while at the EU27

[53] Data only available for: DK, FI, AT, DE, BE, GR, EE, CZ, CY and BG

[54] These data are related to question E2 of the "Community Survey on ICT usage in Households and by Individuals" published by Eurostat in 2007.

level 21% of all computer users who have not taken a computer course within the last three years indicate that the reason for not doing so is that they rarely use computers, this share is significantly higher among the oldest age group (39%), among the retired or inactive (34%), and among manual workers and persons with lower levels of educational attainment (both 31%). Likewise, women indicate this reason slightly more often than men (about 3 percentage points), as do people in objective 1 regions compared to other areas (about 6 percentage points).

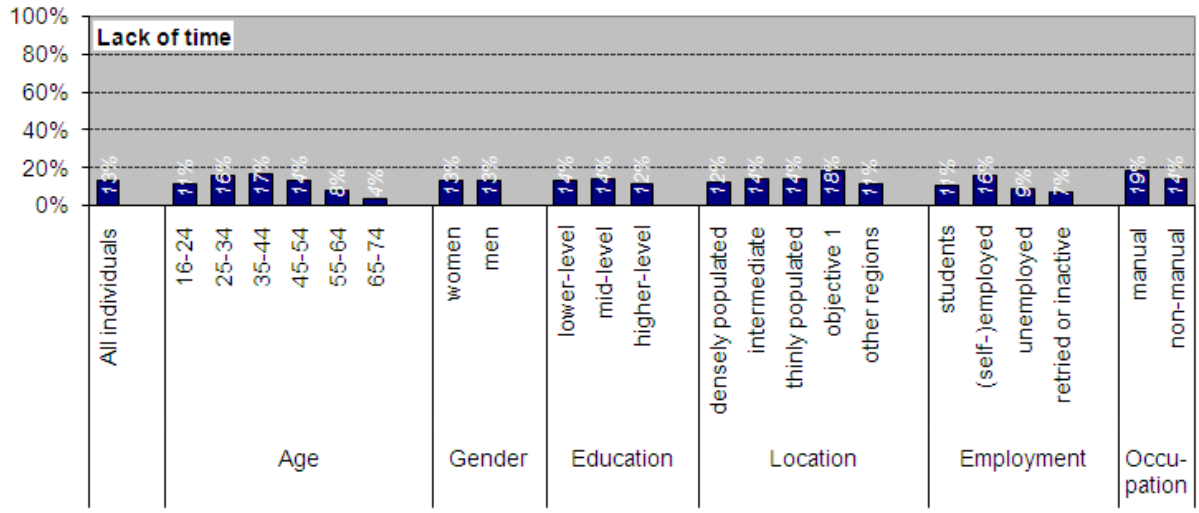
Figure 25: Competence development – reasons for not having taken a computer course recently – rarely use computers



Individuals who have used the computer but have not taken a computer course within the last 3 years (unless otherwise noted the age group is 16-74). Relates to question E2 in the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 10 for exact figures and breakdowns.

Figure 26 shows that at the EU27 level a relatively steady 13% of computer users not having taken a computer course within the last three years indicate that lack of time has prevented them from actively improving their skills. There are slightly higher proportions in the age group 25-44 (16-17%), the employed (16%), people living in economically weaker regions (18%) and manual workers (19%).

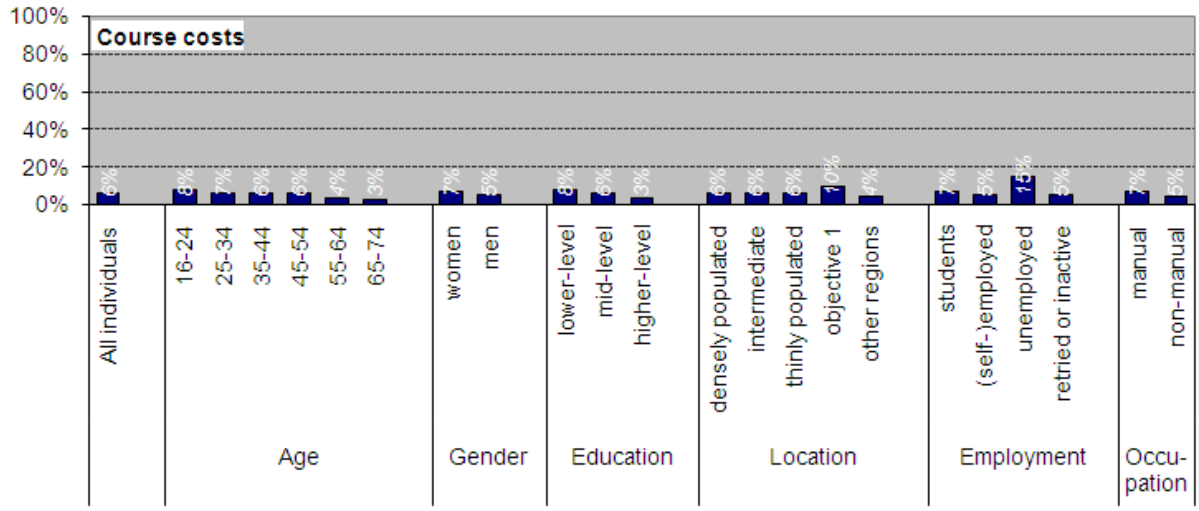
Figure 26: Competence development – reasons for not having taken a computer course recently – lack of time



Individuals who have used the computer but have not taken a computer course within the last 3 years (unless otherwise noted the age group is 16-74). Relates to question E2 the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 10 for exact figures and breakdowns.

With 13% indicating lack of time as a reason for not actively improving computer skills, time in general would appear to be about twice as important as monetary costs since only 6% of computer users not having taken a computer course within the last three years have indicated that course costs played a role in their decision not to take a course. However, figure 27 indicates that course costs are an important reason, especially for the unemployed (15%). This figure should be compared to factors relating to perceived lack of need and rarity of use as a reason for a larger proportion of the unemployed. Minor differences are apparent across economic regions (about 6 percentage points) and educational levels (about 5 percentage points), both suggesting the impact of disposable income on the importance of course costs, mirroring the finding concerning single parent households with children.

Figure 27: Competence development – reasons for not having taken a computer course recently – course costs



Individuals who have used the computer but have not taken a computer course within the last 3 years (unless otherwise noted the age group is 16-74). Relates to question E2 in the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 10 for exact figures and breakdowns.

Lack of a suitable offer and the perceived difficulty in content of available courses present significant barriers to marginal shares of the EU27 population, respectively 3 and 1%. Please refer to annex 10 for further details.

There are no particular patterns among countries regarding potential motivational barriers to computer training courses. For instance, between 17% (Czech Republic) and 70% (the Netherlands) find that their computer skills are at a sufficient level, while between 12% (Norway) and 45% (Slovenia) indicate that it is not worth the effort to improve their skills given that they rarely use a computer. With regards to the physical barriers, differences are more clearly related to the general trend also found in the i2010 aggregate scores also reported in Topic Report 1 (see figure 28 below). Thus, lack of time poses the biggest barrier in Spain (29%), the Czech Republic (24%), Lithuania (22%), and Romania (22%), and course costs the biggest barrier in Portugal (17%), Hungary (12%) and Bulgaria (10%). Costs rarely exceed other factors with regards to level of importance (see also 1.1.4).

Figure 28: i2010 aggregate indicator level[55]

	Top (above EU average)	*Bottom (below EU average)*
Member States	• Netherlands (+16.0) • Denmark (+14.3) • Finland (+12.9) • Sweden (+12.1) • Luxembourg (+8.6) • United Kingdom (+6.6) • Estonia (+6.1) • France (+4.6) • Austria (+4.5) • Germany (+3.6) • Slovenia (+3.0) • Belgium (+2.7) • Malta ("+")	• Portugal (-0.4) • Spain (-0.8) • Ireland (-2.1) • Hungary (-3.0) • Lithuania (-3.9) • Czech Republic (-5.1) • Italy (-6.1) • Slovakia (-6.9) • Latvia (-8.6) • Cyprus (-10.1) • Poland (-10.3) • Bulgaria (-13.0) • Greece (-15.0) • Romania (-17.5)
European Economic Area	• Iceland (+16.9) • Norway (+15.2)	

NOTE: Indexation of Malta estimated due to lack of comparable data.

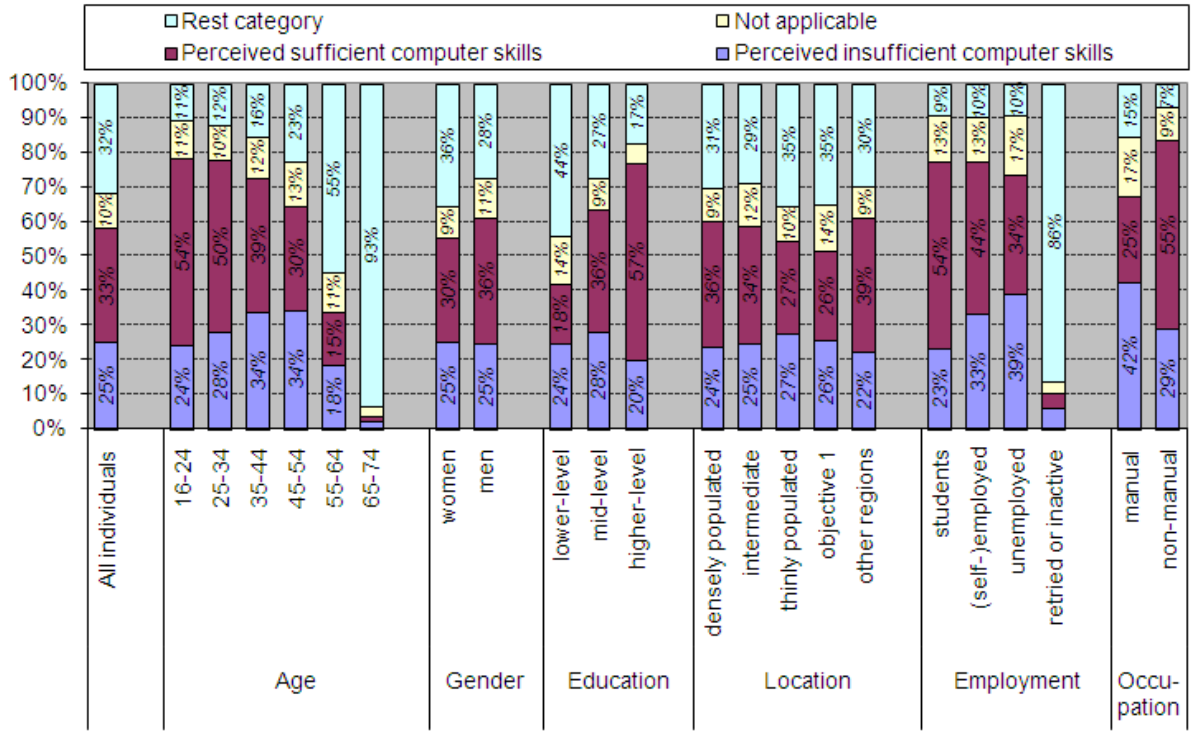
2.9.3 Skills perceptions[56]

As indicated above, individuals' perceived sufficiency of skills constitutes a major reason for not actively improving their computer skills through participation in new computer courses. This finding is further substantiated by another and broader question contained in the 2007 Eurostat Community survey on ICT usage in Households and by Individuals. The question posed is whether the respondent has the necessary computer skills required for a successful job change within a year. The question is new and posed to all individuals not retired, and while responses are not entirely consistent (some uncertainties remain regarding the size of the rest category of retired people not included in the respondent base) results are nevertheless interesting.

[55] Formally, the aggregate index is a simple average of the following variables mainly from Eurostat: Total DSL coverage, DSL coverage in rural areas, Broadband penetration, DSL penetration (all as percentage of total population), household internet connection rate (as percentage of all households), household broadband internet connection rate (as percentage of all households with an internet connection), share of basic public services for citizens fully available online, shares of population who i) are regular internet users, ii) send emails, iii) look for information about goods and services, iv) use internet telephoning or videoconferencing, v) play or download games and music, vi) listen to web radio/watch web TV, vii) read online newspapers/magazines, viii) use internet banking and who ix) use e-government services, as well as shares of population with i) no internet skills, ii) low level of internet skills, iii) medium level of internet skills, and with iv) high level of internet skills (all as percentage of total population). The relative score in relation to the EU average is utilised to adjust for the varying country availability of variables. The measure is developed by the European Commission.

[56] These data are related to the question E6 of the "Community Survey on ICT usage in Households and by Individuals" published by Eurostat in 2007.

Figure 29: Perceived sufficiency of skills for change job within a year



All individuals except retired persons who as a group were not interviewed and labelled "rest category" in the above[57]*. Relates to question E6 in the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 11 for exact figures and breakdown.*

NOTE: Data from the Netherlands, Romania, and Greece, in particular, are of questionable quality as the share of retired appears much too high.

Figure 29 indicates that the perceived sufficiency of computer skills to be able to change jobs within a year has clear parallels to the pattern evident in figure 24 across socio-economic groups. While 33% of the EU27 population are confident that their skills are sufficient, this share diminishes notably with age (from 54% among those aged 16-24 to 15% among those aged 55-64) and is lower among individuals with lower educational attainment (18%), among manual workers (25%), and among individuals living in rural and economically poorer areas (26-27%). Women, too, tend to be less confident about the sufficiency of their computer skills than men (about 6 percentage points in difference) although this figure should be interpreted with caution as there might be gender differences regarding perceived levels of ICT skills, and required ICT skills may also vary considerably between occupations.

Concomitantly, however, 25% of the EU27 population believe its skills are insufficient for a job change. This share increases with age (from 24% among those aged 16-24 to 34% among those aged 35-54) and employment status (from 23% among students to 39% among the unemployed) and is higher among manual workers (42%) and among people living in rural areas (27%)[58].

[57] According to the questionnaire only retired persons were not interviewed meaning that the economically inactive would appear to have been asked this question. However, there is some uncertainty about the size of the rest category if it only is to include retired persons.

[58] Please note that the inclusion in the graph of the designated rest category slightly distorts proportions.

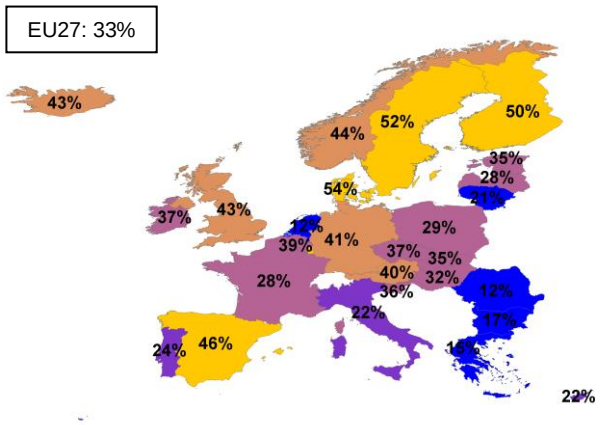
Between 10 and 20% of the different segments find that the question is not applicable to their situation, which may imply that computer skills to some degree are considered irrelevant to the respondents' current and likely future job situation. In any case, proportions are highest among manual workers (17%), the unemployed (17%), and persons with lower educational levels (14%).

Concerning country differences, there is a relatively larger proportion of persons who live in the Nordic countries and in Luxembourg, Spain, the United Kingdom, Germany, and Austria that perceive they have sufficient ICT skills; whereas particularly in Greece, Romania, Bulgaria, Lithuania, and the Netherlands the size of this segment is lower (figure 30a – note that in each instance maps 30a through 30d highlight those countries deviating most from the EU27 average compared to the overall extent of national variations using standard deviations[59]). On the other hand, these perceptions are not necessarily matched by a converse proportion of persons who believe they have insufficient skills (figure 30b). The proportion of persons who perceive that they have insufficient skills thus is comparably lower in Greece, Romania, and the Netherlands, as well as in Italy and the Czech Republic, while it is relatively high in Iceland and Luxembourg together with Bulgaria, Lithuania, Latvia, and Portugal. In several of the southern and eastern countries (Italy, Greece, Cyprus, Bulgaria, the Czech Republic, Estonia, and Lithuania in particular) there rather seems to be a perception that computer skills are not that applicable – perhaps in reflection of the composition of the primary business and employment sectors in those countries (figure 30c). That is, high shares of people perceiving computer skills to be not applicable to their job prospects (even if computer skills levels generally seem relatively low, see figure 30d and sections 2.5 and 2.6) at least to some extent might correspond with the number of people working in, for instance, agriculture and low-tech production presumably requiring less in terms of computer skills and knowledge.

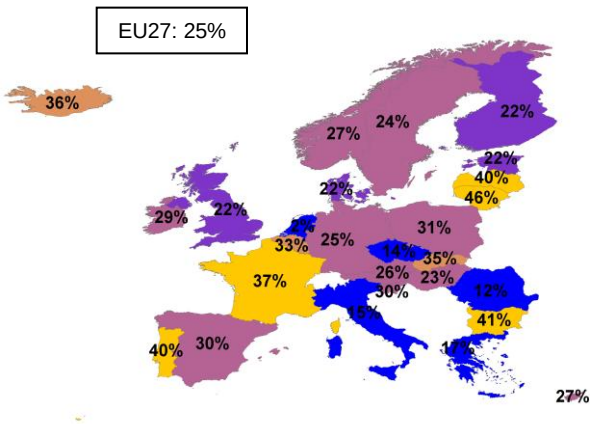
[59] The standard deviation is a statistical term describing the spread of data about the mean, the smaller it is the less variation there is between individual scores. When standardizing country shares by subtracting the EU27 mean and dividing by the standard deviation, a positive value above 1 (shaded yellow/light) might then roughly be interpreted as shares more than the average distance above the EU27 mean while a negative value below -1 (shaded blue/dark) indicates shares more than the average distance below the EU27 mean. Such a standardization allows for the comparison of relative country ranks in relation to different responses irrespective of absolute percentage point differences.

Figure 30: Perceived computer skills and relevance

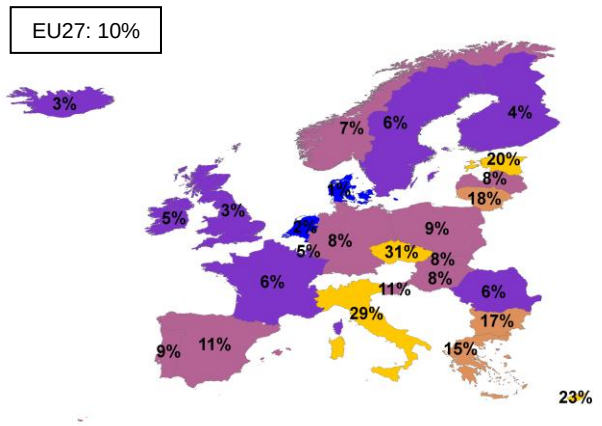
30a Perceived sufficient computer skills



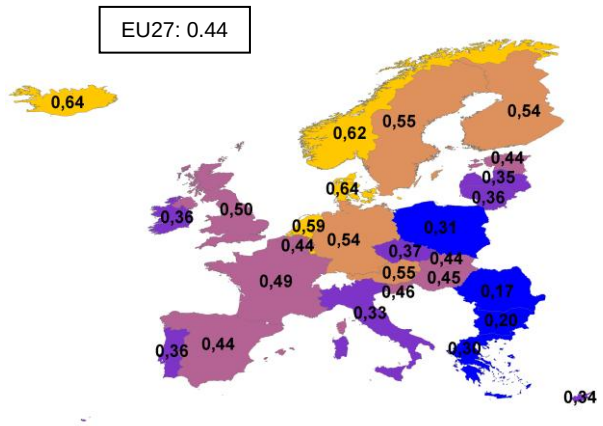
30b Perceived insufficient computer skills

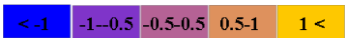


30c Computer skills perceived as not applicable



30d Computer skills aggregate score[60]





Standard deviations above (yellow/light) or below (blue/dark) EU27average
The maps comprise the population aged 16-74 except for the retired. Relates to question E6 of the Eurostat Community Survey on ICT usage in Households and by Individuals except for 29d, which relates to E3. See annex 11(and 1) for exact figures and breakdown.

NOTE: The figures 30a-c do not sum to 100% as the share of the retired (who were not asked) is unknown. In addition data from the Netherlands, Romania, and Greece, in particular, is questionable as the share of the retired appears much too high.

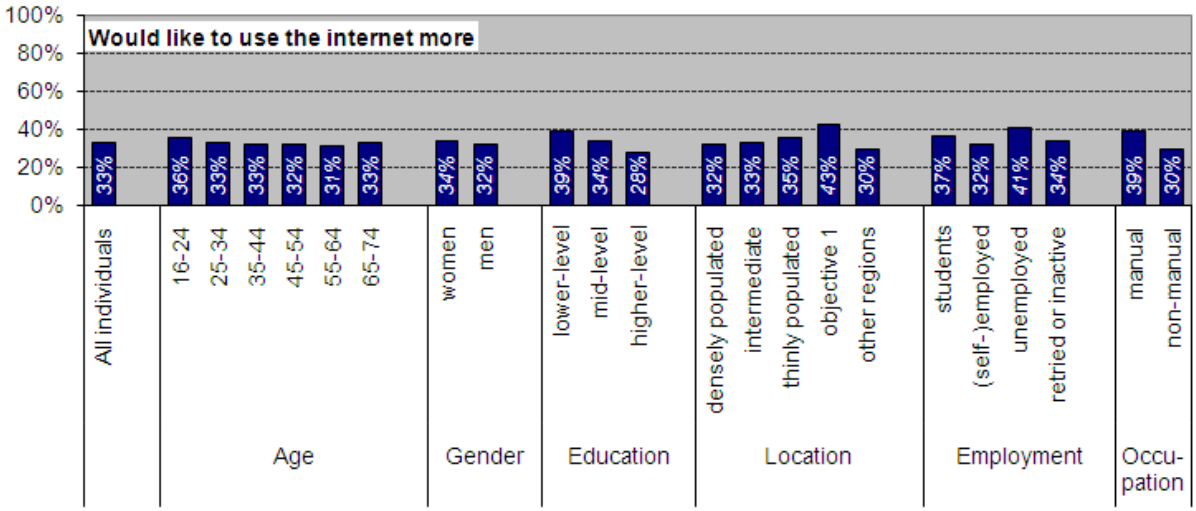
2.9.4 Using the internet more[61]

The Eurostat Community Survey on ICT usage in Households and by Individuals collected some new information in 2007 on whether regular users in fact would want to use the internet more than they already did at the time the question was asked, and if so what prevents them from doing so. This information is the closest Eurostat gets to describing barriers affecting internet use beyond the issue of access presented above in 2.9.1.

[60] The aggregate score combines information about shares with no, low, medium, and high computer skills levels and ranges from 0 = no computer skills in population to 1 = high computer skills level in entire population, see further explanation in Annex 1.

[61] These data are related to the questions C8 and C9 of the "Community Survey on ICT usage in Households and by Individuals" published by Eurostat in 2007.

Figure 31: Would you like to use the internet more?

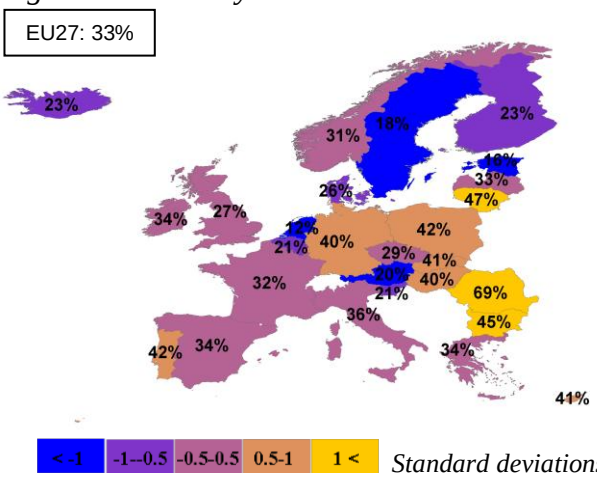


Individuals who have used the internet within the last three months (unless otherwise noted the age group is 16-74). Relates to question C8 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 12 for exact figures and breakdown.

Among respondents who have used the internet within the last three months, 33% at the EU27 level answer that they would like to use the internet more, as evidenced in figure 31. This desire is expressed particularly by persons living in economically poorer regions (43%), the unemployed (41%), manual workers (39%), and persons with a lower level of educational attainment (39%). The figures tend to correspond to exactly those socio-economic groups which tend to be the least frequent users. Notably too, the wish to increase usage does not appear to deteriorate with age, as those aged 65-74 (33%) are at least as likely as those aged 25-34 (33%) to confirm that they would like to use the internet more.

Geographically, there is a tendency for countries with lower use (and lower skills levels) to be more affirmative about their wish to use the internet more. Hence, as shown in figure 32 below, the most affirmative replies are exhibited by users in Romania (69%), Lithuania (47%) and Bulgaria (45%) whereas smaller proportions reply positively in northern and western countries such as the Netherlands (12%), Estonia (16%), Sweden (18%), and Austria (20%) – but also Slovenia (21%).

Figure 32: Would you like to use the internet more in 2007?



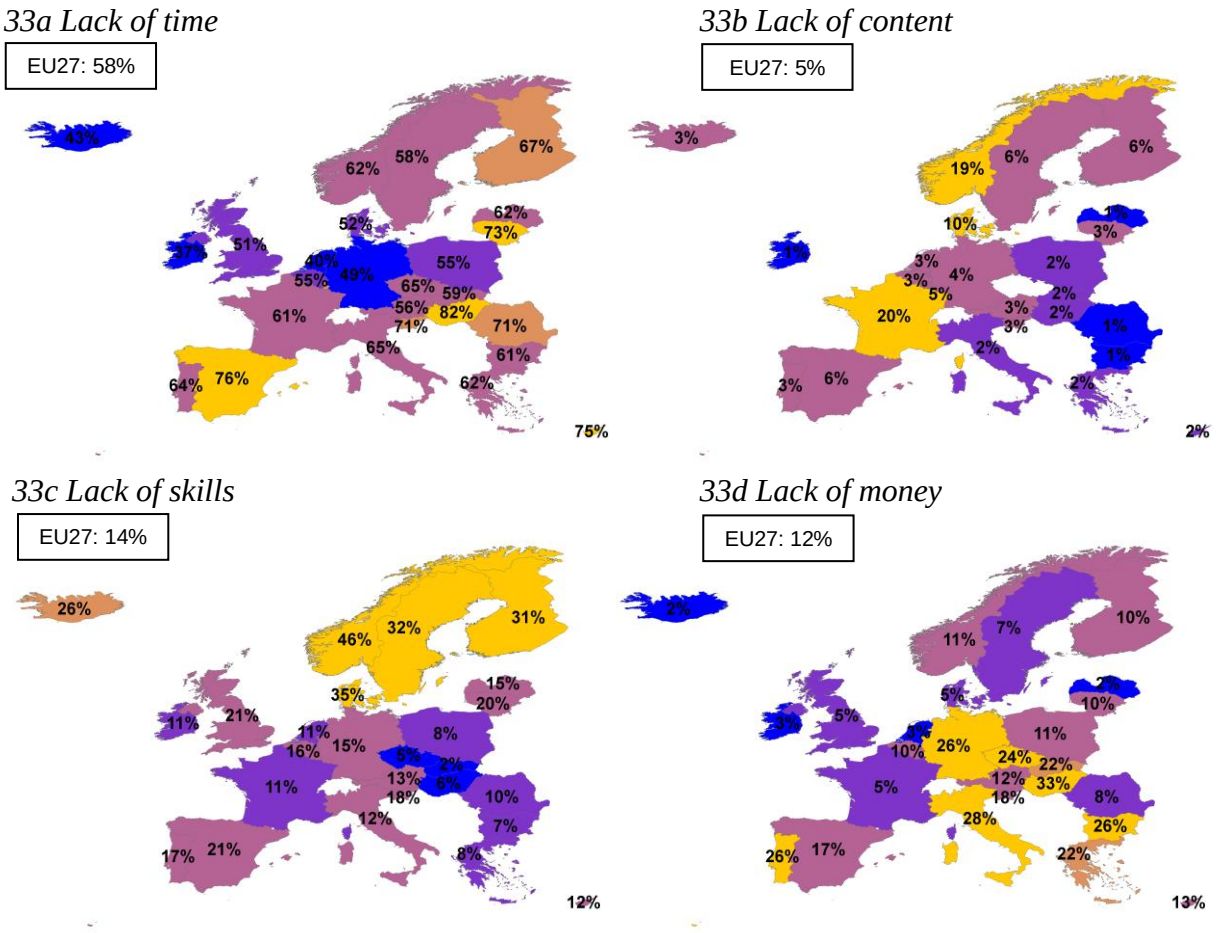
Standard deviations above (yellow/light) or below (blue/dark) EU27average
The map comprises individuals aged 16-74 who have used the internet within the last 3 months. Relates to question C8 the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 12 for exact figures and breakdown.

What are the barriers to a more frequent use for regular internet users? Figures 33a-d below show the most interesting country differences with regard to reasons given for not using the internet more frequently among those who would like to use the internet more than they already do. Reasons depicted are lack of time (58%), lack of content (5%), lack of skills or knowledge (14%), and lack of money for connection or per-volume download costs (16%). Note that all response categories including inadequate foreign language skills (16%), slow connections (18%), cost of online content (12%), and security or privacy concerns (18%), are listed in annex 13.

The findings illustrate (figure 33a) that time is by far the reason most often encountered – ranging from 37% in Ireland to 82% in Hungary. In fact, 50% of regular users list *lack of time* as a key hindrance in all but three countries (the Netherlands 40%, Ireland 37%, and Iceland 43%). Moreover, time is presented as the key barrier to increased use both in countries with commonly high take-up, internet use, and skills levels, and in countries trailing behind on these parameters and where it would be likely that physical barriers could be of higher importance. This indicates that in order to increase internet use (and skills), time always should be considered as a significant constraint or motivating factor although generally most significant among the (self-)employed (67% at the EU27 level, see Annex 13 for more detail) who already tend to have good skills levels.

Lack of relevant content is generally not a factor inhibiting increased use of the internet (figure 33b). With the exception of three countries – Denmark (10%), Norway (19%), and France (20%) – the percentage of *no* responses does not rise above 6%. This could indicate that among regular users there is a fair understanding of the possibilities and benefits that internet use (and skills) might provide. Interestingly, this is also true of users in more marginalised population groups such as retired or inactive persons (6%).

Figure 33: What are barriers to more intensive use of the internet?



Standard deviations above (yellow/light) or below (blue/dark) EU27average Maps comprise individuals aged 16-74 who have used the internet within the last three months and would like to use it more than they already do. Relates to question C9 of the Eurostat the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 13 for exact figures and breakdown.

There are significant differences between countries with regards to the perceived lack of basic skills and knowledge required to use the internet more intensely (figure 33c). Lack of skills seems to be far more critical in the Nordic countries (26-46%), where according to Eurostat data the populations have some of the highest levels of computer and internet use and skills. In comparison, countries with less proficient computer and internet skills levels such as Greece (8%), Poland (8%), Bulgaria (7%), Hungary (6%), the Czech Republic (5%), and Slovakia (2%) perceive lack of skills as less of an issue. In other words, higher skills levels would seem to lead to a high degree of self-critique, or alternatively high connectivity and a sophisticated use of online offers would seem to be associated with a perceived need for better computer, internet, and higher order analytical skills, a factor brought to the attention in the European Commission review and discussion on a third stage of digital literacy.

In some countries or regions financial resources still constitute one of the more important barriers to an increased internet use (and improved skills) (figure 33d). Thus, particularly in central, eastern, and southern Europe, significant shares of regular users indicate this reason for curtailing their use. The highest shares are exhibited for Hungary (33%), Italy (28%), Portugal (26%), Bulgaria (26%), and Germany (26%). Presumably, these perceived costs in

part reflect actual internet prices due to either expensive infrastructure roll-out and/or limited competition, but also likely variations in household incomes across borders, and in any circumstances they stand in stark contrast to shares as low as 2% or 3% respectively in Iceland together with Latvia, Ireland and the Netherlands. Moreover, these differences indicate the potential of PIAPs to increase roll-out and coverage – especially into remote areas – and to lower costs with the added benefit of introductory courses and guidance in close proximity to disadvantaged users.

2.10 Actual learning processes and online services use

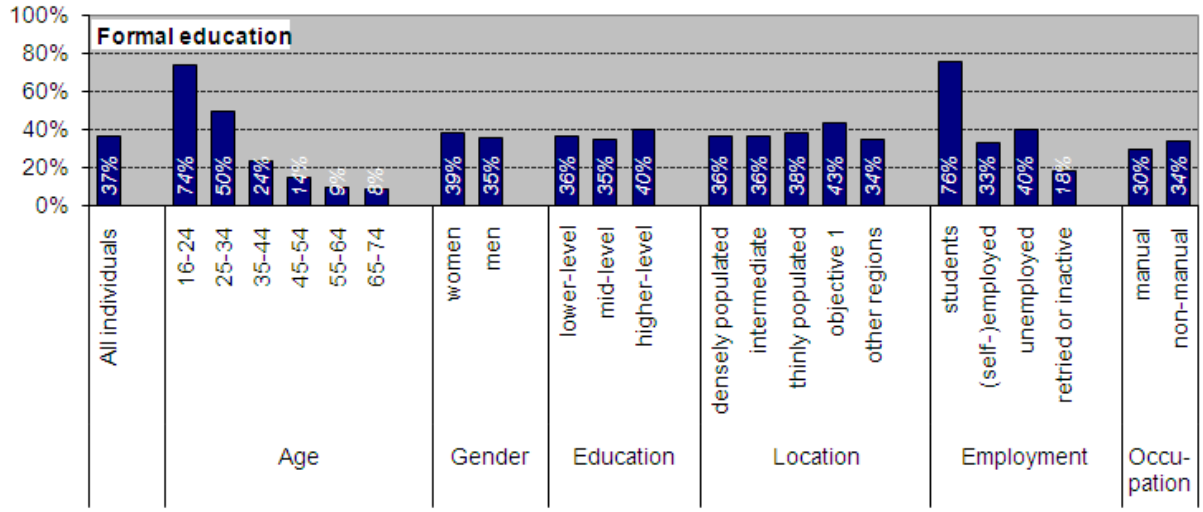
This section addresses another pertinent issue relating to the ways users acquire skills and the type of online activities and services that typically engage the users.

2.10.1 Ways of obtaining skills[62]

This section presents the 2007 figures regarding approaches to skills formation by gender, age, educational attainment, location, employment status, and occupation. Self-study and informal learning are in this regard of particular interest in relation to marginalised and disadvantaged groups (see annex 14 for exact figures and breakdowns).

Skills gained through formal education

Figure 34: Where or how did you obtain the skills to carry out these activities? Formal education



Individuals with at least a low level of computer skills (unless otherwise noted the age group is 16-74). Relates to question E5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 14 for exact figures and breakdowns.

37% in the EU27 have gained their computer skills through formal education as shown in figure 34 above. Not surprisingly, this is particularly the case for those aged 16-24 (74%) and 25-34 (50%) as well as students (76%). For persons in economically poorer areas (43%) and for the unemployed (40%), formal education is also a relatively strong source of skills formation. For persons aged 35 and above (8-24%), formal education is generally no longer a

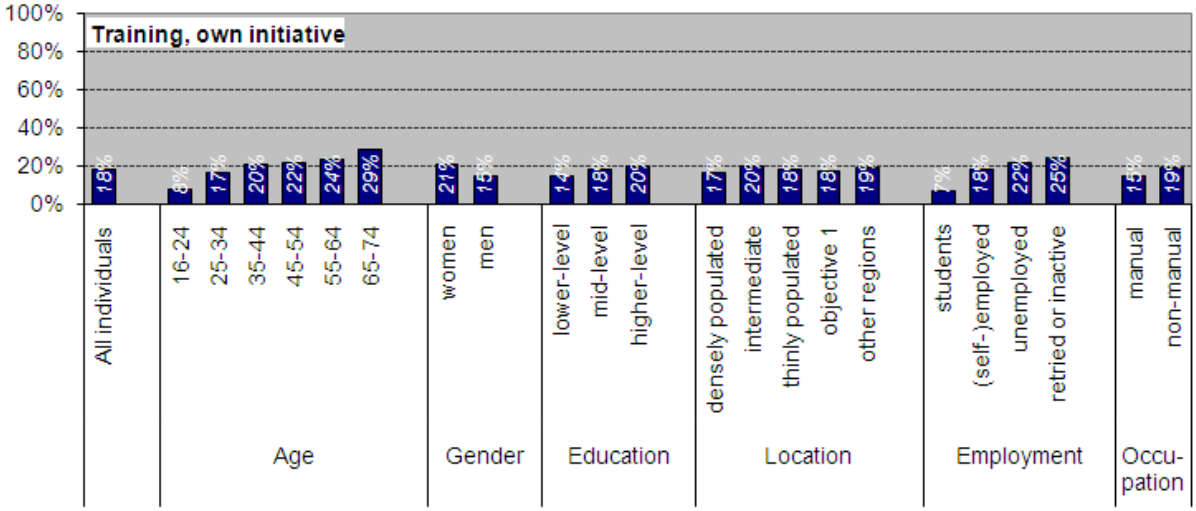
[62] These data are related to the question E5 of the "Community Survey on ICT usage in Households and by Individuals" published by Eurostat in 2007.

prevalent source of skills formation. Differences across other socio-economic categories such as gender, age, education, and occupation are small (4-5 percentage points).

Geographically, the acquisition of skills through formal education is particularly high in the Baltic countries (in Estonia 54%, Latvia 55%, and in Lithuania 57%), and more generally in Eastern Europe (where the range is 41-57%), as compared to the lower figures in Northern and Western Europe. The lowest rate is found in the Netherlands, where 20% of individuals have gained their skills through formal education. An exception is Iceland (52%), which interestingly ranks fifth among the EU27 countries in relation to this response category (see annex 14 for details). High shares in those countries in part reflect a tendency for a strong concentration of computer and internet skills among the youngest, as differences for the age groups from 25 to 74 are significantly smaller.

Skills gained through training on own initiative

Figure 35: Where or how did you obtain the skills to carry out these activities? Training on own initiative



Individuals with at least low level of computer skills (unless otherwise noted the age group is 16-74). Relates to question E5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 14 for exact figures and breakdowns.

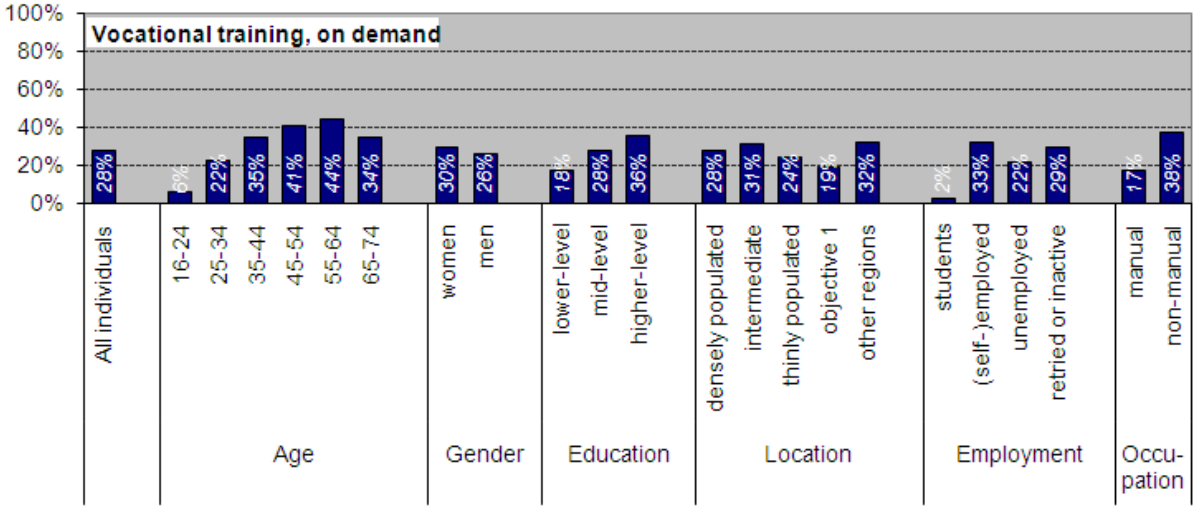
Only 18% of all individuals with at least a low level of computer skills have acquired computer and internet skills through participation in a computer course on their own initiative. As shown in figure 35 those who have acquired ICT skills on their own not surprisingly tend to be somewhat older than those who have acquired their skills through formal education. In fact, the highest shares are among those aged 65-74 (29%) and the retired or inactive (25%). It is notable too that women (21%) are somewhat more likely to participate in computer courses on their own initiative, while manual workers (15%) and persons with low educational attainment (14%) are among the least likely other than students (7%) and the youngest age group (8%).

The underlying reason for particularly the elderly's participation in such activities may be related to the availability of time and relative absence of other activities – particularly employment. The figure may also reflect that NGOs for the elderly population have intensified efforts to reach the elderly with tailored ICT courses.

There is no particular pattern of difference between countries, but shares are highest in Iceland (41%), Spain (31%), Greece (29%), Ireland (27%), Cyprus (26%) and Italy (25%), while less than 10% have used this form of education in Romania (8%) and Norway (7%) (again see annex 14 for details). For Norway the figure is surprising given the overall volume of lifelong learning in Norway.

Skills gained through vocational training, on demand

Figure 36: Where or how did you obtain the skills to carry out these activities? Vocational training, on demand



Individuals with at least low level of computer skills (unless otherwise noted the age group is 16.74). Relates to question E5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 14 for exact figures and breakdowns.

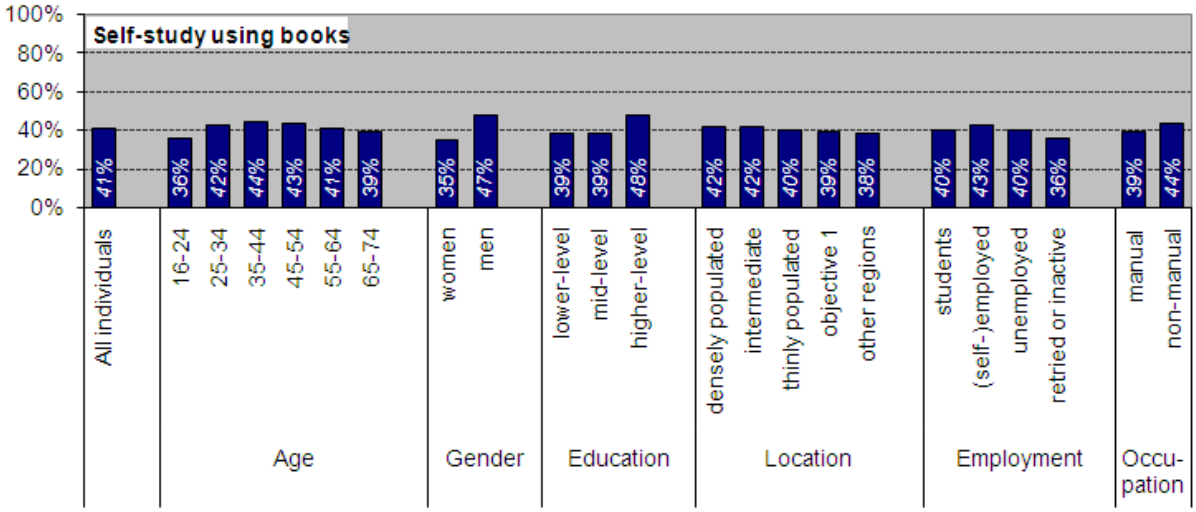
At 28%, a somewhat larger of share of people in the EU 27 have participated in on-demand vocational training initiated by employers as shown in figure 36. For younger persons and for students, participation rates are not surprisingly low. Among those aged 35 to 74, on the other hand, at least one in three – and significantly more between the ages of 45 and 64 (41-44%) – has acquired computer and internet skills through on-the-job training. The shares of persons who have participated in on-the-job-training are also higher among those with higher education (36%) and among non-manual jobs workers (38%). Marked differences exist across economic regions (about 13 percentage points) and between employed and unemployed (11 percentage points). Moreover, there is a gender difference (although only of 4 percentage points), with women relying more on vocational training compared to men (30% vs. 26%). Again we see that people with lower education (18%) and manual workers (17%) participate the least in this form of training, a situation which also holds for other areas of on-the-job training.

With the exceptions of Slovenia (24%), Cyprus (25%) and the Czech Republic (25%), on-the-job-training for ICT skills is least frequent in the eastern European countries – again perhaps to some extent due to a concentration of computer and internet skills among the youngest. In addition, shares are relatively low in Ireland (12%) as well as in Greece and Belgium (both 15%), while more than two out of five have participated in vocational training in Sweden

(55%) and Germany (43%). Within the EU similar patterns and differences are found concerning participation in lifelong learning as a whole.

Skills gained by self-study, using books

Figure 37: Where or how did you obtain the skills to carry out these activities? Self-study using books



Individuals with at least low level of computer skills (unless otherwise noted the age group is 16-74). Relates to question E5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 14 for exact figures and breakdowns.

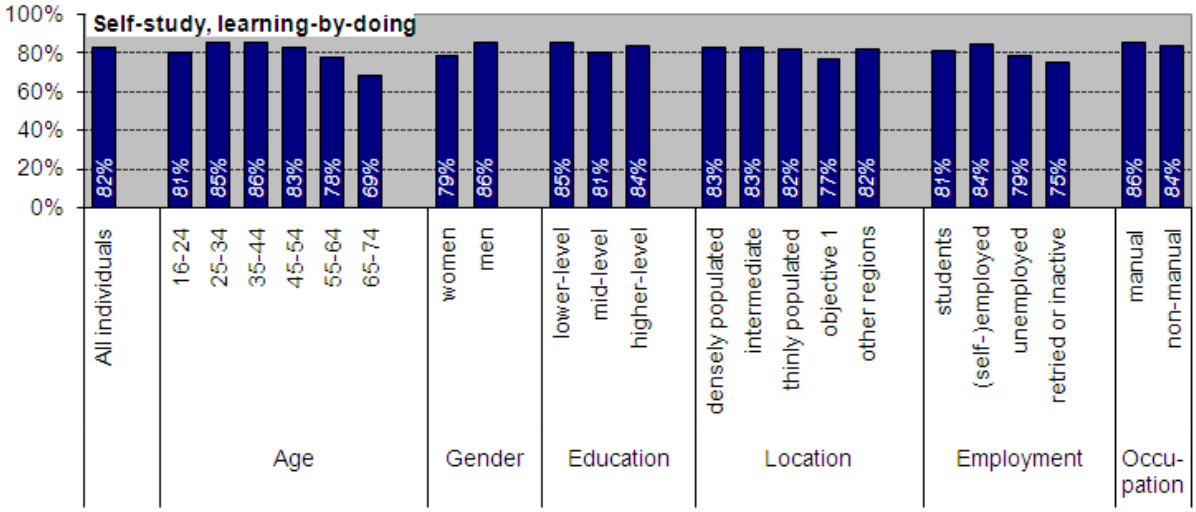
In contrast to participating in courses, skills might also be acquired through self-study either following a book or simply learning-by-doing. At the EU27 level, 41% have utilised self-study using books in order to improve their computer skills, making this more common than both learning through formal education and through on-the-job training. As highlighted in figure 37, only minor variations exist across socio-economic groups in relation to this type of learning except for two specific groups, namely persons with higher educational attainment (48%) likely being more accustomed to and comfortable with theoretical explanations, and men (47%). In addition to these two groups, slight increases in shares can be seen among the age groups between 25 and 54 (42-44%) and in relation to non-manual workers (44%) and employed persons in general (43%).

Geographically, self-study using books does not seem to follow any particular pattern. Shares are highest in Estonia (83%), Sweden (62%), France (59%), Hungary (57%), Portugal (53%), Italy (52%), and Latvia (51%), where more than half have learned from studying books by themselves, and lowest in the United Kingdom (26%), Ireland (20%), Greece (18%), and Lithuania (17%).

As with other forms of self-study and informal skills development, book-based study represents a method which may be amplified by a general level of educational attainment. That is, if individuals already possess a solid base of literacy skills they are more likely to use self-study and books to increase their digital literacy too.

Skills gained by self-study, learning-by-doing

Figure 38: Where or how did you obtain the skills to carry out these activities? Self-study, leaning-by-doing



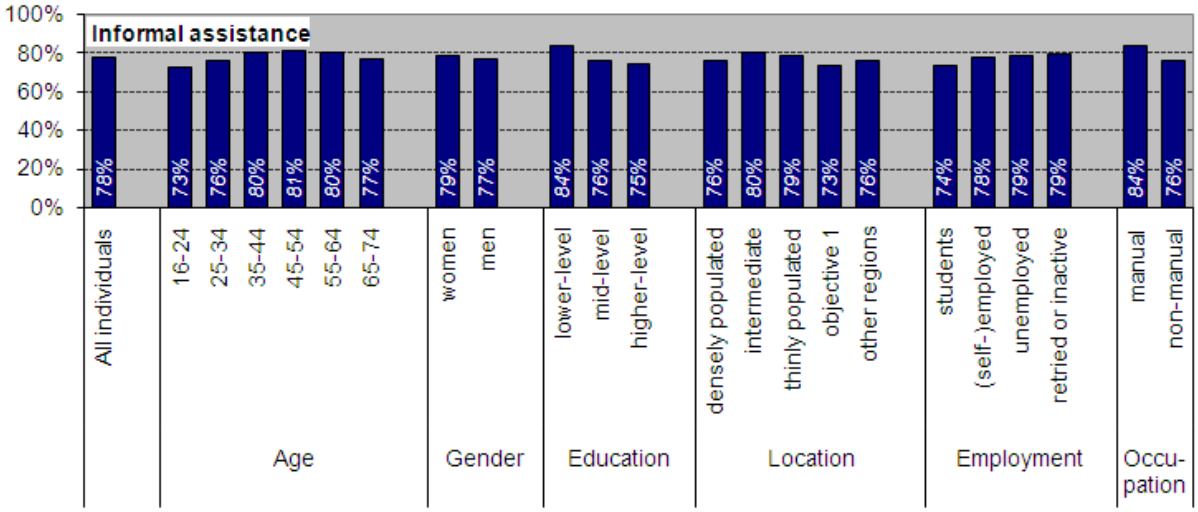
Individuals with at least low level of computer skills (unless otherwise noted the age group is 16-74). Relates to question E5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 14 for exact figures and breakdowns.

The latter type of self-study, namely learning-by-doing, is even more common and a practice that practically everyone engages in at some point, with a share of 82% at the EU27 level. Learning-by-doing is in fact the most prevalent way in which computer skills are gained and improved. Like with self-study using books, figure 38 illustrates that this is an approach most often adopted by men (86%) and by those aged 25-54 (83-86%), and also, interestingly, by individuals with lower educational attainment (85%) and manual workers (86%) who might prefer this more practical approach over book study. Elderly above 55 (69-78%) and retired or inactive (75%) are least likely to learn by doing. Limited access to and understanding of ICT could be an explanatory factor, considering that the ability to learn-by-doing and self-study in general may be limited by an individual's lack of functional literacy skills (this conjecture is supported if combining data on age and educational attainment with computer skills levels, showing that irrespective of age and education people with high skills are much more likely to have engaged in self-study, see further annex 15).

All countries in western and southern Europe have shares above the EU27 average, some as high as 97-99% such as France, Denmark, and Norway. There are some differences between countries, and notable exceptions are Finland (79%), Belgium (75%), Greece (76%), the United Kingdom (64%), and Ireland (48%) – most also ranking low in relation to self-study using books. Countries in Eastern Europe except for Slovenia (87%), Slovakia (82%), and Cyprus (81%) tend to have shares significantly below average, the lowest share being 47% in Lithuania.

Skills gained through informal assistance

Figure 39: Where or how did you obtain the skills to carry out these activities? Informal assistance



Individuals with at least low level of computer skills (unless otherwise noted the age group is 16-74). Relates to question E5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 14 for exact figures and breakdowns.

Almost as important as learning-by-doing is informal assistance from peers, colleagues, family, and friends in gaining and improving computer skills. 78% of all individuals with at least a low level of computer skills have relied upon this mode of learning to some extent at the EU27 level. Reliance on informal assistance exhibits a somewhat different pattern of use across socio-economic groups. Figure 39 shows the highest shares among individuals with lower educational attainment (84%) and manual workers (84%), and some of the lowest among persons with higher education levels (75%) and non-manual workers (76%) as well as among the youngest age group (73%) and students (74%). In contrast with their use of other types of learning outside of the educational system, unemployed and women (both 79%) employ this type of learning on at least an equal footing with their counterparts, which seems to underline the importance of facilitators, mediators, networks, and social clubs in spreading knowledge and skills about ICT.

Country patterns in relation to informal assistance are not obvious although Finland, Belgium, Greece, the United Kingdom, and Ireland again rank low in relation to this type of learning. Moreover, the countries featuring the highest shares, namely Norway (96%), Sweden (96%), Germany (95%), France (93%), and Portugal (93%), generally also tend to be countries with comparatively high shares of learning-by-doing (note that no information was available for Sweden in relation to learning-by-doing).

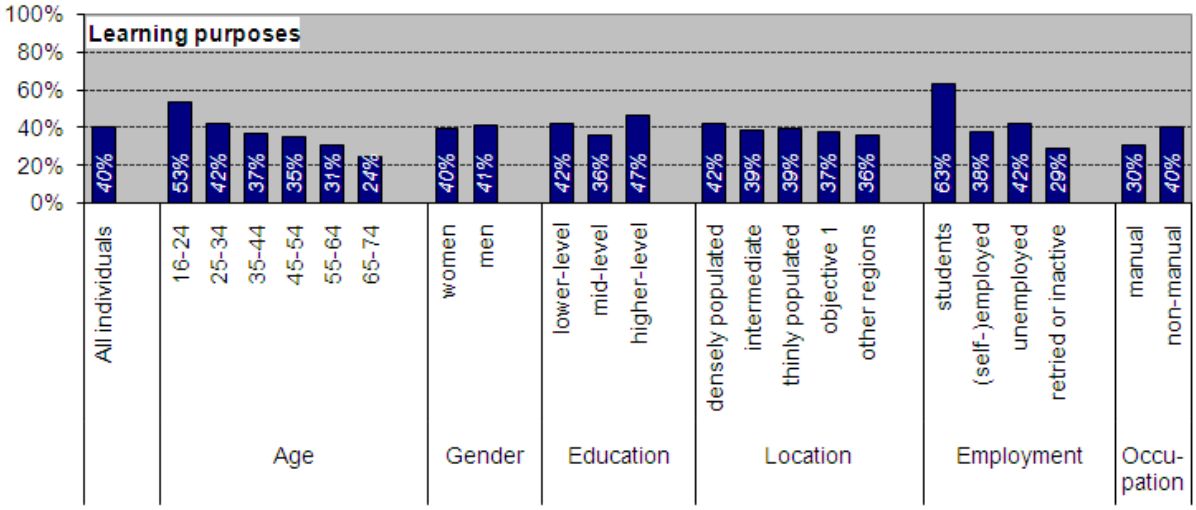
The country patterns above may be the result of cultural differences in the practice of consulting peers (at work or home) for information, for instance based on the informality of work relationships. In any circumstances, consulting peers may be a good way of improving ICT skills, and it is also a method through which results may be amplified through the general level of skills and competences. That is, if skills are generally high, an informed dialogue with peers will likely generate positive outcomes.

2.10.2 Online activities[63]

Eurostat information on use of the internet for learning, seeking health-related information, internet banking, accessing public websites, looking for a job or sending a job application, and purchasing online, is presented below. These six internet activities have been chosen as they represent a broad spectrum of online activities and services. In addition, these six activities are in some way relevant to all groups as important aspects of daily life. To include aspects of attitudes such as trust, the analysis further includes a seventh activity looking at how often an individual makes safety copies or back-up files. The analysis is based on available Eurostat data concerning individuals who have used the internet within the last three months by gender, age, educational attainment, location (population density as well as economic region), employment status and occupation.

Using the internet for learning purposes

Figure 40: Learning purposes



Individuals who have used the internet within the last three months (unless otherwise noted the age group is 16-74). Relates to question C5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 16 for exact figures and breakdown.

According to the Eurostat Community Survey, 40% of all individuals in the EU27 have used the internet within the last three months for learning purposes. Shares vary according to different socio-economic breakdowns, being highest among individuals with higher levels of education (47%), among the 16-24 years old (53%), and especially among students (63%), and lowest among manual workers (30%), the retired or inactive (29%), and the elderly, particularly among those aged 65 or above (24%). Meanwhile, gender differences appear to be negligible (about 1 percentage point) and rural-urban divides only of minor importance (about 3 percentage points).

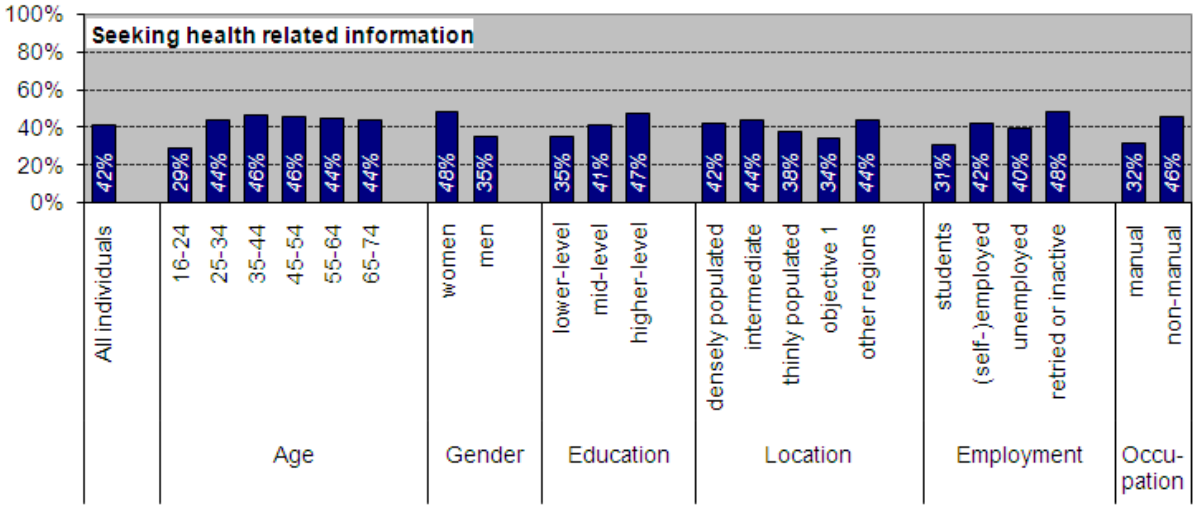
The concentration of high use of the internet for learning purposes among students, young people and the highly educated is hardly surprising given the likely focus on internet use in school work. That the use of the internet for learning purposes is relatively high among the unemployed (42%) is perhaps a consequence of the focus of active employment policies to include ICT in training for jobs.

[63] These data are related to the questions C5, C11 and D1 of the "Community Survey on ICT usage in Households and by Individuals" published by Eurostat in 2007.

Some interesting differences appear across countries with Austria, the Netherlands, Belgium, the United Kingdom, and Sweden (14-34%) typically ranking near the top in relation to ICT use and on the i2010 aggregate score, but ranking in the lower third in relation to internet use for learning purposes, whereas use of the internet for learning purposes is much more common in countries such as Portugal, Italy, and Cyprus (54-67%) ranking near the very top (the highest share across all countries being 71% in Denmark). There are no immediate plausible explanations for these differences although the concentration of internet use for learning purposes among students and the youngest age groups in general combined with the younger age profile of internet users overall in some countries might account for at least part of the differences.

2.10.3 Using the internet for seeking health-related information

Figure 41: Seeking health-related information



Individuals who have used the internet within the last three months (unless otherwise noted the age group is 16-74). Relates to question C5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 16 for exact figures and breakdown.

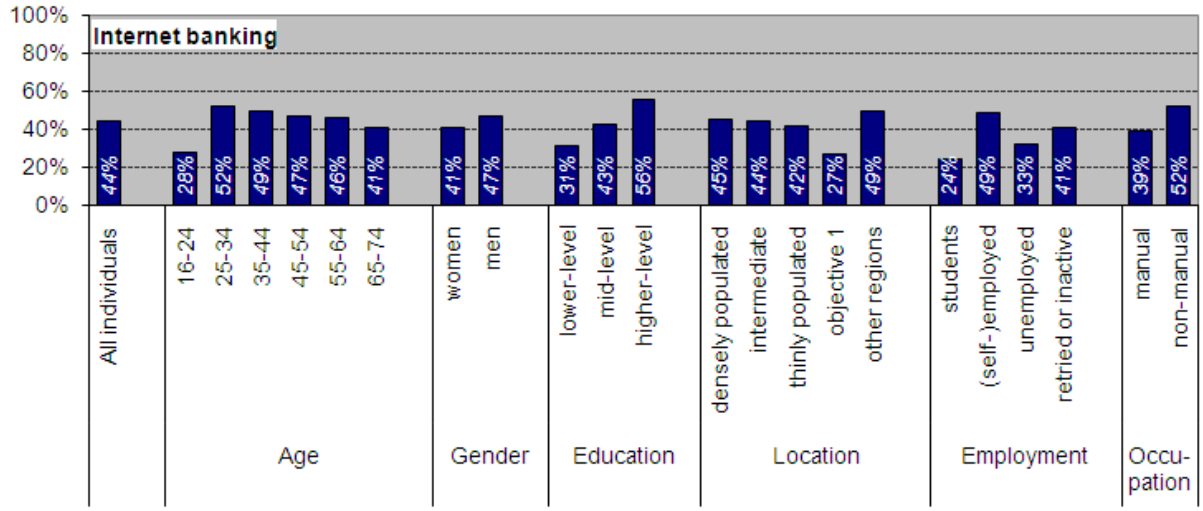
The EU27 average for all individuals who have used the internet for seeking health-related information within the last three months is 42% according to the Eurostat 2007 data presented in figure 41 above. But as with use for learning purposes, shares vary significantly across socio-economic breakdowns. Unlike use for learning purposes, though, use of the internet for health-related information is not an activity especially prevalent among young persons and students. In fact, young persons (29%) and students (31%) together with manual workers (32%) are among the least frequent groups to seek health-related information on the web, while women (48%), retired or inactive (48%) and persons with higher levels of education (47%) are among the most avid users of the internet for this particular purpose. Except for the low share among the youngest age group, age does not appear to be a factor (shares vary by about 2 percent points) nor is there much difference between employed and unemployed (about 2 percent points). The limited use of health-related online services among the younger population is not surprising, since this group would be expected to generally be of good health. As for women, the use of internet services to check health-related information may simply be an expression of information moving on-line from a traditional platform such as women's magazines.

The educational differences (about 12 percentage points from lowest to highest educated), which would seem correlated with differences between manual and non-manual workers (about 14 percentage points) as well as across economic regions (about 10 percentage points), however, have less obvious reasons and could indicate a real gap that needs to be addressed.

Looking at national differences, once again the United Kingdom and Sweden exhibit somewhat lower shares than what might be expected (28 and 32% respectively), whereas Slovenia, Portugal, and Hungary rank relatively high in relation to this activity (44-49%). Highest is Luxembourg and Finland at just above 60%.

2.10.4 Internet banking

Figure 42: Internet banking



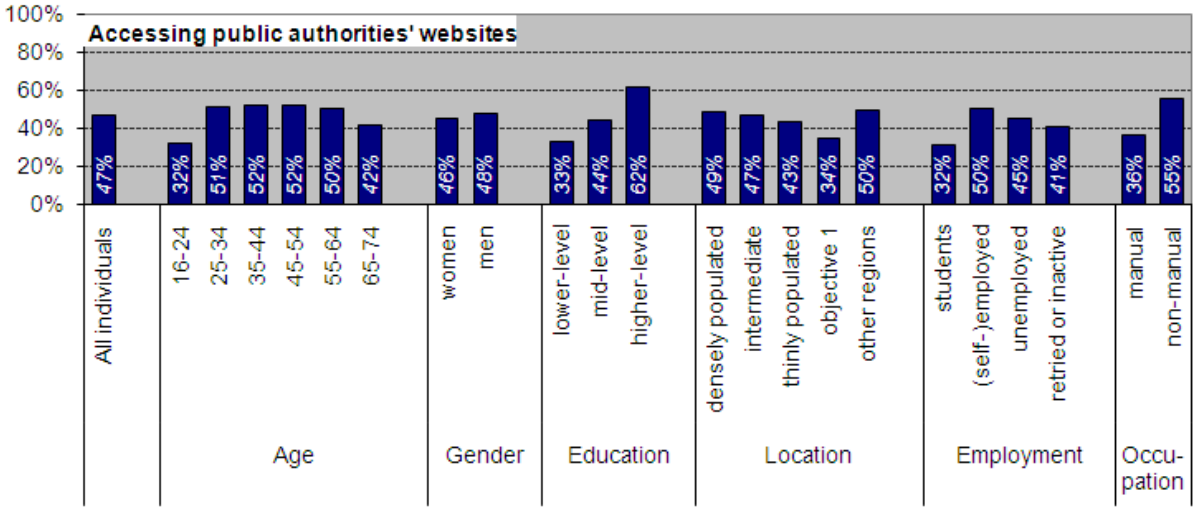
Individuals who have used the internet within the last three months (unless otherwise noted the age group is 16-74). Relates to question C5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 16 for exact figures and breakdown.

Another activity with a broad appeal is internet banking shown in figure 42 above. Eurostat data from 2007 reveal that in the EU27, 44% have used the internet within the three months prior to the Eurostat Survey in order to access online banking. In particular, this activity is widespread in the Baltic countries of Estonia, Latvia, and Lithuania, which all rank higher than what would be expected considering their general i2010 aggregate score (Estonia ranks second in relation to internet banking with a share of 83%, while shares in the other two countries are 50 and 43%).

Online banking activities are given relatively more importance by persons with higher levels of education (56%), people living outside objective 1 regions (49%), the employed (49%) and people in non-manual jobs (52%). On the other hand, a below average rating of online banking is given by individuals aged 16-24 (28%), 65-74 (41%) and women (41%), persons with low levels of educational attainment (31%), persons living in objective 1 areas (27%), students (24%) and the unemployed (33%). It is also worth noting that when cross-tabulating age and education (see sections 2.5 for age, education and computer skills and 2.7 for age, education and internet skills), the level of educational attainment stands out as an important factor influencing the level of digital literacy. Take-up of online services may therefore be closely associated with personal confidence in technology and the educational attainment level.

2.10.5 Using the internet to access public authorities' websites

Figure 43: Accessing public authorities' websites



Individuals who have used the internet within the last three months (unless otherwise noted the age group is 16-74). Relates to question C5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 16 for exact figures and breakdown.

The 2007 Eurostat data show that the EU27 average for all individuals who have made use of the internet to access public authorities' websites within the last three months is 47%, although shares vary by socio-economic groups as evident from figure 43. Most notable are differences across educational levels. Persons with higher educational attainment (62%) are by far the most prevalent users of public authorities' websites, whereas persons with a lower educational attainment level (33%) are among the least frequent together with young people aged 16-24 and students (also 32%). Large differences also can be found across economic regions (about 16 percentage points) and between manual and non-manual workers (about 19 percentage points), both of which would seem correlated with differences in educational attainment levels as has already been mentioned in connection with the use of the internet for seeking health-related information. Gender and age appear to be minor factors, at least for individuals in an economically active age, and even among those aged 65 and above shares are relatively high compared to general computer and internet use (42%).

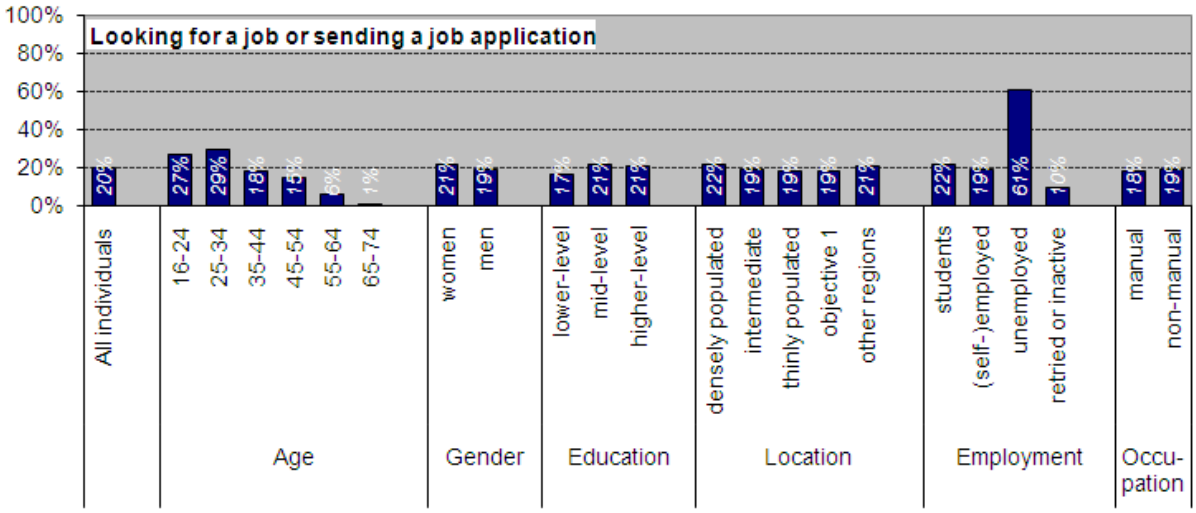
The low levels of use among younger persons may be explained by having less need for online government services, while for other groups the variations in use are less obvious. Factors here coming to play could be the actual knowledge of online public-sector information and services, limited understanding of the functionality of e-government services, or even lack of access to these due to, for instance, availability, cost, and reliability of internet connections in thinly populated areas.

Country differences are also marked, but tend to follow the differences in the i2010 aggregate scores quite closely. In fact, only Belgium (31%) and Austria (36%) rank significantly below what could be expected. It should be noted that both Belgium and Austria are in the process of rolling out electronic identity cards – a prerequisite for many 2nd and 3rd generation services and thus potentially preventing more intensive use of public authorities' websites so far. At a more general level the reason could be that as the amount and complexity of online information and services increases, so does the need for digital literacy, which may in turn

discourage potential users with low ICT skills levels. Nonetheless, for the retired or inactive segment of the population it may be of interest to look at initiatives coming out of France (59%) and Luxembourg (51%), as well as the Nordic countries of Denmark, Norway, Sweden, (50-57%), as elderly persons here seem to access public websites to a higher degree than in other countries. In Denmark, for example, most general practitioners now have on-line services whereby an individual can ask for a renewal of a prescription, get advice on matters which do not require a visit to the doctor's offices, make appointments, etc..

2.10.6 Using the internet for seeking a job

Figure 44: Looking for a job or sending a job application



Individuals who have used the internet within the last three months (unless otherwise noted the age group is 16-74). Relates to question C5 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 16 for exact figures and breakdown.

Compared to the previous activities examined, the search for a job or sending a job application on the internet is a relatively less frequent endeavour. Figure 44 shows that in 2007, 20% of the individuals who had used the internet within the last three months in the EU27 used the internet for either one or the other of these purposes – a share which does not vary much across socio-economic groups. Only those who are unemployed seem to really exploit the opportunities that the internet provides in this regard, with a share as high as 61%. Besides, it is notable that use of the internet for job search is most prevalent among younger people aged up to 34 (27-29%) whereupon shares drop rapidly to almost negligible for those aged above 55 (1-6%).

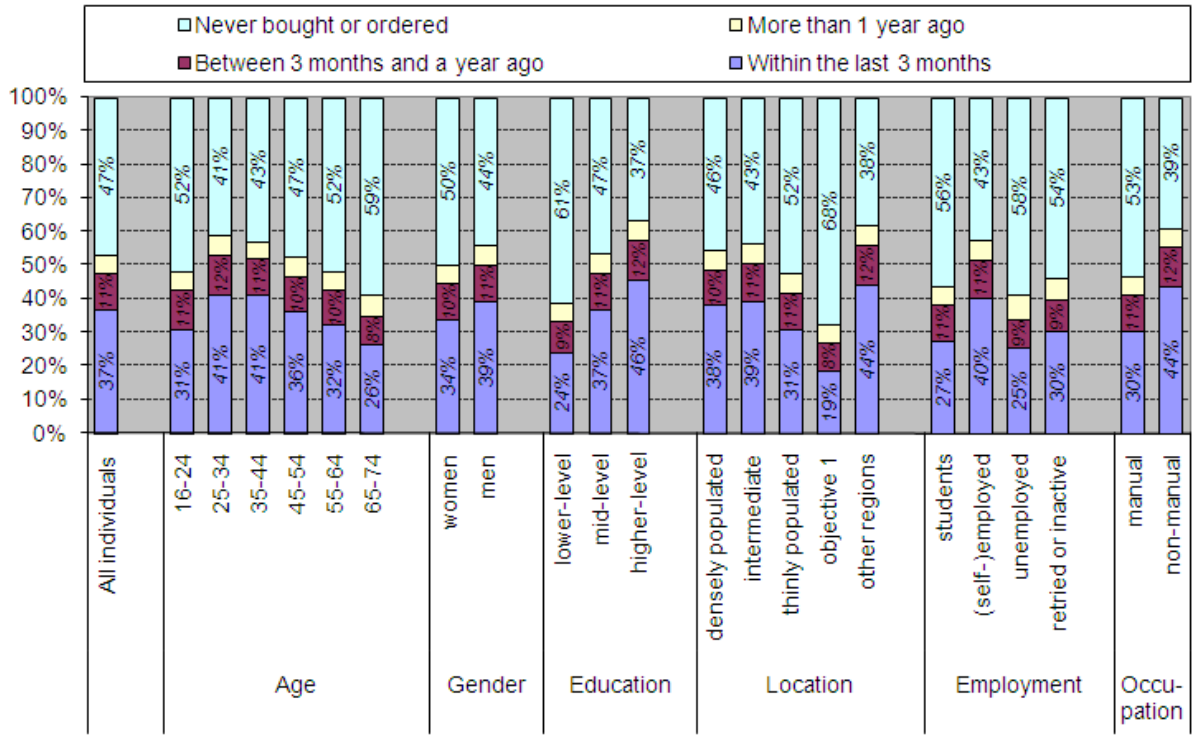
The high use of the internet for job searching purposes among the unemployed obviously is a reflection of the incentive for the unemployed to find a job and the increasingly common practice of posting job opportunities in online databases if not directly requiring applicants to use company online forms to apply for jobs. But it is worth noting that there may also be institutional reasons for this use since in Denmark, for instance, it is compulsory for the unemployed to regularly access the internet to report on their status and search and apply for jobs via designated job portals (interestingly, this type of policy may result in higher levels of computer and internet skills for this group too). A plausible explanation for a higher use of the internet for job-searching purposes among younger persons in particular may be associated with a higher rate of change between jobs combined with more open application processes for lower managerial and rank-and-file positions including temporary positions. The lower use

among the elderly may simply reflect the lessened need for finding a new job at the end of job careers.

By country, especially Austria (12%), Belgium (12%), and Iceland (18%) rank much lower than would otherwise be expected, whereas Hungary (25%), Estonia (21%), Lithuania (21%), and Slovenia (21%) rank relatively high (the highest shares are in Finland and Denmark with just above 30%), but actual differences are rather small. For countries for which the level of job-related internet activities is lower than expected, low unemployment rates may result in a higher degree of headhunting and word-of-mouth methods.

2.10.7 Making use of eCommerce

*Figure 45: When did you last buy or order goods or services for private use over the internet (excluding manually typed e-mails)?***



**Values for "more than one year ago" available in Annex 17.

Individuals who have used the internet at some point (as indicated in question C1 of the 2007 Eurostat Community Survey on ICT usage in Households and by Individuals – unless otherwise noted the age group is 16-74). Relates to question D1 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 17 for exact figures and breakdown.

The 2007 Eurostat Community Survey asked the question of when an individual last bought or ordered goods or services over the internet (if ever), defined as online ordering or purchasing without merely typing an e-mail manually. Answers to the question indicate that of all individuals who have used the internet at some point in the EU27, 37% have engaged in eCommerce in the last three months, 11% have done so between 3 and 12 months ago, an additional 5% have done so more than a year ago, and 47% have never ordered or purchased anything online. Looking at shares across socio-economic groups in figure 45, a clear tendency emerges: the population generally tends either to not have bought or ordered anything ever, or to have bought or ordered something within the last three months; the share of the population that has tried eCommerce at some point but not within the last three months

remains fairly constant and small across socio-economic categories. Consequently, the following analysis considers only the share of the population that has bought or ordered goods on the internet within the last three months.

E-commerce use is most prevalent among individuals with higher education (46%), among non-manual workers (44%), and among individuals living in economically strong regions (i.e. in non-objective 1 areas at 44%) suggesting an intrinsic correlation between these three parameters. Numbers also indicate that employed persons (40%) and younger individuals between the ages of 25 and 44 (41%) engage more often in eCommerce than students (27%) or youth aged 16 to 24 (31%). A slight difference between men and women is also apparent (about 5%).

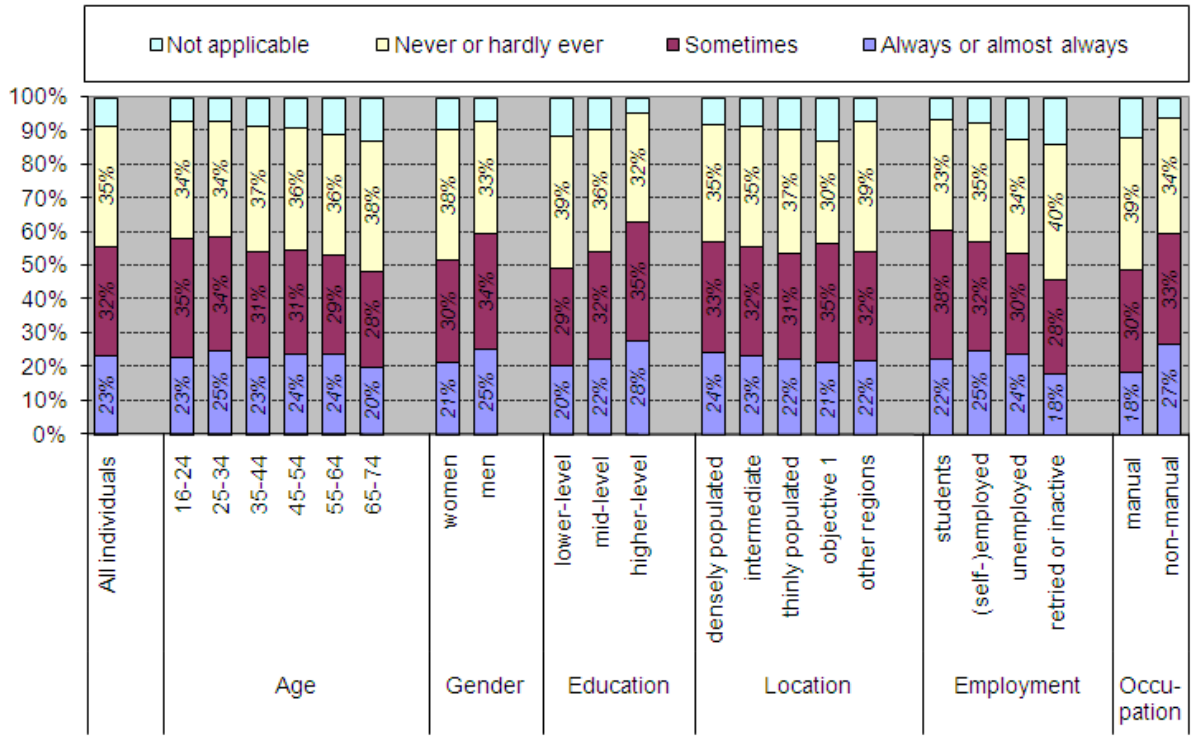
One explanatory factor for differences in use could be that students and youth have fewer resources and may not have a credit card[64]. For other groupings differences could be linked to limited knowledge of the possibilities presented, a lack of trust, or even lack of access due to, for instance, availability, cost, and reliability of internet connections in thinly populated areas. Preferences for face-to-face services and security issues might equally represent important factors for population groups such as the elderly.

Geographically, with few exceptions represented especially by Ireland (40%) and Poland (21%) that rank higher than expected, differences in the frequency of eCommerce use seem quite closely related to the trend in i2010 aggregate scores, the highest overall share being little under 60% in the United Kingdom (note that while shares in some instances equal 100%, these figures are questionable because they are often associated with missing values on the remaining three options).

[64] Note that the low shares of younger people aged 16-24 and students using the internet to buy or order goods and services include these population groups presumably active use of places such as iTunes for downloading music (but not their use of websites such as Napster or BitTorrent).

2.10.8 Making safety copies or back-up files

*Figure 46: How often do you make safety copies or back-up files?***



** Figures for "not applicable" available from annex 18.

Individuals who have used the internet within the last 3 months (unless otherwise noted the age group is 16-74). Relates to question C11 of the Eurostat Community Survey on ICT usage in Households and by Individuals. See annex 18 for exact figures and breakdown.

In addition to the above internet activities, this section also looks at the 2007 Eurostat Community Survey data on the share of individuals who have used the internet within the last three months, and who back up or make safety copies of their files either on external disk space or on online servers. Measures to protect data may on the one hand be interpreted as an expression of trust - insofar as the same media platform is used for safeguarding the data, rather than being used for example for making "a back-up print". It can also be seen as an indicator of an advanced level of use in so far as it mirrors a recognition that even the most tested technologies can fail and therefore protective measures are needed.

Figure 46 above shows that for the EU27, 23% of internet users within the last 3 months always, or almost always, make safety copies or back up files, while an additional 32% sometimes perform such safety measures. In the meantime, 35% never or hardly ever make safety copies of back up files, and 8% do not recognise or do not find such measures to be applicable (rounding errors entail that percentages do not appear to sum up to 100%). For those that always or almost always take precautions, there is a notably higher frequency among persons with higher educational attainment (28%) and non-manual workers (27%), while there are particularly low frequencies among manual workers (18%) and retired or inactive (18%). Aggregating these shares with shares that sometimes make safety copies, a familiar pattern emerges. These aggregations show differences across age (10 percentage points), gender (8 percentage points), educational attainment (14 percentage points), employment status (16 percentage points) and occupation (12 percentage points). It should be

noted though that many unconsciously make safety copies of, for instance, music, movies, and picture files on MP3 players or DVD/CD-ROMs and online, for instance in an e-mail outbox or on social websites such as MSN and Facebook when sharing content.

Across countries, the propensity to make safety copies or back up files is not related to the i2010 aggregate scores. The highest shares (combining the categories always or almost always and sometimes) are in Romania (70%), the Czech Republic (70%), Germany (66%), Greece (64%), France (64%), Slovakia (63%), and Bulgaria (62%), compared to low shares in countries such as Spain (47%), Finland (47%), Italy (44%), Denmark (43%), Austria (42%), and Sweden (41%).

3 Comparing the results from Eurostat with other recent experiences

This section looks at other identified sources and their key findings compared to Eurostat.

The analysis aims to identify deviations in the previous findings as well as the underlying reasons for such potential variance (e.g. data sets, type of survey).

Furthermore the analysis looks at types of complimentary data successfully used in other measuring and monitoring initiatives, and how these may support and improve the monitoring and measurement of digital literacy among potentially marginalised groups in Europe. The analysis highlights any potential components which differ and which could be of interest and added value if included in Eurostat. The focus is on indicators and results in relation to potentially disadvantaged and marginalised individuals and communities such as the elderly (especially persons 75 years or older), the disabled, ethnic and cultural minorities, and low income families.

Overall, findings based on Eurostat data on digital literacy are generally consistent with results from the disparate surveys presented in this section. However, much could likely be gained by including particular demographic information on ethnic background, mother tongue, and/or migratory status in the background variables.

3.1 Computer use, internet use, and digital literacy

It should be noted that only a few monitoring initiatives have actually developed a rigorous definition and measure of digital literacy. Rather than trying to define what is implied by the concept of digital literacy, most of the sources referred to concentrate efforts on simply measuring and monitoring basic computer and internet use and/or the changing performance patterns of certain activities within selected demographic and socio-economic groups. In fact, for the purposes of this study only two explicit frameworks have been identified which have been implemented and for which relevant data are available. These are the pan-European SIBIS initiative (2001-2003) under the IST framework programme[65], and a recent Danish endeavour (2006)[66] to measure the entire population's level of digital literacy, the Citizens' ICT Skills project (currently being transferred to Norway as well by the Norwegian Institute for Adult Education, Vox[67])[68].

Like Eurostat, both SIBIS and the Citizens' ICT Skills project are distinguished by a progression in skills levels beyond patterns of single item usage. While Eurostat employs the

[65] www.sibis-eu.org
[66] www.itst.dk/e-laering-og-it-faerdigheder/publikationer/borgernes-ikt-ferdigheder-i-danmark/Borgernes%20IKT-ferdigheder%20i%20Danmark.pdf
[67] www.vox.no/upload/7903/The_Digital_Citizen_SEC.pdf
[68] However, in addition to these two DL monitoring initiatives, several theoretical deliberations such as conceptual articles by Aviram & Eshet-Alkalai and by Eszter Hargittai and practical schemes such as individual learning tests by the European Computer Driving License Foundation (ECDL), the Educational Testing Service (ETS), Certiport – behind the IC^3 promoted by the Global Digital Literacy Council –, Cambridge, OCR, and, for instance, Atomic Learning obviously exist (see references in the back).

two independent (but interrelated) and supposedly unidimensional – Guttman-quality-feel[69] – scales of computer and internet skills examined in the previous section, SIBIS accordingly introduces a four-dimensional index combining information on the abilities to:

1) Communicate with others
2) Obtain and install software on a computer
3) Question the source of information on the internet
4) Search for necessary information using search engines into one aggregate measure.

Similarly, the Citizens' ICT Skills project proposes an index with eight distinct dimensions drawing extensively on concepts developed by the American Educational Testing Service (ETS[70]) to measure the fundamental proficiency levels at:

1) Defining information needs
2) Accessing relevant information
3) Managing information
4) Integrating information
5) Evaluating information
6) Creating new information
7) Communicating and transmitting information
8) Being technologically self-reliant.

Nevertheless, although the initiatives identified in the survey of country activities reported upon also in Topic Report 1 introduce different definitions of digital literacy and many simply measure tasks undertaken by persons using computers, mobile telephones, or other devices and the internet, they all give indications of familarity with and skills levels at using digital tools. Examining the practical implementation of these initiatives, moreover, there are several similarities between the three above initiatives, SIBIS, Citizens' ICT Skills project, and EUROSTAT – and in particular in the underlying framework for the SIBIS index and Eurostat[71].

Before proceeding, it should be taken into account that the OECD is currently in the final development stages of a large-scale assessment initiative to measure the level of adults' general competences (PIAAC). The initiative is supported by the European Commission and includes a comprehensive focus on competences needed to use ICT in a purposeful manner. A

[69] A Guttmann scale, or cumulative scale, constitutes a set of progressively narrower items or questions constructed so that a respondent who agrees with any specific question on the list ideally also will agree with all previous items on the list. Thus, for instance, in relation to question E3 of the Eurostat Community Survey regarding computer skills, the first items include relatively simple tasks such as copying or moving a file or a folder while the latter of the six items concern the relatively complex task of writing a computer program using a specialised programming language (see further about the construction of Guttman scales at, for instance, www.socialresearchmethods.net/kb/scalgutt.htm).

[70] ETS is a nonprofit, non-stock corporation organized under the education laws of the State of New York, USA with the mission to help advance quality and equity in education by providing fair and valid assessments, research and related services. The organisation stands behind tests such as the SAT and GRE college placement tests and the TOEFL English as second language ability test as well as the ICT test *iSkills*. See further, www.ets.org.

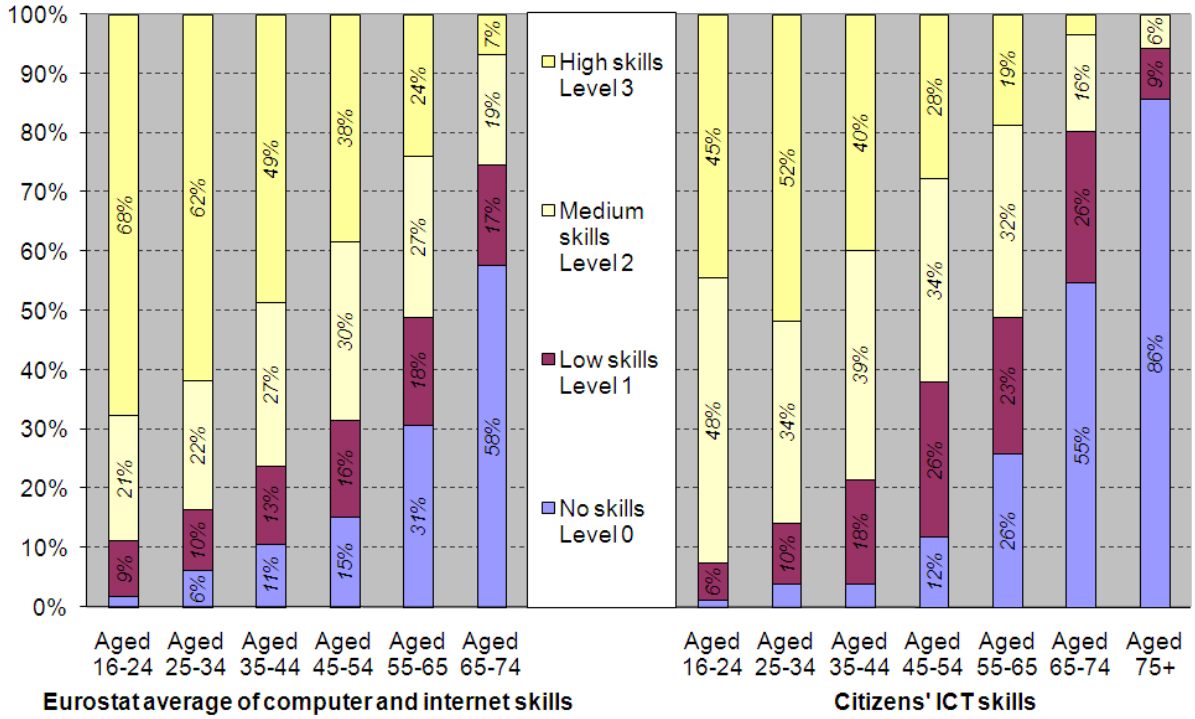
[71] See further footnote 89

component directly testing adults' problem-solving capacity in a technology-rich environment will be a key feature in PIAAC[72].

3.2 Age

When analysing data from Eurostat on the levels of computer and internet skills across age groups, the data show a clear relationship between age and digital literacy as illustrated in figure 47 below. The younger age groups seem collectively more adept than the elderly population at using computers and the internet. Similar patterns are found in other sources. Notably, the shares of each age group with low and particularly no skills are strikingly similar for Eurostat and the Citizens' ICT Skills project regarding the Danish population; only the shares with high skills generally tend to be somewhat smaller in the latter survey – probably mainly reflecting differences in how skills levels are defined within the two different frameworks (that is, what constitutes the possession of low, medium, and high skills respectively in each instance). Furthermore, differences in survey questions may also account for the surprisingly large share of the youngest age group between 16 and 24 with only medium skills compared to the age group between 25 and 34 in the Citizens' ICT Skills project.

Figure 47: The ICT skills of the Danish Population according to age group, 2007

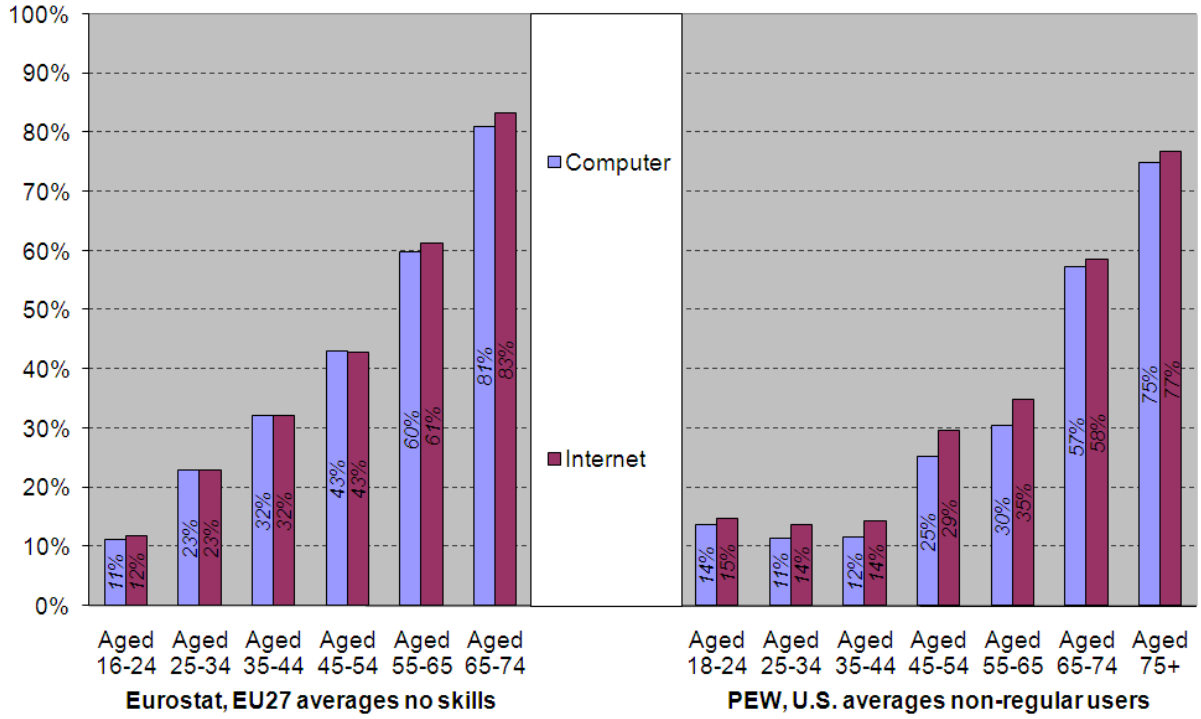


Also the 2003 results from SIBIS covering Europe and USA suggest that young age groups tend to be more proficient than the population in general (according to this survey the highest overall levels of digital literacy among the countries surveyed are found in the USA). As illustrated in figure 48 below, moreover, equivalent regressions across age groups from young to old are found in the U.S. by the PEW Internet & American Life Project concerning the number of irregular computer and internet users. These figures may be roughly compared to

[72] www.oecd.org/els/employment/piaac

the share of the European population with no skills in this field – absolute levels are lower though and differences appear at a higher age. It is also notable that Americans aged 25-44 according to this survey actually might be more avid users of computers and the internet than younger age groups, as levels of non-regular users appear to slightly drop from the age group 18-24 until the age group 35-44. However, data from 2003 on the use of computers for task-oriented purposes from the OECD Adult Literacy and Life Skills Survey do not show a similar age pattern as the PEW Survey[73].

Figure 48: Shares with no internet and computer skills and shares of non-regular internet and computer users according to age groups in the EU and USA, 2007[74]



Interestingly, both PEW and the Citizens' ICT Skills project have measured the computer and internet skills of individuals older than 74, the oldest persons regularly measured in the Eurostat Community Survey. Findings show that the dramatic increase in shares of persons with no skills or non-users between the age group 55-65 and the age group 65-74 only continues between the latter group and the very oldest group of 75+. These findings are supported by the evidence – though limited - available from Eurostat regarding this particular age group (see figure 49). In the six countries which provide data on a voluntary basis, those aged 75+ have practically no computer skills and even fewer internet skills. Even in a country such as Norway, nine out of ten in this age group have at best a low ICT skills level. Based on this data, it seems likely that skills levels will be lower in most countries among the population groups too old to be regularly included in Eurostat at present.

[73] Task-oriented purposes include writing or editing text, accounts, spreadsheets or statistical analysis, creating graphics, designs, pictures or presentations, programming or writing computer code, keeping a schedule or calendar, and reading information on a CD_ROM or DVD. See further, Statistics Canada and OECD (2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey* (www.statcan.gc.ca/pub/89-603-x/2005001/pdf/4200878-eng.pdf).

[74] Unless otherwise noted PEW data are from February/March 2007 (www.pewinternet.org/PPF/r/64/dataset_display.asp).

Figure 49: Computer and internet skills among those aged 75 and above, Eurostat 2006

	Computers			Internet		
	No skills	*Low skills*	*Medium or high skills*	*No skills*	*Low skills*	*Medium or high skills*
Spain	98%	1%	1%	99%	1%	0%
Hungary	97%	1%	2%	:	1%	1%
Italy	99%	1%	1%	:	0%	0%
Latvia	98%	1%	1%	98%	2%	0%
Norway	82%	5%	13%	85%	13%	2%
Slovakia	97%	2%	1%	98%	2%	0%

3.3 Gender

With regard to gender differences, the same patterns emerge in both the Citizens' ICT Skills project and from PEW compared to the Eurostat data, as presented in figures 50 and 51 below. Although women overall appear to be somewhat less proficient than men in using computers and the internet, this difference is in fact largely driven by the significant gender gaps first emerging at ages 55+ or even 65+, as the shares of men and women with no skills are practically identical for the youngest age groups (in fact, according to PEW, American women between 25 and 64 are slightly more likely than American men to be regular users of computers and the internet). As in Eurostat, the real gender differences are tied to individuals with either medium or high level skills. For this group, a somewhat larger share of men than women tend to have high skills. There are no reasons to assume that Eurostat data would be different if available for the older age group.

Figure 50: The ICT skills of the Danish Population according to gender and group, 2007

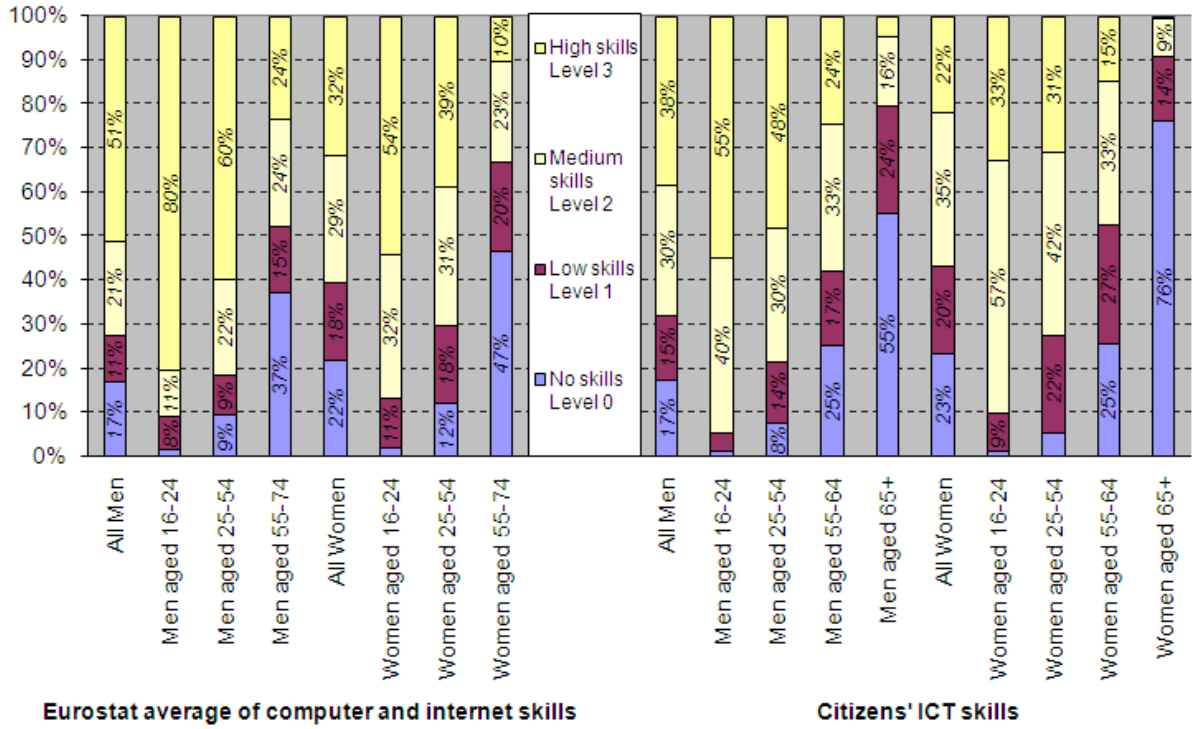
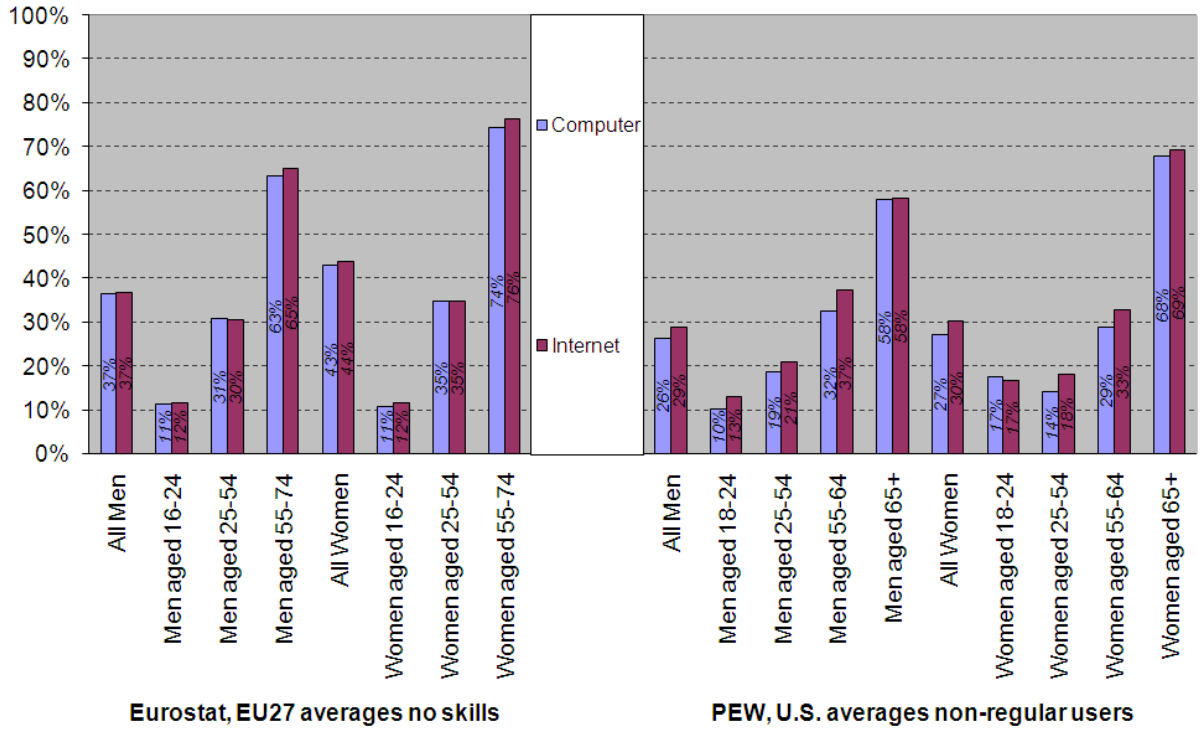


Figure 51: Shares with no internet and computer skills and shares of non-regular internet and computer users according to gender and age group in the EU and USA, 2007



3.4 Education

As was the case with age, there is also a clear relationship in the Eurostat data between educational attainment and levels of computer and internet skills. This conjecture equally holds up in comparison with results from other sources, although the Citizens' ICT Skills project classification suggests that some patterns may be obscured by using only three levels of educational attainment (see figure 52). In particular, Eurostat data do not seem to separate the extremely high skills levels of young people still attending secondary school (as surveys only target people 16 years or older) from the significantly lower skills levels of persons with only primary levels of education (presumably mainly older people harking back past educational systems). However, this separation might be accomplished otherwise by specifically looking at educational attainment within age groups or by looking at employment status instead (as presented in section 3.5 below).

Figure 52: The ICT skills of the Danish population according to educational attainment, 2007

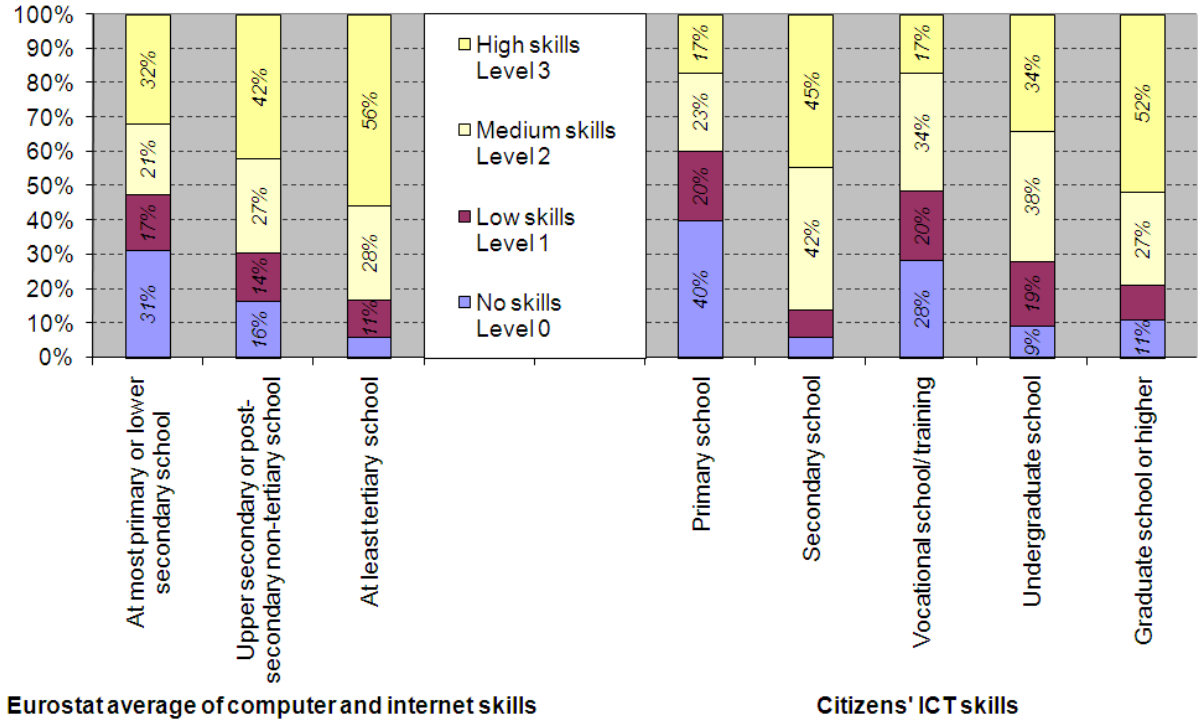
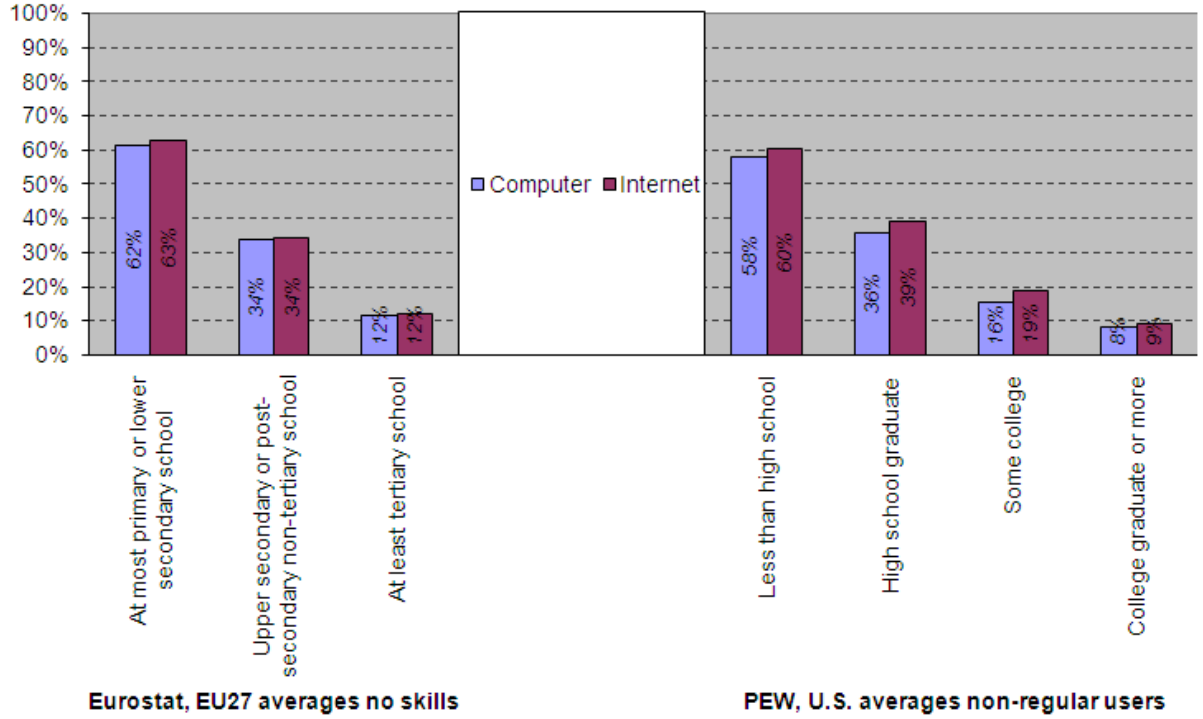


Figure 53 below compares Eurostat data on the population with no computer and internet skills with American data on computer and internet non-regular users. Both figures demonstrate similar patterns across educational levels.

Figure 53: Shares with no computer and intenet skills and shares of non-regular users according to educational attainment in the EU and USA, 2007



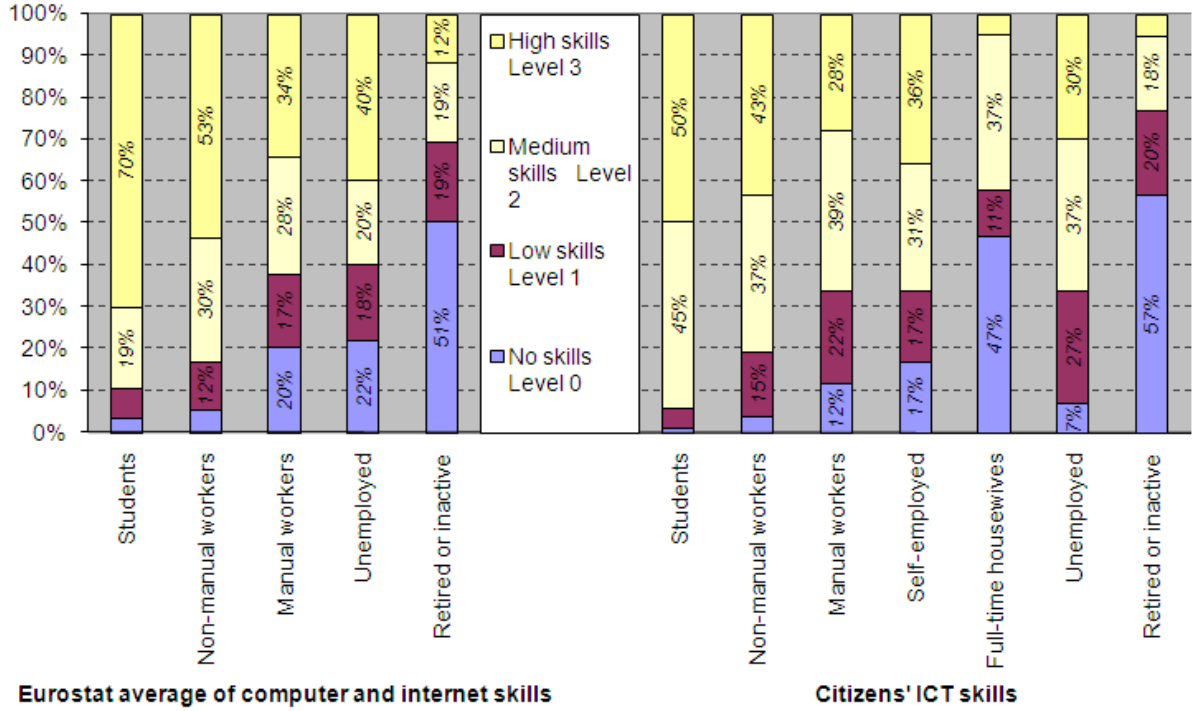
3.5 Employment and Occupation

Employment status and occupational position were the two other attributes other than geographical location that showed clear relationships to computer and internet skills in the Eurostat data examined above. As with age and education, these conjectures hold up when compared to results from other sources.

As with education, however, the Citizens' ICT Skills project classification suggests that some patterns may be obscured by using only four or five employment categories – see figure 54 below (note that the two occupational groups manual and non-manual workers have been substituted for the Eurostat employment category of self-/employed in the figure). In the results from the Citizens' ICT Skills project it thus should be noted that self-employed and in particular their assisting spouses – constituting a category of their own together with full-time housewives – appear to be significantly lacking ICT skills compared to other employed in general (a fairly large segment of the self-employed, however, at the same time have high computer skills levels, which may mirror one-man IT or service businesses).

Moreover, differences in survey questions and delineation of skills levels might have substantial impact on the assessment of computer and internet skills levels of the unemployed, since the share of unemployed with no basic skills varies significantly between Eurostat and the Citizens' ICT Skills project, with no obvious explanation.

Figure 54: The ICT skills of the Danish Population according to employment status, 2007

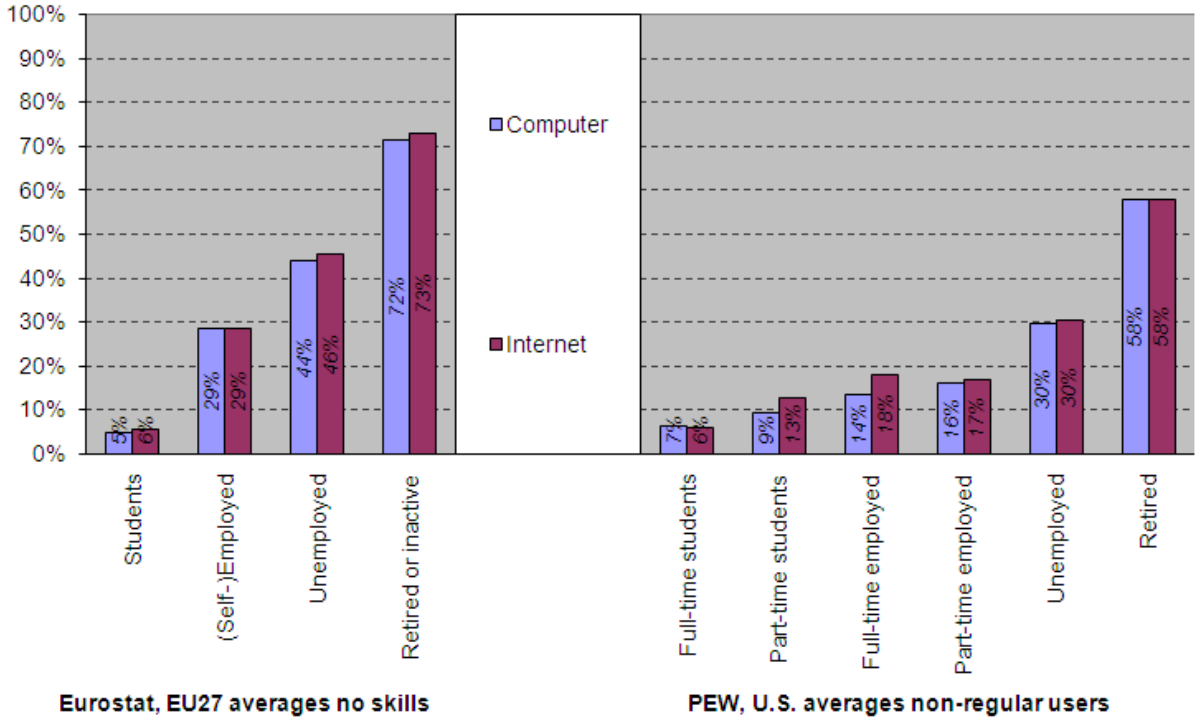


Results from PEW presented in figure 55 below are less comparable to Eurostat due to the combination of questions regarding employment and education needed to create a parallel set of categories with some potential overlap between student and employment status (i.e., some respondents are both working and studying). Generally, they confirm the regression in skills

levels from employment over unemployment to retirement found in Eurostat, even if at overall lower levels.

The gap between occupational skills levels is also confirmed by the results of the Adult Literacy and Life Skills Survey from 2003[75]. It showed marked differences between the ability of managers and various manual and non-manual job categories to use computers for task-oriented purposes.

Figure 55: Shares with no skills and shares of non-regular users according to employment status in the EU and USA, 2007



3.6 Income

Income is an often recognised factor related to age and educational attainment, but is still only reported on a voluntary basis in the Eurostat Community Survey and thus has not been presented before. Obviously, possession of computers and access to the internet cost money and affordability still constitutes a key barrier to internet access (even if not the most important). At the very least, sufficient income would appear to be a significant precondition for acquiring greater familiarity with computer and internet use. Indeed, recent research has shown that poor ICT skills are part of the social inheritance in low-income families, much as poorer reading and maths skills are[76].

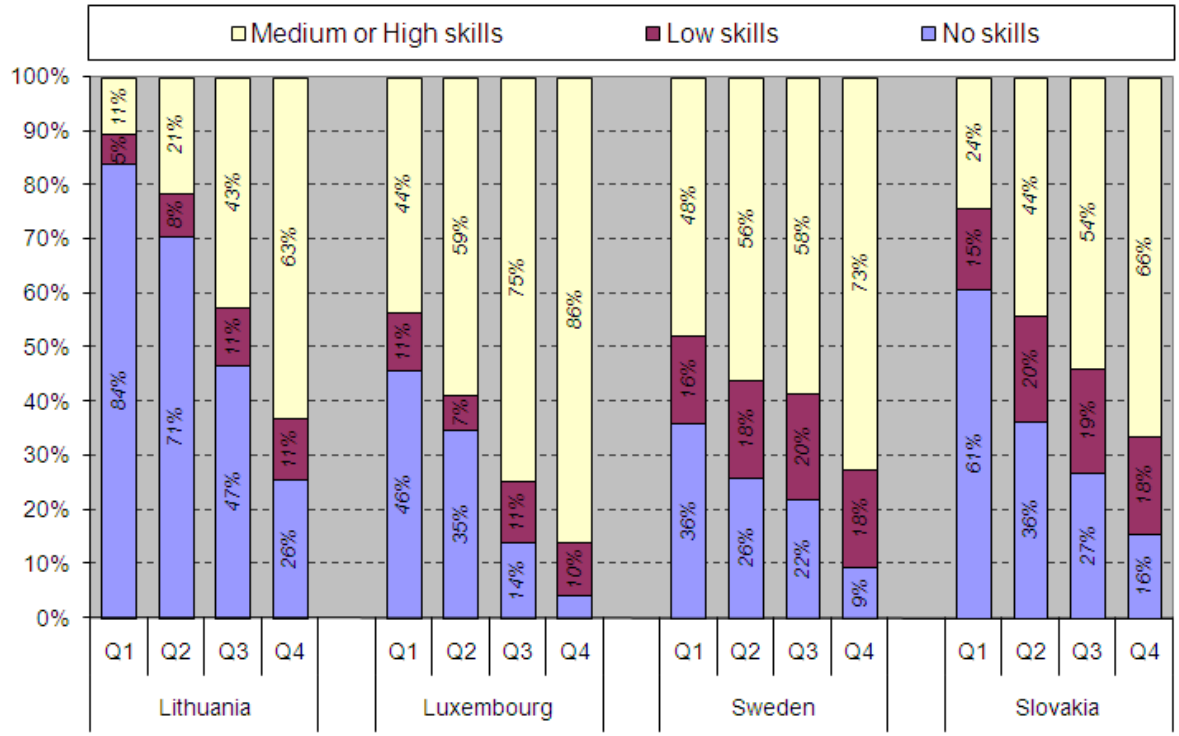
Accordingly, it is hardly surprising to find a positive relationship between income and skills levels in the available Eurostat data as shown in figure 56 below (although not shown graphically, available Eurostat data with the exception of Sweden display a similar pattern for

[75] See footnote 59 or reference list in the back.
[76] Statistics Denmark for the weekly newsletter A4 (2007). *Har Du ikke Internet? ("Don't You Have Internet?")*. www.ugebreveta4.dk/2008/200813/Baggrundoganalyse/HarDuIkkeInternet.aspx

internet skills, only skills levels are generally lower across income groups). Nor is it surprising to find comparable progressions in almost every source available in so far as they consider income levels at all.

It is noteworthy in the present context, though, that while the Adult Literacy and Life Skills Survey from 2003 identifies income as the single most important factor in explaining access to and use of ICT, it does not find an equal progression across all income levels. Only between the second, third, and lowest quartiles do differences emerge. This suggests the notion of an income threshold where income no longer presents an important barrier – a notion also supported by a corresponding levelling off in skill proficiency with increasing income in the Citizens' ICT Skills project at the higher end of the scale.

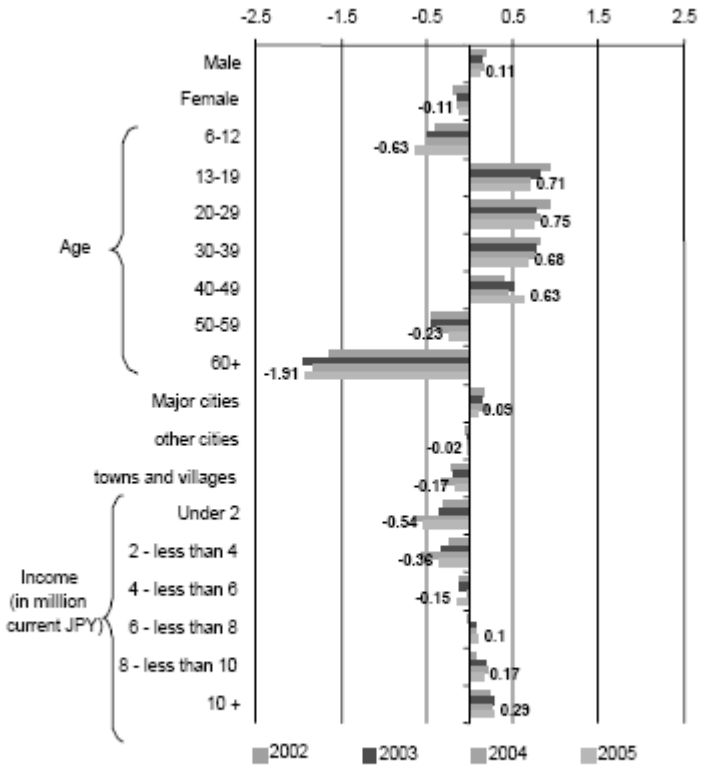
Figure 56: Computer skills according to household income quartiles, Eurostat 2007



Not all monitoring initiatives demonstrate the notion of income thresholds, not even those mainly concerned with basic usage patterns as the Japanese 2005 Communications Usage Trend Survey[77], which incidentally concomitantly illustrates once again the dramatic drop-off in the likelihood of internet usage among the elderly as illustrated in figure 57 below.

[77] Referenced in *Broadband and ICT Access and Use by Households and Individuals* by the OECD Working Party on the Information Economy (2007). www.oecd.org/dataoecd/44/11/39869349.pdf

Figure 57: Impact of demographic factors on internet usage by Japanese households



1. The impact rating is determinate via multivariate analysis using qualitative data for both predictor and non-predictor variables, and demographic characteristics as the predictor variables. A positive figure indicates a factor promoting Internet usage, while a negative figure indicates a factor hindering it.

Working Party on the Information Economy, OECD (2007). Broadband and ICT Access and Use by Households and Individuals.

3.7 Minorities

The above-mentioned dynamics of age, education, and income are all part of the convoluted issue of DL among cultural and ethnic minorities.

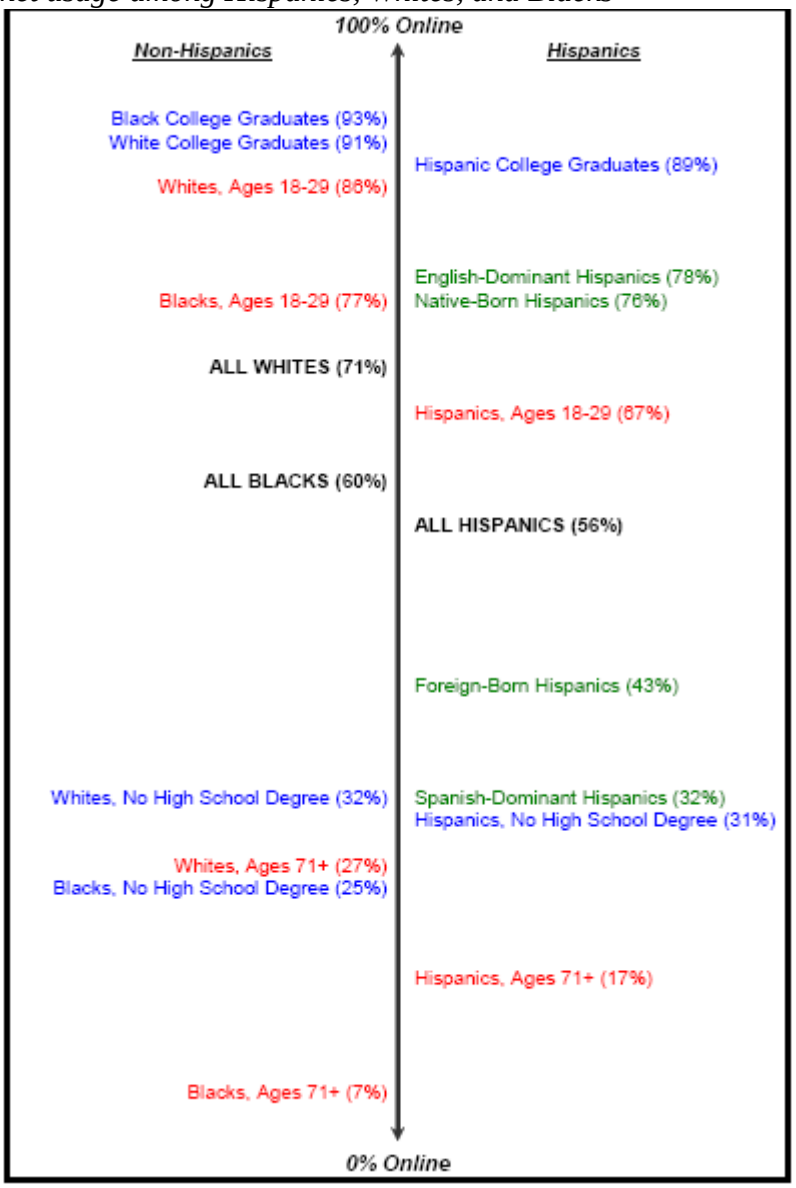
While questions concerning cultural and ethnic factors are not dealt with in the Eurostat Community Survey due to the special requirements in order to produce reliable results (overrepresented samples, bilingual interviewers, etc.), these demographic groups frequently appear at the bottom of comparisons when they are included in surveys. An Australian survey on household use of information technology from 2006-07 finds that 39% of individuals born overseas in non-English-speaking countries do not use the internet, compared to only 29% and 26% respectively of those inidividuals born in Australia or in another English-speaking country[78]. The slightly larger percentage of Australian-born who do not use the internet, moreover, is likely skewed by the inclusion of the indigenous population. Among this group, approximately 40% are non-users. Several American surveys and studies also exist, which unrelentingly place especially Hispanics or Latinos among the least likely to use the internet, whites among the most likely, and African Americans somewhere in between. For instance, a large-scale 2007 survey by PEW/Internet of Latino online behaviour finds that only 56% of

[78] Australian Bureau of Statistics (2007). *Household Use of Information Technology*. www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8146.02006-07?OpenDocument.

all Hispanics use the internet compared to 60% of all African Americans and 71% of all whites[79].

Yet the same survey shows that much of the difference between cultural and ethnic groups is explained by the general demographic and socio-economic characteristics of each group. In short, the Hispanic population is younger, less educated and poorer than the non-Hispanic population. When simply controlling for education, internet usage levels are actually quite similar (blue groups in figure 58 below).

Figure 58: Internet usage among Hispanics, Whites, and Blacks



PEW Internet & American Life Project (2007). Latinos Online.

[79] PEW Internet & American Life Project (2007). *Latinos Online*. www.pewinternet.org/pdfs/Latinos_Online_March_14_2007.pdf

The significance of language abilities figures just as prominently in the findings, as Latinos who do not speak and read English fluently are much less likely to be internet users. This is compounded by the fact that it is disproportionally the older Hispanics (and to some extent newcomers) who may have difficulties mastering the intricacies of their new language. At the same time, however, the diversity of national origins and the unique socio-economic profile, history, and mix of native born and immigrants within each group makes it difficult if not misleading to make generalisations.

Another recent study by PEW/Internet on mobile access to data and information emphasises that while Hispanics and African Americans tend to lag behind whites in internet use, they may actually be leading in some aspects of technology use – for instance in the use of mobile phones[80].

Almost three in four Hispanics who own a mobile phone thus have sent or received a text message at some point and two in five do it on a typical day (73% and 42% respectively), whereas only half of all whites with mobile phones have sent or received a text message at some point and only about one in four do it on a typical day (53% and 28% respectively).

In addition, Hispanics and African Americans are more likely to take a picture, play music, and/or send an instant message on their mobile phone. More than half of Hispanics and African Americans find that it would be harder to give up their phone (54% and 51% respectively) than to give up the internet (43% and 37%) or any other of the media listed in the survey (among whites the corresponding shares are 49% and 44%).

Similar findings regarding preferences for media platforms emerge from a British study by Ofcom of take-up and consumption patterns[81]. Like PEW/Internet, Ofcom found in a 2006 survey that even when controlling for age, cultural and ethnic minorities in particular are more avid users of mobile phones than the British population in general. Moreover, the Ofcom study found that minority groups are more positive towards digital television and they understand its potential as a multiplatform – not least because digital television provides access to channels with a specialist or ethnic focus in continuation of minority groups' extensive use of cable and satellite for the same purposes.

In a similar vein, an American study finds a significant relationship between the probability of immigrants having a home computer or internet access and the internet use rate of their home country[82].

3.8 Sufficiency and barriers to improvement

Beyond the mere breakdown of skills levels within demographic and socio-economic groups, the Citizens' ICT Skills project is of interest as it also investigated the sufficiency of ICT

[80] PEW Internet & American Life Project (2008). *Mobile Access to Data and Information*. www.pewinternet.org/pdfs/PIP_Mobile.Data.Access.pdf

[81] Office of Communication (Ofcom) (2007). *Communications Market Special Report – Ethnic Minority Groups and Communications Services*. www.ofcom.org.uk/research/cm/ethnic_minority/

[82] Fairlie et al. (2006). *Crossing the Divide – Immigrant Youth and Digital Disparity in California*. cjtc.ucsc.edu/docs/digital.pdf

skills along the same parameters as Eurostat. This includes questions concerning the perceived need of individuals in various occupations to strengthen their ICT skills.

Interestingly, the survey found that there may be little relationship between current skills levels and future needs (or the perception thereof). Thus, employees in the sectors of agriculture, construction, and transport collectively have comparatively weak ICT profiles, yet they tend not to see much need for better skills. Employees in the services and public sectors as well as the trading sector, on the other hand, tend to perceive a need for better skills, although their ICT skills on average are quite proficient for the type of work carried out. This discrepancy in the findings from the Danish study (see figure 59 below) potentially could be explained by a higher penetration of ICT within the latter sectors, which indirectly would substantiate the country patterns observed in Eurostat to the extent that sector sizes vary from country to country.

Moreover, note that the divide between employees who have opportunities to improve their ICT skills through daily job functions versus those who do not can hamper labour market mobility insofar as those workers who do not use ICT at work are likely to have less job opportunities than those who do. It would therefore be of interest to have more data on where people in different employment situations and performing different types of jobs access different types of ICT services; at home, work, educational institutions, or PIAPs. For policy purposes it would also be of relevance to have more micro-data on the correlation between companies' innovation and competitiveness strategies and their overall ICT-intensity[83].

Figure 59: ICT skill level and perceived need to strengthen ICT skills according to occupational sector, Citizens' ICT Skills project 2007

		Proficiency at ICT				Perceived need to strengthen ICT skills				
		Level 0	*Level 1*	*Level 2*	*Level 3*	*Strong*	*Some*	*Limited*	*None*	*Don't know*
Trade	*Agriculture*	28	25	38	9	15	27	27	27	3
	Manufacture	5	23	40	32	34	31	18	15	2
	Construction	20	19	32	29	19	31	16	31	3
	Wholesale and retail	3	10	45	43	30	40	23	8	0
	Hotels	0	31	46	23	33	25	17	17	8
	Transport	22	26	26	26	18	21	14	43	4
	Public sector	6	21	38	35	38	35	14	11	3
	Business service	3	8	36	53	49	25	15	9	2
	Total	8	17	37	37	35	31	16	16	2

Percentages of individuals in each occupational sector

The Citizens' ICT Skills project enquired about factors which may prevent the Danish population from acquiring additional and better skills than it presently has. The results shown in figure 60 appear to run contrary to expectations, as the lack of need and interest are by far the most important reasons indicated. Conversely, lack of time increasingly becomes the main

[83] See DG Enterprise: Global Sourcing of ICT and Software Services. Technological Institute, 2008.

barrier for individuals with higher skills levels, while economic barriers appear to play a limited role (at least in the Danish context). Combining the Danish findings and the Eurostat data indicates that there may be a ceiling to the level of improvement that may be expected – as long as the ability to use ICT is not perceived as a genuine benefit for some groupings.

Figure 60: Most important barriers to becoming better at using computers and the internet according to ICT skill level, Citizens' ICT Skills project 2007

	Level 0	Level 1	Level 2	Level 3	Total Population
Lack awareness	11	10	7	3	7
Lack time	6	26	34	42	29
Lack need	25	18	11	6	14
Others do it for me	1	6	2	1	2
Lack interest	53	36	23	9	27
Limited skills	7	11	6	4	7
Lack access	13	5	2	2	5
Can't afford	2	1	2	6	3
Lack educational/course offer	2	6	3	3	3
Lack help from others	1	2	1	1	1
Other reasons	17	18	15	15	16

Percentage of individuals with each skills level

It is, however, also evident from the Danish Citizens' ICT Skills project (as presented in figure 61 below) that while the most proficient users can probably teach themselves how to perform new tasks, a significant share of the least proficient would prefer the public sector to offer courses on ICT for them or they do not know how to strengthen their ICT skills, which could suggest that some groups need prodding to begin to learn ICT skills.

Figure 61: Preferred means for strengthening ICT skills according to ICT skill level, Citizens' ICT Skills project 2007

	Level 0	Level 1	Level 2	Level 3	Total Popu-lation
Course offered by employer or educational institution	4	23	38	46	31
Course offered by the public sector	15	17	8	3	10
Course chosen/paid by myself	11	20	10	9	12
Instruction from colleagues	2	10	16	16	12
Instruction from friends/family	26	39	36	23	31
Self-taught	10	25	35	53	34
Don't Know	37	6	3	1	10

Percentage of individuals with each skills level

4 Monitoring and measurement initiatives identified in the compiling of the country reports

The section contains a brief review of the monitoring and measurement initiatives identified in the country reports otherwise forming the basis for Topic Reports 1 and 3. It furthermore provides a cross-cutting analysis of these identified initiatives including monitoring initiatives from non-European countries, in particular the USA, Canada and India, for which digital literacy country reports have been compiled.

The review looks at which types of measurement tools and indicators are most widespread in relation to digital literacy for potentially marginalised individuals and communities. It furthermore covers the most important methodological aspects of the various types of monitoring and measurement tools and indicators.

The review is anchored in monitoring and measurement tools and indicators supported by the EU and in particular Eurostat. This is achieved through a simple run-down of the identified initiatives across the various dimensions which are:

- Purpose of the identified monitoring initiatives
- Regularity of the monitoring initiatives
- Scope of the monitoring initiatives
- Methods used by the monitoring initiatives
- Groups targeted and apparent break downs.

The review aims to clarify which types of initiatives are most widespread. It also provides an initial look at the indicators utilised and target groups identified and where these might differ from those used by Eurostat.

Overview of measurement and monitoring initiatives
A total of 94 monitoring and measurement initiatives have been identified and are included in annex 19. The monitoring and measurement initiatives identified and included in the validated digital literacy country reports can be defined in two ways: in terms of type and/or in terms of their apparent focus.

Most of the initiatives are implemented by a national authority, most often a ministry or educational institution. However there are also other private, public, and public/private partnership monitoring initiatives.

Most of the initiatives focus on infrastructure and supply-side information, as well as on more traditional indicators for take-up and usage. Most indicators relevant to the monitoring and measurement of digital literacy are collected by national statistical offices/agencies and transferred to Eurostat. Data are thus the same. That said, there are some national variations; some countries collect additional data, while others do not yet gather the full data set equivalent to the Eurostat Community Survey (e.g. some countries collect data on barriers to having internet at home, while others have not collected data on how people have obtained their computer and internet skills).

The few initiatives that are being implemented at the local, regional or third sector level tend to be "one-offs" – i.e. initiatives such as surveys or reports that are conducted once and often used for specific policy measures (e.g. programme evaluations or reviews of e-service use). These include as well in several cases surveys conducted by for instance research institutions who are working in the ICT domain such as by the PEW Research Center in the USA, or the study "Achterstand en Afstand – Digitale Vaardigheden van Lager Opgeleiden, Ouderen, Allochtonen en Inactieven" (Disadvantage and Distance, The Digital Skills of the Lower Educated, the Elderly, Immigrants, and the Economically Inactive) performed by the Dutch SCP, the Social and Cultural Planning Office of the Netherlands[84].

Three basic types of initiatives exist:

- National or regional statistical offices delivering data to Eurostat and/or with similar methodology and indicators to Eurostat. *These initiatives make up the majority of the identified initiatives. In other words more than half of the identified initiatives*.
- Summative evaluations of national or regional policy initiatives, programmes, and projects, with focus on the outcome and impact of initiatives, but with no specific focus on the impact on skills levels within the intended target groups. *These initiatives represent a minority of initiatives*.
- Actual monitoring and measurement initiatives in the form of recurring appraisals (least common) or one-off studies and reports (most common) with a specific focus. *These initiatives also represent a small percentage of the total initiatives*.

In relation to the further analysis of the monitoring and measurement initiatives identified, these have been divided up into two different types:

1) Large-scale monitoring and measurement initiatives with some apparent alternative conceptions of digital literacy. These will be further analysed in section 4.1.
2) Initiatives targeting specific disadvantaged groups and communities but which do not necessarily have a clear conception of or focus on digital literacy. It should also be mentioned that the monitoring and measurement initiatives identified most commonly have a universal focus, i.e. age, gender, education, employment, occupation, income, or location of the "representative" population samples. It is thus rare that potentially marginalised and disadvantaged groups are the subject. Nevertheless, a number of initiatives have been identified with this focus and will be analysed further in section 4.2.

4.1 Large-scale measurement and monitoring initiatives

Purpose of the identified monitoring initiatives

A common characteristic of the large-scale monitoring initiatives identified is that they serve the purpose of contributing to policy development at national and to some extent (IALS and SIBIS) international level. The International Adult Literacy Survey (IALS, later followed by the Adult Literacy and Life Skills Survey, ALL[85]) with participation of 20 OECD countries,

[84] www.scp.nl/publicaties/boeken/9789037703160/Achterstand%20en%20afstand.pdf
[85] Statistics Canada and OECD (2000). *Literacy in the Information Age – Final report of the International Adult Literacy Survey* (www.oecd.org/dataoecd/24/21/39437980.pdf) together with Statistics Canada and OECD

included a component on information and communication technologies with the purpose of assessing digital literacy levels for future policy directions. The survey covered other literacy areas like reading, writing, and numeracy, in addition to ICT and internet use.

Whereas IALS was developed within the international collaboration between OECD countries, the SIBIS project was a research project funded by the European Commission under the IST framework programme with the dual purposes of informing policy makers and research bodies about the advance of the information society in Europe through development of indicators for a range of topics.

The advancement of the information society has also been a growing national policy concern. An example is the "Information Literacy Survey" carried out by the Ministry for Informatics and the STEM/MARK polling agency in the Czech Republic. As the uptake of ICT was expanding, the intention of the study was to arrive at a common definition of the term "information literacy" as the basis for measuring the level of deployment of information and communication technology in the Czech Republic.

Similarly, the study on digital literacy in Slovakia by the Institute for Public Affairs aimed to assess the level of digital literacy in the population and the population's readiness to use ICT[86].

In Denmark, the Citizens' ICT Skills project was embedded in the Danish Government's strategy process for the knowledge society in 2020. The main purposes of the study were to assess the Danish citizens' current ICT-skills and habits and what future level of ICT-skills would likely be required, with a view to assessing the proportion of Danish citizens who would not be able to fulfil the required demands of a future knowledge society, in order to form a basis for policy-making.

Regularity of the monitoring initiatives

The regularity of the initiatives varies from biannually and annually, to one-off and irregular monitoring activities.

Some initiatives have been one-off monitoring activities like the Czech Republic initiative STEM/MARK and the digital literacy study in Slovakia in 2005. Others like the "Understand" project and the SIBIS projects have been limited by the funding period as they were financed as European projects (the "Understand" project was an Interreg IIIc project involving ten regions all across Europe while the SIBIS project was funded within the 6th framework programme of the European Commission).

There are also initiatives that have been commenced recently and are planned to be repeated on an annual basis like the Danish and the Norwegian surveys to measure ICT skills of the citizens in the two countries.

(2005). *Learning a Living: First Results of the Adult Literacy and Life Skills Survey* (www.statcan.gc.ca/pub/89-603-x/2005001/4071714-eng.htm), and Murray, Clermont & Binkley (2005), *Measuring Adult Literacy and Life Skills: New Frameworks for Assessment* (www.statcan.gc.ca/pub/89-552-m/89-552-m2005013-eng.pdf).

[86] www.ivo.sk/3798/en/projects/digital-literacy-in-slovakia?lang=EN

The US Educational Testing Survey has already been repeated annually for several years since it was developed as a framework in 2001. Similarly, the Swedish Internet Barometer (although with changing titles) has been repeated annually since 1979 (originally it was focused on other media like TV, radio and newspapers – today it also covers the internet and mobile telephones), and the VOX barometer in Norway is repeated bi-annually and has been run since 2004.

Scope of the monitoring initiatives

The initiatives vary vastly in scope. Some initiatives cover regions in Europe; examples are the "Understand" project[87] and the "Sourir" network[88] – a network of French speaking regions jointly developing methods and indicators for measuring ICT usage and skills levels – plus to some extent the SIBIS project.

Other projects and by far the majority of initiatives are primarily national in their scope, such as the Czech initiative STEM/MARK, the Danish and Norwegian attempts at measuring citizens' ICT skills, the digital literacy study in Slovakia, and the "Internet Barometer" in Sweden.

There are larger initiatives like the IALS/ALL and studies by EUROSTAT and the OECD that measure digital literacy levels for students and adults at an international level. Eurostat covers the EU Member States, Iceland and Norway with its Community Survey on ICT usage in Households and by Individuals, the OECD covers its member countries, the IALS study covers 20 countries, and the ALL survey was carried out in 6 countries (namely, Bermuda, Canada, Italy, Norway, Switzerland and the USA as well as in the state of Nuevo León in Mexico). At this stage it is not yet fully clear how many countries will participate in the planned PIAAC initiative.

Methods used by the monitoring initiatives

All monitoring initiatives used telephone interviews techniques apart from the IALS/AAL studies which were conducted face-to-face in respondents' homes. This study consisted of a background questionnaire with a number of questions on socio-economic variables that was administered by the interviewer using computer-assisted interviewing techniques. Once completed, a short booklet of six simple tasks (Core Task booklet) was provided along with a pencil and eraser. The answers provided in the booklet were scored by the interviewer, and if respondents correctly answered three out of the six questions, they were offered a longer task booklet. In all, 28 task booklets were constructed by combining two blocks of items from a pool of eight blocks (four measuring prose and document literacy, two measuring numeracy, and two measuring the problem-solving domain). Each block had an average of 40 questions related to about 15 specific stimuli (additional testing material such as a newspaper, calculator, ruler and templates were provided whenever appropriate). Computer use was covered by the background questionnaire.

The initiatives identified have used different approaches and indicators to measure and monitor digital literacy levels. An example is the SIBIS project (2002-2003) which monitored information society indicators for the EU15 and the ten candidate countries for a number of

[87] www.understand-eu.net/
[88] www.sourir.org/

themes including digital literacy. The study used self-assessment scores with surveys in the general population and among decision-makers. The topics covered were:

- Telecommunications and access
- Internet for research and development
- Security and trust
- Education (including digital literacy)
- Work, employment and skills
- Social inclusion
- e-Commerce
- e-Government
- e-Health

The SIBIS project covered the digital divide in the form of basic access divides and utilisation divides, malicious activities and their prevention, attitudes towards security issues, and perceptions on access barriers. Digital literacy specifically was addressed covering skills acquisition and skills provision in terms of confidence levels in relation to certain tasks and skills requirements. The SIBIS project used the COQS index as a measure that combines four types of skills in using the internet into an overall "digital literacy" score. The skills included are:

- Communicating with others (by e-mail and other online methods)
- Obtaining (or downloading) and installing software on a computer
- Questioning the quality of the source of information on the internet[89]
- Searching for the required information using search engines.

The "COQS" index combines these items (based on self-assessment) into a single scale with a range from 0 to 3, with "0" representing the lowest possible digital literacy score and "3" representing the highest.

In the ALL framework, three types of ICT relevant proficiencies are distinguished:

- Cognitive Proficiency (i.e., prerequisite foundation skills such as literacy, numeracy, problem solving, and spatial/visual literacy)
- Technical Proficiency (i.e., the basic components of digital literacy such as knowledge of hardware, software applications, and networks)
- ICT Proficiency (i.e., the integration and application of cognitive and technical skills to access, manage, integrate, evaluate, and create information digitally[90]).

[89] This sub-item is at present the only one not included in the Eurostat Community survey, whereas the questions used in relation to the other three dimensions in the SIBIS digital literacy index all are identical to questions used by Eurostat (reflecting their common background in the e-Learning summit Digital Literacy Workshop in Brussels 10-11 May 2001).
[90] These five components are inspired by the ETS framework also mentioned below.

In practice, though, the ALL survey measured participants' skills in four main areas: prose literacy, document literacy, numeracy, and problem solving. Respondents were then classified into one of five skills levels. Literacy proficiency was defined as "the ability to understand and employ printed information in daily activities, at home, at work and in the community. It is not about whether or not one can read but how well one reads". In terms of digital literacy, the survey collected data on the use of and familiarity with ICT at the individual level, including a series of self-assessment questions on ICT use, perceptions of experience, and degree of comfort with ICT. Specifically, data were collected regarding:

1) Access rates to computers and internet
2) The relationship between ICT use and (other) literacy skills
3) The determinants of ICT use, including income, age, gender, educational attainment, and occupation
4) Outcomes associated with the use of ICT in combination with literacy skills.

Building on the experiences from IALS/ALL and the OECD initiative, PIAAC is set to include new component on problem-solving in technology-rich environments - that is, direct testing with the use of ICT[91].

Like the Educational Testing Service in the USA, the recent Danish and Norwegian initiatives to measure citizens' digital literacy levels have been based on the measurement of seven proficiencies in individuals' ICT abilities - **define, access, manage, integrate, evaluate, create,** and **communicate.**

In the USA, test results are based on real assessments of practical problem-solving tasks and are used to assess individual student proficiency, plan curricula to address ICT literacy gaps, inform resource-allocation decisions, and provide evidence for accreditation. In Denmark and Norway, on the other hand, the respondents are asked to determine just how confident they are at conducting different tasks using computers and mobile phones (just one question relating to mobile phones). The ETS defines ITC literacy as the ability to use digital technology, communication tools, and networks appropriately to solve information problems in order to function in an information society, including the ability to use technology as a tool to research, organise, evaluate and communicate information, and the possession of a fundamental understanding of the ethical/legal issues surrounding the access and use of information.

Monitoring studies have also been conducted with more simplified definitions of information literacy. An example is the study in the Czech Republic by STEM/MARK. STEM/MARK thus defines a person as literate in information technology, if she/he is:

- Able to find and generally process information, using standard computer hardware and software
- Familiar with selected computer programmes and capable of using them efficiently (terminology, text editors, table editors, graphic editors, internet and e-mail)

[91] www.oecd.org/els/employment/piaac

In summary, the measurement and monitoring of initiatives identified define digital literacy in different ways and use different methods and indicators for measuring the skills. Nevertheless, there is some degree of overlap in the approaches where some methods are more detailed than others and emphasise some skills more. On the other hand, there are initiatives that simply measure behaviour and use and not actual skills levels.

Target groups addressed by the monitoring initiatives

Several of the initiatives cover the population at large. However, even that is defined in different ways. For instance, the Swedish Internet barometer covers all persons at the ages of between 9 and 79. The Danish and Norwegian studies of digital literacy skills cover the population at large at the ages of 16 and over (in other words there is no upper limit).

Similarly, the SIBIS project targeted adult population in terms of all persons aged 15 and over, living in private households.

The digital literacy study in Slovakia in 2005 was conducted on a representative sample of the entire Slovak population, increased by respondents of the age group 14-17 years.

At present the audiences targeted by the Educational Testing Service in the USA cover college-age students, although it could have implications for primary and secondary education institutions, especially high school, as well[92].

However, apart from the IALS/ALL studies, these monitoring initiatives were unable to provide specific data on ethnic groups or disabled people.

Breakdowns and findings

The identified initiatives break down the respondents in several different ways. Some initiatives have identified types of actors and others have had specific target groups in mind. Most of the initiatives break down the respondents according to the key socio-economic and demographic determinants including income, age, gender, education, employment, and geography.

The IALS/ALL studies were specifically aimed at analysing official language minorities, for instance in Canada covering Francophones living outside of Quebec and Anglophones living inside Quebec, and in addition allow for the breakdown of respondents according to language.

In the Danish and Norwegian surveys of citizens' ICT skills, the following disadvantaged groups were identified:

- Elderly
- Economically inactive
- Unemployed
- People with low education and qualification levels
- Women

[92] Recall that the ETS stands behind tests such as the SAT and GRE college placement tests and the TOEFL English as second language ability test as well as the ICT test *iSkills* (see further footnote 70 or www.ets.org).

In Denmark, further analysis has been carried out on these data[93]. The purpose has been to analyse whether a digital divide can be explained by socio-economic determinants. Results of the analysis show that children of single-parent families are less likely to develop strong digital literacy skills than those of two-parent families. As also OECD data indicate, digital literacy skills levels are not just explained by ease of access to technology, but also by the support children acquire from parents[94]. The Danish study comprises high- and low-income families. The data indicate that children in low income families receive less support compared to high income families. Hence, low digital literacy skills among low income parents are likely to be transferred to children of low income parents, even if the children technically have access to more or less the same equipment as children from high income families.

STEM/MARK identifies five types of (non-)users based on their survey of digital literacy levels in the Czech Republic:

- *Technological "leaders"* (proportion of the population: 7%). ICT technologies form an integral part of their lives. They pass their attitude on and act as the leaders of the knowledge economy. Their level of computer literacy considerably exceeds the aforementioned basic parameters (78% of technological leaders of working age are literate in information technology).
- *Implementers* (proportion of the population: 25%). They have above-average ICT skills and believe that computer literacy is important for their further professional development. They have a positive attitude to information technologies, even though use of ICT may not be their preferred leisure activity.
- *Routine users* (proportion of the population: 7%). Young people (18-29 years) relatively familiar with information technologies, which they regard as a necessary routine only marginally affecting their future position.
- *Showing interest* (proportion of the population: 38%). Individuals unfamiliar with information technologies, yet aware that they cannot afford to ignore ICT. Their common feature is a certain "fear" of information technologies but not aversion.
- *Refusing* (proportion in population: 23%). Persons with an absolutely inert attitude to information technologies. They do not believe that information technologies can improve their life circumstances, and at the same time they have almost no knowledge of ICT.

Interestingly, a similar analysis has been performed on the data from the Eurostat Community Survey by SINTEF in Norway as part of the EU's CITIZEN MEDIA initiative[95]. Covering data from Germany, Austria, and Norway, the researchers find that different population groupings have their own ways of using or not using ICT. The study identifies four typical patterns of use among major population groups in the countries surveyed:

[93] www.ugebreveta4.dk/2008/200813/Baggrundoganalyse/HarDuIkkeInternet.aspx (in Danish)
[94] www.oecd.org/dataoecd/15/6/38337741.pps (powerpoint presentation)
[95] The Citizens' Media Project, 6th framework program – SINTEF: Patterns of media use among citizens in Europe www.ist-citizenmedia.org:8080/download/attachments/270/D1.1.1_PatternsOfMediaUseAmongCitizensInEurope_V1.0.pdf

1. *Non-users* who do not devote time to ICT. Members of this group are characterised by their relatively high age – 45 or older. They have low levels of income and education, and tend to live in small-size households. (Austria 47%, Germany 39%, Norway 25%).
2. *Average users* who make up the largest group of ICT users, using their PCs and the Internet only occasionally. They have a relatively low level of ICT skills and no other special features (Austria 28%, Germany 51%, Norway 27%).
3. *Instrumental users* who employ ICT primarily for practical purposes and to acquire information such as public-sector Internet services. They have a relatively high level of ICT skills and a high level of education (Austria 15%, Germany 5%, Norway 23%).
4. *Entertainment users* who devote most of their ICT time to entertainment such as game-playing and watching videos or TV on the Internet. They have relatively advanced ICT skills. They are relatively young (although less clearly so in Germany) and the group includes more men than women. Members have a wide range of educational and income levels, since this group includes many students (Austria 9%, Germany 5%, Norway 14%).

In addition, the study identifies a fifth type only found in Norway:

5. *Advanced users* who utilise ICT in many connections and for a range of different purposes. There is a high rate of advanced usage such as programming and web-site design. They use the Internet on a daily basis and are relatively young, with an average age of 32 in contrast with 45 in the remainder of the sample. Most of them are men (80%) and most (87%) have broadband access (sample average 45%). They live in cities and have a wide range of educational levels.

Moreover, surveying existing international studies, the report finds that young people who are major internet users are most likely to be active participants and content producers, resulting in an emerging digital divide between those who merely consume media and those who also produce content (a digital production divide as opposed to a digital consumer divide).

4.2 Initiatives targeting specific disadvantaged groups

Purposes of the identified monitoring initiatives

The "D21" initiative in Germany is the largest public-private partnership in the country, with involvement of government agencies and businesses. Its aim is to enable different target groups to use information and communication technologies (ICT) and to strengthen the development of the innovative use of ICT in Germany. To achieve these goals, the D21 partners initiate non-profit projects like Girls Day, promote the up-take of the electronic health card, and the (N)ONLINER Atlas.

The (N)onliner study in Germany monitors Germany's transformation to an information society with focus on internet use. Furthermore, it focuses on whether certain sub-groups in the population tend to be affected by a digital divide. The study is directly linked to the aims formulated in the general policy "iD2010 – information society Germany 2010"[96]. It monitors

[96] www.bmwi.de/English/Redaktion/Pdf/id2010,property=pdf,bereich=bmwi,sprache=en,rwb=true.pdf

internet use and non-use in the population and analyses the results by employing socio-demographic and socio-economic variables such as gender, age, income, and educational attainment. It also compares results for the different provinces, regions and the west/east divide[97].

The Dutch monitoring initiative "Achterstand en Afstand" (Disadvantage and Distance) is a formative study to assess the level of digital skills of selected disadvantaged groups with the view to providing recommendations for policy actions. More specifically, the study addressed the following questions: how far certain groups in society lag behind in terms of digital skills, the causes of that disadvantage, and its consequences.

In the USA, PEW/Internet explores the impact of the internet on children, families, communities, the work place, schools, health care, and civic/political life[98]. The PEW project is non-partisan and takes no position on policy issues. The PEW project is supported by The Pew Charitable Trusts. The PEW project examines what people do online as they look for information, communicate with others, make transactions, and are entertained. Furthermore, the project uses a range of socio-economic variables to examine how technological advances affect the use of the internet and how the internet affects groups in their working and living environment.

Finally, the PEW project analyses topics such as privacy and security, telecommunications law, the "digital divide", and how the national, state, and local governments use the internet (e-government). The Pew/Internet & American Life Project is one of eight projects that make up the Pew Research Centre (PEW and PEW/Internet will be used interchangeably in the following to imply the Pew/Internet & American Life Project)[99].

A study launched by the Improvement and Development Agency (IDeA) focuses on how to reach socially excluded groups in the UK with special emphasis on access to services as a key element of e-government. Socially excluded groups (and others) are recognised as being at risk of a digital divide because of limitations in access and due to lack of skills and motivation. Accessibility is addressed to a certain extent through web accessibility standards, or legislation such as the UK Disability Discrimination Act (DDA)[100]. Nevertheless, there are serious gaps in the existing understanding of the diverse needs of citizens and how to make e-government inclusive. Digital inclusion is core to this.

In 2006, the IDeA therefore commissioned Citizens Online and IERC Ltd. to produce a report on the digital inclusion activities of local authorities[101]. The report presents an overview of councils' digital inclusion (social inclusion/ICT) activities and identifies good practice in councils' access to service initiatives. The aim is to assist councils in developing equitable access/service strategies and provide guidance on how to mainstream digital inclusion activities.

[97] www.initiatived21.de/category/nonliner-atlas
[98] www.pewinternet.org
[99] pewresearch.org/
[100] The original Disability Discrimination Act (DDA) is from 1995. It has been significantly extended in 2005.
[101] www.idea.gov.uk/idk/core/page.do?pageId=1074872

Another interesting source in the UK is the World Wide Internet project from the Oxford institute[102]. It consists of a series of yearly surveys, mainly in the UK but also in other countries. It measures the evolution in internet use including aspects relating to skills, learning, and support from intermediaries. The skills levels are measured through self-assessment, questioning individuals on how good they believe they are at conducting certain tasks. The findings from the surveys show that students are the most confident in conducting internet tasks, whereas retired persons and women are the least confident.

Regularity of the monitoring initiatives

The Dutch study "Achterstand en Afstand" was a one-off initiative commissioned by the Ministry of Economic Affairs in 2006 and published in October 2007.

The (N)ONLINER Atlas was first published in 2001 as the "Refusers' Atlas" ("Verweigerer Atlas"). Since then the survey has been conducted each year between January and April for release by the end of June. In addition, there are further releases on specific topics/results throughout the year.

The PEW conducts surveys several times a year covering different themes such as who is online, use of online technologies, and online activities among different groups.

The UK organisation Ofcom conducts research on media literacy every year, with coverage of different themes from year to year but also allowing for yearly comparisons.

Scope of the monitoring initiatives

All of the monitoring activities identified targeting disadvantaged groupings (including minority groups) are national in their scope. This is the case for the PEW covering the USA, the Dutch study covering the Netherlands, the Ofcom and Citizens Online/IERC Ltd. studies in the UK, and similar initiatives. Some of the initiatives like PEW Internet project and the (N)onliners Atlas also provide regional analysis of the data collected.

Methods used in the monitoring initiatives

In the USA, the PEW reports and memos are primarily based on national telephone surveys, but also draw from qualitative research methods and data shared by its research partners. PEW has developed a typology building on three dimensions of people's relationship to information and communication technology (ICT):

- *Assets* – Individuals are surveyed about their use of the internet, mobile phones and other devices that connect to the internet (e.g. video and digital cameras), use of services that facilitate digital consumption, participation, and electronic communication.
- *Actions* – Individuals are surveyed about their activities such as downloading audio and video, generating own online content, the variety of things they do with their mobile telephone and computers, and frequency of online use.
- *Attitudes* – Individuals are surveyed as to how ICTs are perceived to be of help to be more productive at work, to pursue hobbies, and to keep up with family and friends, as

[102] www.oii.ox.ac.uk/microsites/oxis/publications.cfm

well as their views on information overload and technology's capacity to offer more control over their lives.

The Ofcom media literacy audit in the UK defines media literacy as 'the ability to access, understand and create communications in a variety of contexts'. The focus is on electronic media, although Ofcom recognises that other stakeholders could be interested in the wider media landscape.

The Ofcom media literacy audit involved the interview of a total of 3,244 respondents across the UK (the interview took place in the respondents' homes)[103]. The audit focuses on four main digital platforms, with analogue TV and radio included where relevant. The four main digital platforms included were digital television, digital radio, the internet, and mobile phones - as these are the ones where there is most divergence between different groups within the UK in terms of understanding, take-up and usage.

The Ofcom media literacy audit provides data on the following indicators:

- Digital media platform use types
- Types of websites and services used
- Reasons for use
- Confidence in use and frequency of use
- Ways of learning how to use digital media platforms
- Attitudes towards security and electronic content
- Attitudes towards content and creativity.

The (N)ONLINER Atlas is based on an annual survey conducted by means of 50,000 computer-assisted telephone interviews (CATI). It draws on a representative sample of the German population from 14 years of age and up. The aim is in the future to define the long-term developments of on-liners – what they do and what their needs are.

The D21 partnership intends to cover certain topics as an annual event. For the group of "nonliners" the intention is to uncover their reasons for not being on-line by asking them directly about their ICT behaviour and attitudes.

The research conducted for the Improvement and Development Agency (IDeA) on how to reach socially excluded groups in the UK was undertaken in two phases. The first phase was a telephone survey of 78 local authorities taken from a representative national sample. The telephone survey investigated the extent of social exclusion problems and the use of technology. In addition, face-to-face interviews were undertaken with 21 authorities showing good practice in digital transformation of public services[104].

Groups targeted by the monitoring initiatives; breakdowns and findings

The Dutch study, "Achterstand en Afstand" commissioned by the Ministry of Economic Affairs in 2006 examines the differences in digital skills between young and old and between persons with high and low educational attainment levels. It compares the economically

[103] www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrss/medialit_audit/adult_questionnaire.pdf
[104] Key findings and recommendations are available here: www.idea.gov.uk/idk/core/page.do?pageId=1074872

inactive and ethnic minorities with those in employment and the indigenous population. It finds that age and educational differences have a large impact on digital skills levels, but that overall skills levels only vary slightly between actives and inactives and between minority and indigenous population groups.

At the same time, though, the study has found that skills levels vary across domains, and thus for instance between functional and entertainment activities. Moreover, the study documents vast differences in skills levels within each disadvantaged group, for instance between immigrants of different nationalities. Differences also pertain in the reasons for not acquiring better digital skills, findings which could assist in targeting potential policy actions to the specific groups.

Indicators addressed by the Dutch study are:

- Use of different functional and entertainment applications
- The reasons for use and non-use
- The choice of how skills are acquired
- Where ICT is used and how frequently
- The level of access and internet connection
- How digital literacy levels affect work and lives.

The (N)ONLINER Atlas in Germany produces socio-demographic data that allow for analysis in terms of age, gender, income, education/degree, employment status, and region/post code. In addition, the annual trend topic analyses attitudes and behaviour of on-liners in relation to specific topics/trends on the internet. In particular, the Atlas has focused on the target group of 50+ users and non-users. Results have led to projects like internet basic courses for 50+, the establishment of a partner network, and project groups with companies to define technical standards (user friendliness aimed at 50+ target groups). These topics have been the following:

- 2006 - Security on the internet
- 2005 - Future online applications and services
- 2004 - Innovation and mobile internet
- 2003 - Online job search.

The American PEW covers the following ethnic groups in its reports:

- White Americans
- Black Americans
- Hispanic.

In addition, PEW conducts research on Latinos online, which is broken down into even more detailed groupings:

- Foreign born Hispanics
- Spanish dominant Hispanics
- Native born Hispanics

- English dominant Hispanics.

Combined with the two other non-Hispanic groups above, these can be further broken down by educational background, age, and income.

Finally, PEW also examines the online access and activities of disabled persons as well as the use of online health services and the use of other activities of persons with disabled members in their households.

In the UK, Ofcom in June 2007 analysed the use of communication services by different ethnic groups[105]. The study found that ethnic minority groups differ from the general population in that they tend to be younger, be larger in household sizes, be more likely to have children in the household, have higher unemployment rates, and have a lower income profile. These factors have a direct effect on the use of communication services. For instance, youth from ethnic minority groups are slightly more likely to have mobile telephones. The Ofcom study covers the following ethnic groups: Asians (Indians, Pakistanis), Black Caribbeans, and Black Africans.

In addition, Ofcom has conducted a media literacy audit in 2006 which covers children and adults, but also different ethnic groups and the disabled. The audit of the disabled covers three subgroups – visual impairment, hearing impairment, and mobility impairments.

A number of monitoring initiatives introduce typologies of ICT users with variable digital literacy levels. These initiatives include the Danish study about Citizens' ICT Skills conducted in 2006/07. Based on information about use of and confidence in ICT skills as well as information about attitudinal, behavioural, educational, employment, age, and gender differences, the study produced 11 typologies[106].

PEW research identified ten different types of ICT users. Four of the ten types of users were characterised as persons with few ICT assets. Two groups of users were characterised as having medium assets, and the remaining four groups were characterised as being elite tech users[107].

[105] www.ofcom.org.uk/research/cm/ethnic_minority/ethnic_grps.pdf
[106] See further Chapter 5 in the report (Danish only) www.itst.dk/e-laering-og-it-faerdigheder/publikationer/borgernes-ikt-ferdigheder-i-danmark/Borgernes%20IKT-ferdigheder%20i%20Danmark.pdf
[107] See further PEW Internet & American Life Project (2007). *A Typology of Information and Communication Technology Users*. www.pewinternet.org/pdfs/PIP_ICT_Typology.pdf

5 Conclusions

The digital literacy study has reviewed the 2006 and the 2007 Eurostat Community Surveys on ICT usage in Households and by Individuals, and has identified a range of factors that influence the use of digital services and development of computer and internet skills. A range of new variables have been analysed in the special digital literacy module aimed at identifying factors and trends relevant to potentially marginalised and disadvantaged communities. The review has also compared the results of Eurostat with those of a selection of recent other monitoring and measurement initiatives in Europe and the USA.

An overview has been provided of the most interesting and relevant monitoring and measurement initiatives identified, also from outside the EU.

This section summarizes the main conclusions from the review and shortly discusses possible policy implications. For a more extensive list of policy recommendations comprising the whole study , please refer to Topic Report 4.

5.1 Past and present data

With a focus on the 2006-2007 Eurostat figures on digital literacy (including new indicators), the study has examined the indicators of potentially marginalised and disadvantaged groups, e.g. gender, age, education, occupation, population density, economic regions, income, age/education and age/employment.

Computer and internet skills levels and developments

In relation to potentially marginalised and disadvantaged communities, the data available from Eurostat do not go much beyond traditional indicators such as age, gender, and geographical location, level of education, employment status, and type of job (e.g. manual vs. non-manual).

Both computer and internet skills levels have improved throughout Europe from 2006 to 2007 after an apparent drop in the level of computer skills from the year before (from 2005 to 2006), presumably due to the substition of an item in the computer skills index[108]. Correspondingly, the numbers of individuals who have never used a computer or the internet have generally fallen (3 and 6 percentage points respectively), with only marginal variations in relation to age and educational attainment levels. In absolute terms, traditional indicators such as age, gender, education, economic resources, geographical location, and type of job thus are still relevant.

That is, the proportion of non-computer and non-internet users is greatest among:

- The elderly (from 55 years of age and older – especially those between 65 and 74 years of age)
- Women compared to men

[108] From 2006 onwards, the simple item related to the ability to use a mouse to open programs has been replaced with the somewhat more demanding item related to the ability to connect and install new devices such as a printer or a modem.

- Persons with lower educational attainment
- Persons with fewer economic ressources
- Persons in low density population areas and objective 1 regions
- Persons in manual jobs, unemployed, and the retired or economically inactive.

Improvements in proportions of non-computer and non-internet users have been greatest in thinly populated areas, while changes in usage levels have been among the least in the economically weaker objective 1 regions. It would therefore be of interest to have data on a regional level (e.g. NUTS 2 level[109]) to see if there are specific factors which may affect digital literacy trends, such as remoteness or the availability of centralised private and public services.

Eurostat data reflect a diminishing 1st digital divide (i.e. in terms of accessibility), as the proportion of non-computer users is falling. The proportion of persons with no computer skills has decreased by 3 percentage points from 43% in 2006 to 40% in 2007.

The evidence of a potential second digital divide – related to level three usage as defined in the European Comission's review from 2008 (i.e. levels of ICT skills, intensity and quality of internet use including using the net for transactions, critical analysis skills, and levels of motivation)[110] – can to some extent be confirmed by the fact that there are only relatively smaller improvements in computer and internet skills for persons with low educational attainment levels (the proportion with no computer skills decreased from 65% to 61%) and for the unemployed or otherwise economically inactive (corresponding figures are from 74% to 72%).

Data indicate that some groupings already have medium to high computer and internet skills levels, e.g. young people (77%), students (84%) and individuals with high levels of education (77%). For the most effective use of resources, policy efforts should therefore focus on disadvantaged groups, with the point of departure in the existing knowledge about which types of measures work best for which groupings. It also should be carefully considered whether digital literacy measures need to be accompanied by complementary policy efforts in related fields of intervention such as return to education or active employment to succeed – as some of the best practice cases from this study would seem to indicate.

In relation to potentially marginalised and disadvantaged individuals the analysis also shows an emerging 2nd digital divide relating to a more advanced use of digital information and trust in online transactions. As there seems to be a correlation between low levels of computer skills and low levels of educational attainment (61%) or employment in manual jobs (50%), European policy measures and programmes should explore initiatives and proposals which aim to strengthen the ICT skills among the blue collar workforce through innovative measures

[109] The NUTS nomenclature is a geographical hierarchical classification created and developed according to the following principles: a) The NUTS favours institutional breakdowns, b) The NUTS favours regional units of a general character, c) the NUTS is a three-level hierarchical classification. NUTS2 defines regions of 0.8-3.0 millions of inhabitants. For more details see: ec.europa.eu/eurostat/ramon/nuts/basicnuts_regions_en.html

[110] Digital Literacy Report: a review for the i2010 eInclusion Initiative, European Commission Staff Working Document and Recommendations from Digital Literacy, High-Level Expert Group, European Commission, 2008. ec.europa.eu/information_society/eeurope/i2010/docs/digital_literacy/digital_literacy_review.pdf and ec.europa.eu/information_society/eeurope/i2010/docs/digital_literacy/digital_literacy_hlg_recommendations.pdf

to apply ICT in business products, processes and services. Practical and application-oriented use of ICT in genuine working contexts can not only stimulate the motivation to learn how to use ICT, but can also lead to improved productivity and innovation in services and products. At the same time it would be beneficial to have more solid data on where people access different types of online and off-line digital services, e.g. for people in different employment situations, different types of jobs, at work, in educational institutions or at PIAPs, and data as to what type of support mechanisms different environments offer.

Impact of age, education, employment on computer and internet skills

When comparing variables regarding age, level of education, and employment levels with computer and internet skills levels, a number of correlations relevant to policy-making are revealed.

The lower the age and the higher the level of educational attainment, the better the level of computer and internet skills – a trend strengthened by the combination of the two indicators. Hence, while educational attainment seems to have limited impact on skills levels among the youngest age groups, education becomes an increasingly substantial mediating factor as age increases.

The combination of age and educational attainment in relation to computer and internet skills also highlights the existence of a geographical divide across Europe. Relatively small northern and north-western countries tend to have higher proportions of inhabitants with medium/high computer skills compared to southern, south-eastern nations. It may be of potential interest to examine a further breakdown of geographical parameters to the regional level (e.g. at NUTS 2 level) to look at specific aspects related to "rural conditions" and remoteness, in order to better understand specific trends impacting on digital literacy. Also of interest would be a further specification of educational attainment levels to capture possible specific educational characteristics which may lead to higher computer and internet skills levels than others.

An analysis of age and employment status in relation to computer and internet skills reveals that employment status has a relatively even and moderate impact on skills levels irrespective of age – computer and internet skills being highest among the self-/employed and lowest among the retired and inactive. At the same time, age has a similar impact on skills levels within all employment status groups – computer and internet skills being highest among the younger age groups. Differences in employment status appear to have less impact on the likelihood of possessing medium or high internet skills levels than on the likelihood of possessing at least a low internet skills level, though, while age remains a distinguishing factor at all internet skills levels. The Eurostat data provide no plausible explanation for this, but one reason could be that those with medium to high-level internet skills regardless employment status have taken a personal interest in learning how to use the internet.

A geographical divide can be observed regarding internet skills similar to that regarding computer skills, though internet skills as a whole are at lower levels.

Finally,to improve knowledge relating to potentially marginalised and disadvantaged communities, more detailed data on the duration of active employment or unemployment (i.e. for self-/employed, unemployed, retired/inactive) and type of employment (i.e. more detailed

categories within manual and non-manual employment) and the respective impacts on digital literacy would be relevant.

Barriers to more intensive use

This study examines data from the Eurostat Community Survey of ICT usage in Households and by Individuals with a view to analysing barriers to internet use, choices regarding skills development, reasons for not taking a computer course, perceptions about personal skills, and the ways in which new skills are acquired.

Unfortunately, not much information can be deduced from the survey concerning underlying individual reasons for non-use of computers and the internet. However, arguably, home access is a considerable factor influencing the take-up and continued use of such tools, and, interestingly, by far the single most important reason in the EU27 for households not having internet access would appear to be a perceived lack of need (41%) and not equipment or access costs (26% and 23% respectively).

Yet for some population groups, namely single parent households with children, costs do appear to be the overshadowing barrier (44% indicate equipments costs pose a significant impediment while 32% indicate that access costs are an issue) potentially reproducing digital divides among the new generations[111].

Variations are found in attitudes and rationales concerning participation and non-participation in computer courses according to indicators such as age, gender, educational level, population density, employment status, and job type. The most important reason for not taking a course is the perception "that the skills are sufficient as they are". Thus, 46% of all individuals who have used a computer, but not taken a computer course within the last three years, and as many as 55% of those in non-manual jobs, and 61% of those with higher-level education, provide this reason. These figures, of course, to some extent reflect that significant shares of the population within certain population groups actually do have good computer skills, and not surprisingly, only 39% of the oldest age group of 34% of the retired/inactive group indicate this reason for not taking a course.

Lack of time is not perceived as a major obstacle by either gender (both 13% of men and women indicate this as a barrier) and becomes less of an issue as the economic activity levels decrease (lack of time is a barrier for smaller proportions of unemployed and retired/inactive than self-/employed). Lack of time is however considered more important by people in manual jobs than by those in non-manual employment, thus indicating the potential of integrating ICT training in other forms of job-related training to improve digital literacy levels for persons in manual jobs.

Furthermore, the lower the population density and relative wealth of a given area the more important lack of time as a barrier seems to become suggesting that distances to course suppliers could be a factor. On the other hand, the lack of available computer courses is not deemed a major hindrance by any of the socio-economic segments (there are only marginal variations between the different segments).

[111] Note that data only available for DK, FI, AT, DE, BE, GR, EE, CZ, CY and BG in relation to country breakdowns.

Limited financial resources play a role in taking a computer course or not. Thus, 15% of the unemployed and 10% of people living in objective 1 regions indicate course costs as one of the reasons for not having taken a computer course within the last three years. Moreover, these findings are corroborated by previous experiences from Denmark indicating that free access to basic computer courses can motivate some individuals to enroll.

Most worrysome is that a significant proportion of Europeans (21%) have not taken a course to develop computer skills because they rarely use a computer. This barrier becomes less important as the level of education increases, but more important as age increases (39% of 65-74 year-old indicate this as a reason). This barrier is also slightly less prevalent among men and more prevalent among persons in manual jobs, and as population density and economic activity levels fall, the "rare use of computers" is increasingly emphasised as a reason for not participating in ICT training. It would be relevant in the future to have data available to differentiate the situation in different regions based on proximity to services, remoteness, and economic development for different potentially marginalised groups with multiple social disadvantages such as unemployment, single parents (especially women), individuals with low levels of educational attainment, and the physically disabled.

The Eurostat data show that actual internet use is closely linked to personal preferences and prioritisations in relation to people's use of time independent of connectivity, internet and computer use, and skills levels. More than half (58%) of all regular internet users who would like to use the internet more than they already do state that lack of time presents a barrier. Opportune time accordingly would appear to constitute an important factor in designing effective initiatives that can motivate intended target groups to develop computer and internet skills. In contrast, it is only a small proportion (5%) that sees a lack of private and public online content and services as a barrier to increased internet use despite national variations in relative wealth, competence levels, online service offers, and sophistication[112]. Moreover, in no country does the importance of access or content costs seem to exceed time as a barrier.

National variations show that skills levels as a barrier to more intensive internet use are mainly relevant to people living in areas with generally good internet skills levels and high connectivity. Lack of skills thus is considered more of a barrier in the nordic countries (26-46%) than in many southern and eastern European countries (2-12% not including the three Baltic states, Slovenia, Spain and Portugal).

Given the costs of carrying out households surveys and of expanding their scope, it is a question as to which type of initiatives will yield the best results in getting non-users involved – whether more refined data are needed to better target different groupings, or whether more emphasis should be put on disseminating grood practices such as those identified within this study through a range of channels relevant to the different user segments.

Actual learning processes and online service use

Regarding actual learning processes and use of online services, Eurostat data show some interesting trends in relation to potentially marginalised and disadvantaged groups.

[112] Note, though, that results referred to in this paragraph and the next are based on answers among respondents who are already regular users. Other dynamics might exist among non-users.

Once above the age of 34, formal education at present is a relatively insignificant source of computer and internet skills acquisition quickly surpassed in importance by various training courses either on own initiative or on-demand by employers except for the unemployed. Thus, among those aged 35 to 74 at least one in three has acquired some of their skills through vocational on-the-job training, but it is notable that the lower educated, manual workers, and people living in objective 1 regions participate less frequently than others in such educational modules. This suggests that if digital literacy skills are to be furthered in the EU population as a whole, measures should particularly target persons in manual jobs and persons with low educational attainment levels. Furthermore, policies that target underdeveloped regions should address digital literacy as a central measure in economic development.

At the same time, the importance of learning-by-doing and informal assistance in particular for the lower educated and manual workers, but also for other groups, should not be ignored, underlining the importance of practical exercises and the use of facilitators, mediators, networks, and social clubs in designing effective and efficient measures for spreading ICT skills to lagging population groups.

The analysis of the use of online services highlights that the younger and more educated a person is, the more likely he or she is to use services available online. The type of occupation also plays a role with people in non-manual jobs indicating a larger degree of internet use, for instance, for learning purposes.

As more and more occupations become ICT-intensive it will be valuable to document and disseminate how ICT is integrated in the curriculum of different occupational profiles. Examples of this already exist in work carried out by Cedefop regarding jobs in the banking and automotive sectors[113].

Little can be said in relation to digital literacy levels of marginalised and disadvantaged groups when looking at the relative importance given to the five internet activities examined (using the internet for learning purposes, for seeking health-related information, internet banking, accessing public websites, or seeking jobs) as well as e-Commerce, and making safety copies of files by individuals. It is evident, though, that women and retired or economically inactive are somewhat more likely than average to use the internet for seeking health-related information, while the unemployed not surprisingly are by far the most likely to look for jobs on the internet. On the other hand, manual workers, the lower educated, and people living in economically weak areas (i.e. objective 1) are much less likely than other population groups to use the internet for internet banking or accessing public authorities' websites. Similarly, these three groups together with the unemployed and retired or economically inactive are least likely to use shopping services on the internet, and manual workers, the lower educated, retired or economically inactive, and women make safety copies or back-up files less often than other people (or at least are less frequently aware that they do).

Moreover, the data indicate that countries in the Northern and Western Europe have a higher proportion of online services users than countries in the south and south-east. Nevertheless, concerning learning processes, the Eurostat data show a more mixed picture, though no plausible explanation can be given. Here Austria, the Netherlands, Belgium, the United

[113] Petersen, W. & P. Revill (2005). *ICT and e-Business Skills and Training in Europe – Towards a Comprehensive European e-Skills Reference Framework, Final Synthesis Report.* Cedefop Panorama Series, 19.

Kingdom, and Sweden (14-34%) rank in the lower third in relation to internet use for learning purposes, whereas use of the internet for learning purposes is much more common in countries such as Portugal, Italy, Denmark and Cyprus (54-71%).

Variations in the use of online public services seem to be linked to the volume and sophistication of eGovernment solutions, but also to the complexity of the online solutions and thus to requirements for computer and internet skills. There is a risk that the conversion of public services to digital media without implementation of a multi-channel strategy - that is, a strategy that uses different media platforms - could lead to a worsening of the digital divide. The geographical variations identified for computer and internet skills are also valid in relation to the use of online services.

5.2 Comparing the results from Eurostat with other recent experiences

In the comparison of Eurostat data from the Community Survey on ICT usage in Households and by Individuals with other measuring and monitoring initiatives, a consistent picture of the relationship between ICT skills and various demographic and socio-economic variables emerges. Only very few discrepancies are seen, and none of these differences would appear to indicate flaws in the Community Survey framework, in most cases related rather to divergences in the theoretical definitions (if any) and practical questions used.

That said, in some instances the choice of response categories in the Community Survey are seen to hide internal differences within particular population groups. For instance, grouping full-time housewives and assisting spouses together with the self-employed and employed may cause policy-makers to overlook very low digital literacy levels among full-time housewives and assisting spouses.

In addition, since studies such as ALL and by the OECD indicate that income is perhaps the single most important factor in determining digital literacy levels (or at the very least access levels), it would seem beneficial to advance efforts underway to include more comprehensive information on income levels in the Community Survey framework.

Based on the review of studies in relation to digital literacy levels among ethnic and cultural minorities, moreover, it also would seem pertinent to consider obtaining information about one or more of the following demographic variables: ethnic background, mother tongue, and/or migratory status – not least in view of the risk that ethnic and cultural minorities are becoming the new underclass in their new home countries.

At the same time, however, it should be noted that the same studies show that ethnic and cultural minorities are not always lagging in skills. For instance, in the use of mobile phones and digital television, ethnic and cultural minorities actually tend to be more proficient than the indigenous populations. These findings could suggest that the current focus mainly on computers when measuring ICT skills may be somewhat biased.

Finally, there are some indications that in order to really understand individual ICT use and avoid generalisations, it is necessary to enquire more about the roots of personal motivation and the different life spheres where people use ICT in practice. It is, however, not without issues to significantly extend the length of surveys such as the Eurostat community survey to

cover new ground and much information is also gained by securing the continuity of questions over time.

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Annex 1: Computer skills index, 2007 (E3)

The following computer skills index is based on replies given for the following computer related activities carried out by respondents to the Eurostat Community Survey on ICT usage in Households and by Individuals question E3 (Which of the following computer related activities have you already carried out?):

a) Copying or moving a file or folder
b) Using copy and paste tools to duplicate or move information within a document
c) Using basic arithmetic formulas in a spreadsheet
d) Compressing (or zipping) files
e) Connecting and installing new devices, e.g. a printer or a modem
f) Writing a computer program using a specialised programming language
g) None of the above

Aggregated scores based on percentage share of individuals with each skill level defined in Eurostat, ranges from a low 0 to a high 1 (aggregated score = 0 x share with no skills + 1/3 x share with low skills + 2/3 x share with medium skills + 1 x share with high skills)

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Computer skills level	0.44	0.64	0.59	0.62	0.64	0.54	0.55	0.62	0.50	0.49	0.55	0.54	0.44	0.36	0.44	0.36	0.33	0.30	0.44	0.46	0.45	0.36	0.37	0.44	0.35	0.34	0.31	0.20	0.17
Change from 2006 to 2007	0.03	0.00	0.02	0.01	0.00	0.01	-0.03	0.05	0.02	0.09	0.04	0.01	0.02	0.04	0.04	0.07	0.02	0.00	0.04	0.02	0.02	0.03	0.03	0.02	0.04	0.00	0.02	0.02	0.01
Aged 16-24																													
Computer skills level	0.69	0.79	0.75	0.80	0.84	0.79	0.72	0.84	0.71	0.78	0.79	0.76	0.65	0.76	0.75	0.47	0.60	0.61	0.77	0.84	0.74	0.74	0.66	0.70	0.68	0.61	0.65	0.42	0.36
Change from 2006 to 2007	0.03	0.03	-0.03	-0.02	0.01	0.05	-0.02	0.00	0.02	0.09	0.01	0.00	0.01	0.06	0.06	0.08	0.04	0.00	0.05	0.00	-0.01	0.04	0.03	0.03	0.05	-0.02	0.05	0.04	0.02
Aged 25-54																													
Computer skills level	0.49	0.69	0.67	0.68	0.73	0.64	0.60	0.66	0.55	0.54	0.62	0.62	0.49	0.39	0.50	0.42	0.39	0.35	0.48	0.52	0.51	0.36	0.40	0.48	0.37	0.38	0.31	0.23	0.17
Change from 2006 to 2007	0.02	-0.01	0.02	0.02	0.03	0.02	-0.04	0.05	0.00	0.05	0.04	0.01	0.01	0.04	0.04	0.08	0.03	0.01	0.05	0.02	0.03	0.04	0.03	0.02	0.05	0.02	0.02	0.02	0.01
Aged 55-64																													
Computer skills level	0.26	0.47	0.42	0.41	0.49	0.34	0.43	0.48	0.37	0.36	0.30	0.40	0.27	0.16	0.17	0.15	0.16	0.08	0.19	0.19	0.25	0.11	0.19	0.18	0.14	0.10	0.10	0.07	0.04
Change from 2006 to 2007	0.02	-0.03	0.05	-0.04	-0.04	0.00	0.00	0.08	0.02	0.05	0.05	0.01	0.02	0.04	0.01	0.01	0.02	-0.01	0.03	0.00	0.03	0.02	0.02	0.00	0.02	-0.01	0.00	0.01	0.00
Aged 65-74																													
Computer skills level	0.11	0.26	0.21	0.28	0.26	0.12	0.25	0.25	:	0.17	:	0.21	0.11	:	0.06	0.07	0.04	0.02	:	0.06	0.08	0.02	0.07	0.05	0.03	0.03	:	:	:
Change from 2006 to 2007	0.02	0.05	0.00	0.09	-0.05	0.01	-0.06	0.06	:	0.04	:	0.01	0.02	:	0.01	0.02	0.01	0.01	:	0.01	0.01	0.00	0.01	0.02	0.01	0.00	:	:	:
Women																													
Computer skills level	0.38	0.58	0.49	0.54	0.57	0.48	0.47	0.51	0.45	0.43	0.47	0.47	0.38	0.32	0.40	0.36	0.27	0.27	0.41	0.44	0.43	0.34	0.33	0.42	0.33	0.33	0.28	0.20	0.15
Change from 2006 to 2007	0.02	-0.01	0.03	0.00	0.00	0.00	-0.04	0.06	0.02	0.08	0.04	0.00	0.02	0.03	0.04	0.07	0.02	0.00	0.03	0.05	0.02	0.03	0.02	0.03	0.04	0.01	0.02	0.02	0.01
Men																													
Computer skills level	0.49	0.69	0.69	0.69	0.70	0.60	0.62	0.73	0.56	0.55	0.63	0.62	0.49	0.40	0.49	0.37	0.39	0.33	0.47	0.49	0.46	0.38	0.40	0.47	0.38	0.36	0.34	0.20	0.18
Change from 2006 to 2007	0.03	0.01	0.01	0.03	-0.01	0.02	-0.03	0.03	0.01	0.09	0.04	0.02	0.01	0.04	0.04	0.06	0.03	0.01	0.05	-0.01	0.02	0.04	0.04	0.00	0.05	0.00	0.02	0.01	0.01
Lower educational level																													
Computer skills level	0.26	0.51	0.40	0.50	0.51	0.40	0.43	0.47	0.16	0.34	0.35	0.44	0.25	0.21	0.21	0.15	0.15	0.08	0.39	0.24	0.23	0.28	0.31	0.28	0.26	0.12	0.25	0.08	0.08
Change from 2006 to 2007	0.02	-0.01	0.02	0.15	-0.04	0.00	-0.06	0.07	0.01	0.08	0.03	0.00	0.00	0.04	0.03	0.03	0.01	0.00	0.07	0.04	0.00	0.03	0.04	-0.06	0.06	0.00	0.02	0.00	0.07

Middle educational level																											
Computer skills level	0.47	0.66	0.64	0.59	0.66	0.53	0.52	0.74	0.54	0.66	0.57	0.54	0.47	0.77	0.60	0.38	0.50	0.38	0.37	0.47	0.57	0.27	0.34	0.46	0.29	0.34	0.26	0.18	0.16
Change from 2006 to 2007	0.02	0.00	0.02	0.00	0.03	0.01	-0.02	0.10	0.00	0.04	0.04	0.01	0.02	0.04	0.03	0.06	0.03	-0.02	0.04	0.01	0.01	0.02	0.03	0.05	0.04	-0.01	0.01	0.03	0.02
Higher educational level																											
Computer skills level	0.70	0.82	0.76	0.75	0.79	0.70	0.67	0.79	0.70	0.75	0.73	0.70	0.66	0.79	0.75	0.62	0.64	0.59	0.59	0.78	0.75	0.64	0.68	0.70	0.62	0.62	0.60	0.50	0.52
Change from 2006 to 2007	0.02	0.00	0.01	0.02	0.04	0.00	-0.03	0.04	-0.01	0.06	0.02	0.03	0.01	0.01	0.03	0.10	0.04	-0.01	0.00	0.01	0.03	0.04	-0.01	-0.01	0.07	0.00	0.02	0.04	0.01
Densely populated areas																											
Computer skills level	0.47	:	0.62	0.66	0.70	0.63	0.63	0.61	0.50	0.51	0.61	0.57	0.45	0.43	0.50	0.43	0.36	0.38	0.47	0.55	0.55	0.48	0.45	0.47	0.39	0.40	0.37	0.31	0.24
Change from 2006 to 2007	0.02	:	0.01	0.02	-0.01	0.02	-0.03	0.07	0.03	0.07	0.05	0.01	0.02	0.04	0.05	0.07	0.02	-0.01	0.04	-0.01	0.02	0.04	0.04	-0.02	0.03	0.01	-0.01	0.02	0.02
Intermediate density																											
Computer skills level	0.44	0.67	0.60	0.63	0.63	0.60	0.57	0.62	0.51	0.49	0.56	0.54	0.42	0.33	0.42	0.36	0.32	0.26	:	0.48	0.44	:	0.34	:	:	0.30	0.26	0.17	:
Change from 2006 to 2007	0.03	-0.01	0.05	-0.04	-0.01	0.01	-0.05	0.03	-0.02	0.06	0.05	0.01	0.01	0.05	0.02	0.05	0.02	-0.04	:	0.04	0.01	:	0.02	:	:	-0.03	-0.03	0.03	:
Thinly populated areas																											
Computer skills level	0.37	0.58	0.54	0.59	0.60	0.48	0.51	0.63	0.52	0.46	0.50	0.49	0.39	0.28	0.36	0.31	0.29	0.24	0.40	0.41	0.37	0.27	0.32	0.43	0.31	0.24	0.26	0.11	0.07
Change from 2006 to 2007	0.03	0.02	0.00	0.03	0.03	0.00	-0.03	0.06	0.02	0.12	0.03	0.00	0.06	0.01	0.04	0.08	0.02	0.01	0.03	0.01	0.03	0.03	0.02	0.03	0.05	0.00	0.05	0.01	0.01
Objective 1 regions																											
Computer skills level	0.32	0.64	0.58	:	:	:	:	:	:	:	:	0.51	0.38	0.33	0.39	:	0.27	0.30	0.44	0.46	0.42	0.36	0.35	0.44	0.35	:	0.31	0.20	0.17
Change from 2006 to 2007	0.00	:	-0.05	:	:	:	:	:	:	:	:	0.00	0.03	0.04	0.02	:	0.02	0.00	0.04	0.02	-0.01	0.03	0.02	0.02	0.04	:	0.02	:	0.01
Other regions																											
Computer skills level	0.50	:	0.59	:	0.64	0.54	0.55	0.62	0.51	:	:	0.55	0.44	:	0.47	0.36	0.36	:	:	:	0.52	:	0.52	0.44	:	0.34	0.44	:	:
Change from 2006 to 2007	0.01	:	0.02	:	0.00	-0.01	-0.04	0.05	0.02	:	:	0.01	0.01	0.03	0.02	0.05	0.02	:	:	:	:	:	0.04	0.02	:	0.00	:	:	:
Students																											
Computer skills level	0.75	0.82	0.77	0.81	0.85	0.80	0.72	0.86	:	0.82	0.90	0.80	0.70	0.86	0.84	0.61	0.70	0.72	0.82	0.91	0.82	0.81	0.75	0.74	0.75	0.72	0.71	0.58	0.52
Change from 2006 to 2007	0.02	0.02	-0.04	-0.04	0.03	0.04	-0.04	0.02	:	0.08	0.00	0.00	-0.01	0.02	0.05	0.14	0.03	0.04	0.05	0.02	0.00	0.02	0.03	0.01	0.06	-0.01	0.04	0.06	-0.08
(Self-)Employed																											
Computer skills level	0.52	0.66	0.70	0.68	:	0.62	0.59	0.70	0.59	0.56	0.65	0.64	0.53	0.42	0.54	0.42	0.44	0.38	0.49	0.56	0.57	0.41	0.41	0.50	0.40	0.39	0.36	0.26	0.19
Change from 2006 to 2007	0.02	0.00	0.02	0.02	:	0.01	-0.03	0.05	0.01	0.04	0.03	0.02	0.02	0.05	0.04	0.07	0.02	0.01	0.04	0.01	0.03	0.04	0.02	0.01	0.04	0.01	0.01	0.02	0.01
Unemployed																											
Computer skills level	0.40	0.56	0.66	0.69	0.57	0.46	0.59	0.38	:	0.54	:	0.52	0.35	0.33	0.42	0.27	0.36	0.38	0.40	0.36	0.27	0.18	0.21	0.30	0.18	0.42	0.22	0.08	0.10
Change from 2006 to 2007	0.02	0.10	-0.02	0.18	-0.02	0.01	-0.01	0.08	:	0.07	:	-0.03	0.01	0.07	0.06	0.00	0.06	0.03	:	0.05	0.00	0.03	-0.03	0.03	0.01	0.11	0.02	0.02	-0.01
Retired or inactive																											
Computer skills level	0.17	0.29	0.31	0.35	0.31	0.22	0.32	0.36	0.25	0.22	0.27	0.29	0.18	0.08	0.14	0.16	0.08	0.07	0.12	0.10	0.17	0.06	0.13	0.14	0.10	0.11	0.07	0.02	0.02
Change from 2006 to 2007	0.02	-0.01	0.03	0.10	-0.05	0.00	-0.02	0.10	0.01	0.10	0.04	0.00	0.00	0.01	0.03	0.06	0.01	-0.01	0.02	0.00	0.02	0.01	0.02	0.03	0.00	-0.01	0.00	-0.01	-0.06
Manual workers																											
Computer skills level	0.33	0.52	0.57	0.58	0.59	0.52	0.47	0.42	0.43	0.41	:	0.51	0.33	0.22	0.35	0.25	:	0.15	0.28	0.30	0.34	0.61	0.21	0.30	0.22	0.10	0.18	0.08	0.05
Change from 2006 to 2007	0.03	-0.03	0.06	0.07	0.02	0.03	-0.05	0.02	0.05	0.08	:	0.01	0.01	0.06	:	0.06	:	0.01	0.04	0.04	0.03	0.04	0.03	-0.01	0.06	0.01	0.02	:	0.01
Non-manual workers																											
Computer skills level	0.63	0.71	0.72	0.71	0.79	0.68	0.63	0.79	0.65	0.64	:	0.69	0.61	0.61	0.69	0.50	:	0.51	0.65	0.68	0.70	0.19	0.56	0.62	0.52	0.56	0.52	0.42	0.37
Change from 2006 to 2007	0.00	0.00	0.02	0.01	0.05	0.00	-0.02	0.05	-0.01	0.03	:	0.01	0.03	0.04	:	0.09	:	-0.02	0.04	0.00	0.03	0.04	0.01	0.01	0.04	0.03	0.01	:	0.01

Annex 2: Internet skills index, 2007 (E4)

The following computer skills index is based on replies given for the following computer related activities carried out by respondents to the Eurostat Community Survey of ICT usage in Households and by Individuals question E4 (Which of the following internet related activities have you already carried out?):

a) Using a search engine to find information
b) Sending e-mails with attached files (documents, pictures, etc.)
c) Posting messages to chat rooms, newsgroups or an online discussion forum
d) Using the Internet to make telephone calls
e) Using peer-to-peer file sharing for exchanging movies, music, etc.
f) Creating a web page
g) None of the above

Aggregated scores based on percentage share of individuals with each skill level defined in Eurostat, ranges from a low 0 to a high 1 (aggregated score = 0 x share with no skills + 1/3 x share with low skills + 2/3 x share with medium skills + 1 x share with high skills)

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Internet skills level	0.33	0.55	0.47	0.48	0.62	0.54	0.39	0.48	0.36	0.38	0.36	0.38	0.34	0.26	0.33	0.26	0.26	0.19	0.47	0.34	0.31	0.32	0.31	0.33	0.35	0.19	0.28	0.21	0.14
Change from 2006 to 2007	0.05	0.03	0.05	0.02	0.14	0.12	-0.02	0.07	0.06	:	0.04	0.03	0.03	0.06	0.06	0.04	0.04	0.02	0.04	0.04	0.04	0.05	0.07	0.04	0.08	0.02	0.02	0.04	0.03
Aged 16-24																													
Internet skills level	0.59	0.78	0.74	0.70	0.86	0.84	0.56	0.73	0.57	0.70	0.57	0.63	0.54	0.62	0.62	0.38	0.52	0.44	0.81	0.65	0.58	0.69	0.59	0.59	0.68	0.38	0.61	0.45	0.33
Change from 2006 to 2007	0.08	0.04	0.07	-0.03	0.15	0.18	-0.04	0.05	0.11	:	0.01	0.03	0.04	0.12	0.10	0.08	0.07	0.05	0.04	0.02	0.06	0.09	0.13	0.05	0.11	0.04	0.03	0.07	0.05
Aged 25-54																													
Internet skills level	0.36	0.57	0.51	0.52	0.70	0.62	0.43	0.51	:	0.41	0.39	:	0.37	0.27	0.36	0.28	0.31	0.21	0.52	0.38	0.35	0.32	0.33	0.36	0.37	0.20	0.27	0.23	0.14
Change from 2006 to 2007	0.05	0.03	0.05	0.02	0.18	0.15	-0.02	0.07	:	:	0.05	:	0.03	:	0.07	0.04	0.04	0.02	0.05	0.06	0.05	0.06	0.08	0.05	0.09	0.02	0.03	0.05	0.03
Aged 55-64																													
Internet skills level	0.18	0.37	0.31	0.31	0.47	0.32	0.28	0.33	:	0.22	:	:	0.21	:	0.11	0.11	0.11	0.04	0.20	0.11	0.16	0.09	0.14	0.11	0.13	0.06	0.09	0.07	0.03
Change from 2006 to 2007	0.03	0.00	0.05	0.04	0.12	0.09	0.00	0.06	:	0.05	:	:	0.04	:	0.02	0.00	0.03	0.00	0.04	0.01	0.04	0.03	:	0.01	0.04	0.02	:	0.02	0.01
Aged 65-74																													
Internet skills level	0.07	0.20	0.16	0.20	0.24	0.15	0.17	0.13	:	:	:	:	0.08	:	0.04	0.06	0.03	0.01	:	0.04	0.04	0.02	:	0.02	0.03	0.02	:	:	:
Change from 2006 to 2007	0.02	0.04	0.00	0.08	0.02	0.06	-0.01	0.02	:	:	:	:	0.03	:	0.01	0.01	0.00	0.00	:	0.02	0.01	0.01	:	0.01	0.01	0.01	:	:	:
Women																													
Internet skills level	0.29	0.52	0.43	0.43	0.56	0.48	0.35	0.41	0.32	0.33	0.31	0.34	0.31	0.23	0.30	0.24	0.21	0.16	0.45	0.32	0.30	0.30	0.27	0.31	0.33	0.17	0.26	0.20	0.13
Change from 2006 to 2007	0.05	0.02	0.05	0.02	0.13	0.10	-0.02	0.08	0.06	:	0.04	0.02	0.04	0.05	0.06	0.04	0.04	0.01	0.04	0.05	0.04	0.06	0.06	0.05	0.08	0.02	0.02	0.04	0.02
Men																													
Internet skills level	0.37	0.58	0.52	0.53	0.67	0.59	0.44	0.54	0.40	0.43	0.41	0.42	0.37	0.29	0.36	0.27	0.31	0.22	0.50	0.36	0.33	0.34	0.35	0.36	0.38	0.21	0.30	0.22	0.16
Change from 2006 to 2007	0.05	0.04	0.04	0.02	0.15	0.15	-0.02	0.05	0.06	:	0.04	0.03	0.03	0.06	0.06	0.05	0.04	0.03	0.04	0.03	0.04	0.05	0.09	0.03	0.08	0.02	0.01	0.04	0.03
Lower educational level																													
Internet skills level	0.21	0.47	0.37	0.45	0.51	0.44	0.32	0.38	:	0.26	0.25	0.35	0.22	0.15	0.16	0.12	0.11	0.05	0.42	0.18	0.16	0.27	0.27	0.23	0.27	0.07	0.23	0.09	0.08
Change from 2006 to 2007	0.04	0.01	0.06	0.16	0.07	0.08	-0.05	0.08	:	:	0.03	0.02	0.03	0.04	0.03	0.03	0.02	0.01	0.04	0.03	0.03	0.05	0.07	-0.01	0.07	0.01	0.02	0.01	0.07

Middle educational level																													
Internet skills level	0.36	0.56	0.51	0.45	0.64	0.55	0.38	0.53	0.38	0.52	0.36	0.37	0.37	0.56	0.45	0.28	0.40	0.24	0.43	0.34	0.40	0.24	0.28	0.34	0.32	0.17	0.25	0.20	0.14
Change from 2006 to 2007	0.06	0.06	0.06	0.01	0.17	0.14	-0.01	0.08	0.06	:	0.04	0.03	0.04	0.09	0.07	0.04	0.05	0.01	0.05	0.05	0.04	0.05	0.07	0.07	0.07	0.01	0.02	0.05	0.04
Higher educational level																													
Internet skills level	0.51	0.66	0.55	0.55	0.77	0.63	0.47	0.61	0.49	0.58	0.49	0.44	0.46	0.59	0.53	0.40	0.52	0.36	0.60	0.57	0.52	0.54	0.57	0.49	0.56	0.37	0.49	0.47	0.42
Change from 2006 to 2007	0.06	0.02	0.02	-0.01	0.22	0.13	-0.01	0.07	0.04	:	0.04	0.03	0.03	0.12	0.09	0.06	0.05	0.01	0.02	0.02	0.05	0.06	0.12	0.03	0.11	0.03	0.00	0.07	0.04
Densely populated areas																													
Internet skills level	0.36	:	0.50	0.51	0.68	0.63	0.44	0.47	0.36	0.40	0.42	0.40	0.35	0.31	0.37	0.32	0.29	0.24	0.51	0.42	0.40	0.44	0.38	0.39	0.40	0.23	0.35	0.32	0.21
Change from 2006 to 2007	0.05	:	0.05	0.01	0.14	0.14	-0.04	0.08	0.07	:	0.05	0.03	0.04	0.06	0.07	0.07	0.04	0.03	0.04	0.02	0.05	0.06	0.09	0.01	0.09	0.02	0.00	0.05	0.04
Intermediate density																													
Internet skills level	0.33	0.57	0.47	0.52	0.62	0.57	0.40	0.47	0.35	0.37	0.36	0.38	0.32	0.23	0.31	0.25	0.25	0.14	:	0.37	0.31	:	0.29	:	:	0.16	0.24	0.20	:
Change from 2006 to 2007	0.04	0.03	0.05	0.01	0.14	0.12	-0.04	0.05	0.04	:	0.05	0.03	0.03	0.06	0.06	0.03	0.04	0.00	:	0.07	0.04	:	0.07	:	:	0.00	-0.03	0.05	:
Thinly populated areas																													
Internet skills level	0.28	0.50	0.44	0.45	0.57	0.48	0.37	0.49	0.37	0.34	0.30	0.33	0.28	0.21	0.25	0.20	0.22	0.15	0.43	0.29	0.25	0.23	0.26	0.31	0.31	0.12	0.23	0.11	0.05
Change from 2006 to 2007	0.05	0.03	0.04	0.03	0.16	0.11	-0.01	0.07	:	:	0.03	0.02	0.04	0.05	0.06	0.03	0.03	0.02	0.04	0.03	0.05	0.05	0.06	0.05	0.07	0.03	0.05	0.03	0.01
Objective 1 regions																													
Internet skills level	0.25	0.55	0.52	:	:	:	:	:	:	:	:	0.33	0.31	0.23	0.29	:	0.21	0.19	0.47	0.34	0.28	0.32	0.29	0.33	0.35	:	0.28	0.21	0.14
Change from 2006 to 2007	0.02	:	0.06	:	:	:	:	:	:	:	:	0.02	0.04	0.05	0.05	:	0.04	0.02	0.04	0.04	0.02	0.05	0.07	0.05	0.08	:	0.02	:	0.03
Other regions																													
Internet skills level	0.37	:	0.47	:	0.62	0.54	0.39	0.48	0.36	:	:	0.39	0.34	0.33	0.35	0.26	0.29	:	:	:	0.38	:	0.45	0.37	:	0.19	:	:	:
Change from 2006 to 2007	0.04	:	0.05	:	0.14	0.11	-0.02	0.07	0.06	:	:	0.02	0.03	0.06	0.05	0.04	0.04	:	:	:	:	:	0.12	0.02	:	0.02	:	:	:
Students																													
Internet skills level	0.66	0.80	0.78	0.68	0.86	0.83	0.56	0.76	0.64	0.75	0.69	0.69	0.57	0.72	0.69	0.46	0.62	0.52	0.86	0.74	0.66	0.77	0.68	0.62	0.73	0.46	0.66	0.61	0.47
Change from 2006 to 2007	0.06	0.05	0.08	-0.07	0.15	0.16	-0.05	0.03	:	:	-0.02	0.04	0.02	0.11	0.09	0.10	0.06	0.07	0.03	0.05	0.07	0.08	0.13	0.04	0.11	0.03	0.02	0.08	-0.05
(Self-)Employed																													
Internet skills level	0.38	0.54	0.54	0.53	:	0.60	0.42	0.53	0.41	0.42	0.41	0.44	0.40	0.29	0.40	0.29	0.34	0.23	0.52	0.41	0.39	0.36	0.34	0.37	0.40	0.21	0.31	0.27	0.16
Change from 2006 to 2007	0.05	0.03	0.06	0.03	:	0.15	-0.02	0.09	:	:	0.04	0.03	0.04	:	0.08	0.04	0.04	0.02	0.04	0.05	0.05	0.06	0.08	0.04	0.09	0.02	0.02	0.05	0.03
Unemployed																													
Internet skills level	0.31	0.50	0.58	0.45	0.61	0.47	0.42	0.32	:	0.43	:	:	0.31	0.26	0.31	0.23	0.30	0.23	0.49	0.23	0.18	0.16	0.19	0.24	0.19	0.26	0.21	0.08	0.12
Change from 2006 to 2007	0.05	0.09	0.04	0.06	0.12	0.08	-0.03	0.07	:	:	:	:	0.04	:	0.06	0.03	0.08	0.05	0.15	0.01	0.02	0.04	0.02	0.07	0.03	0.10	0.03	0.03	0.03
Retired or inactive																													
Internet skills level	0.13	0.27	0.27	0.28	0.30	0.25	0.23	0.20	:	0.16	0.17	:	0.15	:	0.10	0.12	0.06	0.04	0.16	0.05	0.10	0.06	0.10	0.09	0.11	0.06	0.07	0.02	0.02
Change from 2006 to 2007	0.02	0.02	0.03	0.14	0.05	0.07	0.01	0.03	:	:	0.04	:	0.02	:	0.02	0.04	0.01	0.00	0.04	0.00	0.03	0.02	:	0.03	0.02	0.01	0.01	-0.01	-0.05
Manual workers																													
Internet skills level	0.26	0.45	0.48	0.48	0.58	0.54	0.34	0.35	0.31	0.31	:	:	0.30	0.14	0.27	0.20	:	0.09	0.34	0.22	0.23	0.52	0.19	0.23	0.25	0.06	0.17	0.10	0.06
Change from 2006 to 2007	0.05	0.00	0.09	0.05	0.19	0.16	-0.02	0.07	:	:	:	:	0.04	:	:	0.04	:	0.03	0.04	0.06	0.05	0.07	0.06	0.01	0.08	0.02	0.03	:	0.02
Non-manual workers																													
Internet skills level	0.46	0.58	0.55	0.54	0.75	0.63	0.44	0.59	0.45	0.48	:	0.47	0.44	0.43	0.49	0.33	:	0.31	0.66	0.50	0.48	0.18	0.45	0.45	0.51	0.30	0.44	0.40	0.30
Change from 2006 to 2007	0.04	0.13	0.05	0.03	0.22	0.13	-0.01	0.09	0.04	:	:	0.03	0.04	0.08	:	0.05	:	0.01	0.05	0.05	0.05	0.05	0.09	0.05	0.09	0.04	0.01	:	0.04

Annex 3: Non-users of computers and the Internet, 2007 (B1/C1)

Percentage share of all individuals in population group

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Never used a computer or more than a year ago	35	8	12	9	13	17	11	19	19	:	25	20	28	52	40	35	53	57	33	38	40	47	42	32	39	51	44	63	61
Change from 2006 to 2007	-3	-1	-2	-4	2	0	1	-4	-4	:	-5	-1	-4	-3	-3	-4	-3	-3	-3	0	-4	-5	-3	-2	-4	-3	-3	-4	-6
Never used the Internet or more than a year ago	40	9	14	13	15	19	18	21	25	:	31	25	31	58	45	39	56	64	34	43	47	50	48	38	41	59	51	66	70
Change from 2006 to 2007	-5	-1	-3	-4	2	-1	6	-6	-6	:	-6	-3	-5	-4	-5	-6	-6	-4	-3	-3	-6	-6	-4	-6	-6	-5	-4	-7	-5
Aged 16-24																													
Never used a computer or more than a year ago	9	0	0	1	0	0	0	2	:	:	5	:	6	:	8	18	23	14	:	5	10	7	9	5	4	18	7	30	28
Change from 2006 to 2007	-2	0	0	1	-1	-1	-1	0	:	:	-1	:	-3	:	-2	-3	-2	-6	:	1	0	-3	-3	0	-2	2	-2	-3	-7
Never used the Internet or more than a year ago	12	0	1	3	0	0	7	2	:	:	9	:	6	12	10	22	26	23	4	6	14	9	14	7	4	30	10	33	37
Change from 2006 to 2007	-2	0	0	2	-1	-1	5	-2	:	:	0	:	-4	-7	-3	-5	-6	-6	:	-3	-4	-4	-4	-1	-2	-3	-3	-9	-7
Aged 25-54																													
Never used a computer or more than a year ago	27	4	5	3	5	6	4	12	:	:	15	:	19	47	31	28	44	50	:	28	30	41	34	22	31	45	38	57	57
Change from 2006 to 2007	-3	0	-2	-3	0	-2	0	-4	:	:	-4	:	-3	-3	-4	-4	-3	-4	:	0	-6	-6	-3	-5	-5	-6	-5	-6	-7
Never used the Internet or more than a year ago	32	5	6	6	7	7	11	15	:	:	21	:	22	:	37	32	49	58	:	34	39	46	41	30	33	55	48	62	69
Change from 2006 to 2007	-4	0	-3	-3	0	-2	6	-6	:	:	-6	:	-4	:	-6	-7	-6	-5	:	-3	-8	-8	-5	-9	-7	-7	-6	-8	-6
Aged 55-64																													
Never used a computer or more than a year ago	54	12	24	19	21	31	14	32	30	47	:	32	47	77	72	63	73	88	:	72	64	81	68	71	69	82	75	86	86
Change from 2006 to 2007	-4	-1	-8	-4	2	-1	-3	-8	-6	-7	:	-3	-6	-5	-3	-3	-5	0	:	1	-6	-3	-4	3	-6	0	-2	-3	-4
Never used the Internet or more than a year ago	60	14	29	27	23	35	24	34	:	52	:	40	51	82	77	68	76	90	:	77	69	83	73	78	71	85	80	88	92
Change from 2006 to 2007	-5	-2	-8	-4	0	-2	3	-12	:	-9	:	-7	-7	:	-4	-4	-7	0	:	0	-7	-4	-5	-2	-7	-3	-3	-4	-2
Aged 65-74																													
Never used a computer or more than a year ago	77	40	50	44	46	66	49	66	56	71	:	63	76	94	91	79	90	97	83	90	89	95	91	94	92	93	:	98	97
Change from 2006 to 2007	-3	-9	-2	-17	6	-4	11	0	-8	-10	:	-2	-5	-1	-1	-5	-3	-1	:	-2	-3	-1	-1	1	-2	-2	:	0	-1
Never used the Internet or more than a year ago	82	48	55	50	54	69	56	71	:	77	:	:	79	:	93	83	90	98	:	93	92	96	92	96	93	96	:	98	99
Change from 2006 to 2007	-5	-9	-5	-20	6	-7	9	-3	:	-9	:	:	-6	:	-2	-4	-5	0	:	-1	-2	-1	-2	-2	-2	-1	:	0	0
Women																													
Never used a computer or more than a year ago	38	9	14	11	15	18	12	25	21	:	29	22	31	56	44	35	58	61	33	40	41	48	45	33	41	52	46	63	63
Change from 2006 to 2007	-3	-1	-3	-3	3	-1	0	-6	-5	:	-5	-1	-4	-3	-3	-3	-3	-3	-4	-2	-4	-5	-2	-3	-4	-4	-4	-4	-5
Never used the Internet or more than a year ago	43	10	16	15	17	20	20	28	28	:	36	29	34	62	48	40	61	69	34	45	47	51	51	40	43	62	53	67	73
Change from 2006 to 2007	-5	-1	-4	-4	3	-2	6	-9	-7	:	-5	-3	-6	-3	-4	-6	-6	-4	-3	-4	-7	-6	-3	-7	-5	-5	-5	-7	-4
Men																													
Never used a computer or more than a year ago	32	7	10	7	11	16	9	12	18	:	20	17	24	48	36	35	47	53	32	36	39	46	39	31	37	49	43	63	58
Change from 2006 to 2007	-3	-1	-2	-5	1	0	1	-2	-3	:	-5	-1	-3	-4	-4	-5	-3	-3	-2	2	-4	-5	-4	-1	-5	-2	-3	-4	-6
Never used the Internet or more than a year ago	36	8	12	11	13	18	15	14	21	:	25	21	27	54	41	39	51	59	34	41	46	49	45	37	39	57	49	66	68
Change from 2006 to 2007	-5	-2	-2	-5	1	-1	5	-4	-5	:	-6	-3	-5	-5	-5	-6	-6	-4	-2	-1	-6	-6	-5	-4	-6	-5	-3	-6	-5

Lower educational level																											
Never used a computer or more than a year ago	59	13	25	18	22	33	22	32	54	:	48	29	49	67	66	65	75	86	44	68	64	62	53	55	58	81	61	85	80
Change from 2006 to 2007	-2	-3	-5	-21	4	2	3	-10	-6	:	-5	0	-4	-4	-3	-3	-3	-2	:	-2	-3	-3	-5	7	-4	0	-1	1	-17
Never used the Internet or more than a year ago	64	17	29	21	25	35	30	35	:	:	54	35	53	74	71	69	78	90	45	73	72	63	58	60	59	85	64	86	85
Change from 2006 to 2007	-2	-2	-6	-26	2	1	8	-14	:	:	-6	-1	-5	-4	-4	-4	-5	-2	:	-3	-5	-3	-4	5	-4	-2	-1	-1	-13
Middle educational level																													
Never used a computer or more than a year ago	28	7	6	8	10	15	9	7	14	:	21	19	20	9	19	27	32	44	36	34	26	55	44	28	41	49	46	62	58
Change from 2006 to 2007	-4	1	-2	-5	0	-1	0	-6	-2	:	-4	-1	-4	-2	-2	-3	-2	-1	-3	0	-1	-5	-3	-6	-6	-2	-4	-7	-11
Never used the Internet or more than a year ago	34	7	8	13	12	17	16	10	19	:	28	25	23	:	24	33	36	54	37	40	32	59	51	35	44	62	55	67	71
Change from 2006 to 2007	-5	-1	-3	-5	0	-2	4	-8	-5	:	-6	-3	-6	:	-5	-6	-5	-2	-3	-4	-4	-7	-4	-11	-8	-4	-5	-10	-7
Higher educational level																													
Never used a computer or more than a year ago	9	1	3	3	4	4	3	4	:	:	8	9	8	:	9	7	17	22	:	7	10	13	11	7	11	17	11	22	12
Change from 2006 to 2007	-2	0	0	0	-1	-1	0	-1	:	:	-2	-3	-1	:	-1	-3	-2	-1	:	1	-3	-4	-1	0	-2	-4	-2	-8	-3
Never used the Internet or more than a year ago	12	1	3	6	4	5	10	4	:	:	11	13	9	:	13	10	19	29	:	9	13	16	12	9	12	24	15	27	20
Change from 2006 to 2007	-2	-1	-1	2	0	-1	5	-2	:	:	-2	-4	-3	:	-2	-4	-5	-3	:	1	-5	-5	-2	-1	-3	-7	-3	-11	-6
Densely populated areas																													
Never used a computer or more than a year ago	30	:	11	6	11	10	7	19	20	:	19	19	27	45	34	24	49	48	31	31	29	32	35	26	31	45	36	47	47
Change from 2006 to 2007	-3	:	-1	-5	3	-2	-2	-7	-5	:	-6	-2	-4	-3	-3	-6	-3	0	-2	7	-4	-5	-6	2	-5	-3	0	-4	-6
Never used the Internet or more than a year ago	35	:	14	11	12	11	16	23	26	:	23	24	30	51	39	28	52	55	31	38	34	34	39	30	33	52	41	51	57
Change from 2006 to 2007	-4	:	-2	-5	4	-3	7	-8	-6	:	-7	-3	-5	-5	-5	-7	-6	-2	-2	7	-5	-6	-7	-2	-6	-5	-2	-7	-6
Intermediate density																													
Never used a computer or more than a year ago	33	6	10	5	13	13	8	20	:	:	24	20	28	54	41	36	54	63	:	34	39	:	45	:	:	54	49	66	:
Change from 2006 to 2007	-3	-1	-6	-3	3	1	1	-1	:	:	-6	-1	-3	-6	-3	-4	-3	-3	:	-8	-4	:	-1	:	:	-2	4	-4	:
Never used the Internet or more than a year ago	38	8	12	9	15	16	18	21	:	:	30	25	31	62	46	41	58	69	:	38	48	:	51	:	:	63	57	69	:
Change from 2006 to 2007	-5	0	-6	-2	2	1	10	-4	:	:	-7	-3	-5	-5	-4	-6	-5	-4	:	-9	-5	:	0	:	:	-5	4	-7	:
Thinly populated areas																													
Never used a computer or more than a year ago	44	10	14	12	15	22	13	16	:	:	30	22	38	62	51	44	58	64	35	44	49	58	46	34	46	62	51	76	79
Change from 2006 to 2007	-4	-1	-2	-4	-1	0	2	-6	:	:	-3	-1	-3	1	-4	-2	:	-5	-3	2	-5	-5	-3	-4	-3	-1	-9	-4	-5
Never used the Internet or more than a year ago	50	11	16	16	17	24	18	17	:	:	37	29	42	67	56	49	62	70	37	49	56	61	53	41	48	72	59	80	87
Change from 2006 to 2007	-5	-3	-3	-5	-2	-1	4	-9	:	:	-4	-2	-5	-1	-6	-6	-4	-4	-3	-2	-8	-6	-4	-7	-5	-2	-9	-6	-3
Objective 1 regions																													
Never used a computer or more than a year ago	48	8	7	:	:	:	:	:	:	:	:	24	39	55	46	:	61	57	33	38	44	47	44	33	39	:	44	63	61
Change from 2006 to 2007	-1	:	-1	:	:	:	:	:	:	:	:	-1	-4	-3	-2	:	-3	-3	-3	0	-1	-5	-2	-2	-4	:	-3	:	-6
Never used the Internet or more than a year ago	55	9	12	:	:	:	:	:	:	:	:	:	42	62	51	:	65	64	34	43	51	50	50	39	41	:	51	66	70
Change from 2006 to 2007	-2	:	2	:	:	:	:	:	:	:	:	:	-5	-3	-3	:	-6	-4	-3	-3	-2	-6	-3	-6	-6	:	-4	:	-5
Other regions																													
Never used a computer or more than a year ago	26	:	12	:	13	17	11	19	19	:	:	19	26	43	37	35	49	:	:	:	31	:	26	26	:	51	:	:	:
Change from 2006 to 2007	-2	:	-2	:	2	1	0	-4	-4	:	:	-1	-3	-4	-1	-1	-3	:	:	:	:	:	-7	-2	:	-3	:	:	:
Never used the Internet or more than a year ago	30	:	14	:	15	19	18	21	25	:	:	24	29	48	41	39	52	:	:	:	36	:	30	30	:	59	:	:	:
Change from 2006 to 2007	-3	:	-3	:	2	1	6	-6	-6	:	:	-3	-5	-5	-2	-3	-6	:	:	:	:	:	-8	-7	:	-5	:	:	:
Students																													
Never used a computer or more than a year ago	3	0	0	0	2	0	1	0	:	:	:	:	3	:	1	2	11	6	:	1	4	0	:	1	2	3	2	5	8
Change from 2006 to 2007	0	0	0	0	1	0	1	0	:	:	:	:	-2	:	-1	-1	-1	-3	:	0	0	-1	:	1	0	-1	0	-1	3
Never used the Internet or more than a year ago	6	0	0	3	2	0	6	2	:	:	:	:	4	:	3	6	14	12	:	1	5	1	5	3	2	12	3	9	16
Change from 2006 to 2007	0	0	0	3	1	0	5	1	:	:	:	:	-3	:	-1	0	-3	-4	:	-2	-2	-1	-1	2	0	-6	-1	-11	4

(Self-)Employed																											
Never used a computer or more than a year ago	22	5	4	3	:	7	4	10	10	:	12	7	14	42	27	26	39	45	23	22	22	36	32	20	28	43	32	51	54
Change from 2006 to 2007	-3	0	-2	-2	:	-1	-1	-4	:	:	-3	:	-3	-4	-4	-3	-2	-5	:	-1	-5	-5	-2	-1	-4	-3	-3	-5	-7
Never used the Internet or more than a year ago	28	6	5	6	:	9	12	12	15	:	18	11	17	50	32	31	43	54	25	29	31	41	40	27	30	53	41	56	67
Change from 2006 to 2007	-4	-1	-3	-2	:	-2	5	-7	:	:	-5	:	-5	:	-6	-6	-6	-6	:	-3	-8	-7	-4	-6	-5	-6	-4	-9	-6
Unemployed																											
Never used a computer or more than a year ago	42	16	6	4	14	20	7	36	:	:	:	23	35	56	41	46	49	48	:	51	61	69	63	55	62	44	56	83	69
Change from 2006 to 2007	-3	-8	2	-12	2	-2	3	-10	:	:	:	4	-6	-6	-6	-5	-8	-6	:	6	-2	-5	1	-2	-2	-14	-2	-5	-4
Never used the Internet or more than a year ago	48	16	9	9	17	26	14	37	:	:	:	:	39	:	46	51	53	56	:	58	69	71	70	60	64	55	65	86	77
Change from 2006 to 2007	-1	-15	3	-12	0	1	8	-13	:	:	:	:	-6	:	-7	-7	-11	-7	:	-2	-3	-7	0	-6	-4	-16	-5	-5	-3
Retired or inactive																											
Never used a computer or more than a year ago	67	34	34	32	40	51	37	52	45	:	57	49	62	88	78	63	84	89	73	86	76	88	80	80	78	84	80	95	91
Change from 2006 to 2007	-3	-4	-5	-21	2	-1	5	-8	-6	:	-7	0	-3	-2	-2	-10	-3	-1	-6	2	-4	-3	-4	-2	-1	-1	-2	1	10
Never used the Internet or more than a year ago	72	41	38	39	45	54	44	56	52	:	63	57	65	91	82	68	86	93	74	89	81	90	83	84	79	87	86	96	96
Change from 2006 to 2007	-4	-3	-6	-26	0	-2	4	-9	-8	:	-7	-2	-4	-1	-3	-11	-5	-1	-6	1	-5	-3	-5	-4	-2	-2	-3	1	10
Manual workers																											
Never used a computer or more than a year ago	43	12	9	6	10	13	10	32	24	:	:	:	28	66	46	46	:	73	43	44	44	15	54	42	46	80	54	78	76
Change from 2006 to 2007	-4	0	-7	-6	0	-1	-1	-6	-3	:	:	:	-5	-6	:	-6	:	-6	-1	-2	-9	-4	-5	1	-7	-3	-5	:	-6
Never used the Internet or more than a year ago	50	13	12	9	12	16	18	37	:	:	:	23	32	74	52	50	:	81	45	53	57	18	62	53	50	87	66	81	87
Change from 2006 to 2007	-5	-2	-7	-10	-2	-2	5	-11	:	:	:	-4	-9	-7	:	-10	:	-6	-1	-9	-10	-7	-6	-4	-8	-3	-5	:	-4
Non-manual workers																											
Never used a computer or more than a year ago	11	3	2	2	2	4	2	3	:	:	:	:	8	21	13	17	:	28	:	11	10	61	16	6	14	22	12	29	23
Change from 2006 to 2007	1	-1	-1	-1	-1	0	-1	-3	:	:	:	:	-2	-2	:	-2	:	-1	:	0	-3	-7	0	-1	-2	-7	-2	:	-5
Never used the Internet or more than a year ago	16	4	3	5	3	4	10	4	10	:	:	7	11	29	17	22	:	39	9	16	17	66	23	12	16	33	19	35	39
Change from 2006 to 2007	-1	-1	-2	0	0	-1	5	-4	-1	:	:	-3	-4	-4	:	-5	:	-3	:	-1	-6	-8	-1	-7	-4	-10	-4	:	-6

Annex 4: Computer skills, 2007 – Age and Education (E3)

Percentage share of all individuals in EU27

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
No computer skills	40	15	20	18	21	28	23	22	30	28	34	25	38	52	43	46	56	57	44	39	41	51	45	34	46	53	52	68	71
Low level computer skills	13	15	16	16	12	16	18	10	15	12	12	15	16	9	9	17	8	11	10	12	10	9	17	18	16	10	16	10	14
Medium or high level computer skills	47	70	64	66	67	56	60	68	56	60	54	60	46	38	48	37	36	32	46	49	49	40	38	48	37	37	32	22	15
Aged 16-24, Lower educational level																													
No computer skills	15	1	2	4	3	1	3	4	:	7	7	5	15	12	15	36	32	21	11	1	18	7	9	5	6	21	8	47	45
Low level computer skills	15	11	18	8	10	16	11	6	:	9	12	13	20	17	13	26	10	26	10	4	11	10	17	19	22	22	20	17	24
Medium or high level computer skills	71	88	80	88	87	83	86	90	:	85	82	82	65	71	71	37	57	53	78	95	71	82	73	77	72	57	73	36	30
Aged 16-24, Middle educational level																													
No computer skills	9	1	3	2	1	2	6	0	5	8	:	:	11	:	4	33	17	14	8	5	5	7	11	4	8	17	11	27	34
Low level computer skills	12	2	13	10	7	13	18	0	13	5	:	:	16	:	4	19	8	15	7	7	5	12	21	15	16	18	19	20	26
Medium or high level computer skills	79	97	84	88	92	86	76	100	82	87	95	89	74	98	92	48	75	71	86	88	90	82	68	81	76	65	70	52	40
Aged 16-24, Higher educational level																													
No computer skills	2	0	:	0	:	:	0	0	:	:	:	:	9	:	3	13	6	11	:	:	1	0	:	6	1	8	:	12	9
Low level computer skills	6	0	:	0	:	:	10	5	:	:	:	:	8	0	5	12	4	18	:	:	1	6	:	6	4	7	12	11	23
Medium or high level computer skills	92	100	:	100	:	:	90	95	:	:	99	:	83	:	92	74	90	72	:	:	99	93	:	87	96	85	:	77	68
Aged 25-54, Lower educational level																													
No computer skills	59	23	28	20	28	31	37	33	:	52	41	31	56	66	63	71	76	88	64	69	62	81	:	69	85	94	:	:	:
Low level computer skills	14	25	23	26	16	24	18	12	14	17	19	21	18	12	12	14	8	6	12	11	14	8	9	17	11	2	:	1	3
Medium or high level computer skills	28	52	49	54	56	46	45	56	:	32	40	49	26	22	25	15	17	6	24	19	24	12	:	14	4	5	:	:	:
Aged 25-54, Middle educational level																													
No computer skills	31	10	9	14	10	21	22	6	23	18	13	16	31	10	25	42	31	46	46	29	19	64	40	26	48	54	56	70	73
Low level computer skills	17	13	17	16	11	19	18	12	18	14	12	16	21	9	13	20	12	17	15	18	14	12	22	23	24	14	21	13	16
Medium or high level computer skills	52	76	74	70	79	60	60	82	59	68	74	68	49	81	62	38	57	37	39	53	68	24	38	52	27	32	23	17	10
Aged 25-54, Higher educational level																													
No computer skills	7	0	2	3	5	5	5	4	7	4	5	4	8	2	8	14	13	15	17	2	3	11	4	3	8	16	8	16	12
Low level computer skills	11	7	10	11	7	11	18	7	12	11	9	9	15	6	8	18	10	15	9	5	7	11	14	13	14	12	19	18	28
Medium or high level computer skills	82	93	88	87	88	84	77	88	81	85	87	86	76	92	84	68	76	70	74	93	90	78	82	84	78	72	73	67	60
Aged 55-74, Lower educational level																													
No computer skills	86	54	67	62	59	76	62	68	:	:	76	:	84	:	93	91	94	100	:	96	96	:	:	97	98	99	:	:	:
Low level computer skills	6	23	15	22	15	11	18	10	8	:	8	14	8	4	3	5	2	0	:	3	2	:	2	2	0	0	:	:	0
Medium or high level computer skills	8	23	18	16	26	13	20	22	:	:	16	:	8	:	3	4	3	0	:	1	2	:	:	1	1	0	:	0	:
Aged 55-74, Middle educational level																													
No computer skills	61	31	36	45	39	62	39	21	44	:	:	53	57	:	56	64	60	82	83	78	60	92	76	65	85	78	87	:	92
Low level computer skills	14	23	26	24	15	16	21	16	19	:	:	17	17	:	14	17	11	9	7	9	12	3	11	19	9	12	8	3	7
Medium or high level computer skills	25	46	38	32	46	22	40	63	37	:	:	30	26	:	30	19	30	9	10	13	27	5	13	16	6	11	6	:	2

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Aged 55-74, Higher educational level

No computer skills	30	3	14	14	16	24	23	11	21	:	27	27	34	23	30	37	45	54	57	27	28	53	27	43	48	51	47	64	57
Low level computer skills	18	20	19	19	17	25	19	13	19	:	17	17	18	24	17	26	15	17	9	19	14	13	20	10	19	14	20	10	23
Medium or high level computer skills	53	77	67	67	68	51	58	76	60	:	57	56	48	53	53	37	41	29	34	54	58	33	53	48	32	34	33	26	20

Annex 5: Computer skills, 2007 – Age and Employment (E3)

Percentage share of all individuals in EU27

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
No computer skills	40	12	16	15	18	21	22	21	29	31	36	26	32	57	44	42	58	63	35	41	46	49	47	36	41	60	50	66	71
Low level computer skills	29	31	39	38	16	26	45	28	41	38	26	41	40	16	23	42	15	22	17	25	22	18	25	34	22	25	24	13	16
Medium or high level computer skills	31	57	46	46	66	53	33	51	30	31	38	34	28	27	34	16	27	15	48	33	32	32	28	30	37	15	26	22	12
Aged 16-24, (Self-)Employed																													
No computer skills	13	3	2	4	1	2	6	6	7	11	6	:	18	11	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Low level computer skills	14	12	16	9	16	14	18	8	11	11	12	:	18	16	14	15	15	15	15	15	15	15	16	16	16	16	16	16	16
Medium or high level computer skills	74	84	81	87	83	83	76	86	82	78	83	85	64	73	74	73	72	71	71	70	69	68	67	66	65	64	63	62	61
Aged 16-24, Unemployed																													
No computer skills	26	0	0	0	14	0	0	0	:	:	:	:	18	:	24	48	41	20	:	:	32	30	:	5	27	22	26	79	68
Low level computer skills	14	20	18	0	15	22	18	8	:	:	:	:	19	:	14	22	11	26	:	:	17	17	:	14	24	9	23	8	16
Medium or high level computer skills	60	80	82	100	71	78	82	92	:	:	85	:	63	:	62	30	47	53	:	:	50	53	47	81	50	69	52	13	16
Aged 16-24, Retired or inactive																													
No computer skills	34	0	9	9	0	7	8	0	:	:	:	:	49	:	46	59	69	43	:	:	41	:	:	17	11	19	42	:	:
Low level computer skills	17	29	17	9	0	20	4	0	:	:	:	:	19	:	12	16	7	18	:	:	15	:	33	45	48	19	27	13	10
Medium or high level computer skills	50	71	74	82	100	73	88	100	:	:	:	:	32	:	42	25	23	39	:	:	45	:	:	38	42	63	31	:	:
Aged 25-54, (Self-)Employed																													
No computer skills	28	9	8	9	11	15	15	14	18	16	23	13	24	43	29	35	40	44	33	25	24	44	36	24	37	42	44	57	64
Low level computer skills	15	14	14	16	11	17	18	8	15	13	14	15	18	11	11	17	11	14	12	15	13	12	20	21	21	11	21	13	17
Medium or high level computer skills	58	77	78	75	79	69	67	78	67	71	62	72	58	46	60	48	49	43	54	60	64	44	44	56	42	46	36	29	18
Aged 25-54, Unemployed																													
No computer skills	46	25	12	15	21	19	18	30	:	:	28	23	45	53	40	58	55	49	:	47	63	77	71	54	74	41	66	88	:
Low level computer skills	14	0	19	0	18	23	24	22	:	:	19	17	19	11	11	22	8	15	:	15	9	7	12	23	12	24	15	5	13
Medium or high level computer skills	40	75	69	85	62	59	58	48	:	:	53	60	36	36	49	20	37	36	:	38	28	16	17	22	14	34	18	7	:
Aged 25-54, Retired or inactive																													
No computer skills	60	38	34	28	42	34	45	41	50	38	46	33	57	:	63	58	80	77	64	78	59	73	51	38	57	83	75	:	91
Low level computer skills	14	22	23	16	16	17	20	5	16	20	16	23	19	7	11	18	8	11	11	10	12	10	21	24	20	5	13	8	7
Medium or high level computer skills	26	39	43	56	43	49	34	53	34	43	38	44	24	:	26	24	12	12	25	11	29	18	28	38	23	12	12	:	2
Aged 55-74, (Self-)Employed																													
No computer skills	46	25	23	25	25	36	34	22	38	24	47	26	40	69	63	67	61	79	63	45	40	68	51	50	63	78	60	74	85
Low level computer skills	14	23	18	23	13	20	21	11	15	14	13	19	18	10	10	15	10	7	10	16	12	8	17	17	14	6	15	8	9
Medium or high level computer skills	40	52	59	52	63	44	45	67	48	62	40	55	42	21	27	18	29	14	27	39	48	24	31	33	22	16	25	18	6
Aged 55-74, Unemployed																													
No computer skills	63	100	22	34	54	57	34	67	:	:	:	:	67	:	81	77	83	81	:	83	86	:	:	87	84	100	:	:	:
Low level computer skills	11	0	13	0	8	17	12	13	:	:	:	:	11	:	7	6	7	19	:	0	2	:	:	8	6	0	:	:	:
Medium or high level computer skills	26	0	64	66	38	26	53	20	:	:	:	:	22	:	13	17	10	0	:	17	12	:	:	5	11	0	:	:	:

Aged 55-74, Retired or inactive

No computer skills	77	55	57	54	54	74	51	51	66	67	72	60	75	89	88	84	90	94	:	85	82	96	87	84	94	93	91	98	:
Low level computer skills	9	21	19	22	17	13	18	11	15	12	9	15	11	5	5	8	4	3	4	7	6	2	7	9	5	4	5	1	3
Medium or high level computer skills	14	23	25	25	29	13	31	38	19	21	19	24	14	6	7	7	6	3	:	8	12	2	7	7	2	3	3	1	:

Annex 6: Internet skills, 2007 – Age and Education (E4)

Percentage share of all individuals in EU27

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
No internet skills	40	12	16	15	18	21	22	21	29	31	36	26	32	57	44	42	58	63	35	41	46	49	47	36	41	60	50	66	71
Low level internet skills	29	31	39	38	16	26	45	28	41	38	26	41	40	16	23	42	15	22	17	25	22	18	25	34	22	25	24	13	16
Medium or high level internet skills	31	57	46	46	66	53	33	51	30	31	38	34	28	27	34	16	27	15	48	33	32	32	28	30	37	15	26	22	12
Aged 16-24, Lower educational level																													
No internet skills	16	0	2	4	1	0	9	5	:	10	8	6	9	16	15	32	36	26	7	5	20	8	14	7	5	35	7	44	47
Low level internet skills	22	11	14	19	10	10	33	15	:	28	19	23	36	19	22	44	12	41	10	14	22	17	23	31	17	33	26	18	25
Medium or high level internet skills	62	89	84	77	88	89	58	79	:	62	72	72	55	65	63	24	51	33	83	81	58	75	63	62	78	32	67	38	28
Aged 16-24, Middle educational level																													
No internet skills	9	1	0	3	0	0	7	0	9	9	2	2	4	2	4	21	19	19	2	8	6	7	13	4	3	31	8	23	33
Low level internet skills	23	4	14	14	5	7	35	9	31	33	10	22	36	11	14	44	13	36	6	24	17	17	28	30	19	34	26	20	30
Medium or high level internet skills	68	95	86	83	95	93	58	91	60	58	88	76	59	86	82	34	68	45	91	68	77	76	59	65	78	35	66	57	37
Aged 16-24, Higher educational level																													
No internet skills	3	0	:	0	:	:	7	0	:	:	:	:	8	:	4	17	7	15	:	:	1	2	:	0	1	12	:	8	8
Low level internet skills	16	30	:	0	:	:	16	0	:	:	:	:	37	:	12	45	10	37	:	:	15	11	:	22	7	37	:	16	24
Medium or high level internet skills	81	70	:	100	:	:	77	100	:	:	90	:	55	94	84	38	83	47	:	:	84	86	:	78	92	51	81	76	68
Aged 25-54, Lower educational level																													
No internet skills	60	20	18	13	22	19	29	30	:	56	45	:	48	72	65	67	78	92	54	74	71	79	:	70	81	95	:	:	:
Low level internet skills	24	47	48	46	26	32	50	31	28	31	30	45	36	17	21	28	11	6	19	19	16	12	13	23	11	5	:	:	5
Medium or high level internet skills	16	32	34	41	52	48	21	39	:	13	24	:	17	11	14	5	11	1	27	8	13	10	:	8	8	1	:	:	:
Aged 25-54, Middle educational level																													
No internet skills	30	5	5	11	7	11	16	7	20	20	13	14	22	15	25	35	34	56	30	31	24	60	43	27	39	69	53	65	75
Low level internet skills	39	35	46	44	15	30	53	38	55	50	41	51	51	30	36	55	25	30	25	37	35	23	32	45	32	24	30	17	18
Medium or high level internet skills	31	61	50	46	79	58	30	55	25	30	47	35	28	55	40	10	41	14	45	32	40	17	26	27	29	6	17	18	8
Aged 25-54, Higher educational level																													
No internet skills	7	0	1	3	2	2	9	2	9	6	4	4	5	3	9	13	13	22	11	1	4	8	5	2	5	22	5	15	13
Low level internet skills	39	18	38	38	10	27	45	25	45	42	34	48	51	27	33	58	24	47	17	30	36	28	30	47	30	47	40	25	45
Medium or high level internet skills	54	81	60	59	89	71	46	74	46	52	63	48	43	70	58	29	63	31	73	69	60	63	65	51	66	31	55	60	41
Aged 55-74, Lower educational level																													
No internet skills	87	50	61	55	57	67	60	69	:	:	:	:	81	:	95	90	95	100	:	96	97	:	:	98	98	99	:	:	:
Low level internet skills	10	37	31	37	19	21	32	22	19	:	11	24	14	4	4	9	3	0	:	3	2	:	3	2	2	1	:	:	0
Medium or high level internet skills	4	13	8	8	24	12	8	9	:	:	:	:	4	:	1	0	2	0	:	1	1	:	:	0	0	0	:	0	:
Aged 55-74, Middle educational level																													
No internet skills	64	27	32	39	35	52	41	29	:	:	:	:	53	:	59	61	65	90	:	84	68	91	79	76	82	85	85	:	94
Low level internet skills	27	47	51	49	22	31	46	41	44	:	34	32	36	:	23	36	20	8	13	11	22	6	14	17	13	13	12	4	5
Medium or high level internet skills	9	26	17	11	42	16	12	30	:	:	:	:	11	:	18	3	15	2	:	5	10	3	7	6	5	2	3	:	1

Aged 55-74, Higher educational level

No internet skills	31	1	11	20	12	17	23	13	:	:	:	:	27	:	34	31	47	64	46	33	37	56	34	39	44	51	47	63	62
Low level internet skills	43	53	59	43	18	40	55	45	47	:	43	49	54	38	38	62	27	28	25	43	29	22	31	43	30	35	35	18	26
Medium or high level internet skills	26	45	31	38	70	43	22	42	:	:	:	:	19	:	28	7	26	8	29	24	34	22	36	18	26	14	18	19	12

Annex 7: Internet skills, 2007 – Age and Employment (E4)

Percentage share of all individuals in EU27

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
No internet skills	40	12	16	15	18	21	22	21	29	31	36	26	32	57	44	42	58	63	35	41	46	49	47	36	41	60	50	66	71
Low level internet skills	29	31	39	38	16	26	45	28	41	38	26	41	40	16	23	42	15	22	17	25	22	18	25	34	22	25	24	13	16
Medium or high level internet skills	31	57	46	46	66	53	33	51	30	31	38	34	28	27	34	16	27	15	48	33	32	32	28	30	37	15	26	22	12
Aged 16-24, (Self-)Employed																													
No internet skills	13	1	1	2	2	0	8	6	8	13	9	:	8	17	11	27	33	39	5	12	22	11	21	9	5	50	12	38	61
Low level internet skills	28	18	17	14	10	9	35	15	36	40	24	29	48	21	19	43	15	37	9	33	22	20	37	38	22	26	31	18	21
Medium or high level internet skills	59	81	82	84	88	91	58	78	56	47	67	:	44	62	69	30	52	25	86	56	56	70	42	53	73	24	57	44	18
Aged 16-24, Unemployed																													
No internet skills	27	0	0	0	0	0	10	0	:	:	:	:	9	:	25	32	44	28	:	:	42	24	:	5	29	38	19	75	60
Low level internet skills	19	60	7	32	11	21	49	40	:	:	:	:	28	:	14	54	11	46	:	:	26	38	25	17	10	34	33	10	17
Medium or high level internet skills	53	40	93	68	89	79	41	60	:	:	77	:	63	:	61	14	45	26	:	:	32	38	:	78	61	28	48	15	23
Aged 16-24, Retired or inactive																													
No internet skills	34	0	4	9	0	0	8	0	:	:	:	:	41	:	43	54	75	43	:	:	41	:	:	11	9	31	:	:	87
Low level internet skills	23	14	9	9	0	7	15	0	:	:	:	:	29	:	20	33	4	13	:	:	30	:	27	67	37	36	38	:	8
Medium or high level internet skills	43	86	86	82	100	93	77	100	:	:	:	:	30	:	37	13	21	44	63	:	30	:	:	21	54	33	:	:	5
Aged 25-54, (Self-)Employed																													
No internet skills	28	7	5	7	7	7	14	12	17	19	25	11	17	49	29	31	42	51	22	25	29	40	38	25	30	52	41	54	65
Low level internet skills	37	33	42	42	15	29	50	30	50	48	34	51	50	22	31	51	22	32	23	36	32	26	31	45	31	32	33	18	22
Medium or high level internet skills	35	60	53	51	78	63	36	58	32	34	40	38	32	29	40	18	36	17	56	38	39	34	31	30	40	16	27	28	13
Aged 25-54, Unemployed																													
No internet skills	47	25	7	8	19	20	11	27	:	:	33	:	38	:	42	54	58	59	:	59	70	77	72	58	68	56	66	86	82
Low level internet skills	26	0	47	57	23	27	52	36	:	:	27	43	35	20	29	38	12	25	:	15	12	15	14	31	20	19	21	7	12
Medium or high level internet skills	27	75	46	35	59	53	38	37	:	:	40	:	27	:	29	8	30	16	:	26	18	9	14	10	12	24	13	7	6
Aged 25-54, Retired or inactive																													
No internet skills	59	25	21	21	34	19	26	44	:	42	:	:	52	:	65	54	83	83	50	83	67	70	52	38	48	85	71	:	92
Low level internet skills	25	42	50	43	30	33	45	20	35	41	25	46	31	9	20	40	9	12	18	17	15	14	28	38	27	10	19	6	6
Medium or high level internet skills	16	33	29	35	36	47	29	35	:	17	:	:	17	:	15	6	8	4	32	0	18	16	20	23	25	4	10	:	2
Aged 55-74, (Self-)Employed																													
No internet skills	46	21	17	22	21	27	30	19	:	25	:	:	33	:	65	65	64	83	56	49	44	70	55	51	56	79	58	74	86
Low level internet skills	35	48	56	51	20	41	52	35	44	48	29	53	48	16	22	32	19	13	21	33	30	16	26	34	27	16	28	13	10
Medium or high level internet skills	19	31	27	28	59	32	18	46	:	27	:	:	19	:	13	3	16	4	23	18	27	15	19	15	17	4	13	13	4
Aged 55-74, Unemployed																													
No internet skills	65	66	15	34	29	44	41	66	:	:	:	:	64	:	86	75	:	90	:	83	87	:	:	89	84	100	:	:	:
Low level internet skills	24	34	59	16	23	34	32	20	:	:	:	40	24	:	7	25	9	10	:	12	9	:	:	11	7	0	5	6	:
Medium or high level internet skills	11	0	25	50	47	23	26	14	:	:	:	:	13	:	7	0	:	0	:	5	5	:	:	0	10	0	:	:	:

Aged 55-74: Retired or inactive																													
No internet skills	80	53	52	51	52	65	54	56	:	72	:	:	72	:	90	82	92	97	:	89	86	96	90	91	93	94	90	98	:
Low level internet skills	15	35	37	40	20	21	38	33	28	21	14	26	22	6	6	17	5	3	9	8	8	3	7	7	5	4	7	1	2
Medium or high level internet skills	5	11	11	9	28	14	8	11	:	7	:	:	6	:	4	2	3	1	:	3	5	1	3	2	1	2	2	1	:

Annex 8: Barriers to Internet access, 2006 (A5)

Percentage share of households with no internet access

Note: Date for CZ and FI varies from that of other countries:

- *CZ: From households which have PC but do not have internet access*
- *FI: Instead of asking 'the main reason' in question A5, Finland asks for every alternative 'much importance – somewhat importance – no importance'. Alternatives 'much importance' and 'somewhat importance' are summed*

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	MT	HU	LT	CZ	SK	LV	CY	PL	BG	RO
																	All households													
Have access elsewhere	15	21	12	22	17	10	11	9	:	13	20	28	13	20	21	16	15	8	36	21	7	29	13	6	34	25	17	8	8	13
Don't want	8	2	24	3	30	7	23	15	5	:	12	6	7	16	:	22	3	18	51	32	13	25	1	1	6	11	34	3	5	7
Don't need	41	38	50	27	50	9	45	66	30	:	63	55	45	56	:	33	40	56	53	61	47	44	62	1	38	37	59	43	37	22
Equipment cost	26	11	10	11	9	:	14	8	23	28	13	34	25	54	:	17	11	11	69	37	11	48	26	2	32	37	17	36	37	39
Access cost	23	14	7	9	11	:	6	6	18	:	12	33	15	51	:	7	11	11	64	36	10	43	19	4	33	24	18	35	20	33
Lack of skills	27	19	12	23	6	:	8	19	31	25	12	31	16	54	38	15	27	24	57	35	18	25	7	1	13	18	45	19	34	35
Physical disability	2	2	2	0	0	:	0	2	:	:	:	:	1	2	:	0	1	1	4	3	1	7	0	2	0	1	1	2	7	1
Privacy or security concerns	5	2	2	0	1	:	0	4	8	5	2	14	2	9	:	1	3	3	6	8	0	5	1	:	1	0	16	2	1	1
Other reasons	12	23	13	26	1	:	11	0	14	22	7	3	13	36	:	25	11	0	4	4	15	23	3	2	5	5	6	7	14	14

Annex 9: Barriers to internet access, selected groups 2006 (A5)

Percentage share of households with no internet access (multiple choice)

	EU27	DK	FI	AT	DE	BE	GR	EE	CZ	CY	BG
					All households						
Have access elsewhere	15	17	10	20	28	13	8	36	6	17	8
Don't want	8	30	7	12	6	7	18	51	1	34	5
Don't need	41	50	9	63	55	45	56	53	1	59	37
Equipment costs	27	9	:	13	34	25	11	69	2	17	37
Access costs	23	11	:	12	33	15	11	64	4	18	20
Lack skills	27	6	:	12	31	16	24	57	1	45	34
Physical disability	2	0	:	:	:	1	1	4	2	1	7
Privacy or security concerns	5	1	:	2	14	2	3	6	:	16	1
Other reason	12	1	:	7	3	13	0	4	2	6	14
					Densely populated areas						
Have access elsewhere	17	20	12	22	30	14	12	31	5	17	14
Don't want	7	26	7	14	5	6	26	51	:	29	6
Don't need	38	45	9	59	54	42	45	55	:	58	33
Equipment costs	28	14	:	17	35	29	12	72	1	17	39
Access costs	25	16	:	16	34	16	14	66	3	18	23
Lack skills	27	5	:	11	30	15	25	56	:	38	28
Physical disability	2	0	:	:	:	1	0	:	1	1	5
Privacy or security concerns	6	0	:	:	14	1	4	:	:	13	1
Other reason	12	1	:	6	:	11	1	:	3	6	11
					Intermediate density						
Have access elsewhere	15	18	18	20	26	12	11	:	7	20	5
Don't want	8	33	12	12	6	7	13	:	:	54	5
Don't need	44	55	13	64	55	49	47	:	:	67	31
Equipment costs	23	5	:	12	32	18	10	:	2	25	38
Access costs	21	10	:	12	31	13	13	:	4	28	18
Lack skills	26	5	:	12	29	17	39	:	:	38	34
Physical disability	2	0	:	:	:	1	3	:	2	1	7
Privacy or security concerns	6	2	:	:	14	2	3	:	:	17	:
Other reason	12	0	:	6	:	15	0	:	:	3	20
					Thinly populated areas						
Have access elsewhere	13	15	8	19	24	8	6	39	5	14	5
Don't want	9	30	5	11	:	9	13	51	:	36	4
Don't need	42	50	9	66	58	56	63	52	2	58	40
Equipment costs	26	7	:	10	33	24	10	67	2	13	34
Access costs	23	7	:	9	32	15	9	61	5	13	17
Lack skills	28	7	:	14	34	16	23	59	1	58	38
Physical disability	2	0	:	:	:	0	1	6	2	1	8
Privacy or security concerns	4	1	:	:	:	5	2	6	:	20	1
Other reason	12	1	:	8	:	12	0	5	2	6	15
					Objective 1 regions						
Have access elsewhere	15	:	7	11	25	8	8	36	5	:	:
Don't want	8	:	3	8	:	5	18	51	1	:	:
Don't need	38	:	5	75	54	46	56	53	1	:	:
Equipment costs	30	:	:	12	36	31	11	69	2	:	:
Access costs	28	:	:	13	31	21	11	64	5	:	:
Lack skills	27	:	:	16	31	14	24	57	1	:	:
Physical disability	2	:	:	:	:	1	1	4	2	:	:
Privacy or security concerns	3	:	:	:	13	3	3	6	:	:	:
Other reason	10	:	:	8	:	13	0	4	2	:	:
					Other regions						
Have access elsewhere	17	17	12	21	28	14	:	:	8	17	:
Don't want	8	30	8	12	6	7	:	:	0	34	:
Don't need	44	50	11	63	55	45	:	:	:	59	:
Equipment costs	21	9	:	13	33	23	:	:	:	17	:
Access costs	19	11	:	12	33	14	:	:	:	18	:
Lack skills	27	6	:	12	31	16	:	:	:	45	:
Physical disability	1	0	:	:	:	1	:	:	:	1	:
Privacy or security concerns	7	1	:	:	14	2	:	:	0	16	:
Other reason	10	1	:	7	3	13	:	:	:	6	:

		Single parents with children									
Have access elsewhere	16	23	10	17	35	13	34	:	11	25	:
Don't want	7	17	14	8	:	6	4	:	0	19	:
Don't need	19	19	14	45	:	24	34	:	:	38	39
Equipment costs	44	24	:	36	55	48	24	:	7	31	30
Access costs	32	20	:	23	56	26	23	:	9	30	:
Lack skills	17	9	:	:	:	14	18	:	:	32	30
Physical disability	:	0	:	:	:	0	0	:	:	0	:
Privacy or security concerns	:	0	:	:	:	1	17	:	:	25	:
Other reason	16	0	:	9	:	9	0	:	:	0	24

Annex 10: Reasons for not having taken a computer course on computer use recently, 2007 (E2)

Percentage share of individuals who have used a computer, but have not taken a computer course within the last 3 years (other category not shown)

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Skills are sufficient	46	44	70	31	61	47	60	66	54	41	65	49	56	61	36	49	34	40	:	48	62	40	18	42	36	53	33	38	30
Rarely use computers	21	29	15	12	26	30	36	14	21	28	19	14	18	23	28	19	15	29	:	45	22	29	33	20	27	30	23	18	28
Lack of time	13	18	3	9	3	12	9	7	8	12	9	10	11	14	29	18	19	17	:	11	15	22	24	11	21	7	16	21	22
Course costs	6	7	1	1	0	2	2	0	2	5	2	7	2	17	7	4	8	5	:	5	12	7	8	4	6	1	9	10	:
No suitable offer available	3	4	1	4	1	5	3	2	:	3	2	3	2	8	6	3	2	5	:	2	4	2	3	3	3	1	7	3	1
Courses are too difficult	1	1	0	1	0	:	1	1	:	2	0	1	2	5	1	1	1	1	:	3	2	2	4	1	2	0	1	1	4
Aged 16-24																													
Skills are sufficient	57	70	85	68	75	77	80	71	65	58	76	64	71	66	46	51	40	34	:	61	63	61	20	53	44	44	40	39	33
Rarely use computers	13	15	6	5	13	13	12	7	15	16	13	:	10	13	18	15	16	32	:	37	16	24	28	14	15	41	12	15	17
Lack of time	11	9	1	5	1	4	6	4	:	12	:	7	4	9	27	13	20	12	:	5	15	12	16	6	24	9	13	14	20
Course costs	8	3	1	1	0	2	5	1	:	12	:	:	2	16	8	11	14	7	:	3	15	6	13	7	9	1	23	16	39
No suitable offer available	3	3	0	2	2	2	2	0	:	:	:	:	1	9	6	4	3	8	:	1	3	1	:	2	3	0	8	4	1
Courses are too difficult	1	1	0	0	0	:	0	3	:	:	:	:	2	:	1	1	1	1	:	0	3	2	4	0	1	0	1	:	4
Aged 25-54																													
Skills are sufficient	46	45	72	28	66	49	62	68	56	41	67	49	56	59	34	51	33	41	:	47	61	38	18	41	37	55	33	38	31
Rarely use computers	20	28	14	10	21	27	25	15	19	27	18	13	17	24	29	18	14	27	:	42	21	29	32	21	26	28	23	18	29
Lack of time	16	20	4	11	3	15	11	8	:	14	:	13	14	17	31	21	20	19	:	13	17	24	27	13	23	8	18	24	24
Course costs	6	8	1	2	0	3	3	0	:	7	:	8	2	:	6	3	8	5	:	5	12	7	8	7	6	2	10	9	16
No suitable offer available	3	4	1	3	2	6	4	2	:	:	:	:	2	9	6	3	2	5	:	2	5	2	3	4	3	1	7	3	2
Courses are too difficult	1	1	0	0	0	:	1	0	:	:	:	:	1	:	2	1	1	1	:	4	2	2	4	2	2	0	1	1	4
Aged 55-64																													
Skills are sufficient	42	30	59	18	51	27	52	66	53	57	32	41	49	64	31	43	30	43	:	37	66	35	21	21	32	57	30	34	26
Rarely use computers	26	39	24	21	33	43	44	14	22	24	35	18	24	34	37	29	15	34	:	67	27	33	41	27	34	35	30	30	43
Lack of time	8	16	4	6	3	12	9	8	:	:	9	6	7	:	20	11	11	7	:	2	7	14	17	7	10	4	10	14	9
Course costs	4	10	2	1	0	2	4	0	:	:	9	:	1	:	5	4	11	2	:	8	11	12	4	13	8	1	12	5	21
No suitable offer available	2	2	0	5	0	6	3	0	:	:	:	:	2	:	5	2	2	5	:	1	2	2	3	6	3	2	4	:	:
Courses are too difficult	1	2	0	2	0	:	1	2	:	:	:	:	1	:	1	2	1	3	:	2	1	6	4	3	3	1	1	:	5
Aged 65-74																													
Skills are sufficient	32	19	49	4	30	26	47	45	28	42	21	34	37	55	21	34	31	34	:	45	58	20	11	19	11	40	:	24	9
Rarely use computers	39	38	28	23	52	52	:	26	39	40	54	24	32	63	52	35	19	51	:	51	44	56	42	42	54	51	:	24	58
Lack of time	4	16	1	7	1	3	2	5	:	:	:	:	3	:	8	5	11	1	:	4	2	6	:	1	3	3	:	:	:
Course costs	3	6	2	2	1	1	2	0	:	:	:	:	1	:	2	2	12	0	:	6	11	11	:	4	8	0	:	:	:
No suitable offer available	2	9	0	7	0	4	2	3	:	:	:	:	2	:	2	3	2	0	:	0	5	0	:	1	1	0	:	:	:
Courses are too difficult	1	2	2	3	1	:	1	3	:	:	:	:	5	:	1	3	1	0	:	6	3	5	:	0	6	0	:	0	7

Women																															
Skills are sufficient	42	40	68	24	59	44	57	57	51	36	61	40	52	60	32	47	29	39	:	48	59	39	15	39	37	54	31	36	31		
Rarely use computers	23	29	17	14	26	34	39	18	22	30	23	16	19	26	29	21	16	31	:	41	23	30	35	21	26	29	24	17	29		
Lack of time	13	17	3	10	3	12	10	10	8	14	:	10	11	13	31	18	18	18	:	12	16	21	24	10	19	7	15	21	21		
Course costs	7	3	0	0	0	3	3	0	:	:	:	9	2	31	8	14	26	7	:	2	13	3	9	10	7	1	9	12	30		
No suitable offer available	3	4	1	5	2	6	4	2	:	3	:	3	2	8	6	3	2	5	:	2	4	2	2	3	3	1	7	4	2		
Courses are too difficult	1	1	0	1	0	:	1	1	:	2	:	:	2	5	2	1	1	1	:	4	2	2	4	1	3	0	1	1	4		
Men																															
Skills are sufficient	50	47	73	37	63	50	64	75	58	45	69	56	60	62	39	52	37	42	:	47	64	41	21	45	35	53	35	39	30		
Rarely use computers	20	28	13	10	25	27	33	11	20	26	17	12	17	21	28	17	14	27	:	47	21	29	32	19	28	32	22	20	28		
Lack of time	13	19	3	8	2	12	8	5	7	11	:	10	11	15	27	18	20	16	:	9	14	22	24	12	23	8	16	21	22		
Course costs	5	2	0	2	0	2	0	0	:	:	:	5	2	25	5	6	17	4	:	3	6	5	6	12	3	2	7	8	33		
No suitable offer available	3	3	1	3	1	5	3	2	:	3	:	3	2	9	5	3	2	5	:	2	5	2	4	4	2	0	6	3	1		
Courses are too difficult	1	1	0	1	0	:	1	1	:	:	:	:	2	5	1	1	1	1	:	2	2	2	3	1	2	0	1	1	4		
Lower educational level																															
Skills are sufficient	36	33	58	37	48	44	54	53	33	31	55	42	41	49	22	30	28	21	:	24	43	27	8	40	11	20	26	34	16		
Rarely use computers	31	39	24	18	37	36	62	23	34	39	27	14	25	31	42	28	23	49	:	60	35	29	38	20	23	62	17	16	31		
Lack of time	14	16	3	12	2	7	7	8	:	12	:	9	11	16	29	17	26	13	:	18	18	23	9	9	31	4	11	7	20		
Course costs	8	6	1	2	0	2	2	0	:	:	:	9	4	:	7	1	3	6	:	5	6	31	14	4	9	1	8	16	6		
No suitable offer available	3	3	1	4	2	3	2	2	:	3	:	:	3	11	5	3	2	4	:	0	5	3	:	3	5	0	6	3	1		
Courses are too difficult	2	1	1	0	0	:	0	2	:	2	:	:	4	7	2	4	1	1	:	8	3	6	11	1	4	0	3	:	6		
Middle educational level																															
Skills are sufficient	44	40	70	27	63	43	59	72	51	46	65	47	54	74	37	48	34	35	:	46	63	27	16	39	27	41	28	29	23		
Rarely use computers	21	28	15	14	24	35	37	11	23	21	20	15	19	13	25	20	13	30	:	47	21	38	35	22	33	41	27	22	33		
Lack of time	14	21	3	8	3	13	10	8	9	12	:	11	12	13	31	18	18	19	:	10	15	25	25	11	23	8	17	25	23		
Course costs	6	6	1	1	0	2	1	0	:	6	:	7	2	8	8	4	5	7	:	4	9	4	8	6	2	1	4	12	10		
No suitable offer available	3	5	0	4	1	5	3	1	:	:	:	2	1	6	7	3	2	6	:	3	4	2	3	4	3	0	7	3	1		
Courses are too difficult	1	2	0	1	0	:	1	0	:	:	:	:	1	:	1	1	0	1	:	3	2	2	4	2	2	1	1	1	5		
Higher educational level																															
Skills are sufficient	61	69	83	31	75	58	67	82	73	55	78	62	71	81	49	64	42	54	:	71	78	58	33	62	60	68	54	53	61		
Rarely use computers	11	11	5	4	13	16	15	4	9	12	12	9	11	11	18	12	8	19	:	25	11	19	22	8	13	18	12	13	12		
Lack of time	12	14	3	8	4	14	8	5	6	13	:	8	10	10	27	17	13	16	:	9	12	17	26	11	14	8	14	18	18		
Course costs	3	9	0	1	1	3	3	0	:	4	:	4	1	7	5	4	7	3	:	4	10	4	4	7	6	2	8	5	10		
No suitable offer available	3	2	1	3	1	7	5	2	:	:	:	3	1	:	5	3	2	3	:	1	3	2	3	2	2	1	5	3	2		
Courses are too difficult	1	0	0	0	0	:	1	1	:	:	:	:	0	:	1	0	0	1	:	1	1	1	:	0	1	0	0	:	2		
Densely populated areas																															
Skills are sufficient	48	:	72	35	67	55	62	66	53	43	70	52	56	62	40	53	35	44	:	63	70	49	20	42	40	60	39	43	35		
Rarely use computers	19	:	13	9	20	23	22	14	21	26	14	12	17	21	25	16	13	26	:	37	16	23	31	23	25	28	19	16	25		
Lack of time	12	:	3	9	2	11	11	8	8	12	:	8	10	14	27	17	18	15	:	13	12	18	22	8	18	6	14	21	22		
Course costs	6	:	0	3	0	3	3	0	:	:	:	7	3	14	6	2	12	4	:	4	20	10	7	6	8	2	9	10	30		
No suitable offer available	3	:	0	4	2	4	3	1	:	3	:	3	2	7	5	3	2	5	:	3	4	1	3	3	1	1	6	3	2		
Courses are too difficult	1	:	0	0	0	:	1	2	:	1	:	:	2	6	1	1	0	0	:	4	1	2	3	1	2	0	1	1	4		
Intermediate density																															
Skills are sufficient	47	48	72	28	61	46	70	68	57	41	67	47	57	60	32	49	33	35	:	45	59	:	17	:	:	41	28	42	:		
Rarely use computers	20	26	14	12	25	33	28	12	19	31	20	15	18	25	32	20	16	26	:	41	26	:	37	:	:	36	26	17	:		
Lack of time	14	16	2	10	4	8	9	7	7	13	:	11	12	14	31	19	20	29	:	9	14	:	26	:	:	5	22	19	:		
Course costs	6	3	1	3	0	1	4	0	:	6	:	7	1	15	8	4	9	6	:	3	11	:	9	:	:	0	11	9	:		
No suitable offer available	3	3	1	7	2	2	2	2	:	:	:	3	2	9	7	2	2	13	:	2	3	:	4	:	:	0	5	4	:		
Courses are too difficult	1	1	0	0	0	:	0	1	:	:	:	:	1	:	1	1	1	2	:	2	2	:	4	:	:	0	2	0	:		

Thinly populated areas																															
Skills are sufficient	41	36	67	30	57	44	57	65	56	38	60	41	50	61	30	45	31	37	:	43	54	30	18	41	30	39	28	26	15		
Rarely use computers	26	34	18	14	30	33	43	18	21	31	24	16	23	27	34	22	17	32	:	51	25	37	34	18	27	35	26	24	38		
Lack of time	14	21	4	8	3	14	7	6	:	13	:	12	15	12	31	18	21	18	:	11	19	25	26	12	25	13	16	20	22		
Course costs	6	6	1	1	0	2	2	0	:	:	:	7	1	12	6	6	10	6	:	7	13	11	8	7	:	2	10	11	:		
No suitable offer available	4	5	1	2	1	7	4	3	:	3	:	:	2	11	7	3	3	4	:	2	6	3	3	4	6	0	8	4	1		
Courses are too difficult	1	2	0	1	0	:	1	1	:	:	:	:	0	:	1	1	1	2	:	3	3	2	4	1	2	1	1	2	5		
Objective 1 regions																															
Skills are sufficient	36	44	67	:	:	:	:	:	:	:	:	39	47	60	32	:	33	40	:	48	58	40	19	41	36	:	33	38	30			
Rarely use computers	24	29	15	:	:	:	:	:	:	:	:	17	23	25	31	:	17	29	:	45	25	29	33	20	27	:	23	18	28			
Lack of time	18	18	4	:	:	:	:	:	:	:	:	12	13	15	32	:	23	17	:	11	15	22	24	12	21	:	16	21	22			
Course costs	10	8	1	:	:	:	:	:	:	:	:	9	3	9	8	:	10	5	:	5	13	6	8	7	6	:	9	10	13			
No suitable offer available	5	4	2	:	:	:	:	:	:	:	:	:	3	10	8	:	3	5	:	2	5	2	3	4	3	:	7	3	1			
Courses are too difficult	2	1	0	:	:	:	:	:	:	:	:	:	1	4	2	:	1	1	:	3	2	2	4	1	2	:	1	1	4			
Other regions																															
Skills are sufficient	51	:	70	:	61	47	60	66	54	:	:	50	57	64	38	49	34	:	:	:	69	:	15	46	:	53	:	:	:			
Rarely use computers	18	:	15	:	26	30	36	14	21	:	:	13	17	20	27	19	14	:	:	:	16	:	34	22	:	30	:	:	:			
Lack of time	11	:	3	:	3	12	9	7	8	:	:	10	11	13	27	18	18	:	:	:	14	:	27	5	:	7	:	:	:			
Course costs	4	:	3	:	0	2	2	0	:	:	:	7	2	8	6	3	10	:	:	:	10	:	8	7	:	1	:	:	:			
No suitable offer available	2	:	1	:	1	5	3	2	:	:	:	3	2	:	5	3	2	:	:	:	3	:	5	1	:	1	:	:	:			
Courses are too difficult	1	:	0	:	0	:	1	1	:	:	:	:	2	7	1	1	1	:	:	:	1	:	2	1	:	0	:	:	:			
Students																															
Skills are sufficient	62	72	92	72	75	81	77	77	:	:	88	70	74	75	56	61	44	40	:	88	76	93	32	57	62	46	53	42	42		
Rarely use computers	8	8	2	4	11	8	8	4	:	:	4	:	7	:	10	6	13	26	:	10	7	5	:	10	8	32	5	8	5		
Lack of time	11	6	1	6	2	3	6	4	:	:	:	:	5	7	24	13	20	14	:	6	13	1	:	4	18	8	8	12	20		
Course costs	7	10	0	1	0	3	4	0	:	:	:	:	2	7	6	4	6	7	:	9	32	89	13	5	38	9	26	16	21		
No suitable offer available	4	1	0	4	2	4	2	0	:	:	:	:	1	9	6	0	4	18	:	1	2	0	:	2	2	0	6	3	0		
Courses are too difficult	1	1	0	0	0	:	3	3	:	:	:	:	0	:	1	0	1	0	:	0	1	0	:	0	0	0	:	:	3		
(Self-)Employed																															
Skills are sufficient	48	43	75	31	:	47	61	71	61	43	71	53	60	61	37	54	34	43	:	50	64	42	20	43	38	57	35	39	32		
Rarely use computers	19	30	11	10	:	28	27	13	18	26	16	11	16	21	27	16	13	25	:	43	18	27	33	20	26	26	21	19	29		
Lack of time	16	21	4	10	:	15	11	7	9	15	:	13	14	18	32	20	20	19	:	11	17	23	27	14	22	8	19	24	24		
Course costs	5	11	2	2	:	2	1	0	:	2	:	5	1	:	6	2	3	5	:	1	4	2	7	2	3	1	3	9	4		
No suitable offer available	3	4	1	3	:	5	4	2	:	2	:	3	1	8	6	2	2	4	:	1	5	2	3	4	2	1	7	3	2		
Courses are too difficult	1	1	0	1	:	:	1	1	:	1	:	:	1	5	1	1	0	1	:	3	2	2	4	1	2	1	1	1	4		
Unemployed																															
Skills are sufficient	37	50	70	52	58	40	63	50	:	46	:	36	44	53	28	37	32	25	:	22	40	24	:	23	19	50	27	28	12		
Rarely use computers	23	34	16	23	31	42	25	25	:	28	:	16	25	31	35	23	20	46	:	47	36	40	26	30	22	48	27	24	28		
Lack of time	9	0	3	0	2	7	4	9	:	:	:	:	6	:	24	9	14	3	:	20	10	11	:	6	15	3	8	7	14		
Course costs	15	3	1	2	0	3	2	0	:	:	:	22	5	27	10	6	22	12	:	0	5	0	22	13	2	4	3	18	28		
No suitable offer available	4	0	0	8	2	4	5	1	:	:	:	:	3	:	7	5	3	11	:	7	7	2	:	8	10	0	6	5	:		
Courses are too difficult	2	0	1	0	0	:	1	1	:	:	:	:	4	:	3	0	1	0	:	8	3	2	:	2	5	0	1	:	4		
Retired or inactive																															
Skills are sufficient	33	18	51	14	35	33	52	55	36	28	45	34	40	51	21	34	24	30	:	29	54	22	10	20	19	31	21	23	13		
Rarely use computers	34	40	29	21	47	46	81	19	32	42	36	23	28	57	48	32	24	45	:	69	37	47	39	30	37	57	35	30	47		
Lack of time	7	12	2	7	2	6	3	7	6	6	:	5	5	:	18	13	12	12	:	3	10	13	18	7	11	6	10	9	10		
Course costs	5	6	1	1	0	2	0	0	:	:	:	8	3	:	6	2	9	3	:	2	5	2	8	2	3	0	3	5	9		
No suitable offer available	3	3	1	5	1	7	2	2	:	:	:	:	3	:	6	4	3	2	:	1	3	1	:	3	3	1	6	:	1		
Courses are too difficult	1	1	1	2	1	:	1	3	:	:	:	:	4	:	2	2	1	1	:	3	2	5	4	1	4	0	2	:	7		

Manual workers																															
Skills are sufficient	34	32	60	34	52	40	53	47	43	34	:	39	45	50	19	42	:	22	:	29	49	54	10	25	21	19	19	23	14
Rarely use computers	31	48	25	18	35	40	41	34	30	39	:	20	24	37	41	21	:	42	:	60	30	20	42	34	40	64	31	28	44
Lack of time	19	22	5	13	3	14	10	9	10	15	:	16	18	19	37	24	:	19	:	14	20	20	24	17	27	9	22	28	24
Course costs	7	6	0	1	0	2	3	0	:	6	:	6	3	15	9	3	:	5	:	4	12	6	9	7	5	2	11	12	30
No suitable offer available	3	4	0	2	1	5	3	3	:	:	:	:	2	9	7	3	:	5	:	2	5	2	3	4	2	0	7	3	1
Courses are too difficult	2	0	0	1	0	:	1	0	:	:	:	:	2	5	3	2	:	1	:	4	3	1	6	2	3	1	2	:	6
Non-manual workers																															
Skills are sufficient	55	48	79	30	77	51	65	78	68	47	:	58	66	67	48	58	:	50	:	61	71	20	25	52	49	65	46	45	43
Rarely use computers	13	21	8	7	13	20	20	6	13	19	:	8	13	13	18	14	:	19	:	34	13	42	28	13	19	18	14	15	20
Lack of time	14	20	3	9	3	17	11	7	8	15	:	11	13	17	28	19	:	19	:	10	15	29	28	12	19	7	17	23	24
Course costs	5	8	0	1	0	3	3	0	:	6	:	5	1	9	5	3	:	5	:	4	11	9	6	6	4	1	8	8	10
No suitable offer available	3	4	1	4	2	5	5	2	:	3	:	3	1	7	5	2	:	4	:	1	5	2	3	3	2	1	7	3	2
Courses are too difficult	1	1	0	0	0	:	1	1	:	:	:	:	0	5	1	1	:	1	:	2	1	3	2	1	1	0	1	1	3

Annex 11: Perceived sufficiency of computer skills, 2007 (E6)

Percentage share of all individuals (excepting retired/retired not interviewed). Note apparent issues with data in particular concerning NL, RO and GR.

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Perceived insufficient skills	25	36	2	27	22	22	24	32	22	37	26	25	33	40	30	29	15	17	22	30	23	46	14	35	40	27	31	41	12
Perceived sufficient skills	33	43	12	44	54	50	52	50	43	28	40	41	39	24	46	37	22	15	35	36	32	21	37	35	28	22	29	17	12
Computer skills perceived irrelevant	10	3	2	7	1	4	6	5	3	6	:	8	0	9	11	5	29	15	20	11	8	18	31	8	8	23	9	17	6
Aged 16-24																													
Perceived insufficient skills	24	28	2	18	15	7	11	23	9	40	20	20	33	33	30	27	25	38	24	17	25	37	21	21	34	32	27	48	24
Perceived sufficient skills	54	64	24	70	81	82	81	74	57	49	69	66	63	53	65	54	43	34	57	63	45	38	66	51	53	35	59	33	20
Computer skills perceived irrelevant	11	3	5	5	2	3	5	3	:	10	:	12	0	10	5	5	28	18	12	20	21	26	12	24	4	20	10	15	16
Aged 25-54																													
Perceived insufficient skills	32	39	3	32	26	26	28	37	27	47	35	33	40	52	38	33	19	18	27	40	29	60	17	47	51	33	44	53	12
Perceived sufficient skills	40	46	13	51	68	63	62	58	52	34	48	52	48	27	51	42	28	17	41	44	39	23	42	41	31	27	31	20	13
Computer skills perceived irrelevant	11	3	1	7	1	5	5	4	:	7	:	7	0	9	10	5	37	20	21	12	4	17	40	4	10	26	10	22	4
Aged 55-64																													
Perceived insufficient skills	18	44	0	29	32	38	40	35	27	15	23	20	28	33	19	31	6	6	15	20	13	38	5	23	38	19	15	25	3
Perceived sufficient skills	15	27	3	20	30	20	29	21	26	16	8	20	16	8	37	11	6	3	14	7	16	6	16	9	8	4	7	5	2
Computer skills perceived irrelevant	11	4	1	15	0	3	11	7	6	0	6	13	0	10	23	8	23	7	35	8	11	22	32	6	13	27	6	17	1
Aged 65-74																													
Perceived insufficient skills	2	11	0	3	2	2	1	13	0	1	0	0	1	5	2	6	1	2	4	3	3	3	0	0	3	1	0	1	0
Perceived sufficient skills	2	6	0	3	1	0	0	2	0	0	0	0	1	0	8	2	0	1	4	1	3	0	0	1	1	0	0	1	0
Computer skills perceived irrelevant	3	4	0	0	0	0	1	10	0	0	0	0	0	3	12	3	4	3	11	1	10	2	4	1	2	3	0	1	0
Women																													
Perceived insufficient skills	25	36	2	28	23	23	27	41	21	39	25	27	32	37	31	23	14	16	21	26	22	45	15	32	36	24	29	39	11
Perceived sufficient skills	30	40	11	40	51	49	49	41	38	25	34	37	35	22	45	34	19	14	34	36	32	19	34	33	27	23	27	17	11
Computer skills perceived irrelevant	9	2	1	8	1	3	5	6	3	6	:	8	0	7	13	3	22	14	17	11	8	15	28	7	7	17	7	15	5
Men																													
Perceived insufficient skills	25	35	2	25	22	21	22	22	23	34	27	22	33	45	29	36	16	17	23	33	23	46	13	39	44	30	34	44	12
Perceived sufficient skills	36	46	12	48	57	51	54	59	48	31	47	46	44	26	47	39	26	16	37	37	32	22	40	37	30	22	32	17	12
Computer skills perceived irrelevant	11	4	2	7	1	4	6	3	4	6	:	8	0	10	9	7	35	17	23	11	8	20	34	9	9	29	10	19	6
Lower educational level																													
Perceived insufficient skills	24	42	2	27	26	21	28	39	22	37	26	25	38	46	29	36	10	9	18	34	21	28	14	28	33	21	24	34	7
Perceived sufficient skills	18	31	9	34	40	34	37	36	12	15	26	32	19	12	33	12	8	3	26	13	10	9	29	15	15	6	19	5	3
Computer skills perceived irrelevant	14	2	3	7	1	3	9	6	7	7	:	10	0	9	17	8	34	5	21	14	7	25	32	20	9	29	13	22	6
Middle educational level																													
Perceived insufficient skills	28	40	2	30	22	28	29	32	26	41	27	27	36	28	37	31	21	25	24	33	28	57	15	40	47	35	37	48	14
Perceived sufficient skills	36	40	12	38	57	50	48	55	43	41	41	42	44	57	52	40	35	19	30	36	41	13	34	37	23	18	25	15	10
Computer skills perceived irrelevant	9	4	1	10	1	4	6	3	2	5	:	7	0	7	6	4	24	18	24	12	9	19	34	5	9	24	8	18	5

Higher educational level																													
Perceived insufficient skills	20	22	1	21	16	14	15	18	15	32	20	19	21	20	26	18	20	19	20	11	16	38	8	20	25	25	17	33	17
Perceived sufficient skills	57	69	15	62	72	65	68	70	66	52	56	54	63	62	65	63	49	33	52	73	67	49	72	66	60	48	62	47	52
Computer skills perceived irrelevant	6	3	1	4	0	3	4	4	:	6	:	7	0	:	4	3	18	32	11	4	9	6	7	2	3	15	4	5	9
Densely populated areas																													
Perceived insufficient skills	24	:	2	24	20	15	19	32	22	36	20	23	32	37	28	22	15	19	23	21	21	42	12	34	38	27	25	38	15
Perceived sufficient skills	36	:	14	52	60	61	61	50	43	29	48	43	40	29	50	48	25	20	35	44	44	30	45	39	33	28	36	27	18
Computer skills perceived irrelevant	9	:	1	7	1	3	5	5	3	6	:	7	0	10	10	4	27	18	23	10	9	15	25	8	8	20	8	15	8
Intermediate density																													
Perceived insufficient skills	25	33	2	25	24	19	23	:	22	39	26	26	32	44	32	30	15	17	26	27	27	30	16	:	:	25	32	38	:
Perceived sufficient skills	34	48	11	51	53	55	55	:	43	28	40	41	39	21	43	35	22	11	43	42	28	50	34	:	:	20	26	16	:
Computer skills perceived irrelevant	12	3	1	5	0	4	5	:	:	9	:	7	0	9	12	6	30	14	:	12	9	5	31	:	:	30	9	20	:
Thinly populated areas																													
Perceived insufficient skills	27	40	2	28	23	27	27	35	21	38	30	29	40	41	32	37	15	15	21	35	22	48	15	35	41	28	37	44	7
Perceived sufficient skills	27	34	8	38	51	42	47	48	40	26	35	37	30	21	40	27	18	12	35	30	24	13	32	33	23	12	24	9	2
Computer skills perceived irrelevant	10	4	2	8	1	4	6	5	:	6	:	9	0	5	14	6	31	13	18	11	7	19	35	8	8	27	9	18	2
Objective 1 regions																													
Perceived insufficient skills	26	36	4	:	:	:	:	:	27	:	:	27	42	43	31	:	13	17	22	30	24	46	14	36	40	:	31	41	12
Perceived sufficient skills	26	43	6	:	:	:	:	:	35	:	:	36	29	22	43	:	18	15	35	36	28	21	35	34	28	:	29	17	12
Computer skills perceived irrelevant	14	3	0	:	:	:	:	:	:	:	:	8	0	8	14	:	32	15	20	11	8	18	32	8	8	:	9	17	6
Other regions																													
Perceived insufficient skills	22	:	2	:	22	22	24	32	22	:	:	24	31	33	30	29	16	:	:	:	21	:	11	29	:	27	:	:	:
Perceived sufficient skills	39	:	12	:	54	50	52	50	43	:	:	42	41	31	48	37	24	:	:	:	42	:	54	40	:	22	:	:	:
Computer skills perceived irrelevant	9	:	2	:	1	4	6	5	4	:	:	8	0	10	10	5	27	:	:	:	9	:	18	10	:	23	:	:	:
Students																													
Perceived insufficient skills	23	26	2	22	14	6	11	21	:	36	9	18	34	23	27	18	28	38	26	9	21	28	20	16	37	29	24	45	28
Perceived sufficient skills	54	71	28	74	85	82	79	76	:	50	86	66	66	62	69	69	51	40	59	69	48	32	74	49	58	46	63	45	28
Computer skills perceived irrelevant	13	3	6	4	2	2	7	3	:	13	:	16	0	15	4	8	20	18	15	22	28	40	6	35	6	26	14	10	27
(Self-)Employed																													
Perceived insufficient skills	33	43	2	35	:	31	31	34	32	47	40	30	44	59	36	42	23	19	28	40	31	58	16	49	54	39	49	54	14
Perceived sufficient skills	44	44	14	55	:	59	59	62	63	34	55	56	56	30	55	48	32	18	45	48	45	27	45	45	36	28	39	24	15
Computer skills perceived irrelevant	13	3	2	10	:	5	6	4	5	6	:	9	0	12	9	7	46	23	27	13	3	15	37	5	10	33	12	22	5
Unemployed																													
Perceived insufficient skills	39	33	15	33	37	40	24	58	39	42	:	38	67	62	38	59	15	28	37	58	25	72	20	68	69	37	60	60	14
Perceived sufficient skills	34	34	64	54	62	49	68	26	52	37	:	39	33	28	51	34	30	27	28	27	17	9	20	27	10	41	23	7	7
Computer skills perceived irrelevant	17	8	11	14	1	2	3	11	:	8	:	7	0	9	11	6	54	4	35	15	2	18	59	5	21	22	17	33	3
Retired or inactive																													
Perceived insufficient skills	6	0	0	0	0	5	9	4	:	13	:	12	0	0	17	0	:	7	:	8	10	17	6	0	0	0	0	0	1
Perceived sufficient skills	4	0	0	0	0	11	10	4	:	5	:	8	0	0	21	0	:	3	:	1	8	2	6	0	0	0	0	0	1
Computer skills perceived irrelevant	4	0	0	0	0	0	4	4	:	3	:	4	0	0	17	0	:	5	:	2	10	15	21	0	0	0	0	0	1
Manual workers																													
Perceived insufficient skills	42	53	3	46	47	43	44	60	46	53	:	40	66	73	44	58	:	15	30	65	36	50	17	71	67	48	66	61	9
Perceived sufficient skills	25	26	9	39	51	45	40	31	43	18	:	35	34	13	41	29	:	6	22	15	19	43	20	20	16	4	17	6	2
Computer skills perceived irrelevant	17	5	4	15	1	5	10	9	10	8	:	11	0	15	15	10	:	10	47	20	4	6	61	9	17	47	17	32	2
Non-manual workers																													
Perceived insufficient skills	29	40	2	32	22	25	26	26	26	44	:	27	36	46	30	35	:	21	27	27	27	67	16	36	44	33	34	48	21
Perceived sufficient skills	55	51	15	59	77	66	66	72	70	43	:	63	64	45	65	57	:	24	61	64	60	9	62	60	51	43	60	38	32
Computer skills perceived irrelevant	9	3	1	8	1	5	5	2	3	6	:	8	0	9	5	6	:	30	12	9	3	24	20	4	5	24	6	13	8

Annex 12: Would you like to use the internet more? 2007 (C8)

Percentage share of all individuals/ Percentage share of individuals who have used the internet within the last 3 months

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Used the internet within last 3 months	57	90	84	85	81	79	80	78	72	64	67	72	67	40	52	57	38	33	64	53	52	49	49	56	55	38	44	31	24
% who would like to use more	33	23	12	31	26	23	18	27	27	32	20	40	21	42	34	34	36	34	16	21	40	47	29	41	33	41	42	45	69
Aged 16-24																													
Used the internet within last 3 months	85	100	99	95	98	100	93	96	90	92	87	95	91	85	86	74	66	70	93	89	84	90	82	87	94	65	85	62	54
% who would like to use more	36	11	14	21	17	17	11	29	22	28	23	40	26	49	30	38	39	36	22	22	52	54	48	51	47	43	50	55	79
Aged 25-54																													
Used the internet within last 3 months	65	94	93	93	91	91	87	85	79	72	76	84	76	42	60	64	46	39	74	62	59	53	55	64	62	42	46	35	25
% who would like to use more	33	23	13	32	25	22	18	28	28	32	19	40	21	41	35	32	35	33	13	21	39	45	24	37	27	40	38	42	63
Aged 55-64																													
Used the internet within last 3 months	38	83	69	70	72	62	72	65	59	42	46	56	47	17	21	29	20	9	32	20	29	16	25	19	25	15	17	10	6
% who would like to use more	31	34	11	34	35	32	22	27	29	36	18	39	19	26	28	41	37	31	15	17	28	40	14	38	25	38	37	33	51
Aged 65-74																													
Used the internet within last 3 months	16	50	43	49	39	28	41	29	33	15	22	26	19	4	6	15	5	2	14	7	8	4	7	4	6	4	:	2	0
% who would like to use more	33	42	10	44	29	34	26	9	30	40	19	41	22	50	25	47	43	12	:	6	23	36	20	23	9	12	:	:	36
Women																													
Used the internet within last 3 months	54	89	81	83	79	78	77	71	68	61	61	68	63	36	48	55	33	28	63	52	51	48	46	54	54	36	43	30	23
% who would like to use more	34	24	11	36	29	26	21	32	28	34	19	42	23	41	35	35	37	35	15	21	41	48	29	41	31	42	41	46	69
Men																													
Used the internet within last 3 months	61	91	87	88	84	80	83	85	76	66	73	76	70	44	56	59	44	39	64	55	53	50	51	58	57	40	46	31	26
% who would like to use more	32	22	14	27	22	21	15	23	26	29	21	39	20	43	32	34	36	33	17	20	40	47	30	40	35	39	42	44	68
Lower educational level																													
Used the internet within last 3 months	36	82	68	77	70	62	67	64	33	48	43	62	44	24	26	28	17	9	52	25	26	36	40	37	40	13	34	13	13
% who would like to use more	39	28	13	38	28	23	16	34	34	38	24	42	28	53	42	45	42	34	25	24	57	59	51	54	53	45	54	57	81
Middle educational level																													
Used the internet within last 3 months	63	92	91	84	84	81	81	89	77	83	70	72	74	81	72	63	57	41	60	56	66	39	45	58	51	35	39	29	23
% who would like to use more	34	24	13	33	25	24	20	25	28	27	20	41	21	38	35	35	36	37	18	23	39	50	27	39	30	42	40	46	70
Higher educational level																													
Used the internet within last 3 months	86	99	96	94	94	94	89	96	91	91	88	86	89	90	85	86	76	68	79	90	86	83	85	87	85	73	82	69	71
% who would like to use more	28	15	11	25	23	22	16	21	24	26	16	37	18	29	28	29	31	30	9	14	31	40	19	34	27	39	37	40	58
Densely populated areas																													
Used the internet within last 3 months	62	:	85	89	85	88	82	77	71	65	75	74	68	47	59	69	43	42	66	60	65	65	57	62	63	45	54	45	36
% who would like to use more	32	:	12	24	22	22	18	28	28	31	19	38	23	39	30	32	33	31	12	19	30	40	25	36	31	41	38	44	67
Intermediate density																													
Used the internet within last 3 months	59	91	86	90	81	83	79	78	73	65	67	73	67	36	50	55	36	27	77	58	50	:	46	:	:	34	38	29	:
% who would like to use more	33	21	13	34	27	21	20	26	24	31	19	40	19	47	36	30	38	50	34	18	44	:	30	:	:	42	43	37	:

Thinly populated areas																													
Used the internet within last 3 months	49	88	82	82	79	73	80	82	73	60	60	67	55	31	41	48	32	27	61	47	42	37	44	54	48	25	36	18	8
% who would like to use more	35	27	12	34	28	25	17	28	24	33	22	48	23	44	43	41	42	36	18	24	50	57	33	43	35	38	46	50	82
Objective 1 regions																													
Used the internet within last 3 months	41	90	86	:	:	:	:	:	67	:	:	63	56	36	46	:	29	33	64	53	47	49	46	55	55	:	44	31	24
% who would like to use more	43	23	15	:	:	:	:	:	38	:	:	51	25	45	38	:	41	34	16	21	46	47	31	41	33	:	42	45	69
Other regions																													
Used the internet within last 3 months	67	:	84	:	81	79	80	78	72	:	:	74	68	49	56	57	43	:	:	:	62	:	66	65	:	38	:	:	:
% who would like to use more	30	:	12	:	26	23	18	27	27	:	:	39	21	38	32	34	34	:	:	:	29	:	23	:	:	41	:	:	:
Students																													
Used the internet within last 3 months	92	100	100	95	97	100	93	98	93	96	97	98	95	97	96	94	79	82	98	98	93	99	93	92	97	82	93	87	78
% who would like to use more	37	11	14	28	17	16	12	25	:	27	20	39	28	45	25	31	38	36	23	18	49	53	52	51	52	42	50	57	81
(Self-)Employed																													
Used the internet within last 3 months	69	93	94	93	:	90	86	87	82	73	80	86	80	46	64	65	51	43	73	67	67	58	56	66	65	44	53	40	27
% who would like to use more	32	24	13	30	:	22	17	26	25	31	19	40	19	42	34	33	35	32	13	21	39	46	24	38	28	40	39	42	62
Unemployed																													
Used the internet within last 3 months	49	67	89	91	79	70	82	62	65	67	:	63	58	35	49	47	38	40	59	35	29	27	27	32	30	43	29	12	19
% who would like to use more	41	0	8	31	33	35	24	41	:	39	:	50	31	43	42	36	41	38	42	28	42	60	37	46	30	30	40	49	85
Retired or inactive																													
Used the internet within last 3 months	25	57	60	58	47	44	53	44	43	31	34	40	33	8	16	28	10	6	23	9	18	10	15	13	20	11	12	4	3
% who would like to use more	34	41	10	43	33	34	26	20	37	35	23	39	23	38	36	44	41	40	15	19	35	39	22	37	27	45	36	29	61
Manual workers																													
Used the internet within last 3 months	47	86	85	89	83	80	79	62	66	56	:	73	64	23	43	47	:	17	51	42	41	81	33	39	43	11	27	16	9
% who would like to use more	39	37	12	36	32	26	19	45	33	38	:	45	23	59	50	43	:	44	20	32	53	41	25	43	31	58	43	41	71
Non-manual workers																													
Used the internet within last 3 months	81	96	96	94	96	95	89	95	88	83	:	91	87	68	80	74	:	58	89	80	82	32	73	82	81	64	77	60	53
% who would like to use more	30	20	13	28	22	21	17	22	23	28	:	38	18	37	28	30	:	30	10	18	34	59	24	37	27	38	38	42	60

Annex 13: What are your barriers to more intensive use of the internet? 2007 (C9)

Percentage share of individuals who have used the Internet within the last 3 months and would like to use the Internet more, but don't (based on C8)

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Inadequate foreign language skills	16	7	1	18	9	30	19	6	:	31	3	20	11	17	13	2	16	3	:	13	13	30	5	19	20	8	10	23	30
Lack of time	58	43	40	62	52	67	58	68	51	61	56	49	55	64	76	37	65	62	:	71	82	73	65	59	62	75	55	61	71
Connection is too slow	18	9	7	27	10	17	20	16	13	19	14	26	7	15	15	27	24	16	:	28	11	14	4	12	12	17	13	12	9
Additional connection or per-volume download cost	16	2	3	11	5	10	7	8	5	5	12	26	10	26	17	3	28	22	:	18	33	10	24	22	2	13	11	26	8
Cost of online content	12	2	0	9	6	11	9	7	9	36	6	0	8	21	11	18	4	17	0	11	9	12	4	30	8	11	9	4	11
Content	5	3	3	19	10	6	6	5	:	20	3	4	3	3	6	1	2	2	:	3	2	3	:	2	1	2	2	1	1
Lack of skills or knowledge	14	26	11	46	35	31	32	17	21	11	13	15	16	17	21	11	12	8	:	18	6	20	5	2	15	12	8	7	10
Security or privacy concerns	18	4	9	24	10	29	28	16	10	26	8	33	9	17	12	2	12	12	:	30	5	8	3	3	2	19	5	5	3
None of the above	13	22	0	7	0	9	24	15	19	8	15	11	19	13	19	16	8	12	:	6	1	14	15	9	18	9	23	10	11
Aged 16-24																													
Inadequate foreign language skills	12	0	0	3	4	10	9	1	:	30	:	13	8	13	12	2	10	1	:	12	10	20	3	12	21	11	6	21	25
Lack of time	50	40	11	60	40	60	51	52	42	52	:	41	53	46	66	32	56	47	:	68	78	65	55	49	57	69	45	45	65
Connection is too slow	18	21	2	40	14	14	16	16	:	20	:	28	8	13	19	22	29	14	:	32	13	18	5	14	16	20	15	13	11
Additional connection or per-volume download cost	19	0	1	18	5	5	2	8	:	:	:	26	10	32	17	5	34	27	:	16	38	15	36	27	3	17	14	37	11
Cost of online content	14	6	1	6	9	9	7	7	:	19	:	:	6	27	12	27	5	24	:	13	12	18	8	37	10	14	11	6	16
Content	5	0	2	22	6	4	3	5	:	24	:	:	2	:	8	0	2	2	:	4	3	4	:	1	2	2	2	:	1
Lack of skills or knowledge	8	15	0	19	19	7	10	11	:	12	:	10	7	7	12	3	7	4	:	17	6	12	3	1	14	8	4	8	9
Security or privacy concerns	13	3	5	9	2	13	9	18	:	35	:	24	4	16	8	1	10	15	:	26	5	7	3	2	1	20	4	5	3
None of the above	19	27	0	10	0	22	38	26	35	:	:	16	25	23	29	20	14	18	:	6	2	19	17	12	20	14	30	12	14
Aged 25-54																													
Inadequate foreign language skills	16	7	1	16	9	25	16	8	:	31	:	19	11	:	13	2	16	4	:	12	14	36	6	22	20	7	12	24	33
Lack of time	64	44	47	69	56	75	69	72	56	68	:	56	59	74	80	41	70	68	:	74	84	79	73	65	66	78	65	71	77
Connection is too slow	18	9	8	25	8	16	18	15	:	20	:	26	7	:	15	29	23	17	:	28	9	12	3	11	9	16	12	11	8
Additional connection or per-volume download cost	15	3	3	11	4	10	8	7	:	:	:	25	10	:	17	3	26	21	:	20	30	6	16	19	2	11	9	19	5
Cost of online content	11	2	0	10	6	11	10	8	:	38	:	:	9	:	11	14	3	15	:	10	7	9	2	27	7	9	7	:	7
Content	5	4	3	17	10	5	7	6	:	17	:	:	3	:	6	1	2	2	:	2	2	3	:	2	1	2	2	:	:
Lack of skills or knowledge	14	22	8	43	31	26	32	16	:	:	:	:	15	:	22	11	11	9	:	17	6	23	6	3	14	12	9	6	11
Security or privacy concerns	18	6	8	26	10	28	29	16	:	24	:	34	11	:	13	3	12	11	:	28	5	9	3	3	3	19	6	5	3
None of the above	11	24	0	8	0	8	26	14	:	:	:	:	17	:	17	16	7	9	:	7	3	11	13	7	17	7	16	8	8

Aged 55-64																													
Inadequate foreign language skills	22	13	5	30	11	49	32	4	:	35	:	29	12	:	19	1	28	6	:	33	13	47	:	29	19	9	14	28	44
Lack of time	49	45	59	51	54	60	46	63	50	52	:	39	39	77	76	33	51	73	:	56	83	61	76	66	65	69	45	60	69
Connection is too slow	16	3	8	26	13	20	23	21	:	:	:	21	5	:	10	27	24	10	:	19	12	12	:	24	8	23	11	13	4
Additional connection or per-volume download cost	16	0	0	4	7	11	4	9	:	:	:	28	10	:	10	0	22	8	:	8	34	6	:	12	0	17	12	27	4
Cost of online content	14	0	0	10	6	12	6	3	:	50	:	:	9	:	11	14	4	11	:	18	11	6	0	14	3	14	12	:	5
Content	7	2	2	24	13	9	8	3	:	29	:	:	2	:	3	3	3	0	:	7	0	3	0	0	2	6	:	0	:
Lack of skills or knowledge	23	39	31	64	45	47	39	30	32	:	:	19	31	:	36	27	27	15	:	55	9	40	:	6	28	43	16	:	16
Security or privacy concerns	25	1	19	24	13	39	36	15	:	26	:	40	12	:	15	4	20	14	:	75	3	7	:	2	0	26	7	:	:
None of the above	10	16	0	2	0	6	16	8	:	:	:	:	15	:	12	5	4	20	:	0	4	16	:	8	6	3	23	:	14
Aged 65-74																													
Inadequate foreign language skills	22	6	0	31	9	59	22	0	:	:	:	:	18	:	12	3	29	0	:	0	8	60	0	0	0	0	:	:	:
Lack of time	28	38	18	30	23	28	18	100	:	:	:	:	34	:	37	10	31	35	:	100	65	:	:	14	40	50	:	:	:
Connection is too slow	22	6	18	19	9	24	31	19	:	:	:	:	7	:	28	29	24	0	:	0	25	:	:	18	0	50	:	:	:
Additional connection or per-volume download cost	17	0	11	7	8	17	10	19	:	:	:	:	8	:	10	1	32	0	:	0	30	:	:	20	0	0	:	:	:
Cost of online content	12	4	0	7	7	12	6	19	:	:	:	:	5	:	4	9	6	0	:	0	10	:	0	37	0	0	:	:	:
Content	5	0	8	14	4	5	2	0	:	:	:	:	5	:	14	0	:	0	:	0	11	:	0	0	0	0	:	:	:
Lack of skills or knowledge	30	35	53	78	54	72	45	19	:	:	:	:	34	:	44	38	38	65	:	0	10	:	:	17	73	0	:	:	:
Security or privacy concerns	24	0	20	32	6	40	23	19	:	:	:	38	15	:	9	3	15	0	:	100	0	:	0	0	0	0	:	:	:
None of the above	11	18	0	7	0	2	19	0	:	:	:	:	18	:	33	17	8	0	:	0	5	:	:	31	9	0	:	:	:
Women																													
Inadequate foreign language skills	15	6	0	16	10	28	19	5	:	34	:	17	11	16	12	2	12	3	:	14	11	30	5	16	21	7	9	23	30
Lack of time	60	44	46	63	52	69	59	68	55	63	:	51	55	61	75	38	67	59	:	70	83	72	65	59	62	80	56	62	72
Connection is too slow	16	6	10	27	8	17	15	15	12	15	:	25	7	13	11	29	22	13	:	30	10	13	3	12	10	16	11	9	8
Additional connection or per-volume download cost	16	1	5	10	5	12	5	6	:	4	:	27	9	26	15	4	26	22	:	17	33	9	25	20	2	11	11	26	8
Cost of online content	13	2	0	8	6	10	6	6	0	41	:	0	7	22	9	17	4	18	0	13	8	13	4	32	8	9	8	4	10
Content	5	2	4	16	10	5	6	3	:	19	:	:	2	:	5	0	1	1	:	0	2	3	:	1	2	2	1	:	1
Lack of skills or knowledge	16	33	20	49	40	30	36	18	25	10	:	15	17	18	22	12	13	10	:	26	6	21	6	3	17	13	9	8	10
Security or privacy concerns	18	5	10	25	9	34	29	18	9	26	:	32	11	17	12	3	11	16	:	35	5	9	4	3	3	18	5	4	3
None of the above	12	21	0	7	0	9	27	13	16	6	:	11	19	12	20	14	8	16	:	6	6	15	15	10	16	8	23	9	11
Men																													
Inadequate foreign language skills	17	9	1	20	8	34	20	8	:	28	:	23	10	18	14	3	19	3	:	11	14	31	4	21	20	10	10	24	30
Lack of time	57	42	35	61	50	64	56	67	48	59	:	47	55	66	77	36	62	64	:	72	81	74	65	60	61	69	54	60	71
Connection is too slow	20	11	5	26	13	18	27	17	14	23	:	26	7	16	19	25	26	18	:	27	11	16	4	13	14	19	15	14	11
Additional connection or per-volume download cost	17	3	1	11	4	8	9	9	:	6	:	25	11	25	18	2	29	22	:	20	32	11	24	23	3	15	11	26	8
Cost of online content	12	2	1	10	7	12	11	9	10	30	:	0	9	20	13	18	4	17	0	9	9	12	4	28	9	12	10	5	12
Content	6	3	2	22	9	7	7	7	:	21	:	5	3	:	7	1	2	2	:	5	2	4	:	2	1	3	3	:	1
Lack of skills or knowledge	13	19	4	42	29	32	27	16	16	11	:	15	14	16	20	10	11	6	:	10	7	18	5	2	12	12	6	5	10
Security or privacy concerns	18	4	9	24	11	23	27	15	11	26	:	35	8	17	12	2	13	9	:	25	5	7	2	3	1	21	5	5	3
None of the above	13	23	0	8	0	9	21	18	22	11	:	10	19	14	19	18	8	9	:	6	7	14	14	9	19	9	23	10	10

Lower educational level																											
Inadequate foreign language skills	22	10	0	22	14	38	33	10	:	40	:	20	14	23	17	3	21	2	:	28	16	24	:	19	24	15	8	22	30
Lack of time	53	39	31	65	47	57	45	66	:	60	:	42	49	56	70	29	61	67	:	78	75	58	43	49	49	61	36	38	62
Connection is too slow	17	9	5	27	12	18	15	9	:	16	:	24	8	13	14	21	23	17	:	27	12	15	5	15	15	12	14	11	12
Additional connection or per-volume download cost	17	0	2	7	6	11	6	6	:	5	:	28	11	27	15	6	28	21	:	31	40	15	38	29	4	12	15	35	11
Cost of online content	18	4	1	10	8	14	5	8	0	41	:	0	9	24	10	27	3	12	0	0	11	19	8	36	10	8	11	7	18
Content	8	4	4	20	7	6	5	6	:	22	:	:	3	:	7	1	2	4	:	0	2	3	0	0	0	5	1	:	1
Lack of skills or knowledge	15	30	18	49	40	39	38	19	:	10	:	12	19	21	25	13	15	9	:	17	10	18	4	0	17	9	6	9	12
Security or privacy concerns	17	3	15	24	12	24	33	18	:	24	:	29	8	16	11	2	10	16	:	28	3	8	:	4	1	14	3	6	1
None of the above	14	19	0	5	0	13	25	17	:	7	:	14	20	17	22	15	11	14	:	0	8	23	23	11	23	20	34	17	13
Middle educational level																											
Inadequate foreign language skills	15	7	1	18	7	34	19	4	:	25	:	20	11	10	13	2	15	5	:	13	13	34	6	18	20	12	11	26	35
Lack of time	58	46	42	61	57	68	60	68	52	57	:	51	56	70	79	39	66	60	:	70	84	75	70	61	62	74	58	62	71
Connection is too slow	18	6	7	26	9	15	20	22	13	22	:	26	5	12	17	27	24	18	:	27	11	13	3	12	12	17	12	13	9
Additional connection or per-volume download cost	18	3	2	15	4	10	7	10	:	:	:	26	11	24	19	1	28	22	:	20	31	8	22	22	2	12	11	26	8
Cost of online content	10	2	0	8	6	9	11	9	12	28	:	0	8	18	11	14	4	20	0	15	9	11	3	30	9	12	9	3	11
Content	4	1	2	18	13	5	5	7	:	21	:	4	2	:	7	1	2	1	:	3	2	3	:	2	2	0	2	:	1
Lack of skills or knowledge	15	26	7	48	32	31	31	17	22	13	:	15	13	10	22	12	11	7	:	19	6	23	6	3	15	15	9	8	12
Security or privacy concerns	18	4	5	23	8	28	22	13	9	28	:	34	9	16	11	3	13	12	:	30	5	6	4	2	2	20	5	4	3
None of the above	12	23	0	8	0	10	27	18	18	:	:	10	20	12	19	15	7	10	:	8	9	12	12	9	17	9	21	9	10
Higher educational level																											
Inadequate foreign language skills	12	3	2	12	6	20	13	0	:	19	:	18	6	:	11	2	13	1	:	2	8	29	:	18	16	4	9	20	17
Lack of time	64	48	47	62	48	71	61	71	59	67	:	54	61	78	79	39	67	63	:	70	87	78	86	69	73	79	65	70	82
Connection is too slow	19	14	10	29	9	20	24	23	15	22	:	27	8	22	15	31	27	13	:	33	9	16	:	13	10	19	16	10	8
Additional connection or per-volume download cost	13	5	5	8	4	9	7	9	:	:	:	23	7	24	16	4	27	23	:	2	27	8	:	12	2	14	9	22	5
Cost of online content	11	2	1	11	4	11	7	5	0	31	:	0	8	14	11	16	4	16	0	7	7	11	0	20	5	10	7	4	6
Content	5	5	2	19	9	6	9	1	:	15	:	:	4	:	4	0	2	1	:	5	3	3	:	1	2	3	3	:	1
Lack of skills or knowledge	13	17	8	39	31	25	30	13	16	9	:	17	16	11	16	9	12	8	:	16	3	17	:	1	11	11	6	4	5
Security or privacy concerns	19	8	9	26	10	33	33	17	:	28	:	37	11	21	13	2	13	11	:	34	8	10	:	4	4	20	6	6	4
None of the above	12	25	0	10	0	6	20	9	20	9	:	8	17	:	16	18	6	15	:	5	10	12	10	9	13	6	16	7	9
Densely populated areas																											
Inadequate foreign language skills	16	:	1	9	8	19	17	5	:	30	:	20	9	17	14	4	15	3	:	11	19	27	4	15	15	6	11	21	30
Lack of time	58	:	40	55	47	64	55	72	50	62	:	46	53	65	78	35	66	62	:	69	80	73	69	60	67	74	59	64	73
Connection is too slow	15	:	6	24	8	13	15	15	12	18	:	20	7	13	13	15	18	16	:	24	10	12	4	7	6	18	14	10	9
Additional connection or per-volume download cost	14	:	5	11	6	8	6	7	:	5	:	24	11	24	15	2	26	24	:	14	31	8	22	19	1	14	8	24	8
Cost of online content	12	:	0	10	6	10	9	7	10	34	:	0	9	19	11	18	3	17	0	9	11	8	0	29	4	11	9	5	10
Content	5	:	3	19	10	6	5	4	:	17	:	5	3	:	6	1	2	2	:	0	2	3	:	2	1	3	3	1	1
Lack of skills or knowledge	15	:	11	36	36	27	33	17	20	11	:	16	17	17	21	16	13	6	:	24	9	17	4	1	13	13	7	7	10
Security or privacy concerns	18	:	8	19	10	34	29	12	10	24	:	34	10	17	13	2	13	10	:	44	6	7	3	1	1	21	7	5	3
None of the above	13	:	0	8	0	10	20	11	20	8	:	13	19	11	17	21	8	15	:	7	11	14	11	13	18	8	20	9	10

Intermediate density																											
Inadequate foreign language skills	15	7	2	16	11	35	20	4	:	28	:	19	13	14	10	2	18	0	:	15	9	:	5	:	:	11	12	21	:
Lack of time	58	48	36	73	52	65	71	59	55	54	:	53	58	60	75	43	65	56	:	78	83	:	66	:	:	79	60	57	:
Connection is too slow	20	6	9	24	12	14	15	17	:	17	:	27	6	:	17	20	27	13	:	22	9	:	4	:	:	11	10	10	:
Additional connection or per-volume download cost	20	2	1	4	5	6	7	10	:	:	:	27	8	26	16	6	28	17	:	17	30	:	28	:	:	6	11	42	:
Cost of online content	8	3	0	7	8	5	10	6	0	33	:	0	7	22	11	17	4	26	0	5	6	:	7	:	:	6	8	0	:
Content	4	3	2	25	9	5	11	7	:	22	:	:	2	:	7	0	2	3	:	6	4	:	:	:	:	0	1	0	:
Lack of skills or knowledge	15	26	8	45	36	30	31	12	:	19	:	13	14	13	19	8	11	0	:	24	5	:	6	:	:	11	9	:	:
Security or privacy concerns	20	4	10	26	10	27	30	19	:	25	:	33	8	:	10	3	12	16	:	29	4	:	:	:	:	18	4	:	:
None of the above	12	23	0	10	0	7	21	21	:	:	:	9	18	18	21	19	8	16	:	5	12	:	10	:	:	12	19	:	:
Thinly populated areas																											
Inadequate foreign language skills	18	9	0	22	9	35	20	12	:	34	:	21	13	22	15	0	14	4	:	12	11	33	5	20	25	14	8	28	31
Lack of time	59	36	42	60	54	69	55	76	55	62	:	52	53	66	73	34	60	62	:	68	82	72	61	59	56	74	49	55	63
Connection is too slow	22	12	8	29	11	21	24	15	:	21	:	37	8	20	19	45	35	16	:	35	13	16	3	15	18	17	13	15	11
Additional connection or per-volume download cost	17	2	2	13	4	12	7	5	:	:	:	31	13	29	20	3	31	20	:	20	36	11	23	23	4	13	15	27	8
Cost of online content	15	2	0	10	6	13	8	9	0	40	:	0	5	23	11	17	5	17	0	16	9	17	5	31	12	12	9	3	16
Content	6	3	3	16	10	6	6	4	:	24	:	:	2	:	6	1	2	1	:	2	1	4	:	1	2	0	1	:	1
Lack of skills or knowledge	13	26	12	50	33	33	32	26	:	8	:	13	13	22	21	7	11	10	:	12	6	23	6	3	16	9	7	7	14
Security or privacy concerns	16	4	11	25	9	27	26	21	:	29	:	32	9	21	11	3	10	14	:	25	5	9	3	4	3	15	3	5	2
None of the above	12	21	0	6	0	9	27	12	:	9	:	:	23	:	21	8	9	9	:	7	13	15	20	8	17	9	26	11	12
Objective 1 regions																											
Inadequate foreign language skills	16	7	0	:	:	:	:	:	:	:	:	25	20	16	15	:	16	3	:	13	11	30	4	18	20	:	10	23	30
Lack of time	61	43	34	:	:	:	:	:	:	:	:	47	52	64	74	:	63	62	:	71	83	73	63	59	62	:	55	61	71
Connection is too slow	16	9	0	:	:	:	:	:	:	:	:	33	7	16	16	:	22	16	:	28	10	14	4	14	12	:	13	12	9
Additional connection or per-volume download cost	20	2	0	:	:	:	:	:	:	:	:	33	11	28	19	:	33	22	:	18	34	10	26	22	2	:	11	26	8
Cost of online content	10	2	0	:	:	:	:	:	0	:	:	0	9	22	12	:	6	17	0	11	9	12	5	30	8	:	9	4	11
Content	2	3	10	:	:	:	:	:	:	:	:	:	1	:	6	:	2	2	:	3	1	3	:	2	1	:	2	1	1
Lack of skills or knowledge	10	26	0	:	:	:	:	:	:	:	:	:	17	17	22	:	11	8	:	18	6	20	6	2	15	:	8	7	10
Security or privacy concerns	10	4	0	:	:	:	:	:	:	:	:	34	3	15	14	:	10	12	:	30	4	8	3	3	2	:	5	5	3
None of the above	14	22	0	:	:	:	:	:	:	:	:	:	20	13	21	:	9	12	:	6	14	14	15	9	18	:	23	10	11
Other regions																											
Inadequate foreign language skills	13	:	1	:	9	30	19	6	:	:	:	19	9	:	13	2	16	:	:	:	18	:	:	21	:	8	:	:	:
Lack of time	56	:	40	:	52	67	58	68	52	:	:	50	55	63	78	37	65	:	:	:	79	:	80	59	:	75	:	:	:
Connection is too slow	19	:	7	:	10	17	20	16	13	:	:	24	7	:	15	27	25	:	:	:	12	:	0	4	:	17	:	:	:
Additional connection or per-volume download cost	17	:	3	:	5	10	7	8	5	:	:	25	10	21	15	3	26	:	:	:	30	:	13	20	:	13	:	:	:
Cost of online content	6	:	0	:	6	11	9	7	8	:	:	0	8	19	11	18	3	:	:	:	8	:	0	34	:	11	:	:	:
Content	4	:	3	:	10	6	6	5	:	:	:	5	3	:	6	1	2	:	:	:	4	:	:	2	:	2	:	:	:
Lack of skills or knowledge	17	:	11	:	35	31	32	17	21	:	:	15	15	15	20	11	13	:	:	:	9	:	:	4	:	12	:	:	:
Security or privacy concerns	20	:	10	:	10	29	28	16	10	:	:	33	10	20	11	2	13	:	:	:	8	:	:	1	:	19	:	:	:
None of the above	13	:	0	:	0	9	24	15	19	:	:	11	19	:	18	16	8	:	:	:	15	:	9	9	:	9	:	:	:

Students																															
Inadequate foreign language skills	12	0	0	15	9	13	19	2	:	36	:	:	8	:	9	4	10	2	:	7	8	19	:	10	20	9	7	20	21
Lack of time	50	34	8	51	47	57	57	47	:	50	:	37	56	45	60	38	56	47	:	77	77	62	55	47	58	61	43	43	64
Connection is too slow	19	23	3	45	12	17	13	23	:	20	:	29	10	15	20	28	29	15	:	31	13	19	5	17	16	18	16	15	12
Additional connection or per-volume download cost	21	0	0	30	5	6	5	12	:	:	:	29	12	36	20	8	36	27	:	17	38	15	37	31	3	15	14	36	11
Cost of online content	12	4	0	5	6	11	2	11	:	16	:	:	6	27	8	27	4	23	:	12	13	19	8	39	14	14	11	5	16
Content	5	0	0	31	7	5	0	3	:	19	:	:	2	:	6	0	2	4	:	0	2	4	:	1	2	4	2	:	1
Lack of skills or knowledge	8	27	0	31	25	13	24	9	:	:	:	:	4	:	11	2	7	2	:	15	5	12	3	1	13	6	4	8	7
Security or privacy concerns	12	4	0	10	2	17	19	23	:	37	:	24	5	15	7	0	11	13	:	25	5	8	:	3	1	17	5	5	3
None of the above	20	20	0	10	0	24	39	23	:	:	:	19	24	23	35	15	15	19	:	5	16	19	17	14	20	18	31	14	14
(Self-)Employed																															
Inadequate foreign language skills	16	8	1	16	:	28	19	8	:	27	:	19	9	18	13	2	17	4	:	13	14	33	6	22	19	8	10	24	33
Lack of time	67	48	45	71	:	78	67	70	60	71	:	59	65	75	82	40	72	71	:	74	87	80	72	66	67	79	66	71	80
Connection is too slow	18	7	7	26	:	16	21	16	13	18	:	26	6	15	14	29	23	15	:	27	10	13	2	10	9	18	12	10	7
Additional connection or per-volume download cost	14	2	3	10	:	8	7	8	:	5	:	23	7	22	15	2	24	18	:	18	29	7	17	18	2	12	9	20	5
Cost of online content	11	2	0	10	:	9	9	8	8	35	:	0	7	18	11	15	3	13	0	8	7	11	2	26	6	10	6	3	7
Content	5	4	3	17	:	5	8	5	:	19	:	4	3	:	6	1	2	0	:	4	2	3	:	2	1	2	2	:	1
Lack of skills or knowledge	13	23	5	44	:	28	32	15	19	8	:	14	14	17	20	10	11	9	:	17	6	21	6	3	14	15	8	6	10
Security or privacy concerns	18	5	8	25	:	31	30	17	11	23	:	34	9	18	13	3	12	9	:	29	5	8	3	3	3	21	5	5	2
None of the above	11	21	0	7	:	8	23	15	17	7	:	8	17	10	16	15	6	10	:	5	17	11	13	7	16	6	17	8	8
Unemployed																															
Inadequate foreign language skills	21	0	0	0	10	50	20	2	:	36	:	26	16	:	13	0	13	0	:	15	16	48	:	21	30	18	12	26	53
Lack of time	32	0	16	16	34	17	24	74	:	49	:	16	28	:	57	45	41	31	:	33	46	43	:	27	33	51	31	38	31
Connection is too slow	22	0	19	50	10	17	19	10	:	:	:	26	5	:	24	9	28	30	:	32	11	21	:	10	21	25	11	18	16
Additional connection or per-volume download cost	29	0	0	17	6	32	5	5	:	:	:	45	19	:	31	4	40	51	:	35	66	12	38	13	4	29	29	39	9
Cost of online content	18	0	0	34	9	20	13	2	:	40	:	:	18	31	19	26	10	33	:	24	16	7	:	32	25	20	16	10	15
Content	9	0	0	16	11	3	3	5	:	25	:	:	3	:	10	0	3	8	:	3	1	0	0	0	3	0	:	0	:
Lack of skills or knowledge	16	0	8	16	27	34	26	21	:	:	:	:	21	:	25	9	11	8	:	18	11	26	:	3	28	8	12	12	24
Security or privacy concerns	22	0	35	16	11	15	20	11	:	37	:	35	11	:	12	0	9	27	:	30	4	10	:	0	0	37	4	10	2
None of the above	17	0	0	17	0	11	36	12	:	:	:	:	23	:	25	18	13	17	:	28	18	29	:	16	13	17	22	8	11
Retired or inactive																															
Inadequate foreign language skills	22	7	4	27	12	43	20	8	:	43	:	27	18	40	18	3	25	7	:	27	17	39	:	19	24	9	18	28	59
Lack of time	37	20	32	40	26	49	33	62	33	36	:	30	31	:	59	19	46	53	:	67	74	42	73	48	38	75	37	60	36
Connection is too slow	18	7	7	22	9	21	20	20	:	20	:	24	6	:	12	23	25	15	:	29	10	8	:	17	15	7	11	:	10
Additional connection or per-volume download cost	16	3	3	5	8	13	8	9	:	:	:	31	13	:	13	5	28	26	:	0	35	10	:	27	5	14	10	32	10
Cost of online content	17	8	0	7	9	15	9	9	0	54	:	0	9	0	9	18	6	23	0	34	10	8	0	30	3	8	16	0	8
Content	6	0	5	20	6	8	4	5	:	23	:	:	3	:	7	1	3	2	:	0	2	3	:	0	2	2	3	0	:
Lack of skills or knowledge	25	45	40	61	55	48	36	38	31	13	:	22	33	45	38	23	27	15	:	49	10	42	:	5	28	6	16	:	25
Security or privacy concerns	21	0	15	26	7	34	25	20	:	27	:	37	15	:	11	3	18	27	:	79	7	8	:	3	4	10	7	0	:
None of the above	14	29	0	7	0	6	20	10	:	:	:	14	19	:	21	22	6	10	:	0	19	28	:	12	25	9	28	:	20

Manual workers																													
Inadequate foreign language skills	20	10	0	17	14	35	27	21	:	31	:	25	14	26	15	4	:	6	:	22	17	31	8	28	22	20	12	27	49
Lack of time	65	46	49	79	67	82	71	67	56	65	:	57	66	71	82	36	:	65	:	63	82	80	64	65	59	68	61	72	77
Connection is too slow	17	8	5	29	13	17	27	11	:	16	:	27	5	:	15	34	:	5	:	27	11	13	:	10	8	21	8	11	6
Additional connection or per-volume download cost	15	1	1	12	4	7	5	5	:	:	:	26	7	33	16	1	:	16	:	23	34	8	24	26	1	17	8	24	8
Cost of online content	15	2	1	14	7	7	12	5	0	46	:	0	7	29	12	7	:	14	0	7	9	10	0	33	8	13	6	0	16
Content	6	3	7	22	13	7	7	2	:	18	:	:	3	:	8	2	:	0	:	7	0	3	0	2	1	3	2	:	2
Lack of skills or knowledge	15	21	7	52	32	34	39	23	:	6	:	13	19	29	22	12	:	16	:	24	9	19	11	5	15	19	12	:	20
Security or privacy concerns	17	1	12	30	13	28	35	11	:	20	:	33	4	19	11	2	:	9	:	33	3	8	:	1	1	17	3	6	:
None of the above	10	22	0	2	0	5	25	15	:	:	:	:	12	:	17	16	:	10	:	3	20	10	13	5	21	10	18	5	6
Non-manual workers																													
Inadequate foreign language skills	14	8	1	15	4	24	16	3	:	26	:	16	7	14	12	1	:	3	:	9	12	38	5	20	18	6	10	24	28
Lack of time	67	49	44	68	58	76	65	72	61	73	:	59	64	77	82	42	:	72	:	79	89	79	74	67	71	81	68	71	81
Connection is too slow	18	7	8	24	9	15	19	18	13	18	:	25	7	17	14	27	:	17	:	28	9	12	:	11	10	18	13	9	7
Additional connection or per-volume download cost	14	3	4	9	4	8	7	9	:	6	:	22	7	17	15	2	:	18	:	16	26	7	15	16	2	11	9	19	5
Cost of online content	10	1	0	8	3	10	8	9	0	30	:	0	7	13	10	18	:	13	0	9	6	11	0	24	5	9	6	3	5
Content	5	4	2	15	12	4	8	7	:	20	:	4	3	:	4	0	:	1	:	2	2	3	:	2	1	2	3	:	0
Lack of skills or knowledge	13	24	5	41	30	25	30	12	18	10	:	14	12	12	18	9	:	7	:	13	5	24	5	2	13	14	7	6	8
Security or privacy concerns	19	7	8	23	11	33	28	19	12	24	:	34	11	17	14	3	:	9	:	26	6	7	4	4	3	21	6	4	3
None of the above	11	21	0	9	0	9	22	15	19	7	:	9	19	11	16	14	:	10	:	6	21	14	13	8	14	6	16	8	8

Annex 14: Where or how to obtain skills, 2007 (E5)

Percentage share of individuals with at least low level of computer skills (multiple choice, other category not shown)

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Formal education	37	52	20	27	33	37	42	34	36	35	35	36	32	45	35	44	31	40	54	46	45	57	41	41	55	54	51	43	46
Training, own initiative	18	41	10	7	15	13	21	19	14	13	23	19	15	21	31	27	25	29	17	19	22	14	12	15	17	26	10	17	8
Vocational training, on demand	28	29	22	35	30	24	55	28	26	26	33	43	15	23	26	12	23	15	15	24	20	12	25	20	13	25	15	14	5
Self-study using books	41	50	24	38	36	39	62	34	21	59	32	48	30	53	38	20	52	18	83	47	57	51	42	46	17	40	31	29	32
Self-study, learning by doing	82	92	89	99	98	79	:	85	64	97	83	86	75	94	92	48	85	76	:	87	72	47	60	82	73	81	75	74	66
Informal assistance	78	89	77	96	87	68	96	77	50	93	74	95	57	93	80	33	73	57	:	84	60	83	77	87	61	72	73	64	52
Aged 16-24																													
Formal education	74	86	47	40	60	67	82	77	74	65	78	72	68	81	68	78	70	77	97	80	89	96	93	82	97	89	89	81	69
Training, own initiative	8	12	2	2	2	2	4	2	:	5	9	8	4	14	19	10	20	17	3	11	5	5	6	9	5	15	2	6	2
Vocational training, on demand	6	5	3	3	3	3	7	5	7	3	11	15	4	5	6	3	5	2	:	5	2	2	4	1	2	2	1	2	0
Self-study using books	36	29	13	27	34	34	52	22	16	56	26	39	26	52	33	15	50	16	77	43	53	49	37	44	14	38	31	23	30
Self-study, learning by doing	81	92	82	94	98	74	98	75	63	94	83	90	70	96	92	42	86	75	:	87	71	44	52	84	59	74	72	65	66
Informal assistance	73	87	73	91	87	61	90	73	36	90	70	95	55	95	79	27	79	56	89	81	52	73	66	81	47	68	64	58	52
Aged 25-54																													
Formal education	31	51	17	26	33	35	41	29	31	31	29	34	26	36	28	36	23	29	40	39	36	38	28	29	38	43	34	28	34
Training, own initiative	20	46	9	6	14	13	25	22	15	13	25	19	16	24	34	31	27	34	22	22	26	18	15	16	23	31	14	22	11
Vocational training, on demand	32	33	25	40	33	24	60	32	29	30	37	49	18	28	30	14	26	19	19	27	22	16	30	26	17	33	20	19	8
Self-study using books	43	54	25	39	37	41	64	37	23	59	33	52	31	55	41	22	53	19	85	48	58	52	44	47	19	41	31	31	34
Self-study, learning by doing	85	93	92	99	99	81	:	88	67	98	84	90	78	94	92	50	86	77	:	87	73	49	63	83	79	83	77	79	68
Informal assistance	79	89	78	97	88	66	96	78	54	94	75	96	58	93	81	35	72	57	:	85	61	88	80	89	67	72	76	66	52
Aged 55-64																													
Formal education	9	15	6	12	15	8	10	9	10	10	7	12	9	0	8	13	7	13	0	10	13	7	3	10	7	11	6	8	16
Training, own initiative	24	60	20	9	25	22	27	29	19	28	23	28	24	22	31	48	22	28	27	25	34	28	13	15	29	35	14	24	11
Vocational training, on demand	44	44	35	56	46	48	83	39	36	45	43	55	23	46	43	20	38	28	35	48	39	30	43	41	29	48	37	25	10
Self-study using books	41	61	30	44	39	40	67	37	21	38	58	46	34	43	33	19	48	22	95	40	60	53	43	38	19	46	33	33	26
Self-study, learning by doing	78	93	88	0	99	77	0	81	61	79	95	72	70	92	88	52	78	72	0	76	74	41	63	73	80	92	76	76	51
Informal assistance	80	94	82	100	86	83	99	77	54	75	96	94	61	93	77	35	65	65	0	86	68	90	82	94	73	82	91	69	45
Aged 65 -74																													
Formal education	8	11	4	20	10	5	6	1	0	4	0	0	5	0	7	13	7	10	0	10	12	1	0	1	1	16	8	11	4
Training, own initiative	29	47	32	18	29	41	25	30	0	26	0	35	36	0	35	55	21	23	0	15	25	18	12	34	17	28	29	47	32
Vocational training, on demand	34	50	20	45	38	47	83	31	0	44	0	36	11	0	31	15	21	21	0	18	36	25	33	37	22	28	34	50	20
Self-study using books	39	63	32	43	32	45	53	37	0	32	0	42	33	0	28	15	46	12	0	75	55	54	32	29	6	64	39	63	32
Self-study, learning by doing	69	74	85	95	90	84	0	81	0	82	0	61	71	0	85	49	80	80	0	0	66	41	58	63	75	92	69	74	85
Informal assistance	77	99	81	94	87	86	0	75	0	77	0	86	59	0	68	43	57	74	0	95	61	0	81	87	98	76	77	99	81

Women																															
Formal education	39	56	21	30	37	43	44	36	36	38	36	38	34	49	36	44	34	43	55	50	45	56	41	39	54	54	52	42	47		
Training, own initiative	21	44	14	8	18	18	27	20	16	14	26	24	17	23	37	33	26	35	22	22	27	17	13	16	22	30	13	19	9		
Vocational training, on demand	30	33	22	42	35	31	59	25	26	28	34	46	16	25	25	12	24	16	18	27	23	16	30	25	17	29	19	18	7		
Self-study using books	35	45	20	35	30	37	53	24	15	51	24	40	28	51	33	15	44	14	83	43	52	47	34	37	15	37	28	26	31		
Self-study, learning by doing	79	88	89	:	97	77	:	81	57	95	80	82	74	92	89	43	84	70	:	85	70	42	54	78	70	78	72	69	63		
Informal assistance	79	90	86	100	89	73	99	83	50	96	77	97	62	94	81	31	73	53	:	85	58	82	74	86	60	72	74	61	50		
Men																															
Formal education	35	49	19	23	30	31	39	33	37	33	34	34	31	42	34	44	29	38	52	43	45	58	40	44	55	53	51	44	44		
Training, own initiative	15	38	7	5	12	9	16	19	11	12	19	16	14	19	25	22	24	24	12	17	17	10	12	13	12	23	6	15	7		
Vocational training, on demand	26	25	22	29	26	17	51	31	26	23	33	41	15	21	26	12	21	14	12	20	16	7	20	16	9	21	10	10	4		
Self-study using books	47	54	27	40	42	42	69	43	28	66	40	56	33	55	42	26	58	22	84	50	63	56	50	55	19	44	35	32	34		
Self-study, learning by doing	86	95	89	97	100	81	:	87	70	98	87	89	77	96	94	54	86	82	:	88	74	52	66	87	76	84	78	79	69		
Informal assistance	77	89	70	93	86	63	94	72	49	91	71	93	54	93	80	35	72	61	100	83	61	83	79	88	63	71	72	67	54		
Lower educational level																															
Formal education	36	47	18	24	35	40	43	33	22	27	49	42	32	35	29	39	28	53	82	46	44	89	89	71	91	79	85	83	65		
Training, own initiative	14	31	12	7	14	10	14	15	:	12	15	16	12	20	27	33	17	12	:	7	12	3	4	10	2	8	1	4	1		
Vocational training, on demand	18	19	10	23	17	14	35	19	17	24	17	28	7	16	12	8	12	3	:	5	9	0	3	2	1	4	1	:	0		
Self-study using books	39	36	20	36	33	37	56	29	18	56	23	36	25	44	26	17	41	9	78	47	49	43	32	35	10	35	27	19	24		
Self-study, learning by doing	85	90	87	:	97	76	:	83	56	99	81	82	76	92	92	48	79	80	:	86	73	44	53	84	57	73	68	60	62		
Informal assistance	84	91	83	99	89	74	99	80	36	97	72	96	60	93	84	27	75	69	97	78	64	76	76	88	48	72	66	58	56		
Middle educational level																															
Formal education	35	51	20	25	32	40	37	32	35	43	32	33	31	55	36	44	30	37	50	45	42	47	34	34	44	43	42	36	36		
Training, own initiative	18	44	11	7	16	13	27	20	13	15	24	19	16	23	31	28	27	30	17	16	24	12	12	15	18	26	9	14	8		
Vocational training, on demand	28	26	24	34	33	19	54	30	21	24	35	44	14	26	22	12	26	13	12	21	20	9	25	22	11	24	14	10	4		
Self-study using books	39	51	23	37	36	40	60	35	18	57	32	47	29	59	38	17	52	16	85	41	58	48	41	45	17	38	28	24	27		
Self-study, learning by doing	81	93	90	99	99	82	:	83	63	97	83	86	77	96	91	46	86	76	:	85	73	46	60	81	79	76	77	77	65		
Informal assistance	76	91	78	97	89	75	99	79	45	91	75	95	59	93	82	34	72	60	:	85	61	90	79	87	69	73	78	69	54		
Higher educational level																															
Formal education	40	61	21	31	34	31	47	37	41	42	36	37	34	56	38	46	39	41	45	49	50	53	31	48	53	55	50	38	53		
Training, own initiative	20	48	8	6	14	15	19	24	15	13	24	23	17	22	32	24	27	34	25	33	29	20	20	19	24	32	16	25	11		
Vocational training, on demand	36	44	30	44	42	36	65	37	35	29	38	55	22	35	37	13	27	22	26	40	29	19	41	33	23	32	25	23	12		
Self-study using books	48	63	28	39	41	40	66	41	27	63	40	62	35	65	46	25	62	24	84	60	64	58	55	58	20	44	41	38	49		
Self-study, learning by doing	84	91	91	95	99	78	100	89	67	93	87	89	73	97	92	50	91	76	:	91	70	49	67	87	71	87	77	75	70		
Informal assistance	75	85	73	94	83	55	92	72	60	90	72	94	55	94	77	35	72	51	95	86	54	77	70	83	56	70	66	59	44		
Densely populated areas																															
Formal education	36	:	20	29	34	37	41	35	37	36	35	35	32	42	35	46	30	41	54	43	43	59	38	40	49	51	48	43	48		
Training, own initiative	17	:	9	5	12	9	19	17	13	13	20	18	14	22	28	23	24	28	17	25	21	12	13	13	18	28	10	17	9		
Vocational training, on demand	28	:	22	40	32	27	55	25	25	25	33	43	15	27	29	14	24	18	17	28	25	12	27	20	11	28	17	15	6		
Self-study using books	42	:	23	38	38	41	59	34	22	59	34	50	31	57	39	22	53	20	81	54	65	56	43	44	15	36	35	34	36		
Self-study, learning by doing	83	:	89	98	98	85	100	87	64	96	86	87	77	96	92	53	86	78	:	95	71	56	65	84	69	85	80	77	70		
Informal assistance	76	:	75	96	86	66	90	80	48	93	75	95	59	96	79	43	73	57	96	93	61	83	75	91	59	69	77	64	54		
Intermediate density																															
Formal education	36	53	19	26	35	43	42	32	34	36	37	37	33	48	35	50	32	35	:	45	46	:	43	:	:	61	55	48	:		
Training, own initiative	20	41	9	5	16	10	19	21	15	11	23	22	18	20	30	26	26	26	:	17	21	:	11	:	:	21	10	19	:		
Vocational training, on demand	31	30	25	41	29	21	53	30	32	26	35	45	16	18	24	11	21	14	:	25	18	:	24	:	:	23	15	9	:		
Self-study using books	42	50	24	46	40	35	62	34	23	59	32	47	30	48	39	22	50	30	:	45	58	:	39	:	:	48	29	26	:		
Self-study, learning by doing	83	92	90	100	99	73	99	83	63	99	84	86	74	93	94	49	85	78	:	80	72	:	51	:	:	77	71	79	:		
Informal assistance	80	89	77	98	94	62	95	73	55	92	73	96	57	93	84	29	73	60	:	80	61	:	77	:	:	74	75	72	:		

Thinly populated areas																													
Formal education	38	51	20	26	32	34	42	37	37	34	34	37	29	49	35	37	33	40	54	48	46	54	41	42	60	59	55	42	36
Training, own initiative	18	39	12	9	16	17	23	19	14	13	25	19	8	21	37	34	26	31	19	19	24	15	13	16	17	25	9	16	6
Vocational training, on demand	24	27	21	30	30	23	55	28	21	27	32	40	10	21	18	10	20	12	12	20	16	12	23	21	15	18	12	13	3
Self-study using books	40	49	24	34	33	40	62	34	19	58	31	45	25	51	36	17	51	16	84	45	49	45	43	46	19	52	28	18	18
Self-study, learning by doing	82	90	89	99	98	78	0	83	64	97	81	80	71	93	88	41	82	74	:	88	74	37	62	81	76	70	70	67	48
Informal assistance	79	90	81	96	86	72	99	80	50	94	74	95	49	87	79	25	69	57	:	83	57	82	79	85	63	77	68	62	44
Objective 1 regions																													
Formal education	43	52	8	:	:	:	:	:	:	:	:	37	28	49	36	:	31	40	54	46	47	57	42	42	55	:	51	43	46
Training, own initiative	18	41	7	:	:	:	:	:	:	:	:	16	10	22	34	:	26	29	17	19	22	14	12	14	17	:	10	17	8
Vocational training, on demand	19	29	25	:	:	:	:	:	:	:	:	43	9	19	22	:	17	15	15	24	18	12	24	20	13	:	15	14	5
Self-study using books	39	50	9	:	:	:	:	:	:	:	:	52	41	48	39	:	55	18	83	47	57	51	40	45	17	:	31	29	32
Self-study, learning by doing	77	92	93	:	:	:	:	:	:	:	:	75	75	92	91	:	84	76	:	87	75	47	58	81	73	:	75	74	66
Informal assistance	73	89	80	:	:	:	:	:	:	:	:	93	48	90	82	:	72	57	:	84	60	83	75	86	61	:	73	64	52
Other regions																													
Formal education	34	:	20	:	33	37	42	34	36	:	:	36	33	38	34	44	31	:	:	:	42	0	33	36	0	54	0	0	0
Training, own initiative	19	:	10	:	15	13	21	19	14	:	:	20	16	21	29	27	24	:	:	:	22	0	14	17	0	26	0	0	0
Vocational training, on demand	32	:	22	:	30	24	55	28	26	:	:	43	16	32	27	12	25	:	:	:	23	0	28	25	0	25	0	0	0
Self-study using books	38	:	24	:	36	39	62	34	21	:	:	48	29	63	38	20	50	:	:	:	59	0	56	46	0	40	0	0	0
Self-study, learning by doing	82	:	89	:	98	79	0	85	64	:	:	87	75	98	92	48	86	:	:	:	67	0	74	93	0	81	0	0	0
Informal assistance	76	:	77	:	87	68	96	77	50	:	:	95	59	99	80	33	73	:	:	:	59	0	84	96	0	72	0	0	0
Students																													
Formal education	76	82	43	50	60	67	78	76	:	64	89	68	70	90	72	73	71	84	100	83	92	99	97	87	99	95	91	87	76
Training, own initiative	7	13	2	4	4	3	7	2	:	4	7	8	1	11	16	10	20	16	:	10	4	3	6	7	2	12	1	4	2
Vocational training, on demand	2	7	1	1	5	3	5	2	:	:	3	7	1	:	2	2	3	0	:	1	1	0	:	:	1	:	0	:	0
Self-study using books	40	30	16	27	36	38	55	23	:	55	28	44	26	60	34	17	54	16	77	50	56	49	39	43	14	40	33	24	32
Self-study, learning by doing	81	93	89	92	99	70	98	73	:	94	83	94	70	98	91	43	89	73	100	92	73	47	55	84	59	74	74	62	64
Informal assistance	74	90	70	87	87	61	90	73	:	91	68	95	54	96	79	25	81	59	88	83	53	73	66	79	48	70	63	52	49
(Self-)Employed																													
Formal education	33	47	19	26	:	31	40	32	35	33	31	37	29	37	32	40	24	30	43	42	36	46	27	32	43	42	39	30	35
Training, own initiative	18	47	8	5	:	13	22	22	14	12	23	19	16	23	30	27	26	32	21	23	26	17	14	17	21	31	13	21	11
Vocational training, on demand	33	34	25	39	:	27	61	34	29	31	36	49	19	28	31	14	28	20	19	30	24	16	31	25	17	34	21	19	8
Self-study using books	43	54	24	39	:	40	64	38	22	60	34	51	32	52	40	21	52	20	85	48	60	53	44	48	18	40	32	31	34
Self-study, learning by doing	84	92	90	99	:	81	:	89	67	97	85	90	77	94	93	51	86	78	:	86	73	48	63	84	78	84	76	78	68
Informal assistance	78	88	76	97	:	66	97	77	51	95	74	96	58	93	81	35	71	57	:	85	62	84	79	89	65	72	74	66	53
Unemployed																													
Formal education	40	51	24	36	47	34	50	20	:	36	:	35	25	46	32	58	41	54	57	31	44	55	52	39	51	65	51	40	38
Training, own initiative	22	24	11	16	20	27	33	17	:	17	:	18	18	24	47	27	29	36	:	14	24	13	17	15	31	17	12	18	7
Vocational training, on demand	22	12	12	28	31	17	28	13	:	14	:	47	6	15	13	4	10	7	:	11	10	6	12	14	6	2	6	6	:
Self-study using books	40	24	35	39	40	35	58	23	:	53	:	39	29	49	34	19	54	18	68	29	40	39	42	36	17	36	23	22	17
Self-study, learning by doing	79	76	78	94	99	71	98	73	:	97	:	72	78	92	86	32	83	72	:	75	71	36	54	72	72	79	71	75	71
Informal assistance	79	:	80	94	88	63	85	87	:	93	:	86	56	92	78	35	74	52	:	79	53	90	88	86	61	67	79	74	55
Retired or inactive																													
Formal education	18	31	14	17	14	26	17	6	20	16	19	19	11	18	15	30	12	25	52	6	25	39	28	24	52	61	20	27	12
Training, own initiative	25	48	24	14	29	27	29	31	18	22	26	28	24	26	39	47	23	34	17	16	25	13	10	14	13	23	12	17	5
Vocational training, on demand	29	41	19	36	36	38	69	36	23	30	38	37	15	35	25	11	21	16	17	34	26	10	31	26	10	14	24	16	1
Self-study using books	36	51	23	35	32	41	57	37	19	56	28	41	30	47	32	18	42	11	91	45	53	40	31	31	11	48	26	29	19
Self-study, learning by doing	75	80	87	:	92	83	:	82	54	96	79	69	73	92	87	41	76	73	:	87	67	36	56	70	59	76	76	77	47
Informal assistance	79	95	86	99	89	90	:	72	47	91	78	94	60	95	77	31	68	59	:	90	59	93	79	89	61	72	93	78	50

Manual workers																													
Formal education	30	40	17	19	21	30	33	22	38	32	:	28	26	27	29	36	:	21	41	25	25	47	26	25	37	26	33	27	17
Training, own initiative	15	38	5	6	13	13	21	15	11	13	:	12	15	22	28	25	:	24	13	9	19	20	7	14	12	23	7	12	7
Vocational training, on demand	17	14	8	24	23	15	40	11	16	15	:	29	5	12	15	8	:	10	4	14	13	20	8	9	7	10	6	3	1
Self-study using books	39	39	19	36	38	44	63	34	20	59	:	46	23	40	34	22	:	15	88	35	59	56	39	38	17	37	22	19	19
Self-study, learning by doing	86	92	89	98	100	83	:	93	68	:	:	88	85	91	94	57	:	83	:	84	75	49	64	82	90	84	72	90	68
Informal assistance	84	88	78	100	90	80	:	92	42	98	:	:	63	94	88	35	:	70	:	90	73	80	97	93	76	82	87	86	71
Non-manual workers																													
Formal education	34	49	20	27	33	32	42	34	34	34	:	39	30	41	33	41	:	32	44	47	40	42	28	34	45	45	41	31	40
Training, own initiative	19	49	8	5	13	12	22	23	14	12	:	21	17	23	31	27	:	33	24	27	29	9	17	18	25	32	15	23	12
Vocational training, on demand	38	39	28	43	44	32	68	39	32	37	:	55	23	34	37	15	:	22	24	34	28	3	38	31	21	37	26	22	10
Self-study using books	44	59	25	40	38	37	64	39	23	61	:	53	34	57	42	21	:	21	84	52	60	44	46	52	19	40	36	33	38
Self-study, learning by doing	84	93	91	99	100	80	:	88	66	95	:	91	75	95	92	50	:	77	:	87	72	44	62	84	74	83	78	75	68
Informal assistance	76	89	75	96	87	60	94	74	53	93	:	95	56	92	78	35	:	54	94	83	58	99	72	87	61	71	69	62	48

Annex 15: Where or how to obtain skills, 2007 – Age, Education, and Computer skills level (E5)

Percentage share of individuals with respective levels of computer skills (multiple choice)

	Formal education	Training, own initiative	Vocational training, on demand	Self-study using books	Self-study, learning-by-doing	Informal assistance	Otherwise
Aged 16-24, Lower educational level							
Low level of computer skills	59	3	3	18	59	62	2
Medium level	72	5	4	31	80	77	2
High level	71	8	4	43	87	77	3
Aged 16-24, Higher educational level							
Low level of computer skills	57	5	2	21	60	52	0
Medium level	74	9	7	33	81	62	2
High level	78	11	11	50	87	78	5
Aged 25-54, Middle educational level							
Low level of computer skills	14	13	19	17	60	66	2
Medium level	25	20	33	35	78	73	2
High level	34	23	36	57	87	72	4
Aged 55-74, Lower educational level							
Low level of computer skills	3	21	28	24	59	69	4
Medium level	7	25	33	38	67	71	4
High level	7	21	42	55	75	59	5
Aged 55-74, Higher educational level							
Low level of computer skills	6	21	32	25	60	68	3
Medium level	10	26	42	43	76	77	1
High level	23	26	52	63	88	73	4

Annex 16: Selected Internet activities, 2007 (C5)

Percentage share of individuals who have used the Internet within the last 3 months

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Learning purposes	40	46	16	53	71	38	34	60	33	68	14	37	25	67	37	28	55	15	2	45	37	40	36	5	10	54	44	7	34
Seeking health-related information	42	49	54	43	47	60	32	62	28	45	41	56	38	45	41	21	41	23	40	49	44	39	22	29	20	38	29	16	26
Internet banking	44	80	77	83	70	84	71	58	45	51	44	49	52	29	31	42	31	12	83	36	23	43	24	27	50	31	29	5	7
Accessing public websites	47	60	58	65	71	55	59	57	46	58	36	54	31	42	48	45	40	28	43	53	42	36	29	36	31	48	27	14	16
Looking for a job	20	18	22	26	31	33	23	19	21	20	12	23	12	16	19	12	19	14	21	21	25	21	8	20	17	12	16	17	11
Aged 16-24																													
Learning purposes	53	66	23	70	62	75	53	61	47	77	31	61	30	70	44	34	58	17	6	55	62	73	57	5	20	67	55	11	52
Seeking health-related information	29	43	43	36	47	54	28	52	20	37	29	38	28	36	32	12	28	16	27	37	29	28	9	20	15	21	20	8	16
Internet banking	28	80	74	71	59	65	62	27	34	39	31	33	34	11	14	25	12	2	66	18	12	23	9	12	36	11	16	3	2
Accessing public websites	32	46	49	45	62	41	42	35	30	49	26	40	18	21	36	31	19	17	31	56	23	22	15	27	22	30	16	6	6
Looking for a job	27	30	32	37	38	63	40	30	33	31	22	36	14	17	24	17	22	14	28	25	23	24	11	23	20	10	18	17	12
Aged 25-54																													
Learning purposes	38	45	17	54	77	33	34	61	33	66	10	34	24	66	36	28	56	14	:	42	31	25	28	6	5	50	38	6	23
Seeking health-related information	45	53	57	46	49	63	34	64	32	47	43	60	39	48	44	25	45	27	44	53	48	45	26	32	22	44	33	20	32
Internet banking	49	84	82	87	77	91	79	67	50	55	50	55	58	38	37	50	36	15	91	41	26	54	29	34	59	39	37	7	10
Accessing public websites	52	66	62	70	77	61	66	61	51	61	39	59	34	52	53	51	45	33	47	52	48	44	33	39	35	56	34	18	23
Looking for a job	21	18	25	28	37	33	23	19	23	20	11	25	13	:	20	11	20	14	20	22	28	20	7	19	17	13	17	17	11
Aged 55-64																													
Learning purposes	31	34	10	42	67	19	22	48	20	8	65	26	22	57	23	17	51	7	:	36	21	11	27	4	3	41	:	4	21
Seeking health-related information	44	41	54	40	44	53	29	66	23	47	50	62	43	51	38	20	43	15	50	55	50	44	31	45	23	45	:	20	37
Internet banking	46	74	69	84	64	81	61	61	43	41	51	45	55	33	36	34	33	12	83	50	25	48	26	26	41	33	:	:	7
Accessing public websites	50	57	56	69	67	50	56	66	50	34	55	53	36	49	45	44	49	29	57	41	47	41	38	43	35	50	:	13	23
Looking for a job	6	5	5	11	16	6	10	6	:	5	:	7	3	:	5	2	5	7	10	1	18	7	3	7	6	12	3	9	3
Aged 65-74																													
Learning purposes	24	16	9	21	44	14	10	57	:	3	66	20	22	:	8	18	46	19	:	15	16	5	28	0	0	12	:	:	:
Seeking health-related information	44	33	53	34	32	60	30	56	:	42	54	62	40	:	38	21	39	4	54	51	50	55	31	38	25	35	:	:	57
Internet banking	41	59	53	71	47	82	49	40	31	36	51	42	43	:	33	29	36	31	75	37	17	46	:	14	34	41	:	0	:
Accessing public websites	42	53	50	58	44	38	54	56	38	33	47	44	29	:	30	39	44	28	41	47	51	25	32	30	16	35	:	0	:
Looking for a job	1	1	1	4	3	1	1	2	:	:	:	:	0	0	0	2	:	0	:	0	3	4	:	0	2	0	:	0	:
Women																													
Learning purposes	40	51	14	48	68	42	33	54	31	65	14	37	24	68	37	27	54	16	3	47	38	44	36	5	10	55	46	7	36
Seeking health-related information	48	59	61	49	56	72	39	68	31	53	47	65	41	55	47	25	46	27	54	56	50	53	32	35	27	41	37	20	32
Internet banking	41	80	74	80	66	84	67	50	43	47	41	45	49	24	28	40	26	10	86	35	21	45	21	25	53	26	27	5	8
Accessing public websites	46	57	52	60	68	55	57	49	44	58	33	52	28	43	47	45	39	27	44	55	43	39	29	38	35	48	28	15	16
Looking for a job	21	17	23	27	32	36	26	20	22	21	13	25	13	19	23	11	19	16	20	21	27	23	8	19	18	13	16	17	10

Men																													
Learning purposes	41	42	19	59	73	35	35	64	35	71	13	38	26	66	36	29	57	14	2	43	37	36	35	6	9	53	42	7	32
Seeking health-related information	35	39	48	38	38	47	25	57	24	38	36	48	34	36	36	17	37	20	25	42	37	25	13	24	13	34	21	13	20
Internet banking	47	81	80	86	73	84	74	66	46	55	48	52	55	34	34	45	35	13	80	37	24	41	26	29	47	36	31	6	6
Accessing public websites	48	63	63	69	73	54	60	63	48	57	39	56	34	42	49	46	41	29	41	50	41	34	29	34	26	48	27	13	17
Looking for a job	19	18	22	25	31	31	20	18	21	20	11	22	11	14	16	12	18	12	22	21	24	18	7	20	16	12	17	16	12
Lower educational level																													
Learning purposes	42	40	15	50	56	46	30	51	20	60	23	40	22	59	24	21	47	11	4	44	35	72	55	4	16	61	54	10	53
Seeking health-related information	35	40	47	40	37	49	25	56	17	42	30	45	31	31	30	12	30	12	22	23	31	19	6	18	6	14	16	9	10
Internet banking	31	69	67	79	56	65	52	44	23	41	25	33	36	16	13	22	19	3	53	12	11	10	4	4	13	5	:	2	1
Accessing public websites	33	47	40	48	56	36	40	40	20	48	18	37	18	23	26	28	22	11	23	34	21	8	8	19	10	17	:	4	3
Looking for a job	17	17	19	31	27	37	24	19	:	19	15	24	10	10	15	9	11	7	20	7	20	9	6	15	10	1	6	7	4
Middle educational level																													
Learning purposes	36	45	16	49	73	37	27	62	30	72	12	33	22	70	35	26	56	14	2	39	38	32	28	5	9	45	37	6	30
Seeking health-related information	41	50	55	38	48	60	29	65	25	50	41	58	36	52	41	18	43	20	38	49	44	36	23	29	19	29	27	12	25
Internet banking	43	83	78	80	73	89	71	62	41	51	44	51	50	32	29	37	32	9	86	31	20	36	24	28	48	21	26	3	4
Accessing public websites	44	60	58	60	73	53	55	59	41	61	37	55	26	46	45	42	40	25	39	48	40	26	28	35	23	36	24	9	12
Looking for a job	21	20	22	23	32	38	20	19	24	23	12	25	13	20	20	9	19	12	23	25	27	24	9	22	18	11	18	19	14
Higher educational level																													
Learning purposes	47	56	19	62	85	35	45	68	41	77	13	44	30	75	45	33	62	17	:	57	39	35	47	7	8	58	52	8	29
Seeking health-related information	47	58	59	52	57	67	40	67	35	48	46	63	44	61	47	28	48	28	53	59	52	51	31	40	30	48	41	24	37
Internet banking	56	91	84	90	82	90	82	72	56	64	58	60	65	49	43	56	40	17	93	57	34	65	39	46	74	43	49	10	17
Accessing public websites	62	78	74	82	85	70	74	74	61	69	45	69	46	71	63	56	57	36	58	72	61	59	46	55	55	63	47	24	33
Looking for a job	21	15	26	26	36	25	25	18	22	21	11	20	12	24	22	15	26	17	18	20	27	23	6	16	19	15	19	17	11
Densely populated areas																													
Learning purposes	42	:	19	57	77	43	39	60	34	70	15	39	25	68	37	31	56	13	2	60	36	41	36	5	9	59	46	8	33
Seeking health-related information	42	:	55	42	51	64	37	59	25	46	46	60	38	48	42	24	45	23	39	57	48	43	24	28	23	43	34	17	27
Internet banking	45	:	78	88	74	87	76	55	44	53	47	50	51	36	36	45	35	13	84	41	29	52	31	31	56	34	38	7	8
Accessing public websites	49	:	61	70	77	61	62	57	44	60	40	58	31	48	50	47	42	31	37	62	48	43	32	43	32	53	34	18	18
Looking for a job	22	:	26	28	36	35	24	23	23	21	16	25	13	20	21	16	20	15	20	24	28	25	9	21	15	15	19	20	12
Intermediate density																													
Learning purposes	39	49	13	53	68	40	38	59	32	67	14	35	26	62	36	26	54	23	:	34	39	:	37	:	:	48	46	6	:
Seeking health-related information	44	51	53	48	43	58	32	62	31	42	38	55	37	41	41	20	39	25	54	48	46	:	22	:	:	29	25	25	:
Internet banking	44	82	77	82	71	85	73	60	46	44	45	49	53	23	28	45	29	6	87	39	20	:	22	:	:	31	21	6	:
Accessing public websites	47	61	59	71	68	56	62	57	49	53	36	51	30	34	47	47	37	19	80	51	43	:	26	:	:	47	26	4	:
Looking for a job	19	19	20	31	31	35	22	16	19	18	11	21	10	13	18	8	18	14	35	18	27	:	6	:	:	10	15	12	:
Thinly populated areas																													
Learning purposes	39	40	15	52	67	35	31	59	32	66	12	35	15	69	36	26	57	16	3	46	38	40	35	5	11	39	41	6	38
Seeking health-related information	38	44	53	42	45	58	29	67	33	45	37	49	33	43	38	19	35	22	40	46	38	35	20	30	17	24	23	13	16
Internet banking	42	77	76	81	66	82	68	61	47	50	42	45	55	21	23	36	25	11	82	31	17	31	18	25	42	21	19	2	1
Accessing public websites	43	59	54	59	67	50	57	56	49	55	31	47	33	39	44	42	37	25	46	50	34	28	27	32	28	31	19	9	10
Looking for a job	19	14	19	23	28	32	22	14	20	20	8	23	13	12	17	8	19	13	21	23	21	15	8	19	20	4	12	10	8
Objective 1 regions																													
Learning purposes	37	46	14	:	:	:	:	:	44	:	:	42	13	66	37	:	58	15	2	45	38	40	36	5	10	:	44	7	34
Seeking health-related information	34	49	47	:	:	:	:	:	:	:	:	53	43	41	42	:	38	23	40	49	42	39	20	29	20	:	29	16	26
Internet banking	27	80	78	:	:	:	:	:	34	:	:	45	51	26	24	:	21	12	83	36	20	43	22	26	50	:	29	5	7
Accessing public websites	34	60	55	:	:	:	:	:	:	:	:	54	27	39	49	:	40	28	43	53	39	36	27	34	31	:	27	14	16
Looking for a job	19	18	28	:	:	:	:	:	:	:	:	32	18	15	21	:	22	14	21	21	24	21	8	19	17	:	16	17	11

Other regions																														
Learning purposes	36	:	17	:	71	38	34	60	33	:	:	37	26	69	36	28	55	:	:	:	:	36	:	34	3	:	54	:	:	:
Seeking health-related information	44	:	54	:	47	60	32	62	28	:	:	57	37	52	41	21	42	:	:	:	:	46	:	30	30	:	38	:	:	:
Internet banking	49	:	77	:	70	84	71	58	45	:	:	49	52	36	35	42	34	:	:	:	:	28	:	35	31	:	31	:	:	:
Accessing public websites	50	:	58	:	71	55	59	57	46	:	:	54	31	48	48	45	40	:	:	:	:	48	:	37	46	:	48	:	:	:
Looking for a job	21	:	22	:	31	33	23	19	22	:	:	22	11	19	19	12	18	:	:	:	:	28	:	8	22	:	12	:	:	:
Students																														
Learning purposes	63	78	19	80	67	91	68	63	76	80	60	78	35	76	49	51	61	20	8	61	72	90	68	3	27	73	60	13	59
Seeking health-related information	31	50	42	34	49	55	33	54	27	38	35	41	27	40	35	11	31	15	21	37	28	24	8	19	11	23	20	6	16
Internet banking	24	82	67	58	62	61	52	26	35	39	35	33	28	10	11	22	11	2	51	17	11	16	7	7	31	7	14	1	1
Accessing public websites	32	55	45	43	67	46	44	34	33	49	29	46	16	21	36	35	23	18	27	62	23	16	15	27	19	24	15	5	5
Looking for a job	22	30	25	45	36	65	47	25	26	26	22	32	9	13	18	11	20	10	18	23	20	18	9	15	19	9	13	12	9
(Self-)Employed																														
Learning purposes	38	41	18	55	:	30	32	63	33	66	9	35	24	65	36	26	54	14	2	41	31	27	28	6	6	51	40	6	23
Seeking health-related information	42	50	54	43	:	60	31	64	28	46	40	57	38	46	41	24	43	26	42	52	47	43	24	31	23	42	32	19	30
Internet banking	49	82	82	87	:	90	76	68	49	54	47	53	59	35	36	50	37	15	91	40	26	52	29	33	58	39	38	7	10
Accessing public websites	50	63	62	68	:	59	63	63	49	60	38	57	35	49	52	49	45	31	49	51	49	44	33	39	36	57	34	18	23
Looking for a job	19	15	24	26	:	28	19	17	23	18	8	21	9	14	18	11	17	13	19	20	25	20	6	20	17	13	16	17	11
Unemployed																														
Learning purposes	42	39	26	37	61	35	36	41	:	71	:	33	22	66	38	19	58	10	:	40	24	31	40	5	8	62	:	4	16
Seeking health-related information	40	24	62	48	55	64	31	60	:	41	:	49	39	50	45	17	36	20	35	43	37	45	20	25	10	43	:	20	17
Internet banking	33	51	66	84	59	81	65	43	:	43	:	38	42	29	22	17	17	3	74	33	18	26	:	20	28	15	:	:	:
Accessing public websites	45	51	64	62	61	46	53	43	:	61	:	55	29	44	49	35	33	24	35	41	26	21	28	26	17	38	:	5	2
Looking for a job	61	63	74	59	62	66	78	27	51	62	:	76	55	58	49	50	52	41	87	44	58	62	66	78	33	36	48	38	41
Retired or inactive																														
Learning purposes	29	24	9	34	50	18	18	53	19	67	6	25	22	57	21	18	51	10	:	35	22	17	18	1	3	35	26	:	17
Seeking health-related information	48	39	56	46	39	63	34	60	28	53	48	63	46	49	49	20	48	21	59	57	55	53	39	49	24	32	39	32	40
Internet banking	41	61	64	75	49	83	60	49	32	50	40	44	49	27	26	29	28	13	74	50	21	35	21	22	34	24	:	0	:
Accessing public websites	41	40	47	57	50	46	52	59	35	52	32	46	29	37	37	39	35	33	27	43	38	16	25	25	17	26	29	:	7
Looking for a job	10	9	9	13	5	14	8	7	8	8	9	12	6	:	12	6	10	15	15	5	24	17	5	12	12	6	12	10	10
Manual workers																														
Learning purposes	30	29	14	46	68	20	21	51	22	59	:	27	16	55	25	18	:	10	:	24	22	31	12	5	3	32	27	2	17
Seeking health-related information	32	34	43	33	31	49	20	47	18	39	:	41	30	32	31	15	:	22	27	35	39	48	15	22	11	27	19	10	15
Internet banking	39	70	76	86	64	89	70	48	38	45	:	43	49	17	20	36	:	8	83	21	19	61	16	18	41	19	21	2	1
Accessing public websites	36	53	47	53	68	46	50	32	31	49	:	41	18	22	34	35	:	21	28	25	33	53	15	27	14	24	:	5	7
Looking for a job	18	16	19	22	28	30	16	19	18	20	:	21	9	10	17	10	:	10	25	17	27	20	8	30	15	16	15	20	14
Non-manual workers																														
Learning purposes	40	45	19	57	82	35	35	65	35	68	:	38	26	67	41	28	:	15	2	45	33	15	33	6	7	53	44	7	25
Seeking health-related information	46	55	56	46	55	65	35	68	31	48	:	62	40	50	45	26	:	26	49	57	49	29	27	33	27	43	36	21	34
Internet banking	52	86	83	88	82	90	78	73	52	58	:	56	61	41	42	54	:	16	94	46	29	29	33	38	65	41	43	9	12
Accessing public websites	55	66	66	72	82	65	67	69	54	64	:	61	39	57	58	53	:	33	57	59	54	18	39	43	44	61	39	21	27
Looking for a job	19	15	25	27	36	27	19	17	24	17	:	21	9	16	19	11	:	13	17	21	25	20	6	17	17	12	16	16	10

Annex 17: Using eCommerce – When did you last buy or order goods or services for private use over the internet? 2007 (D1)

Percentage share of individuals who have used the internet within the last 3 months
Buying and ordering does not include manually typed e-mails to make online purchases

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Within the last 3 months	36	35	49	54	49	39	45	46	57	37	:	53	20	13	23	40	14	13	9	15	13	7	16	15	9	18	21	5	5
Between 3 months and a year ago	11	19	14	18	1	18	17	13	11	13	:	14	10	8	9	11	6	7	4	12	8	4	15	10	9	5	9	3	3
More than 1 year ago	6	11	6	8	0	5	8	5	5	5	:	8	5	3	5	7	5	3	4	8	2	2	4	7	7	3	7	2	3
Never bought or ordered	47	35	31	21	51	37	29	36	27	45	:	25	65	75	63	43	74	77	83	65	78	87	65	68	75	74	63	90	89
Aged 16-24																													
Within the last 3 months	31	31	47	50	58	44	49	32	74	34	:	67	17	53	18	29	13	11	7	13	10	6	15	14	9	12	22	4	4
Between 3 months and a year ago	11	22	18	24	1	24	25	13	16	16	:	23	10	47	9	8	6	7	2	13	7	4	11	9	11	3	10	2	3
More than 1 year ago	6	12	7	9	0	8	9	6	10	4	:	11	5	:	4	7	4	2	3	10	2	2	3	6	5	4	7	2	3
Never bought or ordered	52	35	28	18	41	23	18	49	:	45	:	:	69	:	69	55	77	80	87	64	81	87	71	70	74	81	61	93	90
Aged 25-54																													
Within the last 3 months	40	39	55	60	55	43	51	52	85	39	:	74	23	100	25	44	16	13	69	16	14	8	16	16	10	20	:	6	6
Between 3 months and a year ago	11	20	14	17	0	20	17	13	15	14	:	17	10	:	10	11	7	7	:	12	9	3	17	10	8	5	53	3	3
More than 1 year ago	6	12	6	8	0	5	8	5	:	5	:	9	6	:	5	7	5	4	31	8	2	2	5	7	8	3	47	3	4
Never bought or ordered	44	29	25	15	45	32	24	30	:	42	:	:	61	:	61	37	72	76	:	64	75	86	62	66	73	71	:	88	88
Aged 55-64																													
Within the last 3 months	32	29	37	44	33	27	33	38	80	29	:	39	16	100	18	33	11	20	:	12	8	2	12	9	4	15	:	100	3
Between 3 months and a year ago	10	15	10	16	0	9	13	10	20	10	:	12	7	:	9	16	4	5	:	6	6	2	11	4	4	8	69	:	5
More than 1 year ago	6	6	6	9	0	5	8	6	:	5	:	8	4	:	5	6	3	1	:	6	1	2	5	7	4	4	31	:	5
Never bought or ordered	52	50	48	31	67	59	45	45	:	57	:	41	72	:	68	44	82	74	:	77	85	94	72	80	88	72	:	:	87
Aged 65-74																													
Within the last 3 months	26	17	23	20	19	15	21	32	100	21	:	71	9	:	17	29	6	27	:	14	17	1	:	6	3	20	:	:	:
Between 3 months and a year ago	8	12	6	10	2	7	9	9	:	7	:	29	5	:	6	8	3	13	:	7	2	0	100	2	0	5	:	:	:
More than 1 year ago	6	6	6	4	0	1	7	0	:	3	:	:	3	:	2	3	2	9	:	8	1	0	:	15	1	0	:	:	:
Never bought or ordered	60	65	66	65	79	77	63	58	:	69	:	:	83	:	75	60	89	52	:	71	81	99	:	77	96	75	:	:	:
Women																													
Within the last 3 months	34	33	46	49	45	38	43	39	53	34	:	51	18	11	19	35	10	10	10	14	11	7	14	15	9	12	19	4	4
Between 3 months and a year ago	10	19	14	19	1	19	17	12	11	12	:	14	9	7	9	12	5	5	3	12	7	3	12	8	8	3	8	2	2
More than 1 year ago	6	9	6	9	0	5	6	4	6	5	:	8	5	3	4	6	4	3	5	6	2	2	4	6	7	3	6	2	3
Never bought or ordered	50	39	34	23	54	38	34	44	29	49	:	27	68	79	68	47	81	82	81	68	80	88	70	71	76	81	67	91	90
Men																													
Within the last 3 months	39	38	52	58	52	40	48	51	61	39	:	55	23	15	26	44	18	15	7	17	14	7	17	15	10	23	24	6	6
Between 3 months and a year ago	11	19	13	17	0	18	18	13	10	14	:	14	10	9	10	10	8	8	4	12	9	4	17	11	9	6	10	3	4
More than 1 year ago	6	12	6	7	0	5	9	5	5	5	:	7	6	4	5	7	6	3	3	10	2	3	5	8	7	3	8	2	3
Never bought or ordered	44	31	29	19	47	37	25	30	25	42	:	23	62	72	59	39	69	73	85	61	75	86	62	66	74	68	59	89	87

Lower educational level																											
Within the last 3 months	23	26	34	42	38	29	35	33	100	26	:	42	13	5	9	22	9	5	100	10	6	4	13	10	3	10	16	100	3
Between 3 months and a year ago	9	16	14	17	1	16	18	11	:	14	:	15	7	4	6	7	5	4	:	11	4	3	7	7	6	0	7	:	3
More than 1 year ago	5	10	6	10	0	6	7	5	:	4	:	9	4	2	4	4	4	1	:	7	1	1	3	4	2	0	5	:	3
Never bought or ordered	62	48	46	32	62	50	41	51	:	56	:	35	76	89	81	67	83	89	:	72	89	92	77	79	88	89	71	:	91
Middle educational level																											
Within the last 3 months	36	34	50	49	50	39	41	49	53	36	:	55	18	59	22	34	15	11	9	13	12	5	15	15	8	13	18	3	4
Between 3 months and a year ago	11	20	14	21	1	20	17	13	12	13	:	14	9	41	9	10	7	7	3	10	8	3	15	9	8	5	8	2	2
More than 1 year ago	6	12	6	7	0	6	9	6	6	5	:	7	5	:	4	8	5	3	3	9	2	2	4	7	6	3	7	2	3
Never bought or ordered	47	34	30	23	49	36	32	32	29	46	:	24	68	:	65	48	73	78	85	68	79	89	66	69	78	79	67	93	91
Higher educational level																											
Within the last 3 months	46	50	61	68	62	47	57	60	71	45	:	59	29	27	32	54	20	17	12	23	20	11	18	22	16	23	32	8	9
Between 3 months and a year ago	12	22	14	14	0	19	18	14	10	15	:	14	12	14	12	13	8	7	6	17	11	4	21	14	12	6	12	4	5
More than 1 year ago	6	10	5	8	0	5	7	4	4	5	:	7	7	5	5	6	6	4	6	7	3	3	7	10	10	4	9	3	5
Never bought or ordered	37	18	20	10	38	30	18	22	15	35	:	19	52	53	51	26	66	72	77	53	67	82	54	54	62	67	48	85	80
Densely populated areas																											
Within the last 3 months	38	:	52	59	55	40	52	44	56	40	:	54	21	15	25	46	14	14	10	17	15	10	17	15	11	21	25	6	6
Between 3 months and a year ago	10	:	14	14	0	19	16	11	10	14	:	13	10	9	10	11	7	7	5	13	10	4	16	10	9	5	10	3	3
More than 1 year ago	6	:	6	11	0	5	7	5	5	5	:	8	5	4	5	7	5	3	6	10	2	3	5	7	7	4	7	3	4
Never bought or ordered	46	:	28	17	44	35	25	40	28	41	:	25	64	72	60	37	74	76	80	60	74	84	62	68	73	69	58	88	87
Intermediate density																											
Within the last 3 months	39	38	47	52	47	36	47	46	85	34	:	53	19	58	20	40	14	7	:	14	12	:	14	:	:	13	17	59	:
Between 3 months and a year ago	11	18	13	22	0	18	16	13	15	14	:	15	9	42	9	11	6	6	:	10	7	:	13	:	:	7	8	41	:
More than 1 year ago	6	10	5	6	0	6	8	6	:	5	:	7	6	:	5	6	5	4	:	7	2	:	4	:	:	2	8	:	:
Never bought or ordered	44	34	35	19	52	39	29	34	:	47	:	24	66	:	66	44	75	83	:	69	79	:	69	:	:	78	67	:	:
Thinly populated areas																											
Within the last 3 months	31	30	46	52	44	39	42	48	82	34	:	49	23	59	18	32	15	12	8	15	11	4	15	15	7	9	18	3	3
Between 3 months and a year ago	11	21	14	18	1	18	18	14	18	13	:	15	10	41	8	12	7	7	2	12	6	3	14	9	8	2	8	2	3
More than 1 year ago	6	11	6	7	0	5	9	3	:	4	:	9	3	:	4	6	5	4	3	8	2	2	4	7	7	1	6	2	1
Never bought or ordered	53	38	34	24	55	38	31	35	:	48	:	28	64	:	70	50	73	78	87	64	81	91	67	68	78	88	68	93	93
Objective 1 regions																											
Within the last 3 months	18	35	53	:	:	:	:	:	100	:	:	46	19	12	18	:	11	13	9	15	11	7	15	15	9	:	21	5	5
Between 3 months and a year ago	8	19	11	:	:	:	:	:	:	:	:	14	9	8	9	:	5	7	4	12	7	4	14	10	9	:	9	3	3
More than 1 year ago	5	11	10	:	:	:	:	:	:	:	:	9	3	3	4	:	4	3	4	8	2	2	4	7	7	:	7	2	3
Never bought or ordered	68	35	25	:	:	:	:	:	:	:	:	31	70	78	69	:	80	77	83	65	80	87	68	68	75	:	63	90	89
Other regions																											
Within the last 3 months	44	:	49	:	49	39	45	46	58	:	:	54	21	54	25	40	16	:	:	:	15	:	19	12	:	18	:	:	:
Between 3 months and a year ago	12	:	14	:	1	18	17	13	11	:	:	14	10	33	10	11	7	:	:	:	10	:	20	9	:	5	:	:	:
More than 1 year ago	6	:	6	:	0	5	8	5	5	:	:	7	6	14	5	7	5	:	:	:	2	:	7	5	:	3	:	:	:
Never bought or ordered	38	:	32	:	51	37	29	36	26	:	:	24	64	:	60	43	73	:	:	:	74	:	54	73	:	74	100	:	:
Students																											
Within the last 3 months	27	29	47	42	56	44	47	31	100	36	:	67	17	52	17	27	13	12	100	16	9	6	17	13	8	12	55	4	5
Between 3 months and a year ago	11	24	21	26	1	22	25	16	:	20	:	22	9	48	10	7	7	6	:	17	9	3	10	10	12	3	26	1	3
More than 1 year ago	5	12	9	10	0	8	6	8	:	6	:	10	4	:	3	7	4	2	:	11	2	2	3	6	5	2	19	2	2
Never bought or ordered	57	34	23	22	43	27	22	45	:	39	:	:	70	:	69	58	75	81	:	56	81	89	69	71	75	83	:	94	89
(Self-)Employed																											
Within the last 3 months	40	39	54	59	:	41	49	52	62	39	:	58	23	15	25	46	16	13	10	17	14	8	16	16	11	20	23	5	5
Between 3 months and a year ago	11	19	15	18	:	19	17	12	11	14	:	14	10	9	10	12	7	8	4	11	9	4	16	10	9	5	9	3	3
More than 1 year ago	6	11	6	8	:	5	8	4	5	5	:	7	6	3	5	7	5	4	5	8	2	2	5	7	7	4	7	3	4
Never bought or ordered	43	32	26	15	:	35	26	31	22	43	:	21	60	72	60	36	72	75	81	65	75	86	63	67	73	71	62	89	87

DANISH TECHNOLOGICAL INSTITUTE																														
Unemployed																														
Within the last 3 months	25	9	33	50	44	33	50	36	:	:	:	38	16	:	18	25	11	10	:	8	9	4	:	14	5	9	:	59	:
Between 3 months and a year ago	8	41	19	10	0	15	14	11	:	:	:	12	8	:	4	7	6	2	:	9	4	4	100	5	4	3	52	41	22
More than 1 year ago	7	10	11	10	2	6	12	5	:	:	:	12	5	:	5	10	4	2	:	9	2	1	:	8	3	6	48	:	78
Never bought or ordered	59	40	37	30	54	47	25	48	:	:	:	38	71	:	73	58	79	87	:	75	85	91	:	73	87	83	:	:	:
Retired or inactive																														
Within the last 3 months	30	18	36	36	22	25	27	33	41	27	:	41	14	:	13	26	9	16	:	6	11	3	12	10	4	15	:	:	4
Between 3 months and a year ago	9	13	8	13	1	12	14	12	9	9	:	13	7	:	7	11	3	6	:	8	3	2	11	7	6	4	50	:	1
More than 1 year ago	6	9	5	7	0	4	10	4	8	5	:	8	4	:	6	6	3	4	:	5	2	1	3	10	6	4	50	:	2
Never bought or ordered	55	60	51	44	77	59	49	52	43	59	:	38	75	:	74	57	84	74	:	81	84	94	73	72	83	76	:	:	92
Manual workers																														
Within the last 3 months	30	29	39	44	41	34	38	31	82	:	:	49	15	100	14	36	:	10	100	13	9	10	11	9	6	9	12	46	1
Between 3 months and a year ago	11	17	15	24	1	18	15	10	18	:	:	16	8	:	8	11	:	9	:	3	5	4	13	9	5	2	7	:	3
More than 1 year ago	6	12	7	11	0	6	10	6	:	:	:	7	6	:	4	8	:	1	:	6	0	3	4	5	6	1	6	54	3
Never bought or ordered	54	42	40	21	59	43	37	53	:	:	:	28	72	:	74	45	:	80	:	77	85	83	73	77	84	88	75	:	93
Non-manual workers																														
Within the last 3 months	44	42	57	63	62	45	52	57	66	:	:	61	26	18	30	49	:	14	12	18	16	3	18	19	13	21	27	6	7
Between 3 months and a year ago	12	19	15	16	0	20	18	13	11	:	:	14	11	11	11	12	:	7	5	13	10	2	18	10	10	6	10	4	4
More than 1 year ago	5	10	6	7	0	5	7	4	4	:	:	7	6	4	5	6	:	4	7	8	2	1	5	8	8	4	7	3	4
None of the above	39	29	23	13	38	30	23	26	19	:	:	19	57	66	54	33	:	74	76	61	72	94	59	64	69	69	56	87	86

Annex 18: Safety copies or back up files, 2007 (C11)

Percentage shares of individuals who have used the internet within the last 3 months

	EU27	IS	NL	NO	DK	FI	SE	LU	UK	FR	AT	DE	BE	PT	ES	IE	IT	GR	EE	SI	HU	LT	CZ	SK	LV	CY	PL	BG	RO
All individuals																													
Always or almost always	23	18	25	18	17	19	15	26	20	35	23	25	20	17	18	27	20	43	14	23	19	17	32	22	18	32	13	26	28
Sometimes	32	31	32	31	26	28	26	34	29	29	19	41	32	34	29	24	24	22	41	36	31	42	38	41	31	30	39	37	42
Never or hardly ever	35	47	42	46	55	41	51	35	46	30	48	24	39	38	43	32	49	14	35	31	37	22	13	30	34	23	31	28	18
Not applicable	8	3	1	4	2	11	6	5	5	6	9	9	9	10	9	17	5	21	10	10	13	19	15	7	17	15	18	10	12
Aged 16-24																													
Always or almost always	23	18	27	18	17	16	16	26	23	44	20	24	18	19	16	24	13	35	14	18	14	22	26	15	20	29	12	23	28
Sometimes	35	33	35	33	29	28	24	43	32	28	23	43	36	38	33	26	25	24	50	50	30	51	45	44	37	32	46	37	44
Never or hardly ever	34	48	37	46	53	51	54	29	41	25	50	29	38	32	43	29	55	16	27	27	43	17	12	35	29	23	28	26	15
Not applicable	7	0	1	3	1	5	4	2	:	:	:	:	8	12	8	19	5	26	9	5	13	10	15	7	14	16	15	14	13
Aged 25-54																													
Always or almost always	24	18	26	19	18	20	15	25	21	34	24	24	21	17	19	28	22	45	14	25	20	15	34	25	17	33	14	28	28
Sometimes	32	33	30	32	27	30	27	34	28	29	18	42	31	33	28	23	25	21	39	32	32	38	35	41	28	30	35	37	41
Never or hardly ever	36	46	42	44	53	39	51	36	47	31	48	24	39	41	43	32	46	14	37	31	35	24	14	28	35	23	33	28	19
Not applicable	8	3	1	5	2	11	5	5	:	:	:	9	9	9	10	16	5	20	9	11	13	23	15	6	19	14	19	8	11
Aged 55-64																													
Always or almost always	24	19	24	17	18	16	15	30	18	23	26	33	20	16	19	23	19	57	10	19	21	13	35	24	17	30	10	23	21
Sometimes	29	26	32	26	20	25	23	23	28	18	28	35	29	29	26	22	22	19	31	26	29	34	33	40	23	23	34	35	43
Never or hardly ever	36	48	43	52	58	39	49	38	48	47	35	17	40	41	41	39	49	11	44	38	35	23	15	30	41	29	29	35	21
Not applicable	11	6	1	3	3	20	11	9	0	0	11	14	10	14	13	16	7	13	14	17	15	30	17	7	19	17	27	7	15
Aged 65-74																													
Always or almost always	20	10	19	12	6	18	10	27	0	18	0	28	20	0	20	14	12	50	0	11	25	6	20	13	6	24	0	0	0
Sometimes	28	20	32	29	22	23	27	25	23	18	31	35	21	0	25	24	19	26	27	30	21	14	39	27	7	35	0	42	32
Never or hardly ever	38	58	46	50	65	44	53	33	53	49	29	20	46	0	43	42	61	7	40	59	38	24	23	24	61	6	0	0	0
Not applicable	13	12	3	9	5	15	9	15	0	0	18	16	14	0	13	20	5	17	0	0	17	56	0	36	26	35	0	0	36
Women																													
Always or almost always	21	14	21	17	15	17	12	21	19	34	17	22	18	17	15	27	18	42	12	23	19	18	32	24	17	32	13	26	28
Sometimes	30	31	30	30	24	25	22	34	25	27	17	39	29	31	27	22	22	21	39	35	31	43	35	41	30	30	38	37	41
Never or hardly ever	38	51	47	48	58	44	56	37	51	32	55	27	43	43	48	32	52	16	38	32	36	21	14	28	36	24	31	28	19
Not applicable	10	4	2	4	3	13	9	9	5	7	:	12	10	10	10	19	6	22	11	11	14	18	18	7	17	14	19	8	12
Men																													
Always or almost always	25	22	29	19	18	20	18	30	22	36	28	29	22	18	20	27	21	43	16	23	19	17	33	21	19	32	13	25	28
Sometimes	34	32	33	32	28	31	30	34	32	30	22	42	34	37	31	26	26	22	44	38	31	42	40	41	31	29	40	36	43
Never or hardly ever	33	43	37	44	52	39	47	33	42	28	43	21	37	35	40	33	46	14	31	30	38	22	13	31	33	23	31	27	16
Not applicable	7	2	1	4	1	9	4	3	4	5	:	7	8	11	9	15	5	21	9	9	12	20	13	7	17	16	16	11	12
Lower educational level																													
Always or almost always	20	15	20	15	14	12	15	21	:	32	20	24	12	10	11	17	12	28	10	14	9	16	18	12	14	25	8	16	23
Sometimes	29	26	29	30	23	21	22	34	19	27	22	37	29	29	25	22	21	16	43	40	24	49	47	38	35	30	42	37	39
Never or hardly ever	39	54	49	48	61	54	52	36	59	31	48	27	46	43	50	34	56	16	35	39	48	22	14	42	30	22	31	29	23
Not applicable	11	4	2	6	2	12	9	8	:	10	:	11	12	18	14	27	8	40	12	7	18	14	20	8	22	23	20	18	16

Middle educational level																													
Always or almost always	22	17	23	17	17	19	13	27	20	39	22	25	18	23	18	25	21	39	10	21	18	14	32	22	13	28	11	21	23
Sometimes	32	34	31	28	25	29	24	34	29	25	18	41	32	34	28	21	25	24	37	35	31	36	35	41	26	28	34	35	43
Never or hardly ever	36	46	45	50	54	40	54	35	46	30	49	24	39	36	44	34	48	14	41	32	38	24	14	30	39	26	34	31	20
Not applicable	10	4	1	4	3	12	7	5	5	6	:	11	11	7	10	19	5	23	11	13	14	27	17	7	21	18	21	13	14
Higher educational level																													
Always or almost always	28	24	33	21	20	23	17	30	24	35	27	29	28	24	23	32	26	50	21	31	27	21	44	33	29	36	20	35	40
Sometimes	35	35	34	36	30	32	30	34	31	34	21	44	33	42	32	27	28	21	45	39	37	46	39	46	36	31	47	39	43
Never or hardly ever	32	40	32	39	49	34	47	33	43	29	45	22	35	33	39	30	42	14	26	25	27	19	10	18	27	22	25	23	10
Not applicable	5	1	1	4	1	10	5	3	:	:	:	5	5	:	6	11	3	15	8	5	9	13	6	3	8	11	8	4	7
Densely populated areas																													
Always or almost always	24	:	27	19	16	21	17	28	20	35	23	26	21	18	18	24	19	46	17	26	22	19	34	16	19	34	14	28	30
Sometimes	33	:	33	28	28	29	26	32	28	29	20	42	31	33	30	24	24	21	44	31	34	45	40	40	32	30	40	37	42
Never or hardly ever	35	:	39	48	54	38	49	34	47	30	47	23	39	41	43	33	50	14	32	39	31	19	13	39	36	24	30	27	17
Not applicable	8	:	1	3	1	12	7	6	5	6	:	9	9	7	9	18	5	19	7	3	12	18	13	6	13	12	16	8	11
Intermediate density																													
Always or almost always	23	20	23	16	20	20	15	24	23	42	24	25	18	17	18	27	20	46	:	27	19	:	31	:	:	23	13	27	:
Sometimes	32	33	33	36	23	29	26	35	29	25	19	40	32	32	27	29	25	16	38	36	28	:	38	:	:	30	39	39	:
Never or hardly ever	35	45	43	44	56	40	52	37	44	26	47	25	40	35	43	30	47	16	30	30	38	:	13	:	:	25	30	26	:
Not applicable	9	3	1	4	1	12	5	5	:	:	:	10	9	15	11	14	5	22	:	7	15	:	15	:	:	21	18	8	:
Thinly populated areas																													
Always or almost always	22	15	24	18	16	17	14	27	19	32	22	25	18	15	18	29	20	38	9	18	14	16	31	25	16	29	12	20	19
Sometimes	31	29	29	31	25	28	26	35	30	30	19	39	35	38	28	20	25	23	38	39	30	39	35	42	29	29	36	37	44
Never or hardly ever	37	51	45	46	55	44	52	32	47	32	50	25	36	35	44	33	48	14	38	27	43	25	14	26	33	19	32	30	20
Not applicable	10	5	1	5	3	11	7	6	:	6	:	11	10	12	10	18	5	24	14	16	13	20	18	7	21	23	20	14	18
Objective 1 regions																													
Always or almost always	21	18	18	:	:	:	:	:	38	:	:	24	18	18	19	:	19	43	14	23	17	17	33	23	18	:	13	26	28
Sometimes	35	31	30	:	:	:	:	:	:	:	:	44	36	35	26	:	25	22	41	36	30	42	36	42	31	:	39	37	42
Never or hardly ever	30	47	50	:	:	:	:	:	:	:	:	21	34	35	45	:	48	14	35	31	40	22	14	29	34	:	31	28	18
Not applicable	13	3	2	:	:	:	:	:	:	:	:	10	12	12	10	:	6	21	10	10	13	19	17	7	17	:	18	10	12
Other regions																													
Always or almost always	22	:	26	:	17	19	15	26	20	:	:	26	20	16	18	27	20	:	:	:	22	:	29	19	:	32	:	:	:
Sometimes	32	:	32	:	26	28	26	34	29	:	:	40	31	32	31	24	24	:	:	:	33	:	47	38	:	30	:	:	:
Never or hardly ever	39	:	42	:	55	41	51	35	47	:	:	24	40	45	43	32	49	:	:	:	31	:	13	37	:	23	:	:	:
Not applicable	7	:	1	:	2	11	6	5	4	:	:	9	9	7	9	17	5	:	:	:	13	:	9	7	:	15	:	:	:
Students																													
Always or almost always	22	19	33	17	17	21	17	25	27	37	24	21	19	23	17	32	13	34	14	23	15	24	26	14	20	28	12	23	31
Sometimes	38	33	36	40	30	29	26	48	38	31	30	46	37	41	37	30	26	26	55	49	33	52	48	48	42	34	47	39	43
Never or hardly ever	33	47	31	41	51	46	54	23	33	26	42	30	39	30	41	28	54	14	24	26	42	15	10	32	26	20	28	25	14
Not applicable	7	0	0	2	1	5	2	3	:	:	:	:	6	6	5	10	5	26	8	2	11	9	13	6	12	18	13	14	12
(Self-)Employed																													
Always or almost always	25	19	28	19	:	19	15	27	22	35	24	26	21	17	20	27	22	46	15	24	21	17	36	26	19	34	15	28	28
Sometimes	32	32	32	30	:	29	26	34	29	29	18	41	32	33	29	24	25	21	41	35	32	41	36	40	28	30	37	37	42
Never or hardly ever	35	46	40	47	:	40	51	35	46	31	47	24	39	40	42	32	46	14	34	31	34	23	13	28	35	23	31	27	18
Not applicable	8	3	1	4	:	12	6	4	4	5	:	8	8	10	9	16	5	19	10	10	13	20	13	7	18	13	17	8	12
Unemployed																													
Always or almost always	24	12	21	11	13	17	13	19	:	45	:	29	15	:	11	28	17	33	:	22	12	4	21	14	15	41	9	13	11
Sometimes	30	0	35	22	25	29	24	28	:	24	:	38	28	27	29	15	22	19	31	25	20	24	32	34	17	25	31	31	41
Never or hardly ever	34	88	41	56	60	40	53	43	:	24	:	21	42	41	46	30	55	27	49	27	47	34	:	39	43	24	33	37	30
Not applicable	12	0	4	11	2	14	10	10	:	:	:	13	16	:	14	27	5	21	:	26	21	38	32	12	25	11	27	19	18

Retired or inactive																													
Always or almost always	18	10	17	16	10	17	12	25	12	27	15	24	17	:	9	16	12	41	:	10	16	5	13	11	4	18	5	22	8
Sometimes	28	21	29	33	21	24	28	22	25	29	18	36	25	:	21	21	19	18	19	19	28	26	28	41	29	26	24	25	38
Never or hardly ever	40	58	51	44	64	45	48	40	54	32	54	22	44	44	53	39	57	11	55	54	40	29	25	37	44	29	39	43	35
Not applicable	14	11	3	7	4	14	9	13	9	12	:	17	14	23	17	24	8	30	19	17	16	40	34	11	22	27	32	10	19
Manual workers																													
Always or almost always	18	13	16	15	12	15	11	19	12	37	:	24	11	6	11	12	:	32	5	14	11	20	15	10	8	17	7	10	7
Sometimes	30	32	33	28	25	26	24	31	34	22	:	41	31	27	25	26	:	16	31	22	27	45	33	35	22	24	27	32	40
Never or hardly ever	39	49	49	50	59	47	56	43	48	33	:	24	45	45	49	35	:	18	48	48	43	20	23	43	41	28	38	40	32
Not applicable	12	5	2	7	2	12	8	8	:	8	:	11	13	22	15	26	:	33	16	16	20	15	27	13	29	31	29	18	22
Non-manual workers																													
Always or almost always	27	20	30	20	21	21	17	29	24	34	:	27	24	20	24	32	:	49	19	26	24	7	43	30	24	36	17	32	33
Sometimes	33	32	31	31	26	31	26	35	27	32	:	41	32	35	30	24	:	22	46	38	33	29	37	41	31	30	41	38	42
Never or hardly ever	34	45	38	46	51	36	50	33	46	31	:	24	37	38	40	31	:	13	29	26	32	30	10	24	32	23	29	24	15
Not applicable	6	2	1	3	1	12	6	3	2	4	:	8	7	6	7	13	:	17	7	9	11	35	9	5	13	11	13	6	10

Annex 19: List of identified measurement and monitoring initiatives

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Austria	*Evaluation of the Austrian Pilot Project 'eLearning and eTeaching Using Students´ Notebooks'*	• General education	• Regional • National	• ARBOR Management Consulting • University of Vienna, Arbeitsbereich Bildungspsychologie and Evaluation
	MOODLE MOBILE	• General education	• National	• Information management, FH Prof. DI Dr. Alexander K. Nischelwitzer

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Belgium	*ICT-monitor voor Flanderen*	• Population at large • Public sector • Private sector • Other	• Regional	• The unit Media-Innovatie of the DG Media of the Flemish Government • CORVE - Coordinating unit Flemish e-Government • Innoxys • IBCN - Broadband Communication Networks • ICRI - Interdisciplinary Centre for Law and ICT • MICT - Research group Media & ICT of Gent University • SMIT - Studies on Media, Information and Telecommunication of the Free University of Brussels
	Citoyens wallons: Usages TIC 2006	• Population at large • Public sector • Private sector • Other	• Regional	• AWT

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Bulgaria	*SIBIS, BISER*	• Population at large • Public sector • Private sector • Other	• International/national	• Benchmarking projects

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Canada	*Summative Evaluation on the Office of Learning Technologies*	• Population at large • Disadvantaged groups • Ethnic, cultural and language minorities • Geographically deprived • Other	• Regional/federal	• Human Resources and Skills Development Canada – Office of Learning Technologies
	Evaluation Study of the Community Access Program	• Population at large • Geographically deprived • Other	• National	• Industry Canada – Audit and Evaluations Branch
	Review of the e-Health Program Activities, 2002-2005: Final Report	• Ethnic, cultural and language minorities • Geographically deprived • Other	• Regional/federal	• First Nations and Inuit Health Branch (FNIHB), Health Canada
	International Adult Literacy Survey (Canadian Component)	• Ethnic, cultural and language minorities	• International • National	• Culture, Tourism and the Centre for Education Statistics Division

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Cyprus	*Statistical indicators*	• Population at large • Public sector • Private sector • Other	• National	• Statistical Service of the Republic of Cyprus

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Czech Republic	*STEM/MARK*	• Population at large	• National	• Ministry of Informatics
	Statistical indicators	• Population at large • Public sector • Private sector • Other	• National	• CZSO – Czech Statistical Office

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Denmark	*Borgernes IT-færdigheder (Citizens' ICT Skills project)*	• Population at large • Public sector • Private sector • Other	• National	• IT- og Telestyrelesen/Danish Technological Institute
	QuickTjek	• General education	• National	• Dansk IT/others like FOF

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Estonia	*TNS Emor eTrack Survey*	• Population at large • Public sector	• National	• Department of State Information Systems

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Finland	*Civic Innovations and Digital Applications*	• Population at large	• Local	• Non-profit/ Community organisation
	An analysis of the situation of Information Society as regards to people with disabilities	• Disabled groups	• N/A	• Diaconia University of Applied Sciences, the Turku unit

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
France	*INSEE*	• Population at large	• National	• INSEE
	CREDOC – La diffusion des technologies de l' information dans la société francaise	• Population at large	• National	• ARCEP
	SESSI	• Population at large	• National	• SESSI
	Caisse des Dépots et Cognations	• Population at large	• National	• Caisse des Dépots et Cognations
	Mission Econter – Politiques locals de development des usage TIC et de lutte contre la fracture numérique	• Population at large	• Non-profit • Community	• Mission Econter
	Créatif	• Population at large	• Community	• Not specified
	Association e-Seniors	• Population at large • Older persons	• Community	• Association e-Seniors
	Foundation Internet Nouvelle Génération	• Population at large • Young persons at risk	• Community	• Foundation Internet Nouvelle Génération
	Renaissance Numéric : 2010, l'Internet pour tous : 15	• Non-profit	• Population at large • General education	• Renaissance Numéric

	mesures pour réduire la fraction numérique en France			
	Villes Internet	• Population at large	• Local	• Villes Intenet
	DUI, Baromètre des Usages de l'Internet	• General education	• National	• DUI
	Statistial indicators	• General education	• National	• Ministry of National Education and Higher Teaching and Research

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Germany	*(N)onliner Atlas*	• Population at large	• National	• TNS Infratest
	IT Equipment of Schools and Vocational Schools in Germany	• General education	• National	• Federal Ministry of Education and Research
	KIM Study	• General education	• National	• Mediepädagogischer Forschungsverbund Südwesst
	JIM Study	• General education	• National	• Mediepädagogischer Forschungsverbund Südwesst
	2002: Assessment of the 1999 Action Programme	• Population at large • Public sector • Other	• National	• Federal Ministry of Economics and Technology • Federal Ministry of Education and Research

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Greece	*Greek research & technology Network S.A. – National surveys on New Technologies & Information Society*	• Population at large • Companies (SMEs and large companies)	• National • Regional	• GR NET S.A.

	Observatory for the Greek Information Society	• Population at large • Public sector • Other	• National	• OP.IS – Operational Programme of Information Society

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Hungary	*WIP – World Internet Project Hungary*	• Population at large	• International/national	• World Internet Project Hungary
	SIBIS	• Population at large	• International/national	• SIBIS, local partner not specified

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Iceland	*Statistical indicators*	• Population at large • Public administration	• National	• Statistics Iceland

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
India	*Akshaya Project*	• Disadvantaged groups • Woman • Geographically deprived	• Regional	• Government of Kerela • UNESCO
	IT Enabled Education in Delhi Government Schools	• General Education	• Regional	• Government of Delhi
	Report on the National Consultation by Solution Exchange of UNESCO on the Sponsored Discussion on Digital Literacy Initiatives in	• Population at large • General Education • Disadvantaged Groups	• National • Regional • Local	• Solution Exchange of UNESCO

	India			

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Ireland	*CAIT (Community Application of Information Technology) Initiative*	• Population at large • Ethnic, cultural and language minorities • Geographically deprived	• National	• WRC Social and Economic Consultants
	Learning Society Foresight (Futures Ireland Project)	• Population at large • General education	• National	• Not specified
	Schools for the Digital Age. Information and Communication Technology in Irish Schools	• General education • Public sector	• National	• National Centre for Technology in Education • NUI Maynooth
	ASC - Access, Skills and Content	• Population at large • General education	• National • Non-profit • Community	• Not specified
	Equal Skills	• Population at large	• National	• Not specified, but is the result of a 2002 EU funded pilot project

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Italy	*Statistical indicators*	• Population at large • Public sector • Private sector • Other	• National	• National Statistical Office of Italy

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
	No initiatives identified	• N/A	• N/A	• N/A

Latvia				

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Lithuania	*Vaiva Nemaniene (expert)*	• Population at large	• National	• Vaiva Nemaniene (expert)

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Luxembourg	*No initiatives identified*	• N/A	• N/A	• N/A

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Malta	*Statistical indicators*	• Population at large • Public sector • Private sector • Other	• National	• National Statistics Malta
	E-Commerce Survey	• Population at large • Public sector • Private sector	• National	• Malta Communications Authority
	E-Commerce Gap Analysis	• Population at large • Public sector • Private sector	• National	• Ministry of Investment Industry and Information Technology
	Electronic Communications Market Review	• Population at large • Public sector	• National	• Malta Communications Authority

		• Private sector		

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Norway	*Vox-kompetansetrappen*	• Population at large • Public sector • Private sector • General education • Other	• National • Non-profit	• Vox
	Vox-barometer	• Population at large • Public sector • Private sector • General education • Other	• National • Non-profit	• Vox
	ITU Monitor	• General education	• National • Non-profit	• ITU University of Oslo
	Why Aren't People Buying Broadband?	• Population at large • Non-users	• National	• Norsk Telecom

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Poland	*Indicators from the European Committee/Capgemini*	• Population at large • Public sector • Private sector • Other	• International/national	• European Committee • Capgemini
	Social Diagnosis	• Population at large	• Non-profit	• University of Finance and Management in Warsaw
	Strategy of the Country Development: 2007-2015	• Population at large • Public sector • Private sector	• National	• Government of Poland

		• Other		
	ec eGov - Organisational Change for citizen-centric eGovernment	• Population at large • Public sector • Private sector • Other	• International/national	• ec eGov
	SIBIS/BISER	• Population at large • Public sector • Private sector • Other	• International/national	• SIBIS, local partner not specified
	ZPORR	• Other	• National	• Ministry of Regional Development
	UNDERSTAND - European Regions UNDER way towards STANDard indicators for benchmarking information Society	• Other	• Regional	• Polish partner not specified

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Portugal	*Statistical Information System*	• Population at large • Public sector • Private sector • Other	• National	• Interministerial Commission for the Information Society
	Information Knowledge Society	• Population at large • Public sector • Private sector • Other	• National	• UMIC – Knowledge Society Agency

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Slovak	*Digital Literacy in Slovakia*	• Population at large • Public sector	• Non-profit • National	• Institute of Public Affairs

Republic				

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Slovenia	*Statistical indicators*	• Population at large • Public sector • Private sector • Other	• National	• Statistical office of the Republic of Slovenia • RIS
	SI 2010 Strategy of development information society in Republic of Slovenia	• Population at large • Public sector • Private sector • Other	• National	• Government of Slovenia
	SITES Second Information Technology in Education Studies)	• General education	• National	• Educational Research Institute
	Computer literacy – project ALL	• Population at large • General education • Public sector	• National	• RIS - Research on Internet in Slovenia at Faculty of Social Sciences, University of Ljubljana

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Spain	*No initiatives identified*	• N/A	• N/A	• N/A

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
Sweden	*IGPS Survey*	• Population at large • General education	• National	• Institute for Growth Policy Studies
	The National Communications Survey	• Population at large • Public sector • Private sector • Other	• National	• SIKA - Swedish Institute for Transport and Communications Analysis
	Internet Barometer Sweden	• Population at large • Public sector • Private sector • Other	• National	• Nordicom Sverige • MedieSverige
	IT in small enterprises	• Private sector	• National	• NUTEK
	IT in the School	• General education	• National	• PLS Rambøll Management

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
The	*De Digitale Economie*	• Population at large • Public sector • Private sector	• National	• Statistics Netherlands

Netherlands	*Jaarboek ICT en Samenlevving 2007(Yearbook ICT and Society)*	• Population at large • Public sector • Private sector • Other	• National	• Social Planning Office of the Netherlands • Cultural Planning office of the Netherlands
	Vier in Balans Monitor 2006	• General education	• National • Social partners/stakeholders	• Monitor 2006
	ICT in Cifers	• General education	• National	• ICT-ondervijsmonitor
	Acterstand en Afstand – Digitale Vaardigheden van Lager Opgeleiden, Ouderen, Allochtonen en Inactieven	• Lower educated • Elderly • Non-natives • Inactives	• National	• Social- and Cultural Planning Office of the Netherlands

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
United Kingdom	*Internet Usage in the UK – Ofcom Report*	• Population at large	• National • Non-profit	• Ofcom
	eGovernment: Reaching socially excluded groups	• Population at large • Disadvantaged groups	• National	• Office of the Deputy Prime Minister • Social Exclusion Unit • I&DeA • IECRC • Citizens online
	Leitch Review - Prosperity for all in the global economy - world class skills	• Population at large • Public sector	• National • Non-profit	• HM Treasury
	Local Authorities Social Inclusion Strategy	• Population at large • Public sector	• Local • Non-profit	• IECRC
	Releasing Resource to the Front-line	• Population at large • Public sector	• National • Non-profit	• HM Treasury • Peter Gershon

Country	Initiative	Target Group(s)	Level of Implementation	Implementor(s)
USA	*Educational Testing Service (I-skills)*	• Population at large • General education	• National	• Educational Testing Service
	CEO Forum on Education and Technology	• General education	• Social partners • Non-profit	• International Society for Technology in Education maintains the School Technology Readiness (STaR) Chart for K-12 • American Association for Colleges of Teacher Education maintains the Teacher STaR Chart
	PEW Internet & American Life Project	• Population at large • Ethnic groups • Disadvantaged groups	• National • State	• PEW Research Center
	Partnership for 21st Century skills	• General education	• National • Social partners • Industry	• Partnership for 21st Century skills
	International Society for Technology in Education – Summit and Report (Davies et.al.)	• General education	• International/national	• International Society for Technology in Education
	Statistical indicators	• General education	• National	• National Academy of Engineering • Research council • Gamier and Pearson