SIBIS

SIBIS
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Statistical Indicators Benchmarking the Information Society

Benchmarking Health in the Information Society in Europe and the US

by

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This publication has been prepared by the Work Research Centre (Ireland) in the context of the IST-26276-SIBIS project ("SIBIS Statistical Indicators Benchmarking the Information Society") in co-operation with the other partners in the project.

All publications of the SIBIS project – including this report – are available in electronic format on the internet at:

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Foreword

For some years now statistical indicators on Information Society have been central in the policy making process. This has been best demonstrated through the benchmarking exercise of eEurope 2002 Action Plan, and its further inclusion as a key activity in eEurope 2005. Having recognised this need and driven by the difficulties in obtaining reliable and appropriate statistics, the IST programme supported a pan-European research effort during Framework Programme 5. The prime objective has been to develop and make available methodologies, tools and new statistical indicators which can help remedy the deficit in this field.

It is in this context that the SIBIS project was launched (IST-26276, Statistical Indicators Benchmarking the Information Society", www.sibis-eu.org). This document presents some of the project's main findings so far.

There are at least two main reasons that make this document interesting. First, it is one of the few original attempts to have a coherent and comprehensive approach in measuring the Information Society. As such it is expected to stimulate further debate and research among the professional statistical community, leading to an improved statistical competence in Europe. Second, it provides a unique single source of data on real time which supports many of the new IST research areas, at the launch of Framework Programme 6.

Building on the original SIBIS research, in particular on the results of the indicator surveys, the project has produced 9 reports, selected from those addressed by e-Europe.

The SIBIS work attracts further interest since it also supports the e-Europe 2005 initiative. SIBIS is carrying out an evaluation and a benchmarking of the eEurope 2005 initiative for the 15 EC Member States and the 10 Accession countries which will become available later in 2003. Both the reports and benchmarking results can be obtained from the SIBIS web site.

The publication of the SIBIS project results is a timely and direct contribution to benchmark progress on key issues of the information society in general and the e-Europe initiative in particular.

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Preface

This report is a main deliverable of the SIBIS project (*Statistical Indicators Benchmarking the Information Society*), funded by the European Commission under the "Information Society Technology" Programme (1998-2002). The overall goal of SIBIS is to develop and pilot indicators for monitoring progress towards the Information Society, taking account of the "e-Europe action lines". SIBIS focuses on nine topics of interest, i.e. Telecommunications and Access, Internet for R&D, Security and Trust, Education, Work and Skills, Social Inclusion, e-Commerce, e-Government and e-Health.

Within the SIBIS project two surveys (a General Population Survey and a Decision Makers Survey – businesses) were conducted between March and May 2002 covering the nine eEurope topics. This report describes the outcomes with respect to the topic of "e-Health". The document has two main objectives: to report on the results of indicator testing and data gathering on the eHealth topic in the SIBIS General Population Survey and, on the basis of this and other available data on eHealth indicators, to outline how benchmarking of the eHealth domain could best be progressed in the future. The report has been peer-reviewed internally and by external experts.

The target audiences for the report include those involved in national and EU benchmarking of the eHealth domain, interested parties in eHealth research and application, and national and supranational (e.g. Eurostat) statistical offices. For each of the nine topics a separate SIBIS report (WP2) was issued in 2001. The WP2 report was aimed at setting the scene on the topic, defining the gaps in the statistical coverage and suggesting innovative indicators to be developed through the subsequent survey. The current report, although an independent document, is an interim report. The final version will be issued in April 2003.

SIBIS is lead by Empirica (Bonn, Germany), and includes the following project partners: RAND Europe (Leiden, The Netherlands), Technopolis Ltd. (Brighton, UK), Databank Consulting (Milan, Italy), Danish Technological Institute (Taastrup, Denmark), Work Research Centre Ltd. (Dublin, Ireland), Fachhochschule Solothurn Nordwestschweitz (Olten, Switzerland).

Work Research Centre is an independent research and consultancy organisation specialising in socio-economic aspects of the information society and workplace health issues. Its background includes many studies and policy-related assignments on Information Society developments, including eHealth and eInclusion. For more information about WRC or this document please contact:

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0 Executive Summary

This report presents the results from SIBIS on benchmarking the eHealth activity of the general public in Europe and the US. The benchmarking data is based on a survey of a representative sample of the population in each of the EU Member States, the US and Switzerland. The survey was carried out in April and May, 2002 and involved a completed sample size of 11,832. Full details of the survey methodology and sample can be found in Annex 2.

The focus of the report is on eHealth activities by the general public - whether as citizens, as patients or in the context of providing care for other family members - and specifically on usage of the Internet to search for health-related information. This is one of the most frequent activities on the Internet and has profound implications for the organisation of healthcare and for public health. Indicators are needed that will enable ongoing monitoring of developments and provide a basis for public policy in the area. This has been identified as one of the priority areas for benchmarking in the eEurope 2005 action plan.

The overall scope of the eHealth domain is much broader than this, of course, and encompasses the eHealth activities of all of the wide variety of players that are involved in the health care sector, including health care providers, educational and support services, and administrations. Other reports of the SIBIS project present compilations and analysis of indicators for benchmarking the eHealth activities of these players.

At the time of the SIBIS survey the only robust European-wide data on citizens' eHealth activity was from Eurobarometer and was limited to a single item on seeking health-related advice or information on the Internet. Also, there was no directly comparable data available for the US. SIBIS aimed to make a contribution towards filling these gaps by gathering data on the same indicators in the same survey in both the EU and the US. The project also developed and piloted new indicators to deepen the coverage of the topic in comparison to what was then available, including items on the reasons why people seek health-related information online, their success in finding the information they need, the availability of suitable information in the different European languages, and the extent to which various types of information provider are judged to be trustworthy.

The SIBIS indicator topics

The indicator topics on eHealth that were included in the SIBIS population survey were:

- Searching the Internet for health-related information (in last 4 weeks or last 12 months)
- Degree of success in finding suitable health-related information online
- Extent to which searching had to be extended beyond mother-tongue websites to find suitable information
- Reasons for searching online for health-related information
- Perceived trustworthiness of various providers of online health-related information.

Main results of the SIBIS survey

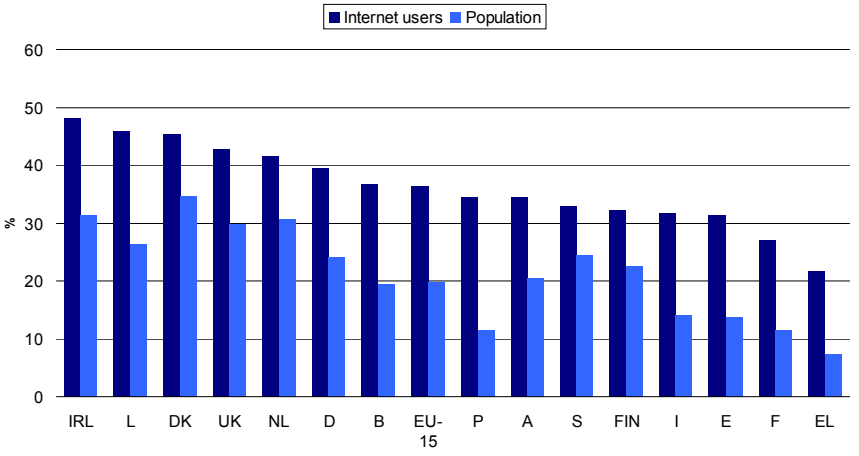
Overall, the indicators developed within SIBIS were found to work well. They could be operationalised for purposes of the SIBIS population survey and yielded good quality data. The main findings are outlined below.

Searching for health-related information on the Internet

eHealth activity is significant in EU

Amongst those aged 15 years and over who used the Internet in the year prior to the survey, a little over one third of respondents in the EU (36.4%) reported using it to search for health-related information (Figure 0.1). This translates into about one in five (19.8%) of the European population aged 15 years and over when non-Internet users are taken into account. Online searching for health information is thus of growing importance within the repertoire of health-related activities of the European public and consequently for public health policy in Europe.

Figure 0.1
Search for any health-related information on Internet (last 12 months)



An EU-US "eHealth gap"

However, online searching for health information is more prevalent in the US than in the EU. This form of eHealth activity was reported by more than half (58.3%) of US Internet users, a figure that translates into more that two in five (44.9%) of the US population. Overall, at the population level, this form of eHealth activity is more than twice as prevalent in the US as it is in the EU.

Home users more likely…but many do it elsewhere

Internet users in both Europe and the US who have access to the Internet at home were more likely to search for health-related information than those who do not (40.6% versus 25.4% in the EU and 62.8% versus 41.3% in the US). However, it is interesting that significant proportions of Internet users without home access also reported online searching for health information (25.4% in the EU and 41.3% in the US). This suggests that whilst context sensitivities such as the desire for privacy or for doing personal things in one's private time may be a factor, many people are using the Internet at work or in other locations to search for health-related information for their private purposes.

Variations across the Member States

Within the EU, the prevalence of online health information seeking varies considerably across the Member States. Amongst Internet users, Ireland had the highest percentage (48.1%) and Greece the lowest percentage (21.6%) reporting any searching for health information in the year prior to the survey. At the population level, when cross-country differences in prevalence of Internet usage are taken into account, Denmark had the highest percentage of the population (34.7%) reporting searching for health-related information on the Internet and Greece had the lowest (7.4%).

"eHealth divides" The Internet and the access that it provides to health-related information may be exacerbating existing socio-demographic "divides" in relation to health matters. Apart from some age- and gender-related differences, once people have access to the Internet there appear to be relatively few differences across socioeconomic groups in the prevalence of seeking health-related information on the Internet. However, the differences across socio-demographic groups in prevalence of Internet access and usage in the first place lead to some significant differentials at the population level. If access to more information about health matters is judged to be a good thing, then older people and people in less favourable socio-economic circumstances are currently at a significant disadvantage.

Gender Amongst Internet users, females were more likely (41.3%) to report online health-information searching than males (32.3%). At the population level, however, the higher likelihood of Internet usage by males eliminated the gender difference.

Age Amongst Internet users, younger people (those aged 24 and under) were less likely (29.8%) than other age groups (35% to 40%) to report this form of eHealth activity. However, varying levels of Internet usage across age-groups meant that, at the population level, the highest percentages using the Internet for health-information searching were to be found amongst the younger age group (26.1%) and amongst those in the 25-49 years age-group (26.3%), intermediate levels amongst those aged 50-64 (14.4%) and very low levels amongst the older age-group aged 65 years and above (4.2%).

Health status Amongst Internet users, people who reported having a long-standing illness or disability were more likely (51.0%) to report this form of eHealth activity than those who did not (34.9%). Differential prevalence of Internet usage, however, meant that at the population level people without a long-standing illness/disability were a little more likely (20.4%) to use the Internet for this purpose than were those who did have such a condition (17.3%).

Socio-economic groups Amongst Internet users, there was no clear pattern across socio-economic groups in relation to prevalence of online searching for health-related information. However, when differential prevalences of Internet usage were taken into account, clear gradients were found at the population level in the likelihood of online searching for health-related information; such gradients were found for educational attainment (prevalences ranging from 5.6% to 28.5% as age of finishing formal education increased), household income (ranging from 8.7% to 29.2% with increasing household income) and occupational grouping (ranging from 14.0% amongst unskilled manual to 33.6% amongst managers/ professionals).

Employment status Again, amongst Internet users, there were no clear patterns by employment status. At the population level, however, those in the retired/other category had the lowest prevalence of online health-information searching (7.4%), those who were unemployed/temporarily out of work (18.4%) and the self-employed (19.8%) were in an intermediate position and the highest prevalence was amongst those in education (30.8%) and those in paid employment (26.4).

Household types Finally, amongst Internet users, there were only small differences across household types. At the population level, however, the differentials in Internet usage across household types meant that respondents in households with children were more likely (about 25%) to search for health-related information than were respondents in two-person households without children (18.3%) and single-person households (11.7%)

Success of health-information search on the Internet

Most people found what they were looking for

In general, Internet users who did report online searching for health-related information reported such searches to have been successful. The vast majority (more than 90%) said that they were able to find health-related information on the Internet and of those who found information, the vast majority (more than 90% again) judged it to be suitable for their needs. There was relatively little variation across countries, with the lowest overall success rates reported in Italy (80.5%) and highest in the UK (89.9%)

Not much variation across socio-demographic groups

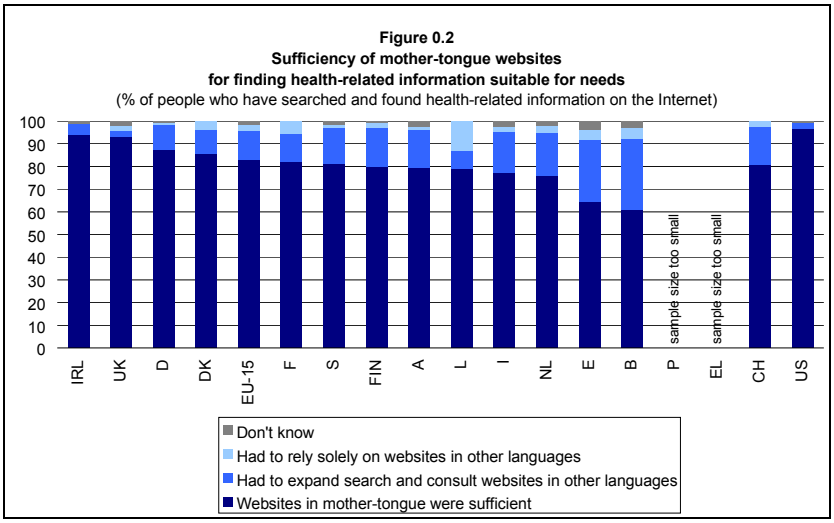
In general, also, there was not a lot of variation across socio-demographic groups in terms of success of Internet users in finding health-information suitable for their needs. There were some tendencies towards slightly lower reported success rates amongst some socio-demographic sub-groups, especially amongst occasional Internet users, but these would need further exploration in a dedicated survey before they could be confirmed.

Linguistic requirements

Language a factor for one in six Europeans

More respondents in the EU (15.5%) than in the US (2.6%) reported having had to expand their search to non mother-tongue websites to find the information they needed (Figure 0.2). This was particularly likely in Belgium (36.3%) and Spain (32.0%) (and even more so in Portugal and Greece, although the numbers of respondents were too low to guarantee reliability). In interpreting the EU-US differences, it needs to be borne in mind that the US survey was limited to English-speaking Americans so that possible language issues for other linguistic groups are not reflected in these figures. Within Europe, a variety of factors may affect tendencies to extend searching to non mother-tongue web sites, including whether one is from a majority or minority language group, the amount and quality of information available in the user's main language and the language skills of the user.

Figure 0.2
Sufficiency of mother-tongue websites
for finding health-related information suitable for needs
(% of people who have searched and found health-related information on the Internet)



Influence of age, education and occupational status

Within the EU, there were some differences across socio-demographic groups in relation to the language factor. Older/retired people who searched the Internet for health-related information were less likely (5.3%) to report having had to use non-mother-tongue websites whereas those with more formal education (20.9%) and managers/professionals (22.0%) were more likely to report this. Differences in linguistic capabilities and/or orientations towards seeking information from outside one's immediate cultural context may be some of the factors involved in these patterns. Interestingly, users from the lowest income households were more likely to report having to extend their search to non-mother-tongue websites, possibly reflecting a greater proportion of non-nationals amongst the lower income grouping.

Reasons for health-information searching

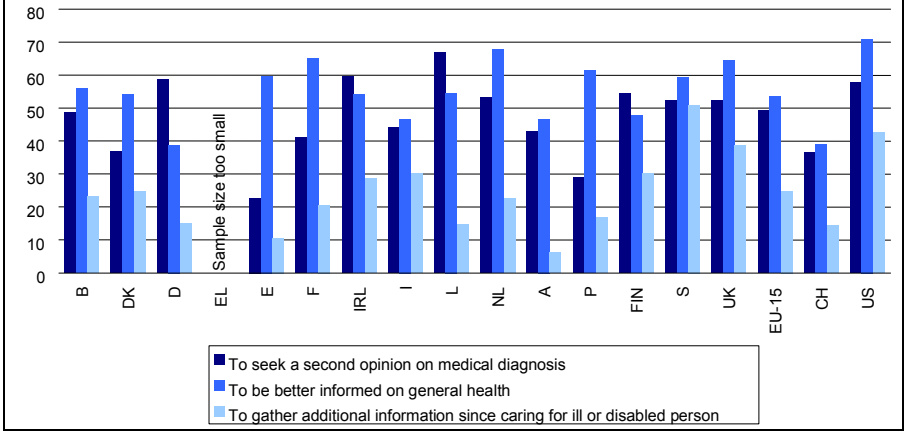
General health information

&

Looking for second opinion

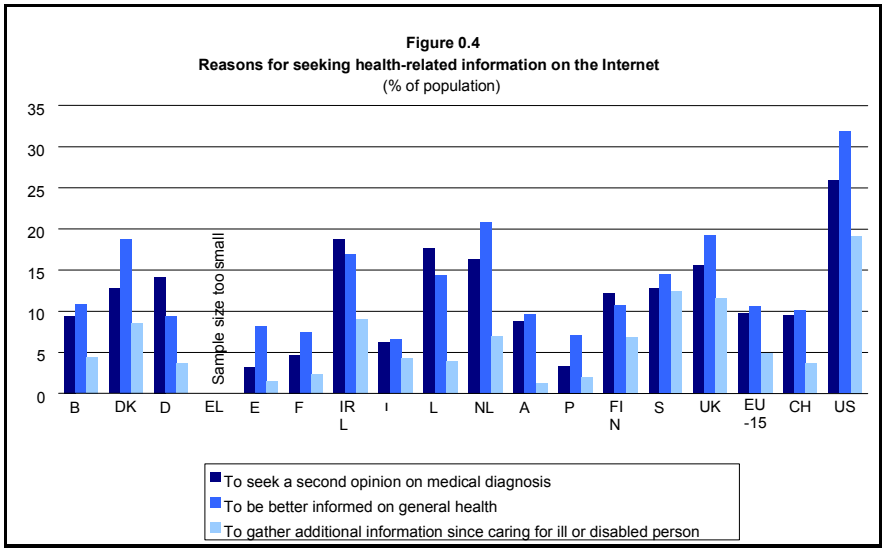
Amongst Internet users who did report searching online for health-related information, getting better informed on one's general health was the most commonly cited (53.9% in Europe and 71.7% in the US) of the three options given, closely followed in Europe by seeking a second opinion on a medical diagnosis (49.8% in Europe and 58.3% in the US), with fewer citing to support their role as carer of ill/disabled person (25.0% in Europe and 43.1% in the US) as a reason (Figure 0.3).

Figure 0.3
Reasons for seeking health-related information on the Internet
(% of Internet users who have searched online
for health-related information in the last 12 months)



At the population level, when prevalence of Internet usage is taken into account, these figures translate into about one in ten in the EU (10.7%) and one in three in the US (32.2%) searching the Internet to be better informed about their health, just under one in ten in the EU (9.9%) and just over one in four in the US (26.2%) searching the Internet for a second opinion on a medical diagnosis, and just under one in twenty in the EU (4.9%) and almost one in five in the US (19.3%) searching for information to support their role as a carer of an ill or disabled person (Figure 0.4).

Figure 0.4
Reasons for seeking health-related information on the Internet
(% of population)



A lot of variation across Member States

Within the EU there was a lot of variation across the Member States in relation to prevalence of searching the Internet for the different reasons. For the first reason – to be better informed about one's general health – the prevalence amongst Internet users ranged from more than two thirds in the Netherlands (68.8%) to less than two in five in Germany (38.8%). For the second reason – seeking a second opinion on a medical diagnosis – the range was from almost two in three in Luxembourg (67.7%) to less than one in four in Spain (23.2%). Finally, for the third reason – to support role as carer – the range was from almost two in five in the UK (39.2%) to just under one in seventeen in Austria (5.9%).

Some variation across socio-demographic groups

Younger Internet users (those aged 24 years or younger) were less likely (37.5%) to report seeking a second medical opinion (possibly because they are less likely to have a specific diagnosed condition) as were those still in education (34.0%); younger people were also least likely (16.5%) to report seeking information to support a role as a carer (possibly because they are less likely to be carers) as were those still in education (16.4%). Internet users who left school earlier were more likely to report seeking a second medical opinion (78.6%) and to support a role as a carer (43.3%), but the numbers in this category were relatively small and the possible reasons for such a trend are unclear. Finally, Internet users with a long-standing illness/disability were more likely than those without such a condition to report searching for each of the three reasons.

Seeking a second opinion

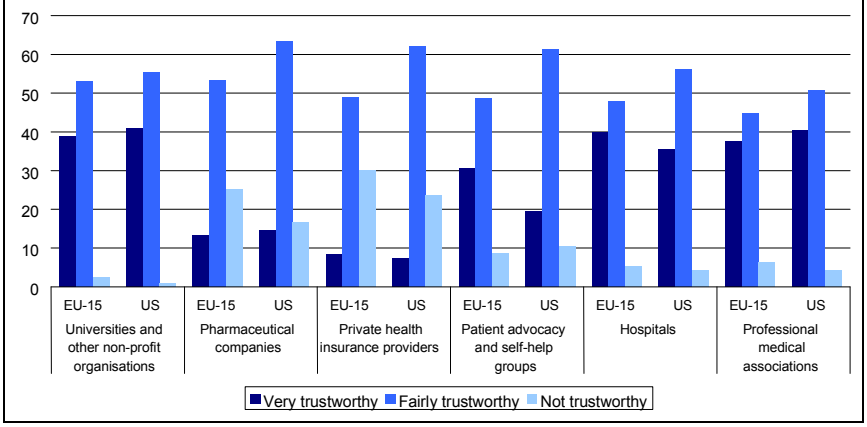
Overall, the figures for health-information searching to get a second opinion on a medical diagnosis are perhaps most interesting. The data shows that this is already being done by a small but significant minority of the general public in the EU as a whole. As this grows it will pose increasing challenges for policy, both in the regulation of the quality of information on the Internet and in helping healthcare providers and their patients to benefit from the new possibilities for sharing decision-making.

Perceived trustworthiness of information sources

Less trust in Private health insurers & Pharmaceutical companies

In both the EU and US, private health insurance companies and pharmaceutical companies were a lot more likely than other organisations to be rated as untrustworthy sources of information by those who searched online for health-related information (Figure 0.5). Just under one in three in the EU (30.2%) and one in four in the US (23.7%) rated private health insurance companies as not trustworthy and one in four in the EU (25.3%) and one in six in the US (16.5%) rated pharmaceutical companies as not trustworthy.

Figure 0.5. Perceived trustworthiness of providers of health-related information
(% of users who have searched online for health-related info in the last 12 months)



Variations across countries

Interestingly, within the EU there was quite a lot of variation in these ratings across the Member States. Germans were particularly likely (40.1%) to rate pharmaceutical companies as not trustworthy and Finns were least likely (3.8%) to do so. The French were most likely (43.9%) to rate private health insurance providers as not trustworthy and the Irish were least likely to (16.2%). Some of these differences may be explained by contextual factors (for example "private" health insurance in Ireland has been, until recently, synonymous with a single state-regulated provider) but others warrant more detailed exploration in future studies in the area.

Older people less trusting of pharmaceutical companies

There were relatively few systematic variations across socio-demographic groups. Older people aged 65+ were more likely (30.1%) and younger people aged 24 and under were least likely (13.4%) to rate pharmaceutical companies as untrustworthy, and those with least education were also less likely to rate pharmaceutical companies as untrustworthy.

Summary

Indicators worked well

The eHealth indicators developed in SIBIS and tested in the general population survey yielded good quality data that has added substantially to the state-of-the-art in the area. Apart from providing the first detailed benchmarking of self-directed searching for health-related information on the Internet in the EU Member States, the SIBIS data allows direct comparisons to be made between the EU and US for the first time. The main conclusions that can be drawn are the following.

1-in-5 of the EU population do it…

First, although online searching for health-related information is still a minority activity in Europe both amongst Internet users (36.4%) and amongst the general population (19.8%), it is of sufficient scale to represent a significant issue for public health policy in general and for patient-doctor interaction in particular.

…but more do it in the US

Second, if such activity is judged to be a positive development in public health terms, then the EU lags behind the US in the extent to which the general public is availing of the new opportunities. People in the EU are less likely to be Internet users in the first place and, when they are, they are less likely than their US counterparts to search for health-related information online.

Variations across the Member States…

… but signs of convergence

Third, there are significant variations across the Member States in the prevalence of health-information searching on the Internet, ranging from between 20% to 50% of Internet users and between 10% and 30% of the population when differences in prevalence of Internet usage across the Member States are taken into account. Although these differences can be expected to reduce as Internet penetration rates converge, contextual factors are likely to continue to influence developments in the Member States as well. In all countries, however, online searching for health-related information is likely to become increasingly significant.

Health divides may be exacerbated

Fourth, amongst Internet users, males and younger users were less likely to report online searching for health information but there were few differences across socioeconomic groups. However, differences in Internet usage in the first place resulted in some significant variations at the population level. Older people and people in less favourable socio-economic circumstances were a lot less likely to use the Internet to search for health-related information. This indicates a need for careful monitoring of the extent to which the advent of health-related information services on the Internet may exacerbate existing health "divides" in the population.

Language is an important factor

Fifth, about one in six EU users reported having to search web sites in languages other than their mother-tongue in order to find suitable health-related information and this was a lot more than the one in forty of their US (English-speaking) counterparts who reported this. Language is therefore an important factor to be considered in eHealth policy and it will be necessary to ensure that sufficient quality information is available for all language groups if linguistically-determined health divides are to be avoided.

Patients look for second opinions on the net…

…posing new challenges for doctors and for policy

Sixth, about half of those in the EU who have searched for health-related information on the Internet have done so to get a second opinion on a medical diagnosis, representing about one in ten of the population overall. This provides the first robust quantification of the many anecdotal reports of patients becoming more informed and more questioning of the diagnoses and therapeutic recommendations of their doctors. It underlines the need for public health policy in Europe to give attention to supporting patients and doctors to exploit the new opportunities for sharing health management and decision-making in a positive and synergistic manner.

Users more skeptical of some information sources than others

Finally, those who used the Internet to search for health-related information in the EU and the US were less trusting of pharmaceutical companies and private health insurers as sources of information than they were of other sources. Within Europe, there were quite wide variations across countries in whether or not and to what extent users expressed skepticism about these information sources. In relation to other sources of information, users tended to be a little more skeptical of patient advocacy/self-help groups than they were of healthcare organizations, professional associations and universities. This type of information on user attitudes can provide a useful input to the work on developing quality criteria for health web sites and on educating users to be discerning in their information search.

Conclusions and recommendations for future benchmarking

The experience of applying the eHealth indicators developed in the SIBIS project provided new insights and guidance for their further refinement and improvement. More generally, the work also enabled a broader appraisal of the state-of-the-art to be made, with a particular focus on the proposals for eHealth indicators in the eEurope 2005 context. Specific recommendations for future benchmarking are presented in the report along with a more general consideration of some key issues as outlined below.

Good quality contextual information is of central importance for interpreting indicator data and for benchmarking the eHealth area. This can be partly generated through questioning in surveys, if relevant socio-demographic information on users is captured as well as information on their health interests and needs and on the healthcare system and circumstances within which they are located. It also requires data from other sources to enable verification, interpretation and evaluation, including objective data on the normative/cultural and structural aspects of the healthcare system within which users operate and on the quality and other characteristics of the online health services that they use.

Finally, multi-method approaches are needed to comprehensively benchmark the eHealth domain. Although surveys of the general public and other healthcare players have a key role to play, other complementary approaches could usefully be included in the future. Apart from gathering contextual data on cultural factors and on health service organisation at national/regional level, it would also be worthwhile considering other approaches, such as web scanning to assess the characteristics and quality of online health sites and automatic data mining of activity data from health sites.

In combination, such multi-level data would provide a solid basis for public health policy in key areas. It could support the development of regulation and guidance for online health-

information providers and the utilization of online services for public health promotion. It could also be helpful for “traditional” healthcare providers by informing them about the types of health-related activities that the public (and their patients) are doing and supporting the development of training on how to deal with this in their practices. Finally, it could provide an input to the design of educational programs for citizens in how to get the best from the new online opportunities.

1 Introduction

This Chapter presents an initial discussion of some issues that need to be considered in benchmarking eHealth developments, outlines the scope of the benchmarking work in SIBIS and describes the structure and content of the remainder of the report.

1.1 Issues in benchmarking eHealth developments

Developing good indicators to benchmark the emergence of eHealth activity is important for guiding policies related to eHealth as mentioned in the context of the eEurope initiative.

On the one hand, the proliferation of online eHealth services (information, advice, clinical services and pharmaceutical sales) is facilitating increased self-directed, self-servicing activity amongst consumers. It is important to have indicators of both the availability and quality of such services, and of the use (and possible mis-use) of such services if policy positions and initiatives are to be well-informed and up-to-date. It is also important to monitor the extent to which such services and their usage are affecting health and healthcare divides across social groups - are they resulting in better health practices and are they reducing or increasing the health differentials that currently exist across socio-economic groups?

On the other hand, there are many opportunities for increasing the efficiency and effectiveness of the more "traditional" (i.e. off-line) health services through exploitation of the new opportunities presented by Information Society Technologies. Indicators are needed for benchmarking the extent to which these opportunities are being realised and to point to the types of policy initiatives that may be needed to encourage the diffusion of good practice.

Developing and applying indicators for benchmarking the eHealth domain is a challenging task. One challenge comes from the fact that the healthcare domain covers a very large and complex sector, comprising many different players and activities. As a consequence, the variety of possible of eHealth applications is very broad and includes such widely different activities as self-initiated online information seeking by members of the public, patient-doctor interactions for administrative and/or clinical purposes, health provider-administration interactions for activity reporting and/or reimbursement, formal or informal ongoing education for healthcare professionals, administration-administration interaction for exchange of data, and data mining for research/epidemiological purposes.

In relation to eHealth indicator development, the significant cross-country variations in the organisation of healthcare and healthcare practices, coupled with the relatively immature status of eHealth activity at present add to this complexity. For example, telephone consultation with one's doctor is extensively used (and reimbursed) in some countries, not used very much in others and even disallowed in some. Diversity and immaturity are also evident in other features of the sector. One important example is reflected in the extent to which provision of "official" health websites and/or portals hosted by national/regional health authorities varies across countries and generally lags behind the mushrooming private and/or voluntary sector activity in this area. Another example is in the varying availability of dedicated/customised health networks to which health professionals and organisations can connect and on which they can interact.

Such examples point to the importance of "infrastructural" availability as an indicator of eHealth development and as a prerequisite for many forms of eHealth activity, and to the importance of taking contextual factors into account in seeking to benchmark eHealth activity in Europe. A given form of eHealth activity (e.g. electronic interaction with one’s doctor) may be possible, deemed desirable and/or encouraged in some countries whilst being disallowed, deemed undesirable and/or discouraged in others.

These issues of complexity, diversity and maturity are taken up again in Chapter 4 in the discussion of future indicator development and benchmarking considerations in relation to eHealth.

1.2 Scope of the SIBIS work on indicator development and testing

The scope of the SIBIS work on eHealth indicators covered the full range of stakeholders and types of eHealth activity that are identified and discussed in Chapter 2. There were two main aspects to the work. One part focused on collating and assessing all available indicators from other empirical and analytic work in the area. The results of this work are available in various working documents from the project and will also be presented in summary form in a forthcoming report[1]. The other part of the work involved empirically applying a subset of the indicators in order both to test their performance and to generate new and robust benchmarking data on eHealth activity in Europe and the US. This empirical benchmarking work concentrated on eHealth activities of the general public and is the main focus of this report.

1.3 Overview of the report

Chapter 2 describes the framework that was employed in the analysis of the eHealth domain and outlines the indicators that were empirically tested and used to generate benchmarking data in the SIBIS survey of the general public. Chapter 3 presents an analysis of the results of this eHealth benchmarking survey, augmented with some data from other surveys of the general public and of general practitioners. Finally, Chapter 4 discusses the performance of the indicators that were used in the SIBIS and other surveys and presents some proposals for future work in the area.

[1] All public documents from SIBIS are available for downloading at www.sibis-eu.org

2 SIBIS analysis and benchmarking of the eHealth domain

This Chapter presents the results of the SIBIS analysis of the eHealth domain and describes the indicators that were used in the benchmarking survey of the general public.

2.1 Identification of the stakeholders and their interactions

The healthcare sector comprises a complex mix of institutions, businesses, professionals and users. This section presents an analysis and description of some of the key stakeholders and of the ways that they interact that have relevance for eHealth developments.

2.1.1 Healthcare stakeholders

The SIBIS analysis has organised the variety of healthcare stakeholders into six main sets of players:

- consumers
- traditional direct healthcare providers
- educational and support services
- purchasers/reimbursers
- policy/administration
- new online healthcare players.

Table 1.1 gives some examples of each of the main types of player.

Table 1.1 Main types of healthcare player

Main types	Examples
Consumers	Citizens Patients Carers
Traditional direct healthcare providers	Office-based doctors Health centres Hospitals Imaging/laboratory facilities Pharmacies Community nursing services Other paramedical/sociomedical services
Traditional educational and support services	Medical colleges Continuing medical education services Information and other support services for professionals and/or consumers
Purchasers/reimbursers	National and local government Public insurance organisations Private insurance organisations
Policy/administration	Health Ministries Local authorities/municipalities Various other public agencies
New online players	Health information Clinical services Pharmaceutical sale/purchase

There is considerable variation across national health systems in Europe in the structure, organisation and numbers of the different types of player.

Consumers

These are the users of healthcare services. Consumers move between different roles, including the general role of citizen with healthcare interests, of patient with a specific relationship with one or more provider, and of carer providing support for other patients and citizens.

Traditional direct healthcare providers

These are the individuals and organisations that provide direct healthcare services, such as diagnosis, treatment and rehabilitation. This category includes a wide variety of types of player, from individual doctors in their own offices to large hospitals. It includes both individuals working in a healthcare delivery context and organisations/enterprises involved in direct healthcare provision.

Traditional educational and support services

These are the services that provide the initial and ongoing training for professionals, and those that provide information and other support for practicing professionals and/or consumers.

Purchasers/reimbursers

These are the organisations that pay for the health services that are provided to consumers. They include central and local government (where financing is from general or local taxation), public insurance funds and private insurers.

Policy/administration

These are the administrations and other public agencies that manage the overall healthcare sector and the various players. They include national, regional and local governments and public agencies such as offices of disease surveillance and health statistics.

New online healthcare players

These are the new players that have emerged with the development of the Internet and web, such as online health-information providers, online clinical services and online pharmacies.

2.1.2 Interactions between the stakeholders

Table 2.1 gives an indication of some of the main forms of interaction between the different types of player. These give an indication of the wide variety of types of eHealth services and applications of potential relevance for the different stakeholders.

Table 2.1 Some of the main interoperations between the players

	Consumers	Traditional direct healthcare providers	Educational and support services	Purchasers/ Reimbursers	Policy/ Administration	New online healthcare players
Consumers	• Peer support & Self-help Groups	• Health information • Administrative info/interaction • Clinical interaction	• Health information	• Claims • Payments	• Health information • Administrative information and interaction	• Health information • Administrative interaction • Clinical interaction • Purchase of pharmaceuticals
Direct healthcare providers		• Clinical information • Patient referral/ transfer • Opinion/ support • Prescriptions	• On-site and remote education/ training • Initial and continuing education/ training • Information and expert support	• Billing • Payments	• Activity reporting • Notifiable diseases	
Educational and support services			• Remote education/ training			
Purchasers/ Reimbursers				• Inter-agency reimburse-ment	• Activity reporting	
Policy/ Admin.					• Information exchange	

Source: adapted from SATS, 2000[2]

[2] empirica and WRC (2000) Study on the use of advanced telecommunications services by health care establishments: implications for telecommunications regulatory policy in the EU.

2.1.3 Framework for indicator identification

An overall framework for eHealth indicator identification was developed and is represented in Figure 2.1 below. Apart from the various types of healthcare player, the Figure also indicates three main levels of indicator. First there are indicators of "readiness". Readiness indicators fall into two main categories, one addressing characteristics of the user group in question (such as attitudes, skills and so on) and the other addressing infrastructural prerequisites (such as the availability of online services, health networks and so on) and contextual factors (such as the extent to which policy and/or professional orientations are supportive of particular eHealth activities). Second there are indicators of "usage", addressing types and amounts of usage of eHealth applications. Finally, there are "outcome" indicators of eHealth activity, including indicators reflecting the assessments of users themselves and indicators reflecting expert judgement and/or the extent of conformance with agreed criteria in relation to quality of eHealth services, desirable eHealth activities and "good" outcomes.

Figure 2.1 Basic framework for eHealth indicator identification

Indicator levels	**Healthcare players**					
	Public	Traditional healthcare providers	New online health-related services	Educational/ support services	Insurers/ reimbursers	Administr-ations
Readiness						
Usage						
Outcome						

2.2 Scope and focus of the SIBIS indicator testing and benchmarking

As already noted earlier, the empirical testing of indicators and the gathering of benchmarking data in the eHealth area focused on the general public. This focus was dictated by the methodological approach employed in the project, based on two "omnibus"[3] surveys, one of the general population and the other of decision-makers in enterprises.

Of these two surveys, only the general population survey (GPS) was suitable for eHealth indicator testing and data gathering. The survey of decision-makers in enterprises was not an appropriate vehicle for sampling and questioning decision-makers in healthcare organisations as the methodology could not ensure that a sufficient and representative sample of healthcare organisations would be included and, even if this were possible, the survey instrument for establishments was a generic one without the possibility of including specifically-tailored modules for particular sectors, such as healthcare.

In identifying eHealth indicators for utilisation within the general population survey, some important considerations needed to be taken into account. One of these concerned the considerable variation across Member States (and the US) in the organisation and delivery of healthcare services and, consequently, in the type and nature of patient-doctor interactions that are relevant and important. Another concerned the general lack of maturity in the development of formal online “doctor-patient” interactive services. It was therefore decided that the focus of the SIBIS survey would be on more informal, self-directed searching for health-related information on the Internet and that more formal administrative and/or clinical interactions would have to be the subject of other studies outside of the scope of SIBIS.

Taking into consideration also the limitations on the number of questions on eHealth that could be accommodated in the “omnibus” SIBIS survey, this was felt to be the best use of resources in relation to eHealth indicator development and testing within SIBIS. Even then, as is the case in all surveys, it was not possible to include all items of potential interest (for example, online purchase of pharmaceuticals was omitted from this survey but is something that will be important to benchmark at a relatively early stage in the future because of its public health significance).

[3] Omnibus surveys address a wide range of issues and therefore do not typically allow for very in-depth coverage of any specific issue. In SIBIS, the surveys addressed a variety of online activities including eHealth, eCommerce. eGovernment and eWork

Table 2.2 eHealth indicators for which data is presented in this report

Indicator name	User group	Indicator area	Existing indicators	Used in SIBIS	
				Data from SIBIS survey	Data from other sources
Seeking health-related information on the Internet	Public	Usage	Variations used in EB 53[4], Flash EB's 87, 103, 112 and 125[5]	X (SIBIS variant)	
Finding health-related information on the Internet	Public	Outcome		X	
Suitability of health-related information found on the Internet	Public	Outcome		X	
Sufficiency of mother-tongue websites	Public	Readiness (User & Infrastructural)		X	
Reasons for seeking health-related information on the Internet	Public	Usage		X	
Perceived trustworthiness of providers of health-related information	Public	Readiness		X	
Interest in online doctor's advice	Public	Readiness (User)	EB 50.1[6]		X
Willingness to pay for online eHealth	Public	Readiness (User)	EB 50.1		X
Interest in various eHealth applications	Public (50+)	Readiness (User	SeniorWatch[7]		X
Use of IT in practice	Healthcare provider	Readiness (Infrastructural)	Flash EB's 80, 104, 126[8]		X
Connection of IT equipment to Internet or dedicated GP's network	Healthcare provider	Readiness (Infrastructural)	Flash EB's 80, 104, 126		X
Uses of Internet or dedicated general practitioner's network	Healthcare provider	Usage	Flash EB 104, 126		X
Type of patient consent for transferring (identifiable) patient data	Healthcare provider	Usage	Flash EB 104, 126		X
Use of electronic signature in communication patient data	Healthcare provider	Usage	Flash EB 104, 126		X
Use of Electronic Health Care Record (EHCR)	Healthcare provider	Usage	Flash EB 104, 126		X
Use of website for practice	Healthcare provider	Usage	Flash EB 104		X

[4] Eurobarometer 53.0 (2000): Measuring Information Society

[5] Flash Eurobarometer studies on "Internet and the public at large" - 112 (21/01/2002) survey of November 2001; 103 (08/11/01) survey of June 2001; 97 (05/04/01) survey of February 2001; 125 (July 2002) survey of May-June 2002

[6] Eurobarometer 50.1 (1999): Measuring Information Society. Survey of Autumn 1998

[7] SeniorWatch (2002) Older People and Information Society Technology. Deliverable No. 5.1. Survey of Summer 2001.

[8] Flash Eurobarometer studies on " 'MIS' Medecins Generalistes" - 80 (May, 2000) survey of April-May 2000; 104 (21/11/01) survey of June-July 2001; 126 survey of May-June, 2002.

2.3 The indicators addressed in this report

Despite these constraints it was nevertheless possible to include enough indicators on eHealth in the population survey to ensure good coverage of a number of key aspects of self-directed online searching for health-related information. The indicators selected for testing and data gathering in SIBIS are listed in Table 2.2. There are also some other sources of data that is relevant to indicator development for the general public and these are also listed in Table 2.2. Finally, there is also some European wide data available on some relevant indicators for one group of healthcare providers (General Practitioners) and these are also included in Table 2.2. Data from all of these sources - SIBIS and non-SIBIS - are presented and discussed in Chapter 3.

3 Presentation and analysis of eHealth Benchmarking Data

This Chapter presents and analyses available data that can support robust European-wide benchmarking of eHealth activity. The main focus is on the SIBIS data on eHealth activity of the general public. This is augmented with some representative data from other sources on eHealth activity of the European population aged 50 years and older and of general practitioners.

3.1 SIBIS data on indicators of eHealth activity by the general public

As discussed in Chapter 2, the SIBIS population survey addressed five main indicator areas that deal directly with the eHealth topic. A total of 14 questions were asked in relation to these indicator areas and these are presented in Table 3.1 below.

Table 3.1 eHealth indicators for testing and data collection in SIBIS GPS

Indicator topic	**Question No.** ***(Filter)***	**Question**	**Answer categories**
Use of Internet to search for health-related information	B1 (d) *(If have used Internet at least once in last 12 months)*	…For your private purposes, have you used it [the Internet] in the last 12 months…to search for any health-related information	Yes / No / DK
	B2 *(If yes to B1 and have used the Internet in last 4 weeks)*	Have you done so in the last four weeks?	Yes / No / DK
Success of search and suitability of information found	L1 *(If yes to B1)*	Have you been able to find health related information on the Internet?	Yes / No / DK
	L2 *(If yes to L1)*	Was the information suitable for your needs?	Yes / No / DK
Linguistic requirement	L3 *(If yes to L2)*	…When you searched, did you find Websites in your mother tongue sufficient or did you have to expand your search and consult sites in other languages, or did you even have to rely solely on sites in other languages?	Websites in mother tongue were sufficient Had to expand my search and consult web sites in other languages too Had to rely solely on websites in other languages DK
Reasons for health-information seeking	L4 *(If yes to B1)*	And for what reasons did you search health-related information on the Internet? Did you search health-related information on the Internet to.. (a) Seek a second opinion on your own, a family member's, or a friend's medical diagnosis? (b) Be better informed on your general health? (c) Gather additional information since you care for an ill person or a person with a disability?	For each: Yes / No / DK
Perceived trustworthiness of providers of health-related Information	L5 *(If yes to B1)*	How trustworthy would you consider each of the following providers of health-related information: (a) Universities and other non-profit organisations active in the health sector / health field (b) Pharmaceutical companies (c) Private health insurance providers (d) Patient advocacy and self-help groups (e) Hospitals (f) Professional medical associations	For each: Very trustworthy Fairly trustworthy Not trustworthy DK

3.1.1 Use of Internet to search for health-related information

This section presents data on online searching for health-related information in Europe and the US. It mainly presents data from the SIBIS survey but also includes some data from other sources for comparative purposes.

The EU15 in comparison to the US

It can be seen from Table 3.2 and Figure 3.1 that European internet users were less likely than their US counterparts to have reported using the Internet (for their private purposes) to search for health-related information. A little more than one third of all European Internet users (36.4%) reported doing this at some stage in the 12 months prior to the survey compared with considerably more than half of US Internet users (58.3%). US internet users were also a lot more likely than their EU counterparts to have searched recently (31.4% in the US versus 17.9% in the EU) and also more likely to have searched in the previous 12 months but not recently (26.9% in the US versus 18.5% in the EU).

Table 3.2 Search for any health-related information on the Internet

eHealth search frequency	eHealth searchers[1]		Internet users[2]						Population[3]	
			All (regular and occasional)		Regular (last 4 weeks)		Occasional (last 12 months, not last 4 weeks)			
	EU15 %	US %	EU15 %	US %	EU15 %	US %	EU15 %	US %	EU15 %	US %
Recently (last 4 weeks)	49.3	53.9	17.9	31.4	21.0	34.9	-	-	9.8	24.2
Not recently (last 12 months, not last 4 weeks)	50.7	46.1	18.5	26.9	17.3	24.5	25.0	48.0	10.1	20.7
All (recently and not recently)	100.0	100.0	36.4	58.3	38.4	59.4	25.0	48.0	19.8	44.9
Did not search	-	-	63.6	41.7	61.6	40.6	75.0	52.0	80.2	55.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N (unweighted)	2149	438	5822	746	4980	672	842	74	10309	1004

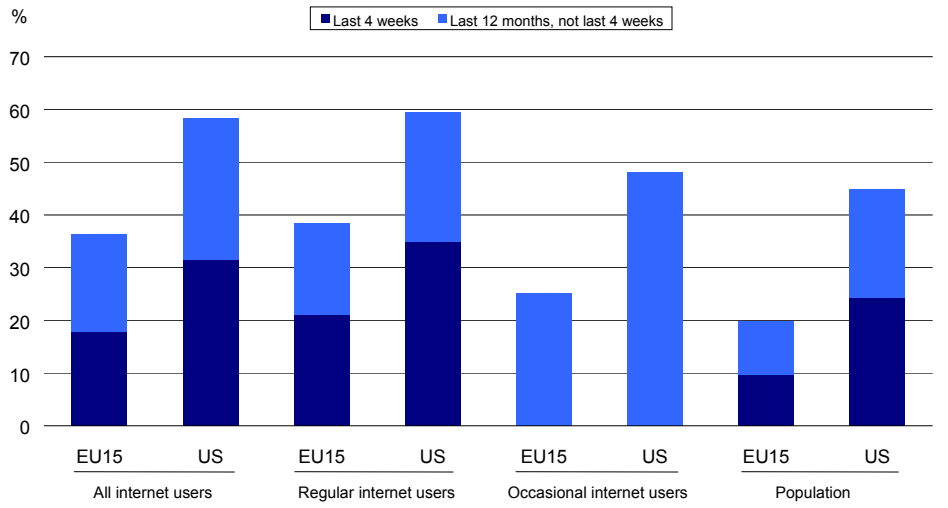
Weighting: EU15 results are weighted according to Member State populations
"Don't knows" were excluded in the calculation of percentages
[1]Base: Respondents who have used Internet (for private purposes) to search for any health-related information in last 12 months
[2]Base: Respondents who have used the Internet (for private purposes) in the relevant period
[3]Base: Whole sample, including Internet users and non-users

Of course not everyone is an Internet user so it is also important to assess the extent to which online searching for health-related information is prevalent amongst the total population. This requires adjustment of the online health activity rates to take into account levels of Internet usage and non-usage amongst the overall population (see Table A3.1a in Annex 1 for details).

As can be seen from Table 3.2 and Figure 3.1, the higher levels of Internet usage amongst the US population (77.0% compared with 54.4% in the EU) increase the differentials in eHealth activity between the US and the EU amongst the population overall. This is reflected in the percentages of the overall population using the internet for health-related information seeking at any time over the previous 12 months (44.9% in the US versus 19.8% in the EU) as well as in the proportions who have done so recently (24.2% in the US and 9.8% in the EU) and not recently (20.7% in the US versus 10.0% in the EU).

Overall, this form of online health activity was more than twice as prevalent in the US as it was in Europe, with about one in five Europeans engaging in health information seeking on the Internet in the last year compared with a little under one in two in the US.

Figure 3.1
Search for any health-related information on Internet



See Table 3.2 for information on base and weighting

Although part of this EU:US "eHealth gap" can be explained by the higher prevalence and regularity of Internet usage in the US, the higher rates of eHealth activity amongst Internet users in the US indicate that there are other factors involved. Even if levels of Internet usage amongst the EU population increased to US levels, with all other factors remaining constant, the current EU-US gap in online searching for health information would only reduce by about one third (to a predicted gap of 16.4%, based on a predicted EU rate of 28.5% and the current US rate of 44.9%) and the "eHealth gap" would still remain large.

Table 3.3 presents data on other aspects of Internet usage in the EU and US and on how these relate to prevalence of online searching for health-related information. It can be seen that in both the EU and US the likelihood of online searching for health-related information increases with length of time using the Internet, with having Internet access at home and with hours spent using the Internet at home. In all cases US Internet users were more likely than their EU counterparts to report online searching for health-related information. Therefore, even though US Internet users were more likely to have been using the Internet for a longer time period and were also more likely to have home Internet access and to use the Internet for more hours per week at home, these factors accounted for only a very small part of the EU:US "eHealth gap".

Even if EU levels of Internet home access and of Internet usage increased to US levels, and all other factors remained constant, there would still be a large gap in levels of online searching for health-related information[9]. Clearly, other factors are a much more significant influence (for example, factors such as cultural orientations towards doing things on the Internet, skepticism about the infallibility of medical practitioners, the importance of private healthcare, opportunities for self-selection of one's practitioners and for "shopping around" and so on might have a role to play). Further more in-depth studies would be needed to explore these issues.

Overall, however, although Europe is still lagging behind the US and may continue to do so, a significant minority of Europeans now engages in online health information seeking and this can be expected to grow as Internet penetration increases. It is thus of growing importance in the health-related activities of the European public.

[9] Of course, even in relation to these factors, the direction of causality is not necessarily in one direction - it is just as plausible that using the Internet for longer, more intensively and/or at home makes one more likely to search for health-related information as it is that the desire to search for health-related information makes one more likely to get a connection to the Internet earlier, at home and/or use it more intensively.

Table 3.3 Variation in online searching for health information amongst Internet users

	Internet users		Likelihood of eHealth searching		Predicted eHealth searching in EU if Internet usage patterns in EU reached US levels
Characteristics of Internet Users	EU %	US %	EU %	US %	EU %
Length of time using Internet:					
Less than 6 months	7.0	3.3	22.8	37.7	0.8
6-12 months	10.9	3.4	29.9	54.6	1.0
1-2 years	27.0	14.4	33.4	51.1	4.8
More than 2 years	55.1	78.8	40.9	60.7	32.2
All	100.0	100.0	36.4	58.4	38.9
	5802	745	5802	745	EU: 5802; US: 745
Internet access at home:					
Yes	72.2	79.2	40.6	62.8	32.2
No	27.8	20.8	25.4	41.3	5.3
	100.0	100.0	36.4	58.3	37.4
	5827	746	5827	746	EU: 5827; US: 746
Hours of Internet usage per week at home (if used Internet in last 4 weeks):					
None	2.2	1.2	31.2	73.9	0.4
Less than 1 hour	24.4	10.6	32.2	44.3	3.4
1-5 hours	50.2	48.2	44.0	58.0	21.2
6-10 hours	14.0	21.2	43.5	70.4	9.2
11-20 hours	4.6	10.5	52.1	68.5	5.5
More than 20 hours	4.6	8.3	52.1	91.1	4.3
All	100.0	100.0	41.5	63.2	44.0
	3830	561	3830	561	EU: 3830; US: 561

Weighting: EU15 results are weighted according to Member State populations
"Don't knows" were excluded in the calculation of percentages
Base: Respondents who have used Internet (for private purposes) in last 12 months

Recency of online searching for health-related information

Looking more closely at those who did report using the Internet to search for health-related information, it can be seen from Table 3.2 that in both the EU and the US about half of respondents reported recent usage (in previous 4 weeks) and about half reported non-recent usage (in previous year but not in previous 4 weeks). This distribution was mostly replicated amongst regular Internet users (in SIBIS, those who used the Internet in the previous 4 weeks were defined as "regular" users), with only a slight tendency for regular Internet users in both the EU and US to be more likely to also report recent searching for health-related information (54.7% in the EU and 58.8% in the US). Overall, these patterns of searching for health-related information suggest that whilst recent usage of the Internet may be a reasonable proxy for regular usage of the Internet, whether or not someone has recently searched for health-related information is likely to be closely linked to whether or not a (health-related) reason for such a search occurred during the period. Recency of online searching for health-related information may therefore not be appropriate as a proxy for regularity of such searching. These issues merit further attention in any future more in-depth exercises to benchmark eHealth activity of the general public and are discussed further in Chapter 4.

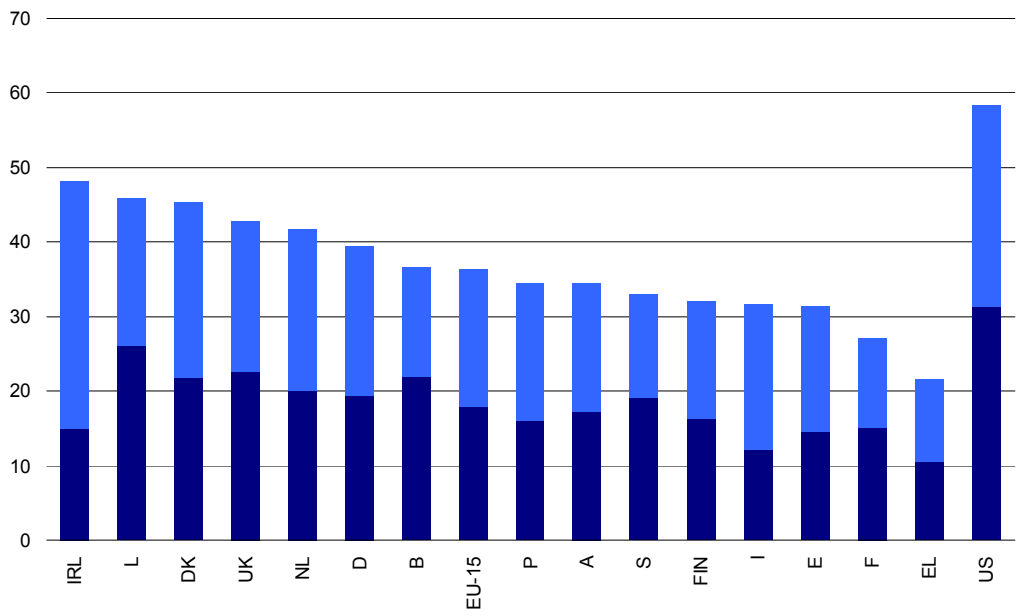
Location of usage

In relation to the importance of home usage more generally, it is interesting that significant proportions of Internet users without home access also report online health information searching (25.4% in the EU and 41.3% in the US). This suggests that whilst context sensitivities such as the desire for privacy or for doing personal things in one's private time may be a factor, many people are using the Internet at work or in other locations to search for health-related information for their private purposes.

Patterns across the EU Member States

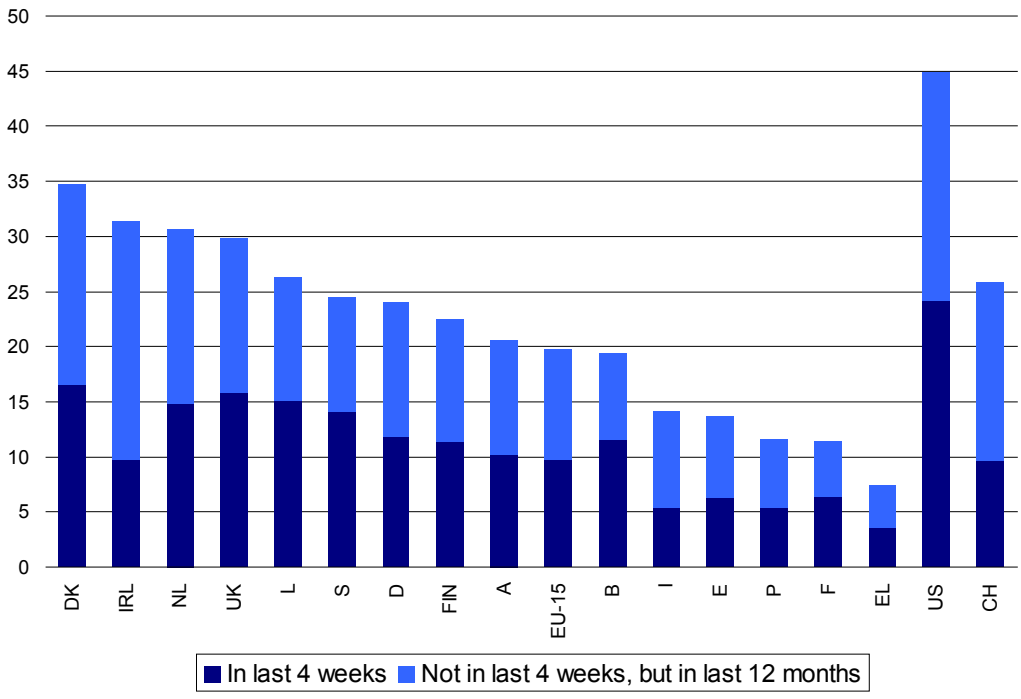
There was considerable variation in reported eHealth activity rates across the EU Member States, as indicated in Figures 3.2 and 3.3.

Figure 3.2
Searching for health-related information online
(% of all Internet users)



See Table 3.2 for information on base and weighting

Figure 3.3
Searching for health-related information online
(% of population)



See Table 3.2 for information on base and weighting

Looking first at patterns amongst Internet users, it can be seen from Figure 3.2 that within the EU15 Ireland had the highest percentage (48.1%) and Greece the lowest percentage (21.6%) reporting any searching for health information in the previous 12 months. Ireland, Luxembourg, Denmark, UK, Netherlands, Germany and Belgium were above the EU15 benchmark (36.4%) and Portugal, Austria, Sweden, Finland, Italy, Spain, France and Greece

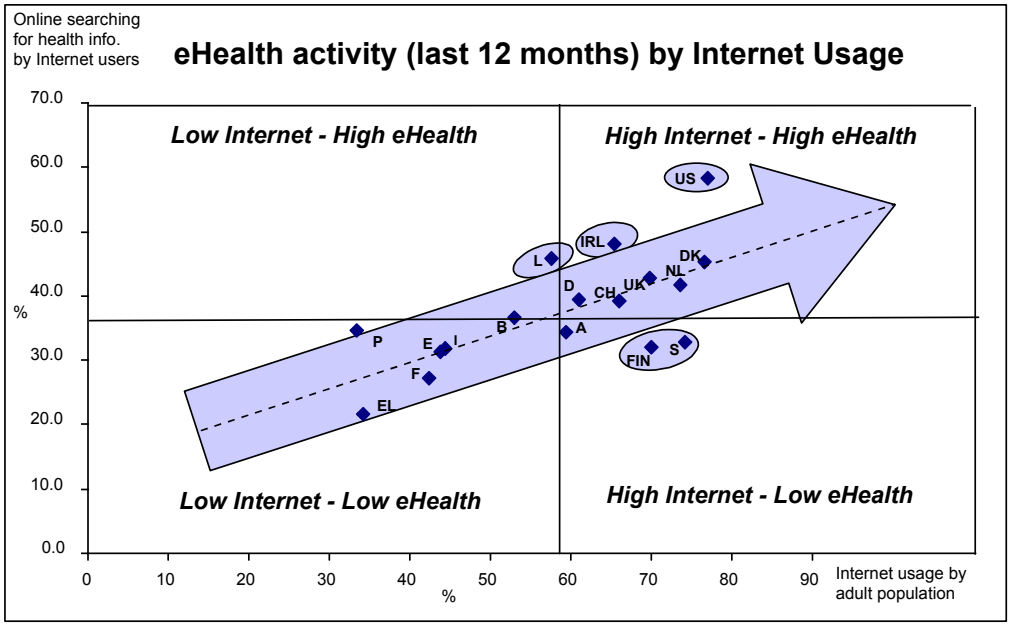
were below it. No country approached the US benchmark (58.3%). With regard to recency of searching, Luxembourg had the highest percentage (26.2%) reporting searching in the previous 4 weeks and Greece had the lowest (10.5%) and, again, no country approached the US benchmark (31.4%).

Turning to population figures, there was also significant variation across countries in online health-information seeking when the data was adjusted for the proportion of Internet users in each country (see Table A3.1 in Annex 1 for details). In this case, Denmark had the highest percentage of the population (34.7%) reporting searching for health-related information on the Internet in the previous 12 months and Greece had the lowest (7.4%). Denmark, Ireland, Netherlands, UK, Luxembourg, Sweden, Germany, Finland and Austria were above the EU15 benchmark (19.8%) and Belgium, Italy, Spain, Portugal, France and Greece were below this. Again, no country reached the US benchmark (44.9%).

Looking at recent usage of the Internet for seeking health-related information, Denmark again had the highest percentage (16.6%) in population terms reporting this in the last 4 weeks and Greece again had the lowest percentage (3.6%). Belgium, Denmark, Finland, Germany, Luxembourg, Netherlands, Sweden and the UK were above the EU15 benchmark (9.8%) and France, Greece, Italy, Portugal and Spain were below this. Again, no country reached the US benchmark (24.2%).

Finally, Figure 3.4 shows the association between levels of Internet penetration and eHealth activity across countries. It can be seen that there is a significant trend towards increased levels of eHealth activity by Internet users in countries with higher levels of Internet penetration. US Internet users have an especially high propensity towards engaging in online health activity and Internet users in Ireland and Luxembourg are also somewhat more likely to do this than would be expected on the basis of Internet penetration levels alone. Finnish and Swedish Internet users have a lower propensity for online searching for health information than might be expected on the basis of their Internet penetration levels. Relevant factors in these differences might include a higher orientation towards or necessity for self-management of one's health in the US in comparison to the Nordic countries with their generally well developed public health services, although confirmation of this would require further specific studies.

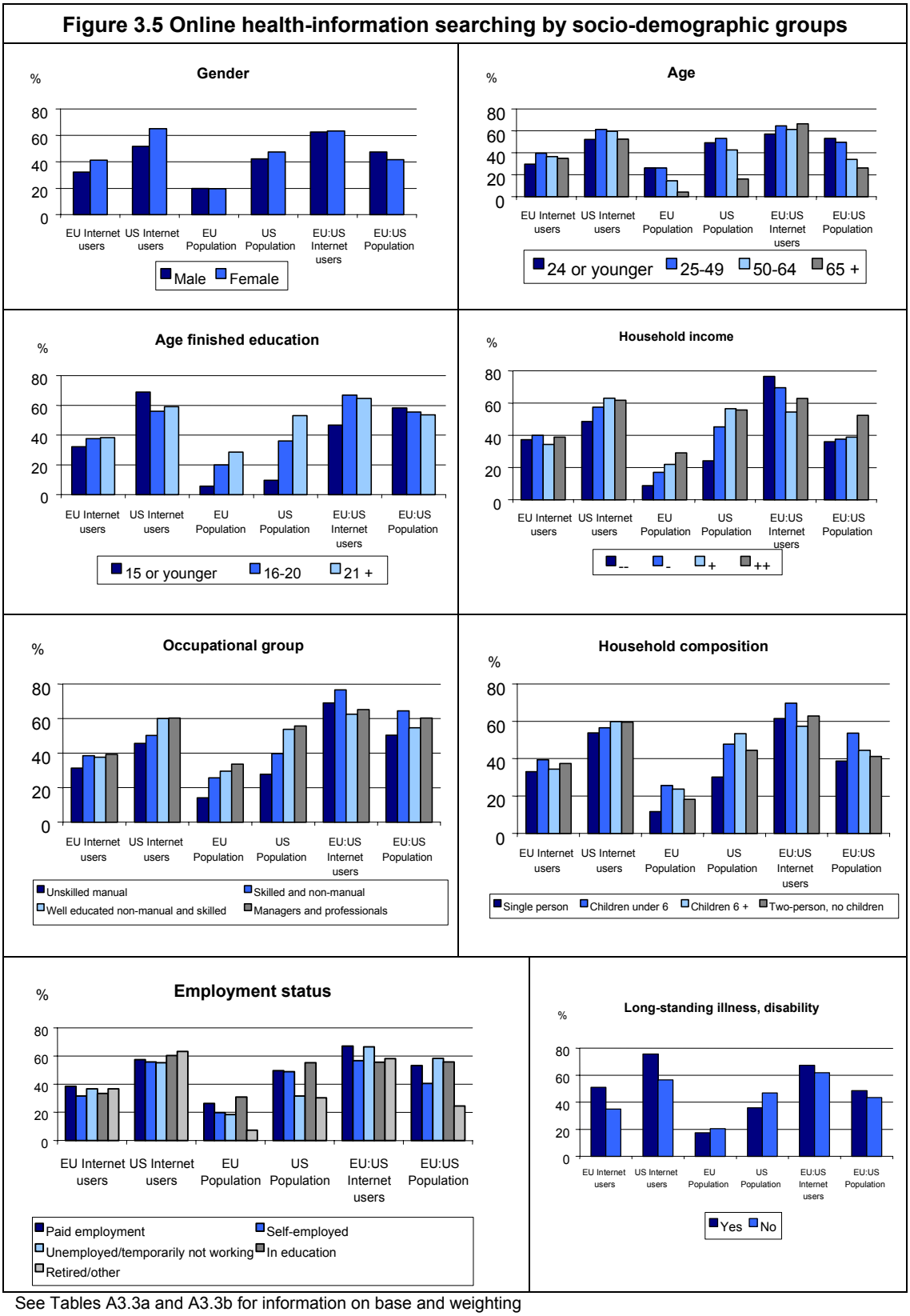
Figure 3.4 eHealth activity by Internet usage



Patterns across socio-demographic groupings

Figure 3.5 (and Tables A3.3a and A3.3b in Annex 1) presents breakdowns of reported usage by socio-demographic groups for the EU 15 overall and ratios of EU:US usage within each category of user. Although the size of the "gap" varied, EU rates of online searching for health information were lower than US rates for all socio-demographic groups.

Figure 3.5 Online health-information searching by socio-demographic groups



See Tables A3.3a and A3.3b for information on base and weighting

Gender

Within the EU, female Internet users were more likely (41.3%) to report online health-information seeking than male Internet users (32.3%). However, because females were less likely than males to be Internet users (see Tables A3.2a and A3.2b in Annex 1 for details), the percentages of males and females in the total population using the Internet for this purpose were very similar. These patterns were repeated when recent and non-recent searchers for health-related information are distinguished, with prevalence amongst female Internet users being slightly higher than amongst male Internet users in both cases, but again with the differential usage of the Internet eliminating these differences at the population level.

In comparison to the US, both male and female Internet users in the EU showed similar "gaps" in propensity to search online for health information (EU rates for males and females were 62% and 63%, respectively, of US rate for males and for females). The proportionately lower likelihood of EU females to be Internet users in the first place resulted in a slightly wider EU:US "gap" for EU females than for EU males at the population level (EU rates for males and females were 47% and 42%, respectively, of US rates for males and females).

Age

Younger Internet users (those aged 24 and under) reported least usage of the Internet to search for health-related information (29.8%). However, when age-specific levels of Internet usage are taken into account (see Tables A3.2a and A3.2b in Annex 1 for details) to give population prevalences, the highest percentages using the Internet for this purpose were amongst this younger age group (26.1%) and amongst those in the 25-49 years age-group (26.3%), with intermediate levels amongst those aged 50-64 (14.4%) and very low levels amongst the older age-group aged 65 years and above (4.2%). These patterns for Internet users and for the overall population were mostly repeated within the sub-groups reporting recent and non-recent search for health-related information, although those aged 65 years and older were proportionately less likely than the other age groups to have searched recently.

Amongst Internet users, the EU-US "gaps" in propensity to search online for health information were fairly similar across age groups, although the youngest age group had the widest gap (EU rate was 57% of US rate) and the oldest age group had the narrowest gap (EU rate was 67% of US rate). However, the large gap between the EU and EU in terms of usage of the Internet by the oldest age group (EU rates were 40% of US rates), in the first place, resulted in a reversal of the trend at the population level so that the gap was widest for the oldest age group (EU rate was 26% of US rate) and narrowest for the youngest age group (EU rate was 53% of US rate).

Education

Internet users who finished their formal education earliest (at age 15 or younger) were just a little less likely than other groups to report usage of the Internet to search for health-related information. However, their much lower likelihood of being Internet users in the first place (see Tables A3.2a and A3.2b in Annex 1 for details) meant that the proportion of the population with this lower level of educational attainment using the Internet for this purpose (5.6%) was much lower than in the better educated groups (20.0% and 28.5%). These patterns for Internet users and for the overall population were mostly repeated within the sub-groups reporting recent and non-recent search for health-related information.

Amongst Internet users, the EU-US "gaps" in propensity to search online for health information was widest for those who had finished school earliest (EU rate was 47% of US rate). At the population level, the higher likelihood of early school-leavers in the EU being Internet users in the first place reduced this gap (EU rate was 58% of US rate).

Household income

Amongst Internet users there was no clear pattern of variation in online searching for health-related information by household income. However, the variations in Internet usage by household income (see Tables A3.2a and A3.2b in Annex 1 for details) meant that, for the population overall, there was a clear gradient in usage of the Internet for this purpose, ranging from a low (8.7%) amongst the lowest income households to a high (29.2%) amongst the highest income households. These patterns for Internet users and for the overall population

were mostly repeated within the sub-groups reporting recent and non-recent search for health-related information.

Amongst Internet users, the EU-US "gaps" in propensity to search online for health information tended to be higher for lower income groups and lower for higher income groups. At the population level, however, the reducing gap between the EU and US in relation to Internet usage as household income increased resulted in a reversal of this trend so that the EU:US gap decreased as household income increased.

Employment status

Amongst Internet users there was no clear pattern of variation in online searching for health-related information by employment status, although self-employed people were a little less likely than other groups to report using the Internet for this purpose. However, the variations in Internet usage by employment status (see Tables A3.2a and A3.2b in Annex 1) meant that, for the population overall, those retired/other category (7.4%) had the lowest proportion of people using the Internet to search for health-related information, with intermediate proportions amongst those who were unemployed/temporarily out of work (18.4%) and the self-employed (19.8%) and highest proportions amongst those in education (30.8%) and those in paid employment (26.4%). These patterns for Internet users and for the overall population are mostly repeated within the sub-groups reporting recent and non-recent search for health-related information.

The EU-US gap amongst Internet users varied somewhat across occupational groups, with those in paid employment having the narrowest gap (EU rates 67% of US rates) and those in education having the widest gap (EU rates 55% of US rates). The pattern changed at the population level, with the narrowest gap being for those unemployed/temporarily not working (EU rates 58% of US rates) and widest gap being for those in the retired/other category (25%). The lower EU:US gap for the unemployed and higher gap for the retired in relation to Internet usage in the first place contributed to these population patterns.

Occupational group

Amongst Internet users, although respondents in the unskilled manual category were a little less likely than other groups to report using the Internet to search for health-related information, variations were generally not large across occupational groups. Again, however, the variations in Internet usage by occupational group (see Tables A3.2a and A3.2b in Annex 1 for details) resulted in a clear gradient at the population level, with prevalence of usage of the Internet to search for health-related information, ranging from relatively low levels amongst the unskilled manual group (14.0%) to relatively high levels amongst managers and professionals (33.6%). These patterns for Internet users and for the overall population are repeated within the sub-group reporting recent search for health-related information and, to a lesser extent, amongst those reporting non-recent search. In the latter case, there was less variation and less of a consistent pattern amongst the three higher occupational groups.

The EU-US gap amongst Internet users varied somewhat across occupational groups, with those in the skilled and non-manual group having the narrowest gap (EU rates 77% of US rates) and those in the well-educated non-manual and skilled category having the widest gap (EU rates 63% of US rates). The pattern changed at the population level, with the widest gap being for the unskilled manual group (EU rates 50% of US rates) and narrowest for skilled and non-manual (64%).

Household composition

Amongst Internet users there was no clear pattern of variation in online searching for health-related information by household composition, although households with children under 6 reported a little more usage for this purpose and single person households reported a little less usage for this purpose. These patterns change at the population level when variations in Internet usage by household composition are taken into account (see Tables A3.2a and A3.2b in Annex 1 for details). Amongst the population overall, the highest proportion of usage of the Internet for seeking health-related information was found amongst people in households with children (between 25.6% and 23.7%) the lowest proportions were found amongst people in single person households (11.7%), with intermediate levels (18.3%) amongst people in two-person households without children. These patterns for Internet users

and for the overall population are mostly repeated within the sub-groups reporting recent and non-recent search for health-related information. There were no clear patterns in relation to the EU:US gaps across household types; amongst Internet users the widest gap was for those in households with children aged 6 and older whereas at the population level the widest gap was for single person households.

Presence of long-standing illness or disability

Internet users who reported having a long-standing illness or disability were more likely (51.0%) to report online health-information seeking than Internet users who did not have such a condition (34.9%). However, because people with a long-standing illness or disability were less likely to be Internet users (see Tables A3.2a and A3.2b in Annex 1 for details), these differences were reduced and in fact reversed when adjusted for Internet usage at the population level. Amongst the total population, those without a long-standing illness or disability were a little more likely (20.4%) than those who did have such a condition (17.3%) to use the Internet to seek health-related information. These patterns for Internet users and for the overall population were mostly repeated within the sub-groups reporting recent and non-recent search for health-related information. For both Internet users and the population overall, the EU:US gap was slightly lower for those with a long-standing illness/disability.

Comparisons with other online activities

Figures 3.6 and 3.7 and Table 3.4 present data on the prevalence of various online activities in the EU and US.

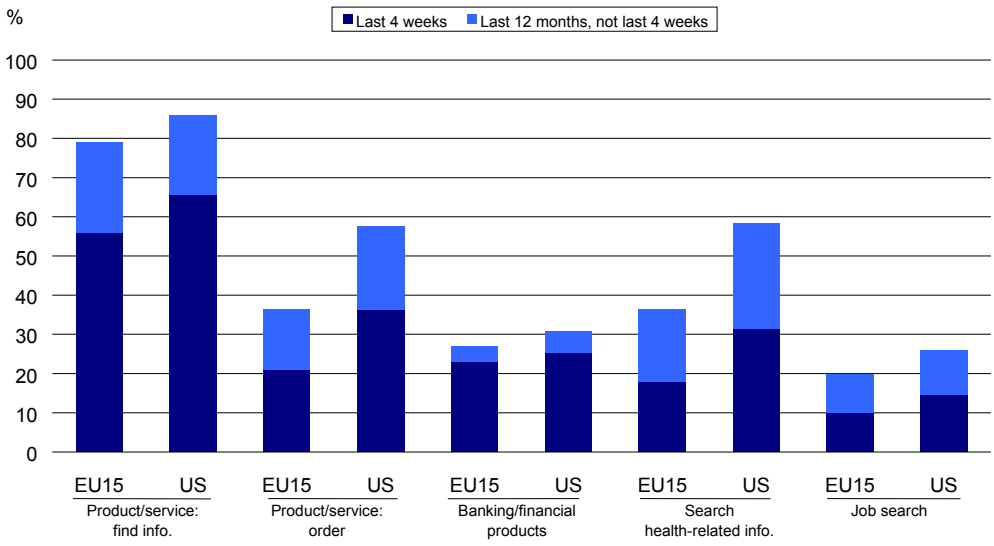
Table 3.4. Prevalence of online activities in EU15 and US

		Within specific online activity[1]		Internet users[1]						Population[1]	
				All (regular and occasional)		Regular (last 4 weeks)		Occasional (last 12 months, not last 4 weeks)			
Online activity		EU15	US	EU15	US	EU15	US	EU15	US	EU15	US
Find information about a product or service											
Recently (last 4 weeks)	%	70.8	76.3	55.9	65.6	65.6	72.9	-	-	30.3	50.5
Not recently (last 12 months, not last 4 weeks)	%	29.2	23.7	23.0	20.4	17.7	15.7	53.4	62.6	12.5	15.7
Total (recently and not recently)	%	100.0	100.0	78.9	86.0	83.3	88.6	53.4	62.6	42.7	66.2
	N	4662	640	5824	746	4982	672	842	74	10306	1004
Order product or service											
Recently (last 4 weeks)	%	57.5	62.8	20.9	36.2	24.5	40.2	-	-	11.3	27.9
Not recently (last 12 months, not last 4 weeks)	%	42.5	37.2	15.4	21.4	15.8	21.9	13.2	17.3	8.3	16.5
Total (recently and not recently)	%	100.0	100.0	36.3	57.6	40.3	62.1	13.2	17.3	19.6	44.4
	N	2095	425	5824	746	4982	672	842	74	10306	1004
Online banking or buy financial products/services											
Recently (last 4 weeks)	%	85.3	82.4	23.0	25.3	27.0	28.1	-	-	12.4	19.5
Not recently (last 12 months, not last 4 weeks)	%	14.7	17.6	4.0	5.4	3.4	5.4	7.5	5.1	2.2	4.2
Total (recently and not recently)	%	100.0	100.0	27.0	30.7	30.3	33.5	7.5	5.1	14.6	23.6
	N	1798	226	5824	743	4981	669	843	74	10306	1004
Search health-related information											
Recently (last 4 weeks)	%	49.3	53.9	17.9	31.4	21.0	34.9	-	-	9.8	24.2
Not recently (last 12 months, not last 4 weeks)	%	50.7	46.1	18.5	26.9	17.3	24.5	25.0	48.0	10.1	20.7
Total (recently and not recently)	%	100.0	100.0	36.4	58.3	38.4	59.4	25.0	48.0	19.8	44.9
	N	2149	438	5822	746	4980	672	842	74	10306	1004
Look for a job											
Recently (last 4 weeks)	%	51.0	56.6	10.1	14.7	11.9	16.4	-	-	5.5	11.3
Not recently (last 12 months, not last 4 weeks)	%	49.0	43.4	9.7	11.3	9.5	10.8	11.0	16.0	5.3	8.7
Total (recently and not recently)	%	100.0	100.0	19.8	26.0	21.4	27.1	11.0	16.0	10.7	20.0
	N	1212	190	5824	746	4982	672	842	74	10306	1004

Weighting: EU15 results are weighted according to Member State populations; N's are unweighted
"Don't knows" were excluded in the calculation of percentages

[1]Base: Respondents who have used Internet (for private purposes) for the given activity in last 12 months
[2]Base: Respondents who have used the Internet (for private purposes) in the relevant period
[3]Base: Whole sample, including Internet users and non-users

Figure 3.6
Prevalence of different online activities - Internet users



See Table 3.4 for information on base and weighting

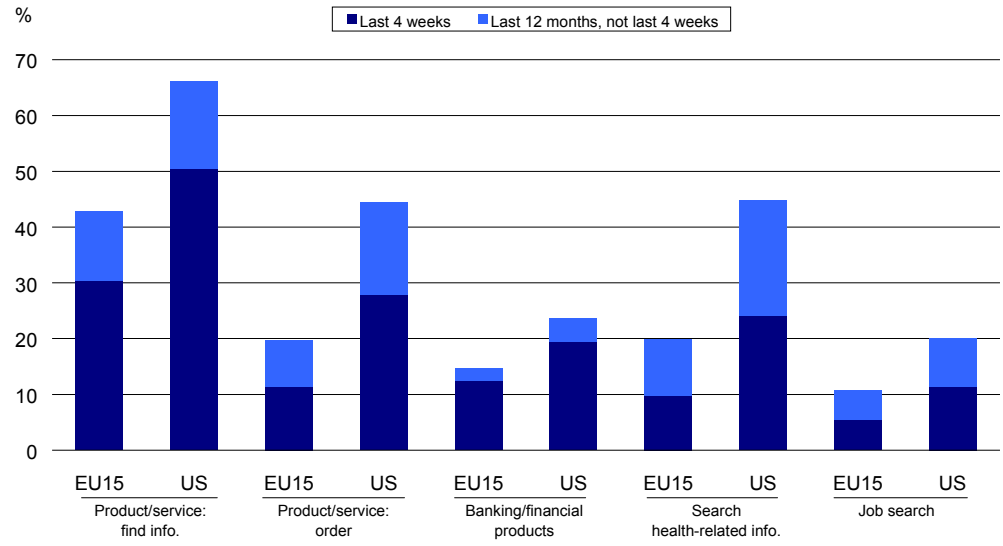
It can be seen that for all of the online activities, US Internet users were more likely to have reported doing them at sometime in the previous year and were also more likely to report having done them in the previous 4 weeks. The largest differences were in the prevalence of searching for health-related information (36.4% in the EU versus 58.3% in the US) and ordering products or services online (36.3% in the EU versus 57.6% in the US).

Finding information about a product or service was the most prevalent of the activities listed, with almost four in five EU Internet users (78.9%) and a little more than four in five US Internet users (86.0%) reporting having done this in the previous 12 months. Searching for health-related information was next most prevalent, with just over one in three EU Internet users (36.4%) and more than half of US Internet users (58.3%) reporting this in the previous 12 months. These figures for the EU and US were very close to the respective figures for ordering a product or service in the period. Online banking or buying financial products/services came next, with just over one quarter of EU Internet users (27.0%) and a just under one third of US Internet users (30.7%) reporting this during the previous 12 months. Finally, looking for a job was reported by just under one in five EU Internet users (19.8%) and by just over one in four US Internet users (26.0%).

In both the US and EU the majority of respondents who reported finding information online about a product/service (70.8% in the EU and 76.3% in the US) and online banking or buying financial products/service (85.3% in the EU and 82.4% in the US) had done so recently, that is, in the previous 4 weeks. In comparison, only about half of respondents who reported searching for health-related information (49.3% in the EU and 53.9%) had done so recently. As discussed earlier, this suggests that searching for health-related activity is likely to be linked closely to health needs, with people searching when needs arise rather than on a regular basis.

Turning to prevalence of these activities at the population level, it can be seen that, as expected, the gap between EU and US activities increases when the differences in internet usage rates are taken into account (Figure 3.7).

Figure 3.7
Prevalence of different online activities - Population



See Table 3.4 for information on base and weighting

Comparison with data from other sources

At the time of writing, the only sources of representative EU data that allowed some level of comparison with the SIBIS data were those provided by Eurobarometer[10] and by the SeniorWatch study[11]. Table 3.5 presents data from the various sources.

Even for these sources precise comparisons are difficult because of differences in populations sampled, reference periods and the actual wording of questions. As discussed in Chapter 4, future work on eHealth benchmarking will need to give careful consideration to populations, reference periods and question wording and try to match these to the particular issues that are most pertinent to the eHealth domain. However, the data from these sources does tend to be generally consistent with the SIBIS data and helps to indicate some general consensus across the surveys. It also allows some time-series calculations and estimations to be made.

Despite differences in reference periods and in actual questions asked, there is close agreement between the SIBIS data and the Eurobarometer data from the nearest comparable survey periods (SIBIS survey of April-May 2000 and Eurobarometer survey of May-June 2002). Both surveys found just over one third of European Internet users engaging in online searching for health information, with this figure translating to just under one in five at the population level.

Looking at the 50+ age group only, comparisons between SIBIS and the SeniorWatch data suggest that, depending on the reference period used, between 30 and 36% of Internet users in the older age group use it for searching for health-related information, which translates into about 5% of the population in this age group.

[10] Flash Eurobarometer studies on "Internet and the public at large" - 112 (21/01/2002) survey of November 2001; 103 (08/11/01) survey of June 2001; 97 (05/04/01) survey of February 2001; 125 (July 2002) survey of May-June 2002

[11] SeniorWatch (2002) Older People and Information Society Technology. Deliverable No. 5.1. Survey of early Summer 2001.

Table 3.5. SIBIS data in comparison to data from other sources

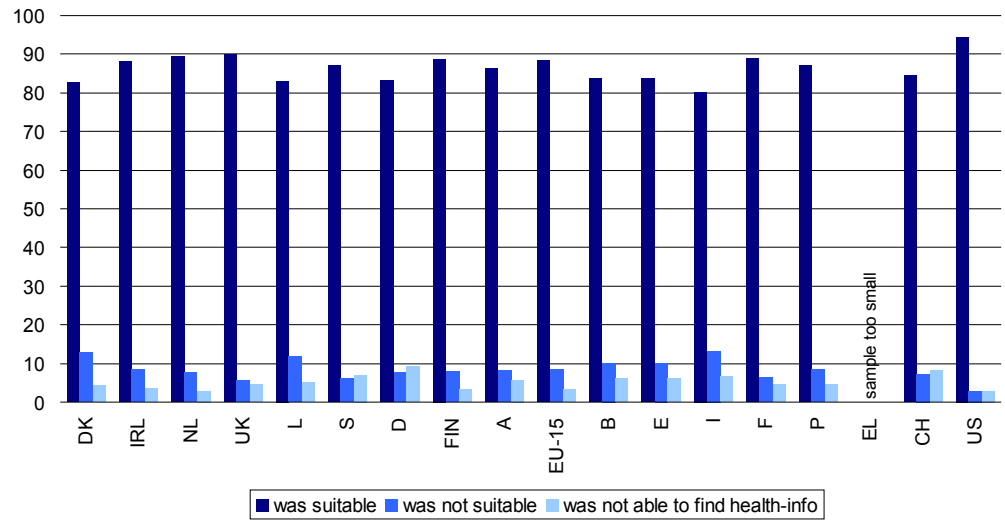
Source	Indicator	Question	Population	EU 15 Internet users %	EU 15 Pop. %
SIBIS GPS (Apr-May 02)	Usage of internet (for private purposes) to search for health-related information - last 12 months	…For your private purposes, have you used it [the Internet] in the last 12 months…to search for any health-related information?	Europeans aged 15+; Internet users are those who used Internet in last 12 months	36.4	19.8
			Europeans aged 50+; Internet users are those who used Internet in last 12 months	36.2	9.8
SIBIS GPS (Apr-May 02)	Usage of internet (for private purposes) to search for health-related information in last 4 weeks	Have you done so in the last four weeks?	Europeans aged 15+; Internet users are those who used Internet in last 12 months	17.9	9.7
			Europeans aged 50+; Internet users are those who used Internet in last 12 months	15.8	4.3
SIBIS GPS (Apr-May 02)	Usage of Internet (for private purposes) to search for health-related information in last 12 months, but not last 4 weeks	(Derived from the two previous items)	Europeans aged 15+; Internet users are those who used Internet in last 12 months	18.5	10.1
			Europeans aged 50+; Internet users are those who used Internet in last 12 months	20.4	5.5
Flash EB 125 (May-Jun 02)	Usage of internet (for private use) to seek health-related advice or information (no reference time)	For your private use, do you also use the internet to…seek health-related advice or information?	Europeans aged 15+; Internet users are those who personally use the Internet	38	19.4
Flash EB 112 (Nov 01)	Usage of internet (for private use) to seek health-related advice or information (no reference time)	For your private use, do you also use the internet to…seek health-related advice or information?	Europeans aged 15+; Internet users are those who personally use the Internet	33.2	15.9
Flash EB 103 (June 01)	Usage of internet (for private use) to seek health-related advice or information (no reference time)	For your private use, do you also use the Internet to…seek health-related advice or information?	Europeans aged 15+; Internet users are those who personally use the Internet	33.5	15.5
Flash EB 97 (Feb 01)	Usage of internet (for private needs) to seek health-related advice or information (no reference time)	For which purposes do you use the internet for your private needs…searching health information/advice?	Europeans aged 15+; Internet users are those who personally use the Internet	40	14.4
EB 53.0 (Apr-May 00)	Usage of the Internet at home to search for information which concerns one's health - last three months	Used the Internet at home in the past 3 months....Searched for information which concerns my health	Europeans aged 15+; Internet users are those with an internet connection at home who use the connection	23	3.5
SeniorWatch (early summer 2001)	Usage of Internet to search for information on health matters, last 3 months		Europeans aged 50+; Internet users who used at least once a month in last 3 months	29.7	4.9

3.1.2 Success in searching for health-related information on the Internet

Patterns across countries

Respondents who reported searching for health-related information on the Internet were asked about the success of such searching. Figure 3.8 shows the proportions who found information that was suitable for their needs, those who found information but this not suitable for their needs and those who could not find information whether suitable or not.

Figure 3.8
Success in finding suitable information on Internet
(% of users who have searched online for health-related info in the last 12 months)



See Table 3.2 for information on base and weighting

It can be seen that the majority of those who searched online for health-related information reported that they had been successful in finding information suitable for their needs. In all countries, more than 80% of users reported successful searching. US users (94.4%) reported highest and Italian users (80.5%) reported lowest levels of success.

Patterns across socio-demographic groupings

There was not much variation across socio-demographic groupings in relation to being able to find health-related information on the Internet or in respondents' views on the suitability of the information they found (Figure 3.9 below and Tables A3.4 and A3.5 in Annex 1), and any variations that did appear need to be treated with caution because of the relatively small numbers in some of the sub-groups.

The main variations in relation to finding health-related information were:

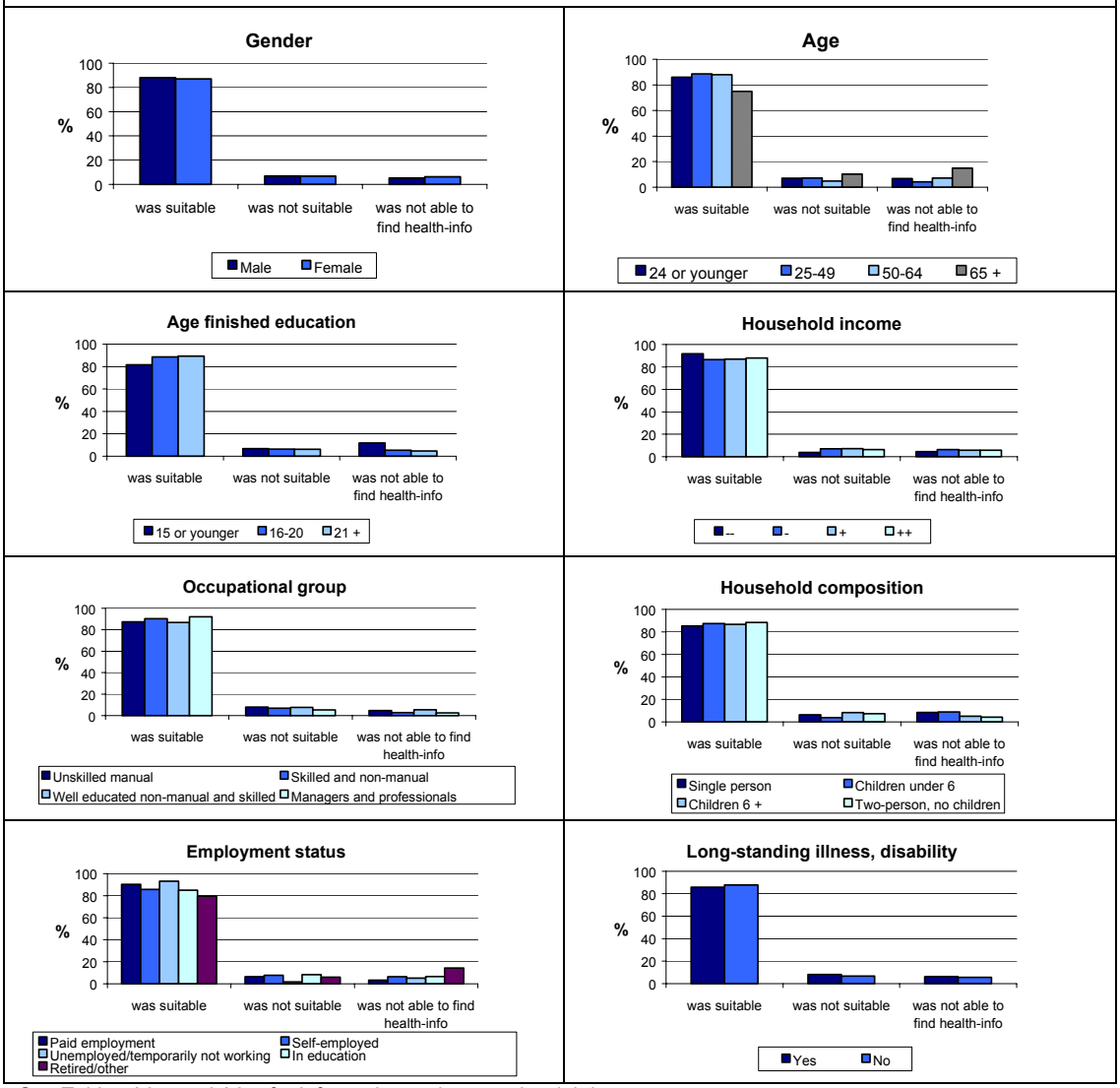
- Older users (those aged 65 years and above) were somewhat less likely to report success in being able to find suitable information (74.9%), being more likely to be unable to find health-related information at all (14.9%) and, if they did, to judge what they found to be unsuitable (10.9%); this pattern was also apparent amongst the retired
- Early school-leavers were also somewhat less likely to report success in finding suitable information (81.6%), mainly because they had more difficulty in finding health-related information at all (11.8%).

3.1.3 Linguistic requirements

Patterns across countries

Respondents who reported finding information suitable for their needs were asked whether they had to search non mother-tongue web sites in order to find this information. As indicated in Table 3.6 and Figure 3.10, more respondents in the EU (15.5%) than in the US (2.6%) reported having had to expand their search to non mother-tongue web sites to find the information they needed. This was particularly likely in Belgium (36.3%) and Spain (32.0%) (and even more so in Portugal and Greece, although the numbers of respondents were too low in these countries to guarantee reliability).

Figure 3.9 Success of online health searching by socio-demographic groups - EU15



See Tables A3.4 and A3.5 for information on base and weighting

Table 3.6. Requirements to search non-mother-tongue websites

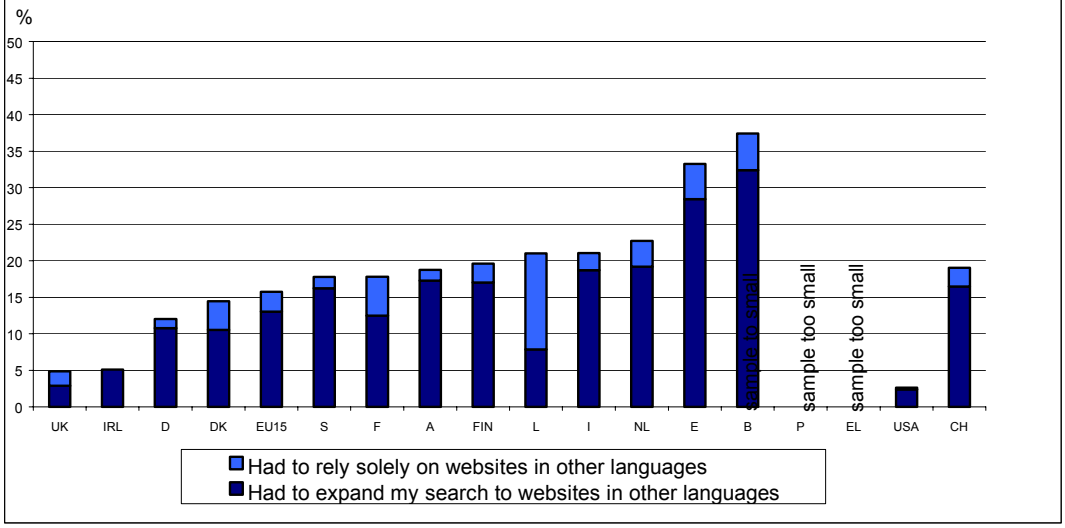
	Internet users[2]						eHealth users[1]					
	Regular		Occasional		All		Regular		Occasional		All	
	EU15 %	US %	EU15 %	US %	EU15 %	US %	EU15 %	US %	EU15 %	US %	EU15 %	US %
Websites in mother tongue were sufficient	84.2	97.5	84.6	95.1	84.2	97.4	83.9	96.7	84.6	98.2	84.2	97.4
Had to expand my search to websites in other languages	12.9	2.2	14.9	4.9	13.1	2.4	13.2	2.9	12.9	1.8	13.1	2.4
Had to rely solely on websites in other languages	2.9	0.3	0.5	0.0	2.7	0.3	2.9	0.5	2.5	0.0	2.7	0.3
N (unweighted)	1671	381	159	27	1830	408	935	229	895	179	1830	408

Weighting: EU15 results are weighted according to Member State populations
"Don't knows" were excluded in the calculation of percentages
[1]Base: Respondents who have used Internet to search for health-related information (for private purposes)
[2]Base: Respondents who have used the Internet (for private purposes) in the relevant period

In interpreting the EU-US differences, it needs to be borne in mind that the US survey was limited to English-speaking Americans so that possible language issues for other linguistic groups are not reflected in these figures. Within Europe, a variety of factors may affect

tendencies to extend searching to non mother-tongue web sites, including whether the user is from a majority or minority language group, the amount and quality of information available in the user's main language and the language skills of the user.

Figure 3.10
Language and e-health information



See Table 3.6 for information on base and weighting

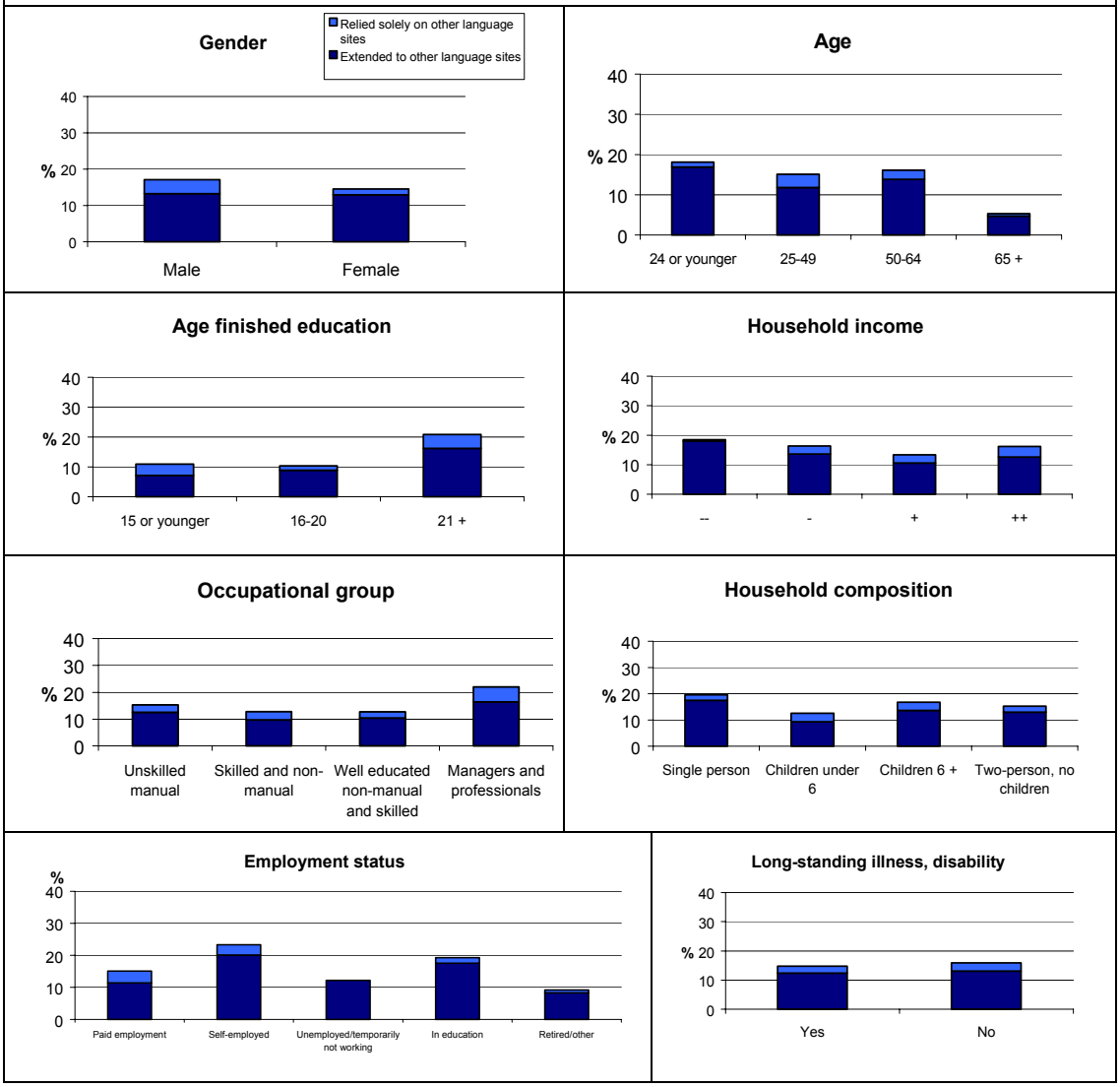
Patterns across socio-demographic groupings

There was little systematic variation across socio-demographic groupings in terms of having to use websites in languages other than the user's mother tongue (Figure 3.11 below and Table A3.6 in Annex 1). Any differences that did emerge need to be treated with caution because of small cell sizes in many cases.

The main variations that were apparent are:

- Older users (aged 65 years and older) and those in the retired/other category were a lot less likely to report extending their search to or solely relying on non mother-tongue web sites (5.3%), possibly reflecting lack of linguistic capability or other factors such as preference for information from own country
- Those with most formal education (finished aged 21 or over) were a lot more likely (20.9%) to report extending their search to or relying solely on non mother-tongue web sites, possibly reflecting greater linguistic capabilities and/or interest in health information from a broader range of sources
- Interestingly, users from the lowest income households (18.5%) were more likely to report extending their search to or relying solely on non mother-tongue web sites, possibly reflecting a greater proportion of non-nationals in this group
- Self-employed people (23.3%) and managers/professionals (22.0%) were also more likely to report using non mother-tongue web sites, possibly reflecting the same factors as were discussed earlier in relation to those with more formal education
- Finally, there was some tendency for people in households with young children to be less likely to report extending their search to or relying solely on non mother-tongue web sites (12.6%) although possible underlying factors that might explain this are not immediately apparent.

Figure 3.11 Linguistic requirements by socio-demographic groups (EU15)



See Table A3.6 for information on base and weighting

3.1.4 Reasons for health-information seeking

Respondents who reported searching the Internet for health-related information in the previous year were asked for what reasons they did this. Three possible reasons for searching were given: to be better informed about their own health, to seek a second opinion on a medical diagnosis or to support their role as a carer for an ill or disabled person.

The EU15 in comparison to the US

As indicated in Table 3.8, the rank order of reasons for health-information seeking was the same in both the EU and US, although the US sample more frequently reported health-information seeking for each of the three reasons. The most frequently cited reason was to be better informed on general health (71.7% in the US, 53.9% in the EU). The second most frequently cited reason was seeking a second opinion on a medical diagnosis (58.3% in the US, 49.8% in the EU). The least frequently cited reason was to support their role as a carer of a person who is ill or with a disability (43.1% in the US, 25.0% in the EU).

Table 3.8. Reasons for health-information search on Internet

		eHealth searchers[1]						Population[2]	
		Recent		Non-recent		All			
		EU15 %	US %	EU15 %	US %	EU15 %	US %	EU15 %	US %
Be better informed about own health	%	55.9	77.4	51.9	64.9	53.9	71.7	10.7	32.2
	N	1069	237	1067	197	2136	434	10306	1004
Seek second opinion on medical diagnosis	%	48.0	59.0	51.6	57.5	49.8	58.3	9.9	26.2
	N	1062	238	1062	195	2124	433	10306	1004
Support role as carer	%	25.4	45.3	24.6	40.4	25.0	43.1	4.9	19.3
	N	1069	236	1066	197	2135	433	10306	1004

Weighting: EU15 results are weighted according to Member State populations; N's are unweighted "Don't knows" were excluded in the calculation of percentages

[1]Base: Respondents who have used Internet (for private purposes) to search for any health-related information

[2]Base: Whole sample, including Internet users and non-users

At the population level, about one in ten in the EU (10.7%) and one in three in the US (32.2%) reported searching the Internet to be better informed about their health. A little under one in ten in the EU (9.9%) and just over one in four in the US (26.2%) reported searching the Internet for a second opinion on a medical diagnosis. Finally, and just under one in twenty in the EU (4.9%) and almost one in five in the US (19.3%) reported searching for information to support their role as a carer of an ill or disabled person.

Finally, looking at combinations of reasons reported for health-information search on the Internet, US users were more likely than their EU counterparts to report searching for two or more reasons, suggesting that US users may be broader in their usage of the Internet for health-related matters.

Patterns across countries

Looking at patterns across the Member States in relation to the first reason – to be better informed on one's general health - it can be seen that there was a lot of variation across countries (Figure 3.12). Amongst Internet users who searched for any health-related information online, those in the Netherlands (68.8%) were most likely to report use of the Internet for this purpose and those in Germany were the least likely (39.0%) to. Turning to the second reason – seeking a second opinion on a medical diagnosis – there was also quite a lot of variation across countries (Figure 3.13). In this case, eHealth users in Luxembourg reported this reason a lot more often (67.7%) than other countries, with users in Spain (23.1%), reporting this reason least frequently. Finally, looking at the last reason – to support one's role as a carer – there was also quite a lot of variation across countries (Figure 3.14), ranging from a low in Austria (5.9%) to highest rates in the UK (39.2%).

Figure 3.12
e-health usage to be better informed on general health

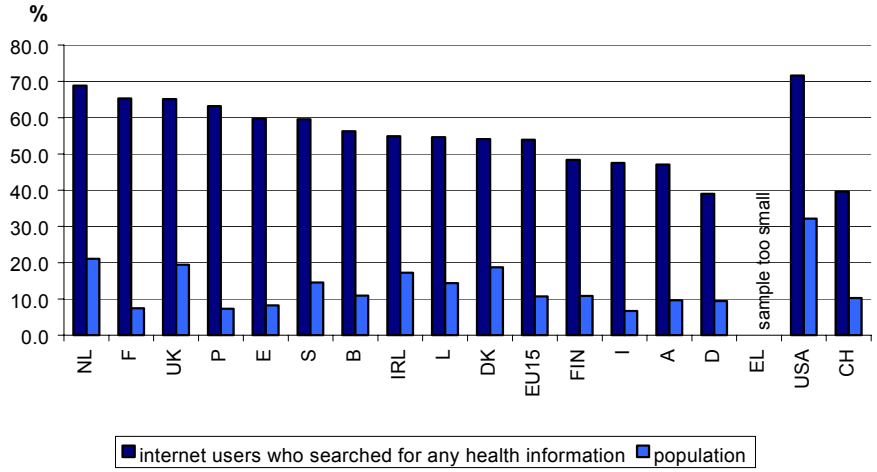


Figure 3.13
e-health usage to seek a second opinion on medical diagnosis

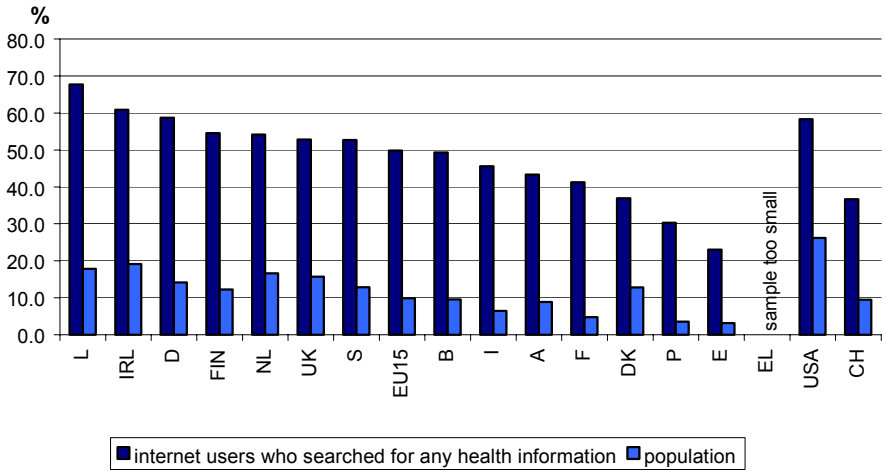
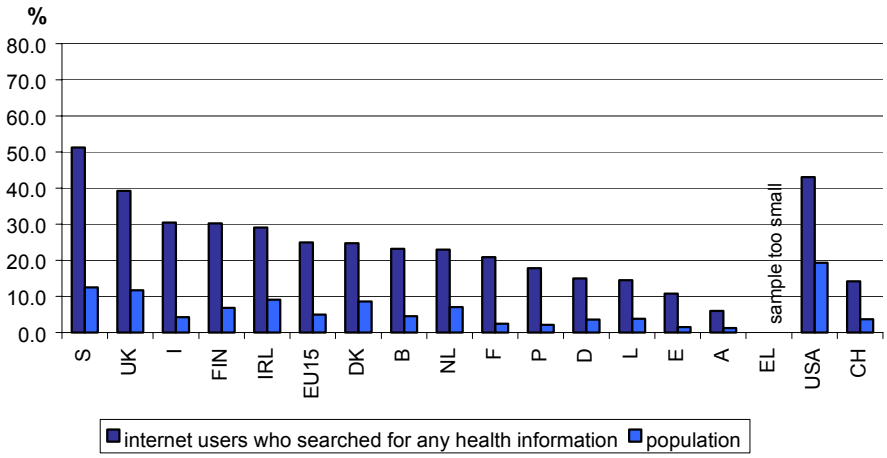


Figure 3.14
e-health usage to gather information for care of ill/ disabled person

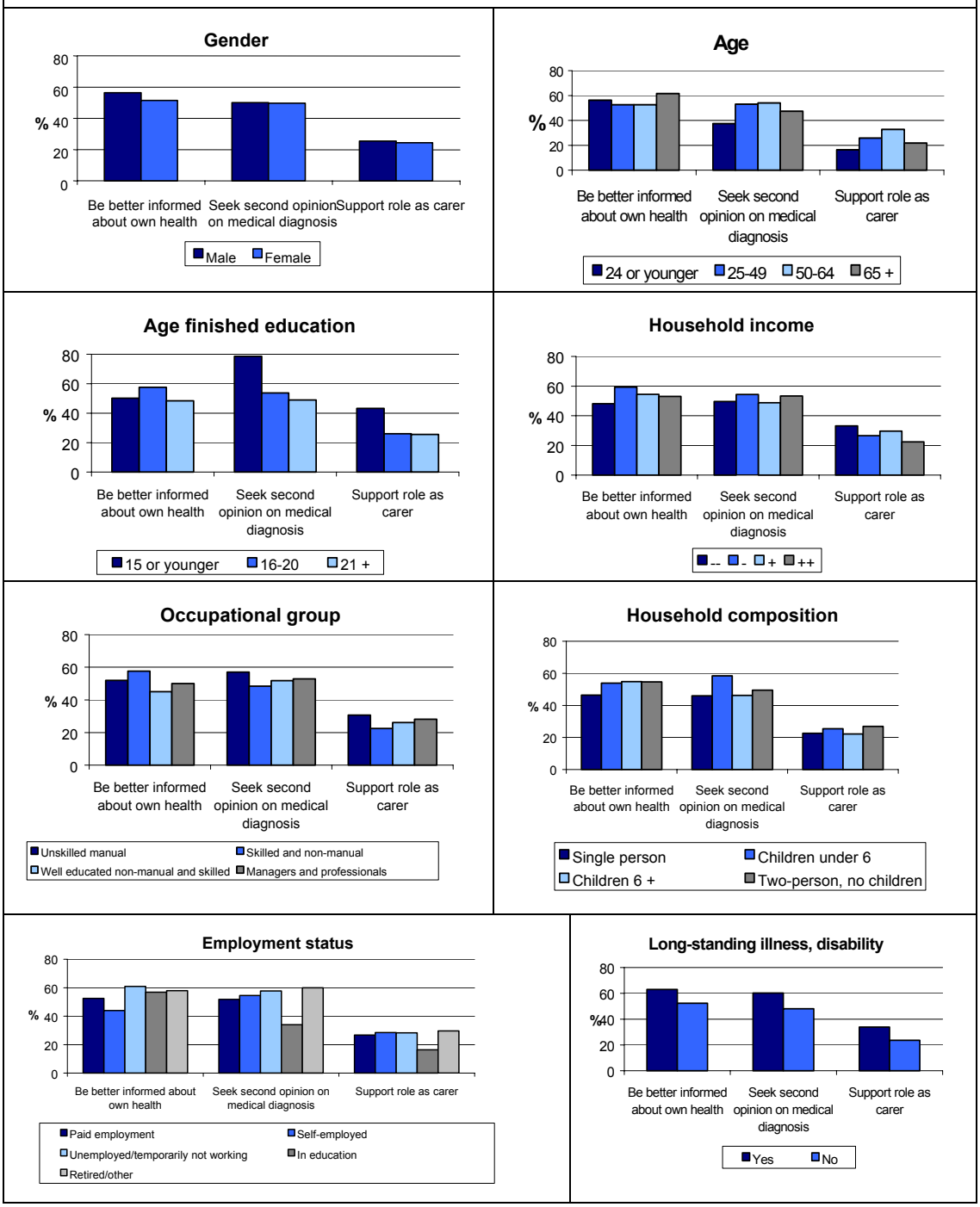


See Table 3.8 for information on base and weighting

Patterns across socio-demographic groupings

Figures 3.15 and 3.16 (and Table A3.7 in Annex 1) present breakdowns of reported reasons by socio-demographic groupings. From Figure 3.15 it can be seen that younger Internet users (24 or younger) were less likely (37.5%) to report seeking a second medical opinion (possibly because they are less likely to have a specific diagnosed condition) as were those still in education (34.0%). Younger people were also least likely (16.5%) to report seeking information to support a role as a carer (possibly because they are less likely to be carers) as were those still in education (16.4%). Those who left school earlier were more likely to report seeking a second medical opinion (78.6%) and to support a role as a carer (43.3%). Finally, those with a long-standing illness/disability were more likely than those who did not have such a condition to report searching for each of three reasons.

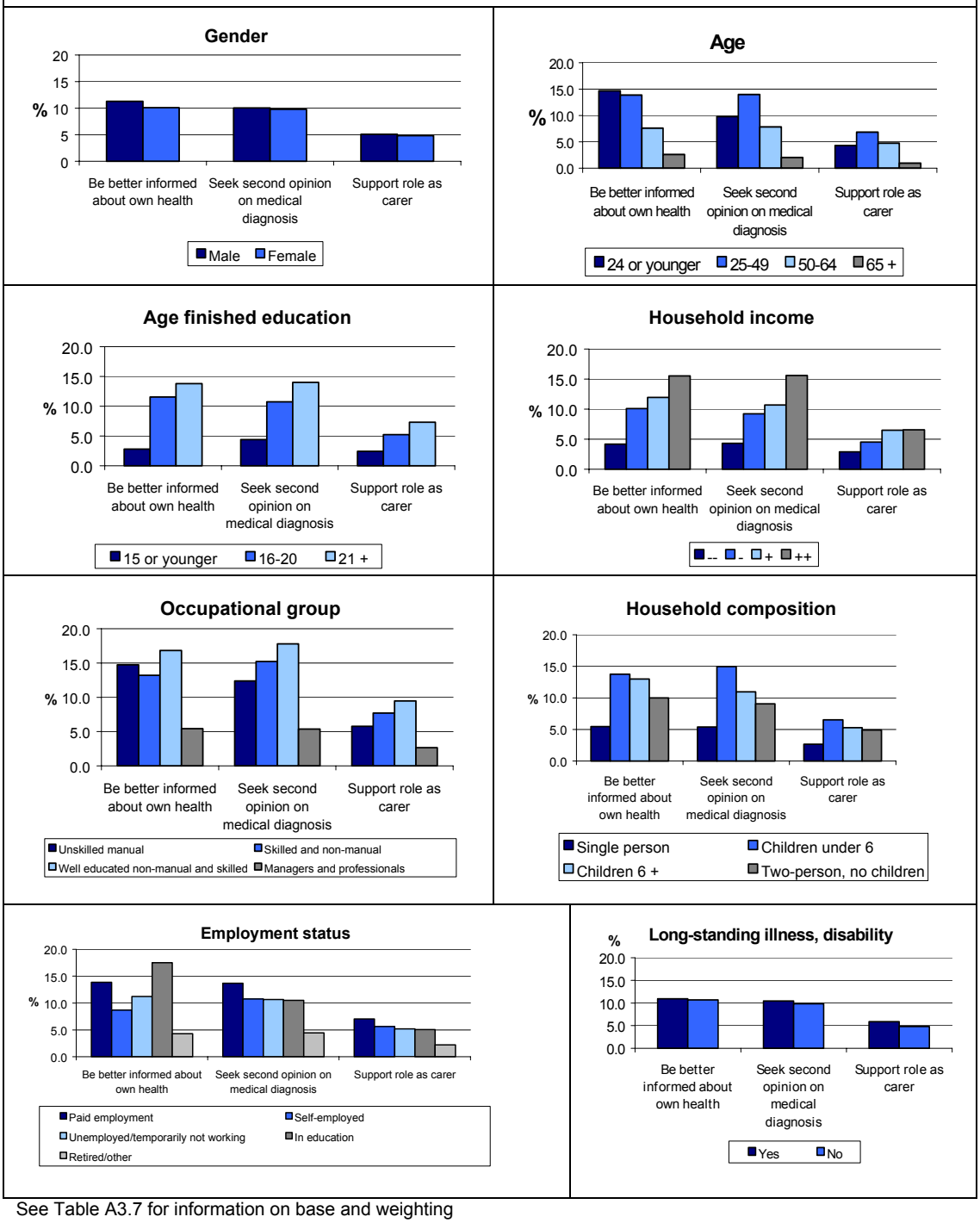
Figure 3.15 Reasons for online health-information searching - Internet users who searched for any health information (EU15)



See Table A3.7 for information on base and weighting

As can be seen from Figure 3.16, the picture changes at the population level, when differences in Internet usage and in any online searching for health information across socio-demographic groups are taken into account. Overall, younger people tended to be more likely to search for information about their general health and older people aged 65 years and over and those who were retired were a lot less likely to search for each of the three reasons. There were generally clear gradients by educational attainment and household income for all three reasons. Finally, those in single person households were less likely to search for all three reasons.

Figure 3.16 Reasons for online health-information searching - Population (EU15)



See Table A3.7 for information on base and weighting

3.1.5 Perceived trustworthiness of different information sources

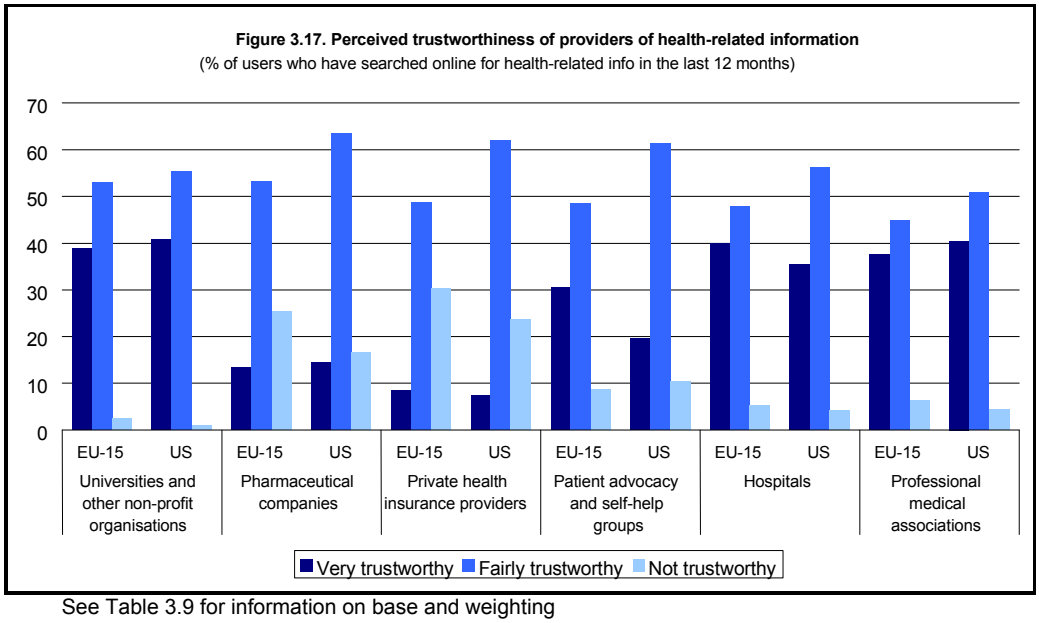
The EU15 in comparison to the US

Table 3.9 and Figure 3.17 present data on the perceived trustworthiness of various sources of health-related information on the Internet. It can be seen that perceptions in the EU 15 are fairly similar to those in the US. In both cases private insurance companies (30.2% of EU and 23.7% of US respondents) and pharmaceutical companies (25.3% of EU and 16.5% of US respondents) were most likely to be rated as not trustworthy.

Table 3.9 Perceived trustworthiness of information sources (amongst those who searched online for any health-related information)

	EU15 (N=2042)				USA (N=451)			
	Very trustworthy	Fairly trustworthy	Not trustworthy	Don't know	Very trustworthy	Fairly trustworthy	Not trustworthy	Don't know
Universities/other non-profit organisations	38.9	53.0	2.5	5.7	40.8	55.3	1.0	3.0
Pharmaceutical companies	13.4	53.3	25.3	8.0	14.5	63.4	16.5	5.6
Private health insurance providers	8.4	48.8	30.2	12.6	7.4	62.0	23.7	7.0
Patient advocacy and self-help groups	30.6	48.6	8.6	12.3	19.5	61.4	10.4	8.7
Hospitals	39.9	47.8	5.2	7.0	35.5	56.2	4.1	4.1
Professional medical associations	37.4	44.8	6.3	11.5	40.5	50.8	4.4	4.3

Weighting: EU15 results are weighted according to Member State populations; N's are unweighted
Base: Respondents who have used Internet to search for health-related information (for private purposes)

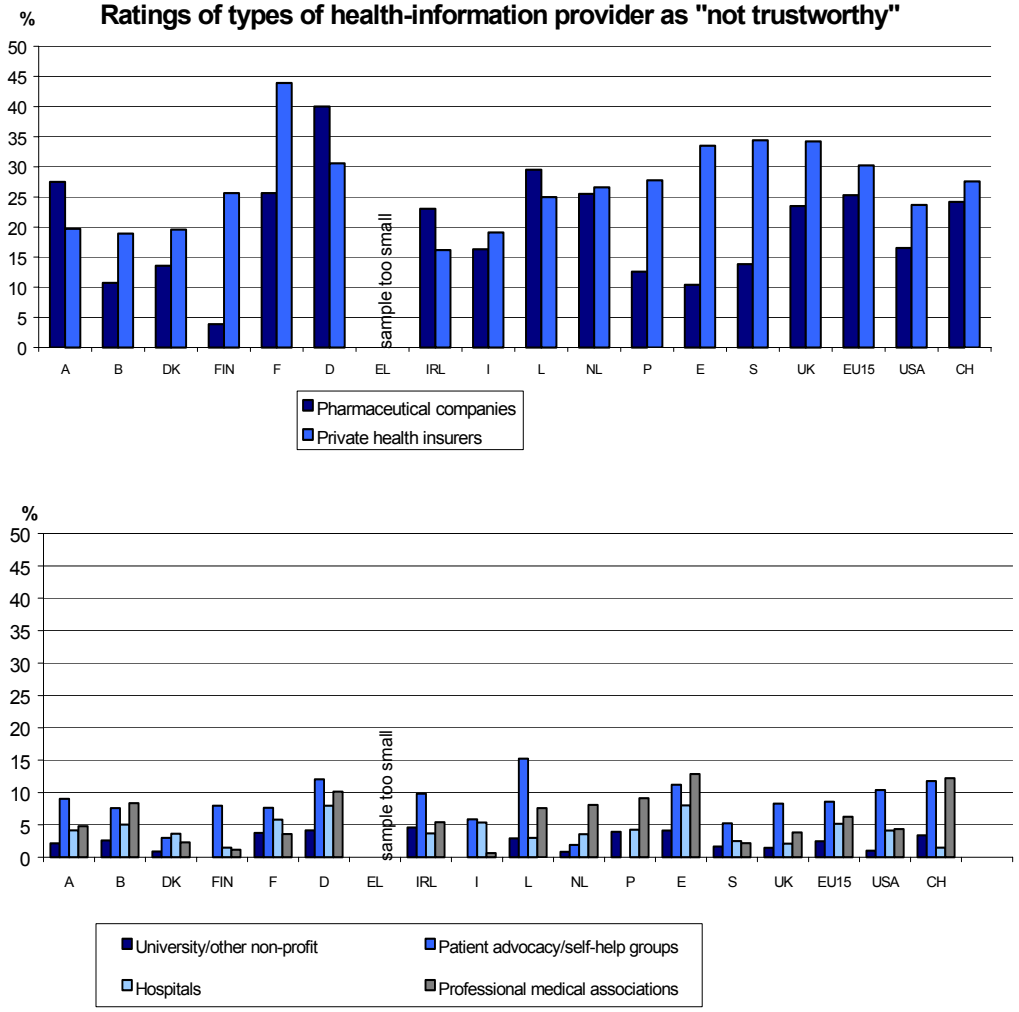


See Table 3.9 for information on base and weighting

Patterns across countries

Looking at patterns across the Member States (Figure 3.18), it can be seen that there is quite a lot of variation in ratings of the trustworthiness of different sources.

Figure 3.18
Ratings of types of health-information provider as "not trustworthy"



See Table 3.9 for information on base and weighting

French users (43.9%) were most likely to rate private health insurance companies as not trustworthy and Irish users (16.2%) were least likely to do so. German users (40.0%) were particularly likely to rate pharmaceutical companies as not trustworthy and Finnish users (3.8%) were least likely to. Users from Luxembourg (15.2%) were most likely to rate patient advocacy and self-help groups as not trustworthy and Spanish users (12.9%) were most likely to rate professional medical associations as not trustworthy. In all countries, fewer than 5% of users rated universities and other non-profit organisations as not trustworthy.

Patterns across socio-demographic groupings

Apart from a tendency for younger users (aged 24 and under) to be less likely to rate pharmaceutical companies as not trustworthy, there were not many variations across socio-demographic groups.

3.2 Other sources on general public interest in eHealth applications

As already mentioned in Chapter 2 there is also some representative, European-wide data available on some indicators of "readiness" amongst the general public to use eHealth applications.

3.2.1 "Readiness" data from Eurobarometer 50.1

The Eurobarometer survey of the European general public in Autumn 1998 provided an early glimpse of "readiness" to use eHealth and other online services. Two indicators were used - interest in an online eHealth application and willingness to pay 10 euro per month for this. Results are summarised in Table 3.10 below.

For the EU overall, a little over two in five (41.9%) of the public expressed interest in getting a doctor's advice online. Across countries, expressed interest was highest in Italy (54.5%) and Finland (53.0%) and lowest in Germany (33.8%). In relation to willingness to pay, just over one in eight (12.9%) said that they would pay 10 euro for such a service, with degree of willingness varying across countries from more than one in five in Italy (22.5%) and Greece (20.6%) to fewer than one in ten (9.4%) in Germany.

It is interesting that the SIBIS survey found that in April-May 2002 the proportion of Internet users in the EU engaging in *any* form of online health-information seeking (36.4%) was lower than the expressed interest (41.9%) in the specific application addressed in the 1998 EB survey. One factor in this may be that levels of expressed interest do not always translate into actual action; another may be that opportunities for direct online patient-doctor interaction (particularly with one's own doctor) are still very limited in Europe.

Table 3.10. Indicators of "readiness" to use eHealth applications (Eurobarometer 50.1)[12]

	Interest in "getting a doctor's advice on a health problem online on a computer, for example receiving explanations about an x-ray or blood test	Would be ready to pay 10 ecus per month subscription/ access right, in addition to communication costs.
A	37.5	14.0
B	40.9	10.7
DK	38.4	10.7
FIN	53.0	17.4
F	39.2	10.4
D	33.8	9.4
EL	41.1	20.6
IRL	45.4	10.6
I	54.5	22.5
L	42.5	14.3
NL	42.9	10.1
P	48.3	12.8
E	40.6	10.8
S	48.1	17.6
UK	42.0	10.5
EU15	41.9	12.9

3.2.2 "Readiness" data from SeniorWatch

The SeniorWatch survey of the European population aged 50 years and older provided data on "readiness" amongst this age group as measured by expressed interest in doing various eHealth activities (Table 3.11). For the EU overall, most interest was expressed in reading about health issues on the internet (38.0%) and least in getting a doctor's advice by videotelephone (22.0%). Greeks expressed particularly high levels of interest (46.5% to 56.5%) in all four applications and Finns and Swedes expressed high levels of interest in reading about health issues on the internet, getting information about treatment on a computer/TV and getting a doctor's advice by e-mail.

[12] Eurobarometer 50.1 (1999): Measuring Information Society. Survey of October-December 1998

Table 3.11 Indicators of "readiness" to use eHealth applications amongst older people (aged 50 years and older) in Europe (SeniorWatch)[13]

	Reading about health issues on internet (interest in or done in past 3 months)	Information about treatment on computer/TV	Doctor's advice by e-mail	Doctor's advice by videotelephone
A	35.9	27.5	23.3	16.1
B	31.8	25.3	19.0	17.3
DK	38.0	25.1	27.0	11.5
FIN	42.0	41.9	40.5	21.6
F	35.8	30.8	26.9	21.7
D	49.0	39.3	26.0	18.8
EL	47.3	47.5	46.6	56.5
IRL	18.0	11.3	14.3	15.5
I	32.1	26.7	28.6	24.1
L	48.5	26.4	29.1	27.8
NL	48.8	29.1	28.7	23.1
P	16.6	20.5	15.4	17.5
E	16.8	15.0	13.1	16.7
S	58.3	43.8	46.3	31.3
UK	41.7	26.6	29.7	23.4
EU15	38.0	30.0	26.6	22.0

3.3 Data on indicators relevant to healthcare providers (GPs)

Tables 3.12 and 3.13 present the main results of three Eurobarometer surveys of eHealth activities of General Practitioners in Europe.

3.3.1 Flash EB 80 (April-May, 2000)

It can be seen from Table 3.12 that in April-May 2000, just over three-quarters (77.7%) of GPs in Europe reported using a computer in their work and just under half (47.7%) reported having an Internet connection.

Amongst all the GPs, less than half (44.1%) reported using the Internet as a source of professional information, and only a small minority (6.3%) said that the Internet was the source that they used most often. The main uses of the Internet were for information search, with much lower percentages of GPs reporting transfer of clinical or administrative information, or electronic dialogue with patients.

There was considerable variation across Member States and socio-demographic groups in rates of Internet connection. GPs in Denmark (73.5%) and Sweden (72.5%) reported highest levels, and GPs in Greece (22.0%) lowest levels. Male GPs (50%) were more likely than female GPs (39.1%) to report being connected, and connection rates decreased with age, being lowest amongst GPs in the 56 + age-range (28.7%). These patterns were also reflected in the data on usage of the Internet for information, with highest levels again in Denmark (67.5%) and Sweden (61.0%) and lowest levels in France (31.1%) and Greece (24.5%), male GPs (46.3%) being more likely than female GPs (35.7%) to report Internet usage and usage declining with age, being lowest amongst GPs aged 56+ (27.3%).

[13] SeniorWatch (2002) Older People and Information Society Technology. Deliverable No. 5.1. Survey of early Summer 2001.

Table 3.12 GP eHealth indicators from Flash Eurobarometer 80 (April-May 2000)

		% GPs	
Sources of professional Information used	Books	93.2	
	Subscriptions to medical magazines/journals	92.5	
	Interaction with other colleagues	89.4	
	Seminars and conferences	86.7	
	Presentations given by pharmaceutical firm salesmen	81.2	
	Printed publicity received directly from pharmaceutical firms	69.3	
	Attending specialised courses after completion of university studies	69.0	
	CD-ROM based information	56.6	
	Internet based information	44.1	
	Specialised TV programmes	19.1	
Sources of professional information used most often	Subscriptions to medical magazines/journals	40.3	
	Books	18.3	
	Seminars and conferences	14.6	
	Interaction with other colleagues	7.8	
	Internet based information	6.3	
	Presentations given by pharmaceutical firm salesmen	3.0	
	Attending specialised courses after completion of university studies	2.8	
	CD-ROM based information	1.7	
	Printed publicity received directly from pharmaceutical firms	1.0	
Technologies used for work	Mobile phone	81.9	
	Personal computer	77.7	
	CD-ROM drive	65.5	
	Smart card system	53.0	
	Special medical software related to your area of expertise	50.5	
	Internet	47.7	
	Fax linked to a computer	39.2	
	Accounting software	38.4	
	Scanner	33.3	
	Electronic agenda	20.7	% GPs with Internet connection
	Portable computer	17.5	
	Devices which provide a direct interface between PC and a measurement/analysis instrument	12.7	
Usage of the Internet	Consulting professional databases such as Medline	34.6	72.5
	Consulting sites of professional associations giving doctor-doctor info.	33.2	69.6
	Searching information on clinical cases to reinforce diagnosis	27.3	57.2
	Consulting official guidelines prepared by State or local health depts.	23.8	49.9
	Searching for specific information concerning contra indications	20.0	41.9
	Exchanging views via e-mail with colleagues	15.6	32.7
	Searching for new drugs on the web	13.8	28.9
	Receiving results of medical analyses from a laboratory	12.7	26.6
	Consulting sites which present alternative therapies	10.9	22.9
	Transferring patient clinical information to specialist or hospital	9.0	18.9
	Transferring admin. data to insurance organisation (reimbursement)	7.2	15.1
	Interacting with patients via e-mail	5.8	12.2

N = 3,514 General Practitioners

3.3.2 Flash EB's 104 (June-July, 2001) and 126 (May-June, 2002)[14]

The June-July 2001 and May-June 2002 surveys were quite different to the earlier one and do not allow for directly comparable time series analyses. From Table 3.13, however, it can be seen that computer access/usage in GP practices increased a little over the two year time period, with just over four out of five GPs (82%) reporting using some form of computer in their practice in May-June 2002. All of the GPs in Finland and the Netherlands reported using a computer in their practices in June-July 2001 as did ninety percent or more in Sweden (98.0%), Germany (95.0%) and the UK (94.6%), whereas just over one third reported using a computer in their practices in Portugal (37.0%) and just over half in Greece (51.5%). In relation to socio-demographic factors, there were no differences between men and women but GPs in the 56 + age-range were a lot less likely to report using a computer in the practice (57.8%).

[14] Data from Flash EB 126 is reported in parentheses. This data had only just become available at time of writing the report and the EB report is not entirely complete. Consequently, the level of precision is lower than for EB 104 and some data is not available. Also, there was insufficient time to thoroughly analyse and comment on the latest data

Table 3.13 GP eHealth indicators from Flash Eurobarometer 104 and 126

			% GPs
Usage of computer in practice	Yes	-	80.1 (82)
	No	-	19.9 (18)
		% GPs using IT in practice	% GPs
IT equipment connected to Internet or dedicated GPs network	Yes	76.3 (78)	61.1 ((64)
	No	23.7 (22)	38.9 (36)
		% GPs with online connection	% GPs
Usage of the Internet or dedicated GPs network for…	Accessing information for your continuing information	70.4 (72)	43.0 (46)
	Accessing medical association websites which give "doctor to doctor" information	61.7 (64)	37.7 (41)
	Consulting medical journals	61.4 (63)	37.5 (40)
	Searching for prescribing information	50.2 (56)	30.7 (36)
	Exchanging views with other doctors	26.1 (32)	15.9 (20)
	Sending/receiving patient identifiable data	22.3 (27)	13.6 (17)
		% GPs sending/receiving patient identifiable data	% GPs
Reasons for sending/receiving patient identifiable data	Submit patient care reimbursement claims	35.8 (38)	4.9 (6)
	Transfer administrative patient data to a secondary carer	27.0 (32)	3.7 (5)
	Transfer patient medical data to other medical care providers for purposes of continuity of care	37.2 (46)	5.1 (8)
	Receive results from laboratories and other diagnostic procedures (e.g. ECG)	66.4 (66)	9.0 (11)
	Exchanging emails with patients	34.2 (36)	4.7 (6)
	Offer any form of telemedicine services to your patients, such as home monitoring via Internet or email	7.0 (12)	1.0 (2)
	Electronic prescribing (transfer of prescription via Interner to dispensing pharmacist)	16.6 (17)	2.3 (3)
		% GPs sending/receiving patient identifiable data	
Method of patient consent for transferring patient identifiable data	Written	21.8 (25)	-
	Oral	31.7 (29)	-
	No specific consent obtained	32.0 (38)	-
	DK/na	14.5 (6)	-
		% GPs sending/receiving patient identifiable data	
Usage of electronic signatures in online communication of patient medical data	Yes, for any communication	15.6 (13)	-
	Yes, for some communication	14.7 (11)	-
	No	66.7 (73)	-
	DK/na	2.9 (3)	-
		% GPs with online connection	% GPs
Usage of Electronic Health Care Record (EHCR)	Yes, provided by health authorities	11.8 (10)	7.2 (6)
	Yes, purchased specifically	34.5 (37)	21.1 (24)
	Yes, Assoc. Health Insur. Physicians	1.9 (1)	1.2 (1)
	No, don't use EHCR	47.0 (50)	28.7 (32)
	DK/na	4.8 (2)	2.9 (1)
		% GPs with online connection	% GPs
Practice website	Has website	19.5	11.9
	No website	79.2 (77)	88.1
	Don't know	1.3	
		% GPs in practice with website*	
Practice web site provides	Administrative information only	61.5	-
	Administrative + health information	47.2	-
	Patient appointment schedule (interactive)	8.2	-

Total N = 3,504 General Practitioners; *Multiple responses allowed; Flash EB 126 data is in parentheses

Online connection

Online connection also appears to have increased, with just over three-quarters (78%) of those using computers in their practice reporting connection to the Internet or a dedicated GPs network in May-June 2002, representing nearly two in three (64%) of all GPs. Amongst GPs using computers in their practices in June-July 2001, in Finland and the Netherlands all reported online connection as did more than ninety-percent in Sweden (95.4%), UK (91.5%) and France (90.4%), whereas just over half reported online connection in Greece (52.4%),

Portugal (52.7%) and Germany (55.8%). Amongst the total population of GPs, including those with and without computers in their practice, the data indicate that all GPs in Finland and the Netherlands have online connections (as all have computers in their practices), with high rates also in Sweden (93.5%), the UK (86.6%) and France (80.5%) and low rates in Portugal (19.5%) and Greece (27.0%).

In relation to socio-demographic factors, amongst GPs using computers in their practices, lower online connection rates were reported by GPs in the 56+ age-range (67.4%).

Uses of the Internet and other networks

Usage of the Internet and other networks in May-June 2002 was still mostly for accessing information. However, usage of the internet for clinical-type activities does appear to be increasing, with almost one third of GPs (32%) in practices with online connections reporting exchanging views with other doctors online and over one-quarter (27%) reporting sending/receiving patient identifiable data online.

There were wide variations across countries in June-July 2001. In relation to information seeking, just over one third of GPs with online connections in France (36%) reported using these to access medical association websites that give "doctor to doctor" information, compared to more than three quarters in Germany (78%); fewer than one third did so to search for prescribing information in France (30%) compared with four out of five in Spain (80%); and less than half did so for continuing medical education in Sweden (46%) compared with more than five out of six in Italy (86%). In relation to exchanging views with other doctors, fewer than one in six of GPs with online connections reported using the connection for this purpose in Germany (15%) compared with more than two in five (42%) in Italy.

A number of factors may underlie these differences across countries, including organisational aspects of the GP services, traditional practices amongst GPs and differences in the composition of the populations of online GPs (e.g. different proportions of heavy/light users, early/late adopters and so on). Further exploration in a more detailed survey would be needed to assess the contributions of these and other factors.

Reasons for sending/receiving patient identifiable data

In May-June 2002, almost two-thirds (66%) of those who sent/received patient identifiable data did so to receive results of tests, representing just over one in ten GPs (11%) overall. Almost half of those who sent/received such data did so in the context of continuity of care (46%), representing a sizeable increase over the previous year. Around one third did so for submission of patient reimbursement claims (38%), exchanging emails with patients (36%), and to transfer administrative data to a secondary carer (32%), representing about six per cent of GPs overall. One in six (17%) did so for electronic prescribing, representing about three per cent of GPs overall, and a small but growing minority (12.0%) reported such data transfers for telemedicine services to patients, representing just two per cent of GPs overall.

In May-June 2002, of those that send/receive patient identifiable data, one quarter (25%) reported getting written patient consent, just under one-third (29%) reported getting oral consent, and more than one-third (38%) reported that they did not obtain any specific consent. Just under one-quarter (24%) reported using electronic signatures for some or all of these communications of patient identifiable data. In relation to variations across the Member States in June-July 2001, amongst those with online connections the highest levels of online sending/receiving of patient identifiable data were reported in Denmark (64.2%), the Netherlands (51.5%) and Belgium (47.0%), with lowest levels reported in Portugal (10.3%) and Finland (10.7%). Highest levels of usage of electronic signatures were reported for Luxembourg (66.7%) and lowest levels for Finland (6.3%).

Usage of Electronic Health Care Records (EHCRs)

In May-June 2002, almost half of the GPs in practices with online connections reported usage of an Electronic Health Care Record (EHCR), with one in ten (10%) using ones provided by health authorities, more than one-third (37%) using ones purchased specifically, and a small proportion (Germany only, but quite significant there) using an EHCR from the association of health insurance physicians. In June-July 2001, highest rates of usage were reported in

Denmark (98.8%), Sweden (96.6%), Germany (90.5%), Netherlands (87.6%), Austria (85.2%) and Belgium (83.9%), with lowest levels in France (7.4%), Spain (20.0%) and Portugal (25.0%). In general, GPs in smaller practices and in rural ones were less likely to report usage of EHCRs.

Practice websites

Finally, in June-July 2001 just over one-fifth of GPs in practices with online connections reported that their practices had websites, translating into just under one in eight (11.9%) of GPs overall when those without online connections are also taken into account, and this seems to have increased slightly over the last two years. In general, in June-July 2001, GPs with online connections in single-handed practices were least likely to report having a website (19.2%) and GPs in polyclinics were most likely (35.1%). There was wide variation across countries, with Finnish GPs with online connections most likely (62.7%) to report that their practice had a website and Portuguese GPs least likely (10.3%).

Of those practices with websites, more (12.0%) provided administrative information only than provided administrative and health information (9.2%) or interactive patient appointment schedules (1.6%). Finnish (8.7%) and German (6.3%) GPs with online connections were most likely to report that their practice websites had interactive patient appointment scheduling.

3.3.3 Summary and conclusions

Overall in the EU at present, about two thirds of GPs (64%) report using IT equipment connected to the Internet or to dedicated GPs networks. There are still significant differences across the Member States in relation to this indicator of readiness to use eHealth applications. In some countries (such as Finland and the Netherlands) all GPs appear to have online connections in their practices, but in others (such as Portugal and Greece) online connection levels are still very low because of the relatively low availability of computers in practices and, when practices have computers, the relatively low levels of online connection even then.

Usage of the Internet in May-June 2002 was still mostly for accessing information. However, usage of the internet for clinical-type activities appears to be increasing, with almost one third of GPs (32%) in practices with online connections reporting exchanging views with other doctors online and over one-quarter (27%) reporting sending/receiving patient identifiable data online. In June-July 2001, highest levels of online sending/receiving of patient identifiable data were reported in Denmark (64.2%), the Netherlands (51.5%) and Belgium (47.0%), with lowest levels reported in Portugal (10.3%) and Finland (10.7%).

Amongst practices with online connections, usage of Electronic Health Care Records (EHCRs) also varies widely across countries. In some countries (such as Denmark and Sweden) almost all report using EHCRs whereas in others (such as France) usage is very limited.

Fewer than one in eight (11.9%) of GP practices had websites in June-July 2001. Of those that did, almost two thirds (61.5%) provided administrative information only and almost half (47.7%) provided administrative and health information. Only a small proportion (8.2%) provided interactive patient appointment scheduling.

3.4 Summary and conclusions on the data from the SIBIS indicators

The eHealth indicators developed in SIBIS and tested in the general population survey yielded good quality data that has added substantially to the state-of-the-art in the area. Apart from providing the first detailed benchmarking of self-directed searching for health-related information on the Internet in the EU Member States, the SIBIS data allows direct comparisons to be made between the EU and US for the first time. The main conclusions that can be drawn are the following.

First, although online searching for health-related information is still a minority activity in Europe both amongst Internet users (36.4%) and amongst the general population (19.8%), it

is of sufficient scale to represent a significant issue for public health policy in general and for patient-doctor interaction in particular.

Second, if such activity is judged to be a positive development in public health terms, then the EU lags behind the US in the extent to which the general public is availing of the new opportunities. People in the EU are less likely to be Internet users in the first place and, when they are, they are less likely than their US counterparts to search for health-related information online.

Third, there are significant variations across the Member States in the prevalence of health-information searching on the Internet, ranging from between 20% to 50% of Internet users and between 10% and 30% of the population when differences in prevalence of Internet usage across the Member States are taken into account. Although these differences can be expected to reduce as Internet penetration rates converge, contextual factors are likely to continue to influence developments in the Member States as well. In all countries, however, online searching for health-related information is likely to become increasingly significant.

Fourth, amongst Internet users, males and younger users were less likely to report online searching for health information but there were few differences across socioeconomic groups. However, differences in Internet usage in the first place resulted in some significant variations at the population level. Older people and people in less favourable socio-economic circumstances were a lot less likely to use the Internet to search for health-related information. This indicates a need for careful monitoring of the extent to which the advent of health-related information services on the Internet may exacerbate existing health "divides" in the population.

Fifth, about one in six EU users reported having to search web sites in languages other than their mother-tongue in order to find suitable health-related information and this was a lot more than the one in forty of their US (English-speaking) counterparts who reported this. Language is therefore an important factor to be considered in eHealth policy and it will be necessary to ensure that sufficient quality information is available for all language groups if linguistically-determined health divides are to be avoided.

Sixth, about half of those in the EU who have searched for health-related information on the Internet have done so to get a second opinion on a medical diagnosis, representing about one in ten of the population overall. This provides the first robust quantification of the many anecdotal reports of patients becoming more informed and more questioning of the diagnoses and therapeutic recommendations of their doctors. It underlines the need for public health policy in Europe to give attention to supporting patients and doctors to exploit the new opportunities for sharing health management and decision-making in a positive and synergistic manner.

Finally, those who used the Internet to search for health-related information in the EU and the US were less trusting of pharmaceutical companies and private health insurers as sources of information than they were of other sources. Within Europe, there were quite wide variations across countries in whether or not and to what extent users expressed skepticism about these information sources. In relation to other sources of information, users tended to be a little more skeptical of patient advocacy/self-help groups than they were of healthcare organizations, professional associations and universities. This type of information on user attitudes can provide a useful input to the work on developing quality criteria for health web sites and on educating users to be discerning in their information search.

4 Further developments

This Chapter looks beyond the indicators that have been used up to now (including those developed and tested within the SIBIS project) and considers what further developments are needed to progress indicator development and benchmarking of the eHealth domain in the future.

4.1 General issues for future indicator development and refinement

The available data from SIBIS and other sources raise some generic issues that need to be taken into consideration in future indicator development and testing.

4.1.1 Definitions and terminology

In the eHealth area, as in other areas, great care needs to be taken to ensure similar meanings of terminology in surveys that span different languages and cultures. At an even more basic level, the definition of what constitutes "health-related" information or activity needs careful consideration. For example, should some or all of the various "lifestyle" areas (nutrition/diet, health/fitness and so on) be considered to be health-related and, if not, where should the boundaries be drawn? For future benchmarking exercises more precision and specificity would be useful in this regard, both in the specification of indicators and in operationalising the indicators as survey questions. More generally, careful consideration needs to be given to definitions of all types of eHealth activity.

4.1.2 Precision and specificity in benchmarking eHealth activities

Related to this is the need for more precision and specificity in benchmarking eHealth activities. The following two examples, one from the SIBIS survey and one from Eurobarometer, give an indication of the importance of this.

In the SIBIS survey data was collected on the extent to which the general "seek a second opinion" online, without differentiating the different ways that this may be done. In future surveys, more precision in relation to how this is actually being done would be useful. Formal online consultation with another doctor is very different to looking oneself for information on the topic to help confirm or disconfirm an initial diagnosis.

In the Eurobarometer surveys of General Practitioners data was collected on the extent of transfer of "patient identifiable data", but without ascertaining whether data encryption was used. Whether of not data with information that would allow the patient to be identified is encrypted will influence who can actually read the data and/or identify the patient.

These are examples of a more general need to have as much specificity and precision as possible on who/what each form of eHealth interaction is with and what exactly is the nature of the interaction. In the case of general public searching for health-related information, for example, it would be useful to differentiate between formal online interaction with particular healthcare providers (e.g. one's own doctor) and more informal browsing of health web sites. For each type of interaction, it would also be useful to specify more precisely what is involved, such as passive information acquisition, question-and-answer consultation, and so on.

Another aspect of this concerns the relevant eHealth applications/services that should be addressed in benchmarking. In fact, this is something that can be quite context dependent (particular eHealth activities it may not be an option in some countries, for example) and that will evolve over time as the availability and take-up of applications/services evolves. Benchmarking activities may need to give attention both to patterns of usage of applications/services that are already being used to an appreciable extent and to providing an "early warning" service in relation to new and emerging applications/services.

4.1.3 Regularity and frequency of usage

Another aspect that warrants more attention is the assessment of intensity of usage of eHealth applications and services. Issues that need to be considered include the reference period to be used (in SIBIS and the other studies this varied from no reference period to 4

weeks, 3 months and 12 months) and how to measure frequency of use and relate this to health needs.

In order to have comparable results across surveys it will be important to harmonize reference periods. It also needs to be noted that usage within a recent reference period (e.g. last 4 weeks) is unlikely to be a very satisfactory proxy for regularity of usage in the case of eHealth. Depending on the definition adopted and the particular activity in question, eHealth activity may often be something that is done as the need arises rather than on a regular basis.

Related to this is the issue of the extent/frequency of eHealth activity. In this regard, it would be helpful to know not just the frequency with which specific activities are being undertaken, but also whether contextual factors (such as the presence of a particular disease/condition) are related to this.

4.1.4 Contextualising data

Good quality contextual information is of central importance for interpreting indicator data and for benchmarking the eHealth area. This can be partly generated through questioning in surveys, if relevant socio-demographic information on users is captured as well as information on their health interests and needs and on the healthcare system and circumstances within which they are located. It also requires data from other sources to enable verification, interpretation and evaluation, including objective data on the normative/cultural and structural aspects of the healthcare system within which users operate and on the quality and other characteristics of the online health services that they use.

4.1.5 Addressing the complexity of the eHealth domain

Related to this is the importance of addressing the complexity of the eHealth domain in benchmarking activities. As already discussed in Chapter 1, the eHealth domain is a particularly complex one for a number of reasons, including:

- wide variations in the organisation and delivery of healthcare services across countries and associated variations in healthcare practices and activities.
- cross-country variations in contextual factors that influence what eHealth activities are possible or not, deemed desirable or undesirable, and encouraged or discouraged; these include policy and/or professional opinion on what constitutes good practice, and the sometimes differing opinions on such matters amongst different stakeholders (e.g. in relation to the appropriateness of patient-doctor consultation by telephone or attitudes towards patient empowerment and self-help)
- the relative immaturity of eHealth service provision and usage as a consequence of these contextual and other factors
- the importance of both formal (e.g. doctor-patient consultation) and informal (e.g. browsing health information sites) transactions, and the potential for increased blurring of the boundaries between these
- blurred boundaries between commercial and non-commercial players and transactions in the sector, and between "official" and "non-official" information and opinion.

4.1.6 Need for a multi-level approach

Because of this complexity, multi-method approaches are needed to comprehensively benchmark the eHealth domain. Although surveys of the general public and other healthcare players have a key role to play, other complementary approaches could usefully be included in the future. Apart from gathering contextual data on cultural factors and on health service organisation at national/regional level, it would also be worthwhile considering other approaches, such as web scanning to assess the characteristics and quality of online health sites and automatic data mining of activity data from health sites. In combination, such multi-level data would provide a solid basis for public health policy in key areas. It could support the development of regulation and guidance for online health-information providers and the utilization of online services for public health promotion. It could also be helpful for “traditional” healthcare providers by informing them about the types of health-related activities that the public (and their patients) are doing and supporting the development of training on

how to deal with this in their practices. Finally, it could provide an input to the design of educational programs for citizens in how to get the best from the new online opportunities.

4.2 Taking forward the work of the eEurope 2001/2002 action plan

The eEurope action plan set five main targets for the eHealth domain in 2001/2002:

- Establish a set of quality criteria for health related websites
- Publish a Communication on "Legal Aspects of eHealth"
- Ensure that primary and secondary healthcare providers have health telematics infrastructure in place including regional networks
- Identify best practice in electronic health services in Europe, disseminate these and set benchmarking criteria
- Establish health technology and data assessment networks.

Three of these - quality criteria for health related websites, identifying and benchmarking best practice, and ensuring health telematics infrastructures are available for primary and secondary healthcare providers - are of most direct relevance for the indicator identification and development work in SIBIS.

4.2.1 Quality criteria for health related websites

The European Commission has been working with the Member States (through the High Level Committee on Health) to define quality criteria for health websites, and is in liaison with the American Health Website Advisory Committee which is now operating a health website accreditation system. The main relevance of this aspect for SIBIS concerns ways in which such quality criteria for health websites could be applied for benchmarking purposes rather than in contributing to their content, per se[15].

The scope of the SIBIS surveys did not allow this area to be addressed and there are so far no robust data available for benchmarking this topic in Europe. It is proposed that future benchmarking of eHealth activity of the general public should include indicators that address the quality aspects of health sites visited and used. This would involve benchmarking:

- The quality of available health-information sites (through web scan surveys of sites and "expert" assessment of their quality with reference to the eEurope quality criteria)

- What sites are used by the general public (through population surveys to assess which sites are used, by whom and how they are used; possibly also through automatic data mining of usage data from web sites)

- Quality assessment of sites actually used by the general public (through self-assessment in population surveys and/or by cross-referencing with the objective benchmarking data on web site quality)

- Public knowledge/awareness of quality criteria and how to apply them (through population surveys).

Such an approach would add outcome and evaluation data to the basic usage indicators so that policy can be informed not just on the amount of activity but also on the quality of such activity and whether it conforms to good practice.

4.2.2 Health telematics networks for primary and secondary healthcare providers

In the context of eEurope benchmarking, the Member States are documenting the availability of health telematics networks at national and/or regional levels. Here the main relevance for SIBIS is in relation to benchmarking two aspects of health telematics networks:

[15] See first report on eHealth (SIBIS WP 2) for the extensive list of indicators on this topic that was compiled from available sources

- Extent and nature of availability across countries, regions and "communities of interest"[16]
- Extent of connection to and extent and nature of usage of available networks by healthcare providers.

This area was also beyond the scope of the SIBIS surveys. There is some available data on the topic from other sources, but not enough for robust benchmarking. This includes data on availability of telematics networks in countries/regions from the SATS study[17] and on connection to the Internet/ dedicated GP networks from Flash EB 126[18]. The next step would be to begin to look at ways to develop systematic and robust benchmarking at the national, regional and/or community of interest levels (building on the Member State benchmarking exercise in relation to the eEurope 2001/2002 targets) and to design surveys of the various healthcare providers to benchmark the types of telematics network available to them, and the extent of connection to and amount/type of usage of these.

4.2.3 Identifying and benchmarking best practice

According to the eEurope status reports, this aspect is being addressed by some current IST projects. So far, however, there has been no formal presentation of best practice indicators or benchmarks.

As in the case of quality criteria for health websites, here again the main relevance of this aspect for SIBIS is in the application of the best practice criteria for benchmarking purposes rather than in contributing to their content. It is proposed that future benchmarking of eHealth activity of healthcare players (consumers, healthcare providers, administrations, educators) should include indicators that address the extent to which the eHealth activity is in conformance with "best-practice". This would involve benchmarking:

- What eHealth activities are currently undertaken by the various user groups (through population, practitioner and enterprise surveys to assess what is being done, and what are the variations across different groups)
- The degree of conformance with best practice of the range of eHealth activities that are currently being used or at least are possible (through documentation of the range of eHealth activities used/possible and expert assessment of their degree of conformance with best practice)
- Assessment of conformance of actual usage with best practice (by self-assessment in population surveys and/or by cross-referencing with the expert best practice benchmarking)
- Knowledge/awareness of best practice criteria and how to apply them (through population, practitioner and enterprise surveys).

In this context it is also important to consider infrastructural and contextual indicators. As already discussed, these indicators are important for interpretation of activity data, especially across countries. Relevant indicators would include (for each country, region or community of interest, and for each eHealth activity):

- Is the eHealth activity possible (e.g. do reimbursers of GPs have an online billing/payment system in place)?
- Is the eHealth activity allowed (e.g. telephone or online consultation with one's doctor)?
- Is it viewed as good practice (something to be encouraged), bad practice (something to be discouraged) or neutral (something to be left to develop or not depending on market forces)?

These approaches would also provide opportunities for the development of composite indicators that address both quality and activity aspects (i.e. extent of eHealth activity deemed to be good practice or otherwise). Again, this would add an outcome/evaluative dimension to

[16] "Communities of interest" rather than geographical areas are often the primary logical units for eHealth networks; often they will coincide with geographical/administrative boundaries (e.g. all GPs under a national health system) but not always (e.g. oncology specialists in Europe).
[17] Op cit.
[18] Op cit.

the basic usage indicators so that policy can be informed not just on the amount of activity but also on whether this is judged to be activity that is to be encouraged or discouraged. The infrastructural/contextual indicators would add a further dimension for developing composite indicators. In this case it would allow activity data to be adjusted for or interpreted in relation to the national (or regional) situation in which the user is situated.

4.3 Implications for benchmarking in the eEurope 2005 context

The attention given to both the general public and general practitioners in the eEurope 2005 eHealth benchmarking proposals is a positive development. However, there are some aspects of both areas that might benefit from some reflection and further consideration. Apart from the more general methodological considerations outlined above there are also some specific substantive aspects that need to be addressed.

4.3.1 Specific remarks on the proposed general public eHealth indicators

The following are some suggestions for benchmarking eHealth activity of the general public in the eEurope 2005 context:

1. Ensure that a suitably differentiated picture of eHealth activity is generated, for example:
    - searching for information on healthy lifestyles
    - searching for information about particular illnesses, treatments or medications
    - searching for practical information about health services (availability, opening hours and so on)
    - ordering/purchasing medication
    - e-mail interaction with health professionals.
2. Give specific attention to online interaction with own doctor/clinic, for example:
    - whether ever logged on to their web site
    - booked an appointment online
    - had an online consultation about a medical condition
    - received test results via e-mail
    - requested a prescription renewal via e-mail
    - received a prescription renewal via e-mail
3. Assess types and quality of web sites visited, and ability of users to assess quality themselves, for example:
    - types of web site(s) visited
        - official health service
        - professional association
        - own "traditional" doctor or clinic
        - other commercial health care provider
        - pharmaceutical company
        - pharmacy
        - self-help group
        - etc.
    - quality of sites visited
        - self-evaluated
        - whether accredited and/or had quality mark
        - etc.
    - knowledge about quality criteria.
4. Assess cross-border activity[19]
    - extent searching for services in other country (by reason for such searching - service not available in own country or has long waiting lists, is of poor quality or of higher cost in own country), with a view to possibly travelling to avail of such services
    - extent of online consultation with service providers in other countries.

[19] This is potentially an important topic in the context of the internal market for health services

4.3.2 Specific remarks on the proposed general practitioner eHealth indicators

The following are some suggestions for benchmarking eHealth activity of general practitioners in the eEurope 2005 context:

1. Get a more differentiated view of usage of electronic patient records, for example:

    - what type of record is used
        - developed by self
        - provided by health authority
        - purchased commercially
        - etc.
    - for what purposes is it used for -
        - internal record management
        - record exchange
        - enabling patient access
        - etc.
    - proportion of patients for whom such records are used.

2. Assess the nature and extent of online interaction with patients:

    - proportion of patients (if any) with whom electronic interaction takes place
    - types of interaction
        - consultation
        - test results
        - prescriptions
        - etc.

ANNEX 1 - Supplementary Data Tables

Table A3.1 Internet usage by country (EU15)

	Regular	Occasional	All
A	54.0	5.4	59.4
B	45.1	7.7	52.8
DK	67.7	8.8	76.4
FIN	63.4	6.6	70.0
F	36.0	6.3	42.3
D	52.9	8.0	60.9
EL	23.6	10.5	34.1
IRL	51.4	13.8	65.2
I	36.5	7.9	44.4
L	51.7	5.8	57.4
NL	63.4	10.2	73.6
P	27.6	6.0	33.6
E	35.2	8.7	43.8
S	65.7	8.4	74.2
UK	60.7	9.0	69.7
EU15	46.4	8.1	54.4
USA	69.3	7.7	77.0
CH	57.1	8.8	65.9

Table A3.2a Internet usage by socio-demographic groupings (EU15)

		Regular	Occasional	All
All		46.4	8.1	54.4
Gender	Male	54.5	7.3	61.8
(N=5607)	Female	38.8	8.7	47.6
Age - 1	24 or younger	76.5	10.8	87.4
(N=5597)	25-49	57.5	9.1	66.7
	50-64	32.7	6.7	39.4
	65 +	7.8	4.3	12.2
Age - 2	24 or younger	76.5	10.8	87.4
(N=5597)	25-39	61.0	9.6	70.6
	40-54	48.8	8.0	56.8
	55 +	15.8	5.2	21.0
Education	15 or younger	11.8	5.5	17.3
(N=4299)	16-20	44.2	9.3	53.4
	21 +	66.6	8.0	74.6
Household	--	18.6	4.8	23.3
Income	-	34.2	8.3	42.5
(N=4431)	+	53.4	10.4	63.9
	++	67.6	7.5	75.1
Employment	Paid employment	59.7	9.0	68.8
Status	Self-employed	55.4	7.1	62.5
(N=5588)	Unemployed/temporarily not working	37.9	12.4	50.3
	In education	82.6	9.5	92.1
	Retired/other	14.6	5.6	20.2
Occupational	Unskilled manual	36.4	8.2	44.5
group	Skilled and non-manual	54.8	11.7	66.5
(N=3319)	Well educated non-manual and skilled	69.8	8.5	78.3
	Managers and professionals	79.1	6.5	85.6
Household	Single person	29.3	6.2	35.5
Composition	Children under 6	55.2	9.7	64.9
(N=5590)	Children 6 +	58.3	10.6	68.9
	Two-person, no children	42.2	6.7	48.9
Long-standing	Yes	28.5	5.5	34.0
Illness, disability.. (N=5576)	No	50.0	8.5	58.4

Table A3.2b Internet usage by socio-demographic groupings (US)

		Regular	Occasional	All
All		69.3	7.7	77.0
Gender	Male	72.7	8.9	81.6
(N=1004)	Female	66.1	6.5	72.6
Age - 1	24 or younger	84.9	9.6	94.5
(N=1004)	25-49	79.0	7.9	86.9
	50-64	63.5	7.7	71.2
	65 +	26.3	4.2	30.5
Age - 2	24 or younger	84.9	9.6	94.5
(N=1004)	25-39	80.1	8.1	88.2
	40-54	74.3	7.1	81.4
	55 +	39.4	6.3	45.7
Education	15 or younger	13.9	0.0	13.9
(N=826)	16-20	54.9	9.4	64.3
	21 +	84.3	5.3	89.6
Household	--	40.9	8.8	49.8
Income	-	69.5	9.1	78.7
(N=825)	+	80.4	9.3	89.6
	++	85.5	4.7	90.1
Employment	Paid employment	79.5	6.8	86.4
Status	Self-employed	73.7	14.3	88.0
(N=991)	Unemployed/temporarily not working	46.0	11.4	57.3
	In education	84.0	7.5	91.5
	Retired/other	42.5	5.3	47.8
Occupational	Unskilled manual	46.4	14.7	61.1
group	Skilled and non-manual	66.9	12.1	79.0
(N=506)	Well educated non-manual and skilled	83.1	6.6	89.7
	Managers and professionals	87.7	4.7	92.4
Household	Single person	48.0	8.4	56.4
Composition	Children under 6	76.7	7.9	84.6
(N=990)	Children 6 +	82.0	7.1	89.1
	Two-person, no children	67.4	7.4	74.8
Long-standing	Yes	41.4	5.9	47.2
Illness, disability.. (N=997)	No	75.1	8.0	83.1

Table A3.3a Search for any health-related information on Internet by socio-demographic groups - EU15[1,2]

		Recent search (last 4 weeks)		Non-recent search (last 12 months, not last 4 weeks)		All searchers (recent and non-recent)	
		Internet users %*	Population %*	Internet users %*	Population %*	Internet users %*	Population %
Gender	Male	15.6	9.6	16.7	10.3	32.3	20.0
(N=6899[3])	Female	20.8	9.9	20.6	9.8	41.3	19.7
Age - 1	24 or younger	14.9	13.1	14.9	13.0	29.8	26.1
(N=6893)	25-49	20.0	13.3	19.4	12.9	39.4	26.3
	50-64	17.1	6.7	19.5	7.7	36.5	14.4
	65 +	10.8	1.3	24.0	2.9	34.9	4.2
Age - 2	24 or younger	14.9	13.1	14.9	13.0	29.8	26.1
(N=6893)	25-39	19.8	14.0	20.2	14.3	40.0	28.2
	40-54	19.6	11.1	18.6	10.6	38.2	21.7
	55 +	14.6	3.1	20.4	4.3	35.1	7.4
Education	15 or younger	16.3	2.8	15.9	2.7	32.2	5.6
(N=5268)	16-20	16.5	8.8	21.0	11.2	37.5	20.0
	21 +	20.0	14.9	18.3	13.7	38.3	28.5
Household	--	18.1	4.2	19.2	4.5	37.2	8.7
Income	-	19.4	8.2	20.6	8.8	40.0	17.0
(N=5624)	+	17.2	11.0	17.1	10.9	34.3	21.9
	++	19.2	14.5	19.7	14.8	38.9	29.2
Employment	Paid employment	18.5	12.7	19.9	13.7	38.4	26.4
Status	Self-employed	16.2	10.1	15.5	9.7	31.6	19.8
(N=6873)	Unemployed/temporarily not working	15.8	8.0	20.8	10.5	36.6	18.4
	In education	18.3	16.8	15.2	14.0	33.5	30.8
	Retired/other	17.6	3.6	19.0	3.8	36.7	7.4
Occupational	Unskilled manual	13.7	6.1	17.7	7.9	31.4	14.0
Group	Skilled and non-manual	16.1	10.7	22.4	14.9	38.5	25.6
(N=4164)	Well educated non-manual and skilled	19.4	15.2	18.1	14.1	37.5	29.4
	Managers and professionals	21.6	18.5	17.7	15.1	39.3	33.6
Household	Single person	16.6	5.9	16.4	5.8	33.0	11.7
Composition	Children under 6	18.3	11.9	21.1	13.7	39.4	25.6
(N=6856)	Children 6 +	17.7	12.2	16.7	11.5	34.4	23.7
	Two-person, no children	18.2	8.9	19.2	9.4	37.4	18.3
Long-standing	Yes	26.7	9.1	24.3	8.3	51.0	17.3
Illness, disability (N=6865)	No	17.0	9.9	17.9	10.5	34.9	20.4

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.3b Search for any health-related information on Internet by socio-demographic groups - US[1,2]

		Recent search (last 4 weeks)		Non-recent search (last 12 months, not last 4 weeks)		All searchers (recent and non-recent)	
		Internet users %*	Population %*	Internet users %*	Population %*	Internet users %*	Population %
Gender	Male	27.2	22.2	24.5	20.0	51.7	42.2
(N=746[3])	Female	35.9	26.1	29.3	21.3	65.2	47.4
Age - 1	24 or younger	27.7	26.1	24.4	23.1	52.1	49.2
(N=746)	25-49	32.8	28.5	28.3	24.6	61.1	53.1
	50-64	35.7	25.4	24.0	17.1	59.7	42.5
	65 +	20.6	6.3	31.8	9.7	52.4	16.0
Age - 2	24 or younger	27.7	26.1	24.4	23.1	52.1	49.2
(N=746)	25-39	31.3	27.6	26.5	23.3	57.8	51.0
	40-54	35.0	28.5	30.3	24.7	65.3	53.2
	55 +	30.5	13.9	24.6	11.3	55.1	25.2
Education	15 or younger	69.0	9.6	0.0	0.0	69.0	9.6
(N=592)	16-20	27.8	17.9	28.2	18.2	56.0	36.0
	21 +	33.4	29.9	25.9	23.2	59.2	53.1
Household	--	23.4	11.7	25.2	12.5	48.6	24.2
Income	-	28.1	22.1	29.4	23.2	57.5	45.2
(N=638)	+	30.7	27.5	32.3	29.0	63.0	56.5
	++	36.0	32.5	25.8	23.3	61.8	55.7
Employment	Paid employment	31.9	27.5	25.5	22.0	57.4	49.6
Status	Self-employed	22.9	20.1	32.7	28.8	55.6	48.9
(N=743)	Unemployed/temporarily not working	28.2	16.2	26.9	15.4	55.1	31.6
	In education	34.7	31.8	25.7	23.5	60.4	55.3
	Retired/other	33.1	15.8	30.1	14.4	63.2	30.2
Occupational	Unskilled manual	14.0	8.6	31.5	19.2	45.5	27.8
Group	Skilled and non-manual	26.5	20.9	23.7	18.8	50.2	39.7
(N=438)	Well educated non-manual and skilled	32.8	29.4	27.2	24.4	60.0	53.8
	Managers and professionals	32.5	30.0	27.8	25.7	60.3	55.7
Household	Single person	22.6	12.7	31.1	17.5	53.7	30.2
Composition	Children under 6	29.6	25.1	26.9	22.7	56.5	47.8
(N=737)	Children 6 +	36.7	32.7	23.2	20.6	59.9	53.4
	Two-person, no children	31.5	23.6	28.0	20.9	59.5	44.5
Long-standing	Yes	34.4	16.3	41.3	19.5	75.7	35.7
Illness, disability (N=742)	No	31.3	26.0	25.2	20.9	56.5	46.9

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.4 Found health information searched for on Internet by socio-demographic groups - EU15[1,2]

		Internet users			EHealth users		
		Regular %*	Occasional %*	All %*	Recent %*	Non-recent %*	All %*
Gender	Male	95.7	86.9	94.9	94.6	95.2	94.9
([3]N=2697)	Female	94.7	86.6	93.7	95.9	91.6	93.7
Age - 1	24 or younger	93.4	91.5	93.2	92.8	93.6	93.2
(N=2692)	25-49	96.1	93.3	95.8	96.9	94.8	95.8
	50-64	95.0	72.3	92.8	94.0	91.8	92.8
	65 +	89.8	75.8	85.1	84.3	85.5	85.1
Age - 2	24 or younger	93.4	91.5	93.2	92.8	93.6	93.2
(N=2692)	25-39	96.1	94.5	95.9	97.3	94.6	95.9
	40-54	96.2	93.8	95.9	96.7	95.0	95.9
	55 +	92.8	63.7	87.7	88.0	87.5	87.7
Education	15 or younger	91.2	78.9	88.2	88.0	88.5	88.2
(N=2095)	16-20	95.3	91.5	94.8	96.3	93.6	94.8
	21 +	95.8	89.8	95.5	96.3	94.6	95.5
Household	--	94.9	100.0	95.5	93.1	97.9	95.5
Income	-	96.9	78.3	93.7	96.4	91.0	93.7
(N=2274)	+	95.3	83.3	94.2	92.5	96.0	94.2
	++	94.9	85.3	94.2	96.7	91.7	94.2
Employment	Paid employment	96.8	96.0	96.7	97.3	96.1	96.7
Status	Self-employed	94.1	85.1	93.5	99.3	87.2	93.5
(N=2687)	Unemployed/temporarily not working	97.9	79.8	94.9	96.6	93.7	94.9
	In education	94.9	74.8	93.3	94.2	92.2	93.3
	Retired/other	87.5	76.8	85.6	84.9	86.2	85.6
Occupational	Unskilled manual	95.8	93.5	95.3	96.9	94.1	95.3
group	Skilled and non-manual	96.9	99.5	97.2	96.8	97.5	97.2
(N=1672)	Well educated non-manual and skilled	94.1	100.0	94.4	96.6	92.1	94.4
	Managers and professionals	98.1	83.2	97.4	99.1	95.3	97.4
Household	Single person	95.1	52.8	91.6	93.8	89.4	91.6
Composition	Children under 6	92.7	80.8	91.2	95.0	87.8	91.2
(N=2676)	Children 6 +	95.2	92.9	95.0	94.0	96.0	95.0
	Two-person, no children	96.2	90.2	95.7	96.7	94.7	95.7
Long-standing	Yes	94.1	92.2	93.9	91.1	96.9	93.9
Illness, disability (N=2684)	No	95.4	85.6	94.4	96.0	92.9	94.4

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.5 Suitability for needs of health-related information found on Internet by socio-demographic groups - EU15[1,2]

		Internet users			EHealth users		
		Regular %*	Occasional %*	All %*	Recent %*	Non-recent %*	All %*
Gender	Male	92.5	95.8	92.7	92.8	92.6	92.7
([3]N=2553)	Female	92.9	91.3	92.7	91.8	93.6	92.7
Age - 1	24 or younger	92.4	91.9	92.4	91.1	93.5	92.4
(N=2549)	25-49	92.3	94.5	92.5	91.2	93.9	92.5
	50-64	94.9	93.0	94.7	97.2	92.5	94.7
	65 +	88.8	85.7	88.0	97.3	83.5	88.0
Age - 2	24 or younger	92.4	91.9	92.4	91.1	93.5	92.4
(N=2549)	25-39	93.6	96.1	93.8	91.5	96.2	93.8
	40-54	90.8	94.0	91.2	92.1	90.1	91.2
	55 +	94.0	83.7	92.9	98.0	89.1	92.9
Education	15 or younger	92.3	93.4	92.5	94.8	89.9	92.5
(N=1988)	16-20	93.1	95.0	93.4	91.8	94.7	93.4
	21 +	93.9	87.5	93.6	94.2	92.9	93.6
Household	--	97.2	87.5	96.0	97.1	95.0	96.0
Income	-	93.4	86.6	92.5	96.7	88.1	92.5
(N=2161)	+	92.2	94.7	92.4	89.5	95.3	92.4
	++	93.1	95.3	93.2	90.6	96.0	93.2
Employment	Paid employment	93.2	94.3	93.3	92.0	94.4	93.3
Status	Self-employed	91.6	93.4	91.7	91.3	92.2	91.7
(N=2543)	Unemployed/temporarily not working	98.5	96.7	98.3	97.8	98.6	98.3
	In education	91.1	91.8	91.1	89.1	93.6	91.1
	Retired/other	93.7	87.3	92.9	98.4	87.6	92.9
Occupational	Unskilled manual	92.8	87.2	91.7	93.5	90.3	91.7
group	Skilled and non-manual	92.1	98.2	92.9	90.4	94.7	92.9
(N=1600)	Well educated non-manual and skilled	91.8	93.1	91.9	89.8	94.3	91.9
	Managers and professionals	94.4	100.0	94.6	93.9	95.5	94.6
Household	Single person	93.2	91.2	93.1	95.3	90.7	93.1
Composition	Children under 6	95.7	97.0	95.9	94.5	97.1	95.9
(N=2532)	Children 6 +	90.7	95.4	91.2	92.1	90.3	91.2
	Two-person, no children	92.7	87.5	92.3	90.8	93.9	92.3
Long-standing	Yes	90.6	97.4	91.3	92.7	89.8	91.3
Illness, disability.. (N=2541)	No	93.0	92.2	92.9	92.2	93.6	92.9

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.6 Sufficiency of mother-tongue websites to find suitable health-related information on Internet by socio-demographic groups - EU15[1,2]

			Internet users			EHealth users		
			Regular %*	Occasional %*	All %*	Recent %*	Non-recent %*	All %*
Gender	Male	Mother-tongue sites sufficient	82.4	89.9	82.9	82.2	83.6	82.9
		Extended to other sites	13.5	9.1	13.2	13.4	13.0	13.2
		Relied solely on other sites	4.1	1.0	3.9	4.3	3.5	3.9
	Female	Mother-tongue sites sufficient	86.0	81.4	85.5	85.4	85.5	85.5
		Extended to other sites	12.3	18.3	12.9	13.0	12.9	12.9
([3]N=2343)		Relied solely on other sites	1.8	0.3	1.6	1.6	1.6	1.6
Age - 1	24 or younger	Mother-tongue sites sufficient	82.9	70.7	81.8	84.9	78.8	81.8
		Extended to other sites	15.7	29.3	16.9	14.0	19.8	16.9
		Relied solely on other sites	1.3	0.0	1.2	1.1	1.3	1.2
(N=2339)	25-49	Mother-tongue sites sufficient	84.6	87.2	84.8	84.1	85.6	84.8
		Extended to other sites	11.8	11.9	11.8	12.7	10.9	11.8
		Relied solely on other sites	3.6	0.9	3.3	3.2	3.5	3.3
	50-64	Mother-tongue sites sufficient	83.5	88.7	83.9	82.3	85.4	83.9
		Extended to other sites	14.0	11.3	13.8	13.9	13.6	13.8
		Relied solely on other sites	2.5	0.0	2.3	3.8	0.9	2.3
	65 +	Mother-tongue sites sufficient	94.8	94.4	94.7	93.1	95.6	94.7
		Extended to other sites	4.5	5.6	4.7	6.4	3.7	4.7
		Relied solely on other sites	0.8	0.0	0.6	0.5	0.6	0.6
Age - 2	24 or younger	Mother-tongue sites sufficient	82.9	70.7	81.8	84.9	78.8	81.8
		Extended to other sites	15.7	29.3	16.9	14.0	19.8	16.9
		Relied solely on other sites	1.3	0.0	1.2	1.1	1.3	1.2
(N=2339)	25-39	Mother-tongue sites sufficient	83.8	88.4	84.2	83.3	85.1	84.2
		Extended to other sites	12.2	10.3	12.0	14.0	9.9	12.0
		Relied solely on other sites	4.0	1.4	3.8	2.7	4.9	3.8
	40-54	Mother-tongue sites sufficient	84.3	89.4	84.8	81.0	89.1	84.8
		Extended to other sites	12.4	10.6	12.2	14.1	10.2	12.2
		Relied solely on other sites	3.3	0.0	3.0	4.9	0.7	3.0
	55 +	Mother-tongue sites sufficient	89.1	84.4	88.6	96.0	82.7	88.6
		Extended to other sites	10.5	15.6	11.0	3.8	16.9	11.0
		Relied solely on other sites	0.4	0.0	0.4	0.2	0.5	0.4
Education	15 or younger	Mother-tongue sites sufficient	88.3	92.2	89.1	89.8	88.1	89.1
		Extended to other sites	7.0	7.8	7.1	3.1	11.9	7.1
		Relied solely on other sites	4.7	0.0	3.8	7.1	0.0	3.8
(N=1831)	16-20	Mother-tongue sites sufficient	89.8	88.8	89.7	87.9	91.2	89.7
		Extended to other sites	8.6	11.2	8.9	10.1	7.9	8.9
		Relied solely on other sites	1.6	0.0	1.4	2.0	0.9	1.4
	21 +	Mother-tongue sites sufficient	78.7	85.5	79.1	79.2	78.9	79.1
		Extended to other sites	16.4	12.5	16.2	17.1	15.1	16.2
		Relied solely on other sites	4.9	1.9	4.7	3.7	5.9	4.7

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.6 (continued) Sufficiency of mother-tongue websites to find suitable health-related information on Internet by socio-demographic groups - EU15[1,2]

			Internet users			EHealth users		
			Regular %*	Occasional %*	All %*	Recent %*	Non-recent %*	All %*
Household Income ([3]N=1993)	--	Mother-tongue sites sufficient	79.7	95.7	81.5	81.8	81.2	81.5
		Extended to other sites	19.8	4.3	18.0	18.1	18.0	18.0
		Relied solely on other sites	0.5	0.0	0.5	0.1	0.8	0.5
	-	Mother-tongue sites sufficient	84.3	79.3	83.7	86.4	80.6	83.7
		Extended to other sites	12.7	19.8	13.6	11.0	16.5	13.6
		Relied solely on other sites	3.0	0.8	2.7	2.6	2.9	2.7
	+	Mother-tongue sites sufficient	86.5	88.9	86.7	84.9	88.4	86.7
		Extended to other sites	10.5	11.1	10.6	13.3	8.0	10.6
		Relied solely on other sites	3.0	0.0	2.7	1.8	3.5	2.7
	++	Mother-tongue sites sufficient	83.4	89.2	83.8	81.4	86.1	83.8
		Extended to other sites	12.8	9.7	12.6	13.7	11.5	12.6
		Relied solely on other sites	3.8	1.1	3.6	4.8	2.4	3.6
Employment Status (N=2334)	Paid employment	Mother-tongue sites sufficient	84.2	91.6	84.9	83.0	86.6	84.9
		Extended to other sites	11.8	7.8	11.4	13.0	10.0	11.4
		Relied solely on other sites	4.0	0.6	3.7	4.0	3.3	3.7
	Self-employed	Mother-tongue sites sufficient	78.3	55.1	76.7	76.6	76.7	76.7
		Extended to other sites	18.2	44.9	20.1	21.2	18.7	20.1
		Relied solely on other sites	3.5	0.0	3.2	2.2	4.6	3.2
	Unemployed	Mother-tongue sites sufficient	87.4	91.0	87.8	86.8	88.6	87.8
		Extended to other sites	12.6	9.0	12.2	13.2	11.4	12.2
		Relied solely on other sites	0.0	0.0	0.0	0.0	0.0	0.0
	In education	Mother-tongue sites sufficient	82.1	60.5	80.8	83.3	77.7	80.8
		Extended to other sites	16.2	38.4	17.6	14.8	20.9	17.6
		Relied solely on other sites	1.7	1.1	1.7	1.9	1.4	1.7
	Retired/other	Mother-tongue sites sufficient	91.0	89.1	90.8	93.2	88.2	90.8
		Extended to other sites	7.9	10.9	8.3	5.5	11.3	8.3
		Relied solely on other sites	1.0	0.0	0.9	1.3	0.5	0.9
Occupational group (N=1472)	Unskilled manual	Mother-tongue sites sufficient	84.4	85.9	84.6	85.7	83.8	84.6
		Extended to other sites	12.2	14.1	12.5	9.0	15.6	12.5
		Relied solely on other sites	3.4	0.0	2.8	5.3	0.7	2.8
	Skilled and non-manual	Mother-tongue sites sufficient	87.3	86.5	87.2	86.4	87.7	87.2
		Extended to other sites	9.1	13.5	9.7	8.6	10.5	9.7
		Relied solely on other sites	3.5	0.0	3.1	5.0	1.8	3.1
	Well educated non-manual and skilled	Mother-tongue sites sufficient	87.0	91.9	87.3	89.6	84.7	87.3
		Extended to other sites	10.5	8.1	10.4	8.9	12.0	10.4
		Relied solely on other sites	2.5	0.0	2.3	1.5	3.3	2.3
	Managers and professionals	Mother-tongue sites sufficient	77.3	92.2	78.0	73.1	84.3	78.0
		Extended to other sites	17.0	4.4	16.4	22.7	8.3	16.4
		Relied solely on other sites	5.7	3.4	5.6	4.3	7.3	5.6

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.6 (continued) Sufficiency of mother-tongue websites to find suitable health-related information on Internet by socio-demographic groups - EU15[1,2]

			Internet users			EHealth users		
			Regular %*	Occasional %*	All %*	Recent %*	Non-recent %*	All %*
Household Composition ([3]N=2322)	Single person	Mother-tongue sites sufficient	79.8	92.2	80.5	82.3	78.3	80.5
		Extended to other sites	18.0	7.8	17.5	16.4	18.7	17.5
		Relied solely on other sites	2.2	0.0	2.1	1.3	2.9	2.1
	Children under 6	Mother-tongue sites sufficient	86.8	91.2	87.3	88.7	85.9	87.3
		Extended to other sites	9.5	8.1	9.3	8.1	10.5	9.3
		Relied solely on other sites	3.7	0.7	3.3	3.1	3.5	3.3
	Children 6 +	Mother-tongue sites sufficient	84.0	78.3	83.3	81.0	85.9	83.3
		Extended to other sites	12.5	21.7	13.6	14.2	12.9	13.6
		Relied solely on other sites	3.5	0.0	3.1	4.8	1.2	3.1
	Two-person, no children	Mother-tongue sites sufficient	84.4	88.6	84.7	84.9	84.4	84.7
		Extended to other sites	13.2	10.3	13.0	13.4	12.6	13.0
		Relied solely on other sites	2.4	1.1	2.3	1.7	3.0	2.3
Long-standing Illness, disability (N=2331)	Yes	Mother-tongue sites sufficient	84.8	87.9	85.2	84.8	85.6	85.2
		Extended to other sites	12.5	12.1	12.4	11.6	13.4	12.4
		Relied solely on other sites	2.7	0.0	2.4	3.7	1.0	2.4
	No	Mother-tongue sites sufficient	84.1	84.2	84.1	83.7	84.5	84.1
		Extended to other sites	12.9	15.2	13.1	13.5	12.7	13.1
		Relied solely on other sites	3.0	0.6	2.8	2.8	2.8	2.8

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

Table A3.7 Use of Internet for specific reasons[1,2]

		EU15					
		Be better informed about own health		Seek second opinion on medical diagnosis		Support role as carer	
		Internet users who searched for any health information	Pop.	Internet users who searched for any health information	Pop.	Internet users who searched for any health information	Pop.
Gender	Male	56.5	11.3	50.1	10.0	25.5	5.1
([3]N varies, 2694 2682 2693)	Female	51.4	10.1	49.6	9.8	24.5	4.8
Age - 1	24 or younger	56.4	14.7	37.5	9.8	16.5	4.3
(N varies, 2689 2677 2688)	25-49	52.7	13.8	53.2	14.0	25.9	6.8
	50-64	52.6	7.6	54.2	7.8	32.9	4.7
	65 +	61.6	2.6	47.5	2.0	21.8	0.9
Age - 2	24 or younger	56.4	14.7	37.5	9.8	16.5	4.3
(N varies, 2689 2677 2688)	25-39	53.6	15.1	52.6	14.9	26.6	7.5
	40-54	50.6	11.0	51.9	11.3	27.4	5.9
	55 +	57.7	4.3	58.0	4.3	27.8	2.0
Education	15 or younger	50.1	2.8	78.6	4.4	43.3	2.4
(N varies, 2093 2085 2092)	16-20	57.6	11.5	53.7	10.8	26.1	5.2
	21 +	48.3	13.8	49.0	14.0	25.6	7.3
Household	--	48.1	4.2	49.6	4.3	33.1	2.9
Income	-	59.3	10.1	54.3	9.2	26.5	4.5
(N varies, 2276 2266 2273)	+	54.5	11.9	48.8	10.7	29.6	6.5
	++	53.1	15.5	53.3	15.6	22.4	6.5
Employment	Paid employment	52.5	13.9	51.8	13.7	26.7	7.1
status	Self-employed	43.9	8.7	54.5	10.8	28.5	5.6
(N varies, 2684 2672 2683)	Unemployed/temporarily not working	60.9	11.2	57.8	10.6	28.2	5.2
	In education	56.8	17.5	34.0	10.5	16.4	5.1
	Retired/other	57.9	4.3	60.0	4.4	29.6	2.2
Occupational	Unskilled manual	52.0	7.3	57.1	8.0	30.7	4.3
Group	Skilled and non-manual	57.6	14.7	48.4	12.4	22.5	5.8
(N varies, 1671 1662 1669)	Well educated non-manual and skilled	45.0	13.2	51.8	15.2	26.2	7.7
	Managers and professionals	50.0	16.8	52.9	17.8	28.2	9.5
Household	Single person	46.4	5.4	45.9	5.4	22.6	2.6
Composition	Children under 6	53.8	13.8	58.4	14.9	25.5	6.5
(N varies, 2673 2661 2672)	Children 6 +	54.8	13.0	46.2	11.0	22.2	5.3
	Two-person, no children	54.7	10.0	49.5	9.1	26.9	4.9
Long-standing	Yes	62.9	10.9	60.2	10.4	33.8	5.9
Illness, disability.. (N varies, 2681 2669 2681)	No	52.3	10.7	48.1	9.8	23.6	4.8

[1]EU15 results are weighted according to Member State populations
[2]Excludes "Don't knows"
[3]N's are Unweighted

ANNEX 2 - Methodology of the survey

General Population Survey (GPS)

Outline of the study

The survey was conducted in April-May 2002 in all 15 EU Member States plus Switzerland and the USA, using computer-aided telephone interviews. The survey was co-ordinated and executed by INRA, Germany. The population for this study is all persons aged 15 and over living in private households in the respective countries and speaking the respective national language(s). Subject discussed included ownership and use of ICT equipment, use of the Internet and e-commerce activities, competence in the use of new media, questions on health and the Internet, the Internet and security concerns, e-government, telework, mobile work and other new ways of working, as well as further education and satisfaction with working conditions. 11,832 interviews were successfully completed. The average interview length per country varied between 10 and 20 minutes.

Methodology

Subject of study

Topics of this survey were statements on interviewees' ownership and use of ICT equipment, use of the Internet and e-commerce activities, competence in the use of new media, questions on health and the Internet, the Internet and security concerns, e-government, telework, mobile work forms, as well as further education and satisfaction with working conditions.

Study concept

The study was conceived and executed as a cross national study. The co-ordination was carried out by INRA Deutschland GmbH, Mölln, on behalf of the client. The study consisted of two parts, a trial in Germany with a subsequent main survey in all participating countries.

Overall responsibility and co-ordination

INRA Deutschland GmbH, Mölln

Countries and executing institutes

Belgium:	**INRA Belgium** Kroonlaan 159-165 Avenue de la Couronne 1050 Brussels
Denmark:	**Gallup A/S** Sundkrogsgade 10 2100 Copenhagen
Germany:	**INRA Germany GmbH** Papenkamp 2-6 23879 Mölln
Finland:	**Taloustutkimus Oy** Lemuntie 9 00510 Helsinki
France:	**BVA** B.P. 59 78222 Viroflay Cedex
Greece:	**MEMRB – K.E.M.E** 24 Ippodamou St. 11635 Athens
Great Britain:	**BMRB International** Saunders House, 53 The Mall, Ealing London W5 3TE
Ireland:	**Lansdowne Market Research Ltd.** 49 St. Stephens Green Dublin 2
Italy:	**INRA Demoskopea** Via Salaria, 290; Via Rubicone 41 00199 Roma
Luxembourg:	**ILReS. S.A.** 46, Rue du Cimetière 1338 Luxembourg / Bonnevoie
Netherlands:	**NIPO** Grote Bickersstraat 74 1013 ks Amsterdam

	Austria:	**Spectra** Brucknerstr. 3-4/5 4020 Linz
	Portugal:	**METRIS** Av. Eng. Arantes e Oliviera, No. 3-2 1900 Lisboa
	Sweden:	**GfK Sverige AB** Box 401 22100 Lund
	Switzerland:	**Link Institut** Spannortstrasse 7/9 6000 Luzern
	Spain:	**INRA España S.A.** Calle Alberto Aguilera 7-5º 28015 Madrid
	USA:	**I.C.R** 605 West Street Media, Pennsylvania 19063-2620

Survey methodology

The study was carried out as a telephone survey (Computer Assisted Telephone Interview – C.A.T.I) in all countries.

Population

The population for this study is all persons aged 15 and over living in private households in the respective countries and speaking the respective national language(s).

Switzerland: Here the survey was carried out in both the German and French speaking parts of Switzerland.

USA: The population includes English speaking people in the 48 continental federal states of the USA (excluding Alaska and Hawaii).

Finland: Finnish speaking population.

Random sampling and selection process

Belgium: 3-stage selection process based on the INFO BEL telephone directory. Addresses in 10-fold translation, random sampling of households, selection of the target person via a birthday key.

Denmark: Geographically stratified sample based on telephone directories. Telephone numbers are generated so as to also include unlisted numbers. The selection of the target person results from a birthday key.

Germany: Within the ADM telephone sampling system a representative, multistage random sample is drawn for each survey area. The selection data is based on the batch of all registered fixed network telephone numbers. Master numbers are formed by detaching the two final digits. Through the generation of new final digits from 00 to 99 number blocks are produced which contain listed as well as non listed numbers. As far as possible, business numbers were removed from this sampling frame. All telephone numbers were given an area code number, either the original or according to the known distribution in the number block. In this way numbers can be sorted regionally, thus increasing the precision of the sample. By means of the relation between sample size and distribution of households per regional cell an allocation table is produced which determines the number of samples to be drawn for each cell. Assuming a random starting point, all areas are processed with a fixed step width through set stages until the number to be selected from which areas for each cell has been determined. Subsequently the numbers are drawn randomly in a second selection stage. The selection of the target person results from a birthday key.

Finland: Geographically and socio-demographically stratified random sample based on information from official statistics. The selection of target households takes place at random. The selection of target persons results from a birthday key.

France: Geographically and socio-demographically stratified random sample of 8000 starter addresses based on France

Telecom directories. The selection of target persons results from a birthday key.

Greece: Multistage stratified random sampling. The geographical stratification takes place on the basis of NUTS 1, NUTS 2 and location size. The size of each unit is determined on the basis of official statistics. The selection of the target person results from a birthday key.

Great Britain: The sample is based on a draw data-file. Through the generation of new final digits a sample frame is established which contains listed and unlisted as well as so far non-existent numbers. The selection of target households takes place at random. The selection of the target person is via quota.

Ireland: Geographically sorted random sample based on the "Eircom" telephone directory. Additional telephone numbers are also generated in order to include unlisted numbers. The selection of the target person results from a birthday key.

Italy: Geographically and socio-demographically stratified random sample. 705 sample points result from the stratification. Additional telephone numbers are generated in order to also include unlisted numbers. The selection of the household results from Random Digit Dialling and the selection of the target person results from a birthday key.

Luxembourg: The sample is based on a draw data-file. Through the generation of new final digits from 00 to 99 a sample frame is established which contains listed and unlisted as well as so far non-existent numbers. The selection of target households takes place at random. The selection of the target person results from a birthday key.

Netherlands: Geographically stratified random sample. The geographical sorting is based on post code areas. Target person selection takes place through an algorithm which selects the interviewee on the basis of age and gender of people living in the household.

Austria: Geographically stratified random sample. The selection of the target household takes place through RDD (Random Digit Dialling). The selection of the target person results from a birthday key.

Portugal: Geographically and socio-demographically stratified random sample. 200 sample points result from the stratification. The selection of households takes place via Random Digit Dialling, the selection of target persons via a birthday key.

Sweden: Geographically and socio-demographically stratified random sample. 200 sample points result from the stratification. The selection of households takes place via Random Digit Dialling, the selection of target persons via a birthday key.

Switzerland: Geographically stratified random sample based on post codes. Each post code represents a sample cell. The selection of households takes place via Random Digit Dialling and the selection of the target person via an algorithm which selects the interviewee at random on the basis of a list of household members.

Spain: Geographically stratified random sample based on NUTS2 areas. 148 randomly selected sample points result from the sorting. Within these sample points addresses of target households are randomly drawn. Selection of target persons results from a birthday key. After about two thirds of the fieldwork the screening was targeted towards male members of the household due to a disproportionate number of female interviewees.

USA: Geographically stratified random sample based on the MSG-

Genesys sampling process. The selection of households takes place via Random Digit Dialling and the selection of the target persons via a birthday key. After the 758th interview the screening was targeted towards male members of the household due to a disproportionate number of female interviewees.

Survey period

The interviews were carried out in the following period:
04.03.-18.05.2002

Interviews undertaken

Total: 11,832

Average interview length

Belgium	16.0 min	Luxembourg	16.2 min
Denmark	18.1 min	Netherlands	18.4 min
Germany	17.5 min	Austria	15.8 min
Finland	17.3 min	Portugal	12.1 min
France	12.0 min	Sweden	20.2 min
Greece	10.2 min	Switzerland	19.0 min
Great Britain	18.0 min	Spain	12.5 min
Ireland	17.7 min	USA	18.3 min
Italy	14.0 min		

Interviewers used

Total: 632

Additional comments to the data set

Belgium: In order to improve the sample, an additional 85 interviews were carried out in some cells.
Finland: In order to improve the sample, an additional 169 interviews were carried out in some cells.
Netherlands: In order to improve the sample, an additional 30 interviews were carried out in some cells.
Switzerland: In Switzerland respondents were not asked to deduct tax from income (Z19), as that is not the norm there.

Data supply

One labelled SPSS data set of the main survey of all interviews.

Field report and outcomes

		B	DK	D	FIN	F	EL	UK	IRL	I	L	NL	AT	P	S	CH	E	USA
Method		C.A.T.I.																
1	gross sample (utilised addresses)	4506	3154	9999	2621	7300	5022	11392	3890	12006	8764	3640	4669	1403	5177	2327	6494	18162
1.1.	non-contacts – thereof:	311	242	1701	40	3401	2346	139	1111	4436	5023	803	193	91	455	638	1239	4192
1.1.1	unobtainable	0	235	1202	0	2342	2077	123	654	4436	3748	522	124	43	113	638	644	3656
1.1.2	engaged	3	7	436	0	57	206	1	316	0	705	164	8	32	55	0	5	536
1.1.3	answer phone, fax, modem	308	0	63	40	1002	63	15	141	0	570	117	61	16	287	0	590	0
1.1.4	other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.2	sample neutral non-response – thereof:	1874	1917	4492	984	511	1022	5088	1051	2659	1316	805	2322	410	2808	322	1095	8789
1.2.1	invalid telephone numbers	955	1516	3760	97	60	529	4308	498	1657	790	652	858	334	2297	230	398	5725
1.2.2	not in the population	472	202	41	782	374	176	119	405	364	0	153	1248	47	16	0	164	478
1.2.3	business numbers	300	82	285	12	27	220	437	0	340	455	0	75	15	193	0	434	1331
1.2.4	other	147	117	406	93	50	97	224	148	298	71	0	141	14	302	92	99	1255
2	net sample – thereof:	2321	995	3806	1597	3388	1654	6165	1728	4911	2425	2032	2154	902	1914	1367	4160	5181
2.1	refusal	1470	468	2451	912	2231	747	5012	1134	3592	1000	1248	1609	364	1246	529	2255	3198
2.2	termination	114	0	87	0	30	0	80	11	201	0	0	1	6	19	0	115	143
2.3	target person contacted but interview impossible – thereof:	152	26	267	16	127	402	73	83	118	925	254	44	32	146	316	775	836
2.3.1	possible appointment outside field time	0	23	14	1	23	9	26	14	106	763	208	7	6	30	80	321	156
2.3.2	appointments to continue interview outside field time	152	0	200	0	104	295	47	65	12	17	11	34	18	24	194	179	669
2.3.3	other	0	3	53	15	0	98	0	4	0	145	35	3	8	92	42	275	11
2.4	complete interviews	585	501	1001	669	1000	505	1000	500	1000	500	530	500	500	503	522	1015	1004
3	exhaustion rate (%) (2.4/(2.1+2.2+2.4))	27.0%	51.7%	28.3%	42.3%	30.7%	40.3%	16.4%	30.4%	20.9%	33.3%	29.8%	23.7%	57.5%	28.5%	49.7%	30.0%	23.1%

Weighting

1. Transformation from household sample to person sample:

As only one person per household is interviewed, the described sample procedure provides a household sample, i.e. each household of the base population has the same likelihood of being in the sample but not each person. With the weighting stage of the transformation the equal likelihood of households is replaced mathematically by the equal likelihood of the individuals. To this end, each data set is multiplied by the amount of people in the household aged 15 or over. This number is subsequently divided by the average household size in order to obtain the actual case number.

2. Adjustment of unweighted sample structure to the official statistic:

Because random samples are not evenly distributed across all population strata, the distribution of unweighted samples regularly and systematically deviate from the population distribution from official statistics. Through the mathematical weighting the sample distribution is adjusted to the official statistics. The national weighting factor (P10) which results from the iterative weighting was included in the data material. To this end the following criteria are used in the respective countries.

Austria: age, gender, region; **Belgium**: age, gender, region, locality size; **Denmark**: age, gender, region; **Germany**: age, gender, region, locality size; **Greece**: age, gender, locality size; **Finland**: age, gender, region; **France**: age, gender, region, locality size; **Ireland**: age, gender, region; **Italy**: age, gender, region, locality size; **Luxembourg**: age, gender, region, locality size; **Netherlands**: age, gender, region; **Portugal**: age, gender, region, locality size; **Sweden**: age, gender, region; **Switzerland**: age, gender, region; **Spain**: age, gender, region, locality size; **UK**: age, gender, region; **USA**: age, gender, region, locality size.

3. Adjustment of weighted sample structure to the EU15-member states population:

This weighting factor was necessary to calculate total figures according to the whole population of the European Union member states. Furthermore it is useful to compare the EU with the US. Population sizes of each member state are weighted to reduce the distortion based on the sample sizes in each country. The different country-specific weighting factors are the following:

Austria	0.44	Italy	1.63
Belgium	0.48	Luxembourg	0.02
Denmark	0.29	Netherlands	0.80
Germany	2.29	Portugal	0.55
Greece	0.59	Spain	1.09
Finland	0.21	Sweden	0.48
France	1.56	United Kingdom	1.57
Ireland	0.20	*Switzerland, USA*	*none*

Sample characteristics and effect of weighting

	Total				EU15			
	un-weighted	weighted	% un-weighted	% weighted	un-weighted	weighted	% un-weighted	% weighted
Total sample	11832	11832	100.0	100.0	11832	10306	100.0	100.0
Country								
Austria	500	500	4.2	4.2	-	-	-	-
Belgium	585	585	4.9	4.9	-	-	-	-
Denmark	501	501	4.2	4.2	-	-	-	-
Finland	669	669	5.7	5.7	-	-	-	-
France	1000	1000	8.5	8.5	-	-	-	-
Germany	1001	1001	8.5	8.5	-	-	-	-
Greece	505	505	4.3	4.3	-	-	-	-
Ireland	500	500	4.2	4.2	-	-	-	-
Italy	1000	1000	8.5	8.5	-	-	-	-

Luxembourg	500	500	4.2	4.2	-	-	-	-
Netherlands	530	530	4.5	4.5	-	-	-	-
Portugal	500	500	4.2	4.2	-	-	-	-
Spain	1015	1015	8.6	8.6	-	-	-	-
Sweden	500	500	4.2	4.2	-	-	-	-
Switzerland	522	522	4.4	4.4	-	-	-	-
UK	1000	1000	8.5	8.5	-	-	-	-
USA	1004	1004	8.5	8.5	-	-	-	-
EU15	-	-	-	-	*10306*	*10306*	*87.1*	*100.0*
Age groups								
up to 24	1964	2019	16.6	17.1	1731	1651	16.8	16.0
25 to 49	5511	5309	46.6	44.9	4817	4593	46.7	44.6
50 to 64	2515	2495	21.3	21.1	2191	2209	21.3	21.4
65 and more	1833	2000	15.5	16.9	1558	1839	15.1	17.8
don't know	9	9	0.1	0.1	9	14	0.1	0.1
Terminal education age								
up to 13	695	717	5.9	6.1	693	728	6.7	7.1
14	715	742	6.0	6.3	701	881	6.8	8.5
15 to16	1794	1750	15.2	14.8	1641	1820	15.9	17.7
17 to 20	3587	3515	30.3	29.7	2997	2937	29.1	28.5
21 and more	3266	3275	27.6	27.7	2743	2495	26.5	24.2
still studying	1687	1751	14.3	14.8	1463	1372	14.2	13.3
don't know	88	81	0.7	0.7	77	73	0.7	0.7
Household type								
one person household	2006	1611	17.0	13.6	1682	1408	16.3	13.7
household with kids aged under 6	1723	1754	14.6	14.8	1451	1440	14.1	14.0
household with kids aged 6+	2970	3152	25.1	26.6	2653	2655	25.7	25.8
two person household without kids	5063	5240	42.8	44.3	4467	4768	43.3	46.3
no answer on household size	70	75	0.6	0.6	53	35	0.5	0.3
Household income (according to national household income quartiles by Eurobarometer)								
First quartile (lowest income)	1774	1580	15.0	13.4	1548	1299	15.0	12.6
Second quartile	2132	2084	18.0	17.6	1878	1764	18.2	17.1
Third quartile	2536	2521	21.4	21.3	2214	2087	21.5	20.3
Fourth quartile (highest income)	2968	3102	25.1	26.2	2502	2725	24.3	26.4
don't know	1214	1295	10.3	10.9	993	995	9.6	9.7
refusal	1208	1249	10.2	10.6	1171	1436	11.4	13.9
Employment status								
paid employment	4966	4853	42.0	41.0	4291	4133	41.6	40.1
self-employed	935	941	7.9	8.0	809	799	7.8	7.8
unemployed/ temporarily not working	701	683	5.9	5.8	621	631	6.0	6.1
in education	1687	1751	14.3	14.8	1463	1372	14.2	13.3
retired or other not working	3441	3510	29.1	29.7	3034	3292	29.4	31.9
don't know	102	94	0.9	0.8	88	80	0.9	0.8
Social grade (ESOMAR classification)								
unskilled manual workers and other less well educated workers/ employees	1332	1318	11.3	11.1	1238	1323	12.0	12.8
skilled workers and non-manual employees	1525	1445	12.9	12.2	1316	1287	12.8	12.5
well educated non-manual and skilled workers	1434	1402	12.1	11.8	1254	1121	12.2	10.9
managers and professionals	1577	1586	13.3	13.4	1265	1167	12.3	11.3
not specified	5964	6081	50.4	51.4	5233	5408	50.8	52.5

Decision Maker Survey (DMS)

Outline of the study

The survey was conducted in March-May 2002 in seven EU Member States using computer-aided telephone interviews. The survey was co-ordinated and executed by INRA, Germany. The population for this study is defined as all establishments belonging to four aggregated industry sectors in the seven Member States. The interview was conducted with IT responsible persons in companies across all sectors of the economy. Subjects discussed included ownership and use of ICT equipment, use of the Internet and e-commerce and e-business activities, e-business security, e-government, web-site accessibility and ICT in research and development. 3,139 interviews were successfully completed. The average interview length per country varied between 14 and 18 minutes.

Methodology

Subject of study

- Basic ICT: use of ICT and e-business technologies
- e-commerce
- e-business security
- e-government
- web-site accessibility
- research and development
- establishment demography

Study concept

The study was conceived and executed as a cross national study. The co-ordination was carried out by INRA Deutschland GmbH. The study consisted of 2 parts, a trial in Germany with a subsequent main survey in all participating countries.

Overall responsibility and co-ordination

INRA Deutschland GmbH, Mölln

Countries and executing institutes

Germany:	**INRA Germany GmbH** Papenkamp 2-6 23879 Mölln
Finland:	**Taloustutkimus Oy** Lemuntie 9 00510 Helsinki
France:	**BVA** 101 avenue du General Leclerc 78222 Viroflay Cedex
Greece:	**MEMRB – K.E.M.E** 24 Ippodamou St. 11635 Athens

Survey methodology

The study was carried out as a telephone survey (Computer Assisted Telephone Interview – C.A.T.I) in all countries.

Population

The population for this study are establishments (in each respective country) in the four sectors:

- Manufacturing, Construction, Primary Sector
- Distribution, Catering, Transport & Communication
- Financial & Business Services
- Public administration, education, health, other personal and social services

Target person at the establishment was the person who is

responsible for or significantly involved in decisions in the area of IT/ DP. In larger establishments/ organisations the head or another executive of the IT/ DP department. In smaller establishments/ organisations also the owner/ proprietor or managing director/ board member.

Random sampling and selection process

General: The sample was set up according to given industry and size class quota. Accordingly a stratified random sample was drawn from the universe, allowing for the relevant industries within the four aggregated sectors. Drawing the sample was organised locally by the national executing institutes.

Germany: The sample was drawn from the Heins und Partner Business Pool. Heins und Partner have created a high quality business pool based on the available address inventories consisting of about 3.4 m data sets that have undergone comprehensive validation. For every enterprise comprehensive additional information is available, including corporate structure and branch office structure (220,000 branch offices) and is continuously being updated. The sample was drawn from the establishment file, which results from the transformation of enterprises into establishments and appending branch offices to the headquarters.

Finland: The sample was taken from the so called "Blue Book - Salesleads database" which is edited by Helsinki Media Company Oy (Sanoma Magasines Finland). This data base contains of about 170,000 data sets and is being updated every two months.

France: The sample was drawn from the “INSEE Siren file” (the national office of statistics). INSEE, as a public organisation, is responsible for gathering all economic and social data in France. These data sets are being updated every two months.

Greece: The sample was drawn from the address inventory of ICAP (major establishment data base for Greece and member of the European Association of Directory and database Publishers). The data base is being updated every 18 months and also contains public sector addresses. Additionally, public sector addresses were taken from the national telephone inventory.

Great Britain: The sample was drawn from "BT’s Business Database". This is a representative data base of all establishments in the UK having a telephone number (including addresses by BT, Mercury, cable and about 92 further telecom carriers). The data base consists of about 1.6 m addresses and is being updated every two months.

Italy: The sample was drawn from Dun & Bradstreet's data base. This data base is considered to be the most reliable source for Italy.

Spain: The sample was drawn from Schober's data base. This data base is the most voluminous record as regards number of establishments for Spain.

Survey period

The interviews were carried out in the following period:
21.03.-15.05.2002

Interviews undertaken

Total: 3,139

Average interview length

Germany	16.0 min	Great Britain	16.2 min
Finland	16.4 min	Italy	18.2 min
France	14.1 min	Spain	16.4 min
Greece	15.1 min		

Interviewers used

Total: 212

Quality control

All interviewers were instructed about the questionnaire before the beginning of field work. Field work was permanently controlled by supervisors. Because of computer aided realisation of interviews

systematic errors of data gathering can be excluded. Furthermore the proper realisation of interviews was monitored according to institute standards. Following is the share of interviews monitored (by telephone):

Germany:	10%	Great Britain:	8%
Finland:	5%	Italy:	10%
France:	10%	Spain:	30%
Greece:	20%		

Additional comments to the data set

Question A8: Turnover indication in national currencies were translated in Euro except for UK.

Some indications seem to be very high, others very low. National institutes have re-examined and verified statements by calling the respondents again and reassured turnover answers were as stated.

Problems encountered

In all countries fulfilling the quota for the largest establishments was difficult (mainly 500+ / partly also 200-499 employees). In these establishments on the one hand the availability of target persons is significantly lower, on the other hand are these target persons "over-researched" (which in part results in a general interdiction to take part in surveys).

Due to this in France it was necessary to adapt the quota in order to achieve the number interviews aimed at (i.e. interviews - as far as possible - carried out in establishments of the next smaller size class).

Data supply

One labelled SPSS-data set of the main survey of all interviews.

Field report and outcomes

		D	FIN	F	EL	UK	I	E
1	Sample (gross), i.e. number dialled at least once	4917	1923	8061	1728	8726	10846	8489
1.1	Telephone number does not exist	787	47	598	43	416	1160	808
1.2	Not an establishment (i.e. private household, etc.)	46	15	0	2	0	0	235
1.3	Fax machine/ Modem	81	0	152	31	0	0	519
1.4	Quota completed, therefore address not used	0	849	1599	2	2659	848	1397
1.5	No target person in establishment	858	226	1261	35	1766	822	2043
1.6	Language problems	0	15	0	0	0	0	10
1.7	SUM (1.1+1.2+1.3+1.4+1.5+1.6)	1753	1152	3610	113	4841	2830	5012
2	Net sample (1 minus 1.7)	3164	771	4451	1615	3885	8016	3477
2.1	Nobody picks up phone (and max. contacts not yet exhausted)	325	2	326	229	32	804	18
2.2	Line busy, engaged	45	0	31	235	2	1852	9
2.3	Answering machine	111	4	82	15	0	0	482
2.4	Contact person refuses (i.e. refusal at reception, switchboard)	436	228	912	38	1354	1056	1022
2.5	Target person refuses	1044	204	1569	107	1672	1410	896
2.6	no appointment during fieldwork period possible	33	14	356	36	176	680	203
2.7	open appointment	604	4	642	644	52	1668	111
2.8	target person is ill/ cannot follow the interview	1	3	18	0	0	0	18
2.9	Interview abandoned	53	1	14	4	97	34	102
2.10	Interview error, cannot be used	0	5	0	6	0	0	109
2.11	SUM (2.1+2.2+2.3+2.4+2.5+2.6+2.7+2.8+2.9+2.10)	2652	465	3950	1314	3385	7504	2970
2.12	SUCCESSFUL INTERVIEWS	512	306	501	301	500	512	507
3	Completion Rate (2.12 / (2.11+2.12)), in %	16.18	39.69	11.25	18.63	12.87	6.38	14.58

Target and actual numbers of interviews

			F	D	I	E	UK		FIN	EL
Quota Group		required	- achieved -					required	- achieved -	
I Manufacturing, construction, primary sector	1 - 9	*30*	33	30	34	33	32	*18*	18	17
	10 - 49	*35*	36	36	37	35	35	*21*	21	22
	50 - 199	*35*	38	37	40	35	35	*21*	21	25
	200 - 499	*40*	44	41	43	41	40	*24*	28	22
	500+	*15*	9	14	13	15	15	*9*	9	6
	Sum	155	160	158	167	159	157	93	97	92
II Distribution, catering, transport and communication	1 - 9	*45*	50	47	45	46	45	*27*	28	27
	10 - 49	*40*	42	41	41	43	40	*24*	24	25
	50 - 199	*30*	28	31	26	30	30	*18*	18	18
	200 - 499	*15*	19	15	16	15	15	*9*	5	9
	500+	*10*	5	10	8	10	10	*6*	5	6
	Sum	140	144	144	136	144	140	84	80	85
III Financial and business services	1 - 9	*30*	32	30	34	30	30	*18*	16	17
	10 - 49	*20*	19	21	23	21	20	*12*	14	11
	50 - 199	*10*	13	10	17	10	10	*6*	6	8
	200 - 499	*10*	13	10	6	10	10	*6*	7	6
	500+	*10*	8	9	4	7	8	*6*	6	6
	Sum	80	85	80	84	78	78	48	49	48
IV Public administration, education, health, other personal and social services	1 - 9	*20*	20	24	19	20	20	*12*	13	13
	10 - 49	*25*	29	25	26	25	25	*15*	16	16
	50 - 199	*30*	22	30	34	30	30	*18*	18	18
	200 - 499	*35*	32	35	31	35	35	*21*	23	20
	500+	*15*	9	16	15	16	15	*9*	10	9
	Sum	125	112	130	125	126	125	75	80	76
	Total	*500*	501	512	512	507	500	*300*	306	301

Weighting

For the SIBIS DMS a sample stratified by sector/ size cells was used which ensured that in each sector, establishments from all size classes were sampled. In order to be able to raise figures to national level, some form of weighting is required which adequately reflects the structure and distribution of establishments (or related variables) in the universe of the respective country (and, by implication, EU15). All presentation of SIBIS results indicates clearly which of these weighting schemes was used.

Original weight

Within each country, the interviews were split according to a quota plan which guaranteed that the sample is not dominated by micro and small companies. The quotas roughly reflect the distribution of employment over sector and establishment size bands in the EU, and derive from research into establishment sampling frames undertaken for previous studies by Infratest and GfK in the course of ECaTT. They represent best estimates, but do not take account of country differences.

The quota scheme looks as follows:

empirica			SUGGESTED QUOTAS: Sectors (aggregated) X Size											
			1- 9		10 - 49		50 - 199		200 - 499		500+		Total	
			% of total	abs	% of total		% of total		% of total		% of total		% of total	
Quota I	Manufacturing, Construction, Primary Sector, includes:		6%	30	7%	35	7%	35	8%	40	3%	15	31%	155
	1	Mining, Energy												
	2	Manufacturing												
	3	Construction												
Quota II	Distribution, Catering, Transport & Communication includes:		9%	45	8%	40	6%	30	3%	15	2%	10	28%	140
	4	Distribution												
	5	Hotels, Restaurants												
	6	Transport, Communication												
Quota III	Financial & Business Services includes:		6%	30	4%	20	2%	10	2%	10	2%	10	16%	80
	7	Banking, Insurance												
	8	Business Services												
Quota IV	Public administration, education, health, other personal & social services includes:		4%	20	5%	25	6%	30	7%	35	3%	15	25%	125
	9	Public Administration												
	10	Education												
	11	Health and Social Work												
	12	Other personal or social services												
		Total	25%	125	24%	120	21%	105	20%	100	10%	50	100%	500

(The absolute numbers refer to countries with n=500)

Weighting was used in cases where the quotas could not be reached exactly in line with this quota plan (mostly due to the limited absolute number of establishments in the two biggest size classes). Note that because of the use of a single quota plan for all countries, country differences in the distribution of employment over establishment size bands which occur in reality are not reflected in the data. This is due the lack of available data on the distribution of employment across establishments size bands in almost all EU Member States, and constitutes a considerable problem. This weight is therefore not used for presenting SIBIS results.

Weighting by employment

The data available on the distribution of employment over establishment size bands is very limited for most EU Member States. SIBIS used data from a variety of sources, including

BT database (United Kingdom)

ISTAT Industry and Services Intermediate Census – latest available, 1996 (Italy)

National Statistical Service of Greece - latest available, 1995 (Greece)

SIREN (France)

Tilstokeskus Official Statistics (Finland)

Heins + Partner B-Pool (Germany)

Schober Business Pool (Spain)

and adjusted using data from the DG Enterprise/ Eurostat SME Database (latest available, 1997), to estimate the establishment/ employment structure for each country in the sample. The table below shows the resulting establishment size structure per country.

		Country							
		D	E	EL	F	FIN	I	UK	*EU7*
Establishment size band	1 to 9	23%	23%	59%	17%	13%	38%	14%	*23%*
	10 - 49	19%	28%	16%	22%	16%	22%	31%	*24%*
	50 - 199	21%	21%	8%	21%	19%	14%	26%	*20%*
	200 - 499	13%	9%	6%	14%	16%	7%	13%	*12%*
	500 and more	25%	18%	10%	25%	37%	19%	17%	*21%*

Total	Column %	100%	100%	100%	100%	100%	100%	100%	*100%*

Using this weight, the weighted sample for each country therefore reflects employee distribution between the five establishment size bands within that country. This means that a data reference of, for example, ”20% of all establishments in country A” should be understood to mean ”establishments accounting for 20% of all employees in country A”.

Weighting by employment for EU7 averages

Additionally another weighting factor was created to calculate average figures for all countries in the sample (which together represent roughly 82% percentage of total EU employment). Each country is represented in this weight according to its share in the total employment of the 7 EU countries in which the survey was conducted.

Sample characteristics and effect of weighting

	Total			
	unweighted	**weighted by employment***	**% unweighted**	**% weighted by employment***
Total sample	3139	3139	100.0	100.0
Country				
Finland	306	306	9.7	9.7
France	501	501	16.0	16.0
Germany	512	512	16.3	16.3
Greece	301	301	9.6	9.6
Italy	512	512	16.3	16.3
Spain	507	507	16.2	16.2
UK	500	500	15.9	15.9
	Total			
	unweighted	**weighted by employment (EU7)**	**% unweighted**	**% weighted by employment (EU7)**
Number of staff at site				
up to 9	803	713	25.6	22.7
10 to 49	769	746	24.5	23.8
50 to 199	668	648	21.3	20.6
200 to 499	626	364	19.9	11.6
500 and more	273	668	8.7	21.3
Industry Sector				
primary: manufacturing, energy, mining, construction	990	989	31.5	31.5
secondary: distribution, catering, communication and transport	873	878	27.8	28.0
third: financial and business services	502	501	16.0	15.9
fourth: public administration, health, education, other social/ personal	774	772	24.7	24.6
Type of organisation				
headquarter of international operating organisation	267	348	8.5	11.1
headquarter of organisation only operating in country	607	536	19.3	17.1
division/ branch of international operating organisation	256	290	8.2	9.2
division/ branch of organisation only operating in the respective country	309	312	9.8	9.9
other type	76	40	2.4	1.3
only one establishment	1617	1608	51.5	51.2
don’t know	7	6	0.2	0.2

Questionnaires

Questionnaire for the General Population Survey (GPS)

Structure of the questionnaire:

Module IN: Introduction and screening
Age
Educational attainment
Employment status
Occupation
Type of organisation
Main working place

Module A: Basic ICT equipment access and use
Use of computer
Use of e-mail
Internet access and use
Methods of Internet access
Effects of Internet use
Barriers to using the Internet
Access to mobile phone
Mobile data services
Effects of mobile phone use

Module B: E-commerce and other uses of the Internet
Online activities
Barriers to buying online

Module D: Skills
Internet user experience and know-how

Module L: e-Health
- Use of online health information
- Perception regarding the trust placed in online health information provider
- Rationale for health info search

Module J: Security
Security concerns
Reporting of security violations
Security-related awareness and behaviour

Module K: e-Government
Preference for e-Government services
e-Government experience
Barriers to e-Government

Module E: Telework
Home-based telework

Intensity of home-based teleworking

Duration of telework:

Financing of tele-workplace

Interest in telework:

Perceived feasibility

Effects of telework

Module F: Mobile work
Mobile work (Intensity):

- Mobile telework

Module G: Tele-cooperation/Tele-collaboration
Co-operation with external contacts using ICTs

e-Lancing

Module H: Outcomes of work
Work-family balance

Job quality

Job satisfaction

Module C: Educational attainment and lifelong learning
Company-provided training

Training provided by other organisations

Self-directed learning

Modes of training (use of eLearning)

Module Z: Standard demography
Household size

Disability

Income

No ***Branching***	Question	Answer categories
Module IN: Introduction and Screener questions		**GPS**
INTRO TEXT *ALL*	Hello my name is ... calling for ... We are presently conducting a scientific survey for the European Union in fifteen countries. I would like to talk to the person in your household, that is at least 15 years old, and whose birthday is up next. *[INTERVIEWER: IF NECESSARY]* To topic of this survey is the internet and the work life. *[INTERVIEWER: IF NECESSARY]* Your answers will be held strictly confidential and will be used only for scientific purposes. *[INTERVIEWER: IF NECESSARY]* Your participation is very important to us, because you have been selected through a statistical procedure that will result in a typical selection of people in [COUNTRY] *[PROMPT: The interview will last about 15 minutes]*	
IN1 *ALL*	Would you please tell me in which year you were born?	|_1_|_9_|__|__| [DK]
	PROGRAMMING: IF respondent born after 1986 END INTERVIEW!	
IN2 *ALL*	Have you finished your full-time education or are you still studying?	(1) finished education already (2) Is still studying (3) DK
IN3 *IF IN2=1*	At what age did you finish full-time education? *[PROMPT: HOW OLD WHERE YOU WHEN YOU STOPPED FULL-TIME EDUCATION]*	|__|__| years [DK]
Transition X1 *IF IN2=1*	I would like to ask you a few questions regarding your employment situation.	
IN4 *IF IN2=1*	At present are you in paid work either as an employee, civil servant or as self-employed?	(1) yes (2) no (3) DK
IN5a *IF IN4=1*	Do you have one job or more than one job at present?	(1) only one job (2) more than one job (3) DK
IN5b *IF IN5a=2,3*	How many hours per week do you normally work, including paid overtime and taking all your jobs together?	|__|__|__| [DK]
Transition X2 *IF IN5a=2*	For answering the following questions, please consider only your main job, i.e. the job you spend most of your working time on.	
IN6 *IF IN4=1*	And are you ... [in your main job] *[INTERVIEWER: Read out answer categories]*	(1) self-employed (2) in paid employment (including civil servants) (3) DK
IN7 *IF IN4=2,3*	And are you ... *[INTERVIEWER: Read out answer categories]*	(1) temporarily not working, e.g. because of unemployment, paternal leave or illness (2) retired (3) not working, because you are responsible for ordinary shopping and looking after the home. (4) DK

No ***Branching***	**Question**	**Answer categories**
IN8 *IF IN6=1*	What kind of work do you do? Are you a ... *[INTERVIEWER: Read out answer categories]*	(1) Professional (eg doctor, lawyer, accountant, architect) (2) Farmer, fisherman (3) Business proprietor, owner of company/shop, craftsmen, other self-employed person (4) DK
IN9 *IF IN8=3*	How many employees do you have?	|__|__|__|__|__|__|__| [DK]
IN10 *IF IN4=1*	[In your main job,] Are you working full-time or part-time?	(1) full-time (2) part-time (3) DK
IN11 *IF IN4=1*	How many hours per week do you normally work in your main job, *[PROGRAMMER: Skip the following if IN6=1]* including paid overtime?	|__|__|__| [DK] *[PROGRAMMER: INCLUDE CHECK WITH IN5B]*
IN12 *IF IN6=2,3*	Are you employed ... *[INTERVIEWER: Read out answer categories]*	(1) on an unlimited permanent contract (2) on a fixed term contract (3) on a temporary employment agency contract (4) on apprenticeship or other training scheme (5) other (6) DK
IN13 *IF IN7=2,3,4*	Would you like to be in paid work?	(1) yes (2) no (3) DK
IN14 *IF IN8=3 or IN6=2*	What kind of work do you do? Are you ... *[INTERVIEWER: Read out answer categories]*	(1) working mainly at a desk (2) not working at a desk, but travelling (salesmen, driver, ...), (3) not working at a desk, but in a service job (retail shop, restaurant, ...) (4) doing some other kind of work (5) DK
IN15 *IF IN6=2*	What position do you hold? *[INTERVIEWER: Read out answer categories]*	(1) Employed professional (employed lawyer, medical practitioner, accountant, architect etc.), (2) Management (3) Other non-manual employee (4) Manual worker (5) DK
IN16 *IF IN15=2*	And which of the following best describes your position? *[INTERVIEWER: Read out answer categories]*	(1) General management, director or top management (managing directors, director general, other director) (2) Middle management, other management (department head, junior manager, teacher, technician) (3) DK
IN17 *IF IN15=4*	And which of the following best describes your position? *[INTERVIEWER: Read out answer categories]*	(1) Supervisor (2) Skilled manual worker (3) Other (unskilled) manual worker, servant (4) DK
IN18 *IF IN15=2*	How many employees you are responsible for?	|__|__|__|__|__|__| [DK]

No ***Branching***	**Question**	**Answer categories**
IN19 *IF IN6=2*	For what kind of organisation do you work? *[INTERVIEWER: Read out answer categories]*	(1) a private firm or business or a limited company (2) in the public sector or in a charity, voluntary organisation or trust [PROMPT - DO NOT READ: (2) includes public companies, local or central government, civil service, armed forces, council, schools, universities or other grant funded education establishments, public authorities, charities, voluntary organisations] (3) DK
IN20 *IF IN6=2*	How many employees work in the company/organisation for which you work? *[INTERVIEWER: Read out answer categories]*	(1) <10 (2) 10-49 (3) 50-249 (4) 250 and more (5) DK
IN21 *IF IN4=1*	Do you work mainly ... *[INTERVIEWER: Read out answer categories]*	(1) in your own home (2) in the same grounds or buildings as your home (3) in different places using home as a base (e.g. travelling salesman, free insurance agent etc.) (4) somewhere quite separate from home (5) DK
Module A: Basic ICT equipment access and use		**GPS**
Transition A *ALL*	Now we would like to ask you a few questions about computers and the Internet	
A1 *ALL*	Have you used a PC, Mac or any other computer, for work or for private purposes - in the last four weeks?	(1) yes (2) no (3) DK
A3 *IF A1=1*	Have you sent or received any e-mail messages, for work or for private purposes, during the last four weeks?	(1) yes (2) no (3) DK
A4a *IF A3=1*	How many of your friends and relatives have their own email address? *[INTERVIEWER: Read out answer categories]*	(1) all or almost all (2) about three quarters (3) about half (4) about one quarter (5) only few or no-one (6) DK
A4b *IF A4a<5*	And with how many of your friends and relatives do you communicate regularly via email? *[INTERVIEWER: Read out answer categories]*	(1) all or almost all (2) about three quarters (3) about half (4) about one quarter (5) only few or no-one (6) DK
A5 *ALL*	Do you have access to the Internet in your home?	(1) yes (2) no (3) DK

No ***Branching***	**Question**	**Answer categories**
A6 *IF A5=2*	Did you once have Internet access in your home?	(1) yes (2) no (3) DK
A7 *ALL*	Have you used the Internet at least once in the last four weeks, at home, at school or work or at any other place?	(1) yes (2) no (3) DK
A8 *IF A7=2,3*	Have you used it in the last 12 months at least once?	(1) yes (2) no (3) DK
A9 *FOR (a):* *IF A7=1 and A5=1* *FOR (b)-(f):* *IF A7=1*	How much time do you spend in a typical week on using the Internet ... [item] *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) at home? (b) at the workplace? (c) at school, university or another educational institution? (d) at a public place where Internet access is free? (e) at an Internet café or other place where you have to pay for access? (f) at another place not mentioned yet	FOR EACH (1) none (2) less than 1 hour (3) between 1 and 5 hours (4) between 6 and 10 hours (5) between 11 and 20 hours (6) more than 20 hours (7) DK
A10 *IF A7=1 or A8=1*	When did you use the Internet for the first time? *[INTERVIEWER: Read out answer categories]*	(1) < 6 months ago (2) 6 - 12 months ago (3) 1 year - 2 years ago (4) 2 years + ago (5) DK
A11a *IF A5=1*	Do you know what technical method you use at home to connect to the Internet?	(1) yes (2) no (3) NA
A11b *IF A11a=1,3*	I will read to you a number of methods to access the Internet. Which of these do you use at home? *[INTERVIEWER: Read out and code those that apply]*	MULTIPLE ANSWERS (1) Dial-up with modem (2) Cable Modem (3) Leased line (4) xDSL (5) ISDN (6) T1 or T3 line [TRANSLATOR: Digital Multiplex connection] (7) Internet access via satellite (8) Other not mentioned (e.g. mobile) (9) DK
A12 *IF A11b=2,3,4,5,6,7*	At home, did you have a connection before which was slower than your current one?	(1) yes (2) no (3) DK
A13 *IF A12=1*	Since moving to this faster type of connection, has the amount of time you spend online per week decreased, increased or remained roughly the same?	(1) Decreased (2) Increased (3) Remained roughly the same (4) DK
A14 *IF A7=1*	In the last four weeks, have you accessed the Internet in any other way than via PC or Mac, at least once?	(1) yes (2) no (3) DK

No ***Branching***	**Question**	**Answer categories**
A15 *IF A14=1*	Which devices did you use for that: Did you use ... *[INTERVIEWER: Read out and code those that apply]*	MULTIPLE ANSWERS (1) Digital TV*, (2) a PDA or palmtop, (3) a mobile phone with WAP or 2.5G** capability, (4) a game console (5) other (6) DK *[* TRANSLATOR: Make sure that you take local brand names and colloquial terms into account]* *** TRANSLATOR: Use term used in your country (e.g. Germany: GPRS)]*
A18 *IF A7=2,3*	Now I will read to you a list of statements about the Internet. Please tell me for each statement whether you agree completely, agree somewhat or do not agree. The Internet ... [item]. Do you ... (a) requires advanced computer skills, (b) is not easy enough to get access to, (c) is too time consuming, (d) is too expensive to use, (e) lacks useful or interesting information (f) is not something for me	FOR EACH (1) agree completely (2) agree somewhat (3) or do you not agree (4) DK
A19 *ALL*	Do you have a mobile phone for your own personal use?	(1) yes (2) no (3) DK
A20 *ALL*	How many of your friends and relatives have a mobile phone for their personal use? *[INTERVIEWER: Read out answer categories]*	(1) all or almost all (2) about three quarters (3) about half (4) about one quarter (5) only few or no-one (6) DK
A23 *IF A19=1 and A15~=3*	Have you used your mobile phone to view webpages or WAP pages, or to read your email, at least once in the last 4 weeks? *[TRANSLATORS: Confusion with SMS* to be avoided!]*	(1) yes (2) no (3) DK
A26 *IF A23=1*	Have you used your mobile phone at least once in the last 12 months to make any purchases in the Internet, to download online information you are charged for or to make online payments?	(1) yes (2) no (3) DK
A27 *IF A19=1*	Have you, in the last four weeks, used SMS* messages for ... (a) communication with other people? (b) paying for purchases, admission tickets or something similar? (c) paying for downloads such as ringing tones? (d) receiving financial information, sport results or other subscription services? *[* TRANSLATOR: Check if another term is more common in your country]*	FOR EACH (1) yes (2) no (3) DK

No ***Branching***	**Question**	**Answer categories**
A30 *IF A19=1* *(For (d) and (e)I: IF A19=1 and (A8=1 or A7=1) and IN4=1)*	Now, think about what your everyday life would be like if you didn't have a mobile phone. Please tell me how much you agree that if you didn't have a mobile phone (ITEM). Would you say that you … *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) you would often not be able to contact your friends and family, or be reached by them (b) you would be less exposed to dangerous electromagnetic radiation (c) you would be more helpless in case of emergencies (d) you would not receive some of the information you need for your job (e) you would have less exchange with some of your business contacts (f) you would have less fun	FOR EACH: (1) agree completely (2) agree somewhat (3) do not agree (4) DK
Module B: E-commerce and other uses of the Internet		**GPS**
Transition B *IF A8=1 or A7=1*	Now I would like to ask you a few questions about the Internet.	
	PROGRAMMING: B1 to B2: for each item in B1=1 ask directly B2, then go to next item in B1	
B1 *IF A8=1 or A7=1*	You can use the Internet for many purposes. I´m going to read you a list of things you can do online and ask you whether you have done this online for your private purposes. For your private purposes, have you used it in the last 12 months... (a) to find information about a product or service (b) to order a product or service (c) to conduct online-banking or to buy financial products (d) to search for any health-related information (e) to look for a job	FOR EACH (1) yes (2) no (3) DK
B2 *IF B1=1 and A7=1*	*[FOR EACH B1 ITEM]* Have you done so in the last four weeks?	(1) yes (2) no (3) DK
B5 *IF A7=1* *(For (c) and (d): IF A7=1 and IN4=1)*	Many people in this country still do <u>not</u> have access to the Internet yet. Now please imagine our country were without the Internet for one month. What would it mean for your everyday life? Please tell me how much you agree that if our country were without the Internet for a month you would (ITEM). Would you say that you would … *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) be less well informed as a consumer (b) feel socially excluded (c) not receive some of the information you need for your job (d) have less communication with some of your contacts at work / your business contacts (e) have less contact with some of your friends (f) have less fun	FOR EACH: (1) agree completely (2) agree somewhat (3) do not agree (4) DK

No *Branching*	Question	Answer categories
Module D: Skills		**GPS**
D1 *IF A7=1 or A8=1* *[Do not ask item (h) in UK, IRL, USA]*	I would like to ask you a few questions about your skills in using the Internet. How confident would you feel... [item] Please tell me whether you feel.. *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) using a search engine (such as Google or Yahoo) to find information on the Internet *[TRANSLATORS: List two most widely used search engine brands in your country[20]]* (b) identifying the source of information provided on the Internet (c) using e-mail to communicate with others (d) using Internet chat-rooms to contact other people (e) using the Internet to make telephone calls (f) creating a personal web / Internet page (g) downloading and installing software onto a computer *[PROGRAMMING: Do not ask item (h) in UK, IRL, USA]* (h) understanding the content of websites written in English	FOR EACH (1) very confident (2) fairly confident (3) not confident (4) Do not know what this means [DO NOT READ OUT] (5) DK
Module L: e-Health		**GPS**
Transition L *IF B1(d)=1*	You said before, that you have used the Internet to search for health-related information:	
L1 *IF B1(d)=1*	Have you been able to find health related information on the Internet?	(1) yes (2) no (3) DK
L2 *IF L1=1*	Was the information suitable for your needs?	(1) yes (2) no (3) DK
L3 *IF L2=1*	Websites with health related information are available in many languages. When you searched, did you find Websites in your mother tongue sufficient or did you have to expand your search and consult sites in other languages, or did you even have to rely solely on sites in other languages?	(1) Websites in mother tongue were sufficient (2) Had to expand my search and consult websites in other languages too (3) Had to rely solely on websites in other languages (4) DK
L4 *IF B1(d)=1*	And for what reasons did you search health-related information on the Internet? Did you search health-related information on the Internet to ...[item] (a) seek a second opinion on your own, a family member's, or a friend's medical diagnosis? (b) be better informed on your general health? (c) gather additional information since you care for an ill person or a person with a disability?	FOR EACH (1) yes (2) no (3) DK

[20] For example, check http://www.jupitermmxi.com/europelanding.html

No ***Branching***	**Question**	**Answer categories**
L5 *IF B1(d)=1*	How trustworthy would you consider each of the following providers of health-related information: [Item] : Are those ... *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) Universities and other non-profit organisations active in the health sector / the health field (b) pharmaceutical companies (c) private health insurance providers (d) patient advocacy and self-help groups (e) hospitals (f) professional medical associations	FOR EACH (1) very trustworthy (2) fairly trustworthy (3) not trustworthy (4) DK
Module J: Security		**GPS**
Transition J *IF A7=1*	Now the topic is internet security.	
J1 *IF A7=1*	How concerned are you about .[item]: Are you ... *[INTERVIEWER: Read out answer categories]* (a) data security on the Internet, i.e. the loss or manipulation of your data? (b) privacy and confidentiality on the Internet, i.e. personal information about you being misused by third parties?	FOR EACH (1) very concerned (2) somewhat concerned (3) not concerned (4) DK
J2 *IF J1(a)=1,2 or J1(b)=1,2*	Are these concerns stopping you from using the Internet to buy goods or services online: often, sometimes, or never?	(1) often (2) sometimes (3) never (4) DK
J3 *IF A7=1*	Would you report violations of your on-line security, privacy and confidentiality to a third independent party, for example a public agency created for this task? *[INTERVIEWER: Read out answer categories]*	(1) yes, very likely (2) maybe (3) no (4) DK
J4 *IF J3=1,2,3*	Would it be easier for you to do so if you could do it anonymously?	(1) yes (2) no (3) DK
J5 *IF A7=1 & (B1(b)=1 or B1(c)=1)*	How often are you aware of security features of websites when you use the Internet to buy online: often, sometimes or never?	(1) often (2) sometimes (3) never (4) DK
J6 *IF A7=1 & (B1(b)=1 or B1(c)=1)*	And how often do you take security features of websites into account when deciding about whether to buy online: often, sometimes or never?	(1) often (2) sometimes (3) never (4) DK
Module K: e-Government		**GPS**
Transition K *IF A7=1*	Now I would like to ask you a few questions about the contact to government agencies through the Internet.	
	PROGRAMMING: K1 to K3: for each item in K1=1 ask directly K2, If K2=1 ask directly K3, then go to next item in K1	

No ***Branching***	**Question**	**Answer categories**
K1 *IF A7=1*	Here is a list of activities that require citizens to get in touch with public administration. For each activity, please answer whether you would prefer to use the Internet or prefer to use the traditional way, that is face-to-face, by postal mail, fax or phone: *[INTERVIEWER: Repeat answer categories for the first 2 items]* (a) Tax declaration / filing your income tax return (b) Use of job search services of public employment service (c) Request for passport, driver's licence, birth certificates or other personal documents (d) Car registration (e) Declaration to the police, e.g. in case of reporting theft (f) Searches for books in public libraries (g) Announcement of change of address	FOR EACH (1) Internet (2) traditional way (3) do not use this service [DO NOT READ OUT] (4) DK
K2 *IF K1=1*	FOR EACH Is it possible to use the Internet for this in the area you live?	FOR EACH (1) yes (2) no (3) DK
K3 *IF K2=1*	FOR EACH Have you ever tried using the Internet for this?	FOR EACH (1) yes (2) no (3) DK
K4 *IF A7=1*	For each of the following statements about online services of public administration, please indicate whether you agree. Public services on the Internet ...[item]. *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) are not useful enough (b) are faster than the traditional way (c) require that you install special equipment or software (d) reduce the number of mistakes public authorities make (e) do not seem as safe as using the traditional way (f) make it possible to deal with the authorities at more convenient times (g) make it possible to deal with the authorities at more convenient locations, e.g. from home or from the workplace (h) are difficult to use	(1) agree completely (2) agree somewhat (3) do not agree (4) DK
Module E: Telework		**GPS**
Transition E *IF IN4=1 or IN13=1 or IN7=1*	Now let's talk about another topic: With the help of telephone, fax and computer, many types of work can be done from home. If work results are transferred electronically, this is sometimes called telework.	
E1 *IF IN4=1*	Do you presently telework from home, for at least some of your working time?	(1) yes (2) no (3) DK
E2 *IF E1=2,3*	Have you teleworked on a regular basis before, in the last five years?	(1) yes (2) no (3) DK
E3 *IF E2=1*	Did you spend, on average, at least one full working day a week at home when you were teleworking?	(1) yes (2) no (3) DK

No ***Branching***	**Question**	**Answer categories**
E4 *IF E1=1*	Do you spend, on average, at least one full working day a week teleworking from home?	(1) yes (2) no (3) DK
E5 *IF E1=1*	You indicated before that you work on average *[PROGRAMMER: Insert result from IN5b, if blank insert result from IN11]* hours per week. How many of these do you spend at home in a typical week?	|__|__|__| [DK] *[PROGRAMMER: Insert check with IN5b or IN11]*
E7 *IF E1=1 and IN6=2*	Has the equipment you use for teleworking at home been mainly, not mainly but partly, or not at all been paid for by your employer?	(1) mainly paid for by employer (2) not mainly, but partly paid for by employer (3) not at all paid for by employer (4) DK
E8 *IF IN7=1 or IN13=1 or (E1=2,3 or E4=2,3)*	If it was offered to you, how interested would you be in ... [item]. Would you be ... *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) doing almost all your work teleworking at home (b) telework where you did not spend all your working time, but at least one full working day per week at home (c) work in an office provided near your home which would allow you to reduce commuting?	FOR EACH (1) very interested (2) somewhat interested (3) not interested (4) DK
E9a *IF E1=2,3 or E4=2,3*	Would you say that your job is feasible for telework, under the assumption that you spend at least one full working day per week at home?	(1) yes (2) no (3) DK
E9b *IF E9a=2 and IN6=2*	What are the main reasons why you consider your current job not to be feasible for telework? Is it because ... *[INTERVIEWER: Read out answer categories and code all that apply]*	MULTIPLE ANSWERS (1) your company does not permit telework? (2) your superior does not approve of telework? (3) your job requires face-to-face contact with customers, colleagues or other persons (4) your job requires access to machines or other things which cannot be accessed from home (5) Other reasons (DO NOT READ OUT) (6) DK
E10 *IF E1=1*	For what reasons did you start teleworking? Please indicate for each of the following aspects how important it was for your decision to start teleworking. [item] Was this ... for you. *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) I needed a more peaceful working environment (b) I want to participate more in family life (c) I want to be closer to clients or customers (d) I need to look after a child or an other person who needs care (e) My company asked me to start teleworking (f) I want to reduce commuting (g) I wanted to have more flexibility in how to organise my work	(1) very important (2) somewhat important (3) not important (4) DK

No ***Branching***	Question	Answer categories
E11 *IF E1=1*	Most working people are not allowed to work from home. Please consider you would <u>not</u> be allowed to telework from home, for whatever reasons. What would that mean for your ability to do your job? Would it mean that you...[item]. Do you ... *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) could not be in paid work at all (b) could not do your job as well as with telework (c) would have to look for another job which is located closer to your home (d) would have to reduce your working hours per week	FOR EACH: (1) agree completely (2) agree somewhat (3) do not agree (4) DK
Module F: Mobile work		**GPS**
Transition F *IF IN4=1*	Now let's talk about the topic of mobile working.	
F1 *IF IN4=1*	In the last four weeks, have you spent any of your working time away from your home and from your main place of work, e.g. on business trips, in the field, travelling or on customer's premises?	(1) yes (2) no (3) DK
F2 *IF F1=1*	You indicated before that you work on average *[PROGRAMMER: Insert result from IN5b, or if blank result from IN11]* hours per week. How many of these do you spend away from home and your main place of work?	|__|__|__| [DK] *[PROGRAMMER: Insert check with IN5b or IN11]*
F3 *IF F2>5*	In the last four weeks, have you used online computer connections when travelling? By this I mean have you accessed the Internet for business purposes, or electronically transferred data to colleagues?	(1) yes (2) no (3) DK
F4 *IF F3=1*	For what purpose did you use these online connections? Have you used these to ... (a) access the Internet (b) send or read e-mails (c) connect to your company's internal computer system	FOR EACH: (1) yes (2) no (3) DK
F5 *IF F3=1*	Where did you use an online computer connection? Have you used it in the last four weeks at ... (a) a hotel, conference site or similar location? (b) another company's premises? (c) an Internet café or an other commercial teleservice center? (d) or on the move, using a mobile device for data transfer?	FOR EACH: (1) yes (2) no (3) DK
Module G: Tele-cooperation/Tele-collaboration		**GPS**
Transition G *IF IN4=1 and (A1=1 or A7=1)*	And how about the use of telecommunication technology at your work place:	
G1 *IF IN4=1 and A1=1*	When you communicate with external contacts, do you sometimes use e-mail, video conference or electronic data transfer? *[PROGRAMMER: skip the following if IN6=1]* By external persons we mean customers, clients, suppliers, other business contacts, but also colleagues working at other locations of the same company.	(1) yes (2) no (3) DK

No ***Branching***	**Question**	**Answer categories**
G2 *IF G1=1*	In a typical week, how often do you ...[item] for these external contacts? *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) use e-mail (b) use video-conferencing (c) use e-mail attachments or other electronic data transfer	FOR EACH (1) 10 or more times a day, (2) at least once a day, (3) at least once a week (4) less often than once a week (5) never (6) DK
G4 *IF IN6=1 and A7=1*	I would like to know about the role the Internet plays in your business. Do you sometimes attract new business through the Internet or via e-mail?	(1) yes (2) no (3) DK
G5 *IF IN6=1 and A7=1*	Do you sometimes deliver work results to your clients or customers through the Internet or via e-mail?	(1) yes (2) no (3) DK
G6 *IF G4=1 and G5=1*	Does it sometimes happen that you communicate with clients or customers exclusively by electronic means, i.e. via Internet, e-mail, phone or fax and without meeting face-to-face?	(1) yes (2) no (3) DK
Module H: Outcomes of work		**GPS**
Transition H *IF IN4=1*	I would like to ask you a few more questions about your work.	
H1 *IF IN4=1*	Please tell me for each of the following, how often you experience this. How often do you .. [item]? *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) Find your work stressful (b) Come home from work exhausted (c) Find your job prevents you from giving the time you want to your partner or family (d) Feel too tired after work to enjoy the things you would like to do at home (e) Find your partner/family gets fed up with the pressure of your job	FOR EACH (1) often (2) sometimes (3) never (4) does not apply [DO NOT READ] (5) DK
H2 *IF IN6=2,3*	In your current work arrangement, do you agree with the following statements about your job? [item] Do you ... *[INTERVIEWER: Read out answer categories for the first 2 items]* (a) I have a lot of say over what happens in my job (b) I need to keep learning new things continuously (c) I have concerns about whether my job is secure (d) I have a high income (e) I can adapt my starting & finishing times to my personal preferences (f) I can adapt the number of weekly working hours to my personal preferences	FOR EACH: (1) strongly agree (2) somewhat agree (3) disagree (4) DK
H3 *IF IN4=1*	On the whole, are you very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied or very dissatisfied with your job / your main job?	(1) very satisfied (2) somewhat satisfied (3) neither satisfied nor dissatisfied (4) somewhat dissatisfied (5) very dissatisfied (6) DK
Module C: Educational attainment and lifelong learning		**GPS**

No ***Branching***	Question	Answer categories
Transition C *IF IN4=1 or IN13=1 or IN7=1*	Now I would like to ask you a few questions about training and learning.	
C2 *IF IN6=2,3*	Did you participate in some kind of work-related training activities that were provided either by your company or by an other organisation, in the last four weeks?	(1) yes (2) no (3) DK
C9b *IF IN7=1 or IN6=1*	Did you participate in some kind of training activities with the aim of preparing you for a future job, in the last four weeks?	(1) yes (2) no (3) DK
C14a *IF IN4=1*	Apart from the training that may have been provided by others, did you engage in some kind of self-directed learning related to your work, in the last four weeks?	(1) yes (2) no (3) DK
C14b *IF IN7=1 or IN6=1*	Apart from the training that may have been provided by others, did you engage in some kind of self-directed learning which was aimed at preparing you for a future job, in the last four weeks?	(1) yes (2) no (3) DK
C18 *IF A1=1 and (C2=1 or C9b=1 or C14a=1 or C14b=1)*	Did you use, in the course of your training and learning in the last four weeks, electronic learning materials such as learning programmes on CD-ROM, in company-internal computer systems or on the Internet?	(1) yes (2) no (3) DK
C19 *IF C18=1*	What did you use? Did you use (a) CD-ROMs or other so-called offline media such as diskettes, audio or video tapes etc.? (b) online learning materials provided on the internal computer system of your organisation or through the Internet	FOR EACH (1) yes (2) no (3) DK
C20 *IF IN2=2 and A1=1*	Did you use, in the course of your studies in the last four weeks, electronic learning material such as learning programmes on CD-ROM, on the internal computer system of your school/university or through the Internet?	(1) yes (2) no (3) DK
C21 *IF C20=1*	What did you use? Did you use (a) CD-ROMs or other so-called offline media such as diskettes, audio or video tapes etc.? (b) online learning material provided on the internal computer system of your school/university or through the Internet?	FOR EACH (1) yes (2) no (3) DK
Module Z: Standard demography		**GPS**
	Finally we would like to ask you a few more questions for statistical purposes:	
Z17 *ALL*	How many people live in your household, yourself included?	|__|__| [DK]
Z18a *IF Z17>1*	How old is the youngest?	|__|__| [DK]
Z18b *IF Z17>1*	How many are 15 years and older?	|__|__| [DK] *[PROGRAMMER: Build in check with Z17 and Z18a]*
Z14 *ALL*	Do you have any long-standing illness, disability or infirmity that limits your activities in any way? By long-standing I mean anything that has troubled you over a period of time or that is likely to affect you for a period of time.	(1) yes (2) no (3) DK

No ***Branching***	**Question**	**Answer categories**
Z19 *ALL*	We also need some information about the income of this household to be able to analyse this survey. What is your household's monthly net income (after tax)? Please count the total wages and salaries per month of all members of this household; all pensions and social security benefits; child allowances and any other income like rents etc. *[ADD IF NECESSARY: Of course, your answer (as all other answers in this interview) will be treated confidentially and referring back to you or your household will be impossible.]* Is it less or more than <income 1>, <income 2> or <income 3>.	(1) less than <income 1> (2) <income 1> to less than <income 2> (3<income 2> to less than <income 3>. (4 <income 3> or more (5) DK (6) Refusal
Z20 *ALL*	Looking back over the last three years, has your household income increased, decreased, or remained roughly the same?	(1) increased (2) decreased (3) remained roughly the same (4) DK (5) Refusal
Z21 *ALL*	Gender *[INTERVIEWER: Ask only if in doubt]*	(1) male (2) female
	Data provided by survey organisation	**Categories**
P0	Survey Number	101438
P1	Country Code	|__|__|
P2	Interview Number	|__|__|__|__|
P3	Date of Interview:	Day |__|__|, Month |__|__|
P4	Time of the beginning of the interview (USE 24 HOUR CLOCK):	Hour |__|__|, Minute |__|__|
P5	Number of minutes the interview lastet	|__|__|__|
P6	Size of locality	|__|__|
P7	Region	|__|__|
P8a	Postal Code / Area code **must be convertible into NUTS 2 regions**	|__|__|__|__|__|__|__|__|__|
P8b	**NUTS 2 regions**	|__|__|__|__|__|__|__|__|__|
P9	Interviewer Number	|__|__|__|__|__|
P10	Weighting Factor	|__| . |__|__|__|__|__|
P11	Language of interview (Luxembourg, Belgium, Finland, Switzerland)	|__|

Questionnaire for the Decision Maker Survey (DMS)

Structure of the questionnaire:

Introduction and Screener Section

Module A: Basic characteristics
Type of organisation
Number of staff (employees)
Turnover

Module B: Module B: Basic ICTs take-up and intensity of use (e-Business)
e-Mail
Internet
Intranet
EDI
Video-conferencing
Call-centre
Staff access to ICTs

Module C: e-Commerce
Website/ Internet presence
Online sales
Barriers to e-commerce (selling)
Benefits from / Outcomes of e-commerce
Online procurement
Barriers to online procurement
Benefits from/ Outcomes of online procurement
Online supply chain integration
- e-Marketplaces

Module D: e-Business security
Security breaches
Information security strategy
Barriers to security
Security provisions

Module F: e-Government
Use of e-Government services
Barriers to e-Government

Module G: Website accessibility
Design for all" / "universal design" principle awareness

Module E: R&D
R&D staff
Computer staff in R&D unit(s)
IT staff providing computer services to R&D
Outsourced computer services for R&D
Vacancies in IT for R&D

Introduction and Screener Section		**DMS**
	Database/address information:	**Categories**
A11 *ALL*	Main business activity ***PROGRAMMER: Copy from database***	**NACE code (2-digit level)** I__I__I 1 Mining, Energy (includes NACE 10 - 14/ 40, 41) 2 Manufacturing (includes NACE 15 - 37) 3 Construction (includes NACE 45) 4 Distribution (includes NACE 50, 51, 52) 5 Hotels, Restaurants (includes NACE 55) 6 Transport, Communication (includes NACE 60, 61,62, 63, 64) 7 Banking, Insurance (includes NACE 65, 66, 67) 8 Business Services (includes NACE 70, 71, 72, 73, 74 [except: 74.13]) 9 Public Administration (includes NACE 75 [except 75.2]) 10 Education (includes NACE 80) 11 Health and Social Work (includes NACE 85) 12 Other personal or social services (includes NACE 90, 91, 92, 93)
A12 *ALL*	Establishment size (if available) PROGRAMMER: Copy from database	According to database a) OPEN (if available) I__I__I__I__I__I__I__I *6-digit numerical* [1] not available from database and b) in categories, i.e. (1) 0 - 9 (2) 10 - 49 (3) 50 - 199 (4) 200 - 499 (5) 500+ (6) not available from database

S1 (INTRO) *ALL*	At reception/switchboard: Good morning/good afternoon. My name is ... . I am calling for ... [name of institute]. We are presently conducting a scientific survey in several European countries. The topic is the use of information and communications technologies. I would like to talk to the person who is responsible for DP/IT decisions at your location. INT.: NOTE: THIS SHOULD BE THE HEAD OF THE DP/IT DPT. OR A SENIOR PERSON IN THE DP/IT DPT. IN SMALLER FIRMS IT CAN ALSO BE THE MANAGING DIRECTOR, THE GENERAL MANAGER OR THE OWNER. INT.: ADD, IF NECESSARY: Your participation is very important to us, because your firm has been selected through a statistical procedure that will result in a typical selection of firms in [COUNTRY] INT.: ADD, IF NECESSARY: The interview will last approx. 15 minutes	(1) put through to target person ➔ CONTINUE (2) target person currently unavailable ➔ MAKE APPOINTMENT FOR CALLBACK (3) no such person ➔TERMINATE (4) refusal to participate ➔END
S2 (INTRO) *ALL*	At target person: Good morning/good afternoon. My name is ... . I am calling for ... [name of institute]. We are presently conducting a scientific survey in several European countries. The topic is the use of information and communications technologies. We are talking to people who are responsible for DP/IT decisions at their respective locations. Can I just check: Would you be the right person to talk to at your location and can we do the interview now? INT.: ADD, IF NECESSARY: Your participation is very important to us, because your firm has been selected through a statistical procedure that will result in a typical selection of firms in [COUNTRY] INT.: ADD, IF NECESSARY: The interview will last approx. 15 minutes	(1) yes, interview now ➔CONTINUE (2) yes but no time at the moment ➔ MAKE APPOINTMENT FOR CALLBACK (3) no, other person responsible at this location ➔ ASK TO BE PUT THROUGH TO THAT PERSON , RESPECTIVELY ASK FOR CONTACT DETAILS. AT NEW TARGET PERSON START AGAIN WITH QUESTION S2 (4) no, other person responsible at another location ➔ TERMINATE (5) refusal to participate ➔TERMINATE
A13 *ALL*	Function of target person What is your position in your establishment? What of the following is the most appropriate? INT.: READ OUT. SINGLE ANSWER.	(1) Owner/Proprieter (2) Managing Director/Board Member (3) Head of Establishment/Site (4) Head of IT/DP (5) Other senior member of IT/DP Department (6) Other ➔TERMINATE
Module A: Basic characteristics		**DMS**
Transition A *ALL*	Let us start with some general questions about your establishment.	
A2 *ALL*	Does your organisation have only one establishment, or has it more than one establishment? By establishment we mean a single indentifiable unit at a particular address. ***[TRANSLATOR: Be very careful to identify a correct translation for "establishment"]***	(1) only one establishment (2) more than one establishment (3) DK

A4 *IF A2=2*	How many employees does your organisation have in total in [country], including yourself? INT.: IF "DK" SAY: If you do not know it exactly, can you give me an estimate?	|__|__|__|__|__|__| *6-digit numerical* [DK]
A5 *ALL*	And how many employees work for your organisation AT THIS ESTABLISHMENT, including yourself? INT.: IF "DK" SAY: If you do not know it exactly, can you give me an estimate? ***PROGR.: CHECK:*** ***IF A2=(2), Answer in A5 MUST be < Answer in A4!*** ***IF NOT RE-ASK A4 / A5***	|__|__|__|__|__|__| *6-digit numerical* [DK] →**TERMINATE INTERVIEW**
	PROGR.: CHECK QUOTA (according to answer in A5) *1 up to 9 employees → QUOTA* *2 10 - 49 employees → QUOTA* *3 50 - 199 employees → QUOTA* *4 200 - 499 employees → QUOTA* *5 500+employees → QUOTA* *IF "DK" TO QUESTIONS A5*	
A3 *IF A2=2*	Is your establishment ...? INT.: READ OUT ALL ANSWER CATEGORIES. SINGLE ANSWER.	(1) the headquarters of an internationally operating organisation (2) the headquarters of an organisation that only operates in this country (3) a division or branch operation of an internationally operating organisation (4) a division or branch operation of an organisation that only operates in this country (5) other [INT.: DO NOT READ] (6) DK
A8 *ALL* *EXCEPT IF A11 (NACE Code) = 75, 80, 85*	Please indicate your establishment's turnover in the last financial year. INT.: IF "DK", SAY: If you do not know it exactly, can you give me a rough estimate? INT.: PLEASE TRY TO GET AT LEAST AN ESTIMATE. INDICATE IF ANSWER IS GIVEN IN EURO OR IN PREVIOUS NATIONAL CURRENCY (/UK: RESP. OR IN GBP)	(1) Turnover given **IN EURO** (2) Turnover given **IN PREVIOUS NATIONAL CURRENCY (UK: Always use GBP)** (3) DK, no answer to turnover Turnover given: |__|__|__|.|__|__|__|.|__|__|__|.|__|__|__| *12-digit numerical*

A9 *ALL* *EXCEPT IF A11 (NACE-Code) =75, 80, 85*	Has the turnover of your establishment increased, decreased or roughly stayed the same when comparing the last financial year with the year before?	(1) increased (2) decreased (3) roughly stayed the same (4) DK
Module B: Basic ICTs take-up and intensity of use (e-Business) DMS		
Transition B *ALL*	Now we would like to ask you some questions about the use of Information and Communications Technologies in your establishment.	
B1 *ALL*	Does your establishment use e-mail?	(1) yes (2) no (3) DK
B2 *ALL*	Does your establishment have access to the World Wide Web, i.e. the Internet?	(1) yes (2) no (3) DK
B3 *ALL*	Does your establishment have an Intranet, i.e. an internal computer network that uses the Internet protocol?	(1) yes (2) no (3) DK
B5 *ALL*	Does your establishment use EDI, i.e. electronic data interchange using the EDI standard?	(1) yes (2) no (3) do not know what this is [IF SPONTANEOUSLY SAID] (4) DK
B6 *IF B5=1*	Is your EDI Internet based?	(1) yes (2) no (3) do not know what this is [IF SPONTANEOUSLY SAID] (4) DK
B7 *ALL*	Does your establishment use video-conferencing in your own facilities?	(1) yes (2) no (3) DK
B8 *ALL*	Does your establishment use a call center for communication with customers or other external contacts?	(1) yes (2) no (3) DK
B9	*deleted*	
B10	*deleted*	
B11 *IF B1=1*	Which applications can be accessed by the majority of your office workers? Can the MAJORITY OF YOUR OFFICE WORKERS ... send e-mails to external addresses?	(1) yes (2) no (3) DK
B12 *IF B2=1*	(What applications can be accessed by the majority of your office workers?) Can the MAJORITY OF YOUR OFFICE WORKERS ... browse Internet sites?	(1) yes (2) no (3) DK

B13 *IF B3=1*	(What applications can be accessed by the majority of your office workers?) Can the MAJORITY OF YOUR OFFICE WORKERS ... browse INTRANET sites?	(1) yes (2) no (3) DK
B14	*deleted*	
Module C: E-commerce		**DMS**
Transition C *ALL*	Now we would like to ask you some questions about E-commerce. Please refer to your establishment when answering.	
C1 *ALL*	Does your establishment put information on the Internet, for example by means of a website?	(1) yes (2) no (3) DK
C2 *IF C1=1 or 3*	Do you sell goods or services via the Internet?	(1) yes (2) no (3) DK
C3a *IF C1=1 or 3*	Do you offer online reservation? By this we mean that your customers can make a reservation for a product or service through the Internet.	(1) yes (2) no (3) DK
C3b *IF C2=1*	Do you distribute digital products or services online? By this we mean that the product is transferred to the customer online, or the service is provided online.	(1) yes (2) no (3) DK
C4a *IF C2=1*	Are some of your online sales to businesses?	(1) yes (2) no (3) DK
C5a *IF C4a=1*	How large a share of your total sales to businesses are conducted online? Would you say ... INT.: READ OUT. SINGLE ANSWER	(1) less than 5% (2) 5 up to 25% (3) 26 up to 50% (4) 51 up to 75% (5) more than 75% (6) DK
C4b *IF C2=1*	Are some of your online sales to consumers?	(1) yes (2) no (3) DK
C5b *IF C4b=1*	How large a share of your total consumer sales are conducted online? Would you say ... INT.: READ OUT. SINGLE ANSWER	(1) less than 5% (2) 5 up to 25% (3) 26 up to 50% (4) 51 up to 75% (5) more than 75% (6) DK
C4c *IF C2=1*	Are some of your online sales to the public sector?	(1) yes (2) no (3) DK

C5c *IF C4c=1*	How large a share of your total sales to the public sector are conducted online? Would you say ... INT.: READ OUT. SINGLE ANSWER	(1) less than 5% (2) 5 up to 25% (3) 26 up to 50% (4) 51 up to 75% (5) more than 75% (6) DK
C6 *IF C2=1*	Are your online sales MAINLY to a local, national or global market? INT.: SINGLE ANSWER.	(1) local market (2) national market (3) global market (4) DK
C7 *IF C1=2* *OR* *IF C2=2 or 3*	I am now going to read you a list of statements about selling online. For each statement, please tell me whether you agree completely, agree somewhat or do not agree from the point of view of your establishment. How about the statement ... [item]. Do you ... INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) Selling our products and services requires face-to-face interaction with customers (b) The necessary technology is expensive (c) The costs for the promotion of the online offer are high (d) The revenue potential of online sales is low (e) Customers might be concerned about data protection or security issues (f) Adapting corporate culture to e-commerce is difficult (g) The necessary skills are not readily available (h) Handling the delivery process causes problems	FOR EACH: (1) agree completely (2) agree somewhat (3) or do you not agree (4) DK
C8 *IF C2=1*	You said earlier that you make sales online. According to your experience, what effect has selling online on ... [item]? Would you say the effect is ... INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) your sales (b) your costs (c) your sales area (d) the quality of your customer service (e) the efficiency of your internal business processes	FOR EACH: (1) very positive (2) rather positive (3) neither positive nor negative (4) rather negative (5) very negative (6) DK
C9 *IF B2=1 or 3*	Do you use the Internet or other online services to purchase goods or services?	(1) yes (2) no (3) DK

C10 *IF C9=1*	Roughly what proportion of the maintenance, repair and organisation goods your establishment buys are purchased online, measured in amount spent? Would you say ... INT.: READ OUT. SINGLE ANSWER	(1) less than 5% (2) 5 up to 25% (3) 26 up to 50% (4) 51 up to 75% (5) more than 75% (6) DK
C11 *IF B2=2* *OR* *IF C9=2 or 3*	I am now going to read you a list of statements about purchasing online. For each statement, please tell me whether you agree completely, agree somewhat or do not agree from the point of view of your establishment. How about the statement ... [item]. Do you ... INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) Purchasing procurement products or services requires face-to-face interaction with suppliers (b) Our suppliers do not sell online (c) The necessary technology is expensive (d) The cost advantage is negligible (e) We are concerned about data protection or security issues (f) The legal protection of online contracts is not sufficient (g) The necessary skills are not readily available (h) Suppliers´ technical systems are not compatible with ours	FOR EACH: (1) agree completely (2) agree somewhat (3) or do you not agree (4) DK
C12 *IF C9=1*	You said earlier that you purchase goods or services online. According to your experience, what effect has online procurement on ... [item]? Would you say the effect is ... INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) your procurement costs (b) stock-keeping of maintenance, repair and organisation goods (c) the number of suppliers (d) your relations to suppliers (e) the efficiency of your internal business processes	FOR EACH: (1) very positive (2) rather positive (3) neither positive nor negative (4) rather negative (5) very negative (6) DK
C13 *IF C1=1*	Does your establishment have an EXTRANET, i.e. a private, secure network running on the Internet protocol and accessible for selected external users?	(1) yes (2) no (3) DK
C14 *IF C13=1*	For which of the following purposes do you use your Extranet? Do you use it for ... [item] INT.: ONE ANSWER PER ITEM. (a) communication with customers or clients? (b) communication with suppliers?	FOR EACH: (1) yes (2) no (3) DK

C15 *IF B2=1*	Do you have access to the Extranet of one of your supplier, partner or customer organisations? ***PROGR.: IF C1=2 or 3, add:*** By Extranet I mean a private, secure network running on the Internet protocol and accessible for selected external users.	(1) yes (2) no (3) DK
C19 *IF B2=1*	Does your establishment trade goods or services through an e-marketplace? By e-marketplace I mean a business-to-business Internet trading forum in which multiple buyers and sellers exchange goods and services within an industry group or geographic region.	(1) yes (2) no (3) DK
C20 *IF C19=1*	On e-marketplaces, different types of business transactions can be accomplished. In which of the following types is your establishment actively involved? INT.: READ OUT AND CODE ALL THAT APPLY	(1) catalogue-based offering of products or services (2) catalogue-based purchasing of products or services (3) auctions -- as a seller (4) auctions -- as a bidder (5) launching calls for tenders (6) answering calls for tenders (7) powerbuying, i.e. joint purchases together with other organisations to save costs (8) none of these (9) DK
Module D: e-Business security		**DMS**
Transition D *IF C1=1*	Let us now turn to the topic of information security. Again, please refer to your establishment when answering.	
D1 *IF C1=1*	Many establishments are affected by security breaches such as identity theft, online fraud, manipulation of software applications, computer viruses or unauthorised entry to internal networks. Have any breaches of your information security occurred in your establishment in the last 12 months?	(1) yes (2) no (3) DK
D2a *IF D1=1*	***Progr.: Note for D2a to D2b:*** ***For each item in D2a=1, ask <u>directly</u> D2b; then go to next item in D2a!!*** Which of the following types of information security breaches have occurred in your establishment in the last 12 months? Did you experience cases of ... [item]? INT.: READ OUT. ONE ANSWER PER ITEM. (a) Identity theft (b) Online fraud (c) Manipulation of software applications (d) Computer virus infections (e) Unauthorised entry to internal networks	FOR EACH: (1) yes (2) no (3) DK
D2b *(For Each Item) IF D2a=1*	And how substantial were the consequences of this security breach for your establishment? Would you say they were ... INT.: READ OUT ANSWER CATEGORIES. SINGLE ANSWER (PER ITEM ASKED)	FOR EACH ITEM IF D2a=1 (1) very substantial (2) rather substantial (3) not substantial (4) DK

D3 *IF D1=1*	Where do you believe these breaches mainly came from? Do you think the largest threat to online security came from ... INT.: READ OUT ANSWER CATEGORIES. CODE ALL THAT APPLY	MULTIPLE ANSWERS (1) Customers (2) Suppliers/competitors (3) Former employees (4) Computer hackers (5) Internal users (6) Others, not mentioned yet (7) DK
D4 *IF D1=1*	How have you learned about these breaches, in most cases? Were you ... [item] INT.: READ OUT, CODE ALL THAT APPLY	MULTIPLE ANSWERS (1) alerted by a customer/supplier (2) alerted by employees or did you notice yourself (3) notified by your own information security system (4) made aware by damage or loss of data (5) alerted by the providers of outsourced security services (6) in another way (DO NOT READ) (7) DK
D5 *IF C1=1*	Does your establishment or your organisation have an information security policy?	(1) yes (2) no (3) DK
D6 *IF D5=1*	How would you describe it? As formal or informal?	(1) formal (2) informal (3) DK
D7 *IF D5=1*	Which are your information security priorities? How much priority is given to ... [item] INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) Blocking of unauthorised access (b) Expanding budget for security measures (c) Defining the security architecture (d) Outsourcing security management	FOR EACH (1) high priority (2) medium priority (3) low priority (4) DK
D8 *IF C1=1*	How important are the following factors as barriers to effective information security inside your establishment? How about ...[item]: Is this factor as a barrier to effective information security inside your establishment... INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) High costs for security measures (b) Lack of staff training (c) Lack of staff time (d) Complexity of the technology (e) Lack of employee co-operation	FOR EACH: (1) very important (2) fairly important (3) not important (4) DK

D9 *IF C1=1*	Which of the following tools do you use for information security in your establishment? Do you make use of ... [item] INT.: ONE ANSWER PER ITEM. a) Control of access to the computer system (b) Cryptography/ data encryption (c) Vulnerability Assessment Tools (d) Firewalls (e) Security Training and Awareness Rising Activities (f) Intrusion Detection Systems (g) End-user Security Training Classes	FOR EACH: (1) yes (2) no (3) DK
Module F: e-Government		**DMS**
Transition F *IF B2=1*	Now let´s turn to the topic of using online services for interacting with public administration.	
F1 *IF B2=1 AND A11 (NACE-Code) NOT =75 (Public Admin)*	***Progr.: Note for F1 to F2:*** ***For each item in F1=2, ask directly F2; then go to next item in F1!!*** I am going to read you a list of activities for which establishments have to get in touch with public administration. For which of these activities do you already use online media such as EDI or the Internet? What about ...[item]? Do you use online media such as EDI or the Internet for this? INT.: ONE ANSWER PER ITEM. (a) Payment of social contribution for employees (b) Corporation tax declaration (c) VAT declaration (d) Submission of data to statistical offices (e) Obtaining environment-related permits (f) Participation in public invitation to tender	FOR EACH (1) yes (2) no (3) DK
F2 *(For Each Item)* *IF F1=2*	Would your establishment prefer to use online media such as EDI or the Internet for this purpose?	FOR EACH ITEM IF F1=2 (1) yes (2) no (3) DK
Transition F3 *IF B2=2 or 3*	Now let´s turn to the topic of using online services for interacting with public administration. It is now possible to conduct at lest some of the interaction with public administration online, i.e. by using EDI or the Internet.	

F3 *ALL*	Now I will read you a list of statements about using online media for interacting with public administration. Please tell me for each statement whether you agree completely, agree somewhat or do not agree. Public services on the Internet ... [item]. Do you ... *INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM.* (a) are not useful enough (b) are faster than the traditional way (c) require that you install special equipment or software (d) reduce the number of mistakes public authorities make (e) do not seem as safe as using the traditional way (f) make it possible to deal with the authorities at more convenient times (g) make it possible to deal with the authorities at more convenient locations, e.g. from the workplace (h) are difficult to use	FOR EACH (1) agree completely (2) agree somewhat (3) or do you not agree (4) DK
Module G: Website accessibility		**DMS**
Transition G *IF C1=1*	Now a few questions about the accessibility of your website for people with special needs.	
G1a *IF C1=1*	What priority has making your website user friendly for ... [item] in your establishment? INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) People with visual disabilities or sight difficulties (b) People with reduced or limited dexterities (c) People with limited literacy	FOR EACH: (1) high priority (2) medium priority (3) low priority (4) DK
G1b *IF G1a (a) =2,3* *or* *IF G1a (b) =2,3* *or* *IF G1a (c) =2,3*	Bearing the these groups in mind: Would you say that your website could be adapted rather easily, would prove difficult to adapt, or could not at all be adapted to these people's needs? INT.: SINGLE ANSWER.	(1) could be adapted rather easily (2) would prove difficult to adapt (3) could not at all be adapted (4) DK
G2 *IF G1a (a) =1,2* *or* *IF G1a (b) =1,2* *or* *IF G1a (c) =1,2*	Does your establishment or your organisation have formal Guidelines for making your website accessible to people with such special needs? By guidelines I mean rules which have to be followed by your website developers?	(1) yes (2) no (3) DK
G3 *IF G1a (a) =1,2* *or* *IF G1a (b) =1,2* *or* *IF G1a (c) =1,2)*	Was your website ever evaluated concerning its accessibility for people with such special needs?	(1) yes (2) no (3) DK

G4 *IF G3=1*	Was this evaluation done internally or using external evaluators? INT.: SINGLE ANSWER.	(1) internal evaluation (2) using external evaluators (3) both (4) DK
Module E: R&D		**DMS**
E1a *ALL*	You said before that **xyz** ***[PROGR.: Insert answer to question A5]*** employees work for your organisation at this establishment. From this, how many work in research & development, i.e. R&D? Please add up possible part time R&D personnel to full-time personnel. INT.: IF "DK", PROMPT: If you do not know it exactly, can you give me an estimate? INT.: IF NECESSARY, EXPLAIN: Among R&D we include all creative work undertaken on a systematic basis in order to increase the stock of knowledge and the use of this stock of knowledge to devise new applications.	[OPEN] |__|__|__|__|__|__| *6-digit numerical* INT.: IF NONE, CODE "0". [DK] ***Progr.: Answer to E1a (Number employed in R&D)*** ***must be ≤*** ***Answer to A5 (Total number employed in establishment)*** ***If not, re-ask E1a***
E1b *IF E1a > 0* *and E1a is NOT DK*	R&D can be centralised in R&D units, or it can be distributed over various units of an establishment. Do you have at least one central R&D unit at your establishment?	(1) yes (2) no (3) DK
E2 *IF E1b=1*	What is the size of the computer staff in your central R&D unit(s)? Please add up part time computer staff to full-time staff. INT.: IF NECESSARY, EXPLAIN: By computer staff we mean all staff that - manages the computers, networks and digital resources, or - manages the Internet access and presentation, or - carries out information searches and computations as their major work tasks, or - provides user training. INT.: IF "DK", PROMPT: If you do not know it exactly, can you give me an estimate?	[OPEN] |__|__|__|__|__|__| *6-digit numerical* INT.: IF NONE, CODE "0". [DK] ***Progr.: Answer to E2 (Computer staff in R&D)*** ***must be ≤*** ***Answer to E1a (Number employed in R&D)*** ***IF NOT, re-ask E2***
E3 *IF E1a > 0* *and E1a is NOT DK*	Do you get IT services for R&D from internal computer staff that are not members of your central R&D unit(s)?	(1) yes (2) no (3) DK
E4 *IF E3=1*	What is the size of the internal computer staff outside of your R&D unit(s) who provide IT services for R&D projects? Please add up part time computer staff to full-time staff again. INT.: IF "DK", PROMPT: If you do not know it exactly, can you give me an estimate?	[OPEN] |__|__|__|__|__|__| *6-digit numerical* INT.: IF NONE, CODE "0". [DK] ***Progr.: Answer to E4 (Computer staff outside R&D) must be ≤*** ***Answer to A5 (Total number employed in establishment)*** ***IF NOT, re-ask E4***

E5 *IF E1a > 0* *and E1a is NOT DK*	Do you buy IT services for R&D from external service providers?	(1) yes (2) no (3) DK
E6 *IF E5=1*	What is the number of additional computer staff in your establishment that would be necessary to substitute for the IT services for R&D projects which are currently obtained from external service providers? INT.: IF "DK", PROMPT: If you do not know it exactly, can you give me an estimate?	[OPEN] |__|__|__|__|__|__| *6-digit numerical* INT.: IF NONE, CODE "0". [DK]
E7 *IF E1a > 0* *and E1a is NOT DK*	Do your R&D activities suffer from a low supply of qualified computer staff in your establishment?	(1) yes (2) no (3) DK
E8 *IF E7=1*	Please specify the number of open jobs for computer staff needed to provide IT services for R&D projects in your establishment? INT.: IF "DK", PROMPT: If you do not know it exactly, can you give me an estimate?	[OPEN] |__|__|__|__|__|__| *6-digit numerical* [INT.: IF NONE, CODE "0". [DK]
X1 *ALL*	Finally I would like to ask you for a brief assessment: In the course of the interview we talked, among others, about the areas e-Commerce, i.e. selling and buying online, and e-Government, i.e. interacting online with public administration. That is about areas, which might not necessarily fall into your direct responsibility. Thinking back to the questions about ... [item]: What would you say: How familiar were you with the topics covered in those questions? Would you say... INT.: READ OUT ANSWER CATEGORIES. ONE ANSWER PER ITEM. (a) e-Commerce, i.e. selling and bying online (b) e-Government, i.e. interacting online with public administration	FOR EACH (1) very familiar (2) fairly familiar (3) not very familiar (4) not at all familiar (5) DK/ no answer
X2 *ALL*	And all in all: How interesting did you find the questionnaire as a whole? Would you say ... INT.: READ OUT ANSWER CATEGORIES. SINGLE ANSWER.	(1) very interesting
End Text *ALL*	These were all my questions. I would like to thank you very much for participating in the interview. Have a nice day/evening!	
	Data to be provided by survey organisation	**Categories**
P0	Survey Number	1 0 1 4 3 9
P1	Country Code	|__|__|
P2	Interview Number	|__|__|__|__|
P3	Date of Interview:	Day |__|__|, Month |__|__|
P4	Time of the beginning of the interview (USE 24 HOUR CLOCK):	Hour |__|__|, Minute |__|__|
P5	Number of minutes the interview lasted	|__|__|__|

P9	Interviewer Number	|__|__|__|__|__|__|__|__|