Hagtíðindi
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Information technology

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Use of ICT and the Internet by households and individuals 2005

Summary

The use of computers and the Internet is very widespread in Iceland. In 2005, 88% of the population aged 16–74 years used computers and 86% used the Internet. As in previous years, the Internet is mainly used for information search and communication. In 2005, 28% of individuals 16–74 years of age had ordered goods or services over the Internet over a period of three months prior to the survey.

In 2005, almost nine out of every ten households in Iceland had a computer and 84% had access to the Internet. The percentage of households with high speed Internet connection, such as ADSL, SDSL or other kinds of xDSL, has increased from 26% in 2002 to 73% in 2005. Households with children under 16 years of age are more likely to have various kinds of IC technology than households with all members 16 years of age or older. In 2005, 97% of households with children had a computer and 94% had access to the Internet whereas 83% of households without children had a computer and 76% had access to the Internet. High speed Internet connections were more often found within households with high income than within households with low income. Thus 92% of Internet-connected households in the highest income bracket were connected through xDSL and half of the Internet-connected households in the lowest income bracket had this type of an Internet connection.

In the year 2004, the prevalence of an Internet connection at home was most widespread in Iceland compared with other European households. That year, 81% of Icelandic households had access to the Internet, 69% in Denmark and 56–60% in Germany, Norway, Luxembourg and the United Kingdom. The lowest prevalence of households with access to the Internet was in Turkey or 7%. In 2004, the use of the Internet was more common among individuals in the Nordic countries than in the rest of Europe. That year around half of the population in the EU used the Internet, 70% of the Finish population, 75% of the Norwegian population and 76% of the Danish population. The highest prevalence of Internet use among individuals in year 2004 was is Sweden and Iceland or 82%.

This article discusses IC technology in Icelandic households as well as individuals' use of computers and the Internet. Emphasis is placed on computer and Internet related activities carried out by individuals, the purpose of Internet use and e–commerce. An international comparison is made based on results from Eurostat.

Hagstofa Íslands

Introduction

The survey

In February 2005, Statistics Iceland in cooperation with Eurostat, conducted it's fourth survey on the use of ICT[1] by households and individuals. Statistics Iceland followed Eurostat's methodology and used a model questionnaire prepared by Eurostat. That makes the results presented in this article comparable with the results similar surveys of other national statistical institutes within the EU as well as within the Nordic countries.

The respondent

This survey deals with the use of IC technology in households and by individuals, where each individual represents one household. Thus every respondent had to answer questions on the IC technology in the household as well as questions on his/hers own use of a computer and/or the Internet. Participation was voluntary.

Method of data collection

The survey was conducted as a telephone survey with the aid of the BLAISE system for recording. All interviews were carried out centrally from Statistics Iceland's survey centre. Five days prior to the survey start all participants received a letter from Statistics Iceland explaining the purpose of the survey and requesting their cooperation.

Sample size and response rate

The gross sample size was 2,000 individuals aged 16–74 years. This is the same sample size as in the surveys conducted by Statistics Iceland in 2003 and 2004. 1,604 interviews on IC technology in households and 1,588 interviews on individual's use of a computer and the Internet were completed. This corresponds to a response rate of a little over 81% (table 1).

Table 1. Sample size and response rate 2005

	Households		Individuals	
	Number	%	Number	%
Sample	**2.000**	**100,0**	**2.000**	**100,0**
Deceased	–	–	–	–
Domicile abroad	38	1,9	45	2,3
Net sample size	1.962	98,1	1.955	97,8
Net sample size	**1.962**	**100,0**	**1.955**	**100,0**
Respondents	1.604	81,8	1.588	81,2
Refusals	193	9,8	193	9,9
Sick or disabled	25	1,3	26	1,3
Away from home	35	1,8	43	2,2
No contact	102	5,2	102	5,2
Others	3	0,2	3	0,2

Presentation of results

Results for households are presented by residence, household type and income. Results for individuals are presented by gender, age, residence, education and occupation. Totals and percentages were calculated by applying weights to each answer with reference to age and sex.

Concepts

The following concepts are used, when presenting the results:

Age. The criterion is the age the respondent has reached on the first day of the data collection period.

[1] Information Communication Technology

Child. All individuals at the age of 0–15 years are regarded as *children.*

Education. In the ICT survey the respondents are asked about their highest educational attainment. The answers are classified according to the International Standard Classification of Education (ISCED 97). Three categories are used. The first corresponds to categories 1 and 2 of ISCED 97, the second category corresponds to categories 3 and 4 of ISCED 97 and the third category corresponds to categories 5 and 6 of ISCED 97.

Employment status. Three employment status categories were defined for this survey:

- Students
- Employed (employee, self-employed and unpaid family workers)
- Others (pensioners, people fulfilling domestic tasks, unemployed etc.)

Household income. Gross monthly household income in Icelandic krónur (ISK) is devided into six income brackets:

- 0–149 thousand
- 150–299 thousand
- 300–449 thousand
- 450–599 thousand
- 600–749 thousand
- 750 thousand or more

Residence. Information on the municipality of residence of the respondents was obtained from The National Register of Persons subject to confirmation by the respondents. In this report, the results are shown broken down into regional categories, the capital region and regions outside of the capital region. The capital region consists of the following municipalities: Reykjavík, Seltjarnarnes, Hafnarfjörður, Álftanes, Garðabær, Kópavogur and Kjósarhreppur.

IC technology in households

Information communication technology

As previous surveys have shown, almost every household in Iceland has a TV (98%) and a mobile phone[1] (98%). The vast majority of Icelandic households has a VCR (90%), a personal computer (89%) and an Internet connection (84%). Three out of every four households own a DVD player, 42% have a games console, one out of every four has an MP3 player and a palm top is to be found in 6% of the households. 40% of the households have a digital TV or a digital set top box, 6% have a satellite dish and 7% have access to cable TV. There is an Internet enabled mobile phone in 42% of the households and within 56% of the households all household members have their own mobile phone (figure 1).

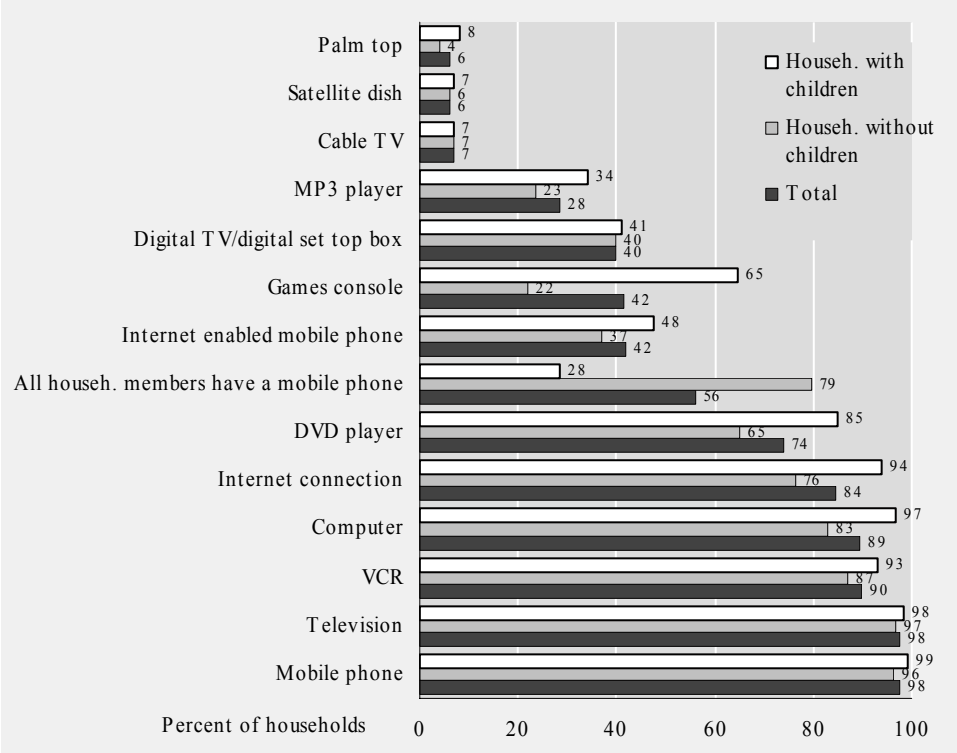
Children e-enable the household

Households with children in the age of 0–15 years are more likely to have various kinds of IC technical equipment than households with all members older than 15 years of age. Thus almost every household with children have a computer (97%) and access to the Internet (94%) whereas 83% of households without children have a computer and 76% have access to the Internet. 93% of households with children

[1] Refers both to Internet enabled mobile phones as well as other types of mobile phones.

have a VCR, 85% hold a DVD player and games console is to be found in 65% of households with children. The prevalence of a VCR within households without children is 87%, 65% of them have a DVD player and 22% hold a games console (figure 1).

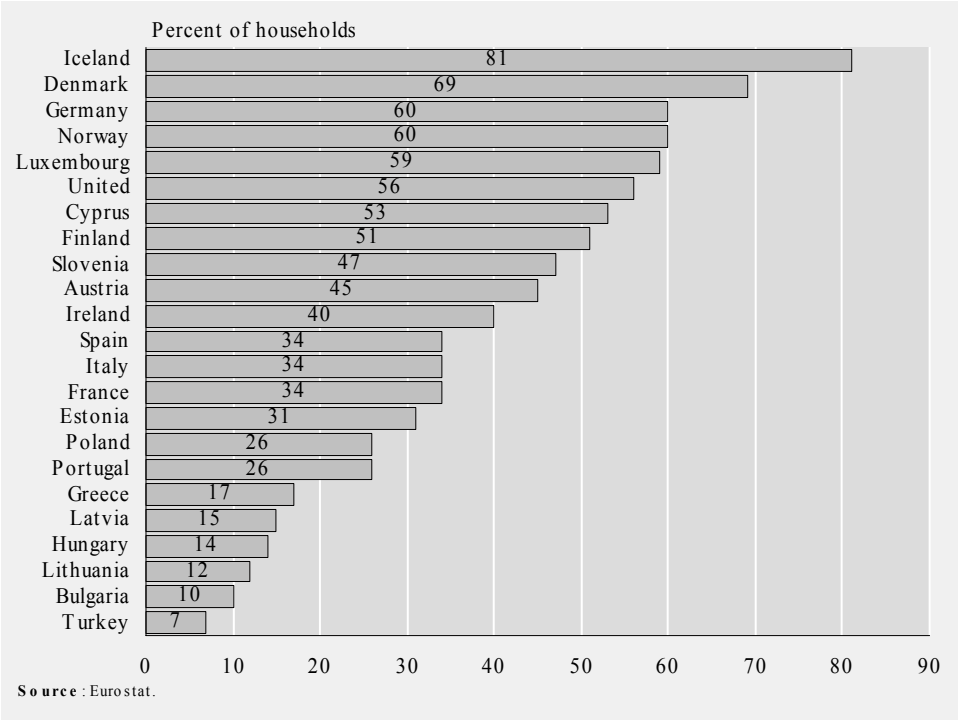
Figure 1. IC technology in households by type of household 2005



Internet connections in households are most common in Iceland

In 2004, the prevalence of an Internet connection in households in Europe was highest in Iceland. That year four out of every five Icelandic households had access to the Internet. The prevalence was 69% in Denmark, 56–60% in Germany, Luxembourg, Norway and the United Kingdom and 40–51% in Austria, Finland, Ireland and Slovenia. That same year one out of every three households in Estonia, France, Italy and Spain had access to the Internet as well as one out of every four households in Portugal and Poland. In year 2004, the prevalence of Internet-connected households was considerably lower in Greece (17%), Latvia (15%), Hungary (12%), Lithuania (12%) and Turkey (7%) (figure 2).

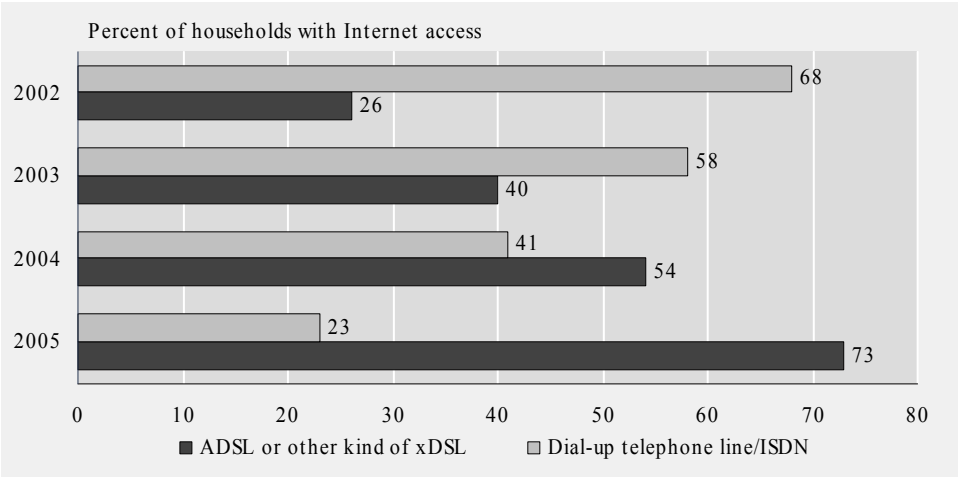
Figure 2. European households with a connection to the Internet 2004



73% of Internet-connected households use a high speed Internet connection

The most common types of Internet connections in Icelandic households are a dial-up telephone connection, ISDN, ADSL, SDSL or other types of an xDSL[1]. The number of connected households using high speed Internet connection has gradually increased since the first survey in 2002. That year one out of every four households with access to the Internet used an xDSL connection. Now three years later around 73% of the Internet-connected households are connected through an xDSL. The prevalence of a dial-up telephone connection and ISDN have gradually decreased in the same period, from 68% in 2002 to 23% in 2005 (figure 3).

Figure 3. Type of an Internet connection in households 2002–2005



[1] Henceforward *xDSL* will be used to signify ADSL, SDSL and other kind of an xDSL Internet connection.

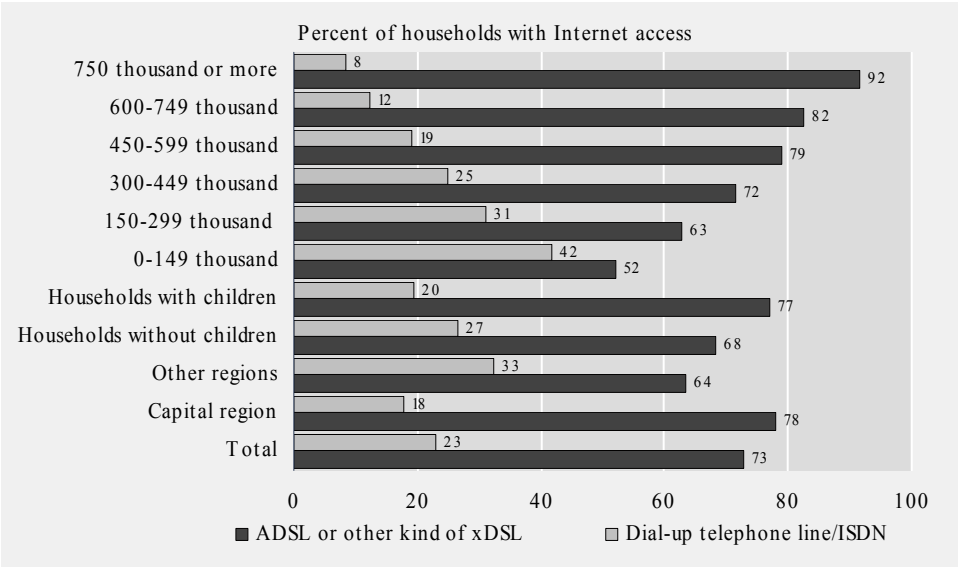
Other types of Internet connections are very rare

Other types of Internet connections than a dial-up telephone connection, ISDN or xDSL are very rare in Icelandic households. Thus only 2% of the households with access to the Internet used a cable modem or a broadband in 2005. Even fewer households were connected via mobile phone, such as *WAP* or *GPRS* (see table 4).

xDSL is more common in the capital region, within households with children and within households with high income

Internet connections through xDSL are more common in households in the capital region (78%) than in other regions (64%). On the other hand it is more common for households in other regions (33%) than for households in the capital region (18%) to use a dial-up telephone connection or ISDN. When accessing the Internet, 77% of households with children use xDSL and 20% of them use a dial-up telephone connection or ISDN. The prevalence of an xDSL connection within households without children younger than 16 years of age is 68% and 27% of them use a dial-up telephone connection or a ISDN. High speed Internet connections are more often found within households with high income than within households with low income. Thus a little over half of the households within the lowest income bracket used xDSL in 2005, whereas 92% of the households within the highest income bracket accessed the Internet through an xDSL connection (figure 4).

Figure 4. Type of an Internet connection in households by residence, household type and household income 2005



The computer is the most common access device

Like in previous years, it is most common for households to access the Internet by using the computer (99%). Only very few households use other kind of devices (overview 1).

Overview 1. Devices, on which the Internet is accessed 2005

Percent %	Computer	Palm top	Digital TV/ set top box	Mobile phone	Games console	Other/ Don't know
Total	99	0	0	1	0	0

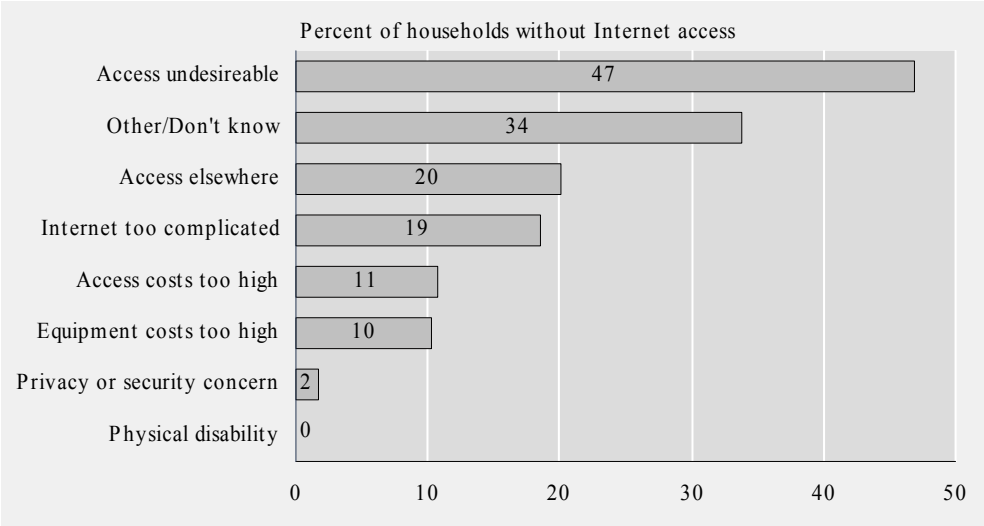
Symbols: – nil; 0 less than half of the unit used. Percent of households with Internet access.

Some people don't want the Internet at home

A little less than half of the households, without an access to the Internet, find the Internet undesireable. One out of every five has access elsewhere and 19% find the

Internet too complicated. For one out of every ten households without Internet connection, the access costs are too high and the same applies for the equipment costs. In 2% of these households privacy or security concerns were the reasons for not having an access to the Internet at home. Around one out of every three said, that the reason was other than mentioned or that they did no know, why the household was not connected to the Internet (figure 5).

Figure 5. Reasons for no Internet access in the household 2005



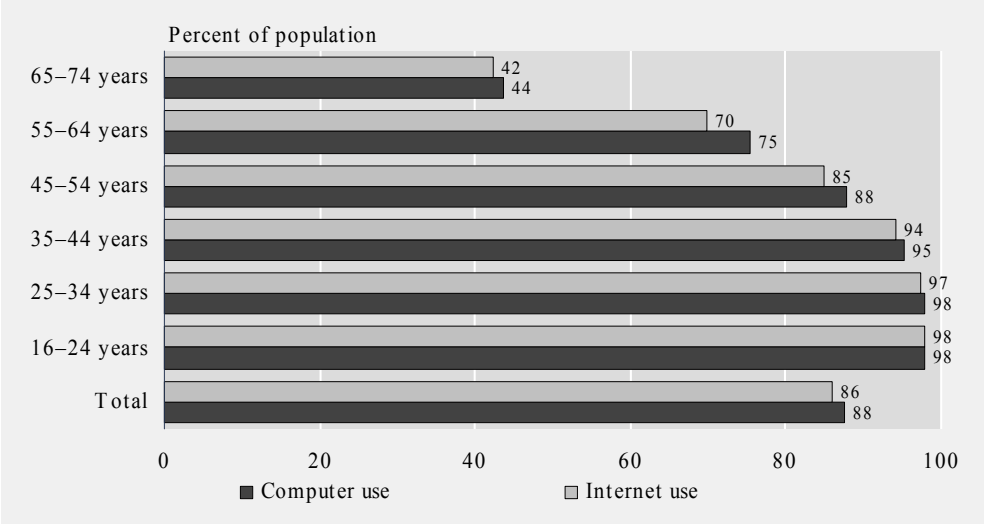
Individuals' use of a computer and the Internet

88% use computers and 86% use the Internet

Use of computers and the Internet is very widespread among individuals in Iceland. In 2005 almost nine out of every ten had used a computer and 86% had used the Internet in a period of three months prior to the survey[1]. 94–98% of individuals in the age of 16–44 years are computer and Internet users. The vast majority of individuals in the age of 45–54 years (88%) use computers and 85% use the Internet. Three out of every four individuals aged 55–64 years are computer users and 70% of them use the Internet. Use of a computer and the Internet is least common among individuals in the age of 65–74 years, whereas 44% of them use a computer and 42% of them use the Internet (figure 6).

[1] Henceforward people, who had used a computer or the Internet in a three month period prior to the survey, will be called *computer users* or *Internet users*.

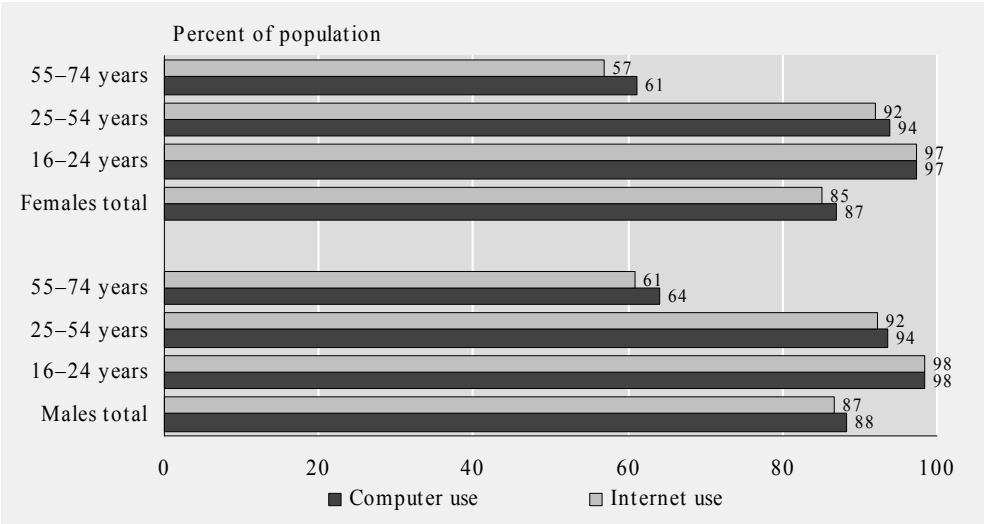
Figure 6. Individuals' use of a computer and the Internet by age 2005



Women in the oldest age group are catching up with the men

The prevalence of computer and Internet use is more or less the same for men and women. Thus 88% of the men and 87% of the women use a computer and 87% of the men and 85% of the women use the Internet. Men and women younger than 55 years of age are equal users of computers and the Internet. In the age group 55–74 years, women are catching up with the men. In 2004, there was a gap of 15 percentage points between the use of computers and the Internet by men and women but in 2005 the gap is only 3–4 percentage points (figure 7).

Figure 7. Individuals' use of a computer and the Internet by gender and age 2005



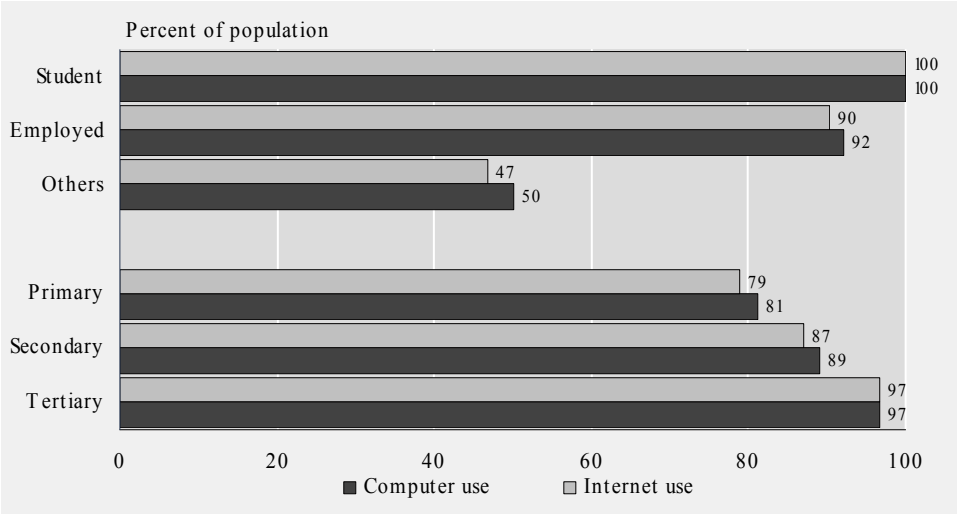
Students and people with high education most likely to use a computer and the Internet

All students use computers and the Internet, the vast majority of employed individuals use computers (92%) and the Internet (90%) and within the employment group *Others* around half of the individuals are computer or Internet users (figure 8).

People with the highest education are the greatest users of computers (97%) and the Internet (95%). Nevertheless, the vast majority of people with secondary and

primary education are also computer and Internet users. Thus 89% of individuals with secondary education use computers and 87% use the Internet, and 81% of individuals with primary education use computers and 79% use the Internet (figure 8).

Figure 8. Individuals' use of a computer and the Internet by education and employment status 2005



Nine out of every ten use a computer and the Internet at home

In 2005, more than nine out of every ten computer users used the device at home, 57% used a computer at their place of work, 22% used it at the place of education and 29% used a computer elsewhere. The same applies to the use of the Internet as 90% of the Internet users had used the media at home, more than half of them used the Internet at work, one out of every five used it at the of place of education and 26% used the Internet elsewhere (overview 2).

Overview 2. Place of use of computers and the Internet by individuals 2005

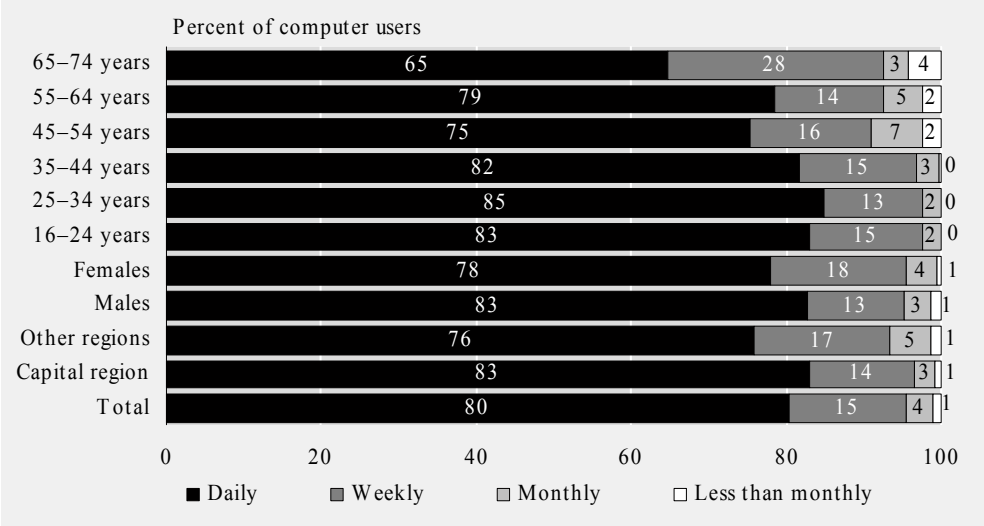
Percent %	At home	At the place of work	At the place of education	Elsewhere
Computer use	92	57	22	29
Internet use	90	54	20	26

Percent of computer and Internet users.

Every day computer use is the most common

Four out of every five use the computer almost every day. Daily use of the computer is as widespread among women as it is among men. It is more common for individuals in the capital region (83%) to use the computer almost every day than for individuals living in other regions (76%). 75–85% of individuals younger than 65 years of age and 65% of individuals aged 65–75 years use the computer almost every day (figure 9).

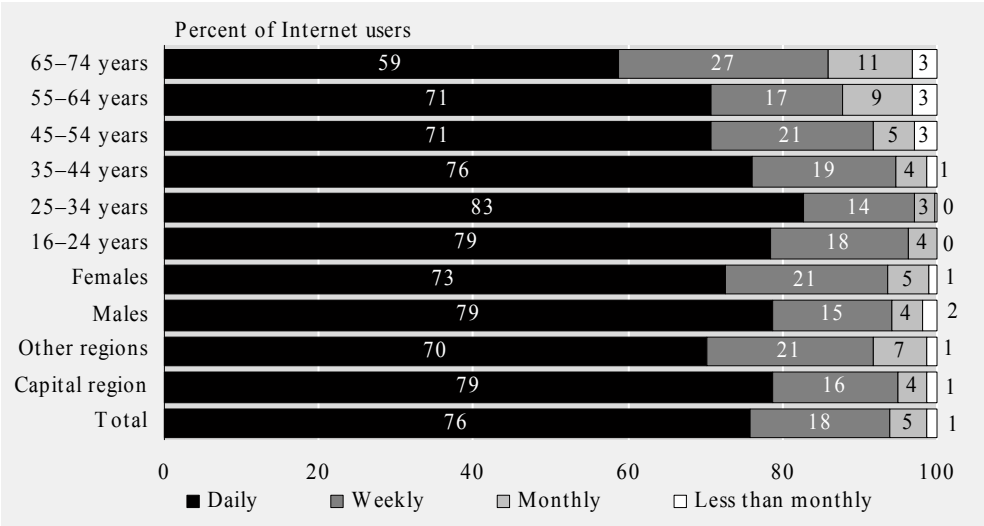
Figure 9. Frequency of computer use by gender, age and residence 2005



94% browse the Internet at least once a week

Three out of every four Internet users browse the Internet almost every day and 94% browse the Internet at least once a week. Daily use of the Internet is more common among individuals in the capital region (79%) than among individuals in other regions (70%). Men (79%) are also more likely to use the Internet almost every day than women (73%). Daily use of the Internet is least common among individuals older than 64 years of age. Thus 59% of the users in this age group browse the Internet almost daily, while 71% of individuals aged 45–64 years, 83% of individuals aged 25–34 years and 79% of individuals younger than 25 years of age use the Internet almost every day in 2005 (figure 10).

Figure 10. Frequency of Internet use by gender, age and residence 2005

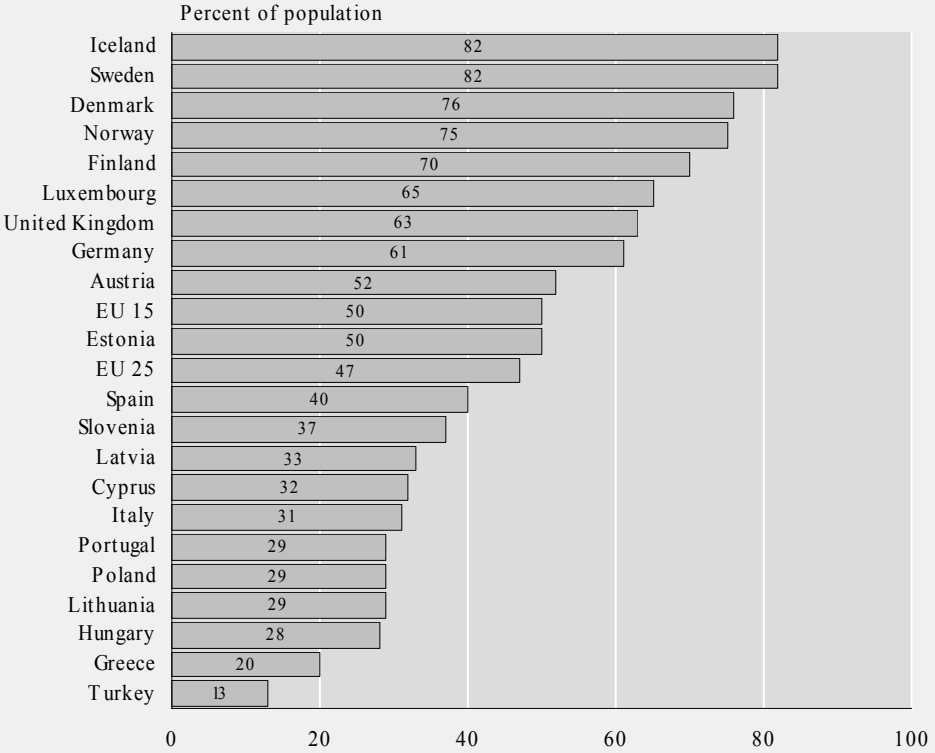


People in the Nordic countries are the greatest Internet users in Europe

In 2004, around half of the population of the European Union aged 16–74 years used the Internet. That same year the prevalence of Internet use among individuals was considerably higher in the five Nordic countries. Thus around 70% of the Finish population, 75% of the Norwegian population, 76% of the Danish population and 82% of the Swedish and the Icelandic population used the Internet. In Luxembourg, Germany and the United Kingdom 61–65% of the population were

Internet users. Around half of the Austrian and the Estonian populations used the Internet in 2004. That same year the prevalence of Internet use among individuals was 40% in Spain, 37% in Slovenia, 33% in Latvia, 32% in Cyprus and 31% in Italy. In Portugal, Poland, Lithuania and Hungary around 28–29% of the population used the Internet in 2004. The lowest prevalence of Internet use among individuals 16–74 years of age in year 2004, was is Greece (20%) and Turkey (13%) (figure 11).

Figure 11. Europeans' use of the Internet 2004



EU 25 and EU 15: Excluding Belgium, France, Netherlands, Ireland, Malta, Slovakia and Czech Republic.
Source: Eurostat.

Individuals' e–readiness

Computer related activities

Individuals using a computer in a period of twelve months prior to the survey were asked which of the following computer related activities they had already carried out:

- Copying or moving a file or a folder
- Using *cut, copy* or *paste* tools
- Using arithmetic formulas in a spreadsheet
- Compressing a file, e.g. by using *Winzip*
- Writing a computer program

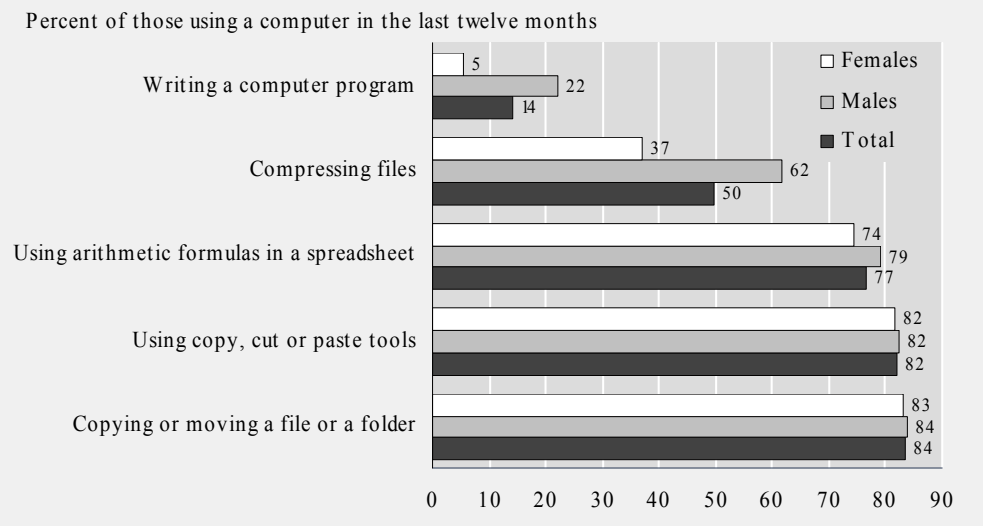
50% have compressed a file and 14% have written a computer program

Four out of every five individuals using a computer in a twelve month period prior to the survey had copied or moved a file or a folder or used *cut, copy* or *paste* tools to duplicate or move information within a document. 77% had used arithmetic formulas in a spreadsheet, 50% had compressed a file and 14% had written a computer program (figure 12).

Men do the more complex things

It was a little bit more common for men (79%) to have used arithmetic formulas in a spreadsheet, than it is for women (74%). The difference between the genders increases when it comes to the more complex things. In 2005, 62% of the men had used software to compress files against 37% of the women, and 22% of the men had written a computer program when only 5% of the women had done so (figure 12).

Figure 12. Computer related activities by gender 2005



Internet related activities

Individuals using the Internet in a twelve month period prior to the survey were asked which of the Internet related activities they had already carried out:

- Using a search engine to find information
- Sending e–mails with attached files
- Posting messages to chat rooms, newsgroups etc.
- Making telephone calls over the Internet
- Using peer-to-peer file sharing for exchanging movies, music etc.
- Creating a web page

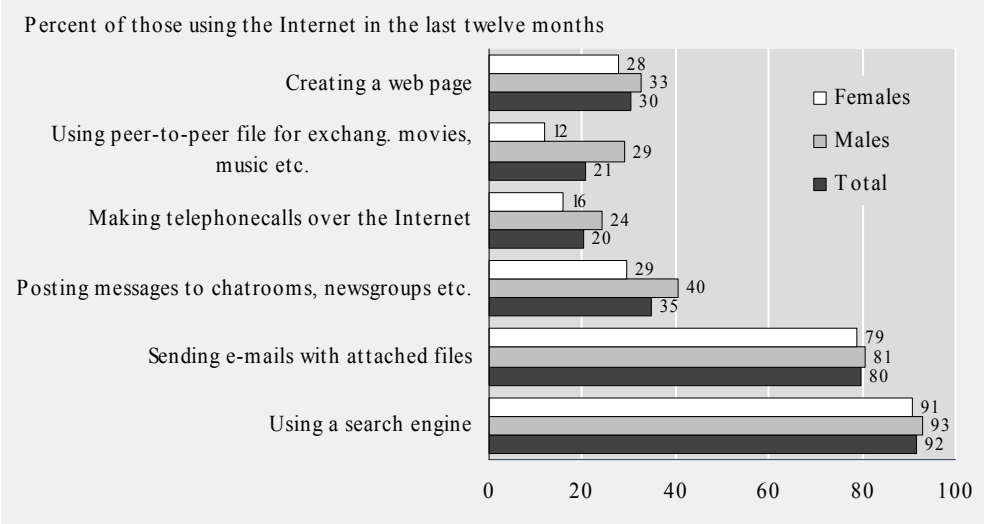
One out of every five has made telephone calls over the Internet

Almost everyone, who used the Internet in the twelve months prior to the survey, had sometimes used a search engine and four out of five had sent e-mails with attached files. 35% of the users had posted messages to chat rooms, newsgroups etc. and 21% had used peer-to-peer file sharing for exchanging movies or music. One out of every five had made telephone calls over the Internet and 30% had created a web page (figure 13).

More common for men than women to use chatrooms and peer-to-peer

Men and women were as likely to have used a search engine and to have sent e-mails with attachments. More men (40%) than women (29%) had used chat rooms, newsgroups etc., and also more men (24%) than women (16%) had made telephone calls over the Internet. In 2005, it was more common for men (29%) to have exchanged movies, music etc. by using peer-to-peer file sharing over the Internet than it was for women (12%). That same year one out of every three men and 28% of the women had sometimes created a web page on the Internet (figure 13).

Figure 13. Internet related activities by gender 2005

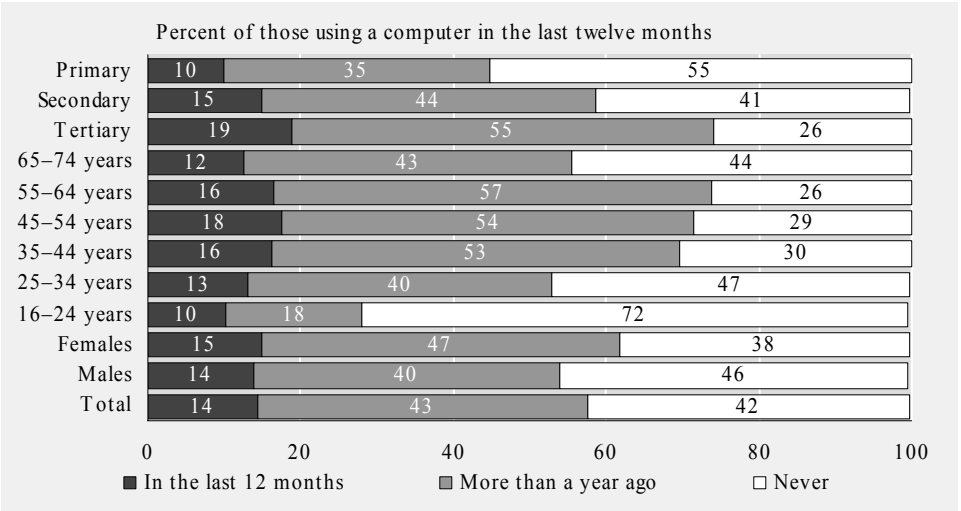


43% have never attended any computer training course

Individuals, who had used a computer in a twelve month period prior to the survey, were asked, whether they had taken any computer training courses. Of those, 43% had never attended any training course on any aspect of computer use. 42% of the individuals said that there were more than twelve months since their last training course. The rest or around 14% had been to a computer training course in the last twelve months prior to the survey (figure 14).

The percentage of individuals, who had never taken any computer training course, was highest among individuals in the age of 16–24 years or 72%. Within other age groups between 26% and 46% of the individuals had never attended a computer training course. It was more common for people with the highest education (19%) to have taken computer training courses in the last twelve months than for people with secondary education (15%) or people with primary education (10%) (figure 14).

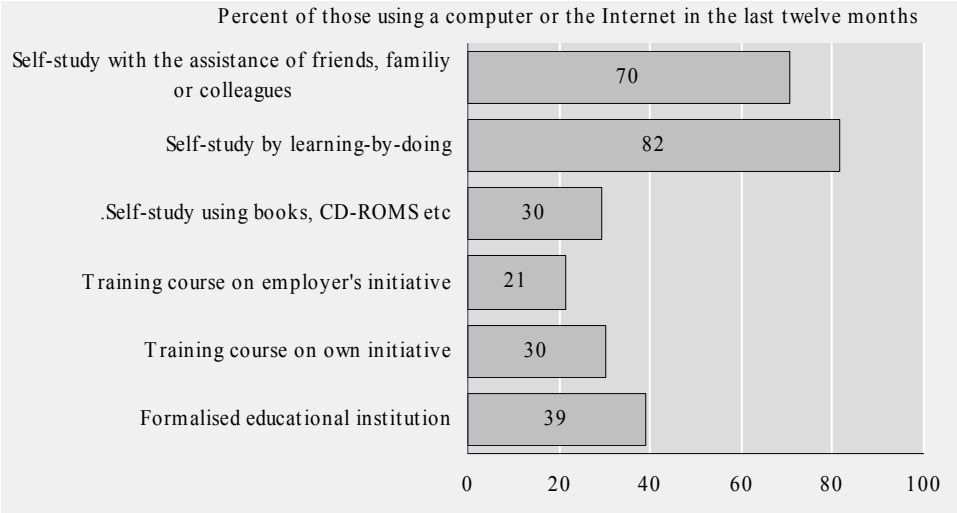
Figure 14. Individuals attending a computer training course by gender, age and educations 2005



Most people learn by doing

When asked, where or how the individuals had obtained their computer and Internet related skills, 39% said that they had learned it at school or at other formalised educational institution, 30% had attended a training course on their own initiative and 21% had attended a training course on the initiative or the demand of their employer. A little less than one out of every three had used books, CD-ROMS and other helping tools for self-study. The vast majority had learned to use a computer and the Internet by themselves, in the sense of learning-by-doing (82%), and 70% received help from friends, relatives or colleagues (figure 15).

Figure 15. Where or how individuals obtained their computer and Internet related skills 2005



Purpose of the use of the Internet

Communication and information search

In 2005[1] like in 2004, the most common purpose of the use of the Internet for private purposes was to exchange e-mails and search for information on goods and services on the Internet (figure 16).

E-mail, information search, newspapers, online banking and travel related purposes

In 2005, 88% used the Internet for exchanging e-mails, 85% searched for information on goods and services, three out of every four read the online editions of newspapers and magazines, and 70% used the Internet for online banking. For almost two out of every three Internet users the purpose of the use of the media was related to travel and accommodation (figure 16).

One out of every three listens to the radio or watches TV online

In 2005, around half of the Internet users used chat-sites and similar. 37% listened to Web radios or watched Web television, 33% downloaded music, games and films from the Internet and a little less or 29% downloaded software from the Internet. The percentage of people telephoning or videoconferencing over the Internet was around 16% that same year (figure 16).

Almost one out of every three placed orders online

A little less than one out of every three users of the Internet had placed orders or purchased goods or services over the Internet. Yet only 7% had been selling goods

[1] As in previous surveys individuals were asked, for which private purposes they had used the Internet in a period of three months prior to the survey.

and services over the media in the same period. The same percentage or 7% had used the Internet for other financial services such as share purchases (figure 16).

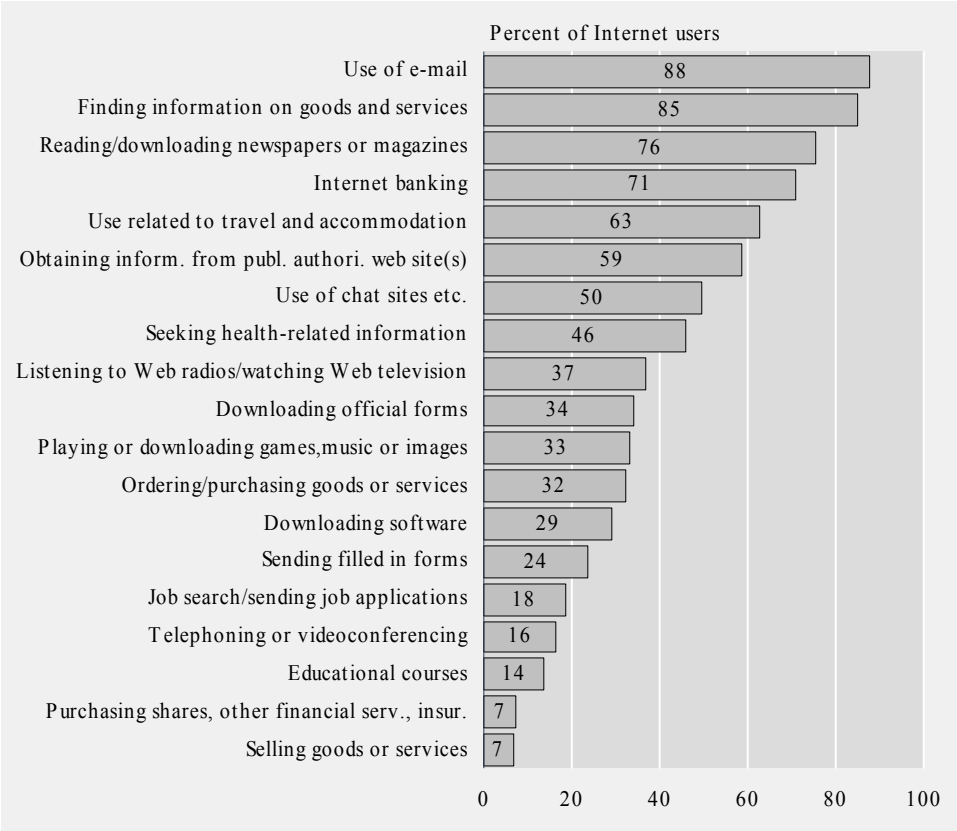
46% searched for health–related information

Almost half of the Internet users had browsed the Internet in search for health-related information, 59% had obtained information from the websites of public authorities, one out of every three downloaded official forms from the Internet and 24% of the Internet users had returned filled in forms over the Internet (figure 16). It is worth mentioning that in 2005 the online delivery of individuals' annual income tax returns in Iceland took place at the beginning of March, i.e. after this survey started. According to the taxation authorities, around 90% of individuals' income tax returns were returned online in 2005.

Almost one out of every five uses the Internet for job search

In 2005, a little less than one out of every five Internet users used the media to search for a job or send job applications. That same year around 14% had attended educational courses online (figure 16).

Figure 16. Purpose of Internet use for private purposes 2005

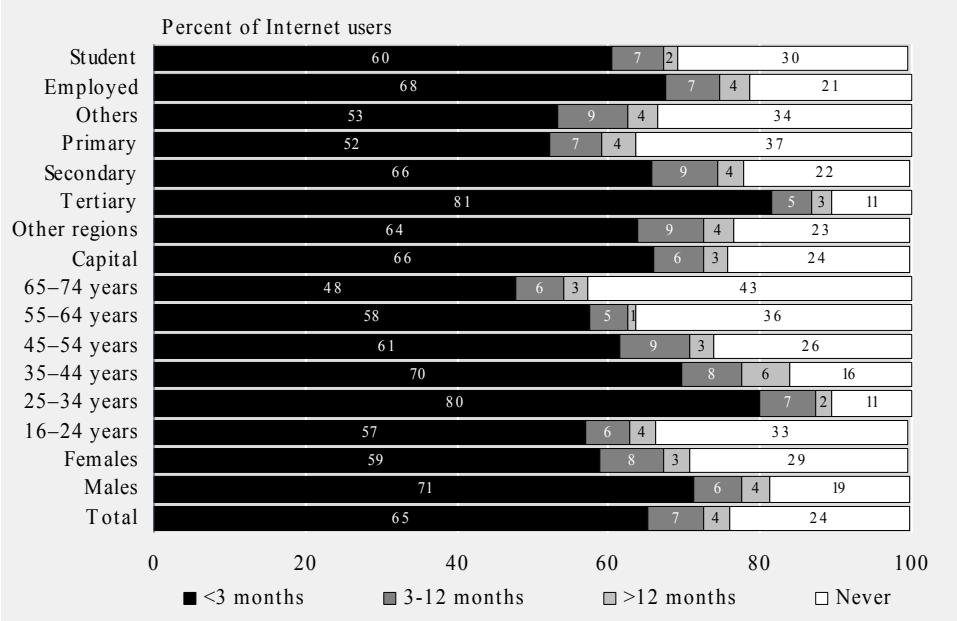


76% of the Internet users have interacted with public authorities online

In 2005, three out of every four Internet users had sometime interacted with public authorities over the Internet. It is more common for men (81%) than women (71%) to have interacted with public authorities over the Internet. It is also more common for individuals in the age of 25–64 years to have done so than for individuals younger than 25 years of age or older than 64 years of age. In 2005, individuals with the highest education were more likely to have interacted with public authorities over the Internet than others. Thus, 89% of individuals with tertiary education, 78% of individuals with secondary education and 63% of individuals with primary education had done so. That same year, 79% of employed

individuals, 69% of students and 66% within the employment bracket *Others* had used the Internet for interacting with public authorities (figure 17).

Figure 17. Individuals' interaction with public authorities via the Internet by gender, age, residence, education and employment 2005

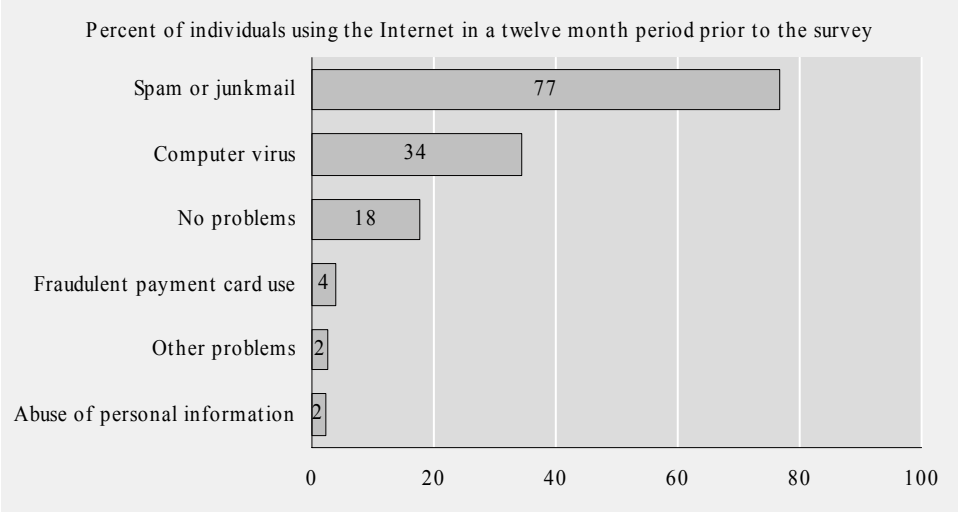


Security problems and security precautions connected with Internet use

Many get spammed

Only 18% of those, who had been using the Internet in a period of twelve months prior to the survey, had not experienced any security problems during that time. The most common security problem encountered was spam or junk mail. Thus 77% of the respondents had been spammed or received junk mail. One out of every three had been attacked by a computer virus, resulting in a loss of information or time. 4% had encountered fraudulent payments card use, 2% had experienced an abuse of personal information and around 18% had experienced other problems than the above mentioned (figure 18).

Figure 18. Security problems encountered when using the Internet 2005



Nine out of every ten take security precautions

To avoid problems that might arise when transferring data over the Internet, 46% of individuals using the Internet at home had a virus checking program, 5% had a fire wall and 39% had both. This means that nine out of every ten individuals using the Internet at home had taken some kind of security precautions in 2005 (see table 21).

Regular upgrade of the security software

In 2005, 72% of individuals using the Internet at home, had installed upgraded or used automatic upgrade of security software within a three month period prior to the survey (see table 22).

77% used online authentications

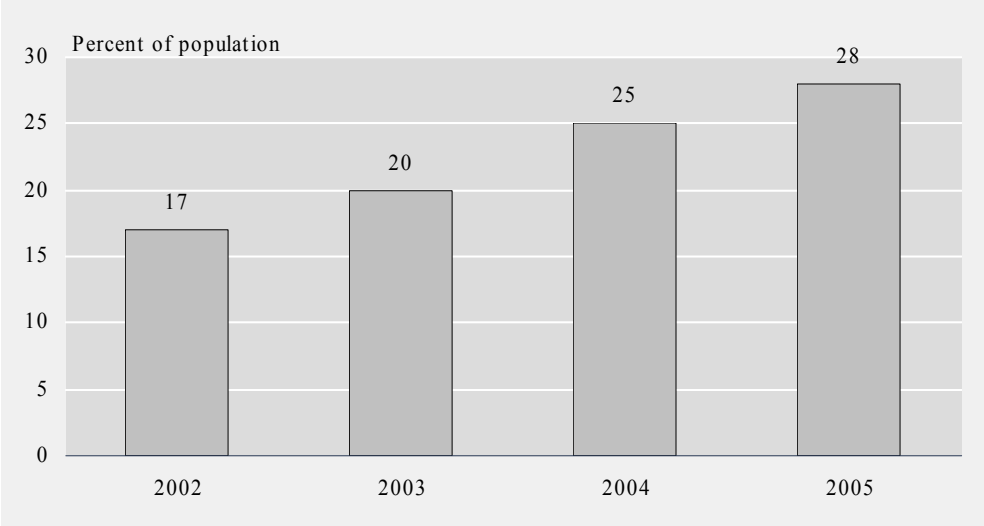
More than three out of every four individuals using the Internet in a period of twelve months prior to the survey, had during the preceding three months used a password, PIN code, digital signature or other kind of an online authentication (see table 23).

E-commerce

E-commerce is gradually increasing

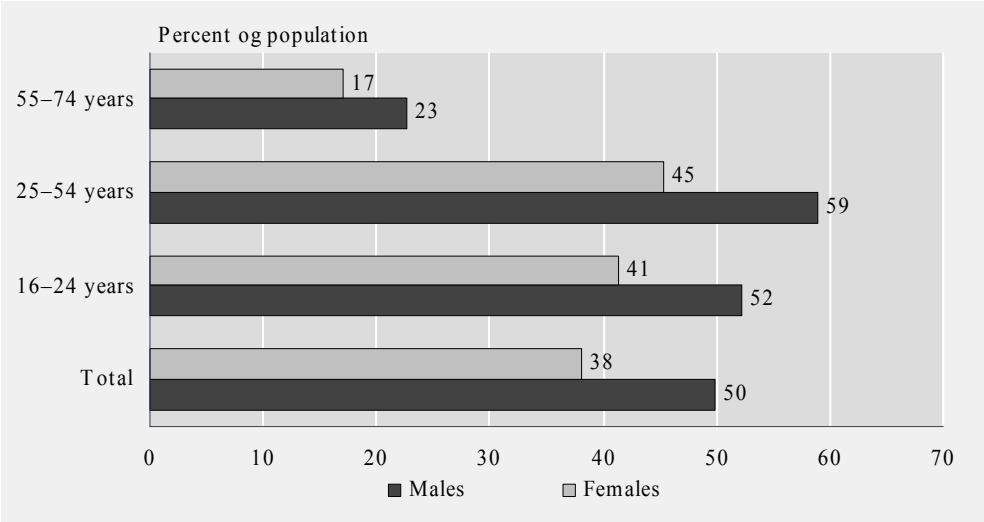
Since the first survey launched by Statistics Iceland in 2002, the percentage of individuals making online orders or purchases has gradually increased. In 2002, 17% of the population aged 16–74 years had ordered or purchased goods or services over the Internet. In 2005, 28% of the population aged 16–74 years had done so (figure 19).

Figure 19. Online purchases in the last three months 2002–2005



The percentage of individuals doing e-commerce increases when looking at a longer period than three months. In a twelve month period prior to the survey, 44% of the population aged 16–74 had ordered or purchased goods or services online in 2005. It was more common for men (50%) than women (38%) to have made online purchases. Individuals younger than 55 years were also more likely than the elderly to have ordered goods or services over the Internet. Thus, 52–59% of the men and 41–45% of the women younger than 55 years had placed orders online in this period, wheras 23% of the men and 17% of the women aged 55–74 years had done so (figure 20).

Figure 20. Online purchases in the last twelve months by gender and age 2005



E-commerce more common among individuals with high education

It is more common for individuals with the highest education to have placed orders online. Thus 46% of individuals with tertiary education had ordered or purchased goods or services over the Internet in a period of three months prior to the survey and two out of every three individuals with the highest education had done so in a period of twelve months prior to the survey. Among individuals with secondary education, 28% had placed orders online in a period of three months prior to the survey and almost half of them had done so in a period of twelve months prior to