



Challenge SocialInnovation

www.socialinnovation2011.eu

Innovating innovation by research -100 years after Schumpeter

Albrecht Wirthmann

The European Survey on the Use of Information and Communication Technologies in Households and by Individuals

ZSI Discussion Paper, Nr. 30 (2012)
ISSN 1818-4162



Albrecht Wirthmann¹

The European Survey on the Use of Information and Communication Technologies in Households and by Individuals

Editor and Publisher:

Zentrum für Soziale Innovation – Centre for Social Innovation

Linke Wienzeile 246

A – 1150 Vienna

Tel. +43-1-4950442 Fax. +43-1-4050442-40 e-mail: institut@zsi.at

www.zsi.at

ISSN 1818-4154

Copyright © by the author

For non-commercial purposes offered for free download

¹ European Commission – Eurostat

Contents

Abstract	4
1. Introduction.....	5
2. Policy background for measuring the information society	5
3. Statistical concept for measuring the information society	6
4. The European survey on the use of ICTs	7
4.1 Main characteristics of the ICT use data	7
4.2 Background characteristics	8
5. Results of the survey	10
5.1 Access to Information and Communication Technologies.....	10
5.2 Use of computers and the Internet.....	12
6. Conclusions.....	22
References.....	23

Abstract

The Statistical Office of the European Commission, Eurostat, conducts an annual survey on the use of Information and Communication Technologies in households and by individuals within the European Union and other European countries.

The survey is based on a Regulation of the European Union which defines the indicators, variables, coverage, reference period and background characteristic of the variables. The main purpose of the data collection at European level is to monitor the policy initiatives of the European Union in the field of information society policy. The major policy initiative is the "Digital Agenda for Europe" (COM(2010) 245 final), which is one of the seven flagship initiatives of the Europe 2010 strategy for smart, sustainable and inclusive growth. The Digital Agenda outlines policies and actions aimed at maximising the benefit of the digital era to all sections of society and economy.

According to the aims of the policy initiative, the survey specifically collects information on the access to and the use the Internet. A focus is put on gathering statistical information on Internet activities such as communication, information search and online services, training and education, e-commerce. Socio-demographic background characteristics are collected to analyse issues related to digital exclusion and the digital divide within Europe and the European societies.

In addition to annually collected indicators, the survey includes episodic modules on specific aspects of the information society. In 2009, the topic of the special module was electronic commerce followed by internet security and trust in 2010.

The paper will present the results of the annual surveys on the use of ICT in the European Union. The paper will specifically concentrate on the development of above mentioned Internet activities and present findings of the e-commerce and Internet security modules. Socio-demographic background information are used to elaborate communalities and differences according to gender, age, educational attainment, employment situation and household characteristics.

The European survey on ICT use is conducted in 30 European countries and covers a sample of ca. 150 000 households and 240 000 individuals. Data are collected by the national statistical offices of the European Union, EFTA countries and candidate countries to the EU during the second quarter of the year with a reference period of the first quarter. After transmission of the data to Eurostat, the results are published in December of the reference year.

1. Introduction

The development of information and communication technologies (ICT) is one of the major innovations during the last decades. According to its character of being general purpose technology, ICTs have fundamentally influenced the nature and management of information and communication within the economy and within private life. The introduction of the Internet has opened new ways of communication and information exchange which increasingly affects the day to day life of individuals. Examples are new ways of retrieving information, new ways of communication, new possibilities for spending leisure time, new ways for making and maintaining social contacts. The recent years have seen a steep increase of the use of mobile devices for communication purposes and for accessing and using the internet. This recent development marks a new level of innovation. The further development of the Internet with new services emerging will continue to heavily influence our day to day life.

The European Union has recognised the importance of ICTs on the European economy and society. Several policy initiatives with the aim of fostering the development of ICTs were started since the early 2000s.

2. Policy background for measuring the information society

The latest policy initiative is the "Digital Agenda for Europe" (COM(2010) 245 final), which is one of the seven flagship initiatives of the Europe 2020 strategy for smart, sustainable and inclusive growth. The Digital Agenda outlines policies and actions aimed at maximising the benefit of the digital era to all sections of society and economy. It recognises the key enabling role that ICTs play in the area of economic and societal activities. Following this assumption, the successful exploitation of ICTs would lead to more innovation, economic growth and improvements in daily life for European citizens.

Based on a broad consultation, the Digital Agenda identifies seven major obstacles that could hamper the development of the European information society. Examples are the lack of investment in networks, lack of digital literacy and skills or missed opportunities in addressing societal changes. Based on these obstacles a number of actions in different key areas were defined. These actions should serve to achieve the key performance targets that are defined in the Digital Agenda. Statistical data are used to monitor these key performance targets during the coming years. The results are published annually at the occasion of the Digital Assembly in June each year.

The indicators of the key performance targets are completed with an exhaustive list of benchmarking indicators as they are defined the conceptual framework "Benchmarking Digital Europe 2011-2015", which was endorsed by the i2010 high level Group in October 2009. The benchmarking framework describes the development of ICT and its impact through a supply, use and impact framework. Efficiency gains in the production of ICTs translate into a growing contribution of the ICT sector to economic growth and into decreasing process of ICT goods and services. Decreasing prices stimulate investment leading to increasing take-up of ICTs by businesses, individuals and the public sector. The diffusion of ICTs trigger changes in economy and the society, influencing the performance of businesses and the well-being of the population.

3. Statistical concept for measuring the information society

According to the aims of the policy initiative, the survey specifically collects information on the access to and the use of the Internet. A focus is put on gathering statistical information on Internet activities such as communication, information search and online services, training and education, e-commerce. Socio-demographic background characteristics are collected to analyse issues related to digital exclusion and the digital divide within Europe and the European societies.

The concept for the measurement of the information society by Eurostat follows the conceptual model of the OECD for information society statistics².

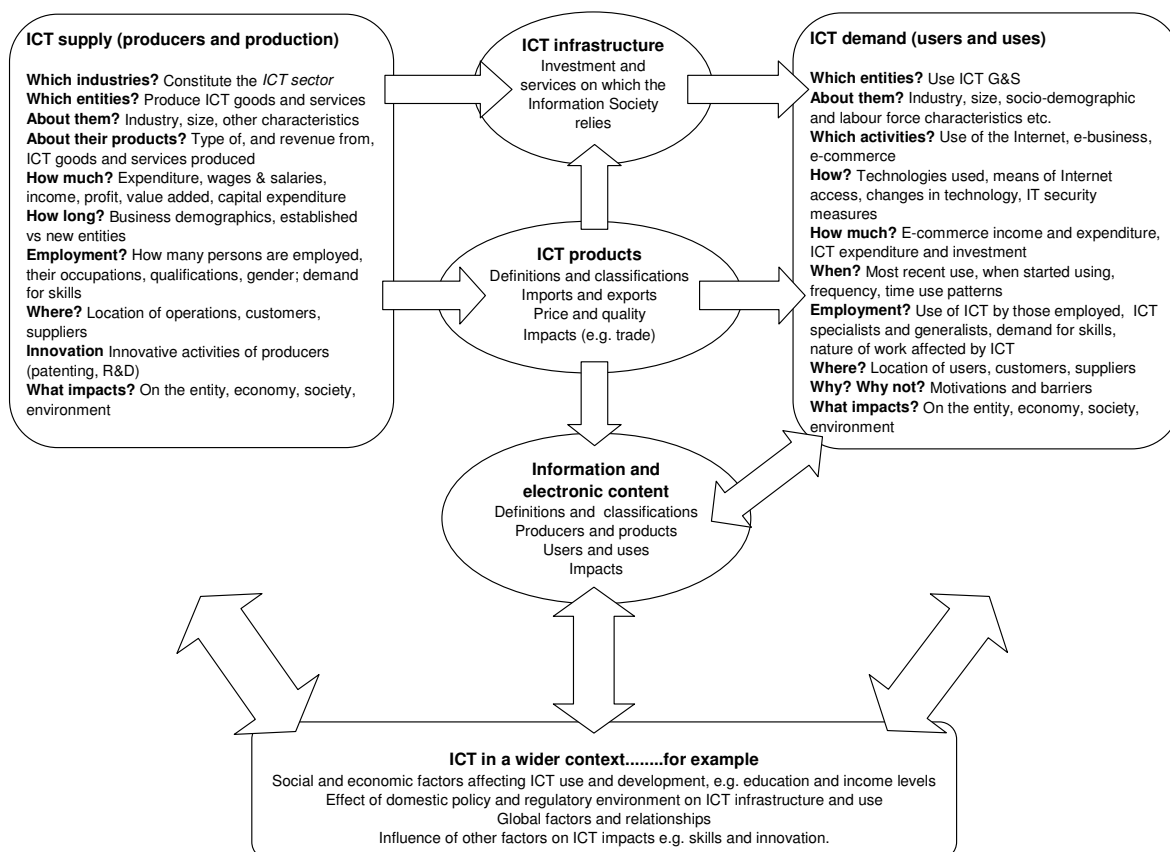


Fig. 1: OECD conceptual model for information society statistics

Following this concept, the benchmarking framework 2011-2015 distinguishes three themes that should be equally covered:

- the supply of ICT based applications and services;
- the effective use that citizens, enterprises, and every other public and private organisations make of those opportunities;
- the large spectrum of social, economic and environmental effects.

² Guide to measuring the information society, OECD, 2009

Official statistics mainly exist on the supply and the use of ICTs, while the measurement of the impact of ICTs is more complex as different developments have to be considered and it is difficult to assess the contribution of these developments separately. First attempts have been made with quantifying the impact of ICTs on businesses while little data exist on measuring the impact of ICTs on the societies.

The current document therefore concentrates on presenting the data collected on the use of information and communication technologies by individuals and in households.

4. The European survey on the use of ICTs

The main purpose of the European survey on the use of ICTs is to provide information on the development of the European information society and thus to fulfil the needs for monitoring the various political initiatives at European and at national levels.

With the introduction of the framework regulation 808/2004³ concerning Community statistics on the information society, the provision of statistics on the use of information and communication technologies (ICTs) became mandatory within the European Union. According to the scope of the regulation statistics on the use of ICTs in enterprises and in households / by individuals are collected. The indicators are defined in annual implementing measures of the European Commission together with the coverage, breakdowns and reference periods of the variables. The implementing measures are output oriented, i.e. they define the characteristics but do not specify how the statistical data are collected. In order to achieve a higher level of harmonisation, task forces with specialists on ICT statistics of the National Statistical Institutes (NSI) provide the necessary technical support in order to prepare model questionnaires that should be implemented in the Member States.

Due to the fast rhythm of innovation and technological change in the area of ICTs it is very important to have a flexible tool for statistical data collection. This has been achieved by introducing annual implementing measures with changing special modules and the possibility to adjust the definition of indicators. At the same time, relevant developments have to be monitored over a longer time by producing time series of indicators on the use of ICTs.

4.1 Main characteristics of the ICT use data

The data collection on the use of ICTs in households consists of two parts. The first part collects information at household level while the second part gathers information on individuals (living in these households) and their use of ICTs.

The household part provides data on households' ICT equipment (devices, internet connection, broadband, etc.). The second part contains questions on the individuals' frequency and location of computer and Internet use, the purpose and nature of their activities on the Internet and use of on-line services (e.g. for e-shopping, interaction with public services and administrations, e-learning,

³ Regulation (EC) No 808/2004 of the European Parliament and of the Council of 21 April concerning Community statistics on the information society, OJ L 143, 30.4.2004, p. 49

downloading content, arranging travel etc), e-skills and barriers to Internet or broadband access. In addition to a defined set of core indicators, additional data is collected annually on a specific topic. The topics of the special modules are listed in the respective benchmarking framework⁴.

Special modules in the household ICT use survey

- eGovernment (2006)
- eSkills (2007)
- Advanced Services (2008)
- eCommerce (2009)
- Internet security (2010)
- eSkills (2011)
- Mobile use of the internet and ubiquitous connectivity (2012)

The scope of the survey is limited to households with at least one member aged between 16 and 74 years and individuals within this age range. In order to be able to analyse differences in access and use of ICT, the survey additionally collects a number of socio-economic background variables including age, gender, education attainment, employment situation, occupation, geographical location, type of locality, household composition, and household income. These background characteristics are at present mainly used for the purpose of analysing the digital divide in the context of the European eInclusion policy. In addition to these socio-economic variables, additional breakdowns are derived from filter questions, e.g. having a broadband connection or being a frequent internet user. The reference period for most of the questions is the first three months of the year. The period is kept stable to avoid seasonal effects. Questions on e-commerce and eGovernment usage refer to the year before the survey.

The survey is mandatory in the EU Member States and additionally conducted in countries of the European Economic Area and accession or candidate countries to the EU. In 2010, the total net sample size was about 160 000 households and 230 000 individuals within the European Union. Almost all surveys are using face-to-face or telephone interviews. All participating countries transmit aggregate data to Eurostat following a defined transmission format. Starting from 2007, some countries provide Eurostat with individual data records, which do not allow direct identification of the respondents. From 2011, transmission of micro-data from the NSI to Eurostat is obligatory. The micro-data offers new potential for statistical data analysis.

4.2 Background characteristics

All indicators and variables can be broken down by socio-economic background characteristics. They can be used to distinguish different behaviours of specific groups of the society and are used to analyse e.g. the digital divide in the context of the eInclusion policy of the European Union. Currently, the following background characteristics are collected within the survey.

⁴ See: http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm

Household level

Region of residence	NUTS level 1 obligatory, level 2 reported by some countries voluntarily
Geographic location	"Convergence" Region, "Regional competitiveness and employment" Region
Degree of urbanisation	Densely-populated, intermediate, thinly-populated area
Number of members of the household	
Children under 16 in the household	
Household income	reported by the countries on voluntary basis

Individuals' level

Age	in 10 years classes, starting with 16 and stopping at 74, age classes below 16 and above 74 are reported on voluntary basis
Gender	Male / female
Country of birth	reported by countries on voluntary basis
Country of Citizenship	reported by countries on voluntary basis
Educational level	3 levels according to ISCED Low: ISCED 0,1,2 Medium: ISCED 3,4 High: ISCED 5,6
Employment situation	employed or self-employed, unemployed, student, other person not in labour force (retired, inactive, compulsory military service, etc)
Occupation	ICT professionals, non-ICT professionals, manual workers, non-manual workers

During the next years, Eurostat will harmonize the collection of background characteristics for all social surveys in order to achieve higher degree of harmonisation and better comparability between the different social surveys and to improve data analysis⁵.

5. Results of the survey

5.1 Access to Information and Communication Technologies

The first module of the household survey contains questions on access to a computer and the Internet at home, on devices for access to the Internet and on the types of Internet connection. The module is complemented with a question on the reason for not having Internet access at home.

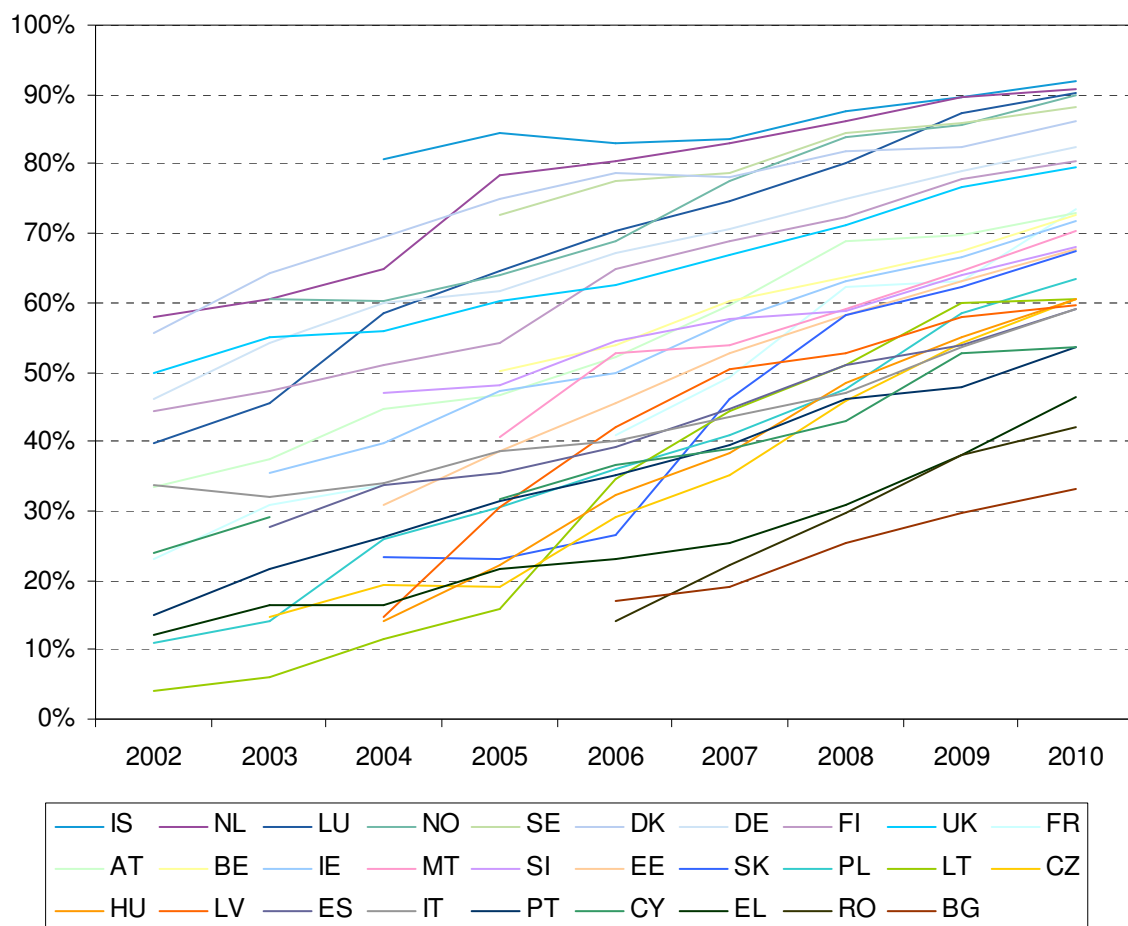


Fig. 2: Access to the Internet at home among European countries 2002 – 2010 as % of all households

⁵ Task Force on Core Social Variables – Final report, Luxembourg, 2007, ISBN 978-92-79-04714-5, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-006/EN/KS-RA-07-006-EN.PDF

The share of households with Internet access has considerably increased during the last years. The EU average climbed from 41% in 2004 to 70% of all households in 2010. However, there are still big differences between the countries ranging from 33% of all households in Bulgaria to 91% in the Netherlands in 2010. The increase in % points of households with Internet access is higher for those countries that started with a lower Internet penetration. Therefore, the lagging countries have decreased the lag during the last years.

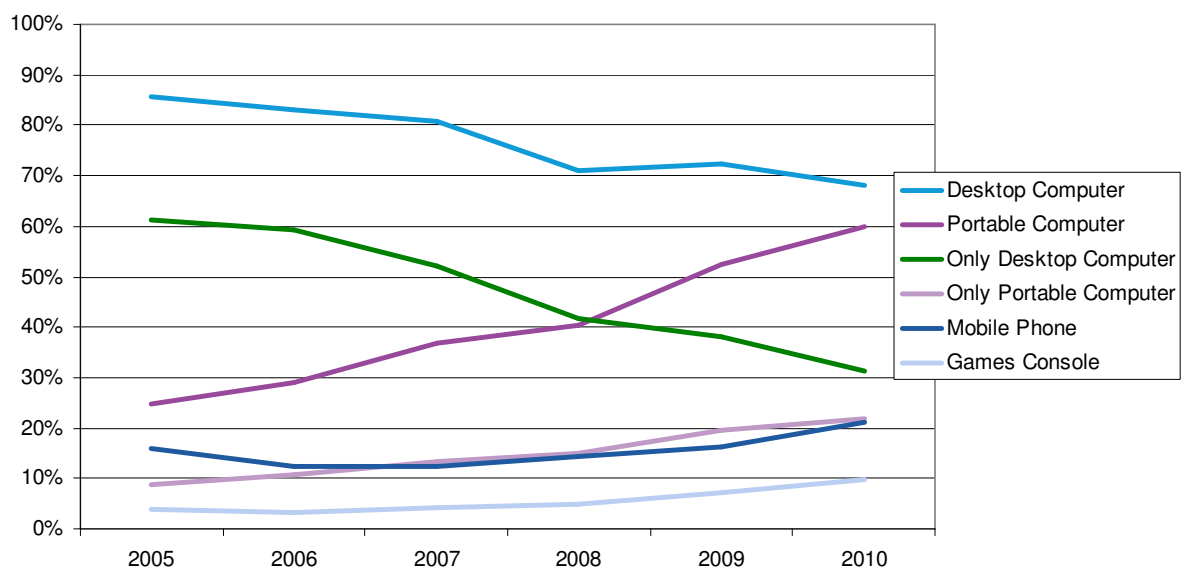


Fig. 3: Devices for Internet access at home in the EU, 2005 – 2010 as % of households with Internet connection

The desktop computer has been the main device for Internet access of the households within the European Union. In 2005, 86% of the households with Internet connections used a desktop computer. During the last years, this share has decreased to 68%. From 2005 to 2010, the share of households in which the desktop computer used to be the only device for Internet access has halved. In an increasing share of households more than one device is used to access the Internet. The share of households with portable computers for Internet access has more than doubled from 25% in 2005 to 60% in 2010. The importance of portable computers is emphasized by the fact that more than one fifth of all households connect to the Internet exclusively with a portable computer. This figure has more than doubled within the last 5 years. The shares of households accessing the Internet via mobile phones or games consoles are lower but are gaining importance. With the big success of smart phones it can be expected that the share of households with mobile access to the Internet will strongly grow in the near future.

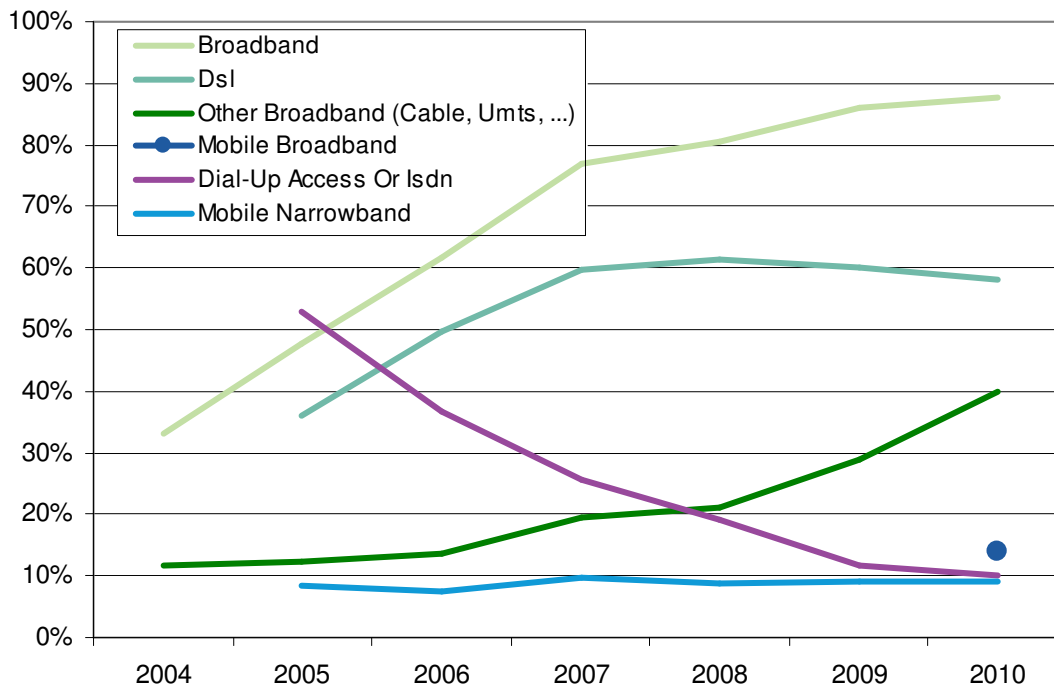


Fig. 4: Types of Internet connections at home in the EU, 2004 – 2010 as % of households with internet connection

Broadband Internet connections of households have considerably increased from 2004 to 2010 in the EU. While in 2004, only one third of the households with Internet access connected via broadband, 88% of these households had broadband connections in 2010. DSL is the most important technology for broadband access. In 2010, 58% of the households with internet access had DSL. However, this share has been stagnating since 2007. Other mobile broadband technologies, such as cable or the mobile UMTS technology are gaining importance. The share of households with other broadband connections has more than tripled from 12% in 2004 to 40% in 2010. The percentage of households using a mobile narrowband connection has been relatively stable at a level of 9% in 2010. Mobile broadband connections were measured for the first time during the 2010 data collection and reached a level of 14% among the households with Internet access within the EU.

5.2 Use of computers and the Internet

The second module of the survey asks for the last recent use of a computer at home and on the frequency of the computer use. Additional information on the place of computer use and on computer training is provided by some EU Member States.

A more elaborated part of the questionnaire asks about recent use and frequency of use of the Internet. Follow-up questions on internet use are only requested of persons who have used the internet within the last 3 months prior to the survey.

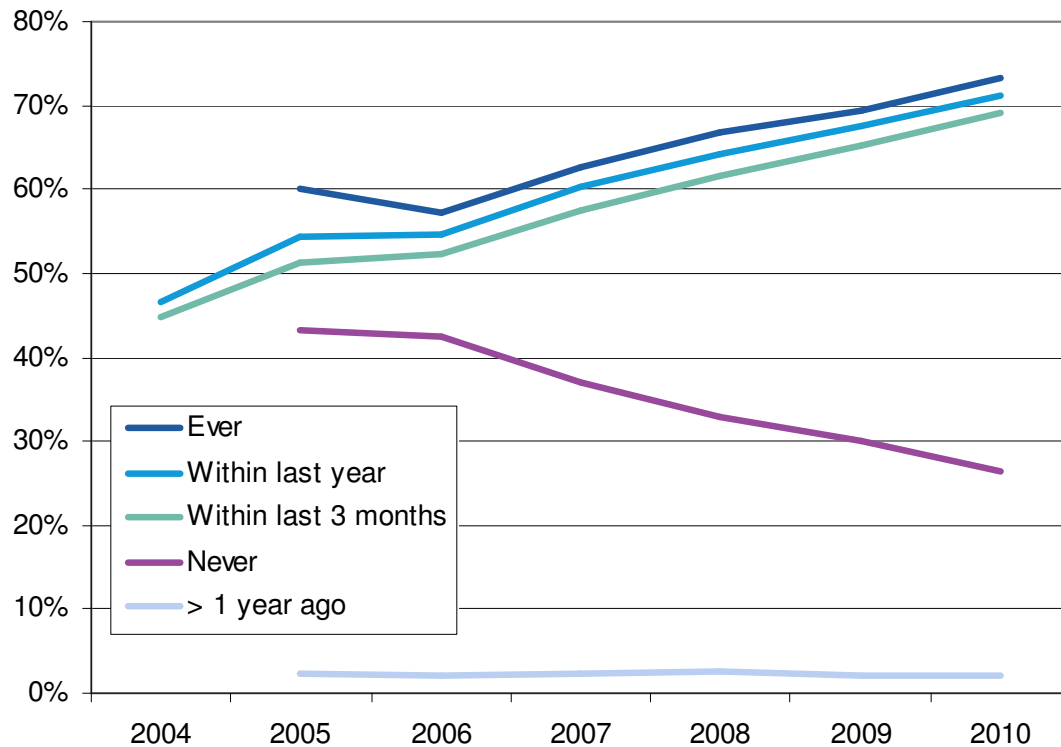


Fig. 5: Last use of the Internet in EU 2004 – 2010 as % of all individuals

The share of persons within the EU who have never used the Internet plunged from 43% of all individuals in 2005 to 26% in 2010. Accordingly, the share of persons who have ever used the internet increased from 60% in 2005 to 73% in 2010. In 2010, 69% of all persons had connected to the Internet within the last 3 months prior to the survey. It seems that once a person decides to use the Internet, he or she accesses the Internet more frequently. Nevertheless, a very small portion of 2% of all persons seem to drop out of Internet usage as this share remains very stable during the considered time period.

According to the frequency of use, individuals are classified as frequent users, if they use the internet at least once a week. Intensive internet users access the internet daily (cf. Fig. 6).

The share of frequent Internet users within the EU as percentage of all Internet users has enlarged from 81% in 2004 to 94% in 2010. This figure strongly supports the assumption above that persons tend to access the Internet more frequently once they start to use it. The share of intensive or daily Internet users jumped from 52% in 2004 to 77% in 2010. This increase has been even stronger as the increase of frequent internet users. The Internet is more and more becoming a tool of daily life for the Internet users.

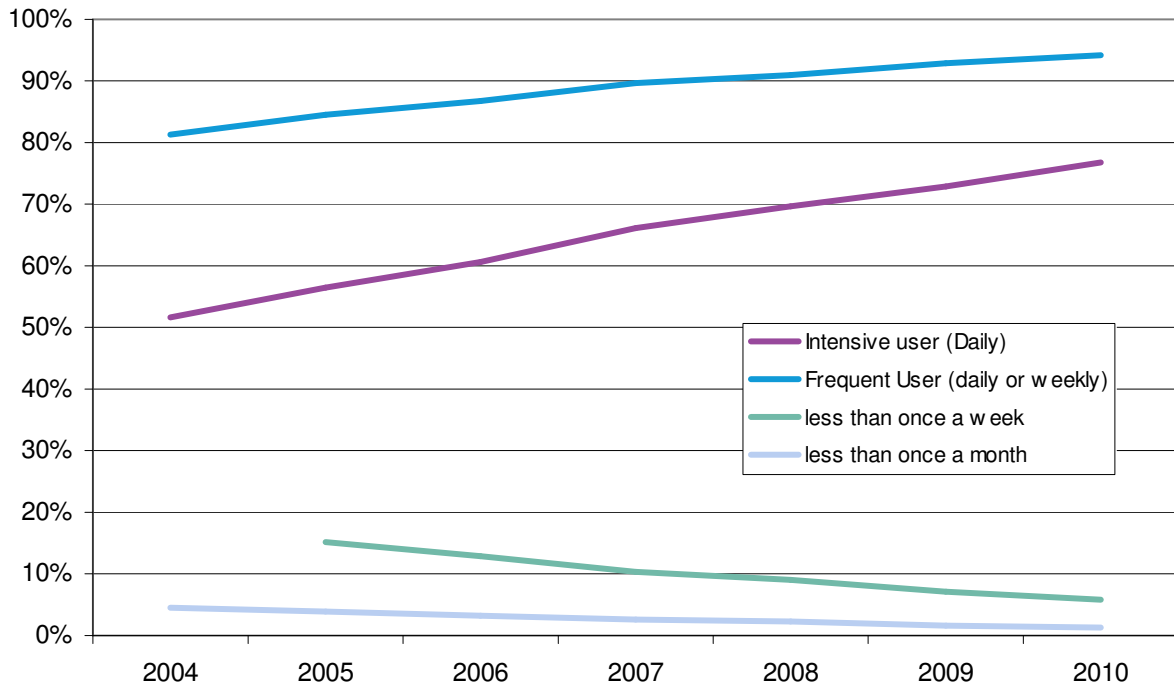


Fig. 6: Frequency of internet use in EU, 2004 – 2010 as % of Internet users

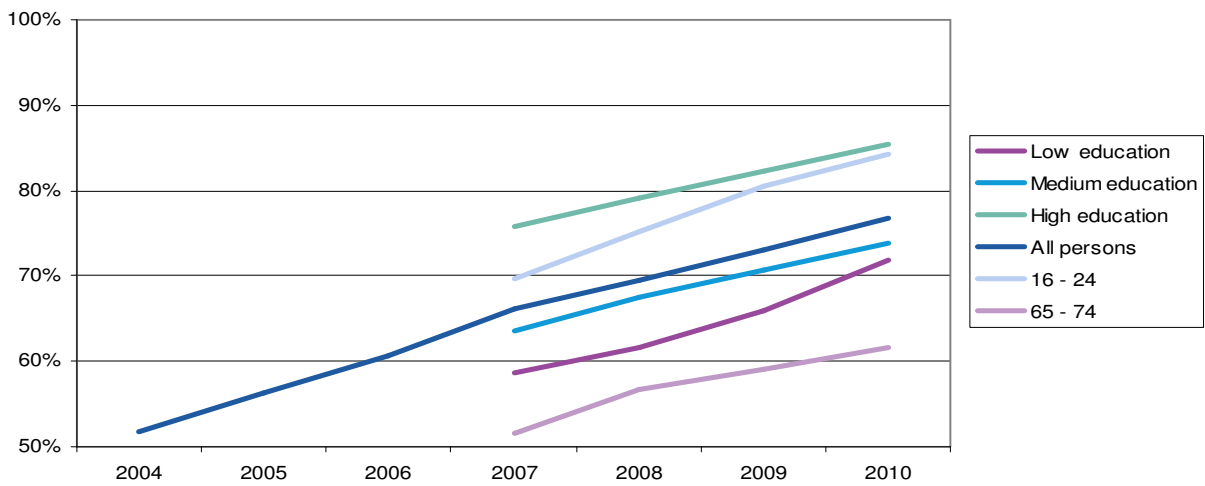


Fig. 7: Intensive internet users in EU, 2004 – 2010 by socio-economic background characteristics as % of Internet users

Nevertheless, there is still a big difference of Internet use frequency between different groups of the society. The share of daily Internet users is highest among persons with a high educational attainment, i.e. persons having a university degree. In 2010, 86% of these persons surfed on the Internet daily. A lower percentage of persons with a medium or low educational attainment level used the Internet daily. 72% of person with low and 74% of persons with medium educational attainment used the Internet daily in 2010. Persons with low education have almost caught up with medium educated persons' Internet use. Internet use still is an issue of age and generations. While - regardless from educational attainment - young persons aged 16 to 24 use the Internet almost as frequent as persons with high educational attainment, older persons above 65 years still lag considerably behind, with a share of 62% of daily Internet users.

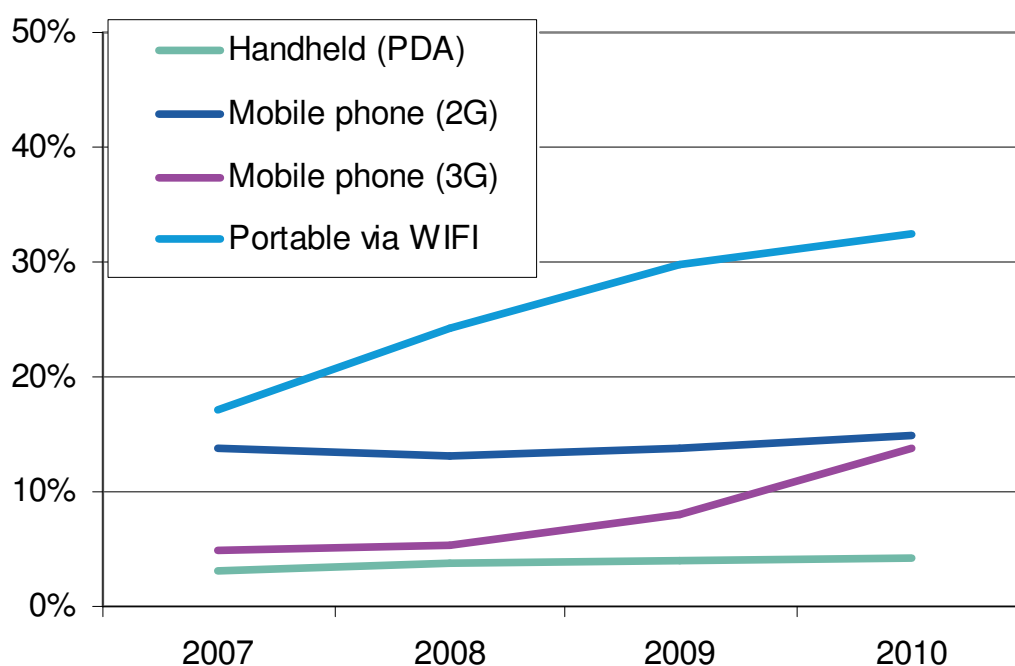


Fig. 8: Devices for mobile Internet use in EU, 2007 – 2010 by persons in the aged 16 – 24 years as % of Internet users

Mobile and portable devices are getting more important for Internet access. As already shown in Fig. 3 (devices for Internet access in households), portable computers are increasingly used to connect to the Internet. The share of Internet users, i.e. persons having used the Internet within the last 3 months prior to the survey, who accessed the Internet wirelessly almost doubled from 2007 (17% of all Internet users) to 32% of all Internet users in 2010 within the EU. The use of mobile phones with narrowband connection (WAP, GPRS, EDGE) remained stable during this time period while the share of broadband mobile phone users starts to rise from 2008 onwards with a share of 11% in 2010 at EU level.

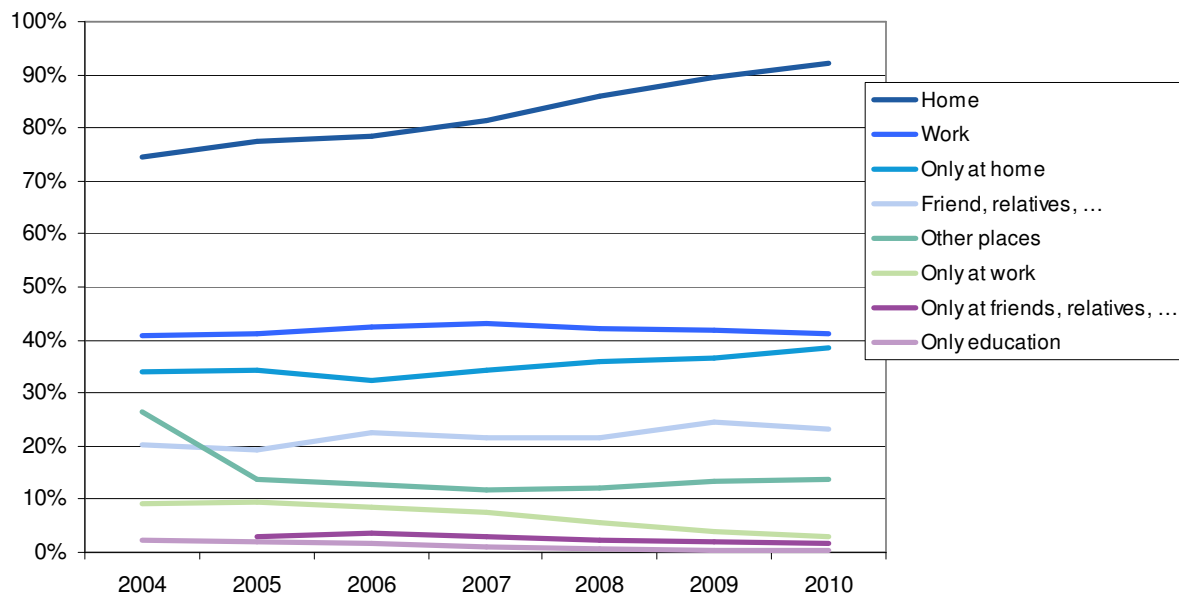


Fig. 9: Places of internet use in EU, 2004 – 2010 as % of Internet users

The person's home is the most dominant place of Internet use for private purposes. The share of Internet users who use the Internet at home for private purposes reached more than 90% of all Internet users within the EU in 2010. For almost 40% of Internet users, their home is even the only place where they use the Internet. This figure has risen slightly during the last years. However, with the success of mobile device able to connect to the Internet, this figure might drop again in future. The second important place of Internet use for private purposes is at work with slightly more than 40% of all Internet users in 2010. This figure has been stable during the last 6 years. The same is true for the share of persons using the Internet at the home of friends or relatives as well as at other places. The share of persons using the Internet only at schools or universities has dropped below 1% within the EU in 2010. Although being of minor importance as place of Internet access schools play a major role for acquiring competences in the use of the Internet.

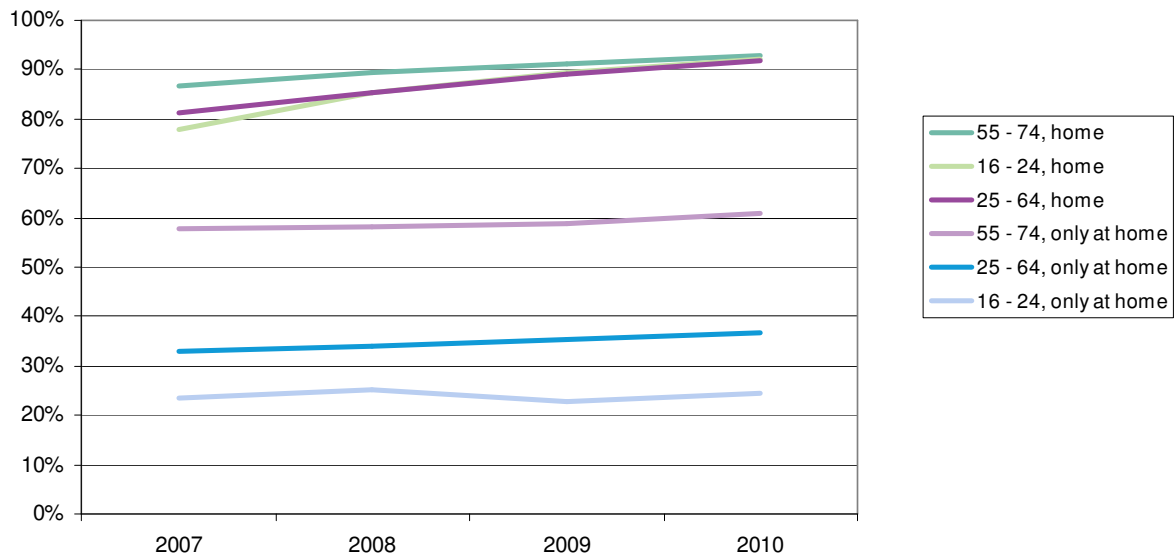


Fig. 10: Places of Internet use in EU, 2004 – 2010 by age group as % of Internet users

The difference between the age classes concerning the place of Internet use has almost vanished considering the home as place for Internet access. However, home as only place for Internet access is dominant for persons aged above 55 years having reached a level of 61% in 2010 with a slight increase during the previous years. Only for 37% of the persons between 25 and 64 years old and for less than one quarter of young persons between 16 and 24 years is the home the only place of Internet access.

One of the main components of the questionnaire contains questions on different types of Internet use. They are grouped according to broad categories into

- Access to information and information retrieval,
- Communication,
- Use of entertainment,
- Civic and political participation,
- Creativity,
- Learning,
- Health,
- Personal finance and interaction with public administration,
- e-Commerce,
- Professional life.

Due to the big number of variables and limitations to the size of the questionnaire, information on some activities is only collected biennially.

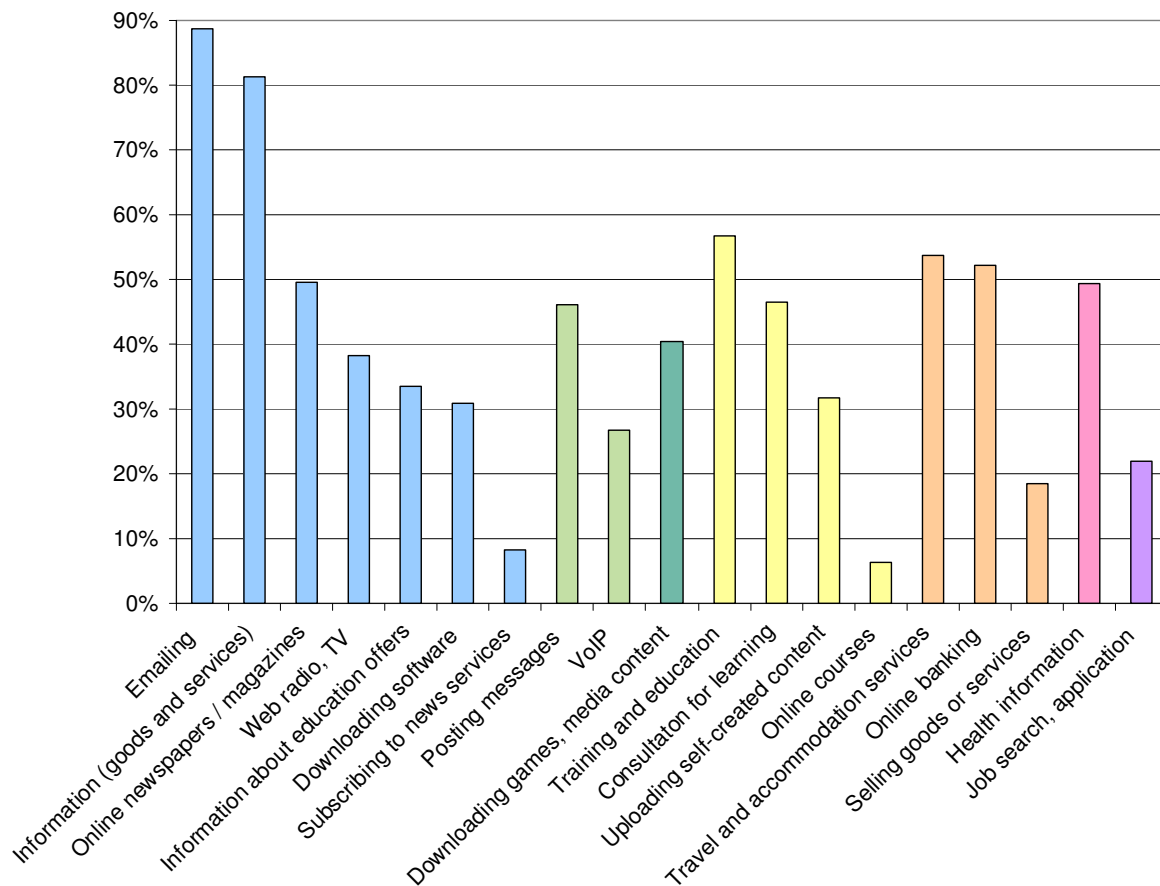


Fig. 11: Internet activities in EU in 2010 as % of Internet users

Emailing and information search are the by far most frequent Internet activities in 2010 within the EU. Almost 9 out of 10 Internet users communicate via email and more than 8 out of 10 look for information on goods or services. The Internet is a very important medium for information retrieval, half of the Internet users read online newspapers, journals or magazines in 2010. However, only 8% had a subscription. Persons seem to be reluctant to pay for such services delivered over the Internet. The third frequent activity in 2010 was training and education which comprises the activities doing an online training, looking for information with the purpose of learning. The indicator is mainly influenced by the variable "looking for information with the purpose of learning". This is backed by the fact that only a minority of 6% of Internet users follow an online training. Using the Internet for services related to travel and accommodation, Internet banking and searching for information on health are done by around half of the Internet users. More than 20% of Internet users looked for a job or sent a job application online. Persons are increasingly contributing to the Internet as producer of information and for communication purposes. Almost one third of the Internet users uploaded self created content to websites with the purpose of sharing with other Internet users in 2010. Almost half of the Internet users posted messages to websites, blogs, social networking sites, newsgroups or online discussion fora in 2010.

A module of the community survey is specifically dedicated to e-commerce. Information is provided on time of the most recent online ordering of goods and services. Internet users who purchased online are asked about the types of ordered goods or services. For some products categories, persons are asked if they downloaded them on the Internet instead of having them physically delivered. Another question is about cross-border e-commerce. Figures on this question should monitor the status of the development of a common digital market within the European Union.

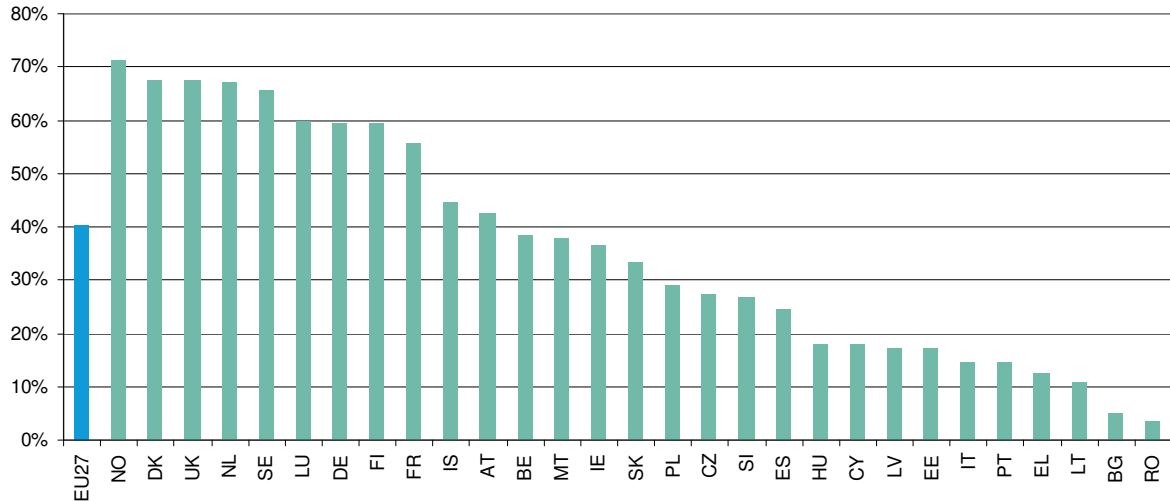


Fig. 12: Online buyers of goods and services in European Economic Area in 2010 as % of individuals who had used the internet within the last year

The Internet is more and more used for purchasing goods and services. 40% of the individuals within the EU bought online in 2010. In the EU the range of persons purchasing on the Internet is between 68% of all individuals in Denmark and only 4% in Romania. In this respect the digital divide is still considerable between the EU countries.

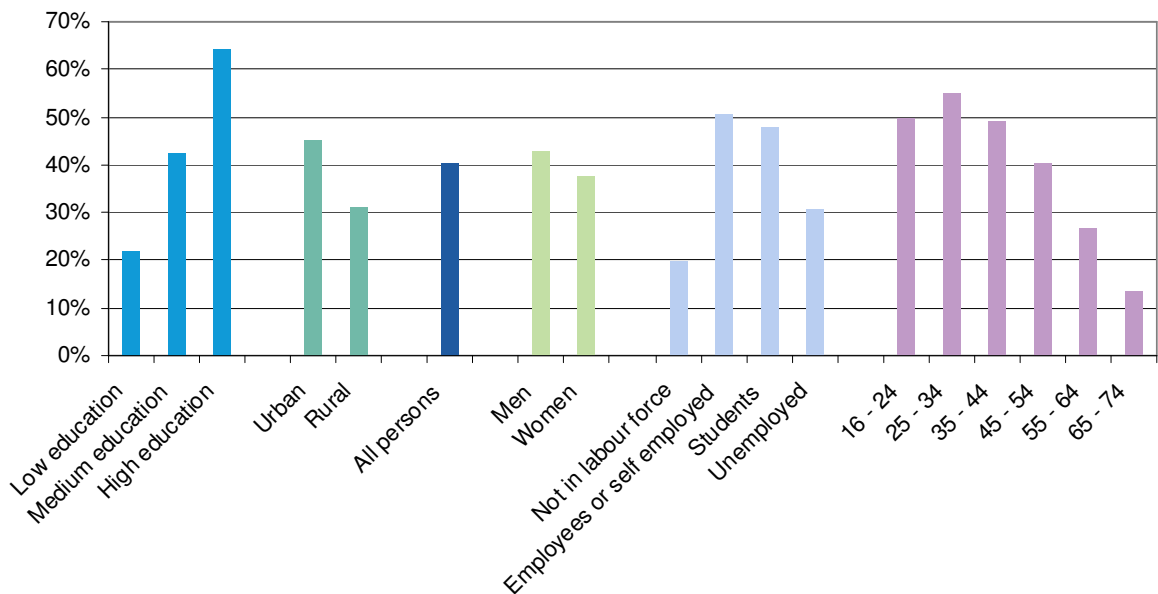


Fig. 13: Online buyers of goods and services in EU in 2010 by socio-economic background characteristics as % of individuals who had used the Internet within the last year

Persons with a high educational attainment, living in urban areas are more likely to shop online. More than 60% of Internet users with high educational attainment are Internet shoppers. A higher share of men (43%) than women (38%) shop online. Almost half of the employed or self-employed Internet users purchase goods or services on the Internet. Younger Internet users are more likely to shop online than older Internet users. Though, the share of online shoppers within the younger age group of 16 – 24 years (50%) is lower than in the age group of 25 – 34 years (55%). This might be caused by the fact that their purchasing power is lower than that of older persons and that products cannot be paid with cash but rather require a credit card. The percentage of online shoppers among Internet users drops for persons aged between 65 and 74 years to 14%.

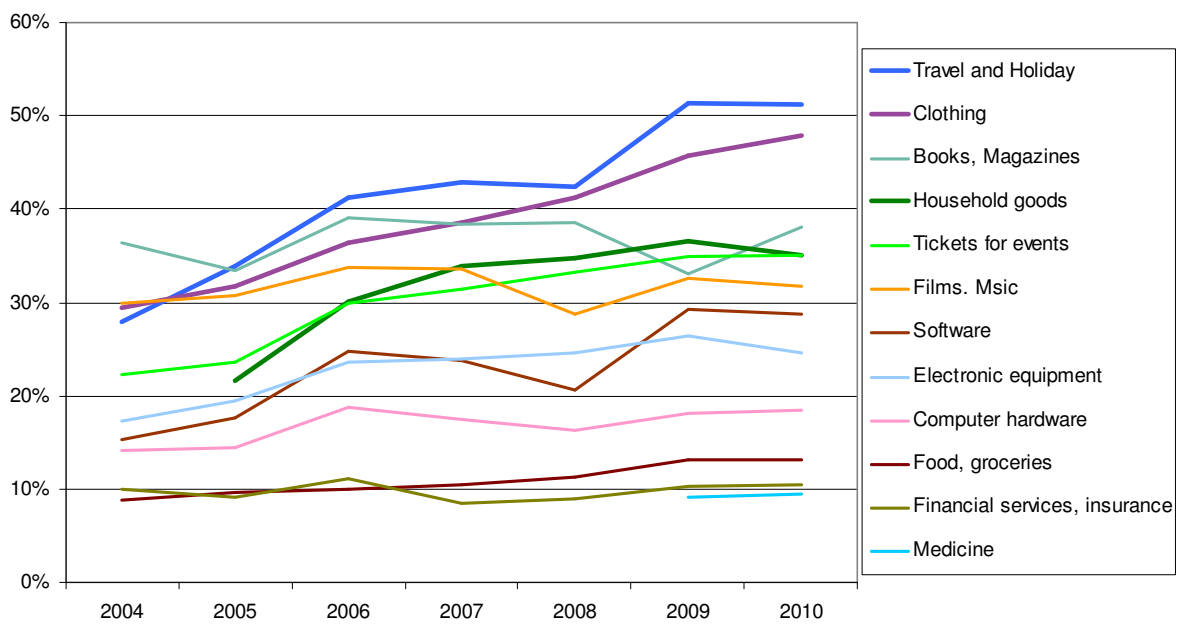


Fig. 14: Types of goods and services ordered online in the EU, 2004-2010 as % of online buyers

The most popular goods and services among online shoppers are services related to travel and holidays, clothes, books, household goods and tickets for events. More than half of the online shoppers order services related to travel and holidays and almost half of them bought clothes in 2010. While the share of online buyers of books and magazines remains stable at a level of below 40% between 2004 and 2010. The biggest increases are for travel and holiday services, clothing, tickets for events and software.

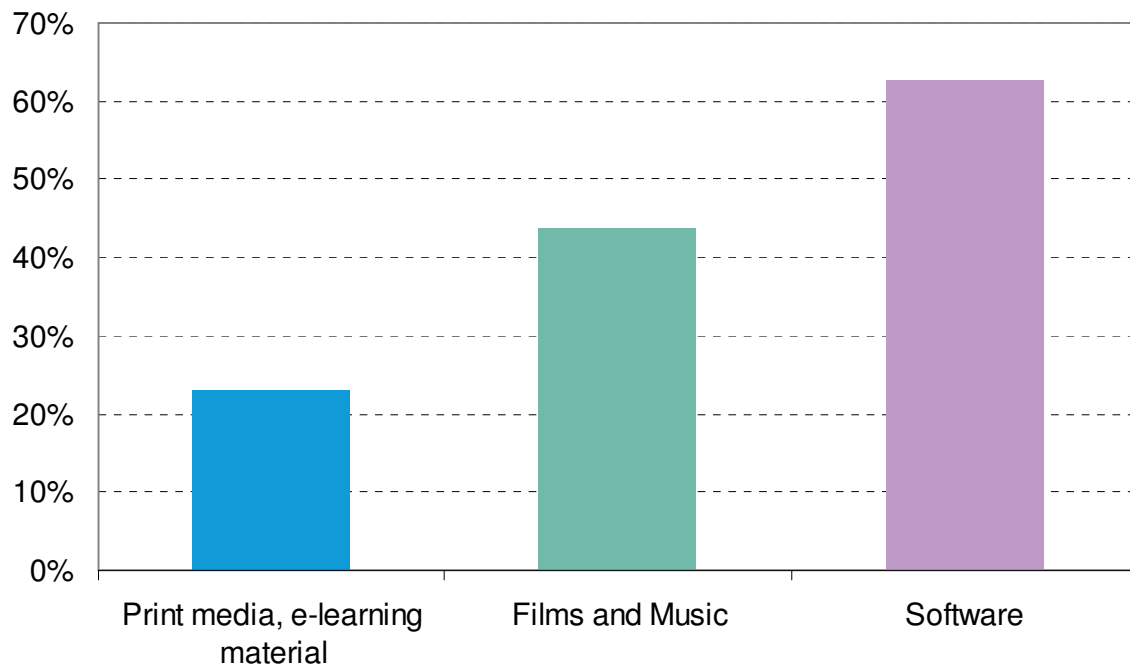


Fig. 15: Download of digital products in the EU in 2010 as % of online buyers who bought the specific product

23% of persons who ordered print media and e-learning material downloaded them as digital products instead of having them delivered as physical goods via mail in 2010 within the EU. The most common product downloaded instead of having been delivered physically was software. 63% of online shoppers who bought software said that they downloaded it via the Internet. For films and music, a bit less than half (44%) of persons who bought music and films online downloaded it. The figures are clearly showing the growing importance of digital transfer of products, especially software, films and music replacing more and more their physical delivery.

eSkills

The digital skills are measured asking respondents if they have already carried out specific Internet or computer activities. Questions on Internet and computer skills alternated in the survey. Skills are assessed as being low, medium or high according to the number of different activities. In 2010, the performance of the following activities was asked:

- a) Using a search engine
- b) Emailing
- c) Posting messages
- d) Making phone calls
- e) Peer to peer file sharing
- f) Creating a webpage

A person is considered as having low skills if a maximum of two activities were carried out and a maximum of four activities qualify for medium Internet skills. High skills are assigned if a person carried out at least 5 of the 6 activities.

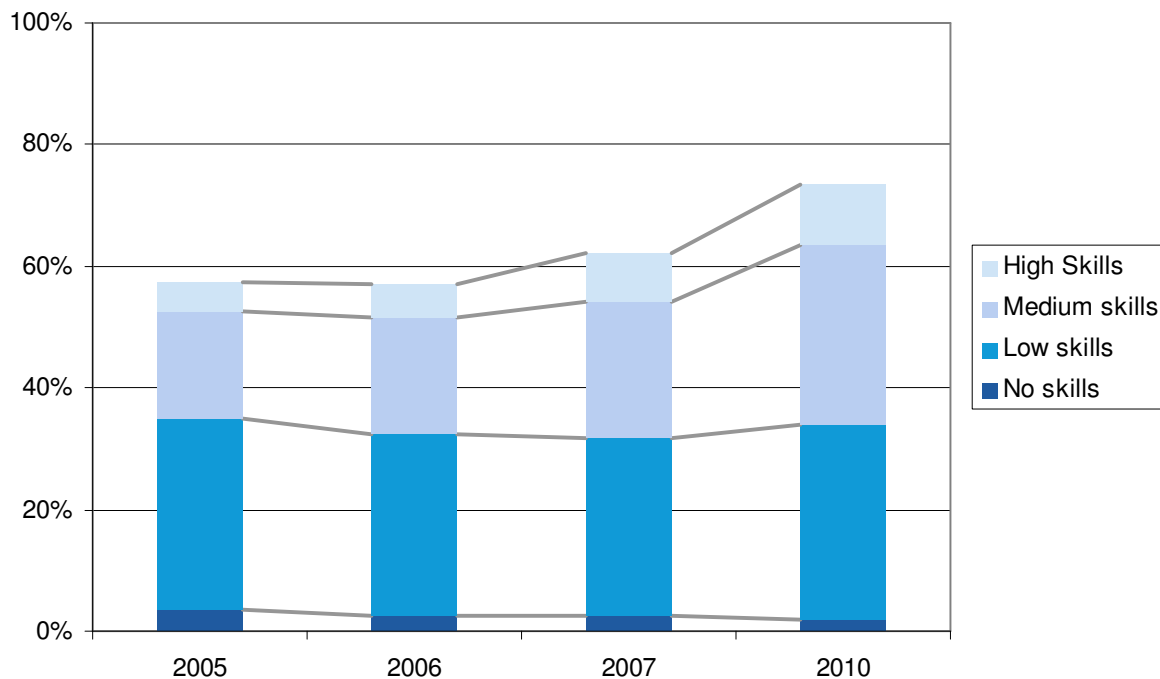


Fig. 16: Internet skills in the European Union. 2005-2010 as % of all individuals

The share of persons with Internet skills has increased during the time period from 2005 to 2010 from 54% to 71% of all individuals in the EU. While the percentage of individuals with low skills, i.e. who replied to have performed less than 3 of the requested activities remained stable at slightly above 30%, the share of persons with medium and high skills has almost doubled from 22% in 2005 to 39% of all individuals in 2010. The largest increase is for the share of persons with high skills.

6. Conclusions

The annual community surveys on the use of Information and Communication Technologies with the European Union, the EEA and candidate countries to the EU constitutes one of the richest sources of statistical data that are available. It is a very powerful tool to monitor the development of the European information society and to benchmark the goals at policy level.

An issue is to find a balance between introducing new indicators to capture new developments while keeping some key indicators stable to gather information on ICT penetration over a longer time period. The long preparation time of the survey requires careful consideration of upcoming trends and forward looking decisions concerning the success of these trends. Important developments within the coming years will be the increasing individualisation of Internet use via small mobile

devices. At the same time mobile Internet use will drastically increase within the near future and persons will use multiple devices for Internet access. An increasing number of devices will be able to communicate with each other over the Internet with or without human intervention. The increasing mobility and number of devices will be backed by information services residing in the cloud in order to assess them from different devices and places.

References

- European Commission: Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - "A Digital Agenda for Europe2, COM(2010) 245 final/2, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF>
- European Commission: Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - "i2010 – A European Information Society for growth and employment", 2005, http://ec.europa.eu/information_society/eeurope/i2010/key_documents/index_en.htm
- European Commission: Methodological Manual for Statistics on the Information Society, 2008, <http://ec.europa.eu/eurostat/ict>
- Regulation (EC) No 808/2004 of the European Parliament and of the Council of 21 April concerning Community statistics on the information society, OJ L 143, 30.4.2004, p. 49
- European Commission: Benchmarking Digital Europe 2011 – 2015 – a conceptual framework, Brussels, 2009, http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/benchmarking_digital_europe_2011-2015.pdf
- European Commission – Eurostat: Task Force on Core Social Variables – Final report, Luxembourg, 2007, ISBN 978-92-79-04714-5, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-006/EN/KS-RA-07-006-EN.PDF
- OECD (2011), OECD Guide to Measuring the Information Society 2011, OECD Publishing. <http://dx.doi.org/10.1787/10.1787/9789264113541-en>