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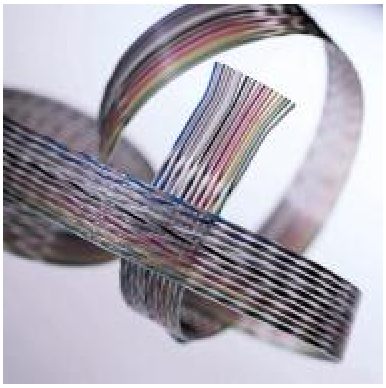

Benchmarking in a Policy Perspective - Broadband Internet

Tobias Hüsing, Werner B. Korte

Juni 2007

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The data used for the present report comes from the Eurostat Community Surveys on ICT Usage and e-Commerce in Enterprises 2003, 2004 and 2005 and has been provided by Eurostat. No further data quality and consistency checks have been carried out by the authors; the data was used as provided by Eurostat and the European Commission.

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1 Introduction to the Project "Benchmarking in a Policy Perspective"

1.1 Objectives

The project "Benchmarking in a Policy Perspective" was started by the European Commission in January 2006.

The objective of the "Benchmarking in a Policy Perspective" project initiated by the European Commission is to carry out an in-depth analysis of the results of the annual Information Society Surveys of households and enterprises and to relate them to a number of specific themes. The aim is to address areas beyond simple ICT connectivity and highlight intensity of use and wider impact on individuals, enterprises and communities.

1.2 Topic Reports

The project develops nine Topic Reports for which an in-depth analysis of available survey results, current survey practice and available indicators is carried out and recommendations on measurement are given. A final report includes a summary of key findings.

Table 1-1: Topic Reports of the Project "Benchmarking in a Policy Perspective

No.	Topic	Date
1	e-Business and the reorganisation of business processes	March 2006
2	Use of broadband	May 2006
3	Take up of advanced services	July 2006
4	Public services on line (including eGovernment and eHealth)	September 2006
5	eInclusion	December 2006
6	Digital literacy	April 2007
7	Recommendations for E-Commerce Questionnaire modules	August 2007
8	Security and confidence	November 2007
9	Summary report of key findings	December 2007

The topic reports cover, with varying focus, the following main items:

- Review of the basic concept and policy issues related to the theme,
- An analysis of past and current Community survey results to provide an overview of progress in the EU,
- A comparison with existing empirical evidence on the same issue to assess the robustness of the results and provide additional qualitative analysis,
- An investigation of international sources to compare EU achievements with its main competitors,
- A proposal for re-wording or expanding the questionnaire used by EUROSTAT for future surveys.

2 Topic Area Definition, Review of Concepts and Policy Issues

Chapter 3 will provide a brief definition of the topic area followed by an overview of relevant policy issues.

2.1 Definition of topic area and basic concepts

The worldwide broadband market has been growing impressively in recent years and is expected to increasingly influence the development of internet business models. New forms of digital media delivery and VoIP are currently discussed as the major driving forces behind future broadband development. Arthur D. Little[1] estimate the world wide broadband market at 50 billion USD in 2004 (40 bn EUR) and see it exceeding 140 billion USD (113 bn EUR) by 2010. However, such estimations hinge upon (often arguable) assumptions made about annual growth rates. At the same time, not quite as optimistic, the Pew Internet and American life project[2] see little "pent up" demand among those who do not currently have broadband, the pool of potential adopters is quickly declining, and there is a stable figure of non-internet users who are unlikely to be adopters in the USA. In the USA, 22% of the adult population can be regarded as the "truly disconnected", according to Pew[3]. If this is true, earlier market saturation is more likely.

According to the OECD, the number of broadband subscriptions throughout the OECD continued has reached 137 million in mid 2005. Broadband penetration in the OECD grew by 15% in only six months (the first half of the year) to 11.8 subscribers per 100 inhabitants.

1 Cf. Arthur D. Little, 2005: The Arthur D. Little Global Broadband Report Update 2005.

2 John B. Horrigan (Pew Internet): Broadband Adoption at Home in the United States: Growing but Slowing. Paper presented to the 33rd Annual Telecommunications Policy Research Conference. September 24, 2005.

3 Susannah Fox (Pew Internet and American Life project): Digital Divisions. Download at: http://www.pewinternet.org/pdfs/PIP_Digital_Divisions_Oct_5_2005.pdf.

Table 2-1 OECD measure of Broadband subscribers 2003 - 2005

Country	DSL	Cable	Other	Total*	Rank	Total Subscribers
Korea	13.9	8.9	2.7	25.5	1	12 260 969
Netherlands	13.6	8.9	0	22.5	2	3 642 315
Denmark	13.2	6.1	2.4	21.8	3	1 176 637
Iceland	21.0	0.3	0.4	21.7	4	63 553
Switzerland	12.7	7.2	0.4	20.3	5	1 515 446
Canada	9.4	9.7	0.1	19.2	6	6 142 662
Finland	16.3	2.2	0.2	18.7	7	978 600
Belgium	11.0	7.3	0	18.2	8	1 899 652
Norway	14.8	2.5	0.9	18.2	9	836 060
Sweden	11.3	2.7	2.5	16.5	10	1 482 843
Japan	11.0	2.4	3.0	16.4	11	20 953 090
United States	5.5	8.0	1.1	14.5	12	42 645 815
United Kingdom	9.7	3.8	0	13.5	13	8 095 000
France	11.9	0.8	0	12.8	14	7 935 900
Austria	7.0	5.4	0.1	12.5	15	1 025 036
Luxembourg	10.4	1.3	0	11.8	16	52 920
Australia	8.5	2.4	0.1	10.9	17	2 183 300
Germany	9.9	0.3	0.1	10.2	18	8 439 732
Italy	9.4	0	0.6	10.0	19	5 783 319
Portugal	5.1	4.7	0	9.9	20	1 031 491
Spain	7.0	2.2	0.1	9.3	21	3 949 234
New Zealand	6.4	0.3	0.3	6.9	22	283 798
Hungary	2.9	1.6	0.1	4.6	23	469 186
Ireland	3.5	0.4	0.5	4.3	24	175 500
Poland	2.5	0.7	0.1	3.3	25	1 250 000
Czech Republic	1.8	1.0	0	2.8	26	284 200
Slovak Republic	1.2	0.3	0.1	1.6	27	86 958
Turkey	1.1	0	0	1.2	28	862 843
Mexico	0.8	0.2	0	1.0	29	1 051 854
Greece	0.8	0	0	0.8	30	93 287
OECD	**7.2**	**3.8**	**0.8**	**11.8**		**136 651 000**

* DSL, Cable and Other may not add up to Total penetration due to rounding.

Source: OECD Broadband Statistics, June 2005.
http://www.oecd.org/document/16/0,2340,en_2649_34225_35526608_1_1_1_1,00.html

Voice over IP (VoIP) and video services are currently seen as the major push factors of broadband access. Main highlights from the first half of 2005 are:

- Korea maintains its lead in OECD broadband penetration with 25.5 subscribers per 100 inhabitants.
- The Netherlands has the second-highest penetration at 22.5 subscribers per 100 inhabitants. Denmark, Iceland and Switzerland complete the top five countries for broadband penetration.

- The strongest per-capita growth over the past 12 months has been in Finland, the Netherlands, Norway, Iceland and the United Kingdom.
- DSL is now the leading broadband platform in 28 OECD countries. Canada and the United States are the two countries with more cable modem than DSL subscribers.
- The "Other broadband" category had the highest percentage growth in the past six months, growing 13%.
- The breakdown of broadband technologies in June 2005 is as follows:
  - DSL: 61.2%
  - Cable modem: 32.0%
  - Other technologies: 6.8%, (e.g. fibre optics, LAN, satellite and fixed wireless)

2.2 Policy Issues

Key policy issues related to the topic of broadband use include the following objectives:

- to accelerate deployment of broadband by private households and organisations;
- to support the full exploitation of broadband networks by the research community;
- to stimulate the deployment of a secure broadband infrastructure;
- to create a positive environment for private investment;
- to support the upgrade and efficiency of technology for optical fibre access networks, mobile broadband wireless services (beyond 3G), broadband access satellite systems, convergence of fixed and mobile networks, while taking account of security and privacy issues (wireless, always-on);
- to support Member States in ensuring effective competition in local telecommunication networks in order to speed up the development of the European broadband network;
- to foster the use of digital television for interactive services, by 2007, the Commission will have analysed the community acquis affecting information society and media services and will bring forward proposals for change where necessary.
- to foster the development of rich content by providing increased legal and economic certainty to encourage providers to offer new services and on-line content;

Main (recent or current) EU policy initiatives and instruments in the area are:

- The Barcelona European Council asked for measures to foster the use of digital television for interactive services;
- The European Broadband Strategy in the framework of eEurope 2005 which among other things asked Member States to supply all schools and universities with broadband Internet access for educational and research purposes by end of 2005. Museums, libraries, archives and similar institutions that play a key role in eLearning should also be connected to broadband networks;
- eEurope 2005 also foresaw support of broadband deployment in less favoured areas, using structural funds and/or financial incentives;
- the i2010 strategy “A European Information Society for growth and employment” includes as a key objective the creation of “A Single European Information Space offering affordable and secure high bandwidth communications, rich and diverse content and digital services”;
- the strategy also proposes a revision of the ‘Television without Frontiers’ directive to modernise the rules on audiovisual media services, in order to boost the creation and circulation of European content;
- Public consultation on the “Digital Divide report” highlighting possible EU initiatives to bridge broadband gap;

- The i2010 Strategic Framework asks for the completion of a Single European Information Space which "promotes an open and competitive internal market for information society and media";
- The Public Sector Information Directive is designed to make it easier for content producers to use and add value to information produced by the public sector, both providing useful content for the development of the Information Society and making public sector content more accessible to more people;
- The policies listed above under "Security including trust, confidence and consumer protection" are also of relevance here because of the vital importance of confidence and perceived security risks for people's e-commerce related behaviour;
- Promotion of exchange of good practice and monitoring take-up of broadband and advanced services, through progress reports.

Sources for empirical data which are not contained in the eEurope 2005 list of policy and supplementary benchmarking indicators include:

- eUser population survey in 10 EU Member States (2005);
- Industry surveys (Forrester, GfK, TNS, NOP).

Selected sources for data about main competitor countries:

- Pew Internet surveys (USA, various years);
- Data from surveys conducted on behalf the National Telecommunications and Information Administration (USA, various years);
- Industry surveys (Forrester, TNS, NOP).

Previous ***empirica*** studies in which statistical data were analysed in-depth and reported on:

- SIBIS (2000-2003) included a stock-taking exercise on broadband indicators available in Europe and world-wide. In addition, primary data was collected from a representative sample of EU25 households. Findings were reported on in an extensive Topic Report on "Telecommunications and Access";
- eBusinessW@tch (2002-2005) issued various reports dealing with the topic of business use of broadband Internet access, based both on secondary statistics and on data gathered via own surveys;
- STAR Forum Survey 2003.

3 Current Situation and Progress – Empirical Evidence from EU Surveys

3.1 Overview

This report will analyse the take up of broadband internet connections by individuals and businesses on the basis of the Eurostat survey data and other empirical sources. It will look into

- time series of broadband uptake
- inter country differences
- usage pattern differences between different types of home access

The report will provide an analysis of the observable trends of the use and uptake over time and thereby provide answers to questions such as: Which countries have the most developed broadband market, is there a gap between "old" Member States and New Member States. Finally, are there differences as regards the activities carried out online by broadband users and by dial-up users?

It will also provide an analysis according to industrial sectors following the NACE classification and company size. The latter will reveal information on issues such as: does company size matter and does the data indicate a catch-up by SMEs, and if so, in which areas?

A comparison of the Eurostat data with existing empirical evidence on the same issue – especially with the e-BusinessW@tch data to assess the robustness of the results and provide additional qualitative analysis, will be carried out as an integral part of the analysis chapter. The same holds true for the investigation of international sources to compare EU achievements with those of its main oversee competitors.

3.2 Analysis of European Community Survey Results

Broadband penetration in European households and enterprises

Broadband is usually defined as a certain capacity to transfer data. Sometimes threshold rates of 2mbit/s and more are used; other sources use smaller bandwidth, such as the COCOM, where broadband starts at 144kbit/s. Broadband builds an important basis and prerequisite for the use of more sophisticated applications in the area of e-Commerce and e-Business in enterprises and for the use of data intensive internet services in households.

Enterprises with Broadband Access

Broadband adoption has been progressing at a rapid pace in European businesses. While in most of the countries for which data is available the penetration rate of broadband access in enterprises in 2003 was below 50%, it increased to an average of almost 52% in 2004 in the EU25 with the EU15 already at 55% on average. Over the past year again a sharp increase took place with a present (2005) average of 62%.

When only considering the EU15, penetration figures increased from 40% in 2003 to 65% in 2005 which amounts to a remarkable growth in broadband access in the enterprises of the old member states of more than 60% over the past two years. Comparable data for the new member states only exist for the past two years (2004 and 2005). Here the starting point in 2004 is slightly lower (35.2%) than the one for the old member states a year before, i.e. 2003 (39.9%), but the increase here is high and amounts to 38% in only one year (from 35.2% in 2003 to 48.5% in 2005).

Table 3-1 Percentage of enterprises with broadband access in Europe 2003 - 2005

	2003	2004	2005
EU25	:	51.7	62.6
EU15	39.9	54.8	65.2
NewMS	:	35.2	48.6
Eurozone	41.1	57.3	64.3
BE	49.4	69.9	77.9
CZ	20.1	38.0	52.1
DK	69.0	79.8	82.5
DE	41.9	53.6	62.4
EE	:	67.7	66.6
EL	13.0	20.6	44.3
ES	50.7	71.6	76.2
FR	49.1	:	:
IE	18.9	31.5	47.6
IT	31.2	:	56.7
CY	:	35.4	40.0
LV	:	44.8	48.1
LT	:	50.1	57.5
LU	39.1	48.0	64.2
HU	:	:	47.6
MT	62.3	:	77.7
NL	36.6	53.7	71.3
AT	48.1	54.8	60.7
PL	:	27.8	42.7
PT	31.0	48.6	62.8
SI	:	61.8	73.9
SK	:	24.8	47.6
FI	65.2	70.9	81.1
SE	62.2	:	82.5
UK	29.0	44.1	65.4
BG	:	28.4	:
RO	:	7.0	:
IS	19.9	:	:
NO	46.9	60.3	78.0

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more) (:) Data not available

The Nordic countries are the frontrunners with very high penetration rates of around or above 80%. However, also countries known as less dynamic in the use of the internet, e-Commerce, etc., belong to this group when it comes to broadband access in enterprises, such as for instance Spain but also Slovenia.

Table 3-2 Percentage of enterprises with broadband access in Europe 2005, Japan, the USA, Canada and Australia in 2004: country groupings

Frontrunners (Access >70%)	**Average performers (Access 51% - 69%)**	**Laggards (Access < 50%)**
Sweden	Estonia	Latvia
Denmark	*USA **)*	Slovakia
*Japan **)*	United Kingdom	Hungary
Finland	Luxembourg	Ireland
Norway	*Canada **)*	Greece
Belgium	Portugal	Poland
Malta	Germany	Cyprus
Spain	Austria	Bulgaria *)
Slovenia	Lithuania	Romania *)
Netherlands	*Australia **)*	
	Italy	
	Czech Republic	

*) = 2004 values due to missing values for 2005; not sufficient data available for France and Iceland

**) = figures are not directly comparable to the rest of the data

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises; Booz-Allen-Hamilton: Business in the Information Age: the International Benchmarking Study 2004: 56. Note: All sectors, without financial sector (10 employed persons or more)

When trying to compare the data for the European countries with those of its strongest competitors from overseas one has to rely on third-party sources. More recent data for Japan, USA, Canada and Australia can be obtained from the Booz-Allen-Hamilton study “Business in the Information Age: the International Benchmarking Study 2004”. According to that study the following figures can be calculated on the share of enterprises with broadband access.

Table 3-3 Percentage of enterprises with broadband access in Japan, the USA, Canada and Australia in 2004

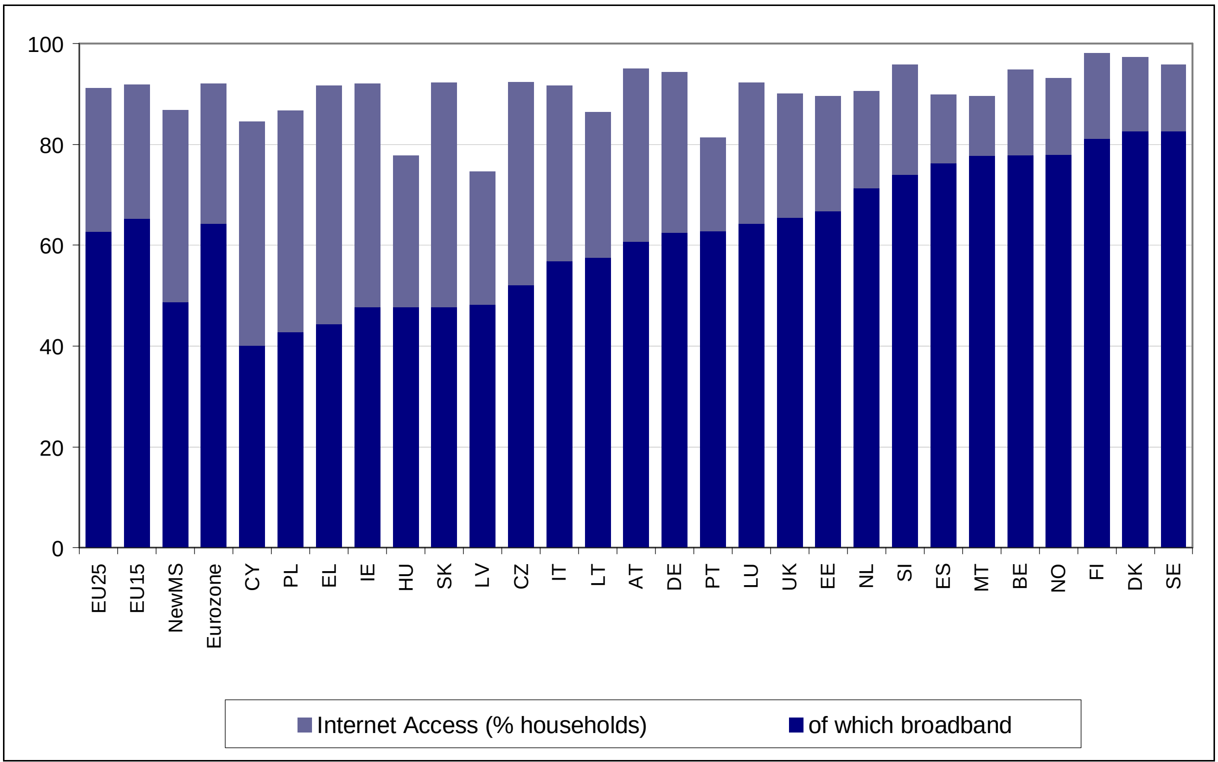
	Japan	USA	Canada	Australia
DSL	42	25	35	36
Cable Modem	5	9	12	7
Wireless broadband/ satellite		3	3	1
Leased Line	24	23	12	9
Other Broadband	10	6	2	4
Broadband Total:	**81**	**66**	**64**	**57**
ISDN	12	15	17	10
Dial-up	3	11	12	17
other non broadband		3	2	3

Source: Booz Allen Hamilton: Business in the Information Age: the International Benchmarking Study 2004: 56

Bearing in mind the problems of comparing these different sources with each other it becomes apparent that many of the European regions can very well compete with these countries as depicted in the above figures.

While in household with internet access, broadband has not reached a majority, it has become the major access mode in European enterprises. However, there are still a significant number of enterprises using narrowband technology in different countries across Europe. These enterprises are most likely to be those to adopt broadband in the nearer future.

Figure 3-1 Internet access and broadband among European enterprises



Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises

In the B2B broadband market, the largest gaps between narrowband and broadband exist in Greece, Cyprus, Slovakia, Ireland, Poland and the Czech Republic. In the Nordic countries, Belgium, Malta and Spain, the broadband enterprise market has nearly reached saturation. This view, however, does not allow for the dynamic nature of broadband that develops towards higher bandwidth rates as collaboration, online integration and all kinds of other web services evolve.

Households and Individuals with Broadband Access

Households significantly lag behind enterprises with regard to broadband home access rates. In 2005, every fourth household in the EU15 and every eighth household in the New Member States has broadband. Available data suggest a tremendous increase in broadband home access in recent years. In all countries that have data for three years, with the percentage of households having at least doubled between 2003 and 2005. Private household broadband lines have become most widespread in Netherlands, Belgium and Luxembourg and in the Nordic countries. Other countries face significant backlog with regard to non-business broadband roll-out, such as Greece, Czech Republic, Cyprus, Slovakia, and Ireland.

Table 3-4 Percentage of households with broadband access in Europe 2003 - 2005

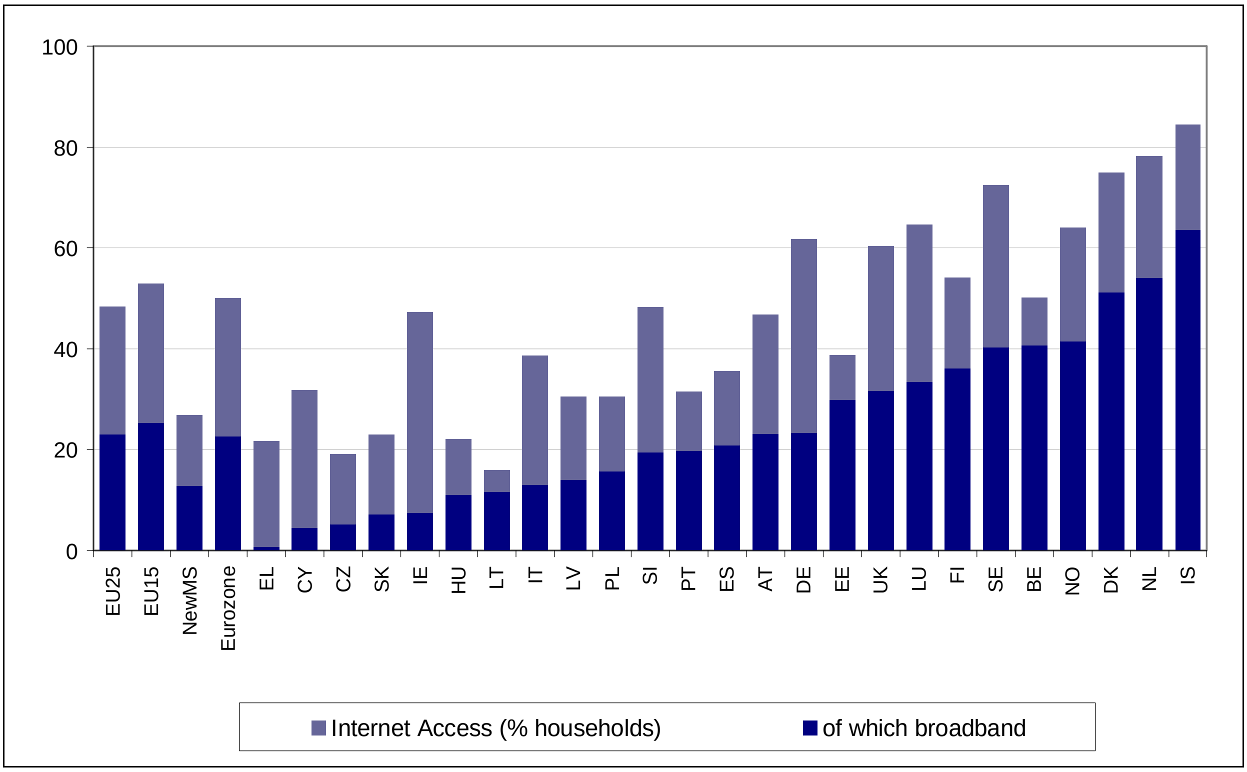
	Households		
	2003	**2004**	**2005**
EU25	:	15.2	23.0
EU15	:	17.5	25.2
NewMS	:	6.9	12.7
Eurozone	:	:	22.5
BE	:	:	40.6
CZ	1.5	4.5	5.1
DK	25.1	35.8	51.2
DE	9.3	18.0	23.2
EE	:	20.3	29.8
EL	0.6	0.2	0.6
ES	:	15.0	20.8
FR	:	:	:
IE	0.6	2.9	7.4
IT	:	:	12.9
CY	:	2.4	4.5
LV	:	5.4	13.9
LT	1.7	3.7	11.6
LU	7.4	16.3	33.4
HU	:	5.8	10.9
MT	:	:	:
NL	20.0	31.3	53.9
AT	10.3	15.9	23.1
PL	:	8.3	15.6
PT	7.9	12.3	19.7
SI	:	10.2	19.4
SK	:	3.6	7.1
FI	12.4	21.3	36.1
SE	:	:	40.2
UK	10.7	15.8	31.5
BG	:	3.7	:
RO	:	:	:
IS	:	45.4	63.5
NO	22.9	30.0	41.4

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Comparing broadband access and total (any bandwidth) internet access figures, it becomes apparent that there is arguably still a lot of pent up demand for bandwidth among narrowband using households and firms in Europe.

It can be assumed that in the coming years the potential demand for broadband will be highest in those countries where there is a huge gap between narrowband and broadband penetration rates – *potential* because it is depending on the supply side satisfactorily meeting this demand. In the consumer market, this is the case in many countries, particularly Ireland, Germany, Sweden, Luxembourg, Slovenia and the UK.

Figure 3-2 Internet access and broadband among European households



Source: Eurostat 2005 Community ICT Household survey

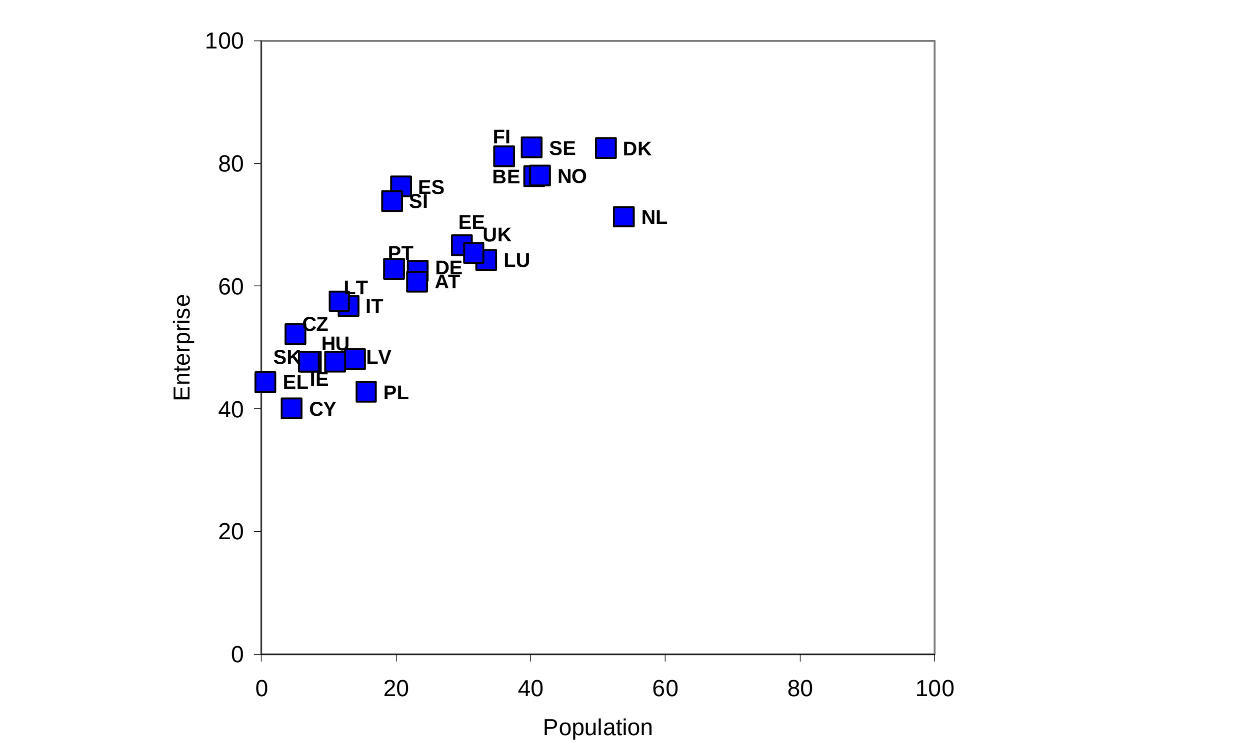
Table 3-5 Percentage of population / enterprises having broadband Internet access (in their home/enterprise) 2005

	Households		Enterprises	
	Broadband access	Internet access	Broadband access	Internet access
EU25	23.0	48.4	62.6	91.1
EU15	25.2	52.9	65.2	91.9
NewMS	12.7	26.8	48.6	86.8
Eurozone	22.5	50.0	64.3	92.0
BE	40.6	50.2	77.9	94.9
CZ	5.1	19.1	52.1	92.4
DK	51.2	74.9	82.5	97.3
DE	23.2	61.6	62.4	94.4
EE	29.8	38.7	66.6	89.6
EL	0.6	21.7	44.3	91.6
ES	20.8	35.5	76.2	89.9
FR	:	:	49.1 **)	82.9 **)
IE	7.4	47.2	47.6	92.1
IT	12.9	38.6	56.7	91.7
CY	4.5	31.7	40.0	84.6
LV	13.9	30.5	48.1	74.7
LT	11.6	15.8	57.5	86.4
LU	33.4	64.6	64.2	92.3
HU	10.9	22.1	47.6	77.8
MT	:	:	77.7	89.6
NL	53.9	78.3	71.3	90.6
AT	23.1	46.7	60.7	95.0
PL	15.6	30.4	42.7	86.7
PT	19.7	31.5	62.8	81.3
SI	19.4	48.2	73.9	95.8
SK	7.1	23.0	47.6	92.3
FI	36.1	54.1	81.1	98.1
SE	40.2	72.5	82.5	95.8
UK	31.5	60.2	65.4	90.2
BG	3.7*)	:	28.4*)	61.8 *)
RO	:	:	7.0*)	52.2 *)
IS	63.5	84.4	:	:
NO	41.4	64.0	78.0	93.2
US	19.9**)	54.6**)	66*)	
JP	:	55.8*)	81*)	
KR	86.0*)	85.7*)		

Source: Eurostat 2005 Community ICT Household survey and Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises

*) = 2004 values due to missing values for 2005, **) 2003 values. Methodology for US, JP, KR not directly comparable. (:) Data not available

Figure 3-3 Percentage of population / enterprises having broadband Internet access (in their home/ enterprise) 2005



Source: Eurostat 2005 Community ICT Household survey and Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises

Table 3-6 Percentage of population and enterprises respectively having broadband Internet access (in their home) 2005: country groupings

Frontrunners		**Average performers**		**Laggards**	
ENT (use >70%)	HH (use >25%)	ENT (use 50%-70%)	HH (use 15% - 25)	ENT (use < 50%)	HH (use < 15%)
Sweden **Denmark** **Finland Norway** **Belgium** **Malta** **Spain** Slovenia Netherlands	**Iceland** **Netherlands** **Denmark** **Norway** **Belgium** **Sweden** Finland Luxembourg UK Estonia	Estonia UK Germany Austria Lithuania Italy Czech Republic	Germany Austria Spain Portugal Slovenia Poland	Portugal*) Latvia Luxembourg*) Slovakia Hungary Greece Cyprus Ireland*) Bulgaria*) Poland*) Romania*)	Latvia Italy Lithuania Hungary Ireland Slovakia Czech Republic Cyprus Bulgaria*) Greece

*) = 2004 values due to missing values for 2005

Table 3-7 Percentage of population and enterprises* with internet access *having broadband Internet access 2005:

	Share of broadband / total Internet access			Share of broadband / total Internet access		
	Households			Enterprises		
	2003	2004	2005	2003	2004	2005
EU25	:	33.2	47.6	:	57.8	68.7
EU15	:	33.6	47.6	46.5	60.7	71.0
NewMS	:	30.2	47.3	:	41.6	56.0
Eurozone	:	:	45.1	47.4	62.9	69.9
BE	:	:	80.9	54.0	72.9	82.1
CZ	10.0	23.0	26.6	22.9	42.2	56.4
DK	39.1	51.6	68.3	71.3	82.0	84.7
DE	17.3	30.0	37.7	44.2	56.9	66.1
EE	:	66.0	76.8	:	75.2	74.3
EL	3.6	1.4	2.9	14.9	23.5	48.4
ES	:	44.7	58.4	62.1	82.0	84.7
FR	:	:	:	59.2	:	:
IE	1.7	7.3	15.7	21.8	34.3	51.7
IT	:	:	33.6	37.6	:	61.9
CY	:	4.5	14.2	:	43.0	47.3
LV	:	36.6	45.7	:	60.4	64.4
LT	27.5	31.7	73.4	:	62.1	66.6
LU	16.2	27.7	51.7	46.1	53.5	69.6
HU	:	40.9	49.5	:	:	61.2
MT	:	:	:	69.1	:	86.7
NL	33.0	48.1	68.8	42.8	60.7	78.7
AT	27.5	35.7	49.6	54.0	58.5	63.9
PL	:	31.8	51.2	:	32.7	49.3
PT	36.3	47.0	62.7	44.6	62.8	77.2
SI	:	21.8	40.3	:	66.3	77.1
SK	:	15.2	31.0	:	34.7	51.6
FI	26.1	41.8	66.7	67.0	73.0	82.7
SE	:	:	55.4	65.3	:	86.2
UK	19.4	28.3	52.4	36.2	50.9	72.5
BG	:	38.8	:	:	45.9	:
RO	:	:	:	:	13.5	:
IS	40.3	56.4	75.2	20.4	:	:
NO	37.8	49.9	64.7	53.1	70.5	83.7

Source: Eurostat 2005 Community ICT Household survey and Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises (:) Data not available

Enterprises with Broadband Access by company size

While the variations in internet access according to company size are not very pronounced with 90% of European SMEs, 98% of the medium enterprises and 99%% of the large enterprises reporting that they have access to the internet, differences are more pronounced when it comes to the speed of internet access. Small enterprises are significantly less likely to have a broadband internet connection. While 58.4% of small enterprises (10-49) have broadband, 79.3% of medium and 91.5% of large enterprises have.

These figures are significantly higher than the e-Business W@tch results from 2005, where broadband was however defined as connections exceeding 2Mbps (results being 8.4% for small, 20.7% for medium and 32.8% for large enterprises as all sector average).

Differences between old and new member states are most pronounced regarding SMEs, while differences between larger units (>250 employees) are weaker.

Top performers are again the Scandinavian countries, Netherlands and Belgium, all of which well above the average in all three company size bands, but also Spain and Slovenia. Small enterprises are least likely to have broadband connections in Cyprus, Greece, Hungary and Slovakia.

When looking at the developments over the past years which the data allow for the time period 2003 to 2005, a tremendous dynamic could be observed in SME broadband uptake in many Member States, such as for example in the Czech Republic, where the share in small companies almost tripled, or in Greece which is now even at four times the share of 2003. Whereas growth in Cyprus, Latvia and Estonia has been ailing, high levels have been stagnating in Denmark, recently.

Table 3-8 Percentage of enterprises with Broadband internet access

	Small			Medium			Large		
	2003	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
EU25	:	46.9	58.7	:	69.5	79.5	:	85.8	91.7
EU15	35.7	49.9	61.4	58.3	73.3	82.6	77.2	87.7	93.2
NewMS	:	30.2	43.5	:	51.1	66.1	:	75.4	84.1
Eurozone	36.9	52.3	60.5	59.7	75.9	81.7	79.0	91.1	93.9
BE	44.4	67.4	75.3	70.4	80.2	89.3	84.7	89.2	93.2
CZ	17.0	33.2	47.7	28.1	54.9	65.5	52.5	72.9	80.9
DK	64.2	77.1	80.3	88.4	91.3	91.1	97.3	95.4	97.1
DE	37.9	46.9	57.0	59.3	75.5	82.0	76.3	93.4	95.3
EE	:	64.9	63.4	:	78.5	78.7	:	92.7	90.8
EL	10.3	16.2	41.0	27.4	41.6	59.2	47.3	61.0	77.3
ES	46.9	68.7	74.3	69.0	86.6	85.9	84.1	94.5	93.2
FR	45.5	:	:	56.6	:	:	82.8	:	:
IE	12.8	26.7	42.7	32.3	39.6	61.9	63.1	79.2	85.7
IT	27.3	:	53.5	59.4	:	79.2	80.2	:	92.6
CY	:	31.3	35.7	:	53.3	60.3	:	93.2	90.8
LV	:	41.8	45.2	:	57.5	59.7	:	70.2	73.3
LT	:	48.5	54.3	:	54.9	66.9	:	59.8	71.8
LU	35.2	43.9	60.5	53.1	59.8	76.7	66.7	77.2	84.7
HU	:	:	43.4	:	:	65.6	:	:	83.1
MT	56.7	:	73.7	75.9	:	92.1	79.3	:	103.3
NL	33.1	50.2	68.3	53.3	67.5	83.6	63.4	77.4	92.5
AT	42.0	49.2	56.3	72.2	79.0	80.9	86.1	90.7	93.6
PL	:	21.3	35.8	:	46.8	65.3	:	79.2	89.7
PT	27.2	43.2	59.1	49.7	72.2	82.5	79.7	90.1	96.3
SI	:	56.1	69.2	:	78.0	87.6	:	90.9	96.0
SK	:	22.1	44.6	:	32.1	60.2	:	57.6	66.1
FI	59.9	66.5	78.5	84.0	86.7	90.5	93.4	93.0	95.5
SE	57.9	:	80.0	79.5	:	94.1	96.8	:	97.7
UK	24.4	39.6	60.8	46.6	62.5	83.8	66.9	75.7	89.8
BG	:	26.5	:	:	33.5	:	:	45.1	:
RO	:	5.4	:	:	9.4	:	:	21.2	:
IS	14.3	:	:	38.5	:	:	45.5	:	:
NO	42.2	56.2	75.6	70.0	83.2	91.0	89.2	91.4	98.2

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises
(:) Data not available

Enterprises with Broadband Access by business sector

There are as well huge differences in broadband usage across sectors. As could be expected, the content producing sectors, the computer services and business services are well above average. So are wholesale as well as the petrochemical and chemical industries. Laggards are industries that process produce (food, textile, wood), but also hotels and retail traders.

Table 3-9 Percentage of enterprises with Broadband internet access according to sector 2005

	Manu-facturing	**Utilities**	**Con-struction**	**Whole-sale and retail**	**Hotels**	**Trans-port**	**Real estate & Business services**	**Motion picture**
NACE	Section D	Section E	Section F	Section G	55.1, 55.2	Section I	Section K	92.1, 92.2
EU25	58.9	73.3	55.1	64.0	50.8	61.3	73.4	89.4
EU15	62.3	:	56.9	67.4	51.2	62.3	74.8	89.7
NewMS	42.9	:	43.1	49.5	47.6	55.2	64.0	75.3
Eurozone	60.2	:	54.9	68.1	57.2	62.9	74.3	90.8
BE	79.6	:	73.9	75.8	91.8	74.1	83.7	86.9
CZ	46.8	60.4	46.3	53.9	61.5	53.4	63.3	73.1
DK	:	:	76.2	:	:	:	:	:
DE	58.8	78.9	46.4	63.3	44.5	59.4	70.9	92.6
EE	64.4	75.5	64.7	69.4	49.8	67.7	68.6	80.3
EL	32.0	44.5	47.8	48.8	37.5	58.6	60.9	72.7
ES	74.1	85.3	69.0	82.0	82.5	77.7	81.7	88.5
IE	47.1	:	36.1	42.9	40.4	48.0	64.8	38.7
IT	53.6	:	49.2	64.1	62.3	52.0	70.2	72.9
CY	22.4	:	24.0	47.4	35.6	60.4	72.3	63.8
LV	41.0	42.8	47.6	48.6	44.0	53.8	57.5	81.5
LT	50.2	58.7	56.4	62.5	56.3	52.1	68.7	70.6
LU	65.1	:	57.8	58.7	57.8	62.9	81.3	93.5
HU	43.3	47.0	47.3	48.1	42.1	52.4	54.8	61.3
MT	68.9	:	63.5	82.1	82.9	91.3	90.4	100.0
NL	73.1	93.0	62.0	70.1	68.8	68.3	78.1	89.8
AT	60.7	:	49.9	61.2	52.8	51.7	77.2	91.9
PL	37.5	67.2	37.3	41.4	42.6	53.8	64.5	81.3
PT	54.5	:	40.6	80.7	77.1	83.1	80.4	100.0
SI	74.4	:	49.3	85.3	:	91.9	78.5	:
SK	39.2	52.4	32.0	51.9	32.6	50.0	72.7	63.3
FI	85.7	94.9	73.1	79.8	82.9	73.7	85.1	92.2
SE	81.9	95.3	77.2	82.9	79.6	70.2	92.1	91.0
UK	71.0	88.5	65.1	59.4	16.1	55.4	73.7	59.6
NO	77.2	84.2	78.1	72.4	70.3	76.6	92.9	86.8

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises
(:) Data not available

Within sectors, there are as well huge differences across countries, with the highest variation in manufacturing and the hotel sector. Manufacturing industries rely heavily on broadband in the Nordic countries, Belgium, UK and the Netherlands, while Greece, Cyprus and Slovakia lag behind. In the hotel sector, there is surprising little difference between old and new Member States but in total there are huge differences between countries across Europe. The UK is clearly lagging behind in this regard and appears to be the opposite of Belgium, Spain and Sweden, where broadband in the tourism sector appears to be most wide spread.

Table 3-10 Percentage of enterprises with Broadband internet access according to sector in EU25

	EU 25	2004	2005
NACE D15 – D22	Manufacturing I (DA, DB, DC, DD, DE) (Food, textiles, leather, wood, paper)	40.6	50.9
NACE D23 – D25	Manufacturing II (DF, DG, DH) (Coke, chemicals, rubber)	58.8	71.6
NACE D26 – D28	Manufacturing III (DI, DJ) (Other non-metallic mineral products, basic metals)	46.4	59.4
NACE D29 – D37	Manufacturing IV (DK, DL, DM, DN) (Machinery, electrical/optical equipment, transport equipment, manufacturing n.e.c.)	54.6	66.0
NACE F	Construction	43.1	55.1
NACE G50	Sale of motor vehicles	52.9	68.3
NACE G51	Wholesale	59.8	71.6
NACE G52	Retail trade	41.2	53.3
NACE H551–552	Hotels (and other short-stay accommodation)	35.9	50.8
NACE I60 – I63	Transport, storage and communication	51.0	59.9
NACE I64	Post and telecommunications	75.7	80.5
NACE K70. K71. K73. K74	Real estate, renting and business activities, except Computer and related activities	62.1	71.0
NACE K72	Computer and related activities	81.1	88.2
NACE O921-922	Motion picture and video activities and Radio and television activities	79.2	89.4

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises

Households with Broadband Access by region and type of locality

Households in Objective 1 regions significantly lag behind with regard to internet access as well as broadband access. In 2005, 29 percent of households in non-Objective 1 regions had broadband access, compared to only 14 percent in Objective 1 regions. Similarly for internet access where 58% of households in non-Objective 1 regions was in contrast to 33% in Objective 1 regions.

Table 3-11 Percentage of households with Broadband internet access according to objective 1 region in EU25

(EU25)	2004	2004	2005	2005
	Internet access	Broadband access	Internet access	Broadband access
All households	42.7	15.2	48.4	23.0
households in Objective 1 region	28.8	8.3	33.4	13.6
households not in Objective 1 region	54.6	20.4	58.1	29.1

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Similar to the regional disparities, which refer to larger geographic entities (usually NUTS2), one finds (at LAU2, i.e., at municipality level) a urban-rural gradient. While 27 percent in densely populated areas have broadband access in the EU25 in 2005, only 15 percent in rural areas have. Whether rural areas and Objective 1 regions are catching up or further falling apart is however not easy to tell. While the relative increase in broadband penetration was 65% in objective 1 regions and 43% elsewhere, the absolute increase was 5.4 percentage points in the former and 8.7 percentage points in the latter regions.

Table 3-12 Percentage of households with Broadband internet access according to population density in EU25

(EU25)	2004 Internet access	2004 Broadband access	2005 Internet access	2005 Broadband access
All households	42.7	15.2	48.4	23.0
living in a densely populated area	46.0	18.7	52.0	27.2
living in a intermediate populated area	45.4	:	48.9	22.8
living in a thinly populated area	31.8	7.9	39.8	14.6

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

The factors responsible for the gap between advanced and disadvantaged regions cannot be identified here, as only a limited number of data breakdowns is available. Research has shown that more often than not regional disadvantages in terms of Information Society indicators can statistically be "explained" by composition effects of regional populations. Internet access and usage have from the very outset been strongly associated with variables such as education, income, occupation, blue collar–white collar jobs, age and gender. Controlling for these variables often explains the lagging behind of disadvantaged regions.

However, with regard to broadband access, many especially less densely populated areas are not sufficiently covered by the DSL supply of ISPs. This clearly speaks against a purely compositional explanation of the urban-rural divide.

Table 3-13 Urban-rural equality (Broadband access divide between densely and thinly populated regions)

Frontrunners Low urban-rural disparity (Thinly populated areas > 60% of densely populated areas)	**Average performers** Intermediate urban-rural disparity (Thinly populated areas < 60% of densely populated areas)	**Laggards** High urban-rural disparity (Thinly populated areas < 40% of densely populated areas)
Luxembourg Netherlands Sweden Iceland*) Belgium Denmark Finland	UK Greece Norway Germany Estonia Austria Slovenia Czech Republic	Spain Portugal Italy Latvia Lithuania Slovakia Hungary Poland Cyprus

*) = Iceland: no densely populated area value available. Intermediate instead

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Looking further into the national broadband supply gradients, it becomes apparent that there are countries with a very pronounced gap between densely and less densely populated areas and countries with more urban-rural equity. The Nordic and the Benelux countries have the least divides in this regard. This is remarkable because both the two most densely populated countries (Belgium and Netherlands) and the two most thinly populated countries (Sweden and Finland) fall into the top category here.

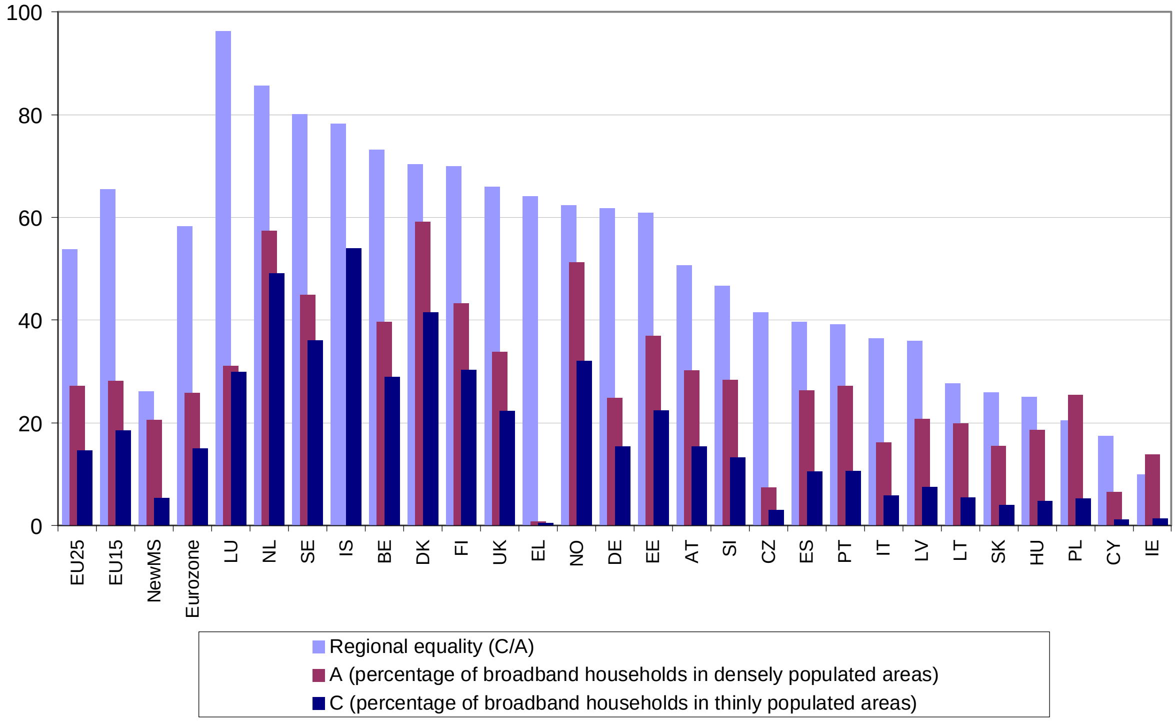
Table 3-14 Percentage of households with Broadband internet access according to population density

	Internet access			**Broadband access**		
2005	densely populated area	intermediate populated area	thinly populated area	densely populated area	intermediate populated area	thinly populated area
EU25	52.0	48.9	39.8	27.2	22.8	14.6
EU15	54.4	52.8	48.6	28.2	24.6	18.5
NewMS	35.1	28.8	18.4	20.6	13.4	5.4
Eurozone	52.8	50.3	42.5	25.8	22.3	15.0
BE	48.8	53.6	41.0	39.6	43.8	29.0
CZ	21.9	18.1	17.0	7.3	5.0	3.0
DK	80.3	73.8	70.0	59.1	52.3	41.6
DE	61.8	61.1	62.3	24.8	23.6	15.3
EE	45.2	:	32.2	36.9	:	22.4
EL	28.7	14.9	16.3	0.7	2.6	0.4
ES	42.1	34.1	23.2	26.3	19.5	10.4
IE	45.8	48.9	47.2	13.8	6.9	1.4
IT	41.1	37.6	34.5	16.2	12.6	5.9
CY	40.0	38.7	16.3	6.5	3.5	1.1
LV	38.1	37.3	23.1	20.7	10.8	7.4
LT	25.1	:	9.0	19.9	:	5.5
LU	60.5	68.4	64.5	31.1	37.1	29.9
HU	31.8	22.0	14.4	18.6	11.2	4.7
NL	80.3	77.9	75.2	57.3	52.9	49.1
AT	48.6	48.3	43.9	30.2	24.4	15.3
PL	40.4	31.6	18.7	25.5	15.5	5.2
PT	36.5	30.1	23.5	27.2	15.5	10.7
SI	52.9	50.2	44.6	28.3	:	13.2
SK	32.8	:	19.4	15.5	:	4.0
FI	58.9	56.4	50.8	43.3	42.0	30.3
SE	67.4	83.3	72.1	44.9	49.4	36.0
UK	57.7	64.2	67.2	33.8	34.2	22.3
IS	:	86.0	81.7	:	69.0	54.0
NO	66.6	67.2	61.2	51.3	51.3	32.0

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

At the other end of the continuum, in many of the Southern and Central and Eastern European Member States there are very pronounced disparities. In Cyprus, urban dwellers are almost six times as likely to live in a broadband household as the rural population is. Other countries with a severe discrepancy between city and rural regions are Poland, Hungary and Slovakia.

Figure 3-4 Indicator of regional equality



Source: Eurostat 2005 Community ICT Household survey
Iceland: no densely populated area value available, intermediate instead.

Households with Broadband Access by income and by household structure

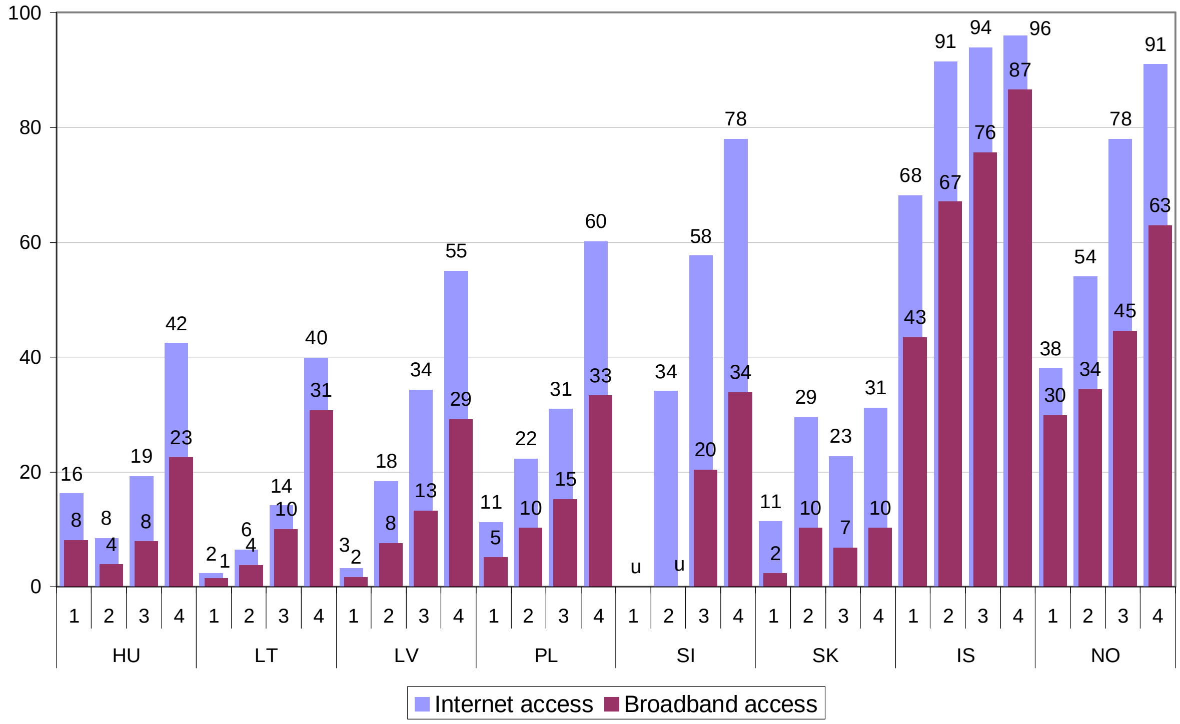
A further possible breakdown that the Eurostat data offer is income quartiles. However, only eight countries supply the respective data here. The likelihood to have broadband home access increases with income. The picture appears to be similar across countries: It holds true for Iceland and Norway at an advanced level of overall broadband penetration as well as in the six Central and Eastern European countries that provide the data breakdowns.

The findings for European countries are similar with recent Pew[4] data for the US. 71% of American internet users living in a household with annual incomes of 75,000 USD and more have broadband compared to 21% of internet users living in households with incomes of 30,000 USD and less.

Apart from region, population density and household income, the Eurostat data suggest that children in the household are a significant predictor of internet and broadband uptake. While 20% of households with two adults without children state they have broadband internet at home, the corresponding figure is 31 percent for two adults with children. Even larger is the difference between single adults (15% broadband) and single parents with children (31%).

4 Susannah Fox (Pew Internet and American Life project): Digital Divisions. Download at: http://www.pewinternet.org/pdfs/PIP_Digital_Divisions_Oct_5_2005.pdf.

Figure 3-5 Percentage of households with Broadband internet access according to household income quartiles in selected countries



"1", "2", "3", "4": 1st, 2nd, 3rd and 4th national income quartile

Source: Eurostat 2005 Community ICT Household survey

Table 3-15 Percentage of households with Broadband internet access according to household type in EU25

(EU25)	2004 Internet access	2004 Broadband access	2005 Internet access	2005 Broadband access
All households	42.7	15.2	48.5	23.0
one adult without children	29.5	9.4	34.6	14.9
single parent with children	42.6	:	57.4	30.5
two adults without children	36.9	:	43.6	19.8
2 adults with children	55.6	:	63.4	30.7
three or more adults without children	52.1	:	56.4	28.2
3 or more adults with children	52.2	:	56.0	29.6

Source: Eurostat 2005 Community ICT Household survey (:): Data not available

The impacts of broadband home access (individuals)

In the following, the internet related behaviour of people with and without broadband home access shall be investigated. The underlying general hypothesis is that broadband makes the use of the internet more convenient and enables the user to better make use of public services, e-health, value added services, etc.

It has to be noted, however, that the fact that has been surveyed with regard to connectivity is the type of home access. The breakdown that is possible, and that has been used by the NSIs hence is “living in a broadband household” which can be combined with the “unit” “being an internet user”. Many of the following analyses are applied to those respondents where both these characteristics apply, and their survey answers are confronted to those of internet users who live in non-broadband households. It may be very likely safe to assume that the latter group has hampered or less convenient access to broadband, however, this applies only to home access, and therefore they may well be broadband users, however, out of a home context.

Internet use

Persons that have broadband internet access at home are most likely to be internet users: Whereas the total population has 51 percent of internet users in Europe, 86 percent of broadband household dwellers are internet users, as the following table shows. There is some variation across Europe, with less household members being users in some of the Southern European countries. People living in non-broadband (e.g. dial-up) households are less likely to be users; here 74 percent of the eligible survey population across Europe are internet users. A high share of non-users in households that have access hints towards generational differences of cohabitation but also to differential generational patterns of internet usage skills. It may mean that more intergenerational cohabitation can be observed in a particular country, but it may also mean that within cohabiting generations, there are larger differences.

Table 3-16 Internet use in the first three months 2005 by household connection type[5]

	Total Population	Live in broadband household	Live in non-broadband household
EU25	51.3	85.8	74.0
Belgium	57.6	92.2	85.0
Czech Republic	32.1	90.4	82.6
Denmark	77.3	93.8	85.0
Germany	64.9	88.2	79.9
Estonia	59.2	93.5	84.8
Greece	22.5	77.3	70.5
Spain	44.4	77.3	69.5
Ireland	37.3	:	:
Italy	33.7	67.4	57.3
Cyprus	31.1	72.4	60.5
Latvia	41.8	78.2	54.1
Lithuania	34.3	83.0	74.7
Luxembourg	69.2	93.3	84.6
Hungary	37.2	97.6	95.1
Netherlands	79.1	93.8	89.7
Austria	55.0	85.0	76.5
Poland	35.1	75.9	56.4
Portugal	32.0	68.4	48.1
Slovenia	46.8	81.4	69.4
Slovakia	50.2	96.8	91.6
Finland	72.7	96.0	82.0
Sweden	81.4	96.9	89.4
United Kingdom	66.4	91.1	81.2
Iceland	85.8	95.5	87.3
Norway	79.9	95.0	90.2
EU15	54.7	86.3	75.0
New Member States	36.9	81.2	67.4
Eurozone	50.7	83.9	72.8

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Impact of broadband on intensity of Internet use

With regard to the intensity of internet usage, broadband can be expected to be more comfortable and a less frustrating experience and hence increase the intensity. The following table confirms this hypothesis. When looking only at internet users, it becomes apparent that broadband users are using the internet significantly more frequently than dial-up home users. While in total, 57% of European Internet users are daily users, this figure is 73 percent among broadband users. Rare users, that is people who use internet less frequently than weekly, are 15 percent of all users, but only 7 percent of broadband users. These patterns are more or less consistent across Europe. However, there are more rare users in Southern European countries, both as regards broadband as well as dial-up users.

[5] In the following section, we do not analyse data from France, Malta, Bulgaria and Romania. As these countries do not provide broadband access breakdowns, we exclude these countries from the tables and exhibits in this section.

Table 3-17 Frequency of internet use (quarter I 2005) by household connection type

	Live in Broadband Households					Live in Non-Broadband Households				
	Everyday or almost every day	At least once a week	At least once a month	Less than once a month	Sum	Everyday or almost every day	At least once a week	At least once a month	Less than once a month	Sum
EU25	72.2	20.5	5.8	1.4	100.0	49.3	33.2	13.9	3.6	100.0
EU15	72.2	20.4	6.0	1.5	100.0	49.6	32.3	14.2	3.8	100.0
NewMS	72.3	21.9	4.8	1.0	100.0	46.7	40.0	11.2	2.1	100.0
Eurozone	72.3	20.2	5.9	1.5	100.0	51.8	30.7	14.1	3.4	100.0
BE	75.7	19.7	3.4	1.1	100.0	46.9	41.2	8.9	3.1	100.0
CZ	46.6	43.7	8.7	:	:	31.8	53.6	13.8	:	:
DK	82.3	14.5	3.1	0.1	99.9	59.6	33.3	6.2	1.0	100.0
DE	70.1	22.5	5.8	:	:	44.4	36.9	14.5	4.2	99.9
EE	82.2	15.7	:	:	:	70.0	24.3	:	:	:
EL	66.1	18.7	10.4	4.9	100.0	52.9	33.1	10.6	3.3	100.0
ES	61.5	28.1	8.0	2.3	100.0	45.4	35.7	13.9	5.0	99.9
IE	:	:	:	:	:	:	:	:	:	:
IT	85.9	3.4	9.4	1.3	100.0	77.2	5.5	15.8	1.5	100.0
CY	70.6	21.4	5.1	2.9	100.0	52.2	32.4	11.9	3.5	100.0
LV	76.2	19.6	3.2	0.9	100.0	48.8	36.2	12.9	2.1	100.0
LT	69.2	26.1	4.1	0.6	100.0	60.4	31.4	7.1	1.1	100.0
LU	77.6	18.7	2.8	1.0	100.0	50.7	39.1	8.4	1.9	100.0
HU	80.7	17.4	1.8	0.1	100.0	54.1	39.1	5.3	1.5	100.0
NL	77.4	18.9	2.8	0.8	99.9	45.7	41.4	11.1	1.9	100.0
AT	69.4	23.5	5.8	1.3	100.0	54.6	34.3	8.8	2.3	100.0
PL	72.4	20.8	5.5	1.3	100.0	47.0	36.7	13.1	3.2	100.0
PT	71.6	20.3	5.6	2.5	100.0	50.1	31.5	15.2	:	:
SI	74.2	:	:	:	:	53.1	35.4	:	:	:
SK	75.1	21.6	2.4	1.0	100.0	55.5	38.4	5.5	0.7	100.0
FI	:	:	:	:	:	:	:	:	:	:
SE	83.1	14.0	2.7	0.3	100.0	58.3	33.2	6.9	1.5	99.9
UK	68.0	23.0	7.3	:	:	38.9	38.5	17.0	5.6	100.0
IS	84.2	13.0	1.9	0.9	100.0	57.8	31.3	9.8	1.1	100.0
NO	73.8	22.5	2.8	0.9	100.0	50.1	40.9	6.4	2.6	100.0

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Impact of broadband on Internet use: Communication

Usage patterns are differing between broadband and non-broadband when it comes to communication activities (either e-mails, telephoning over the Internet, videoconferencing and other communication uses). This is both due to new applications which consume more bandwidth, such as VoIP or video-conferencing, but also e-mail, which is used significantly more often by broadband users than the average user. The most significant differences are to be found regarding the bandwidth intensive services, however: in Europe, telephoning and video-conferencing are about three times as widespread among broadband households as among narrowband households and ."other communication" uses, such as chat, are used by 36 percent of broadband users compared to 20.4 percent of narrowband users.

Table 3-18 Percentage of population who have used Internet, in the last 3 months, for communication by household connection type

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	44.3	79.1	62.7	85.3	91.5	84.5
EU15	48.0	79.6	63.3	85.2	91.3	84.0
NewMS	31.7	75.4	59.2	85.9	92.9	87.8
Eurozone	43.9	77.1	61.0	84.7	91.2	83.6
BE	:	:	:	:	:	:
CZ	27.0	81.9	72.8	84.0	90.6	88.2
DK	69.9	87.5	75.3	90.4	93.2	88.6
DE	:	:	:	:	:	:
EE	51.0	85.0	73.6	86.3	90.9	86.8
EL	14.4	60.9	47.8	63.9	78.7	67.8
ES	:	:	:	:	:	:
IE	31.4	:	:	84.1	:	:
IT	27.2	57.9	46.1	80.9	86.0	80.5
CY	24.1	66.0	48.6	77.7	91.2	80.3
LV	36.0	71.9	46.2	86.2	91.9	85.3
LT	27.1	70.7	62.0	78.8	85.1	83.0
LU	63.6	89.4	76.6	92.0	95.8	90.5
HU	34.4	95.1	91.5	92.5	97.4	96.3
NL	73.9	90.1	81.6	93.4	96.1	91.0
AT	48.8	79.2	68.2	88.6	93.1	89.1
PL	30.0	70.5	48.7	85.4	92.9	86.4
PT	26.6	62.1	38.7	83.1	90.8	80.4
SI	37.4	73.7	54.0	79.9	90.5	77.8
SK	44.0	94.2	85.0	87.7	97.3	92.8
FI	63.4	90.7	68.2	87.3	94.5	83.2
SE	68.8	88.7	73.0	84.6	91.5	81.6
UK	57.2	83.1	69.5	86.2	91.2	85.6
IS	77.7	90.4	73.1	90.5	94.7	83.6
NO	69.1	86.6	75.7	86.5	91.2	83.9

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Percentage of respondents who have answered yes to any of these items:

I have used Internet, in the last 3 months, for sending/receiving e-mails

I have used Internet, in the last 3 months, for telephoning over the Internet, for videoconferencing

I have used Internet, in the last 3 months, for other communication uses (chat sites, etc.)

Table 3-19 Percentage of* internet users *who have used Internet, in the last 3 months, for communication by household connection type

	Internet users in broadband households			Internet users in non broadband households		
	E-mail	Telephoning, video-conferencing	Other communication usages (chat sites, etc.)	E-mail	Telephoning, video-conferencing	Other communication usages (chat sites, etc.)
EU25	89.2	12.0	36.0	81.5	4.2	20.4
EU15	89.5	10.9	34.9	81.8	3.1	18.3
NewMS	86.5	21.1	45.1	79.6	12.5	36.3
Eurozone	89.0	10.8	36.8	80.9	3.2	20.2
BE	89.2	:	:	78.6	:	:
CZ	90.6	23.3	25.4	88.2	18.9	21.7
DK	92.6	14.4	18.7	87.5	5.4	8.4
DE	:	:	:	:	:	:
EE	88.6	23.2	40.6	85.7	17.7	30.6
EL	78.7	25.5	29.2	65.9	3.7	12.9
ES	85.4	11.6	36.6	79.3	4.8	25.9
IE	:	:	:	:	:	:
IT	84.4	9.8	29.0	78.2	5.0	22.9
CY	89.6	14.0	36.6	77.8	7.4	23.4
LV	88.9	30.4	53.3	77.6	18.5	44.4
LT	83.6	21.5	41.5	76.9	17.5	42.6
LU	95.0	25.0	52.0	89.6	7.3	34.1
HU	95.0	22.1	59.3	90.9	9.1	48.3
NL	95.1	8.2	44.1	90.1	2.4	15.6
AT	91.9	9.2	27.8	88.1	5.7	19.3
PL	83.4	20.3	44.8	71.1	11.3	40.3
PT	89.7	16.1	46.3	76.6	4.8	32.1
SI	88.0	:	38.5	75.2	:	26.0
SK	95.3	23.7	49.8	91.4	8.1	36.2
FI	93.7	19.8	32.8	81.8	5.9	13.8
SE	89.7	8.5	38.7	80.1	2.3	15.2
UK	90.6	11.4	31.3	85.1	:	12.8
IS	91.7	21.2	57.5	81.3	3.7	30.2
NO	90.2	14.4	46.6	83.6	3.0	21.1

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Impact of broadband on Internet use: Information search

There is virtually no difference between broadband users and dial-up users as regards the use of the internet for information search: in both groups nearly 100 percent state this generic kind of usage.

Table 3-20 Percentage of population who have used Internet, in the last 3 months, for information search and on-line services by household connection type

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	48.5	82.7	67.8	92.1	95.7	91.5
EU15	52.3	83.5	69.2	92.8	95.8	91.8
NewMS	33.1	76.3	57.1	87.7	94.7	88.4
Eurozone	47.6	80.2	66.5	91.9	94.8	91.2
BE	:	:	:	:	:	:
CZ	:	:	:	:	:	:
DK	72.4	90.2	75.6	93.7	96.1	88.9
DE	:	:	:	:	:	:
EE	58.4	93.1	84.2	98.7	99.6	99.3
EL	22.0	74.0	70.0	98.2	95.7	99.3
ES	:	:	:	:	:	:
IE	33.5	:	:	89.7	:	:
IT	28.8	60.5	49.1	85.5	89.8	85.7
CY	28.6	70.4	55.8	92.0	97.3	92.4
LV	38.6	75.8	49.6	92.5	96.9	91.7
LT	32.2	81.3	72.1	93.8	97.9	96.5
LU	67.7	92.1	82.8	98.0	98.7	97.8
HU	34.3	95.7	90.5	92.4	98.0	95.2
NL	75.5	91.1	83.6	95.4	97.1	93.2
AT	49.4	78.0	68.3	89.8	91.7	89.2
PL	29.5	70.5	47.3	84.0	92.9	83.8
PT	29.6	65.3	44.5	92.4	95.5	92.6
SI	43.3	78.5	64.0	92.4	96.5	92.2
SK	45.3	95.3	86.3	90.2	98.4	94.2
FI	72.7	96.0	82.0	100.0	100.0	100.0
SE	77.1	95.4	83.2	94.7	98.5	93.1
UK	62.9	88.7	76.3	94.8	97.4	94.0
IS	82.9	93.7	82.7	96.5	98.1	94.6
NO	76.7	93.0	84.6	96.0	98.0	93.7

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Yes to any of these items:

- I have used Internet, in the last 3 months, for finding information about goods and services
- I have used Internet, in the last 3 months, for using services related to travel and accommodation
- I have used Internet, in the last 3 months, for listening to Web radios / for watching Web television
- I have used Internet, in the last 3 months, for playing / downloading games and music
- I have used Internet, in the last 3 months, for downloading software
- I have used Internet, in the last 3 months, for reading / downloading online newspapers / news magazines
- I have used Internet, in the last 3 months, for looking for a job or sending a job application
- I have used Internet, in the last 3 months, for seeking health information on injury, disease or nutrition

Impact of broadband on Internet use: Commercial interaction

There are some differences between broadband and dial-up users with regard to using the internet for ordering, selling or online banking activities. Broadband users are somewhat more likely to be using the internet for these kinds of activity. However, it is not clear whether this is an effect of the composition of the groups or of the access technology itself.

Table 3-21 Percentage of population who have used Internet, in the last 3 months, for ordering or selling goods or services, or banking by household connection type

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	28.9	58.9	38.6	54.8	68.2	52.2
EU15	33.3	62.2	41.2	59.2	71.3	54.7
NewMS	10.7	34.7	19.0	28.5	43.1	29.5
Eurozone	28.7	57.6	37.5	55.5	68.2	51.4
BE	:	:	:	:	:	:
CZ	:	:	:	:	:	:
DK	54.4	72.8	53.8	70.4	77.6	63.2
DE	:	:	:	:	:	:
EE	46.2	79.0	68.6	78.0	84.4	80.9
EL	2.9	22.4	9.6	12.8	29.0	13.6
ES	:	:	:	:	:	:
IE	17.0	:	:	45.5	:	:
IT	10.1	25.5	15.9	30.1	37.9	27.8
CY	7.3	33.0	14.4	23.6	45.6	23.8
LV	16.9	42.1	19.3	40.4	53.8	35.6
LT	11.0	34.1	30.7	32.0	41.1	41.0
LU	48.2	71.4	57.3	69.7	76.5	67.7
HU	9.5	40.8	23.7	25.7	41.8	25.0
NL	58.3	74.1	59.6	73.7	79.0	66.5
AT	30.5	54.6	43.1	55.5	64.2	56.3
PL	9.1	29.4	15.3	25.9	38.7	27.2
PT	9.6	26.7	12.9	30.0	39.0	26.9
SI	16.0	:	23.4	34.1	:	33.8
SK	11.6	49.2	28.9	23.2	50.8	31.5
FI	61.3	86.4	68.4	84.4	90.0	83.4
SE	59.6	78.6	63.8	73.2	81.1	71.3
UK	43.4	69.1	50.4	65.4	75.8	62.1
IS	66.1	79.5	58.3	77.0	83.3	66.7
NO	66.6	83.5	74.6	83.3	87.9	82.7

Percentage of respondents who have used Internet, in the first 3 months of 2005, in any of these respects:

- for Internet banking
- for other financial services (e.g. share purchasing)
- for purchasing / ordering goods or services (excl. shares / financial services)
- for selling goods and services (e.g. via auctions)

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Impact of broadband on Internet use: e-Government

As regards e-government use, differences between broadband and dial-up users are more pronounced in some countries than in others. For instance, in Slovakia, Poland, Cyprus, Hungary and the Czech Republic, a comparatively larger share of broadband users is using e-government. Contrarily, in Italy and Belgium their share is about the same.

Table 3-22 Percentage of population who have used Internet, in the last 3 months, for interaction with public authorities by household connection type

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	22.1	43.2	31.2	43.9	50.4	42.3
EU15	24.7	44.0	32.4	45.3	50.9	43.4
NewMS	13.6	38.4	23.5	36.8	47.3	34.9
Eurozone	23.6	:	:	47.3	:	:
BE	18.2	31.2	21.9	31.7	33.8	25.8
CZ	4.6	19.0	11.6	14.3	21.1	14.1
DK	:	:	:	:	:	:
DE	:	:	:	:	:	:
EE	31.1	55.3	55.0	52.5	59.2	64.9
EL	7.1	30.3	24.3	31.7	39.1	34.4
ES	:	:	:	:	:	:
	17.6	:	:	47.3	:	:
IT	14.1	29.7	23.5	42.0	44.1	41.1
CY	11.4	33.4	22.7	36.7	46.1	37.6
LV	13.4	28.3	17.8	32.2	36.2	33.0
LT	12.1	33.2	30.3	35.2	40.0	40.6
LU	46.0	66.1	54.0	66.6	70.8	63.9
HU	17.9	58.3	44.7	48.0	59.8	47.0
NL	:	:	:	:	:	:
AT	29.2	50.4	39.2	53.1	59.3	51.3
PL	12.5	35.2	19.7	35.7	46.4	35.0
PT	14.0	35.3	19.1	43.8	51.7	39.7
SI	19.2	39.3	27.3	41.1	48.2	39.3
SK	26.6	65.0	50.6	52.9	67.2	55.2
FI	47.3	68.4	48.8	65.1	71.2	59.5
SE	51.7	70.1	51.4	63.6	72.3	57.5
UK	24.3	40.3	27.1	36.7	44.2	33.3
IS	55.3	65.5	47.4	64.5	68.6	54.2
NO	51.7	65.7	54.5	64.7	69.2	60.4

Percentage of respondents who have used Internet, in the first 3 months of 2005, in any of these respects:

- for obtaining information from public authorities web sites
- for downloading official forms
- for sending filled forms

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Impact of broadband on Internet use: e-Learning

Table 3-23 Percentage of population who have used Internet, in the last 3 months, for training and education by household connection type

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	15.7	29.5	21.4	30.8	34.3	29.0
EU15	18.0	31.3	22.8	32.7	36.1	30.4
NewMS	7.9	17.8	12.9	21.3	22.0	19.1
Eurozone	14.8	:	:	29.7	:	:
BE	15.8	27.4	18.0	27.5	29.7	21.2
CZ	2.4	4.8	5.2	7.6	5.3	6.3
DK	17.5	23.7	12.3	22.6	25.2	14.4
DE	:	:	:	:	:	:
EE	8.5	14.1	:	14.4	15.1	:
EL	6.8	28.7	22.6	30.5	37.1	32.1
ES	:	:	:	:	:	:
IE	9.1	:	:	24.5	:	:
IT	11.0	22.7	18.9	32.6	33.8	33.1
CY	10.7	32.6	22.4	34.6	45.0	37.1
LV	13.1	27.4	15.0	31.4	35.0	27.7
LT	21.9	53.2	46.1	63.6	64.1	61.7
LU	23.3	34.1	29.5	33.6	36.6	34.9
HU	15.4	46.5	34.3	41.4	47.6	36.1
NL	:	:	:	:	:	:
AT	11.3	19.7	15.5	20.5	23.2	20.3
PL	5.3	10.2	8.1	15.0	13.5	14.3
PT	6.8	15.7	9.9	21.2	23.0	20.7
SI	19.7	40.6	28.1	42.1	49.9	40.5
SK	8.0	19.5	17.3	16.0	20.1	18.9
FI	26.6	39.1	24.8	36.6	40.7	30.3
SE	7.3	10.0	6.7	9.0	10.3	7.5
UK	30.5	44.1	35.3	46.0	48.4	43.5
IS	11.6	13.8	11.4	13.6	14.4	13.1
NO	6.9	8.5	7.7	8.6	8.9	8.5

Percentage of respondents who have used Internet, in the first 3 months of 2005, in any of these respects:

- for formalised educational activities (school, university, etc.)
- for post educational courses
- for other educational courses related specifically to employment

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Impact of broadband on Internet use: e-Health

There are significant differences as regards the use of the internet for health related activities. Health information seeking was done by 38 percent of users in broadband households but only by 30 percent of all internet users.

Table 3-24 Percentage of internet users who have used Internet, in the last 3 months, for health related activities by household connection type

	Internet users in broadband household				Internet users in non-broadband household				Internet users			
	A info	B appoint	C prescr	D advice	A info	B appoint	C prescr	D advice	A info	B appoint	C prescr	D advice
EU25	37.2	1.5	1.1	4.7	27.7	1.0	0.6	2.8	30.1	1.1	0.7	3.5
EU15	38.0	1.5	1.2	4.9	28.8	1.0	0.6	3.0	31.7	1.1	0.8	3.7
NewMS	31.2	1.8	0.8	3.0	19.4	0.9	0.7	1.8	20.4	1.0	0.5	1.9
Eurozone	35.7	1.5	0.8	3.4	27.6	1.0	0.4	2.1	29.8	1.1	0.5	2.7
BE	36.2	:	:	:	28.8	:	:	:	33.2	:	:	:
CZ	16.2	:	:	:	11.7	1.5	:	1.3	10.8	1.2	:	1.0
DK	34.7	2.6	1.3	3.8	24.3	1.1	0.2	2.1	30.8	2.2	0.9	3.2
DE	:	:	:	:	:	:	:	:	:	:	:	:
EE	34.7	19.3	9.0	22.8	27.8	:	:	21.1	27.7	14.1	8.3	18.3
EL	5.5	0.0	0.0	5.5	11.3	0.9	0.3	1.6	9.6	0.6	0.2	1.6
ES	33.8	1.2	0.3	6.8	30.4	1.1	0.3	5.1	28.7	1.0	0.2	5.4
IE	:	:	:	:	:	:	:	:	28.1	0.3	0.2	1.7
IT	30.0	1.1	0.7	6.2	25.4	1.0	0.6	4.3	25.9	1.0	0.6	4.7
CY	37.9	1.4	0.7	0.7	27.0	0.0	0.7	1.2	25.8	0.2	0.5	0.9
LV	27.0	0.9	0.3	2.4	14.3	0.1	0.1	0.5	17.6	0.3	0.1	1.1
LT	31.2	0.8	0.0	3.7	28.2	1.8	0.0	4.9	24.8	0.8	0.0	3.6
LU	65.8	1.4	1.6	3.6	53.7	0.7	0.7	1.2	59.4	1.0	1.1	2.3
HU	38.8	1.6	0.5	3.3	24.1	1.7	0.9	2.4	25.9	1.2	0.5	2.0
NL	:	:	:	:	:	:	:	:	:	:	:	:
AT	34.2	:	:	:	29.2	:	:	:	29.1	1.4	0.5	0.9
PL	30.9	0.6	0.3	1.7	19.5	0.2	0.5	1.3	20.4	0.4	0.3	1.2
PT	34.9	:	:	1.6	28.7	:	0.0	:	31.3	:	:	1.2
SI	37.8	0.0	0.0	:	32.3	:	0.0	:	32.8	:	0.0	:
SK	31.5	0.8	0.1	0.0	20.0	0.4	0.0	0.1	18.2	0.3	0.0	0.1
FI	60.0	5.6	:	4.5	45.3	4.3	:	3.1	53.6	4.6	:	3.8
SE	33.8	:	1.2	6.1	23.3	:	1.3	4.8	28.5	0.0	1.2	5.2
UK	45.1	:	:	8.2	34.6	:	:	5.6	38.4	:	:	6.7
IS	49.9	1.7	1.0	3.6	36.7	1.1	0.8	2.6	46.0	1.5	0.9	3.2
NO	34.9	0.9	0.0	1.4	28.5	1.5	1.1	1.1	32.2	1.1	0.3	1.4

A I have used Internet, in the last 3 months, for seeking health information on injury, disease or nutrition
B I have used Internet, in the last 3 months, for making an appointment online with a practitioner
C I have used Internet, in the last 3 months, for requesting a prescription online from a practitioner
D I have used Internet, in the last 3 months, for seeking medical advice online with a practitioner

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Table 3-25 Percentage of population who have used Internet, in the last 3 months, for health related activities by household connection type

	Population in broadband household				Population in non-broadband internet household				Population			
	A info	B appoint	C prescr	D advice	A info	B appoint	C prescr	D advice	A info	B appoint	C prescr	D advice
EU25	31.6	1.3	1.0	3.9	20.3	0.7	0.4	2.1	15.1	0.5	0.4	1.7
EU15	32.4	1.3	1.0	4.2	21.4	0.7	0.4	2.2	17.0	0.6	0.4	2.0
NewMS	25.4	1.4	0.6	2.5	13.1	0.6	0.5	1.2	7.5	0.4	0.2	0.7
Eurozone	29.3	1.2	0.6	2.8	19.8	0.7	0.3	1.5	14.6	0.5	0.2	1.3
BE	33.4	:	:	:	24.5	:	:	:	19.1	:	:	:
CZ	14.6	:	:	:	9.6	1.2	:	1.1	3.5	0.4	:	0.3
DK	32.6	2.5	1.2	3.6	20.7	0.9	0.1	1.8	23.8	1.7	0.7	2.5
DE	:	:	:	:	:	:	:	:	:	:	:	:
EE	32.5	18.1	8.4	21.3	23.6	:	:	17.9	16.4	8.4	4.9	10.9
EL	4.2	0.0	0.0	4.2	8.0	0.6	0.2	1.1	2.2	0.1	0.0	0.4
ES	26.1	0.9	0.2	5.3	21.1	0.8	0.2	3.5	12.8	0.4	0.1	2.4
IE	:	:	:	:	:	:	:	:	10.5	0.1	0.1	0.6
IT	20.2	0.7	0.5	4.2	14.5	0.6	0.3	2.4	8.7	0.4	0.2	1.6
CY	27.4	1.0	0.5	0.5	16.3	0.0	0.4	0.7	8.0	0.1	0.2	0.3
LV	21.1	0.7	0.2	1.8	7.7	0.1	0.0	0.3	7.4	0.1	0.1	0.5
LT	25.9	0.6	0.0	3.1	21.1	1.3	0.0	3.6	8.5	0.3	0.0	1.2
LU	61.4	1.3	1.5	3.3	45.4	0.6	0.6	1.0	41.0	0.7	0.8	1.6
HU	37.8	1.6	0.5	3.2	22.9	1.6	0.9	2.3	9.6	0.4	0.2	0.8
NL	:	:	:	:	:	:	:	:	:	:	:	:
AT	29.1	:	:	:	22.3	:	:	:	16.0	0.8	0.3	0.5
PL	23.4	0.5	0.2	1.3	11.0	0.1	0.3	0.7	7.1	0.1	0.1	0.4
PT	23.9	:	:	1.1	13.8	:	0.0	:	10.0	:	:	0.4
SI	30.8	0.0	0.0	:	22.4	:	0.0	:	15.4	:	0.0	:
SK	30.5	0.8	0.1	0.0	18.3	0.3	0.0	0.1	9.1	0.2	0.0	0.0
FI	57.6	5.3	:	4.3	37.2	3.5	:	2.6	39.0	3.4	:	2.7
SE	32.8	:	1.1	5.9	20.9	:	1.1	4.3	23.2	0.0	1.0	4.2
UK	41.1	:	:	7.5	28.1	:	:	4.6	25.5	:	:	4.4
IS	47.7	1.7	1.0	3.4	32.1	0.9	0.7	2.3	39.5	1.3	0.8	2.7
NO	33.2	0.9	0.0	1.3	25.7	1.4	1.0	1.0	25.7	0.9	0.3	1.1

A I have used Internet, in the last 3 months, for seeking health information on injury, disease or nutrition
B I have used Internet, in the last 3 months, for making an appointment online with a practitioner
C I have used Internet, in the last 3 months, for requesting a prescription online from a practitioner
D I have used Internet, in the last 3 months, for seeking medical advice online with a practitioner

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Internet related skills of broadband and non-broadband users

The 2005 household survey includes a module on computer skills. Respondents are asked whether they have already carried out different internet related activities. The filter set for this question includes respondents who have *ever* used the internet. The difference between other activities differentiated by broadband / non-broadband is hence two-fold: while the questions about e-government, e-health, e-commerce, etc. recurred to a three months period, in which the respondents has or has not carried out these interactions, the skills questions refer to "ever" having carried out the respective activity.

***Table 3-26 Percentage of population who have ever used a search engine to find information*[6]**

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	49.5	82.4	70.1	:	:	:
EU15	53.0	82.9	71.1	:	:	:
NewMS	37.8	79.0	64.3	:	:	:
CZ	24.8	69.2	59.6	66.5	74.7	69.4
DK	78.9	92.6	84.6	92.1	95.0	89.9
DE	60.7	82.9	74.3	85.4	91.3	86.4
EE	57.4	87.1	78.3	89.4	92.1	90.9
EL	25.2	72.6	72.0	92.6	89.2	94.6
IE	36.4	:	:	81.0	:	:
IT	33.6	67.1	56.9	:	:	:
CY	29.1	67.9	54.1	81.2	89.8	84.2
LV	43.7	76.6	55.2	89.4	93.6	88.0
LT	37.0	82.6	73.1	96.0	98.3	95.0
LU	68.8	92.1	83.5	96.7	98.4	97.0
HU	36.9	95.0	89.3	92.6	96.9	92.3
AT	55.2	82.9	74.6	91.9	95.1	93.2
PL	38.0	75.5	58.5	90.0	93.6	89.7
PT	34.2	67.9	49.4	91.5	94.6	93.2
SI	48.8	80.4	69.3	93.2	95.4	93.9
SK	55.3	97.4	92.9	94.7	98.1	95.9
FI	68.1	91.7	74.1	88.8	94.5	86.5
SE	76.2	92.2	81.5	86.3	94.1	85.7
UK	64.5	88.1	77.6	89.9	94.8	91.1
IS	80.9	90.1	82.4	90.8	93.0	88.5
NO	71.3	86.0	77.4	84.0	88.4	82.6

Note: Percentage of respondents who have ***ever*** used Internet, in the first 3 months of 2005, in this respects. Internet users here, unlike previously, are all respondents who have ***ever*** used the internet.

Second, the question was asked of all respondents who have ever used the internet, while in the former instances questions were only asked of internet users in the last three months (prior to the survey).

The difference between the data analysed so far and this data hence is that the reported activities can not necessarily be expected having occurred recently. "Broadband", as the other characteristic crossed here, is defined as having broadband home access at the time of the interview. Therefore, no close time link needs to exist between the reported behaviour and the access infrastructure present at home.

[6] in the following section, we do not analyse data from Belgium, Spain, France, Malta, Netherlands, Bulgaria and Romania. As these countries do not provide skills data breakdowns, we exclude these countries from the tables and exhibits in this section. Consequently, no data for the Eurozone is reported.

Table 3-27 Percentage of population who have ever sent an email with attached files

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	41.6	73.4	58.7	:	:	:
EU15	45.1	74.1	59.4	:	:	:
NewMS	30.1	69.2	54.3	:	:	:
CZ	28.0	76.9	68.0	75.1	83.1	79.1
DK	68.8	84.5	72.1	80.3	86.7	76.7
DE	49.7	71.9	59.5	69.9	79.1	69.1
EE	50.5	81.3	71.3	78.6	86.1	82.8
EL	18.2	69.9	57.3	66.7	86.0	75.2
IE	30.3	:	:	67.5	:	:
IT	31.4	63.3	53.2	:	:	:
CY	20.1	59.0	39.2	56.1	78.0	61.0
LV	31.5	63.9	38.8	64.3	78.1	61.9
LT	27.1	67.7	57.7	70.4	80.6	75.0
LU	60.3	84.7	72.2	84.8	90.5	83.9
HU	31.8	89.4	81.3	79.8	91.2	84.0
AT	43.7	68.4	60.2	72.8	78.5	75.2
PL	27.4	63.2	43.9	64.9	78.3	67.3
PT	30.6	65.4	42.0	81.9	91.1	79.3
SI	39.3	71.6	57.8	75.1	85.0	78.3
SK	45.2	92.9	82.5	77.5	93.6	85.2
FI	56.8	81.0	56.2	74.0	83.6	65.6
SE	65.1	83.0	67.2	73.6	84.6	70.6
UK	55.7	79.6	65.7	77.6	85.6	77.1
IS	70.1	81.5	64.7	78.7	84.2	69.5
NO	68.3	83.5	75.1	80.4	85.9	80.1

Note: Percentage of respondents who have ***ever*** used Internet, in the first 3 months of 2005, in this respects. Internet users here, unlike previously, are all respondents who have ***ever*** used the internet.

Unfortunately, no EU totals data are available for internet users. However, if one looks at the country data, the pattern that is emerging is that internet users in broadband households tend to be more experienced with internet related activities than users in non-broadband households.

While between 80 and 95 percent of internet users have used a search engine to find something, usually broadband home users are three to five percentage points ahead of the narrowband home users. A similar pattern can be found with regard to the indicator "having sent an e-mail with attachment". Here the country shares are at about 70 percent of internet users, and broadband users are five to ten percentage points ahead of narrowband users.

Table 3-28 Percentage of population who have ever posted messages to chat rooms, newsgroups or an online discussion forum

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	18.1	36.2	22.0	:	:	:
EU15	18.6	35.4	21.3	:	:	:
NewMS	16.5	41.4	26.0	:	:	:
CZ	6.3	24.1	16.8	16.9	26.0	19.6
DK	23.9	33.1	16.8	27.9	34.0	17.9
DE	20.5	36.7	20.2	28.9	40.3	23.5
EE	40.7	67.2	55.7	63.3	71.1	64.7
EL	4.1	23.6	14.8	15.2	29.1	19.5
IE	3.4	:	:	7.5	:	:
IT	19.0	41.8	31.6	:	:	:
CY	7.9	22.5	15.4	22.0	29.7	24.0
LV	17.8	38.4	21.7	36.4	46.9	34.6
LT	17.1	44.0	39.1	44.2	52.3	50.9
LU	27.8	45.6	25.2	39.1	48.7	29.3
HU	16.0	52.8	34.4	40.1	53.8	35.5
AT	14.4	26.6	18.0	24.1	30.5	22.5
PL	19.3	40.0	27.8	45.6	49.6	42.6
PT	13.8	31.9	19.0	36.8	44.4	35.9
SI	16.0	32.1	22.4	30.5	38.1	30.3
SK	12.8	43.5	24.9	22.0	43.8	25.7
FI	24.8	40.4	16.8	32.3	41.7	19.6
SE	17.3	27.9	10.0	19.6	28.4	10.6
UK	20.0	33.2	16.9	27.9	35.7	19.9
IS	30.7	39.2	18.6	34.5	40.5	20.0
NO	27.5	40.7	20.2	32.4	41.8	21.5

Note: Percentage of respondents who have ***ever*** used Internet, in the first 3 months of 2005, in this respects. Internet users here, unlike previously, are all respondents who have ***ever*** used the internet.

Differences between broadband and narrowband home internet users become somewhat bigger with regard to posting messages in chat rooms and internet fora. In some countries (Finland, Denmark, Slovakia, Hungary, Sweden, UK, for instance) the difference exceeds ten percentage points.

Table 3-29 Percentage of population have ever used the Internet to make phone calls

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	6.6	15.1	6.6	:	:	:
EU15	6.5	14.1	6.0	:	:	:
NewMS	6.9	21.7	10.7	:	:	:
CZ	:	:	:	:	:	:
DK	12.9	19.8	6.8	15.1	20.3	7.2
DE	5.9	13.9	3.6	8.3	15.3	4.2
EE	26.2	49.6	38.9	40.7	52.5	45.2
EL	1.8	10.9	7.5	6.4	13.4	9.8
IE	1.7	:	:	3.8	:	:
IT	7.5	18.2	11.5	:	:	:
CY	4.0	12.7	7.8	11.2	16.8	12.2
LV	8.1	22.2	9.2	16.5	27.1	14.7
LT	6.5	22.6	19.7	16.8	26.9	25.6
LU	11.8	23.7	7.9	16.6	25.3	9.2
HU	5.6	22.3	15.0	14.1	22.8	15.5
AT	4.8	10.8	5.2	7.9	12.4	6.5
PL	7.1	19.9	10.3	16.7	24.6	15.8
PT	5.4	15.1	5.0	14.3	21.1	9.5
SI	5.3	:	:	10.1	:	:
SK	4.1	26.4	7.6	7.0	26.6	7.9
FI	9.7	18.3	5.1	12.6	18.9	6.0
SE	6.6	11.0	4.0	7.5	11.2	4.2
UK	7.1	11.8	5.6	9.9	12.7	6.6
IS	17.6	24.4	6.6	19.8	25.2	7.1
NO	11.4	17.9	7.0	13.4	18.4	7.4

Note: Percentage of respondents who have ***ever*** used Internet, in the first 3 months of 2005, in this respects. Internet users here, unlike previously, are all respondents who have ***ever*** used the internet.

More pronounced differences can also be found with regard to making internet phone calls. In Estonia, making internet phone calls is most widely spread. 40 percent of all internet users have already used the internet to make phone calls, 53 percent of broadband home users and 45 percent of narrowband home users. Again, this does not mean that these 45 percent of narrowband users have actually used narrowband to make a phone call. but they may have done this using another broadband access line, for instance at work.

Table 3-30 Percentage of population have ever used the Internet for peer-to-peer file sharing

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	9.1	21.8	8.6	:	:	:
EU15	9.3	21.3	8.1	:	:	:
NewMS	8.3	25.1	12.5	:	:	:
CZ	:	:	:	:	:	:
DK	10.4	15.7	4.9	12.1	16.2	5.2
DE	7.5	16.1	5.5	10.5	17.8	6.4
EE	21.9	39.9	32.9	34.1	42.2	38.2
EL	2.8	12.1	10.8	10.3	14.9	14.2
IE	2.3	:	:	5.2	:	:
IT	8.3	21.5	13.1	:	:	:
CY	6.1	22.0	11.8	17.0	29.1	18.4
LV	5.7	17.2	4.9	11.6	21.0	7.9
LT	7.3	23.5	18.5	18.8	28.0	24.1
LU	17.6	33.0	12.7	24.7	35.3	14.7
HU	6.2	26.2	14.3	15.5	26.7	14.8
AT	5.8	12.1	6.9	9.6	13.8	8.6
PL	8.9	24.6	12.9	21.1	30.5	19.7
PT	8.3	21.1	11.8	22.2	29.4	22.2
SI	8.7	:	:	16.7	:	:
SK	6.2	22.8	12.3	10.5	23.0	12.7
FI	12.8	23.4	7.2	16.7	24.1	8.4
SE	17.9	30.3	10.9	20.3	30.9	11.5
UK	13.8	27.2	7.2	19.2	29.3	8.5
IS	18.3	24.6	7.6	20.5	25.4	8.2
NO	19.1	30.7	8.9	22.5	31.6	9.5

Note: Percentage of respondents who have ***ever*** used Internet, in the first 3 months of 2005, in this respects. Internet users here, unlike previously, are all respondents who have ***ever*** used the internet.

In Iceland, the country with the second highest penetration rate among internet users, 19.8 percent of internet users, and 25.2 of broadband and only 7.1 percent of narrowband users used the internet to make phone calls. An even more marked difference can be found for instance in Slovakia, where 26.6 percent of broadband users and 7.9 percent of narrowband users have made internet phone calls.

Similarly, in peer-to-peer file sharing the differences between broadband and non-broadband amount to 10-20 percentage points in most countries. For example, in Germany, 10.5 percent of internet users report file sharing, which divide into 17.8 percent of broadband home users and 6.4 of narrowband users. Creating a web page follows the patterns observed so far and is also more frequently done by broadband users.

Table 3-31 Percentage of population who have ever created a web page

	Total Population	Live in broadband household	Live in non-broadband household	All internet users	Internet users in broadband households	Internet users in non broadband households
EU25	8.4	18.2	9.5	:	:	:
EU15	8.9	18.3	9.1	:	:	:
NewMS	6.7	17.4	11.3	:	:	:
CZ	8.2	28.8	18.4	21.9	31.1	21.4
DK	16.3	22.7	11.5	19.0	23.3	12.2
DE	8.8	16.1	7.9	12.3	17.7	9.1
EE	20.3	36.1	32.3	31.6	38.2	37.6
EL	2.0	14.3	7.3	7.3	17.5	9.6
IE	2.2	:	:	4.9	:	:
IT	6.8	15.6	11.5	:	:	:
CY	4.4	12.6	8.9	12.2	16.7	13.9
LV	3.7	7.8	3.8	7.6	9.5	6.1
LT	3.5	10.9	9.8	9.1	12.9	12.7
LU	13.7	24.9	10.6	19.3	26.6	12.4
HU	6.7	24.0	16.7	16.9	24.4	17.3
AT	7.3	14.4	9.6	12.2	16.6	12.0
PL	6.2	14.9	8.7	14.7	18.5	13.4
PT	4.9	12.4	6.0	13.2	17.3	11.3
SI	7.0	:	:	13.4	:	:
SK	6.9	19.8	14.8	11.8	20.0	15.3
FI	18.0	28.5	13.5	23.5	29.3	15.8
SE	13.6	19.9	11.0	15.4	20.2	11.6
UK	12.0	21.4	9.0	16.7	23.0	10.6
IS	26.6	33.6	15.9	29.8	34.7	17.1
NO	16.0	24.2	9.8	18.9	24.9	10.4

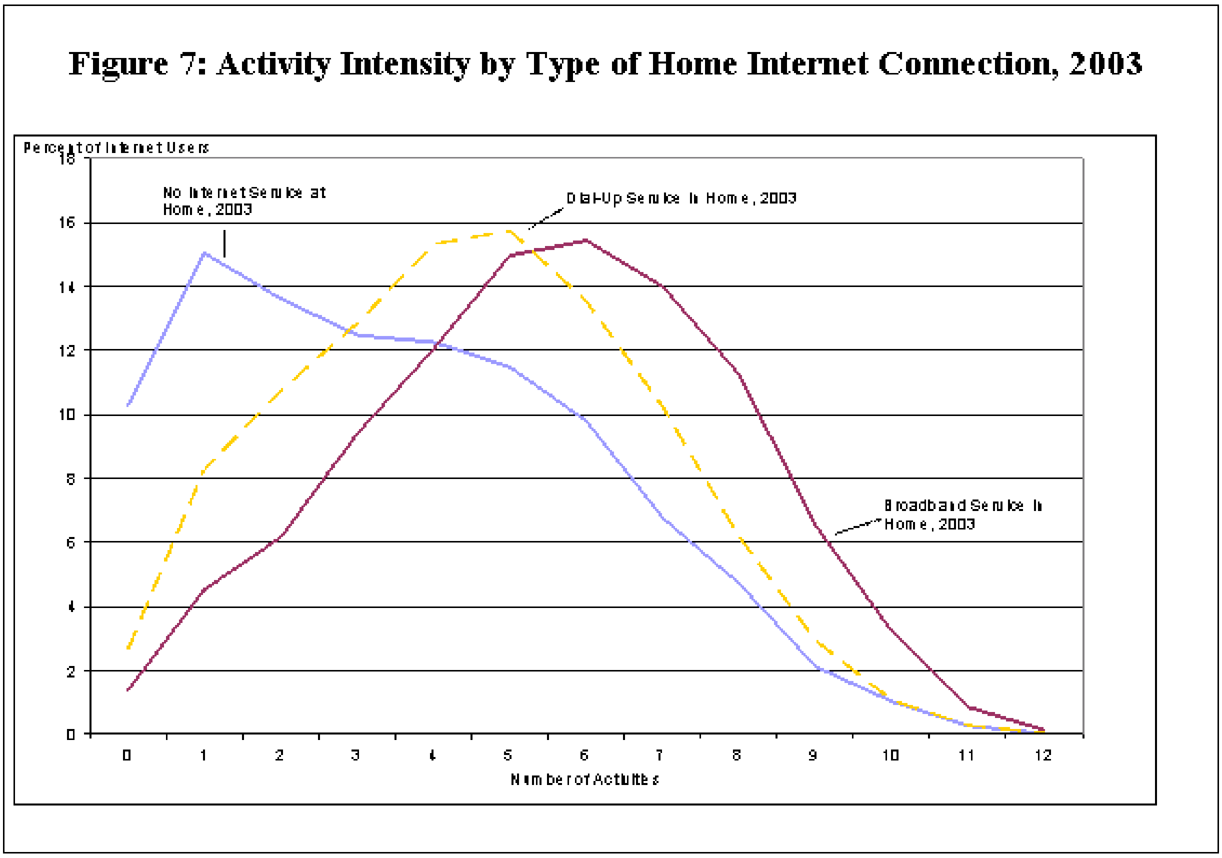
Note: Percentage of respondents who have ***ever*** used Internet, in the first 3 months of 2005, in this respects. Internet users here, unlike previously, are all respondents who have ***ever*** used the internet.

Impact of broadband on Internet use data for the USA

Data for the United States surveyed by the department of commerce suggest that internet users having broadband at home are more likely than those with dial-up or no home Internet connection to engage in specific activities such as communication, entertainment, transaction or information. They are on average engaging in a higher number of online activities. As shown in the following figure; this is copied from "A Nation Online"[7]. "15.0 percent of Internet users with no Internet at home engage in only one of the 12 activities considered. The proportion of Internet users with Internet in the home that engage in only one activity is much smaller—8.3 percent of those with home dial-up service and 4.5 percent of those with broadband. At the other end of the distribution, 22.1 percent of Internet users with broadband at home engage in eight or more activities. The comparable figures are 10.6 percent for those with dial-up at home and 8.2 percent for users without Internet at home."

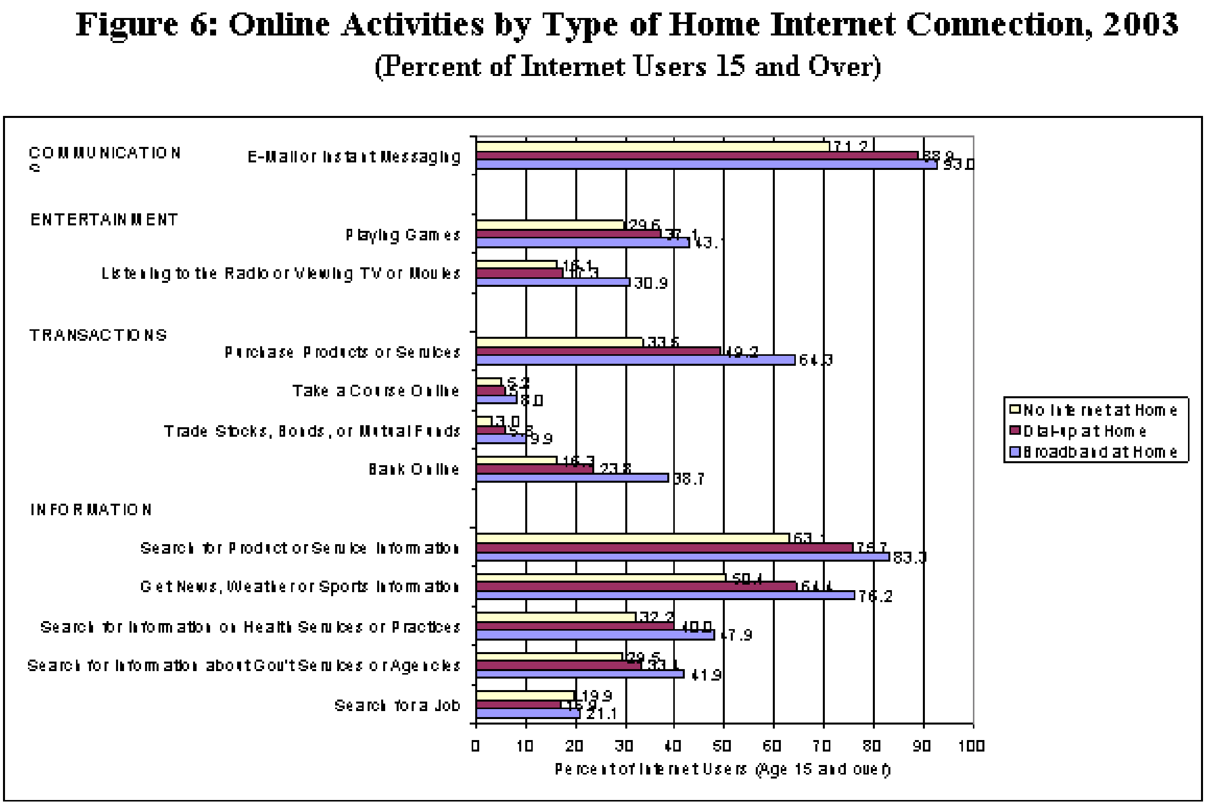
[7] U.S. DEPARTMENT OF COMMERCE (2004): A Nation Online: Entering the Broadband Age. http://www.ntia.doc.gov/reports/anol/NationOnlineBroadband04.htm

Figure 3-6 Number of activities carried out by household connection type in the United States (copy from "A Nation Online")



Source: A Nation Online: http://www.ntia.doc.gov/reports/anol/NationOnlineBroadband04.htm

Figure 3-7 US data: Online activities by type of internet connection



Source: A Nation Online: http://www.ntia.doc.gov/reports/anol/NationOnlineBroadband04.htm

3.3 The impacts of broadband access in enterprises

Also for enterprises[8] it is possible to compare broadband to non-broadband enterprises with internet access. The 2005 questionnaire asked a list of items of functions that enterprises may have done over the internet, such as e-banking, training and education, market monitoring, receiving digital goods and services and obtaining after sales services.

It turns out that a larger share of broadband enterprises makes use of each of these functions using the internet than non-broadband enterprises do. The differences are more pronounced in the New Member States than in the old EU15 states.

[8] In the following we exclude France, Malta, Portugal, Bulgaria, Romania and Iceland from our analysis because these countries do not deliver broadband/non-broadband breakdowns.

Table 3-32 The impact of broadband access on the purpose of internet (as a customer), 2005

	Broadband enterprises					Non-Broadband enterprises					All enterprises with internet access				
	Did your enterprise use the Internet for the following purposes, during January 2005?														
	banking and financial services	training and education	market monitoring (e.g. prices)	receiving digital goods and services	obtaining after sales services	banking and financial services	training and education	market monitoring (e.g. prices)	market monitoring (e.g. prices)	obtaining after sales services	banking and financial services	training and education	market monitoring (e.g. prices)	market monitoring (e.g. prices)	obtaining after sales services
EU25	80.8	26.3	64.2	50.3	36.3	69.5	15.6	47.5	29.3	24.3	77.2	22.9	58.9	43.6	32.4
EU15	80.5	24.8	63.8	51.2	38.4	69.9	13.4	46.7	30.2	23.3	77.4	21.5	58.7	45.1	34.0
NewMS	82.9	37.0	67.2	43.2	20.9	67.7	23.8	50.2	26.0	27.9	76.1	31.1	59.7	35.5	24.1
Eurozone	82.8	25.5	63.6	50.4	36.1	71.4	13.1	46.9	30.1	22.6	79.3	21.8	58.5	44.3	32.0
BE	88.4	24.8	64.4	47.3	33.9	81.3	13.5	50.4	27.9	17.9	87.1	22.8	61.9	43.8	31.0
CZ	90.2	:	83.2	40.3	11.3	82.7	:	77.3	41.8	88.2	86.9	:	80.6	41.0	44.9
DK	95.7	13.7	54.9	46.8	49.9	90.1	6.6	31.4	27.4	29.9	94.9	12.7	51.3	43.8	46.8
DE	77.2	25.6	75.6	63.6	50.2	72.0	12.4	48.5	36.5	34.3	75.4	21.1	66.4	54.4	44.8
EE	96.9	29.7	36.0	32.3	34.3	95.5	20.4	30.7	18.3	25.5	96.6	27.3	34.6	28.7	32.0
EL	80.0	49.4	69.6	35.9	27.7	67.6	32.1	53.7	18.2	14.6	73.6	40.5	61.4	26.8	20.9
ES	91.2	34.7	45.9	31.8	27.0	84.9	21.4	31.7	13.5	10.8	90.2	32.6	43.7	29.0	24.5
IE	84.1	36.3	44.5	40.2	26.1	69.8	20.2	32.0	21.1	8.8	77.1	28.5	38.4	31.0	17.7
IT	84.6	16.1	70.3	57.1	30.1	66.9	9.0	55.6	33.1	18.1	77.9	13.4	64.7	48.0	25.5
CY	69.6	62.8	75.8	35.2	21.8	42.0	38.1	53.4	12.1	4.6	55.0	49.8	64.0	23.0	12.8
LV	89.2	42.6	66.5	22.6	16.6	83.8	33.2	52.5	16.0	8.9	87.3	39.3	61.5	20.3	13.9
LT	91.6	55.9	66.6	30.6	10.6	86.8	52.7	59.0	21.5	8.6	90.0	54.8	64.1	27.6	10.0
LU	78.2	16.3	53.5	62.8	35.4	71.9	6.0	32.4	40.4	17.5	75.1	13.2	47.5	55.5	29.7
HU	67.8	21.6	54.0	:	:	56.5	13.7	42.3	:	:	63.4	18.6	49.4	:	:
NL	73.5	16.6	53.8	40.9	32.9	68.3	7.5	34.2	25.5	19.4	72.4	14.7	49.6	37.6	30.0
AT	88.4	27.5	55.3	41.5	17.7	81.0	15.8	39.1	15.1	3.7	85.7	23.3	49.5	31.9	12.6
PL	78.5	34.6	63.4	51.1	23.6	56.8	19.8	37.0	21.0	7.2	67.5	27.1	50.0	35.9	15.3
SI	94.2	45.6	78.6	61.5	30.6	81.0	28.7	53.8	35.8	16.0	91.2	41.8	72.9	55.7	27.2
SK	85.3	47.8	73.1	36.8	31.1	79.9	35.9	59.1	22.2	13.9	82.7	42.1	66.4	29.8	22.8

	Broadband enterprises					Non-Broadband enterprises					All enterprises with internet access				
	Did your enterprise use the Internet for the following purposes, during January 2005?														
	banking and financial services	training and education	market monitoring (e.g. prices)	receiving digital goods and services	obtaining after sales services	banking and financial services	training and education	market monitoring (e.g. prices)	market monitoring (e.g. prices)	obtaining after sales services	banking and financial services	training and education	market monitoring (e.g. prices)	market monitoring (e.g. prices)	obtaining after sales services
FI	90.6	34.0	70.9	55.3	38.8	85.3	23.6	50.3	32.7	19.5	89.6	32.2	67.3	51.4	35.5
SE	87.5	27.5	73.3	73.5	86.2	69.7	8.0	41.9	42.5	60.6	85.1	24.8	69.0	69.3	82.7
UK	65.5	21.9	:	:	:	60.5	16.0	:	:	:	64.1	20.3	:	:	:
NO	87.9	29.0	54.7	54.8	66.7	78.1	16.4	32.6	29.6	44.0	86.3	26.9	51.1	50.7	63.0

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more

Impact of broadband on Internet use by enterprises: e-Government

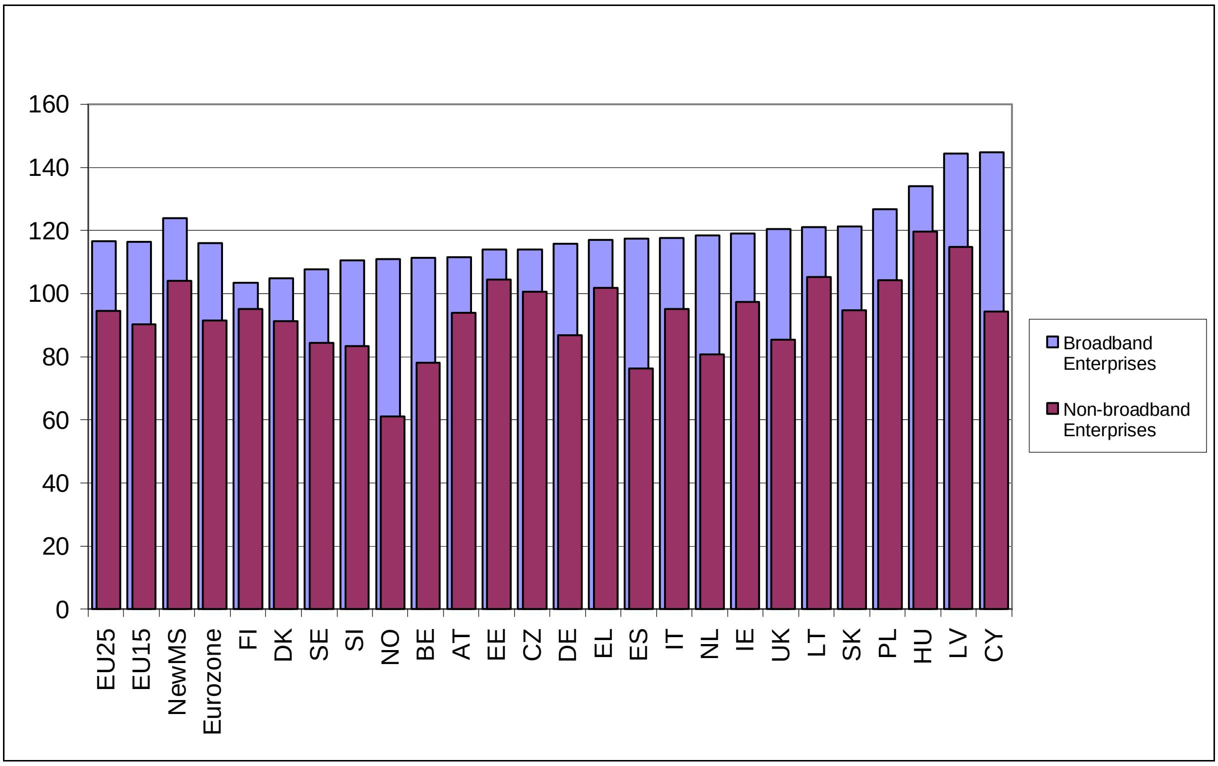
Broadband access can enable enterprises' use of e-government. While 66 percent of all European broadband enterprises are e-government users, 54 percent of non-broadband enterprises are and 57 percent in total. The differences between broadband and non-non-broadband enterprises are to be found in all Member States. As percentage difference compared to the national average, broadband enterprises are particularly advanced in Cyprus, Latvia, Hungary and Poland. In Finland, Sweden and Denmark, broadband enterprises do not behave much different from the average enterprise, which is of course also due to the high share of broadband enterprises in these countries.

Table 3-33 Use Internet for interaction with public authorities

	Broadband enterprises		Non-Broadband enterprises		All enterprises	
	E-Gov User	**E-Gov Non-User**	**E-Gov User**	**E-Gov Non-User**	**E-Gov User**	**E-Gov Non-User**
EU25	66.9	32.9	54.1	45.5	62.9	36.8
EU15	64.9	34.9	50.3	49.2	60.6	39.0
NewMS	81.7	18.3	68.6	31.4	75.9	24.1
Eurozone	66.9	32.8	52.7	46.9	62.6	37.0
BE	68.5	30.7	48.0	50.1	64.8	34.2
CZ	90.0	10.0	79.4	20.6	85.4	14.6
DK	91.2	8.6	79.4	18.0	89.4	10.0
DE	50.5	49.2	37.9	61.6	46.2	53.4
EE	79.7	20.3	73.0	27.0	78.0	22.0
EL	95.0	5.0	82.8	17.2	88.7	11.3
ES	64.9	34.9	42.1	57.6	61.4	38.3
IE	90.7	7.9	74.1	22.0	82.7	14.7
IT	85.4	14.6	69.1	30.9	79.2	20.8
CY	57.2	42.8	37.3	62.7	46.7	53.3
LV	50.8	49.2	40.4	59.6	47.1	52.9
LT	86.9	13.1	75.6	24.4	83.1	16.9
LU	:	:	:	:	:	:
HU	90.2	9.8	80.5	19.5	86.4	13.6
NL	67.4	32.6	46.0	54.0	62.8	37.2
AT	83.9	16.0	70.6	28.9	79.1	20.7
PL	81.2	18.8	66.8	33.1	73.9	26.1
SI	79.7	20.3	60.1	39.9	75.2	24.8
SK	68.6	31.4	53.6	46.4	61.3	38.7
FI	94.4	4.5	86.9	:	93.1	5.2
SE	85.6	13.8	67.2	24.3	83.1	15.3
UK	46.7	53.3	33.1	66.9	43.0	57.0
NO	92.7	5.5	74.0	18.4	89.7	7.6

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more) (:) Data not available

Figure 3-8 Use of Internet for interaction with public authorities by connection type (percentage of national averages)



100 = national average (all enterprises)

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more)

Table 3-34 The Use Internet for interaction with public authorities, 2005

	Broadband enterprises					Non-Broadband enterprises					All enterprises				
	for obtaining information	for obtaining forms	for returning filled in forms	for full electronic case handling	to submit a proposal in an electronic tender system	for obtaining information	for obtaining forms	for returning filled in forms	for full electronic case handling	to submit a proposal in an electronic tender system	for obtaining information	for obtaining forms	for returning filled in forms	for full electronic case handling	to submit a proposal in an electronic tender system
EU25	61.5	59.6	40.6	24.5	11.1	45.1	43.2	26.6	13.8	8.1	51.4	49.7	33.0	19.3	9.2
EU15	59.6	58.1	38.6	24.5	:	42.2	41.3	22.7	13.6	:	50.1	48.9	31.2	19.6	:
NewMS	75.5	71.0	55.2	24.9	:	56.0	50.6	41.6	14.6	:	58.1	53.8	42.7	17.7	:
Eurozone	60.8	59.7	40.3	26.7	11.3	43.3	42.8	23.8	15.2	8.7	51.1	50.3	32.6	21.4	9.6
BE	63.4	48.5	37.5	16.9	:	42.2	34.2	24.8	9.3	:	56.5	43.6	33.4	14.8	:
CZ	84.8	76.0	40.3	18.1	20.1	71.3	62.9	26.4	10.8	14.9	72.9	65.0	31.6	13.8	16.5
DK	85.8	81.1	61.4	:	:	71.5	65.7	39.1	:	:	81.4	76.6	56.4	:	:
DE	43.6	43.0	29.5	18.1	14.8	29.2	28.6	18.7	9.4	10.3	36.5	36.0	24.4	14.3	12.6
EE	76.1	71.4	58.1	60.2	:	67.7	62.0	48.7	51.5	:	66.3	61.8	49.9	51.9	:
EL	89.2	88.2	76.1	89.9	29.4	69.1	63.7	46.4	75.7	16.4	72.2	69.3	55.7	75.7	20.8
ES	61.1	60.1	41.5	27.9	3.1	38.2	36.4	22.6	12.8	1.1	51.8	50.8	34.7	23.0	2.5
IE	77.6	81.0	56.2	42.4	21.1	60.0	57.5	33.5	24.0	8.7	63.6	64.1	41.6	30.9	13.9
IT	78.3	76.9	37.5	28.7	12.4	60.4	57.3	21.7	13.0	8.0	65.5	63.7	28.9	20.9	9.8
CY	56.4	39.4	16.6	5.6	0.0	36.6	16.7	5.4	1.4	0.0	38.9	23.2	9.0	2.9	0.0
LV	47.1	42.7	21.7	3.5	0.0	36.4	34.7	18.0	3.4	0.0	32.3	29.7	15.2	2.6	0.0
LT	80.5	84.5	65.6	35.8	9.4	70.7	71.1	47.8	26.1	7.8	66.7	69.1	51.5	28.1	7.7
HU	85.6	83.4	51.5	25.4	:	72.1	71.6	33.6	14.2	:	62.5	61.4	34.7	16.4	:
NL	63.3	61.2	51.7	12.6	:	38.1	39.6	34.8	7.3	:	52.5	51.3	43.6	10.4	:
AT	67.8	77.4	49.9	41.9	11.9	45.2	63.4	32.6	31.5	10.5	56.7	68.8	41.5	36.3	10.9
PL	72.1	67.4	75.7	22.7	8.5	47.5	40.7	63.3	13.2	4.4	51.7	46.7	60.2	15.5	5.5
PT	72.3	72.1	72.1	62.1	8.9	37.8	43.8	37.9	26.1	#WERT!	52.2	53.5	52.5	43.9	6.1

	Broadband enterprises					Non-Broadband enterprises					All enterprises				
	for obtaining information	**for obtaining forms**	**for returning filled in forms**	**for full electronic case handling**	**to submit a proposal in an electronic tender system**	**for obtaining information**	**for obtaining forms**	**for returning filled in forms**	**for full electronic case handling**	**to submit a proposal in an electronic tender system**	**for obtaining information**	**for obtaining forms**	**for returning filled in forms**	**for full electronic case handling**	**to submit a proposal in an electronic tender system**
SI	77.1	69.5	52.0	39.9	5.4	55.2	42.1	28.8	23.5	5.2	69.1	60.6	44.7	34.6	5.1
SK	63.4	63.5	34.1	29.3	1.8	45.4	46.4	0.0	21.3	1.9	50.5	50.9	16.3	23.5	1.7
FI	91.3	89.9	76.1	38.9	:	79.7	81.2	57.2	28.6	:	87.6	86.7	71.5	36.4	:
SE	84.4	83.4	52.2	24.7	11.3	63.0	65.0	36.0	15.1	4.6	78.0	77.5	47.8	22.4	9.9
UK	45.1	41.4	24.0	13.1	:	32.1	29.3	14.2	4.4	:	37.5	34.3	19.2	9.7	:
NO	85.2	80.1	67.6	40.5	23.3	40.7	38.5	29.3	13.7	9.3	75.4	71.0	59.2	34.6	20.2

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more) (:) Data not available

Impact of broadband on uptake of tele-work by enterprises

Even more pronounced are the differences between non-broadband and broadband enterprises with regard to telework. 2.5 times as many broadband enterprises offer telework as non-broadband enterprises in Europe. In Denmark already more than half of the broadband enterprises have remote employed persons who connect to the IT systems through electronic networks.

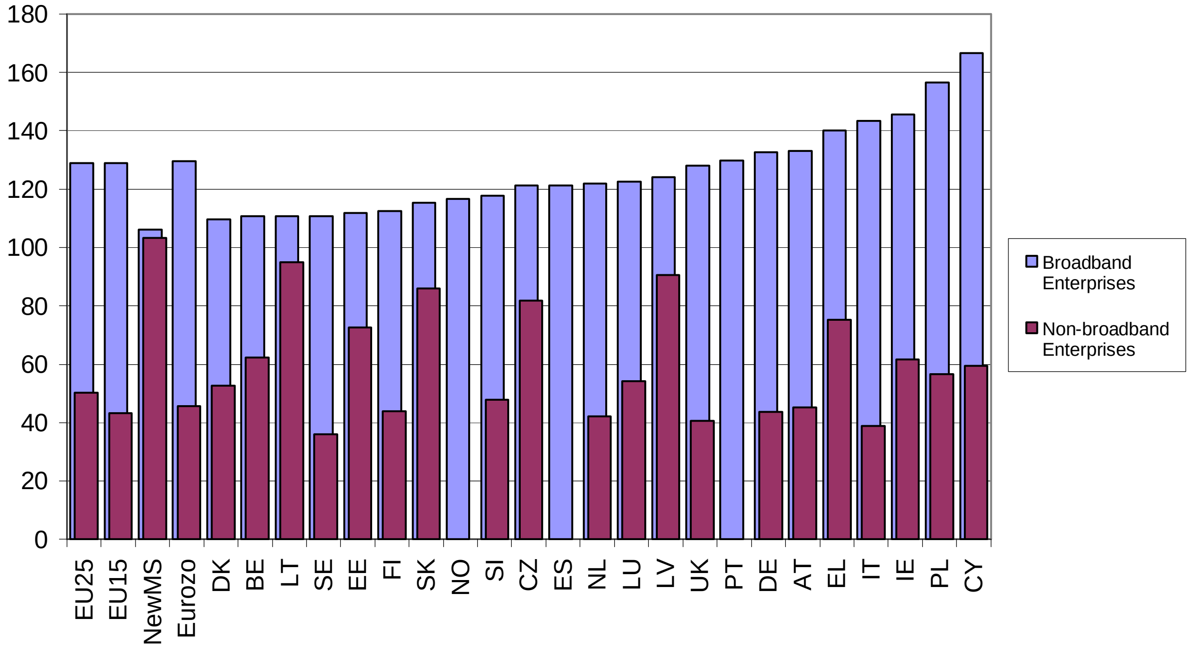
Table 3-35 Telework (remote employed persons who connect to IT systems through electronic networks) by type of internet connection

	Broadband enterprises	Non-Broadband enterprises	All enterprises
	Telework	**Telework**	**Telework**
EU25	25.5	9.9	18.9
EU15	27.1	9.1	20.2
NewMS	13.4	13.0	11.7
Eurozone	24.1	8.5	17.9
BE	37.2	20.9	32.6
CZ	7.5	5.1	5.9
DK	55.5	26.8	49.8
DE	33.4	11.0	24.5
EE	24.6	16.0	20.2
EL	24.9	13.4	17.4
ES	10.5	:	8.5
IE	40.0	16.9	26.5
IT	13.9	3.8	9.3
CY	32.6	11.6	18.4
LV	12.0	8.8	8.4
LT	17.2	14.7	14.4
LU	21.9	9.7	17.4
HU	8.4	52.3	19.8
NL	37.0	12.8	28.8
AT	27.5	9.3	20.0
PL	7.5	2.7	4.5
PT	21.0	:	14.7
SI	26.3	10.7	21.8
SK*)	41.4*)	30.9*)	34.8*)
FI	37.4	14.6	32.9
SE	46.3	15.0	40.2
UK	34.8	11.0	25.5
NO	46.8	:	38.8

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more (:) Data not available

*) Share of "Don't know" answers is considerable (between 15.8 and 17.6%)

Enterprises practising telework as percentage of national averages



Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more

Impact of broadband on supplier and customer integration

Enterprises using broadband are more likely to be integrated with suppliers and customers than non-broadband enterprises. Integration is highest in Italy and Portugal, followed by the Denmark and Greece. The difference between non-broadband enterprises and broadband enterprises can be found virtually everywhere except from the Netherlands where a much smaller difference is obvious.

Table 3-36 IT systems for orders and purchases which link to IT systems of suppliers or customers outside the enterprise group

	Broadband enterprises	Non-Broadband enterprises	All enterprises
EU25	18.6	10.9	15.1
EU15	20.1	12.8	17.0
NewMS	7.2	3.7	5.0
Eurozone	22.6	14.3	18.7
BE	15.8	11.3	14.5
CZ	5.7	3.0	4.2
DK	25.1	12.6	22.6
DE	20.9	9.8	16.3
EE	6.1	1.6	4.5
EL	23.8	18.2	19.2
ES	9.4	3.9	7.8
IE	17.8	9.3	13.2
IT	39.5	24.7	31.2
CY	10.3	1.5	4.8
LV	5.3	3.9	3.6
LT	8.0	5.3	6.2
LU	19.0	12.3	16.1
HU	1.3	0.5	0.8
NL	20.9	18.0	18.3
AT	19.3	10.8	15.4
PL	9.0	4.0	5.6
PT	37.1	:	27.3
SI	11.1	3.3	9.0
SK	12.2	7.6	9.2
FI	18.3	14.1	17.3
SE	9.7	1.8	8.3
UK	9.3	5.3	8.9
NO	15.4	6.4	13.4

Source: Eurostat 2005 Community Survey on ICT Usage and e-Commerce in Enterprises. Note: All sectors without financial sector (10 employed persons or more) (:) Data not available

4 Future Developments and Recommendations for Policy Action and Survey and Questionnaire Design

4.1 CoCom data and survey data compared

Basically there are two types of methods to gather data on the proliferation of broadband in countries. One is, as done in the two surveys that this reports builds on, to survey the demand side, that is, households and enterprises (and, for completeness, non-enterprise organisations plus public bodies).

The other one is to gather data at the supply side, from the carriers and providers of broadband access about the number of subscribers they deliver broadband connectivity to. This kind of information is available for OECD, EU and a number of further countries as a time series already longer than the results of harmonised household and enterprise surveys.

DG INFSO collects this kind of information through the Communications Committee (Committee of National Regulatory Authorities (NRAs), known as CoCom). The CoCom has a clear definition of broadband, that is, a speed of 144kbps and higher.

Drawbacks of CoCom approach

The supply side approach delivers a very reliable count of broadband internet access points that offers a reliable time series. However, numerous drawbacks exist with regard to this indicator of number of subscriber lines.

The most eminent disadvantage is that no further information about the demand side can be made. Supply side gathering does not differentiate between connectivity delivered to private households, enterprises and other organisations. The denominator "per 100 inhabitants" is thus potentially misguiding. Although there will be a significant correlation between this indicator and the share of households connected via broadband, it is rather rough grained. Chapter 4.2 has shown that there can be significant differences between countries' advancement with regard to household and enterprise penetration rates. For example, while Greece's and Slovakia's enterprise access is about the same, Slovakian households' share of broadband users is ten times higher than in Greece.

Even if a breakdown per type of customer (private, business, public, etc.) was available, no statements could be made about the (socio-economic, business etc) profiles of who actually is accessing broadband and who is not and what the impacts of broadband access are. This kind of research is only possible through survey research and micro data.

A further drawback is that broadband connections can be shared between households[9]. On the other hand, also household surveys are currently not able to identify broadband lines that are shared between households. It is hence to be decided from a theoretical point of view, whether, for instance, it is desirable that two student households that share one WLAN access are double counted (survey approach) or as one access point (supply side approach).

The emergence of local WLAN and of WiFi community internet access (especially in cities) may make dedicated household access lines obsolete in the not too distant future and will thus potentially render the number of subscriber lines indicator obsolete for informing about the proliferation of broadband. The availability of community WiFi internet may make it hard to decide whether somebody actually has broadband access or not. It will rather be necessary to rely on surveying actual usage.

[9] Definitions of a "household" have also been significantly diverging across Europe.

4.2 Surveying the type of internet connection in surveys

In ICT surveys, the respondent is usually asked to report their type of internet connection at home or in the enterprise reporting on. In the 2005 household surveys, respondents could chose (multiple choice) from four items, namely a) Modem (dial up over normal telephone line) or ISDN, b) DSL (e.g. ADSL, SHDSL, etc.), c) other broadband connection (e.g. cable, UMTS, etc) and d) Mobile phone over narrowband (WAP, GPRS, etc.). Many respondents will not know of what type their internet connection is, or be confused by these answer categories.

In the enterprise surveys, even different categories of internet connections were asked of the respondents: a) Traditional Modem (dial-up access over normal telephone line), b) ISDN connection, c) DSL (xDSL, ADSL, SDSL etc) < 2Mb/sec, d) DSL (xDSL, ADSL, SDSL etc) >2Mb/sec, e) Other fixed connection (e.g. cable etc), f) Wireless connection (e.g. satellite, mobile phone).

Experience from several surveys throughout Europe and beyond that the contractor has carried out suggests that asking people and organisations about their type of internet access is a very complicated matter. Many people simply do not know about these kinds of technical detail. It would be worthwhile to carry out a reliability study that would compare the statements made during a survey with the access type actually existing in the respective household.

However, data from the Eurostat surveys may only give hints about the reliability of self reported access type. If one assumes that several internet services are possible only via broadband than the number of people that has used this kind of service and that reports to have narrowband access at home should be rather small. For example, using web radio and making phone calls via the internet can be assumed to be only usable if a broadband connection exists.

It is however not possible to decide if the answers of internet users living in non-broadband households are invalid, because the survey results do not reveal whether making phone calls via internet, or watching TV has actually taken place at the home computer or elsewhere.

Looking at the data tables, it becomes obvious that broadband intensive web functionalities are most common among internet users in Estonia, Latvia and Lithuania. The authors of this report are not able to decide, however, whether these results are more or less valid than the results of other countries. One may only speculate if these findings are the expression of a particularly young group of internet users that is especially fast with the adoption of new technologies even if they are unable to use it at home.
For the time being, no solution for the measurement of bandwidth in survey is visible. However, generally the rule of thumb is to make it as easy as possible for the respondent to find the correct answer. This may include mentioning brand names of internet provider packages that include either broadband or narrowband.

Table 4-1 Percentage of internet users (ever) who have used the Internet to make phone calls (ever)

	internet users living in a household with broadband access	internet users living in a household with no broadband access	All internet users
DK	20,3	6,5	15,1
DE	15,3	3,9	8,3
EE	52,5	27,8	40,7
EL	13,4	9,8	6,4
CY	16,8	12,2	11,2
LV	27,1	14,7	16,5
LT	26,9	25,6	16,8
LU	25,3	8,2	16,6
HU	22,8	10,7	14,1
AT	12,4	5,4	7,9
PL	24,6	12,6	16,7
PT	21,1	9,5	14,3
SK	26,6	7,9	7,0
FI	18,9	6,0	12,6
SE	11,2	3,9	7,5
UK	12,7	6,6	9,9
IS	25,2	7,1	19,8
NO	18,4	7,4	13,4

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Table 4-2 Percentage of internet users who have used Internet, in the last 3 months, for telephoning over the Internet, for videoconferencing

	internet users living in a household with broadband access	internet users living in a household with no broadband access	All internet users
EU25	12,6	5,3	8,5
CZ	23,3	18,9	17,2
DK	14,4	5,5	11,4
EE	23,2	9,7	17,3
EL	25,5	3,7	3,3
ES	11,6	4,8	8,1
IT	9,8	5,0	6,5
CY	14,0	7,4	7,4
LV	30,4	18,5	19,9
LT	21,5	17,5	12,9
LU	25,0	6,5	15,8
HU	22,1	6,3	11,0
NL	8,2	2,4	6,3
AT	9,2	4,9	6,6
PL	20,3	8,1	12,8
PT	16,1	4,8	10,0
SK	23,7	8,1	7,2
FI	19,8	5,9	13,4
SE	8,5	2,2	5,5
UK	11,4	:	7,2
IS	21,2	3,7	16,4
NO	14,4	3,0	9,6

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

Table 4-3 Percentage of internet users who have used Internet, in the last 3 months, for listening to Web radios / for watching Web television

	internet users living in a household with broadband access	internet users living in a household with no broadband access	All internet users
EU25	34,9	14,5	24,6
CZ	12,8	11,3	8,8
DK	31,8	10,7	24,7
EE	30,3	18,8	25,3
EL	26,3	20,4	16,8
ES	65,2	53,3	54,8
IT	19,3	10,8	13,5
CY	42,4	29,1	28,1
LV	40,2	24,3	27,5
LT	40,9	34,8	31,7
LU	38,6	16,3	27,6
HU	36,4	11,9	19,2
NL	32,0	9,2	25,1
AT	14,6	6,6	9,7
PL	26,1	10,2	16,4
PT	33,7	25,0	28,1
SI	33,9	:	22,4
SK	31,6	12,1	11,0
FI	31,7	11,9	23,1
SE	37,1	:	25,2
UK	33,8	9,8	22,5
IS	44,5	14,9	36,6

Source: Eurostat 2005 Community ICT Household survey (:) Data not available

4.3 Suggestion for future survey data processing

With the transmission scheme of survey data as it was used for the surveys analysed here, it was not possible to link the household information about broadband connectivity with the breakdowns characteristics that were to be provided for the individual who answered the questions. It is thus suggested to have a broadband variable as a characteristic of the individual. By that way, a profile of “internet users living in broadband households” can be analysed by the breakdowns that are also used for other survey questions, such as age, gender, education, employment situation, and combinations thereof.

5 Summary and Conclusions

Analysis of the uptake of broadband in European households and businesses has provided some interesting insights into EU member state performances and into impact of increased connectivity on online behaviour of consumers, citizens and businesses.

Broadband has been taken up at a rapid pace in most of the European countries and growth rates continue to be high. The "usual suspect" countries can be found to lead the pack both in private and business broadband. A lot of untapped broadband connectivity demand can be expected among those firms and households that currently only have narrowband connections. These groups are particularly high in rather diverse countries. In business broadband market these are rather the New Member States, whereas in the consumer market, pent up demand can be found even in some of the most advanced Information Societies.

With regard to enterprises, country disparities largely stem from disparities among the European small (<50 employees) enterprises. Medium and large enterprises tend to be very similar across Europe in the broadband usage. Digital business divides hence only appear for smaller enterprises and countries at the tail end are countries such as Poland, Cyprus and Greece.

With regard to business sector, not surprisingly service sectors tend to outpace blue collar sectors and knowledge intensive tend to outpace lower skills sectors.

There is a strong regional divide with regard to consumer broadband. Thinly populated areas and Objective 1 regions are clearly left behind with regard to broadband connectivity which reflects the (lack of) supply structure in rural areas across most of Europe.

While it is very regrettable that "having broadband" was only conceived of as a characteristic of the household and not of the individual survey respondent in the transmission scheme, the breakdowns by household characteristics nevertheless reveal some correlation. Children are a significant predictor of broadband access and access is also correlated with household income, at least for the few countries that delivered this breakdown.

As for the impacts of broadband, it can be stated that broadband access generally leads to a more intensive and more diversified usage of online services. Broadband users are using the internet more often; they are more likely to use e-government, e-health and e-learning. Even e-mail is used more frequently by broadband household dwellers. However, this may also be an effect of the differential socio-economic composition of the two groups – which can unfortunately not be proved because no socio-economic breakdowns are available – let alone micro data.

The impacts analysed at the enterprise level hint into the same direction. Broadband enterprises are more likely to do all kinds of transactions and interactions. However, what part of this difference can be attributed to broadband and which part is due to other independent variables could only be decided if micro data was available.

Concluding, it should therefore be recommended to consider approaches that make comparative micro data analysis of national data sets possible at some point in the future. Until that is possible, the analysis of pre-processed data will significantly gain from making available lots of different (combinations of) breakdowns of independent variables.