

Information Society Benchmarking Report

TABLE OF CONTENTS

“Information Society Benchmarking Report” Executive Summary	1
1. Connectivity and new networks	5
1.1. Internet access	5
1.2. Broadband	7
1.2.1. Broadband penetration and coverage	7
1.2.2. The Costs of broadband	11
1.2.3. Broadband: conclusions	14
2. From connectivity to use: the growth of e-services	14
2.1. e-Business	14
2.1.1. Use and adoption of ICT by enterprises.....	14
2.1.2. e-Business readiness	17
2.1.3. e-Business: sectoral perspective.....	18
2.1.4. e-Business Conclusions: the International Perspective.....	20
2.2. e-Government.....	20
2.2.1. Availability of online public services	21
2.2.2. Use of online public services	22
2.2.3. e-Government: conclusions.....	25
3. Inclusion: an information society for all	25
3.1. Breakdown of internet use by socio-economic factors	25
3.2. Inclusion: conclusions.....	28
4. Conclusions	28

Executive Summary

In June 2005, the European Commission set out a new strategic framework for the Information Society, i2010 – a European Information Society for growth and employment. This report provides the first overview of the state of the Information Society since i2010 was adopted and a check on progress since the launch of eEurope 2005 in 2003. It also provides the first analysis of the Information Society in the Member States that joined the EU in 2004.

This report is largely based on the 2004 surveys of Households and Enterprises that were developed by Eurostat and the National Statistical Institutes of the EU Member States. These surveys are supplemented by more recent data, for example, the e-Business Watch survey of 2005 and broadband subscriber data from July 2005 and independent studies to make up a comprehensive review of Information Society themes. The report covers the whole EU25 plus the candidate and EEA countries.

Section 1 of the report looks at connectivity and the roll-out of new networks, including broadband infrastructure. However, connectivity represents a mere instrument not the end result; section 2 focuses on the objectives of eEurope and its contribution to the Lisbon strategy by the creation of new private sector services through e-business and modern online public services. In line with the continuity of interest in e-Inclusion in both i2010 and eEurope, section 3 contains an analysis of some eEurope indicators broken down by socio-economic categories.

The main trends identified in the report are as follows:

- Broadband roll-out is a clear success story. The limited availability of broadband connections at the end of 2002 has been transformed and access is now available to nearly all citizens. There are, however, important exceptions to this in the new Member States and sparsely populated regions. Driven by increased competition and lower prices, take-up has increased rapidly with high growth rates, even in comparison to our main international competitors. However, most internet connections remained narrowband and, in 2004, few broadband connections in Europe offered more than 3 Mbps.
- There was little evidence of the roll-out of new networks from the 2004 surveys and the PC remained the dominant access device. However, the beginnings of the use DTV and mobile and multi-platform access could be seen.
- Disparities between Member States had not reduced between the start of eEurope and 2004. The new Member States joining in 2004 were generally behind but some are catching up and there is evidence that their intensity of use is as high as that of EU15.
- Connectivity of enterprises is high throughout EU25 and there has been some catch-up by SMEs. However, use of ICT by business has grown only slowly and Europe lags behind in the use of advanced e-business applications. There has been a recovery in e-commerce revenues, especially in SMEs.
- Availability of online public services has continued to grow and many services are now available with full interactivity in many Member States. Use of online public services has grown as availability has increased and a large majority of users report benefits in terms of time saving and more flexible access to administrations. These positive impacts should encourage Member States to strengthen the development of e-Government policy.

- All Member States are confronted with the challenge of extending the information society to people with little or no formal education, those not in employment and older people. These divides are less acute in countries which are more advanced in the adoption of ICT and in some new Member States. However, there is no sign that they reduce over time and an inclusive information society will not be achieved without policy support.

Introduction

The Information Society continues to be a key driver of growth and employment and thus remains at the heart of the Lisbon Strategy.¹ Therefore, in June 2005, as the first concrete action under the renewed Lisbon Agenda, the Commission set out a strategic framework for the Information Society, i2010 – a European Information Society for growth and employment.² i2010 builds on its predecessor, the **eEurope 2005 Action Plan**,³ launched in 2002, under which a comprehensive set of benchmarking indicators were defined on Internet and broadband take-up by citizens and businesses and on the supply and use of on-line public services.⁴

The present report serves the function of providing the first overview of the state of the Information Society since i2010 was adopted and a check on progress since the launch of eEurope 2005 in 2003. It also provides the first analysis of the Information Society in the Member States which joined the EU in 2004.

Following a Council decision, the results reported here use official sources as far as possible. To this end, surveys⁵ of Households and Enterprises were developed by Eurostat and the National Statistical Institutes to measure indicator values. These surveys are supplemented by independent studies to make up a comprehensive review of Information Society themes, including for the whole EU25 and also the candidate and EEA countries. The report uses the surveys from 2004 and supplements this with more recent data for example the e-Business Watch survey of 2005, and broadband subscriber data from July 2005.

The achievements measured in this report in the area of connectivity, up-take of advanced services, ICT enabled public services and e-Inclusion remains an important objective in i2010. Therefore, most of the benchmarking indicators will be monitored further. However, i2010 covers a broader scope, taking into account forthcoming technological developments. Issues such as convergence, research and innovation in ICT and quality of life will require an extended benchmarking framework and progress will also need to be assessed with respect to the Lisbon objectives of growth and employment. The Commission and the Member States are preparing a new benchmarking framework to meet these requirements.

Section 1 of the report looks at connectivity and the roll-out of new networks, including broadband infrastructure. However, connectivity represents a mere instrument and is not the end: section 2 focuses on the objectives of eEurope and its contribution to the Lisbon strategy through the creation of new private sector services through e-business and modern online public services. In line with the continuity of interest in e-Inclusion in both i2010 and eEurope: section 3 contains an analysis of some of the eEurope indicators, broken down by socio-economic categories.

¹ Reference to Lisbon Strategy Feb 2005

² i2010 – a European Information Society for growth and employment, COM(2005)229

³ eEurope 2005: an Information Society for all. COM(2002) 263

⁴ Council Resolution on the implementation of the eEurope 2005 Action Plan

⁵ These are the *ICT usage in enterprises* survey was 2004 and the *ICT usage in households and by individuals* Survey, both carried out in the 1st quarter 2004. Full results are available from the Eurostat web site. Household data quoted in this report cover 21 Member States (missing CZ, NL, BE, MT) plus BG, TR IC and NO; enterprise data covers 20 Member States (missing LU, FR, GR, MT ,LV) plus BG, RO and NO.

1. CONNECTIVITY AND NEW NETWORKS

1.1. Internet access

Internet connectivity has grown steadily and the Community Household survey of 2004 showed 43% of households in the European Union were connected. A slightly lower proportion, 38% of the population aged 16-74, was found to be regular users, going online at least once per week.

Table 1: Internet connectivity for households

	EU25	EU15		
	2004	2004	2003	2002
% households with an internet connection	43	47	43	39
% individuals, aged 16-74, regularly using the internet	38	41	38	:

The proportion of households connected in the EU declined slightly on enlargement in 2004. Connectivity in the EU15 grew from 43% in 2003 to 47% in 2004. Comparable figures for EU25 are not available from the household survey but data collected as part of the *eEurope+* benchmarking exercise showed that connectivity growth in the new Member States outstripped that of the EU15.

For enterprises, internet connectivity is the norm with on average 89% of them connected (table 2) in 2004. However, there are some small variations according to the size of the enterprise (89% for SMEs and 99% for large enterprises).

Table 2: % of enterprises connected to the internet

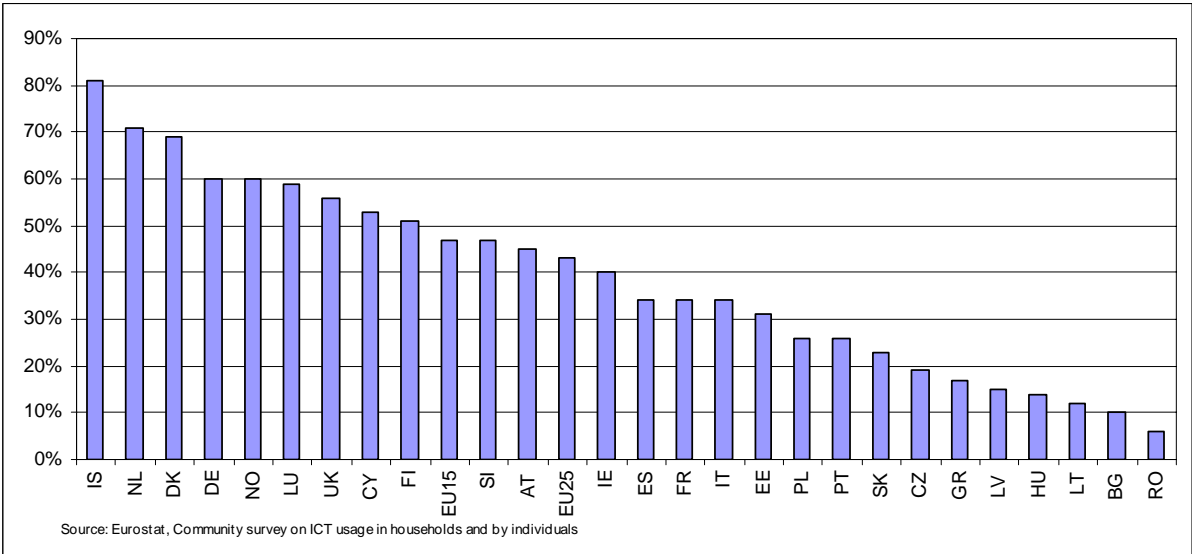
	EU25	EU15	
	2004	2004	2003
All enterprises (10+ employed persons)	89	90	86
SMEs (10-249 employed persons)	89	90	86
Large enterprises (250+ employed persons)	99	99	99

Source: Eurostat, Community survey on ICT usage in enterprises

There are wide disparities in connectivity between Member States (figure 1), and these have not reduced since 2001.⁶ The central aim of *eEurope* was “the information society for all” but this latest benchmarking evidence shows there has been little convergence between Member States.

⁶ The coefficient of variation of the distribution across EU15 has remained constant since 2001

Figure 1: % of households with an internet connection(2004)



Access to the internet other than via a PC is growing (table 3). The household survey shows that between 2003 and 2004 there was a substantial growth in the use of mobile devices. In 2003, no member state had more than 11% of households accessing the Internet via a mobile device but by 2004 five Member States had more than this and in the leader, Slovenia, 28% of households had such access. In all cases, the majority of devices used were mobile phones and use of hand held PCs was marginal. The only significant users of digital TV to access the internet were in the UK where 6% of households used it in 2004. Although still small, these figures do indicate the growing diversification of ways to access the internet and mobile access (or multi-platform Internet access) will further increase with the roll-out of 3G mobile infrastructure and services.

Table 3: % of households with access to the Internet by device.

	Mobile device		PC	
	2003	2004	2003	2004
EU25				42
EU15			43	47
IS		1		80
NL			49	70
DK	4	12	64	68
LU	6	11	44	59
NO	10	11	59	58
DE	6	9	53	57
UK	11	12	52	54
FI	7	20	40	45
AT	3	2	36	44
SI		28		41
IE	3	3	34	38
FR			31	34
CY		4		34
ES			27	33
EE		4		25
PT	4	6	21	23
SK		9		20
CZ			15	19
PL		14		19
GR	1	1	16	16
HU		3		14
LT	0	1	6	11
LV		7		10
BG		3		8
RO				5

1.2. Broadband

1.2.1. Broadband penetration and coverage

Broadband infrastructure has been rolled out in all Member States and there has been a rapid growth in the number of users. By July 2005, there were 48.37 million subscribers in the EU⁷, an increase of 60% over the previous year (table 4).

Table 4: Broadband subscriptions, growth and penetration rates.

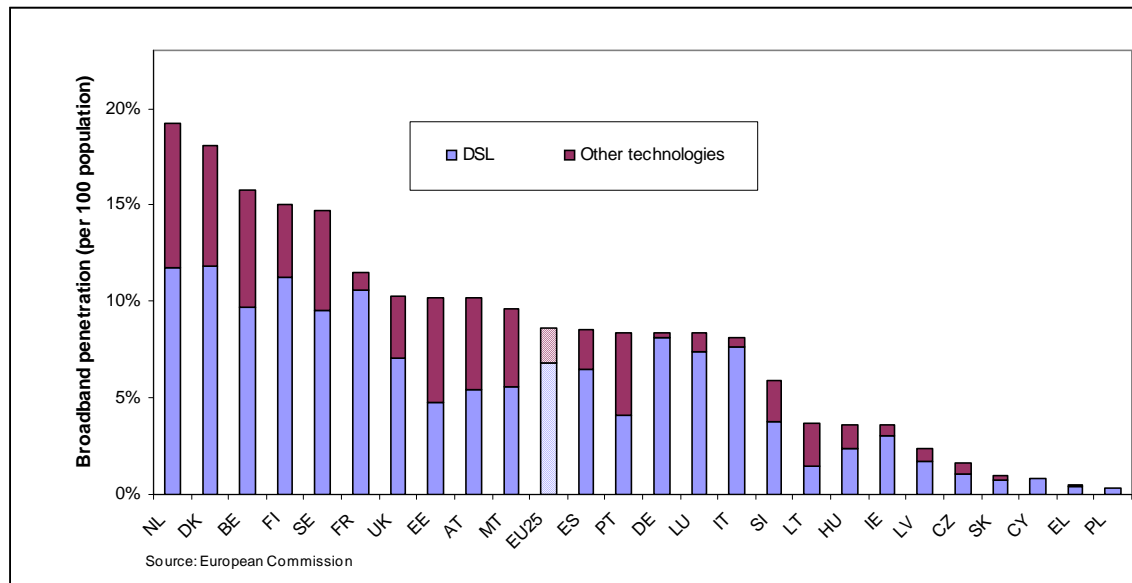
	SUBSCRIBERS		% GROWTH	PENETRATION (SUBS/POP)
	July 2005	July 2004		
EU25	48.4	30.2	60.2%	10.6%
USA	37.8	28.6	32.2	12.8%
Canada	6.3	5.2	19.5%	19.5%
Japan	20.6	16.6	21.1%	16.1%
Korea	14.7	13.7	7.2%	30.1%

⁷ This figure is from COCOM, the committee of European telecom regulators. Data in the table is from the Broadband Subscriber Database which is also from operators and corresponds closely to COCOM

Singapore	0.55	0.45	22.5%	13.1%
China	31.5	17.7	78.1%	2.4%

The July 2005 figure of 48 million broadband subscribers is equivalent to 10.6 per 100 people but there is wide variation between Member States ([figure 2](#)). The most advanced countries are the Netherlands, Denmark, Belgium, Finland and Sweden where subscriptions are above 15 per 100 people. At the other end of the scale, there are four Member States with penetration rates at or below 1.1%.

Figure 2: Broadband penetration – subscribers per 100 population (January 2005)



DSL is the dominant platform with 80% of broadband subscribers, and most of the others are connected by cable⁸. There is, as yet, little roll out of new networks such as wireless, fibre or 3rd generation mobile networks. The 2004 Community household survey also showed that few people were then accessing via Digital TV ([table 3](#)), with only the UK having any significant roll-out (6% of households - a slight reduction on the 2003 figure). However, since the 2004 survey, there are now emerging signs of roll-out of new networks and of multi-platform convergence.

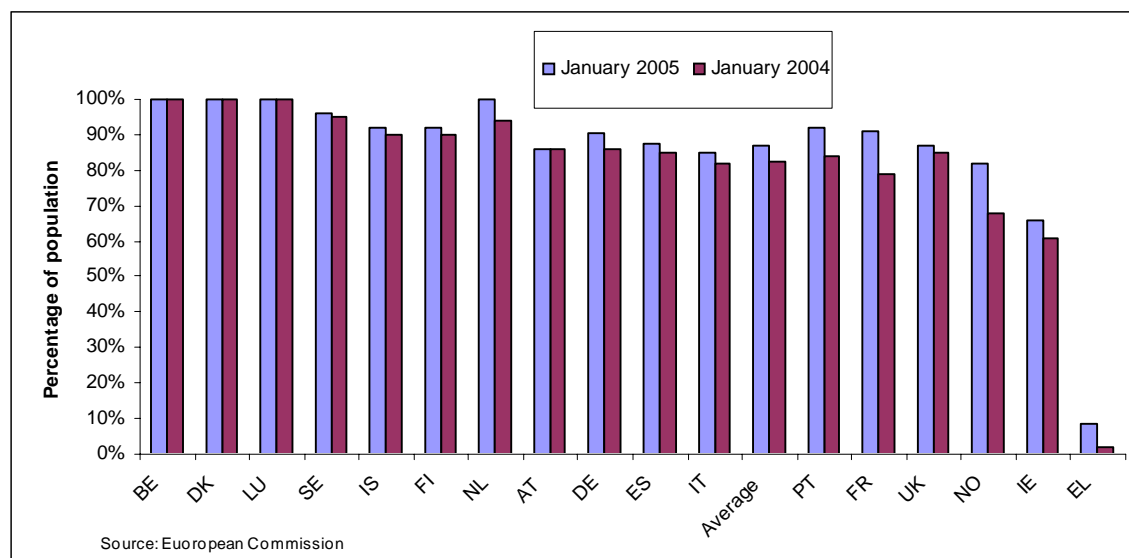
As regards broadband roll out, although data is not yet available for EU25, coverage is widespread in the EU15. A survey in January 2005 found that 87% of the EU15 population could receive broadband, an increase of 7 percentage points on the previous year. With the exception of Greece (9%) and Ireland (66%), at least 85% of the population of each EU15 member state have broadband coverage via DSL⁹.

⁸ estimates of DSL/cable market share from COCOM for Jan 2005

⁹ Coverage denotes the percentage of population depending on switches equipped for DSL and/or living in houses passed by an upgraded cable. There may be some individuals and businesses located too far away from the switches to be reached but any overestimate will be minor.

Around 30% of the EU15 population are covered by cable infrastructure but this does not increase overall coverage as few areas have cable but no DSL. Source: European Commission (IDATE)

Figure 3: DSL Broadband coverage - % of population



Broadband connectivity of enterprises is widespread but with a sharp division by size: 87% of large enterprises (250+ employees) had broadband access, 71% of medium sized enterprises (50-249) but only 48% of small firms (table 5). These figures refer to first quarter 2004 and the rapid rise in broadband subscriptions since then would suggest broadband penetration into enterprises is now likely to be significantly higher.

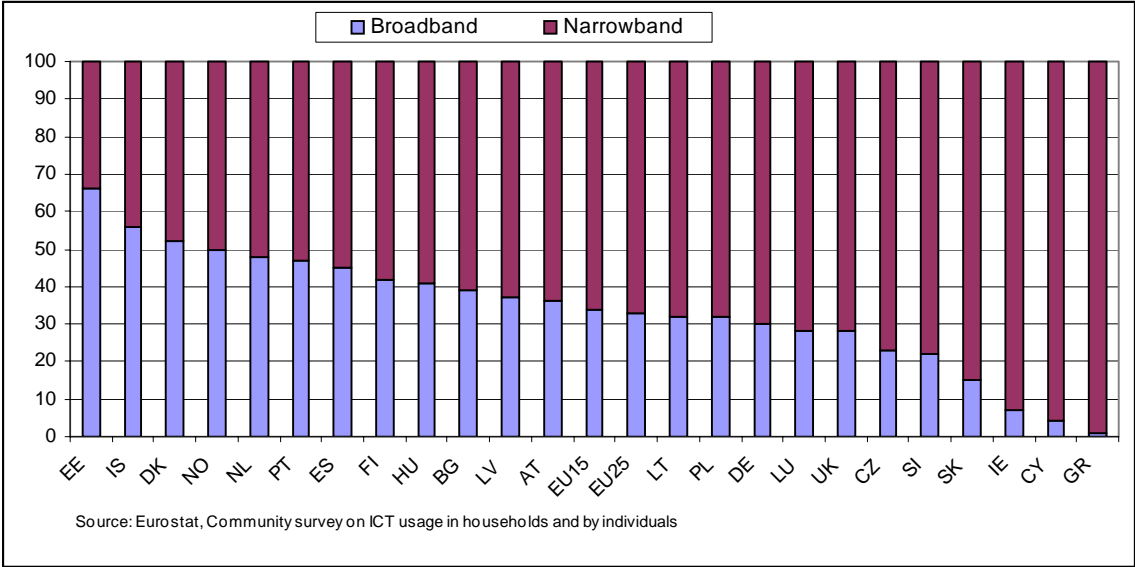
Table 5: Broadband penetration in Business- % of enterprises with broadband access

	EU25	EU15	BE	CZ	DK	DE	EE	GR	ES	FR	IE	IT	CY	LT	LU	NL	AT	PL	PT	SI	FI	SE	UK	
2004																								
All (10+ employed)	52	55	70	38	80	54	68	21	72	32	51	35	50	54	55	28	49	62	71	75	44			
Small (10-49 employed)	48	51	67	33	77	47	65	16	69	27	48	31	49	50	49	21	43	56	66	71	40			
Medium (50-249 employed)	70	74	80	55	91	76	78	42	87	40	74	53	55	67	79	47	72	78	87	89	62			
SMEs (10-249 employed)	51	54	69	37	79	52	67	20	71	29	51	34	50	53	54	26	48	60	70	74	43			
Large (250+ employed)	87	89	89	73	95	93	93	61	94	79	93	93	60	77	91	79	90	91	93	99	76			

Source : Eurostat – Community Survey on ICT usage in enterprises

Migration to a broadband infrastructure is illustrated in figure 4. Bandwidth and overall internet connectivity are not positively correlated: among the nine Member States showing a use of broadband connection higher than the EU average, four are new Member States and two others (Portugal and Spain) have an overall internet connectivity lower than the EU average. This is probably due to the tendency among new internet users to go directly to a broadband connection.

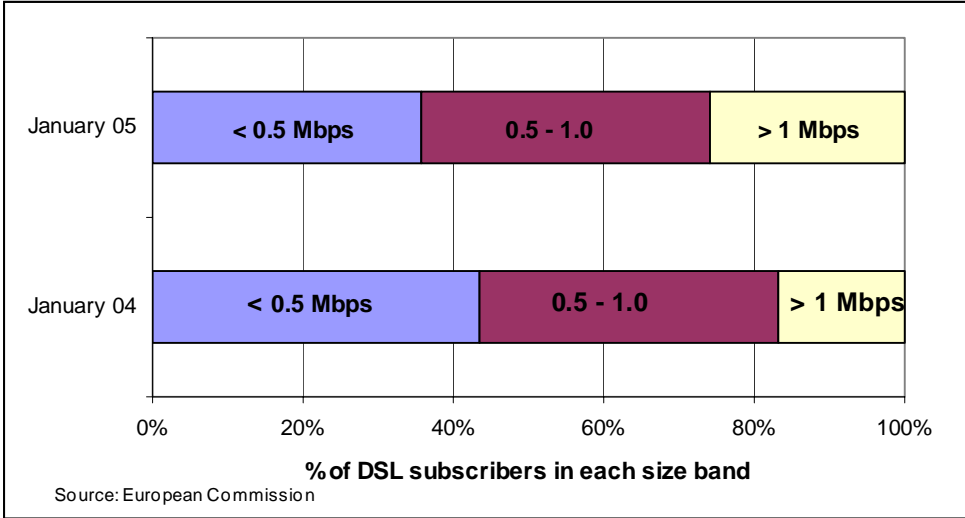
Figure 4: broadband versus narrowband - % on the total of household connected to the internet.



Although broadband is growing fast in Europe, it remains a long way behind the EU’s main international competitors as shown in [table 4](#). This is somewhat compensated by having the fastest growth rate of any of these competitors. As an illustration, if current growth rates were to continue, broadband penetration in the EU would be above USA in 1 year and higher than Japan in two years. By end of the first quarter 2004, nearly a quarter of all broadband subscriptions in the world were in Europe. This is potentially very important in terms of the development of new services. The EU now has a substantial number of broadband users and this may form the critical mass necessary to attract broadband content and accelerate services development.

The EU is behind in terms of network speed. For example, Japan had 15.4 million broadband subscribers in April 2004 and nearly 10% of these were connected via fibre optic with downlink rates of up to 26Mbps. In the EU, there are few connections with bandwidth above 3Mbps. Speeds are increasing in the EU ([figure 5](#)) but remain far behind the world leaders.

Figure 5: broadband speed - % of DSL subscribers in each size band (EU15 only)



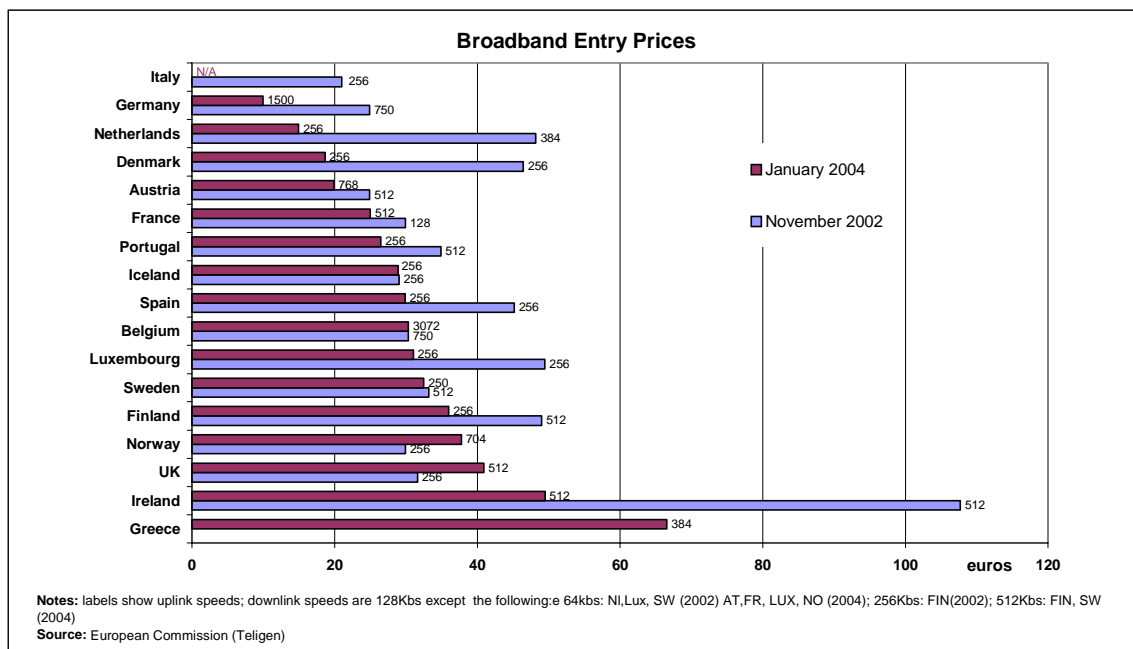
1.2.2. The Costs of broadband

Broadband is getting cheaper, especially in countries with high levels of broadband penetration. Direct comparison of prices over time or between Member States is difficult with hidden costs in many low headline offers. Two sample prices are considered: entry price and a normalised 1 Mbps price¹⁰.

Entry price is the lowest offered price for a broadband connection at any speed. In most countries (the exceptions being Norway and the UK), entry price fell between 2002 and 2004 (figure 6). However, in some countries speeds offered at the entry price also fell. This may be explained by the business strategy of broadband ISPs looking to extend their market with “broadband lite” offers. Such a strategy will contribute to growing subscriptions but at speeds that may be insufficient to enable use of new high bandwidth services. Access to such services is further hindered by the growing use of metering of time online and/or download volume. France, Austria and Germany are the only countries to have gone against this trend with lower entry prices and faster speeds. Belgium maintained stable prices and had the greatest increase in speed.

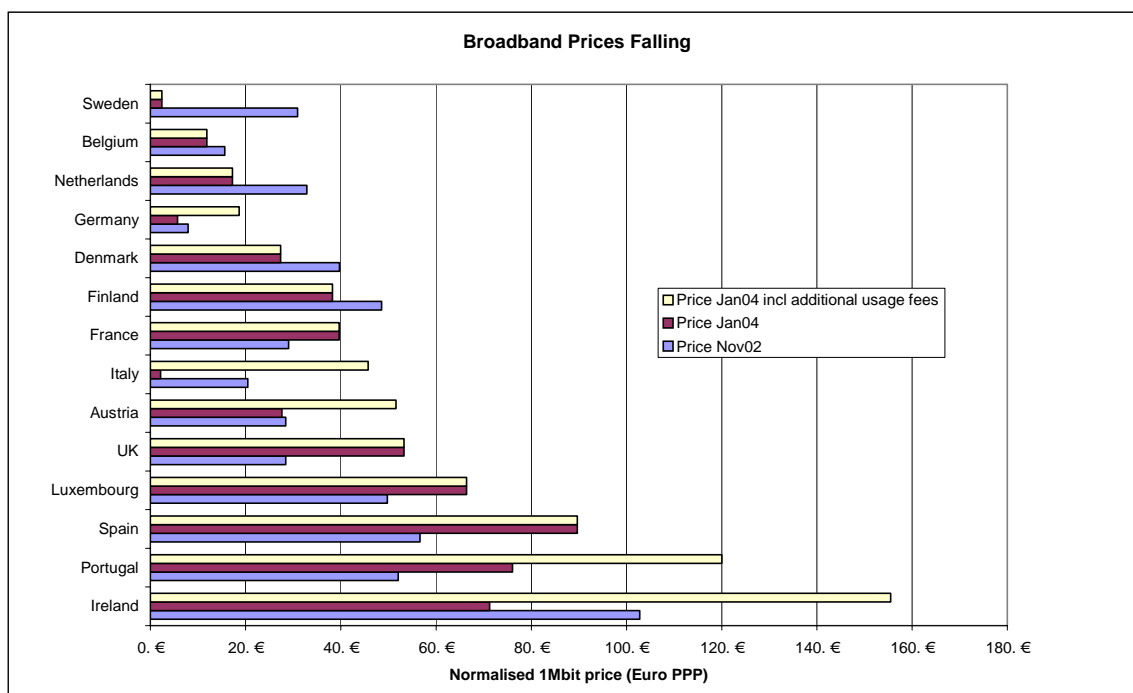
¹⁰ Prices are at Purchasing Power Parity with installation fees discounted over 3 years and usage fees for 10GB and 40 hours per month. Source: European Commission (Teligen).

Figure 6: broadband entry prices.



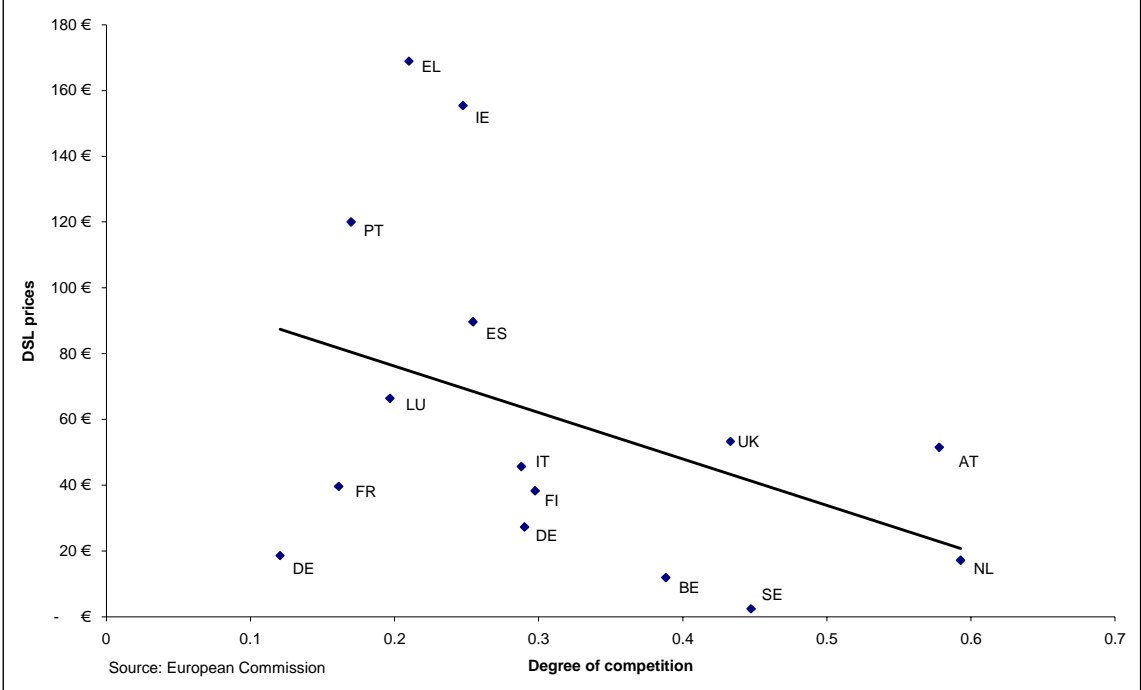
Normalised 1Mbps price is calculated by adding upload and download speeds and ‘normalising’ this to 1Mbps (e.g. if upload = 4Mbps; download =1Mbps; total =5Mbps and the price of this offer is divided by 5 to give the normalised 1Mbps price). Normalisation also assumes 40 hours usage and 10Gbits download per month. Normalised prices fell during the period studied. In part, this is the result of the introduction of higher speeds, which have the effect of reducing normalised price. However, prices rose in some countries (figure 7) and additional usage/download fees are a major element of this rise in some markets.

Figure 7: broadband normalized 1 Mbps prices



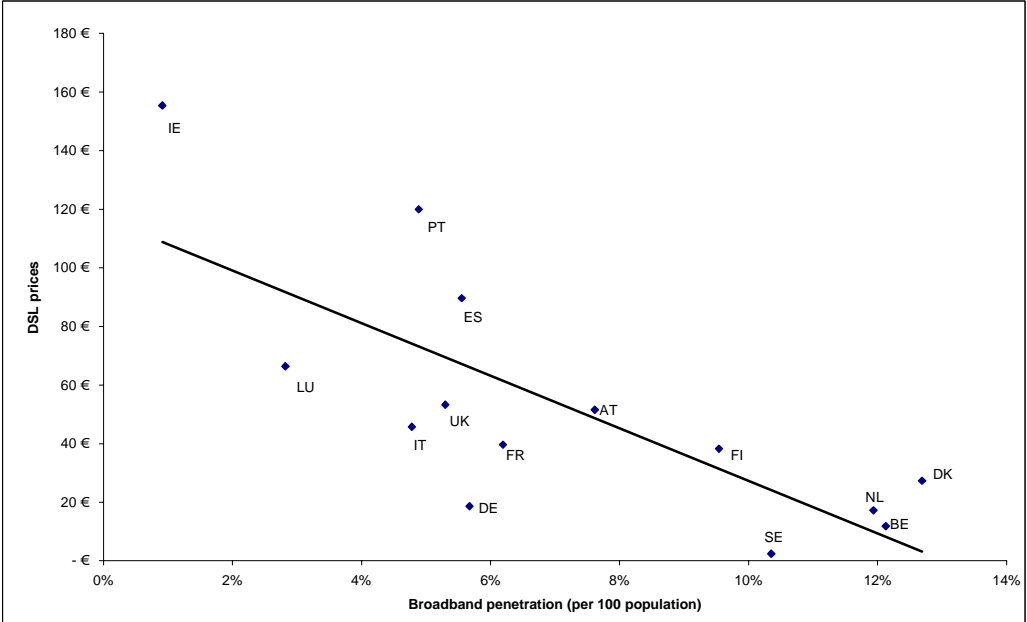
Competition is a key factor in lowering prices and competition between alternative platforms is especially important. [Figure 8](#) compares DSL prices with degree of competition, measured by the share of non-DSL plus DSL via unbundled local loop subscribers, as a proportion of total broadband users. It shows a clear negative correlation: more competition, lower prices.

Figure 8: DSL prices and degree of competition



(1) Competition lowers prices and lower prices attract more users. [Figure 9](#) shows the final link in the policy chain, a correlation between price and penetration of -0.75.

Figure 9: DSL prices and broadband penetration



Source: European Commission

1.2.3. Broadband: conclusions

The objective of the eEurope 2005 Action Plan was to stimulate secure services, applications and content based on a widely available broadband infrastructure. The results presented above show that infrastructure is already widely available, at least in EU15.

The number of subscribers is growing very rapidly and enterprises have rapidly adopted broadband. There is also evidence that some Member States with low overall internet penetration are bypassing dial-up connections and moving directly to broadband. Competition is pushing prices down.

However, the picture is not all positive. Broadband connectivity across the EU remains fragmented, and it is very low in some Member States. There has been little progress in the development of new networks, and a particular weakness is the lack of fast fibre-optic networks.

2. FROM CONNECTIVITY TO USE: THE GROWTH OF E-SERVICES

The aim of eEurope 2005 was to contribute to the Lisbon strategy for growth by creating a dynamic environment for e-business and modern online public services. This section reviews progress in e-business through the analysis of the results coming from the Community enterprise survey, and the e-Business W@tch Survey managed by the European Commission (DG Enterprise). For online public services, a web-based survey on the availability of online government services has been carried out annually since 2002 (the 2005 survey results were not, however, available in time to be included in this report).

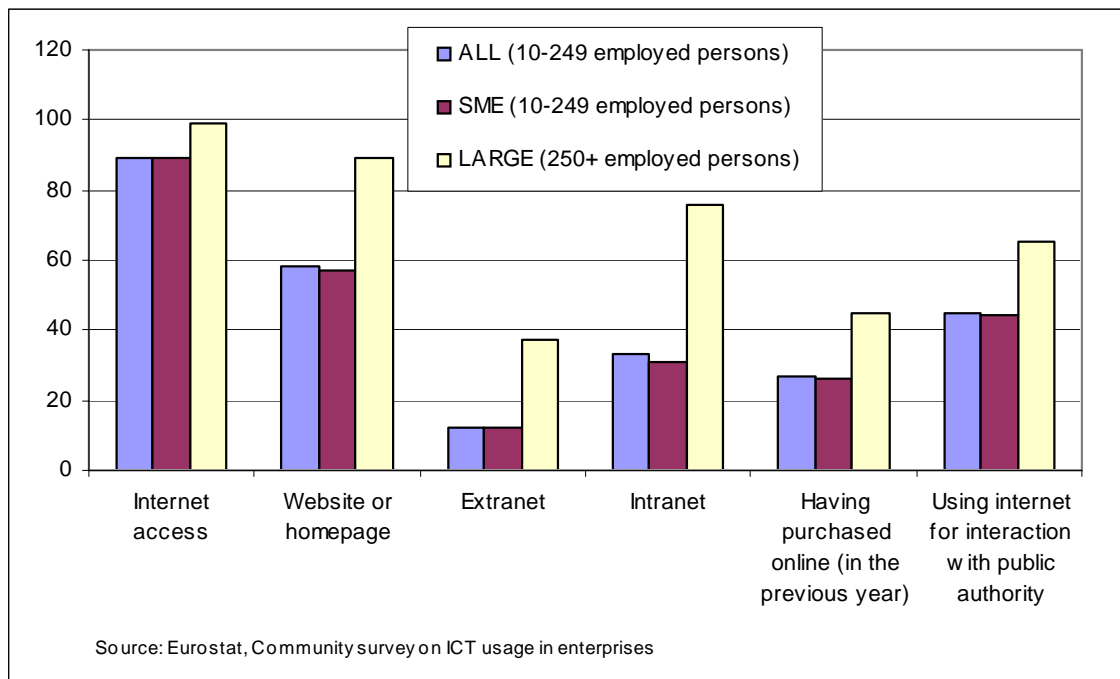
2.1. e-Business

2.1.1. Use and adoption of ICT by enterprises

The Community enterprise survey is the main source of benchmarking data on business, and the key conclusions to be drawn from this are as follows:

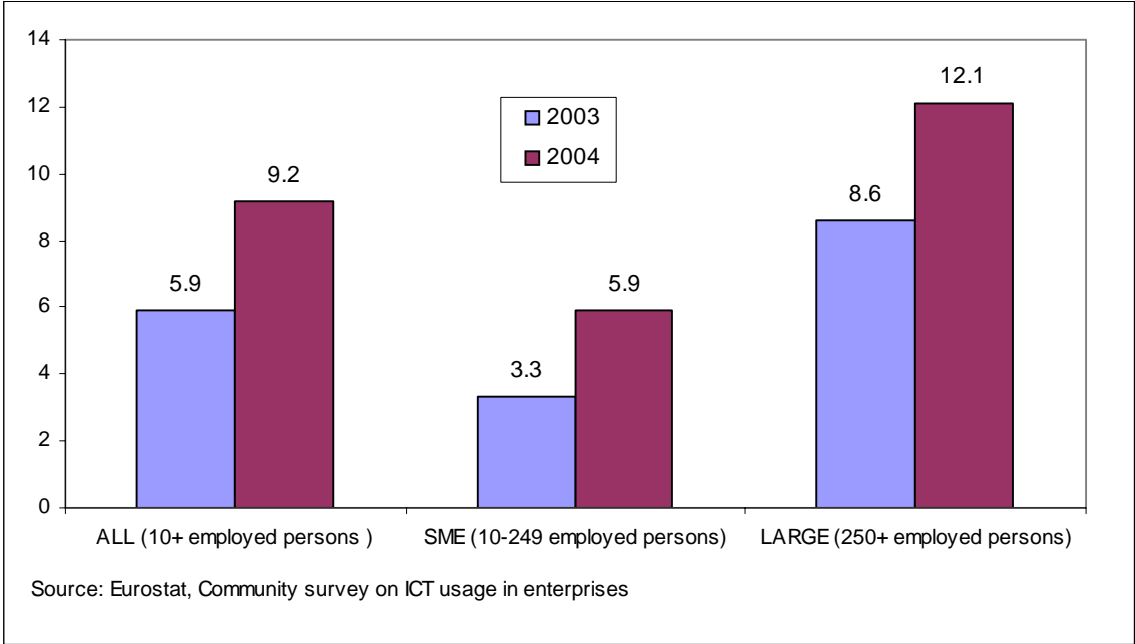
- **The 10 new Member States are much closer to EU15 in business than household connectivity:** the average proportion of enterprises connected in EU10 is 92% of the EU15 figure compared to 65% for households.
- **Connectivity has grown significantly over the past three years with real signs of catch-up by SMEs.**
- **There is no evidence of growth in the use of ICT.** Figure 10 shows that most firms in EU25 have an internet connection (89%) but fewer have a website or homepage (58%) or use an intranet (33%) or an extranet (12%) or purchase online (27%), or use the internet for interaction with public authorities (45%). This suggests that a large section of the business community is only beginning to exploit the potential of ICT.

Figure 10: % of enterprises using ICT application in EU25 (2004)



- Large enterprises are more advanced ICT users than SMEs.** For instance, in EU25 in 2004, 89% of large enterprises have a website but this proportion falls to 57% for SMEs. Differences related to enterprise size are even higher for use of intranet and extranet applications.
- e-Commerce revenues in EU 15 increased in 2004, particularly for SMEs.** On average, revenues grew from 5.9% to 9.2% in the EU15 between 2003 and 2004 ([figure 11](#)), with a faster growth rate for SMEs (from 3.3% to 5.9%) than for large enterprises (from 8.6% to 12.1%). The proportion of enterprises selling online also grew but without the same catch-up for SMEs. In 2004, 32% of large firms were selling online, an increase of 6 percentage points over 2003, but only 14% of SMEs were selling online, an increase of 5 percentage points over 2003. ([figure 12](#)).
- There are wide differences in e-commerce revenues between Member States.** The Nordic countries, UK and Germany showed a performance notably higher than the EU average ([figure 13](#)).

Figure 11: e-Commerce revenues as % total turnover (EU15)



- Figure12: eCommerce: % of enterprises selling online (EU15)

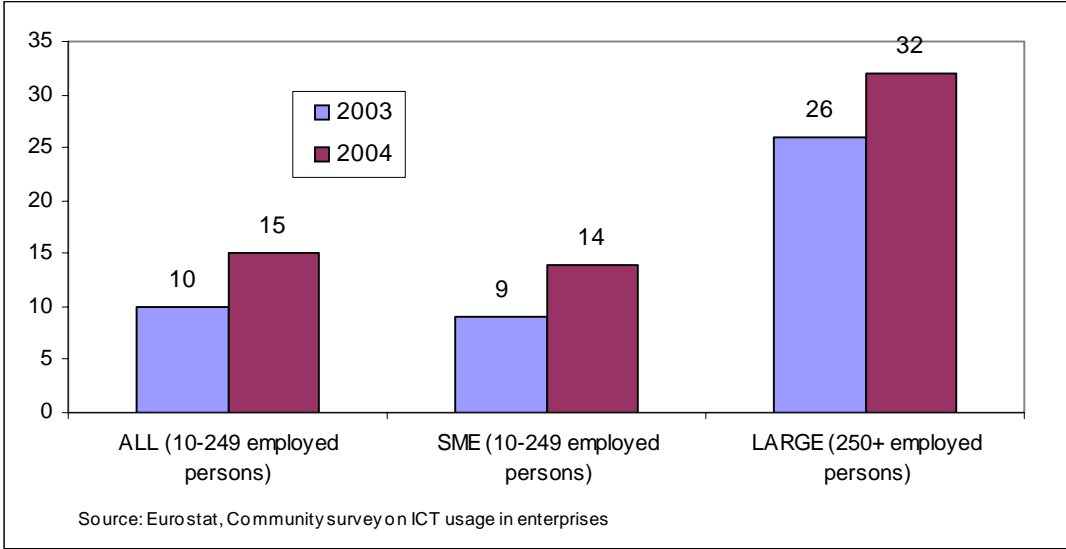
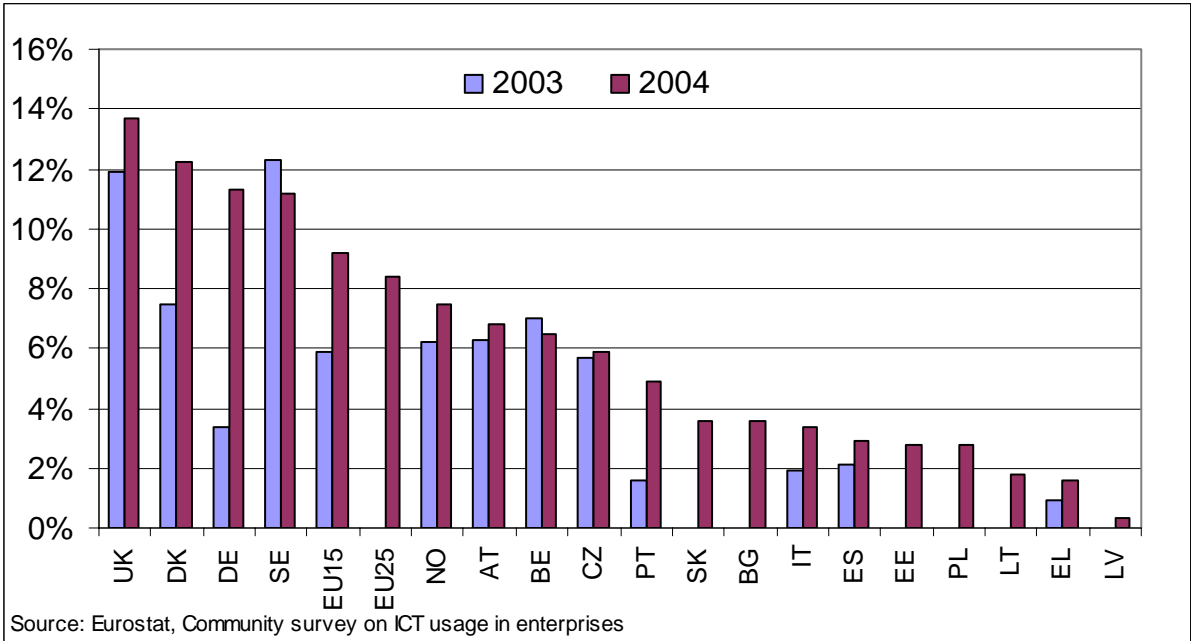


Figure 13: ecommerce revenues as a % of enterprises' total turnover in 2003 and 2004

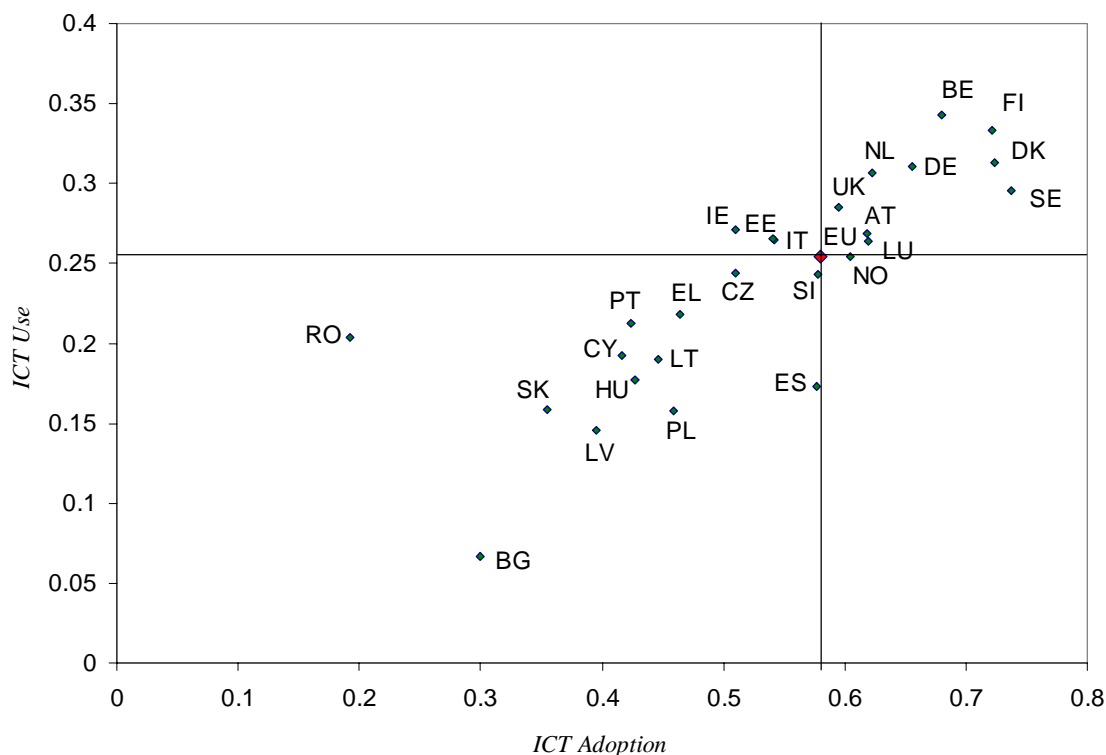


2.1.2. e-Business readiness

Enterprises invest in ICT for different reasons e.g. to increase sales and market share; to improve efficiency of internal business processes or reduce costs through e-procurement. Defining an e-business readiness indicator is an attempt to reduce this complexity into a simple composite indicator. A pilot exercise¹¹, using six basic indicators on the adoption of ICT and six on the use of ICT found the components to be highly correlated (figure 14), i.e. high use of ICT is linked to wide adoption. The leading Member States are those in the top right quadrant of figure 12, countries with above average adoption and use of ICT.

¹¹ The e-business readiness composite indicator based on year 2004 data: Joint Research Centre, European Commission

Figure 14: ICT adoption and ICT use in 2004: composite indicators



Source: The European e-business readiness index based on the year 2004 data of 26 countries (European Commission)

2.1.3. e-Business: sectoral perspective

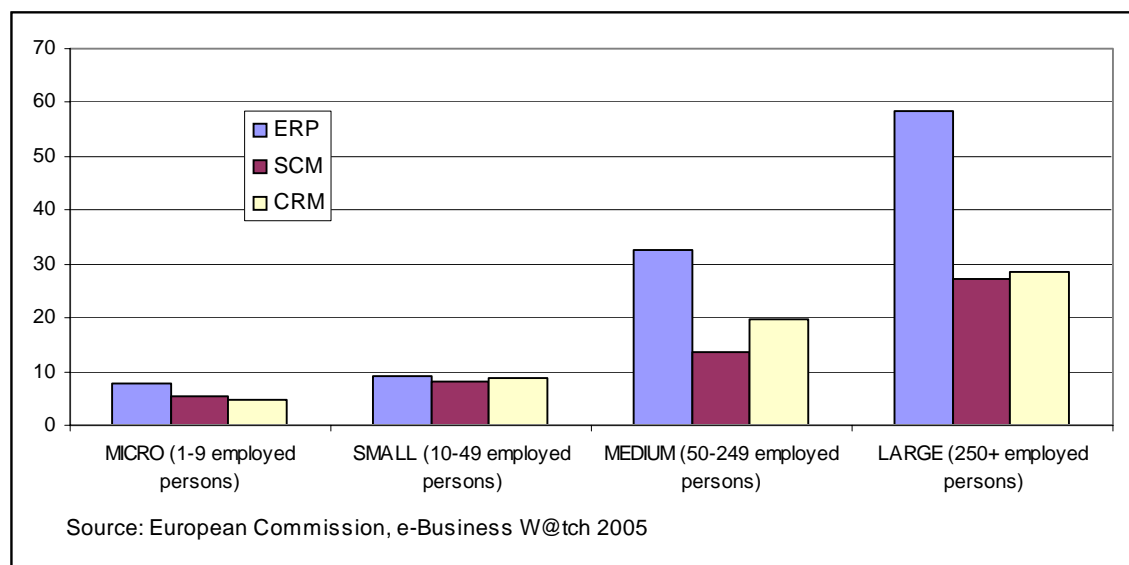
More insight into the take up of ICT by businesses requires a sectoral approach and this can be obtained from the e-Business Watch¹² survey. This has a different scope and a slightly different methodology from the Community Enterprise Survey. It tracks use of more advanced features of business integration (business process automation, e-procurement and supply chain integration, e-marketing and sales).

Results from the e-Business Watch shows that the diffusion of advanced e-business solutions for automating business processes (such as ERP, SCM and CRM)¹³, is strongly correlated to company size but is in general still low. In 2005 (see figure 15), 27% of large enterprises used an SCM system compared to 8% of small and 14% of medium enterprises. ERP is used by 59% of large enterprises, while for medium and small ones percentages are 33% and 9%, respectively. CRM systems are implemented by 29% of large enterprise; however, the percentage falls to 20% and 9% for medium and small enterprises respectively.

¹² "A pocket book of e-business indicators – 2005 edition" and "Sector impact studies 2005", both predominantly based on the results of the e-Business Survey 2005. The e-Business Survey 2005 covers 10 sectors in the following 7 Member States: Czech Republic, France, Germany, Italy, Poland, Spain and the United Kingdom. The 10 sectors are: Food and beverages, Textile, Publishing and printing, Pharmaceutical industry, Machinery and equipment, Automotive industry, Aeronautics industry, Construction, Tourism and Computer related services.

¹³ Enterprise Resource Planning; Supply Chain Management; and, Customer Relation Management

Figure 15: % of enterprises using applications for business process automation



The breakdown of connectivity and use of advanced e-business solutions by sector of activity is given table 6.

- The best ICT-connected sectors are IT services, the automotive, aeronautic and pharmaceutical industries. The automotive industry stands out as the leading sector in the use of both ERP and SCM applications and broadband connectivity.
- The 3 sectors Food, Textile and Construction showed an adoption rate below the average for all the ICT applications and for broadband connections. Tourism and Publishing are leading sectors in B2C e-commerce (marketing and on-line sales) but they are below average in other e-business areas. This might reflect that the automation of internal business processes, and the integration of supply chain processes are in general less important for services than for the manufacturing sectors.

Table 6: connectivity and ICT solution adoption: % of enterprises by sector.

	Connectivity Broadband connection	Internal business process automation		E-procurement and Supply Chain integration		Marketing and sales	
		ERP	Tracking hours and/or production time online	SCM	Buying Online	Selling online	CRM
Food	14	37	28	21	43	12	14
Textile	14	34	20	13	44	14	16
Publishing and printing	32	21	19	9	57	37	20
Pharmaceutical	33	71	32	35	48	18	36
Machinery and equipment	20	58	28	14	53	11	28
Automotive industry	40	71	34	48	60	6	24
Aeronautics industry	41	52	47	35	43	8	3
Construction,	10	13	11	7	43	4	8
Tourism	15	12	11	10	57	36	7
IT services	39	39	35	17	76	25	39

Source : European Commission, e-Business W@tch 2005

2.1.4. e-Business Conclusions: the International Perspective

A fully comparative set of figures to benchmark European firms with third countries competitors is at present not available. However, The World Economic Forum¹⁴ indicator on the degree of business usage of ICT shows that enterprises in the US are doing better than their EU counterparts in integrating ICT in their internal and external business functions. The business usage indicator is determined by factors such as the level of B2B and B2C e-commerce, the use of ICT for activities like marketing, and the levels of on-line transactions. 102 countries are ranked in the business usage index. The US rank 1, followed by Singapore and Australia. Sweden and Denmark rank 4 and 5, Finland 11, and the other EU countries are spread evenly throughout the top 51 countries of the index, with Lithuania number 50 and Hungary 51.

The higher levels of adoption and use of ICT by US enterprises in certain economic sectors is confirmed by studies¹⁵ comparing the better economic performance of the US over the EU and concluding that a wider diffusion of ICT and a rapid take-up of their new applications have contributed to the larger gains in US productivity.

There is now broad agreement that the productivity revival of the USA since 1995 is an ICT story, triggered by both capital deepening and enhanced total factor productivity growth¹⁶. The differentials between the EU and US productivity trends are strongly influenced by differences in the extent to which ICT have penetrated each economy. The USA outperformed the EU in ICT-producing industries (e.g. semi-conductors and electronic equipment) and in those industries that make wide use of ICT (e.g. financial services and wholesale and retail trade). In particular, ICT-using services account for the largest part of the USA's upsurge in productivity.

Europe has invested less than the US in ICT and has also focussed less on intra-firm productivity. e-Business improves inter-firm efficiency, but ICT investment only fully pays off if it is matched with appropriate investment in organisational change and the upgrading of skills. Such changes can take several years to fully realise their potential.

More efforts are needed to improve business processes in European enterprises if the Lisbon targets of competitiveness are to be realised. European companies, under the pressure of their main international competitors, need to find new opportunities to reduce costs and improve performance, internally and in relation to trading partners. ICT are an important tool to increase companies' competitiveness, but their adoption is not enough; they have to be fully integrated into business processes.

2.2. e-Government

All Member States provide services online and most have e-Government strategies. Thus, e-Government is a political priority across the EU and this is reflected in benchmarking

¹⁴ Global Information Technology Report 2004-2005 – The World Economic Forum

¹⁵ See, for example, *EU Productivity and Competitiveness: An Industry Perspective*. Mary O' Mahony and Bart van Ark. Available at http://www.ggd.net/pub/EU_productivity_and_competitiveness.pdf

¹⁶ The debate is summarised in the COM(2004)61: *Connecting Europe at High Speed: Recent developments in the sector of electronic communications*. and for analysis of productivity growth in Europe see *EU productivity and competitiveness: An industry perspective. Can Europe resume the catching up process?* O'Mahony and Van Ark (2003)

indicators which chart the steady rise in online availability and use of services during the course of eEurope.

2.2.1. Availability of online public services

Progress in making public services available online is measured using a composite indicator based on a web-based survey of 20 basic services¹⁷ that are classified on a scale ranging from simple information to full online interactivity. The indicator defined in the eEurope Resolution for online service availability is the percentage of services offered with full interactivity. The most recent measurement in October 2004¹⁸ showed that, in the EU25, 40% of basic services are now available with full interactivity¹⁹ including, where appropriate, online delivery of service (table 7).

Table 7: Online availability of public services (October 2004)

	EU 25	EU 15	NMS 10
Average online availability	84%	87%	78%
% Fully online	40%	46%	29%

Source : European Commission, Web Based Survey on Electronic Public Services.

Online availability of public services was first measured in October 2001 and, as shown in table 8, the steady progress of earlier years appears to have slowed down. A possible explanation is that the many of the services covered are already fully interactive in most Member States, and there is less scope for further advances. Some services may only be offered at a lower level of interactivity but one that is regarded as appropriate for the particular service. It was also found that some services (e.g. car registration) were being offered by intermediaries (insurance companies, car dealers), and were excluded from the survey, thus lowering the indicator.

Table 8: Online public service availability - % of public services fully online (EU15)

2001	2002	2003	2004
20%	33%	42%	46%

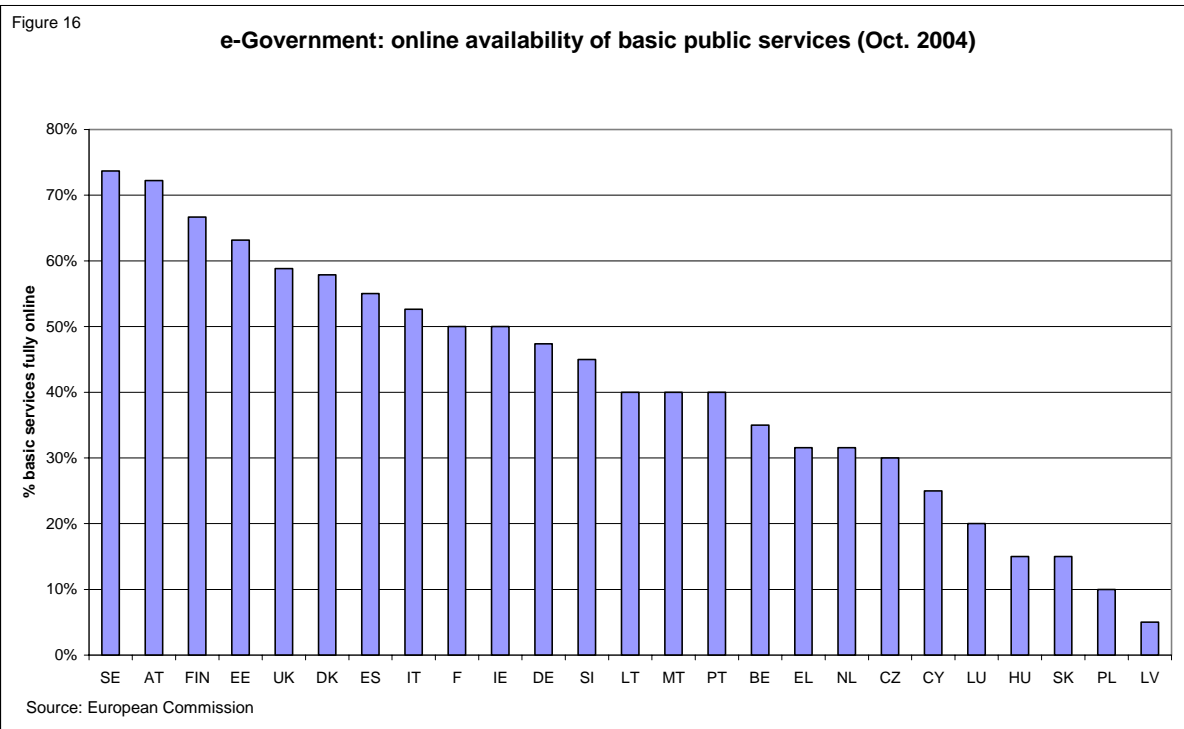
Source : European Commission – Web Based Survey on Electronic Public Services

The 2004 survey was the first to be carried out in all 25 Member States. As shown in table 7, the level of online information services is nearly as high in EU25 as in EU 15 but a much larger gap exists in terms of fully interactive services. An important exception among the new Member States is Estonia, the fourth highest ranked of EU25. (see figure 16 for the breakdown by Member State).

¹⁷ Basic services were defined by the Internal Market Council in 2001 and consist of 12 services for citizens and 8 for businesses.

¹⁸ *Web based Survey on Electronic Public Services*. The survey, conducted by Cap Gemini of behalf of the European Commission, covers 20 public services in the 25 Member States. This and previous reports on EU15 are available from: http://europa.eu.int/information_society/europe/2002/action_plan/egov/index_en.htm

¹⁹ According to the survey methodology, a public service is fully online when it can be treated completely via a publicly available website (any kind of "paperwork" is avoided).



2.2.2. Use of online public services

Demand for online services has grown as the supply of online services has been made available. The 2004 household survey (table 9) showed that, in the EU15, the proportion of the population (aged 16-74) obtaining information from public web sites doubled in comparison to 2002. Across the EU25, on average, over a fifth of the population looked for government information via the web and this rose to around two fifths in EU15. Demand for more sophisticated interaction grew more slowly: from 4% in 2002 to 6.3% in 2004 for sending filled forms; from 7% to 11.1% for downloading of forms. Although there was a significant increase in demand in all Member States, the proportion of the population using online services is closely correlated with overall internet penetration.

Table 9: use of online public service - % of population (16-74).

	EU15			EU25
	2002 (*)	2003	2004	2004
for obtaining information	12	21	24	21
for downloading official forms	7	10	11	10
for sending filled forms	4	6	6	6

Source: Eurostat, Community survey on ICT usage in households and by individuals

(*) estimation

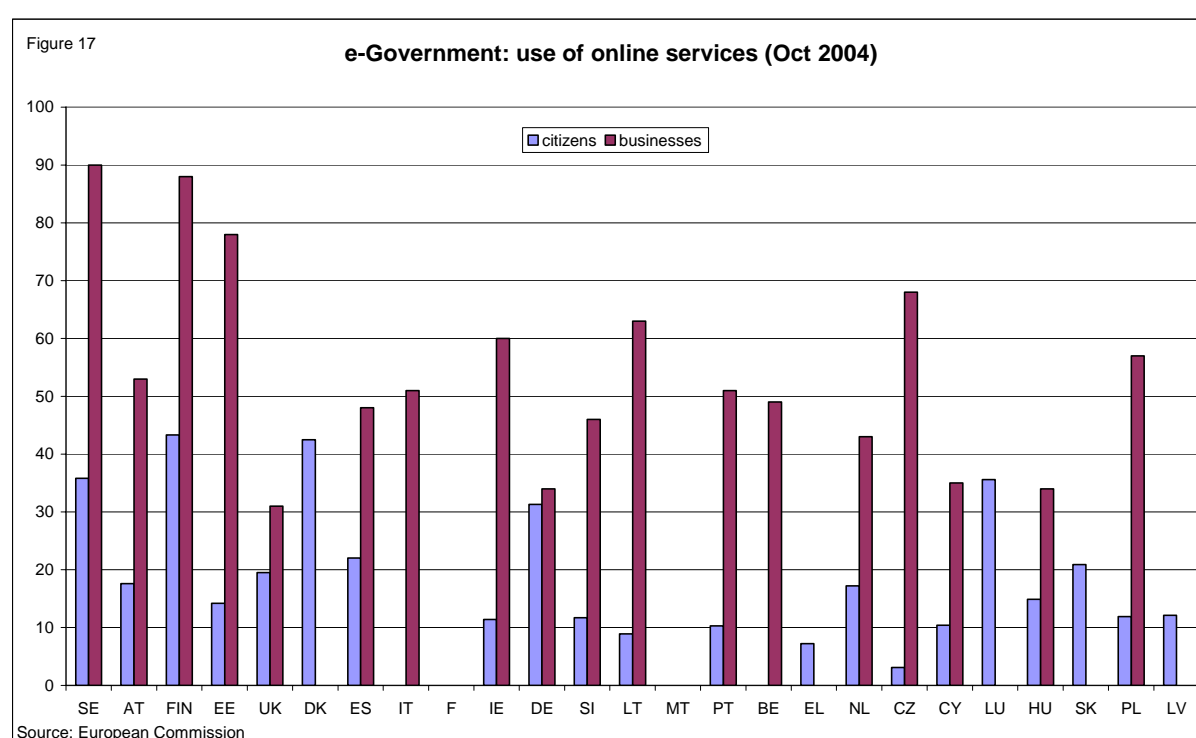
Enterprises are more intensive users of government services (table 10): 45% of them used a website for obtaining information on public services. The percentage is lower for full electronic case handling, although a positive trend can be seen (from 12% in 2003 to 15% in 2004, in the EU15)

Table 10: use of online public service - % of enterprises

	EU15		EU25
	2003	2004	2004
for obtaining information	44	43	45
for obtaining forms	38	40	41
for returning filled in forms	23	26	29
for full electronic case handling	12	15	16

Source: Eurostat, Community survey on ICT usage in enterprises

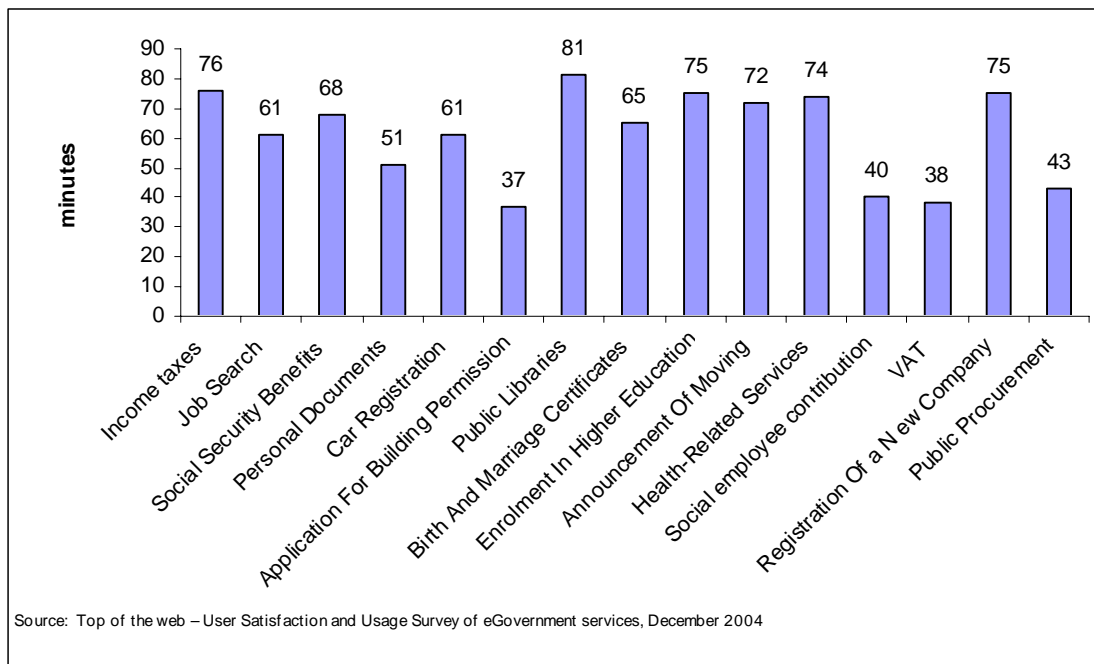
The breakdown in use of online services by Member State (figure 17) suggests that for citizens, the main driver of use is the overall level of internet penetration in each country. For use by businesses, this is less important but as noted above, differences in internet penetration are small as most businesses are connected. Some of the highest business users are in the new Member States, which is another indication that although they may be behind in terms of connectivity, their intensity of use is as high as or even higher than EU15.



The growth in usage says nothing about the attraction or benefits to the citizen. A Commission study²⁰ showed that difficulties accessing public web sites are one of the main inhibitors to greater use but that the major benefit is the saving of time and money.

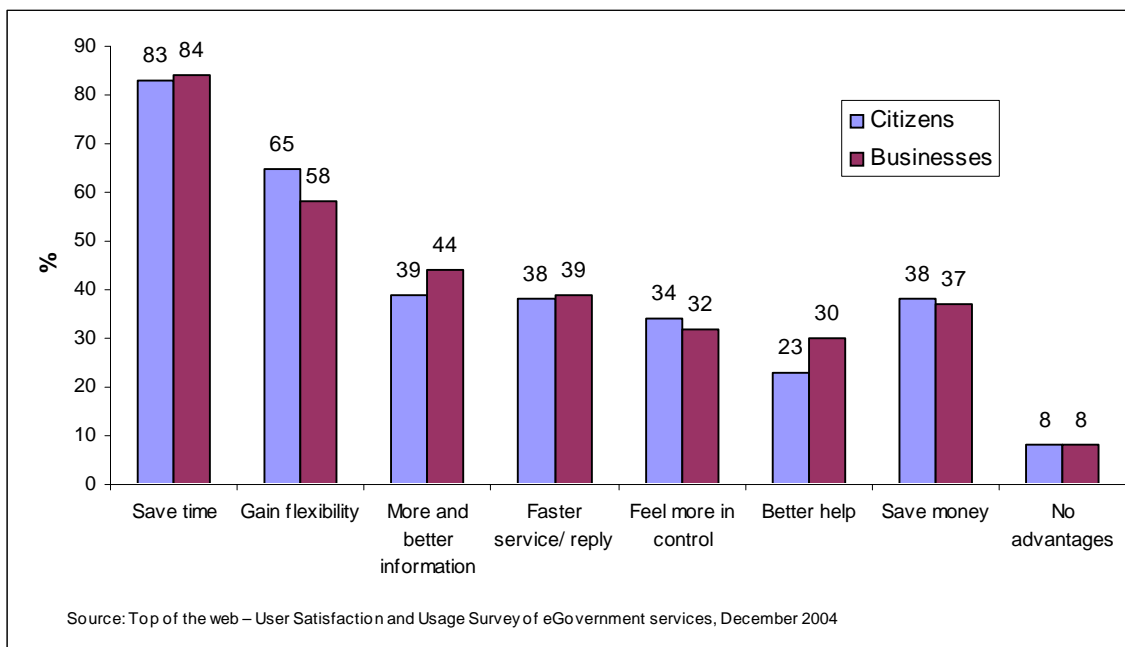
²⁰ *Top of the web – Survey on quality and usage of public services*, PLS Ramboll Management A/S, November 2003. <http://www.topoftheweb.net/en/index.htm>

Figure 18: online public services - average time saved per transaction per service



Over 90% of citizens using e-services find the online service beneficial. As shown in figure 19, saving time and flexibility are noted as the main advantages followed by improved information, faster service response, money saved and better control. In general, business users show a very similar profile in terms of perceived benefits.

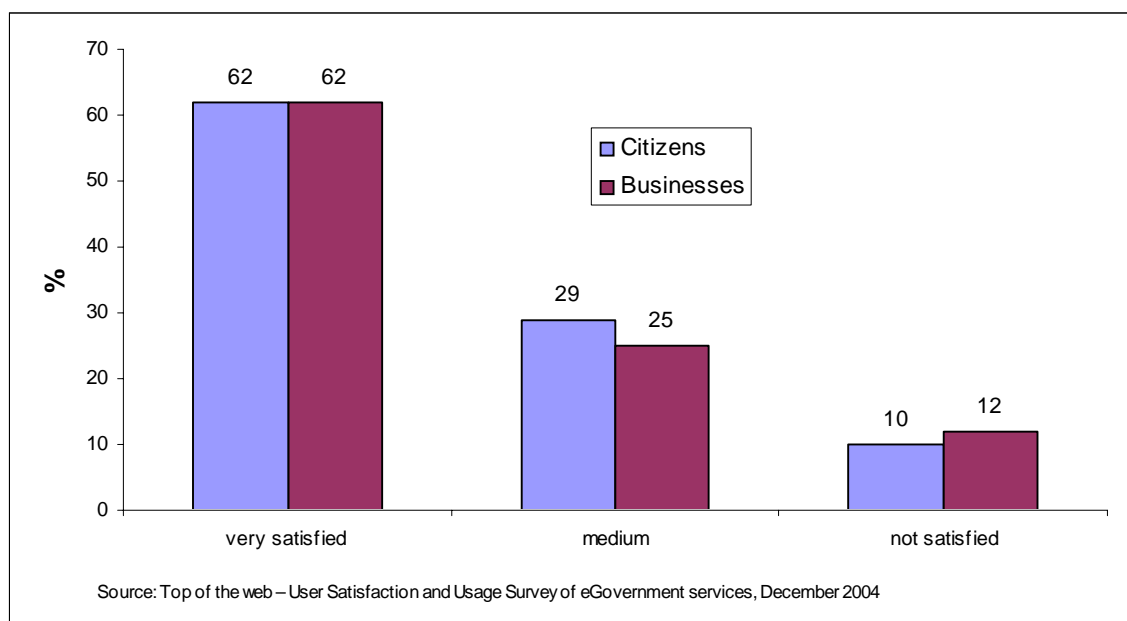
Figure 19: experienced benefits with online public services



The majority of citizens are very satisfied with the quality of public e-services (figure 20). The level of satisfaction by enterprises was similar but with slightly higher level of dissatisfaction (12% of business respondents). The general satisfaction is high (around 90%

for both citizens and businesses) and the majority (77%) of citizens and businesses indicated that they would recommend the service to others.

Figure 20: overall evaluation of online public services



2.2.3. e-Government: conclusions

Demand for public online services has grown as the supply of public online services has been made more available. The factors that drive demand need to be better understood. As proposed in the *eEurope* mid term review²¹, there is a need for increased efforts to measure the social and economic impact of e-government and the drivers of demand for e-government. Complementary quantitative and qualitative measures have been undertaken to meet these concerns.

Current benchmarking indicators are limited in that they only give a snapshot of the front office, and there is now a need for more sophisticated measures. In particular, the main advantages in terms of improved efficiency and better services delivery come from combining front office availability with back-office restructuring²². This is the clear lesson from the productivity gains from e-business in the private sector. New indicators of back office restructuring need to be defined.

3. INCLUSION: AN INFORMATION SOCIETY FOR ALL

3.1. Breakdown of internet use by socio-economic factors

As reported in section 1, the 2004 Community household survey found that 38% of EU citizens were regular users of the Internet but with major differences in usage between

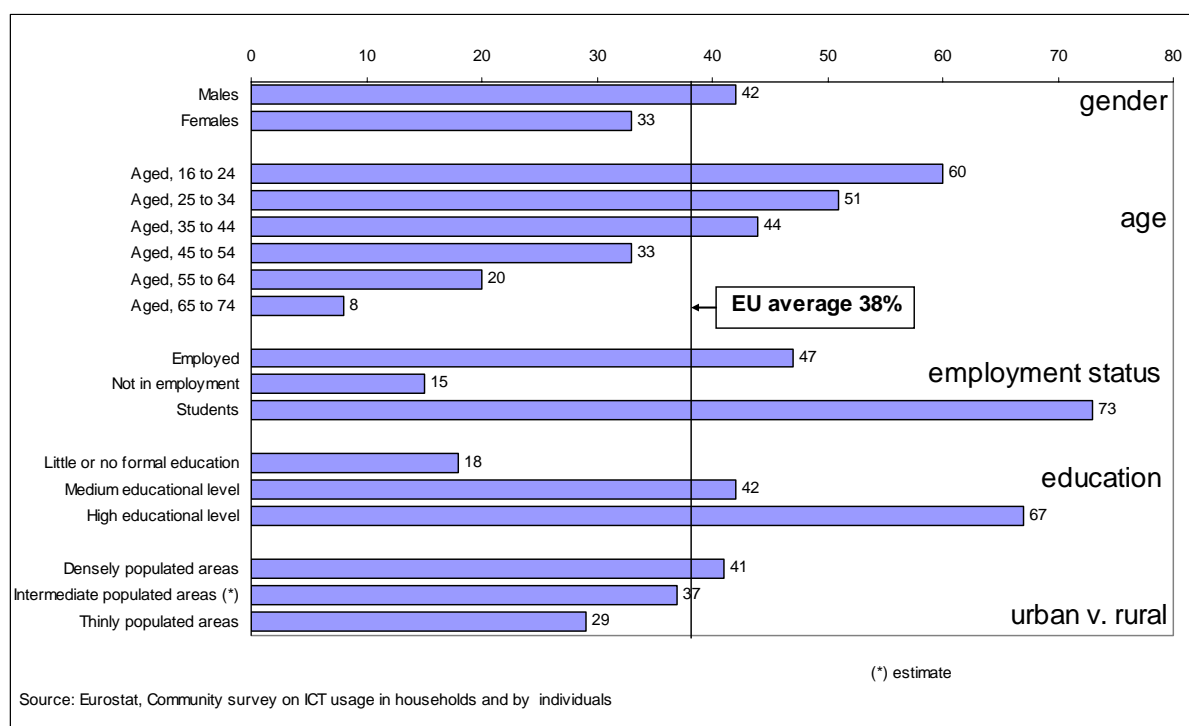
²¹ COM(2004)108. http://europa.eu.int/information_society/eeurope/2005/doc/all_about/acte_en_version_finale.pdf

²² For more information on progress in back-office restructuring, see the Report on *Reorganisation of government back-offices for better electronic public services – European good practices* http://europa.eu.int/information_society/programmes/egov_rd/documentation/index_en.htm

Member States. This section now looks at the impact of socio-economic factors of internet use.

Figure 21 shows internet penetration with a breakdown by gender, age, employment condition, education and area of residence. This indicates that the main groups not taking advantage of information technology are older people, those not in employment²³ and those with little or no formal education (internet use less than the half of the overall average). Living in a sparsely populated area also strongly lowers the probability of being an internet user. Lastly, gender is also a factor, with female usage rates equal to 33% (against an overall average of 38%).

Figure 21: Internet regular use (at least once per week): % of population in EU25 in 2004



There was little change in the relative position of the disadvantaged groups between 2003 and 2004. This reflects the fact that education and employment are structural features of socio-economic gaps and, therefore, do not progress on an annual basis. On the other hand, gender and regional differences did narrow slightly, suggesting that they reflect time lags in patterns of adoption of ICT.

When comparing Member States, a slightly more positive message comes out: countries, which have reached a high level of ICT adoption, also experience lower gaps. This is illustrated by figures 22-24, which compare the rate of regular internet users with the relative position of specific disadvantaged groups in the use of internet. These graphs show that:

- all Member States have problems in terms of digital divides but their intensities vary quite largely;

²³ this group covers persons of working age not in employment but excludes students

- for most of the Member States, there is a negative correlation between overall internet use and the intensity of digital divide: connected countries tend to have higher homogeneity of use in different socio-economic groups; and
- some new Member States follow more inclusive patterns with a relatively larger penetration of ICT among disadvantaged groups while overall connectivity is still low.

Figure 22: index of regular internet use by country and by individuals with little or no education (2004)

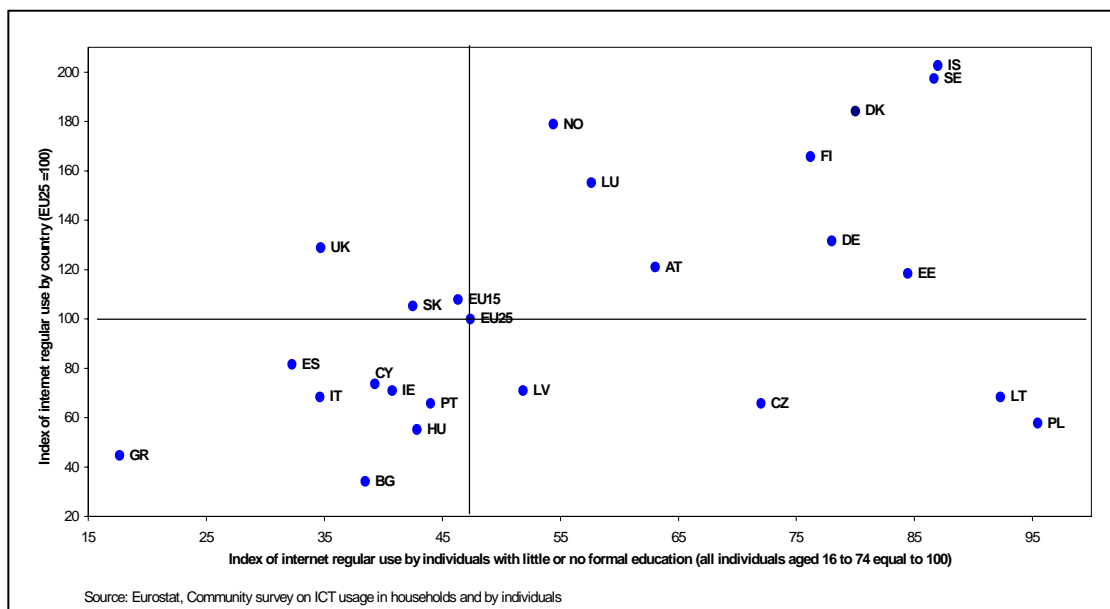


Figure 23: index of regular internet use by country and by individuals not in employment (2004)

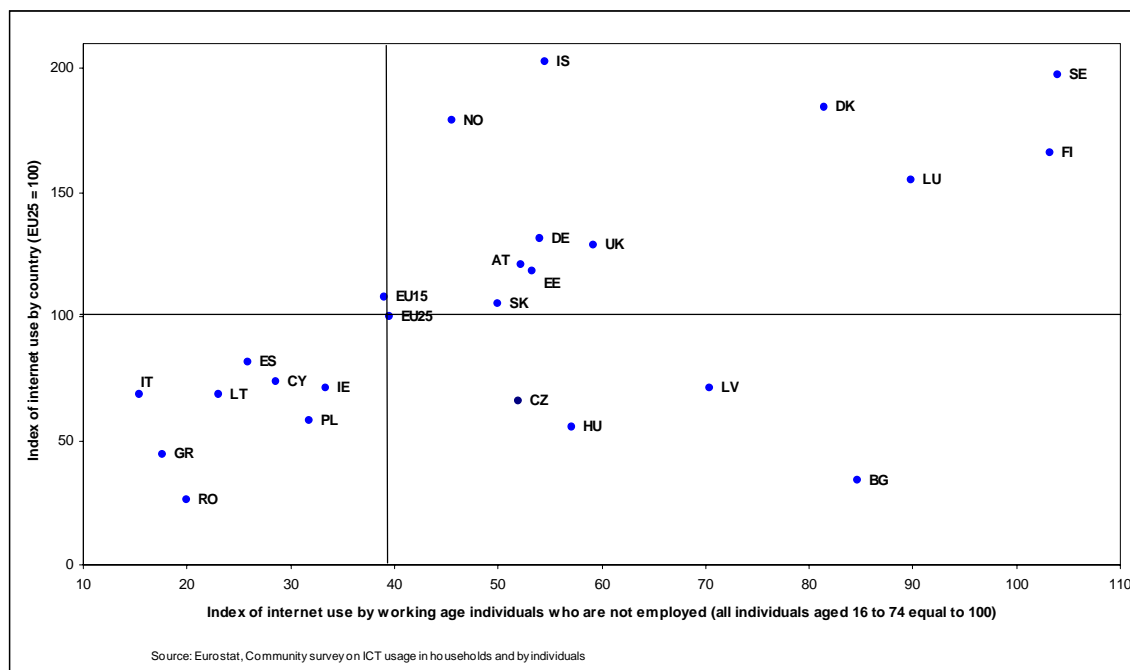
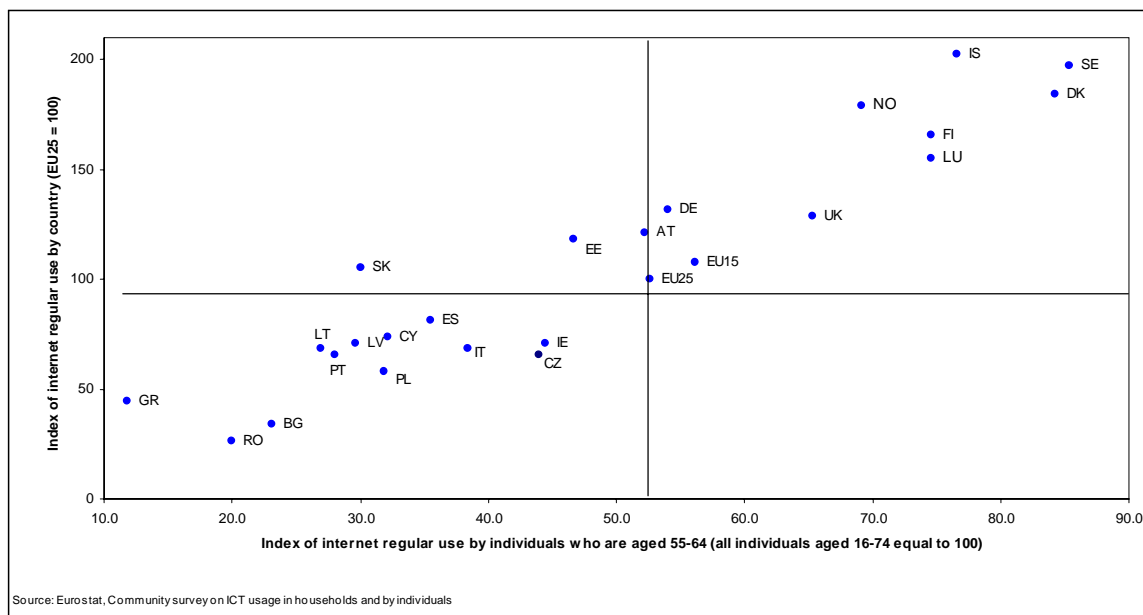


Figure 24: index of regular internet use by country and by individuals aged 55-64 (2004)



3.2. Inclusion: conclusions

Changes over time indicate that the increasing use of ICT will mitigate some digital divides, in particular those related to gender, region and to some extent, age. However, reducing disparities related to education and employment in the information society would require stronger policy support. This would be based on a better understanding of the adoption of ICT, with more insight in national differences and the intensity of use or the benefits derived from the use of ICT.

4. CONCLUSIONS

This report shows progress on the development of the Information Society. The main trends are as follows:

- Broadband roll-out is a clear success story. The limited availability of broadband connections at the end of 2002 has been transformed and access is now available to nearly all citizens. There are, however, important exceptions to this in the new Member States and sparsely populated regions. Driven by increased competition and lower prices, take-up has increased rapidly with high growth rates, even in comparison to our main international competitors. However, most internet connections remained narrowband and, in 2004, few broadband connections in Europe offered more than 3 Mbps.
- There was little evidence of the roll-out of new networks from the 2004 surveys and the PC remained the dominant access device. However, the beginnings of the use DTV, mobile and multi-platform access could be seen.
- Disparities between Member States had not reduced between the start of eEurope and 2004. The new Member States joining in 2004 were generally behind but some are catching up, and there is evidence that their intensity of use is as high as that of the EU15.
- Connectivity of enterprises is high throughout the EU25, and there has been some catch-up by SMEs. However, use of ICT by business has grown only slowly and Europe lags behind

in the use of advanced e-business applications. There has been a recovery in e-commerce revenues, especially in SMEs.

- Availability of online public services has continued to grow and many services are now available with full interactivity in many Member States. Use of online public services has grown as availability has increased and a large majority of users report benefits in terms of time saving and more flexible access to administrations. These positive impacts should encourage Member States to strengthen the development of e-Government policy.
- All Member States are confronted with the challenge of extending the information society to people with little or no formal education, those not in employment and older people. These divides are less acute in countries which are more advanced in the adoption of ICT and in some new Member States. However, there is no sign that they reduce over time and an inclusive information society will not be achieved without policy support.