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Annex to the Review of the Scope of Universal Service in Accordance with
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COMMISSION OF THE EUROPEAN COMMUNITIES

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COMMISSION STAFF WORKING DOCUMENT

Annex to the

**Review of the Scope of Universal Service in Accordance with Article 15 of
Directive 2002/22/EC**

{COM(2005)203 final}

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1. BACKGROUND AND PURPOSE

This Commission staff working paper sets out the context in which the Commission Communication on the review of the scope of universal service, COM(2004)?, under Universal Service Directive 2002/22/EC¹ has been drafted. It aims to substantiate and quantify a number of developments against the very precisely defined criteria imposed by the Universal Service Directive for the purpose of that review. The research work described in this working paper is based on consumer surveys which were conducted for the purpose of that review. Other available sources of data have been used, in particular to measure the development of services in the 10 new Member States. The working paper provides information to a greater level of detail than that given in the accompanying Communication.

The methodology for reviewing the scope of universal service follows the process set out in the annex V of the Universal Service Directive:

“In considering whether a review of the scope of universal service obligations should be undertaken, the Commission is to take into consideration the following elements:

- social and market developments in terms of the services used by consumers,
- social and market developments in terms of the availability and choice of services to consumers,
- technological developments in terms of the way services are provided to consumers.
- In considering whether the scope of universal service obligations be changed or redefined, the Commission is to take into consideration the following elements:
 - are specific services available to and used by a majority of consumers and does the lack of availability or non-use by a minority of consumers result in social exclusion, and
 - does the availability and use of specific services convey a general net benefit to all consumers such that public intervention is warranted in circumstances where the specific services are not provided to the public under normal commercial circumstances?”

Chapter 2 analyses the main technological, social and market developments from a consumer perspective.

Chapter 3 measures the extent to which services identified in the previous chapter are available to and used by a substantial majority of the population while chapter 4 assesses the consequent risk of social exclusion for those who can not afford them.

¹ This directive is part of the EU Regulatory Framework for electronic communications, the legislative texts of which are available at:

http://europa.eu.int/information_society/topics/ecom/useful_information/library/legislation/index_en.htm

A ‘user’s guide’ summarises the main aspects of the regulatory framework at:

http://europa.eu.int/information_society/topics/ecom/all_about/todays_framework/index_en.htm

Finally, chapter 5 addresses long term issues associated with universal service as raised by the analysis herein and reflected in the accompanying Communication.

2. TECHNOLOGICAL CHANGES, SOCIAL AND MARKET DEVELOPMENTS FROM A CONSUMER PERSPECTIVE

2.1. Technological changes in terms of the ways services are provided to the consumers

Information and communication technologies are characterised by an overarching trend towards higher performance, increasing miniaturisation and decreasing unit cost. This technological progress has significantly changed the electronic communications industry and the market at large. As required by the methodology set out by the Universal Service Directive for reviewing the scope of the universal service, this section looks at technological developments in terms of the way services are provided to consumers.

The main important trends identified in this report are:

- The **increasing bandwidth or data transmission speed of access technologies** connecting the end-user to the transmission network. Technologies developed over the last 15 years are being rolled-out: ADSL, cable modem, fibre optic networks, power line communications (PLC), Wireless LAN (see WiFi), third generation mobile communications (3G), terrestrial radio technologies, satellite, etc. These new technological platforms are being deployed at various speeds depending to a great extent on the pre-existence of legacy networks. This trend results in an accelerating migration of customers from narrowband to broadband access, with data speed rates ranging from 128 kbps to 8 Mbps and beyond. This greater bandwidth capability of the residential local loop triggers the development of new broadband services which in turn attract new customers in a virtuous circle.

- **The development of wireless technologies** and the provision of new services over mobile network infrastructures have generated a radical change in demand. Mobile electronic communications better match the needs of individuals and are used in virtually every sphere of human activity. In many Member States, the number of mobile subscriptions now exceeds the number of fixed line subscriptions. In addition, broadband wireless technologies, including WiFi, offer a potential for broadband access at an increasing number of locations, households, hotels, airports etc., triggering the development of nomadic services and applications.

- **The integration of services over packet switched transmission networks.** By contrast to circuit switched networks where a permanent channel, or bandwidth, is dedicated to enable a communication, packet-switched networks split out data in packets, or cell units, for an optimised transmission over the different components of the network. This integration of services, using the Internet Protocol for the transmission of data, results in the provision over the same network, fixed or mobile, of circuit switched-voice along with packet-switched Internet access, video, TV broadcasting, etc., depending on the network transmission capacity. In the future, it is expected that voice will be also packet-switched, based on Voice over IP technology (VoIP).

- **The integration of IT and telecoms technologies** associated with the above mentioned trends in network platforms has given rise to new generations of terminals, fixed or mobile,

which offer an increasing range of features to the end user, often associating communications functions with computing, gaming, audio (MP3), photo camera, video camera etc. These new terminals, in the form of mobile phones, PDA, TV-set top boxes, games stations, etc., benefit from the important progress made in the field of microprocessors, electronic memories, miniaturisation, storage and display technologies. Mobile or portable handsets will have a profound impact on society as they empower users with the freedom and convenience to conduct their affairs without being tethered to a fixed location.

- **Always-on connections and flat-fee pricing.** The implementation of packet switched technologies associated with the roll-out of broadband access technologies has given rise to the development of always-on connections which are flat-fee priced. This commercial innovation is very important because it stimulates the development of new services, such as “instant messaging” and has contributed to an accelerated growth of broadband access. However, many operators have chosen to target less wealthy customers through metered and ‘lighter’ offers. The structure of pricing in broadband is widely varied at present.

2.2. Social and market developments in terms of the availability and choice of services to the consumers

Following the liberalisation of all services in 1998, competition in the European telecommunications market has driven growth and innovation and the widespread availability of services to the public.

In terms of availability and choice of services to the consumers, the most visible changes have taken place in the areas of (i) mobile communications (ii) non-voice services over the Internet, (iii) broadband access, and (iv) competition in the fixed voice telephony market.

i) Mobile communications

The last decade has established mobile telephony as a mass market service. Targets for geographic and population coverage laid down in the licences of 2G mobile network operators have been met in all Member States, and advanced data services have been launched. These are based on second generation (2G) networks - using GPRS and EDGE technologies - and third generation (3G) networks which offer higher data rates. In a limited number of Member States, the launch of third generation services by new entrants is also increasing the level of competition in the mobile voice telephony market.

Against expectations, the main success in the field of mobile data services has been the explosion of short messaging service (SMS). WAP (Wireless Application Protocol) services for internet access have not taken-off as originally expected by mobile network operators.

Despite the limited number of mobile network operators, which is a consequence of the scarcity of spectrum for nation-wide mobile frequencies, new market entry has nonetheless occurred through mobile virtual network operators (MVNOs) in some Member States. MVNOs buy network capacity from mobile network operators in order to offer their own branded mobile subscriptions and value-added services.

In a context of maturing mobile markets for voice, in penetration terms, operators are competing through innovative offers in order to attract new customers from their mobile competitors, but also to attract fixed line customers. Some mobile network operators have already developed so called “home zone” offers which allow their subscribers to make and

receive calls at a fee equivalent to a fixed line charge when the call originates from or terminates in a given fixed location, home or workplace, corresponding to a given radio cell of the network. Fixed operators are on their side developing fixed-mobile services which will enable them to shift mobile calls on to cheaper fixed network.

Until recently, the obligation to change the mobile phone number significantly deterred consumers from changing operators, especially in a market characterised by a limited number of operators. The introduction of mobile number portability² removed that obstacle and is expected to increase the level of competition in the mobile market.

ii) Explosive growth of non-voice services over the Internet

The dramatic and pervasive growth of Internet access has been accompanied by an explosion of services delivered over the Internet. In Europe, these services are provided by Internet access providers themselves, by content providers, by Internet services companies, by public administrations and by the users themselves through peer-to-peer (P2P) applications. Many of these services are actually not covered by the regulatory framework, such as content-rich services. Yet these services have nonetheless been the driver for growth in demand in Internet access since the mid-nineties.

iii) Development of Broadband access

Technological progress in the field of transmission technologies combined with the liberalisation of the sector, and in particular the unbundling of the local loop, have resulted in the development of competitive offers and in a rapid increase in the number of broadband access lines. The total number at the EU 25 level has increased from nearly zero at the end of the last decade to about 30 million by mid 2004.

New entrants are playing an important role in that process, either as the operators of alternative infrastructures, such as cable networks or as DSL providers on the incumbent's fixed telephone network. According to the Commission's 10th implementation report³, the new entrants' share of the broadband market has continued to rise and is now at 43.7%, an increase of almost 2.2% on last year. The new entrants' share of the DSL market, a technology which now accounts for 78% of the overall broadband sector, has also increased and is now at 30.2%, up almost 8% in the year.

The development of competition in the provision of access is driving down prices while the data rate of connections is increasing. New combination packages of access services are being offered to the end users that include telephony, broadband Internet access and digital television.

In the ten Member States that joined the EU in May 2004, the roll-out of broadband network is at an earlier stage of development, but in most of the countries there are very positive signs of market growth. However, given the relatively more limited penetration of the fixed network infrastructure in these countries (cf. graph 8 below) and the lower average income

² Universal Service Directive 2002/22/EC, Art 30

³ European Electronic Communications Regulation and markets 2004 (10th report) COM (2004) 759: http://europa.eu.int/information_society/topics/ecomm/all_about/implementation_enforcement/annualreports/10threport/index_en.htm

levels per household, development is expected to be different from that experienced by the pre-accession countries.

iv) Competition in the fixed voice telephony market

The liberalisation of telecoms, combined with regulatory obligations for local loop unbundling and carrier selection and carrier pre-selection, has had a major impact on competition in the fixed market. Most consumers are able to choose between several telephone service providers.

The competition has resulted in lower retail tariffs in the segments of national and international calls. However, tariff rebalancing, the purpose of which is to eliminate anti-competitive cross-subsidisation of prices by dominant operators, has led to an upward trend in the price of monthly rental at EU 25 level, from € 11.5 in August 2000 to € 14.4 in August 2004⁴. In an annex to the 10th Implementation Report, claims from operators are reported according to which the tariff rebalancing process would have been not fully completed in several new Member States⁵. The increase of monthly subscription charges in the ten new Member States could potentially have more effect on consumers' choice in these countries in the context of a lower national average income per inhabitant, as compared to the EU 15 average, and as suggested by the observed trend of fixed to mobile substitution there. Nevertheless, the overall EU 25 weighted average monthly expenditures for a residential user show a decreasing trend, from € 44.3 per month in 2000 to € 39.2 in 2004 (nominal value)⁶.

2.3. Social and market developments in terms of the services used by consumers

Technological progress in combination with the market forces at play in a liberalised environment have allowed the delivery of new services to the consumers and have also led to changes in the ways that existing services are brought on to the market.

The consumer's response to these changes is characterised by the following trends in consumer demand:

- **The personal use of telecommunications** revealed by the very large diffusion of mobile phones in the society, near to saturation in terms of penetration rates – not in terms of use – in a vast majority of Member States. In addition, consumers want to be more in control of the services which are delivered to them, in particular with respect to the type and quality of content they receive and use (e.g. customisable premium rate services over Internet or on mobile data platforms).

- **An increasing demand for access transmission capacity**, both in fixed, wireless and fixed-wireless environment. The experience of online services is leading to increasing needs for bandwidth in order to reduce the time for downloads and to access to content-rich sites.

⁴ Study carried out by Teligen-HI Europe for the Commission, in the annex to the 10th implementation report, COM 2004(2004) 759 final

⁵ Annex to the 10th Implementation Report (ibid), Volume I, section on Universal Service, p. 29

⁶ Residential EU 25 composite basket development, incl. VAT, based on the OECD composite basket definition including national and international baskets, same source as foot. 3. Moreover, the EU 25 2000-2004 historical evolution does not capture the important tariff variations resulting from the 1998 liberalisation within the 15-pre-accession countries: see about that the 8th implementation report COM(2002) 695 final.

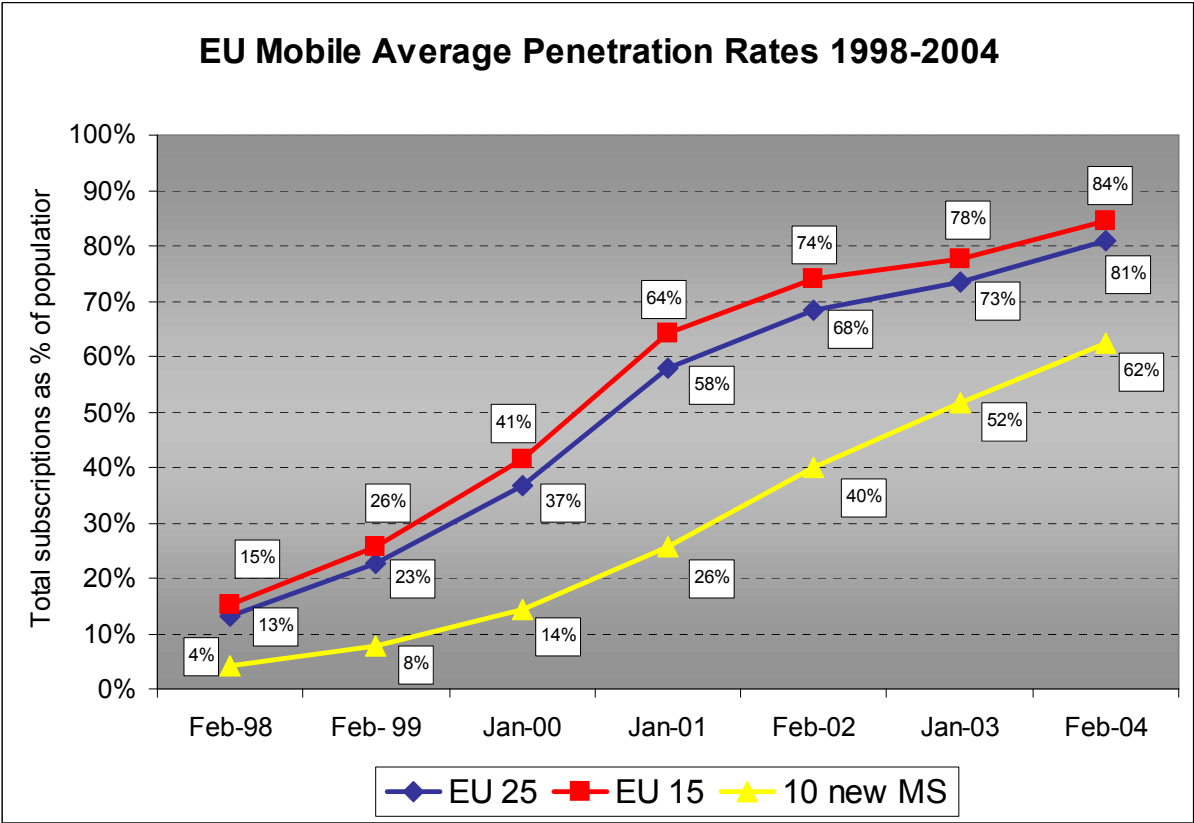
- **The increasing need for network connectivity**, anywhere, at any time: in addition to the need for mobility, consumers want to be able to reach their favourite services – such as e-mail accounts, bank accounts, news portals, etc. – from different places: at home, at work, at school, or from holiday locations. This corresponds to a nomadic consumption style, which is the logical complement of mobility.

With respect to services used by consumers, market figures show that major developments have taken place in three areas that are developed below: (i) mobile communications, (ii) fixed to mobile substitution and (iii) Internet access, including broadband access.

i) Mobile communications becomes a mass market service

In less than a decade, mobile communications are being used by a very high proportion of the population, as shown in the graph below:

Graph 1



Source: European Mobile Communications Reports

In the above graph, a distinction has been made between the 15 EU pre-accession countries and the 10 countries which joined the European Union in May 2004. The observed difference results from the fact that the launch of national mobile networks in the 10 new Member States took place at a later stage than in the 15 pre-accession countries. The intensity of growth has varied from one Member States to another and currently two countries, the Czech Republic and Slovenia, actually have higher penetration rates than the EU 15 average.

The historical trend shows a point of inflection for the EU 15 average in January 2001 at 64% of mobile subscriptions per 100 inhabitants. Now that the 10 new Member States have also reached the same level, it will be interesting to see if the growth trend will remain at the same

rate or whether it will slow down in a similar manner to the EU 15 average. The fact that the penetration rate of fixed lines in the new Member States is not as high as in the 15 EU countries may lead to a different growth pattern in the new Member States.

The huge success of mobile communications results to a large extent, in addition to the reasons already presented above, from the affordability of 2G mobile communications. In several Member States, especially in those where the market has not yet matured, mobile handsets are provided for free or at a subsidised price by mobile retailers, and it is possible for the end-user to be connected to a mobile network at very low cost; also pre-paid subscriptions, which are particularly attractive to individual consumers, represent the majority of mobile contracts in the EU.

The cost advantage of mobile telephony networks results from very low marginal cost of adding a new subscriber because the access radio network is shared between subscribers, whereas a fixed line connecting a subscriber offer less possibility for shared access cost, especially if the subscriber is located in a rural area. In addition, the technological progress and the economies of scale have considerably reduced the cost of mobile handsets.

This low marginal cost has allowed mobile operators to provide affordable pre-paid packages that enables low income users to get a mobile subscription. In addition, pre-paid contracts gives users a much better control over their expenditure than traditional post-paid subscriptions, which further increases the attractiveness of mobile communications to low users.

Another reason for the success of mobile communications is the geographic and population coverage of mobile networks which results from the obligations imposed by the 2G or 3G licences, with levels up to 95% and beyond in all Member States⁷.

ii) Fixed to mobile substitution

A new trend revealed by market figures shows that, along with the increasing diffusion of mobile communications among the population, an increasing proportion of households choose to have a mobile phone only and not to keep their fixed line subscription.

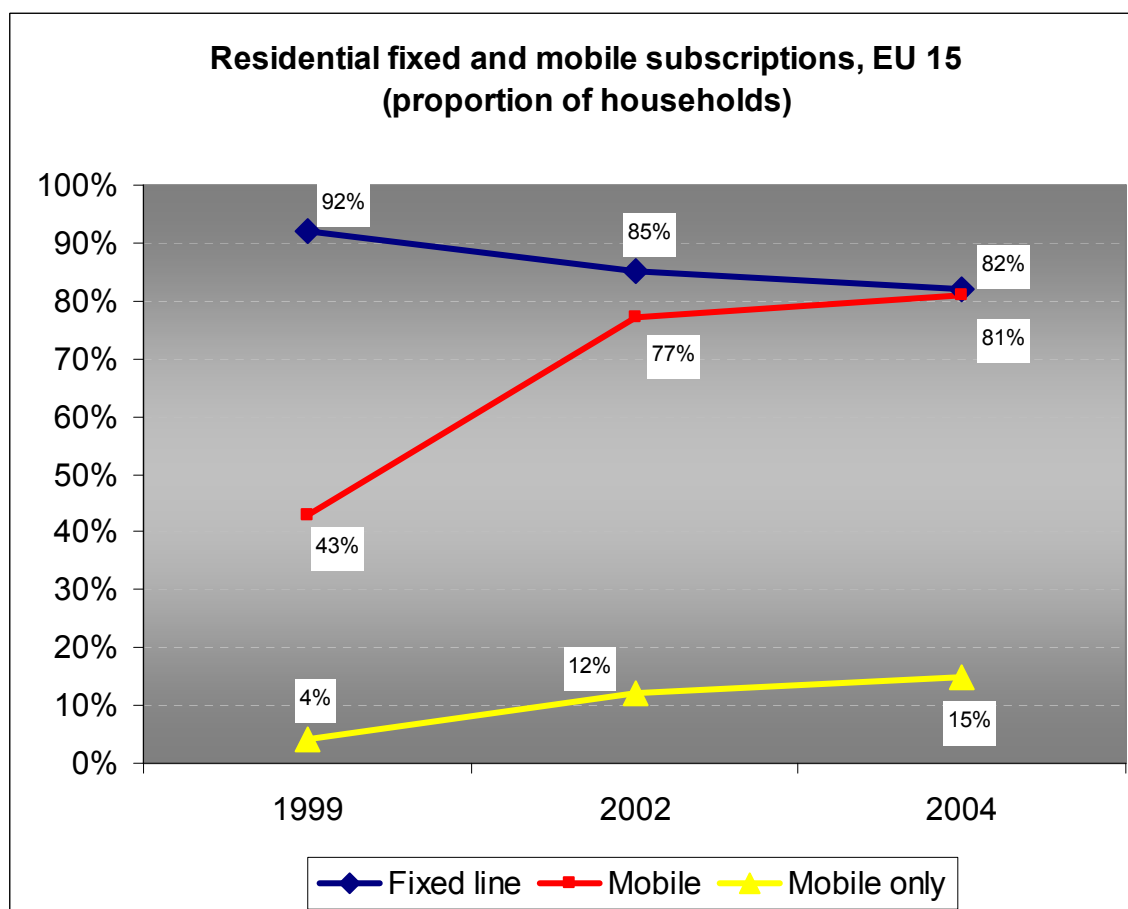
The graph 2 next page based on residential surveys made in the 15 pre-accession countries in 1999, 2002 and 2004⁸ shows that trend:

The residential penetration of fixed is gradually decreasing over time in the 15 pre-accession countries, from 92% of households in 1999 to 82% in 2004, a penetration level equivalent to the penetration of mobile subscriptions. This trend contrasts with the increasing proportion of households which have a mobile subscription only, namely 15% in 2004 against only 4% in 1999. The overall penetration of mobile in households has dramatically increased from 43% in 1999 to 81% in 2004.

7 About the mobile network coverage in the 10 new Member States, see the 4th report on monitoring of EU candidate countries by IBM, Dec. 2003:
http://europa.eu.int/information_society/topics/ecommm/doc/all_about/international_aspects/eu_enlargement/4th_report_final.pdf

8 About the 1999, 2003 and 2004⁷ surveys, see footnote 11 in the annex. The 2003 and 2004 surveys can be found at:
http://europa.eu.int/information_society/topics/ecommm/useful_information/library/studies_ext_consult/index_en.htm

Graph 2



Source: Telecoms residential surveys, Gallup, 1999 and INRA, 2003 and 2004

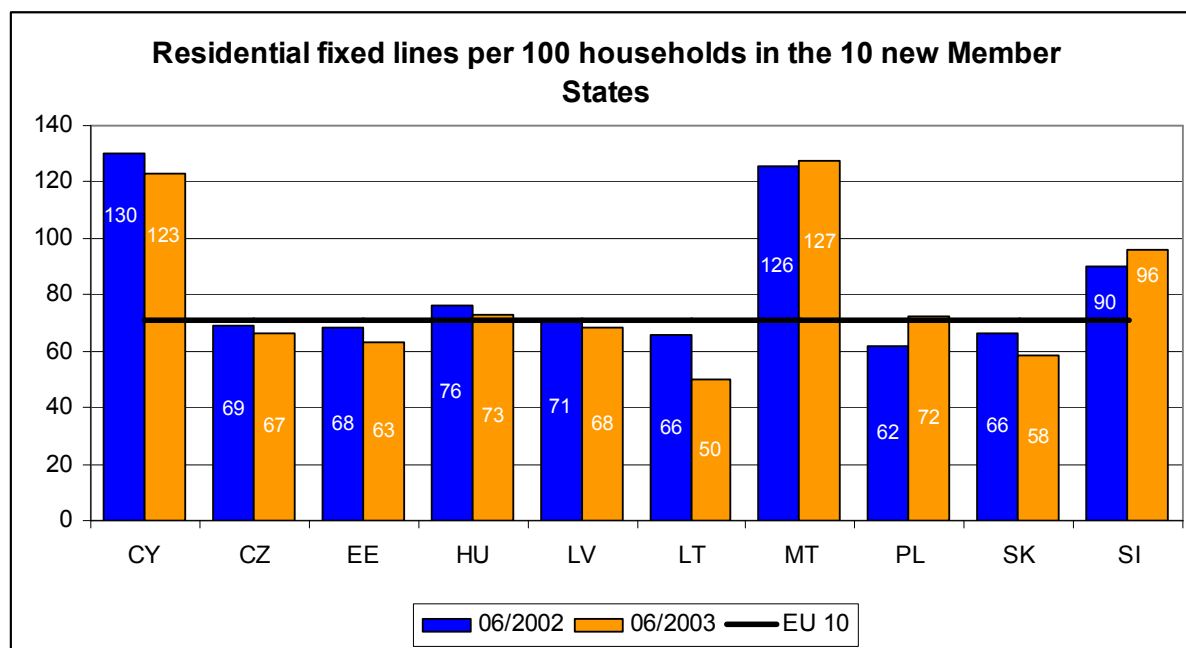
This proportion of ‘mobile only’ households reaches the maximum levels observed, of 33% of households, in Portugal and Finland.

In the absence of comparable data for the 10 new Member States, the number of residential per 100 households in the EU candidate countries (EUCC prior to May 2004) is presented in the graph below⁹. In that graph, one can observe a decrease of fixed line in 2003 compared to 2002 to the exceptions of Poland and Slovenia which results from the fixed to mobile substitutions. In the case of Poland, the increase of fixed line penetration rate is explained by the provision of a higher number of lines by alternative operators. In all the new Member States, the number of residential ISDN lines has increased, but this growth cannot compensate for the decrease in the number of standard fixed lines.

Given the affordability advantage of mobile phones over fixed, the roll out of the fixed network to provide complete coverage in the 10 new Member States might be difficult to achieve.

⁹ In the graph 3, the residential penetration of fixed line is based on a statistical ratio of two aggregates, i.e. the total number of households and the total number of residential lines whereas in the graph 2 it was based on a household survey. About measurement issues, see the text box in the annex.

Graph 3



Source: NRAs, in IBM, 4th report on monitoring of EU candidate countries, Dec. 2003. For CZ the data are from the fixed incumbent operator only.

http://europa.eu.int/information_society/topics/ecom/doc/all_about/international_aspects/eu_enlargement/4th_report_final.pdf

The fixed to mobile substitution raises an interesting question with respect to the increasing penetration of Internet access in households. People are likely to retain a fixed line for internet access (either dial up or ADSL), and this could form a threshold for fixed to mobile substitution, at least until mobile networks can match the data rates offered by fixed networks.

iii) Internet access

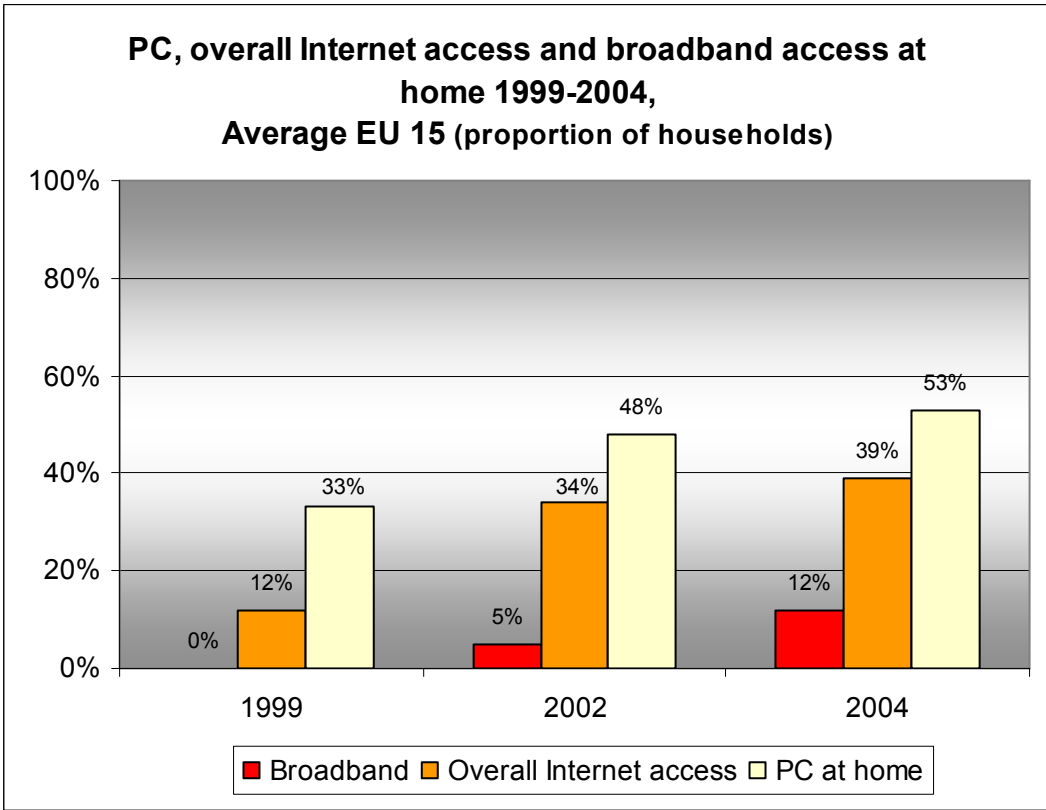
Apart from mobile, the most important visible change in the electronic communications market over the last five years has been the increasing diffusion and use of Internet access.

The graph below displays the evolution of Internet access in EU 15 households, including broadband access¹⁰, as well as the proportion of households with a PC. One can observe that the proportion of EU 15 households with Internet access has increased from 12% in 1999 to 34% in 2003 and to 39% in 2004. An additional 19% of households have at least one household member using Internet at another location, such as at work or in an educational establishment, so that 58% of households have access to the Internet in one form or another.

The evolution of Internet access relies to a great extent on the number of households equipped with a personal computer, which was 53% in 2004, against 33% in 2003. One can deduce from this observation that, within the targeted population of PC-equipped households, the proportion of households having an Internet access has grown from 36% in 1999 to 74% in 2004 against respectively, 12% and 39%, for overall households.

¹⁰ Broadband refers generally to always-on services that are considerably faster than the ISDN (Integrated Services Digital Network) with the capacity to transmit significant amounts of data at a high rate, ranging from 128 kbps (kilobits per second) to several Mbps (millions of bits per second) and beyond. 'Traditional' voice band modems typically offer a data rate up to 56 kbps.

Graph 4



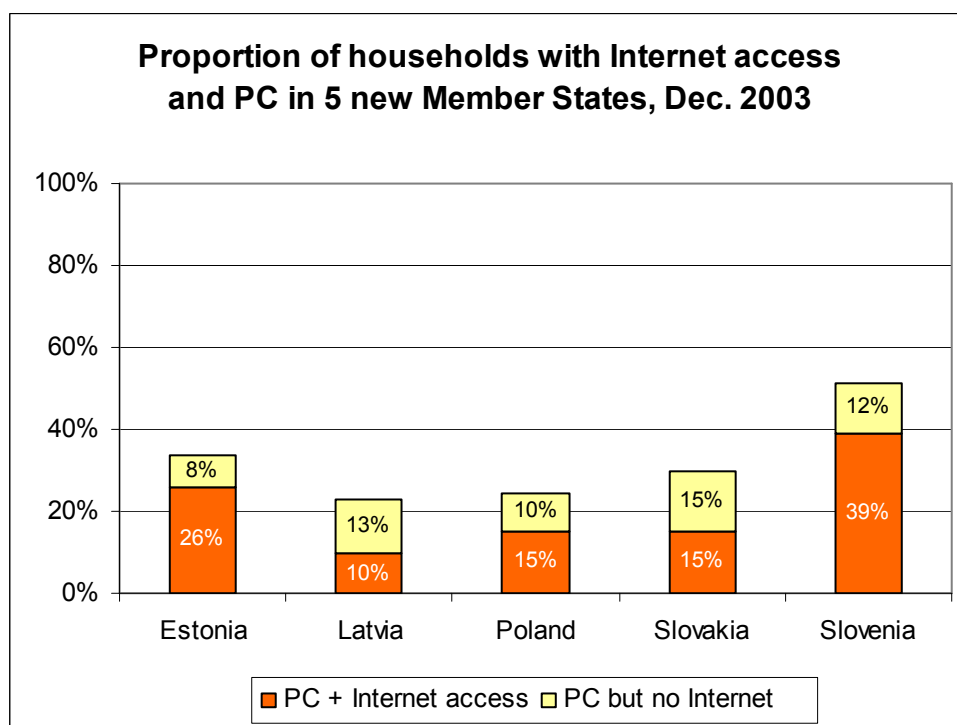
Source: Telecoms residential surveys, Gallup, 1999 and INRA, 2003 and 2004

The evolution of the penetration rate of PCs in households is an affordability issue, as evidenced by the correlation between that indicator and the GDP per inhabitant. This issue becomes more and more important as the penetration rate evolves, because the proportion of households not yet PC-equipped has a lower income level than the average population. However, the decreasing price of PCs, as well as the emergence of new terminals for connecting to the Internet (TVs, smart phones, games stations, etc.) open new possibilities, often cheaper than a PC, for accessing the Internet.

With respect to broadband access, the residential survey shows a very rapid take-up over time – in terms of net additions - from basically 0% of households in 1999 to 5% in 2003 and 12% in 2004. According to the same survey, DSL access accounts for 66% of all broadband access connections, the remaining 33% being predominantly made of cable-modem access.

The following graph presents the proportion of PC-equipped households with Internet access in five new Member States as of 2003. With the exception of Slovenia, which achieves a 42% penetration rate of Internet in households, the other four countries have Internet penetration rates below 25%. In the short term, the low level of fixed telephone line penetrations in the new Member States from Central and Eastern Europe is a cause of concern regarding the potential to increase household internet access, and by extension broadband internet access. Given the limited bandwidth capabilities of existing 2G mobile communications in these countries, multi-platform access based on the use of 3G mobile networks, cable-network or fixed-wireless technologies could be highly relevant for increasing broadband Internet access in these countries.

Graph 5



Source: eEurope+ Household survey (Dec. 2003), in Central and Eastern Europe Information Society benchmarks, Summary Report, Sept. 2004

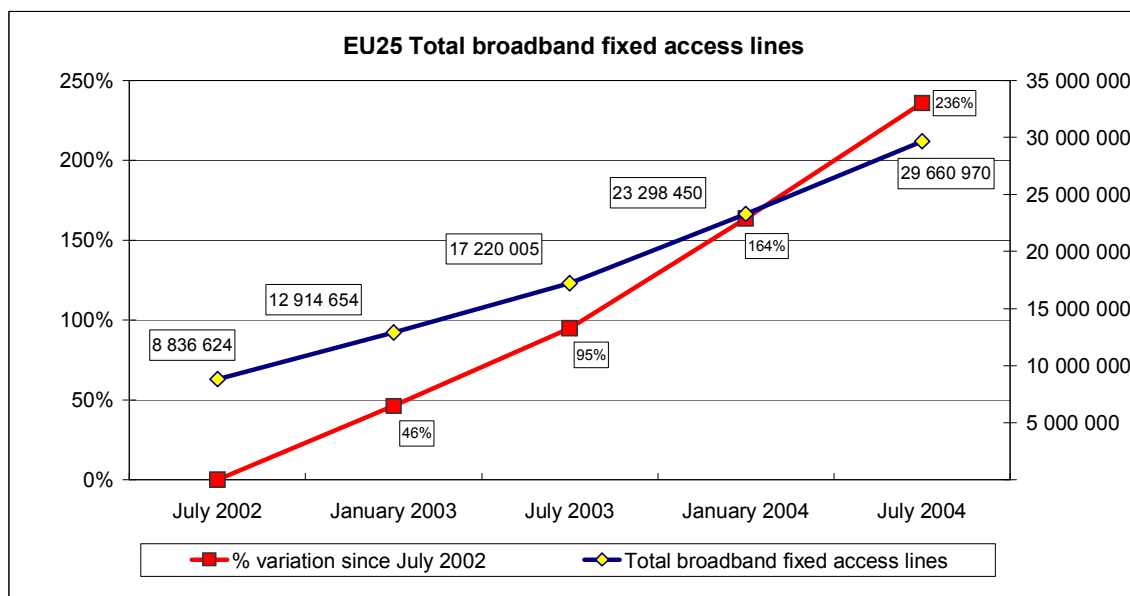
http://europa.eu.int/information_society/eeurope/2005/doc/all_about/benchmarking/summary_report.pdf

The rapid take-up of broadband is confirmed by the total number of broadband access lines, growing by more than 72% during the year at EU 25 level¹¹. Deployment was at 29.6 million lines as of July 2004, as shown in the graph 6 below, which represents 6.5% of the EU population (see also graph 10). For the purposes of comparison, the figure for the EU 15 is 7.8%, which compares with 4.6% last year. The dramatic growth in broadband deployment is being driven largely by intensifying competitive pressure and by the desire of fixed operators to offset eroding voice telephony revenues.

In the 10 new Member States, the average situation corresponds to lower penetrations rates than the average EU 15 situation described above, with the exception of Estonia and Malta (see graph 10). In the absence of data on the evolution, the current situation will be examined in the next chapter.

11 Source: 10th implementation report, COM(2004) 759

Graph 6



Source: Commission services based on COCOM data. Figures for July 2002 to July 2003 refer to EU15 only.

In conclusion, it appears, having analysed the main technological, social and market developments, that the most important changes from a consumer perspective, over the last five years, have been (i) the wide-spread use of mobile communications, (ii) the subsequent trend for fixed to mobile substitution and (iii) the increasing use of the Internet and the rapid growth of broadband access.

In the light of these developments, the following questions emerge with respect to reviewing the scope of universal service:

- Mobile communications: the current definition of the scope already offers the possibility to meet the obligation for access to the public telephone network at a fixed location through the provision of a mobile phone subscription. Would it be appropriate to move one step further and change the obligation to “access to the public telephone network from any location”?
- Fixed to mobile substitution: in a context of decreasing use of fixed lines for voice telephony, should the provision of access at a fixed location be retained?
- Internet access: the requirement that the access link sustains ‘functional internet access’ (i.e. narrowband access) is already part of the current definition of the scope of universal service. Should broadband access be included in the scope of universal service?

The next chapter will explore answers to these questions by looking at the availability and use of fixed line, mobile communications, and broadband Internet access.

3. LEVEL OF AVAILABILITY AND USE OF SERVICES

The process set out by the annex V of the Directive Universal Service for reviewing the scope of universal service in accordance with article 15 provides that, once having identified the main changes in terms of the services used by the consumer, the Commission is to measure to

what extent the specific services are available to and used by a majority of consumers before assessing any social exclusion issue which could result from the lack of availability.

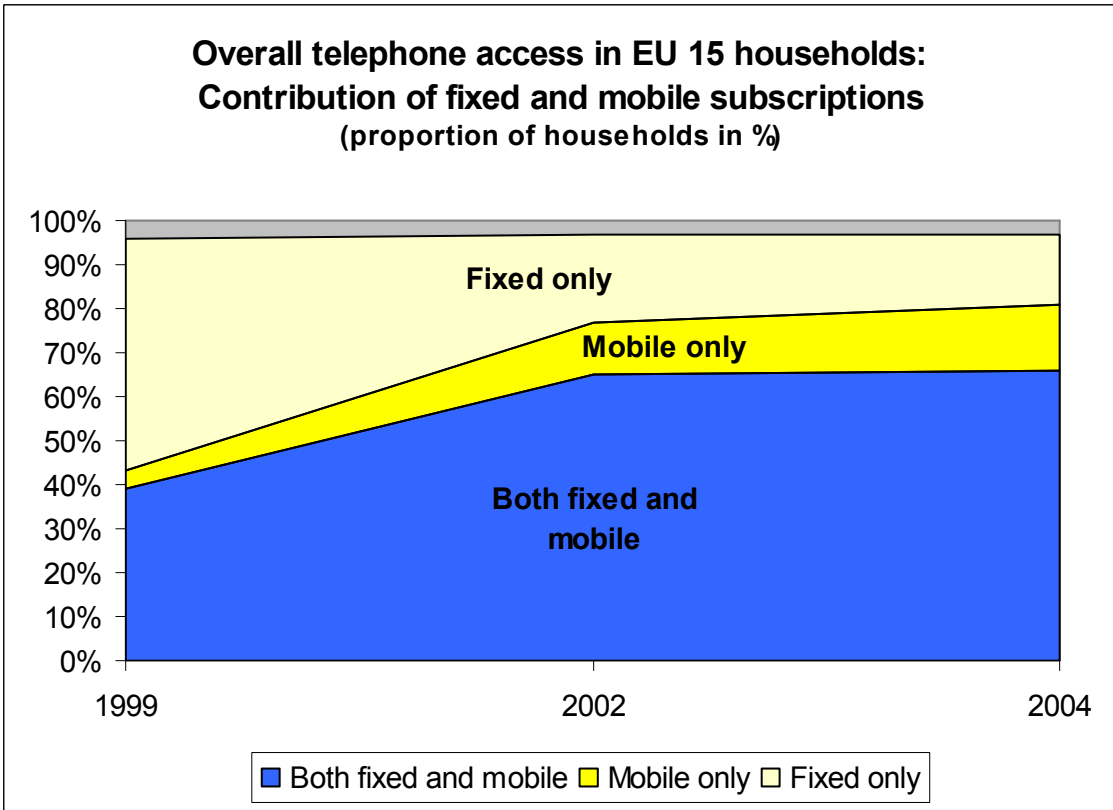
This section analyses part one of that test, i.e. the level of availability and use of mobile communications, fixed lines and broadband Internet access.

3.1. Overall telephone access

The level of overall telephone access will be examined initially because both fixed and mobile communications contribute to such access, and because it is a good indicator of the performance of telecommunications within the context of universal service.

The results of a residential survey in the 15 EU pre-accession countries indicate that the average proportion of households having access to the public telephone network from their home premises, either through fixed or mobile subscriptions, is 97%, the same level as in 2003 and a one point increase over 1999. The country-by-country results are presented in annex, graph I. However, the stability of the overall high telephone access level over time hides the fact that the respective contribution of fixed and mobile to such overall telephone access has changed, as shown in the following graph 7.

Graph 7



Source: Telecoms residential surveys, Gallup, 1999, and INRA, 2003 and 2004

In 1999, the contribution of fixed lines to the overall telephone access was equivalent to 92%, when summing up fixed only households with those having both fixed and mobile subscriptions. This contribution has fallen to 82% in 2004 in relation with the fact that a

growing proportion of households are choosing to have mobile phone only, amounting to 15% in 2004.

There is no similar data available for the 10 new Member States, at household level.

3.2. Fixed telephony

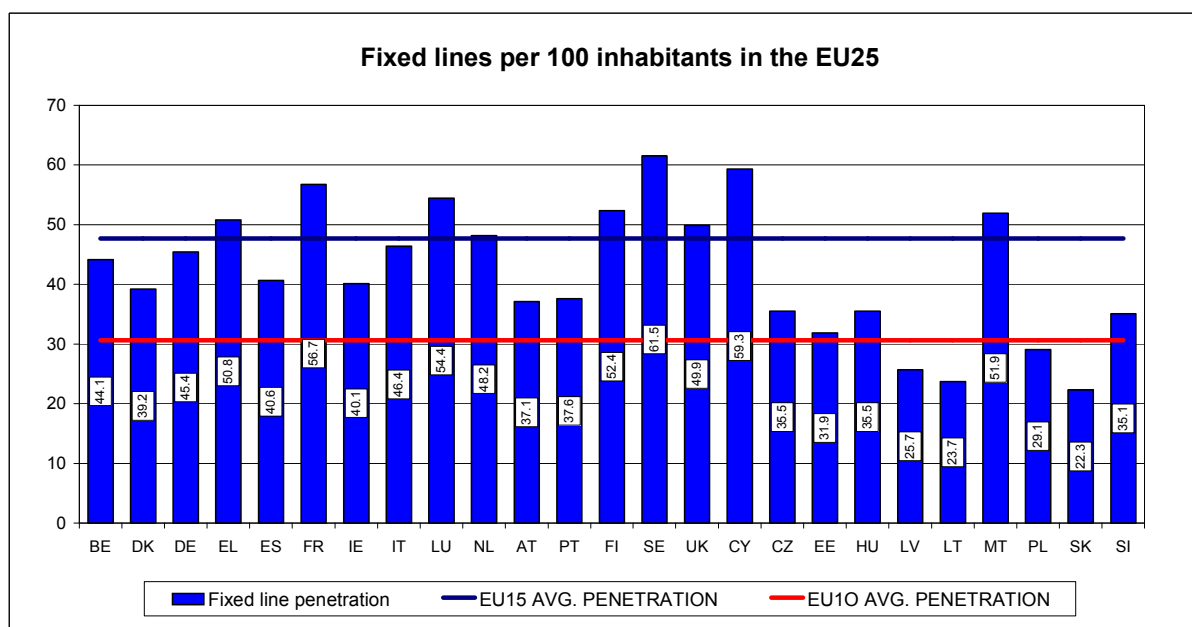
In the case of fixed telephone lines, the criteria of availability and use of services by a majority of consumers must be measured at the household level because the access at fixed location is generally shared among all household's members.

Concerning the availability of fixed telephone lines, it can be assumed that it is equivalent or slightly higher than the proportion of households having a fixed line. In addition, even the substitution by some households of mobile for fixed access does not decrease the availability of the fixed access lines given the fact that the roll out of the local loop is a sunk investment which implies that with or without subscriptions, the access line remain physically available.

With respect to the level of use, the average proportion of households having a fixed line access is worth 82% in the 15 EU pre-accession countries, as shown in the above graph 2.

In the absence of recent, consistent and robust data about the proportion of households with a fixed telephone line covering the whole 25 EU Member States, the penetration of fixed lines per head of population will be used instead as a proxy. The penetration rate per head of population is inferior to the penetration rate measured at household level because the total number of population exceeds the number of households by a factor generally comprised between 2 and 3. In addition, the total number of fixed lines includes a significant proportion of business lines.

Graph 8



Data as of 1 January 2004
Source: NRAS, 10th implementation report COM(2004)759

As observed in the above graph, the average penetration rate of fixed line per 100 inhabitants corresponds to 31% in the 10 new Member States against 48% in the 15 pre-accession countries. This corresponds to an EU 25 weighted average of 45%, given the 16% contribution of the new Member States to the total EU 25 population.

It results from these measurements that, on average, fixed access lines are available to and used by a majority of EU 25 households.

It can be concluded therefore that the fixed telephone access line meets the criterion of availability to and use by a majority of consumers and must therefore remain in the current scope of the Universal Service relating to electronic communication services. It will be not necessary to go through the next steps of the review process as fixed telephony is already in the scope of universal service. However, given the current trend of a decreasing penetration rate of fixed telephone line in households, this element will have to be kept under review.

3.3. Mobile telephony

In the case of mobile communications, the criterion of availability to and use by a majority of consumers must be measured both at the household level, with respect to access at a fixed location, and at the personal level, with respect to access at any location.

The availability of mobile communications is defined by the national 2G and 3G licences which generally impose a population and/or geographic coverage superior to 95%. In the case of 2G, the national regulatory coverage obligations have been met to a great extent in all EU 25 Member States by at least one national mobile network. In addition, the presence of several mobile operators per country increases the quality of the coverage.

The average proportion of households with at least one subscription to mobile telephony within the 15 pre-accession countries is 81%, as of early 2004, a 4% increase over 2003, as shown in the graph 2. It ranges from 68% in Germany to 95% in Netherlands (see graph III in annex). Also, the residential survey revealed that an average proportion of 46% of households in the EU 15 have 2 or more mobile subscriptions.

There is no data available at household level for the 10 new Member States in the area of mobile communications. However, when taking into consideration the penetration rate per head of population, one can deduce that the overall EU 25 household average is significantly above the majority level.

When measured at personal level, the EU 25 average penetration rate per 100 inhabitants was equal to 81% as of February 2004, with average levels of 84% in the EU 15 and 62% in the EU 10.

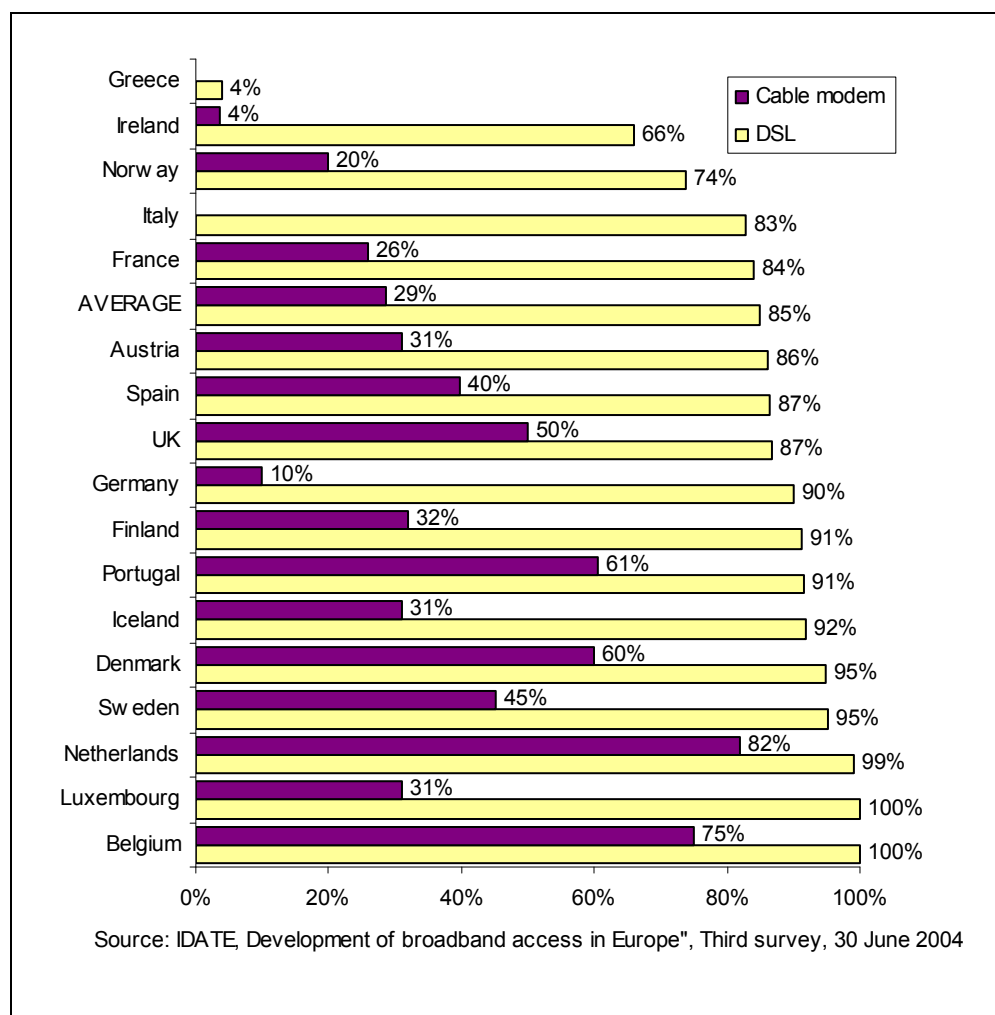
In conclusion, it appears that mobile communications meet the criterion of availability to and use by a majority of consumers both at household and personal levels and must therefore be further considered as part of the review process.

3.4. Broadband Internet access

Concerning the availability of broadband access, a recent study carried out by an external firm for the Commission has estimated that the current level of coverage of DSL¹² and cable modem infrastructures in the 15 pre-accession Member States is, on average equal to 85% of the population as shown in the graph below. This deployment is particularly high in countries where cable network infrastructure is well developed, like Belgium, Netherlands, Denmark and Sweden. The addition of alternative networks infrastructures, such as fibre to the home, does not change that picture because they are generally rolled-out in areas that are already covered by DSL networks.

With respect to the new Member States, it has not been possible to gather similar data. However, the current deployment level of the fixed telephone network, corresponding to 31% (see graph 8), as well as the current penetration rate of broadband access subscriptions in the new Member States (see graph 10), suggest that the average availability of fixed broadband access in the ten new Member States is below the majority threshold.

Graph 9: National population coverage by DSL and cable modem as of June 2004

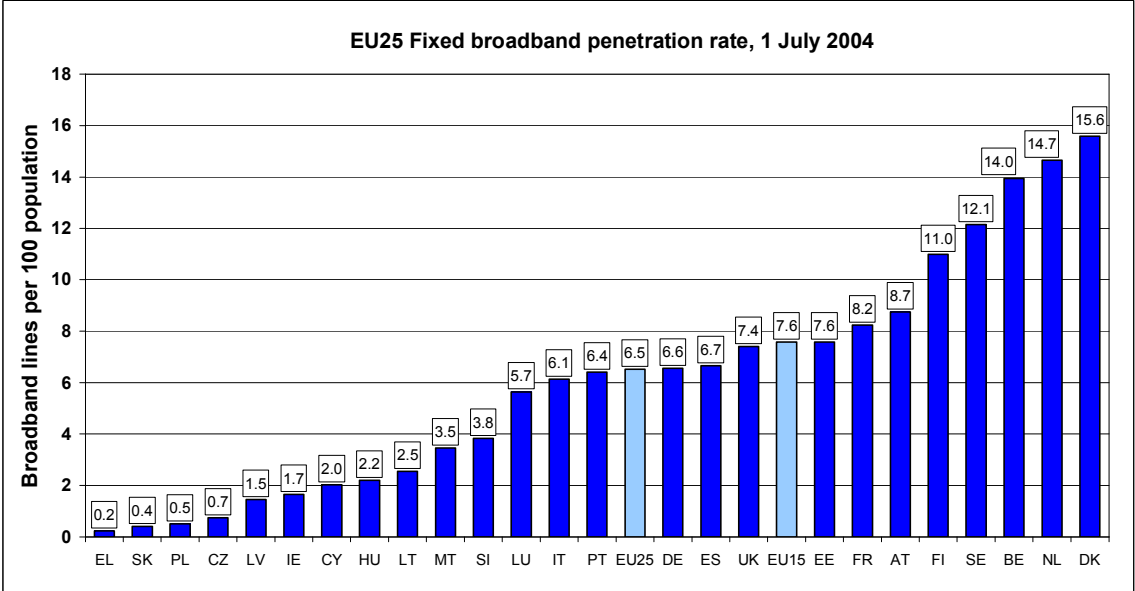


12 DSL : Digital Subscriber Line, a technology for fast rate transmission of data over the last mile of the public fixed telephone network which enables broadband access to the Internet at speed rates up to several mega bits per second.

However, it has not been necessary to draw more precise conclusions about the level of availability of broadband access in the EU 25, given that the level of use is still far below the majority, as shown in graph 10 below.

When measured per 100 inhabitants, the EU 25 average is 6.5%, against 7.6% at EU 15 level. However, the market is very dynamic and the penetration rates are evolving quite rapidly.

Graph 10



Source: Commission services based on COCOM data

The conclusion of this section is that broadband access is not yet used by a majority of the EU 25 households and therefore does not meet the criterion set for the purpose of the review. However, the very rapid growth in deployment of broadband access observed in a majority of Member States implies that this service must be kept under review.

4. SOCIAL EXCLUSION RESULTING FROM THE LACK OF AVAILABILITY

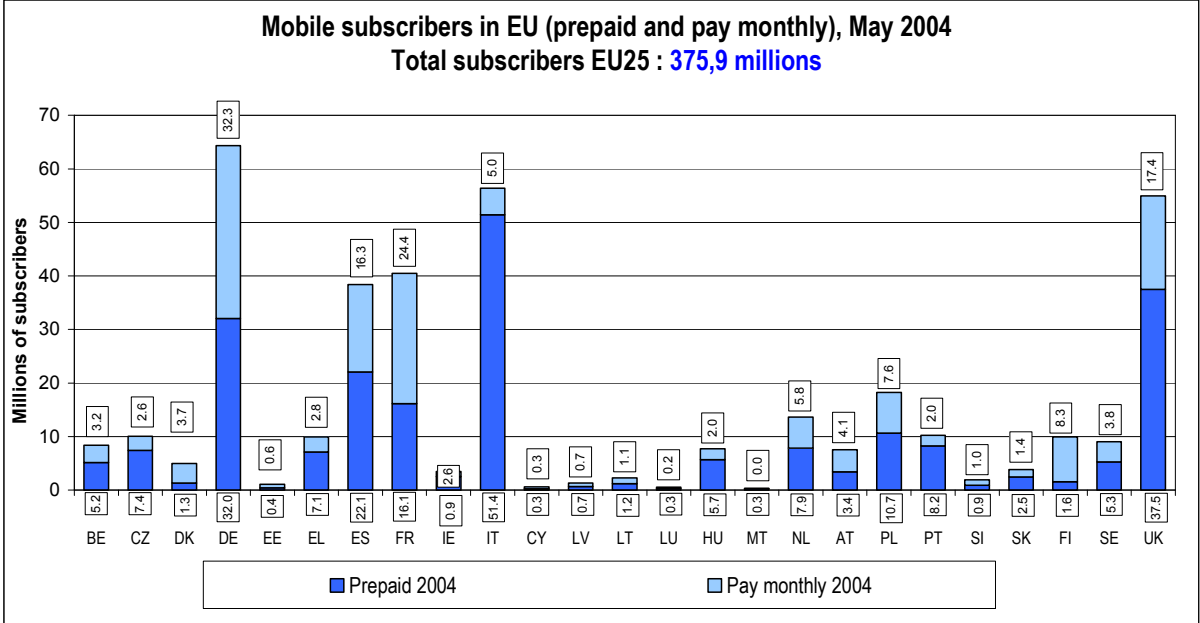
The methodology set out by the annex V or the Universal Service Directive for the review, and the conclusions drawn above in section 3.3 that mobile communications are available to and used by a majority of consumers both at household and personal levels, require an analysis of whether social exclusion could result from the lack of availability in the field of mobile communications.

However, the analysis in Section 3.3 above demonstrated that there is no lack of availability of services in the field of mobile communications for the reason that geographic and population coverage obligations are imposed on mobile networks, which exceed 95% or more in each of the 25 Member States. In addition, the acquisition of pre-paid packages of mobile services exist which allow low income consumers a basic connection to the network and access to services.

In practice, a majority of consumers choose pre-paid: 61% of all mobile subscriptions in the EU 25 are pre-paid as opposed to post-paid (monthly) subscriptions, as shown in the graph below. When business subscriptions, that usually are post-paid, are deducted, it becomes

apparent that the vast majority of the EU 25 households use pre-paid service to buy mobile subscription and units of call. This fact is confirmed by a residential survey which shows that 77% of mobile subscriptions in the EU 15 households are pre-paid, a 3 points increase over 2003 (see graph VII in annex).

Graph 11



Source: European Commission, 10th implementation report COM(2004) 759 Final

5. LONG TERM ISSUES

The analysis carried out for the purpose of this review raises a number of issues for the long term which merit mention with respect to the general review of the EU regulatory framework scheduled for July 2006, and the next review of the scope of universal service in July 2008.

Universal service in the EU is currently based on the assumption that consumers use network access at a fixed location for voice-related and basic Internet services which are provided over public switched telephone network (PSTN). This assumption is, in turn, based a vertically integrated model whereby the universal telephone service provider is usually also the provider of the telephone network infrastructure.

The growth of IP based services, in particular VoIP services, challenges this vertically integrated model, and suggests that telephone service provision might move towards an internet-like model, whereby those with a broadband connection could have access to a range of competing IP voice service providers. In such a scenario, affordability and provision of telephone service *per se* becomes less of an issue, and the focus of universal service might move towards provision of an affordable broadband access link. Such developments are outside the timeframe of the current review, but may be relevant to a future examination of the scope of universal service.

A second longer term consideration relates to the source of universal service financing. When operators historically had special or exclusive rights, it was appropriate for them to carry

certain social obligations. The concept of a universal service fund whereby market players can be required to share social costs related to the provision of universal service prolongs this thinking into the current liberalised market where historic incumbents are treated on the same basis as any other undertaking.

It is therefore valid to question whether this model of financing is still appropriate, or whether it would be appropriate to shift to a more modern approach to satisfying socially important objectives of achieving inclusiveness, such that the relevant costs would be borne by general taxation and not by market players.

6. CONCLUSIONS

Since the 1999 review of the earlier telecoms liberalising regulatory framework that culminated in the adoption of EU regulatory framework of March 2002, many important developments have taken place in the market as the result of technological progress and innovation combined with the liberalisation of the sector. As a major consequence, a substantial and increasing proportion of consumers now have the possibility to choose between several network infrastructures and services providers for serving their communication needs from home and/or on the move.

In that context, the following conclusions result from the analysis applying the different steps of the review process:

- Overall, the analysis of technological, economic and social developments for the purpose of the review of universal service has identified mobile communications and broadband access as the major service changes with implications for the scope of the universal service.
- Mobile communications, which are increasingly substituting for fixed access lines with respect to voice telephony, are available to and used by a majority of consumers. However, the very high geographic and population coverage of mobile networks combined with the existence of affordable pre-paid packages mean that there is no lack of availability which could lead to significant social exclusion within the meaning of the universal service Directive.
- The deployment of broadband access is increasing very rapidly but so far only a small minority of the total EU population are using broadband, be it measured per head of population (6.5% as of 1 July 2004) or per household (12% of EU 15 pre-accession households by the beginning of 2004). The current level of use does not meet “the majority of consumers” criterion of the Universal Service Directive. Broadband has not yet become part of the fabric of society, such that lack of access implies social exclusion. For the purposes of this review therefore, it is not necessary to progress further with the assessment; broadband access does not qualify to be included within the scope of universal service at present but will be kept under review.

Annex

Measurement issues

The method set out by the Universal Service Directive 2002/22/EC (USD) for reviewing the scope of universal service is mainly based on two measurement concepts that are (i) the availability and (ii) the use of a given service. For the purpose of that review, these two concepts have been defined and applied in the ways detailed below:

i) Availability: it corresponds to the possibility for an end-user to obtain upon request a connection to a public telephone network within a reasonable period of time in order to enable the use of service(s), for example to receive and make phone calls. In the case of access line on public switched telephone network (PSTN), the period of time to obtain the connection is covered by the existing USD in its art. 11 on quality of service and in the annex III with reference to ETSI's definition EG 201 769-1 (according to which 95% of installed connections must be put into service within 4 days of arrival of the order). When the line is not installed or, in the case of mobile communications, when the radio signal not available to at the customer's premise, one considers that there is no service availability given the much longer period of time required to obtain the connection (through network roll-out).

To apply this definition of availability, one has used population and/or geographic coverage statistics for the provision of a given service. In this working document, the following measurement methods have been applied:

- Coverage for DSL broadband access refers to the percentage of the national population connected to a local exchange equipped with a DSLAM. A caveat with this measurement is that coverage includes those people (households or businesses units) that reside too far from these switches to be able to purchase a DSL connection even if they wanted to do so.
- Coverage for broadband cable-modem access refers to the percentage of home passed with cable-TV network upgraded to connect to the Internet.
- Coverage for mobile communications refers to the percentage of the population that are, at their home location, within the range of an adequate mobile cellular signal emitted from radio stations.

ii) Use: the aim is to measure the proportion of a targeted population (e.g. individuals, households, businesses) who is effectively using a given service. In some cases, the existence of a contractual relationship with the service provider, i.e. a subscription, can be sufficient. But it may happen that the service is provided for free or accessed through different access points to the network (e.g. Internet access from school or from work). Therefore, the level of use of service is best captured through surveys. However, when this information is not available, and also for cross-checking purpose, one can use the proportion of subscribers to a given service within a targeted population which is measured as the ratio of two statistics.

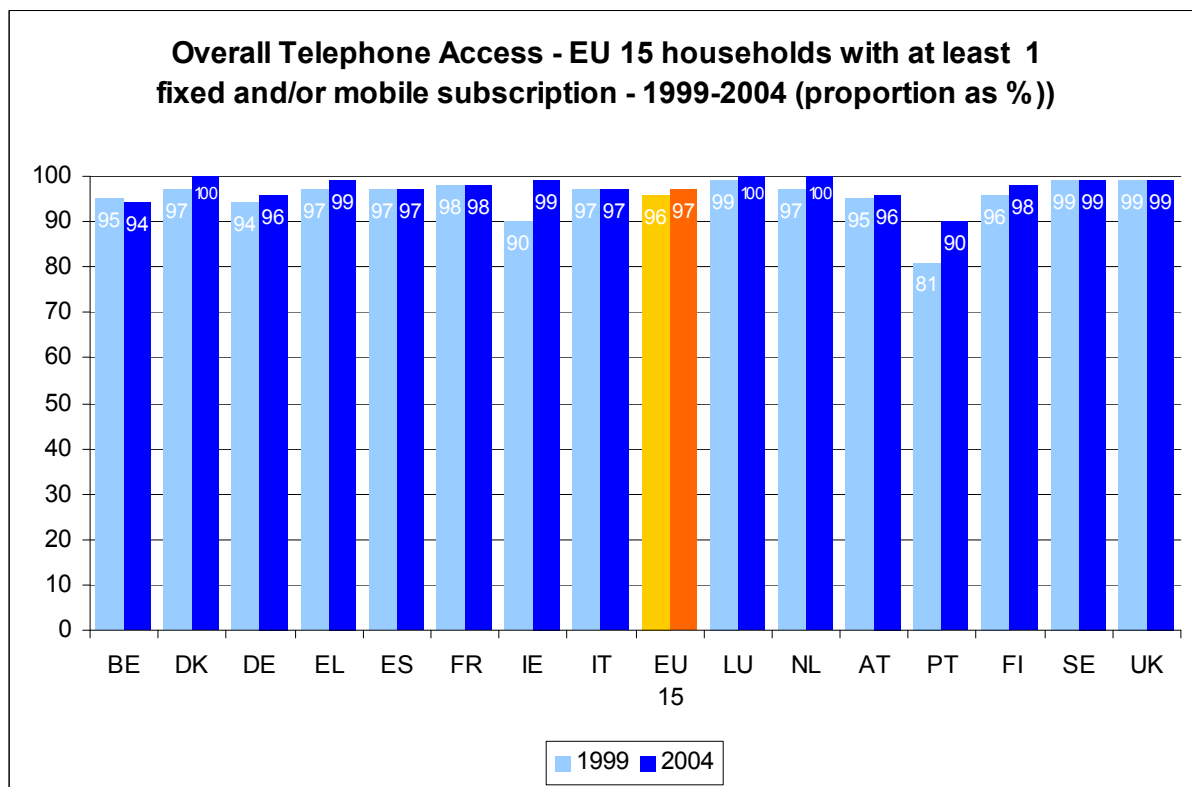
In principle, surveys give relatively accurate and reliable information on the proportion of households with a fixed telephone, depending on the samples size and the corresponding statistical margins of error. When this information is not available, one can use the number of fixed residential lines per 100 households; however, this indicator, which is a ratio between two statistics, is not as accurate as the information raised through large surveys.

In any case, the number of residential lines per 100 households may differ from the proportion of households with a fixed telephone for several reasons, including: single households with multiple telephone lines, multiple households sharing a telephone line, the possibility that the fixed telephone is not counted as a residential line and also measurement errors from sampling errors and non-responses.

For the purpose of that review, it has not been necessary to assess the affordability of services for the following reasons:

- According to the Universal Service Directive, Rec. 10, an “affordable price means a price defined by Member States at national level in the light of specific national conditions”. Therefore it would be not possible to define the affordability of a given service at EU level given the great variety of situations in the 25 EU Member States. This issue must be dealt at national level. Moreover, it has not been necessary to carry out a detailed study to demonstrate that the acquisition of a mobile SIM card is affordable.
- The concept of ‘affordability’ is also related to an individual consumer’s ability to monitor and control expenditure. To this end, the national regulatory authorities are also empowered to monitor the evolution and level of retail tariffs, in particular in relation to national consumer prices and income (Recitals 10 and 15, Arts. 9 and 10 USD).

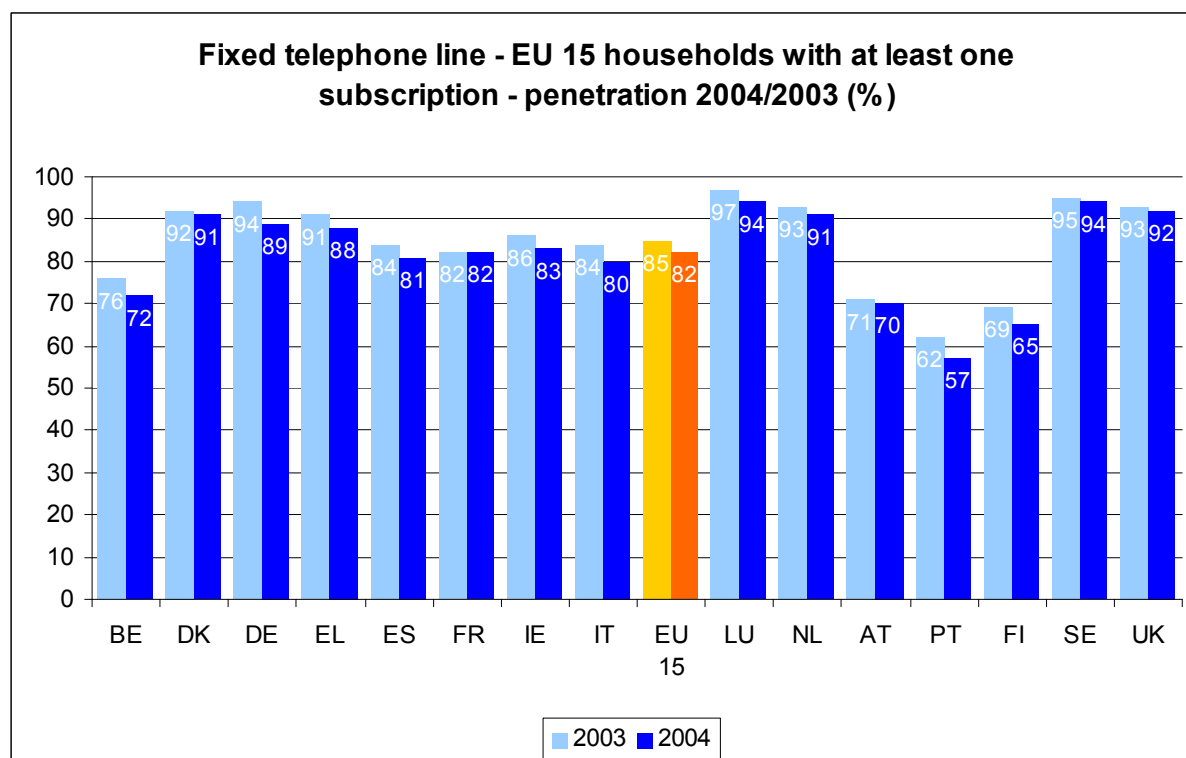
Graph I



Sources¹³: Telecoms services indicators, residential survey, INRA, 2004 and Telecommunications survey, Gallup Europe, 1999

13 The 2004 and 1999 surveys, carried out for the European Commission, aims to analyse developments in the use of electronic communication services products in connection with a number of specific objectives linked to the implementation and development of the EU regulatory framework. The 2004 survey was conducted between the end of 2003 and the beginning of 2004. It forms part of a study which includes another survey conducted in the second half of 2002 and published in 2003 (see

Graph II



Source: Telecoms services indicators, residential survey, INRA, 2003 and 2004

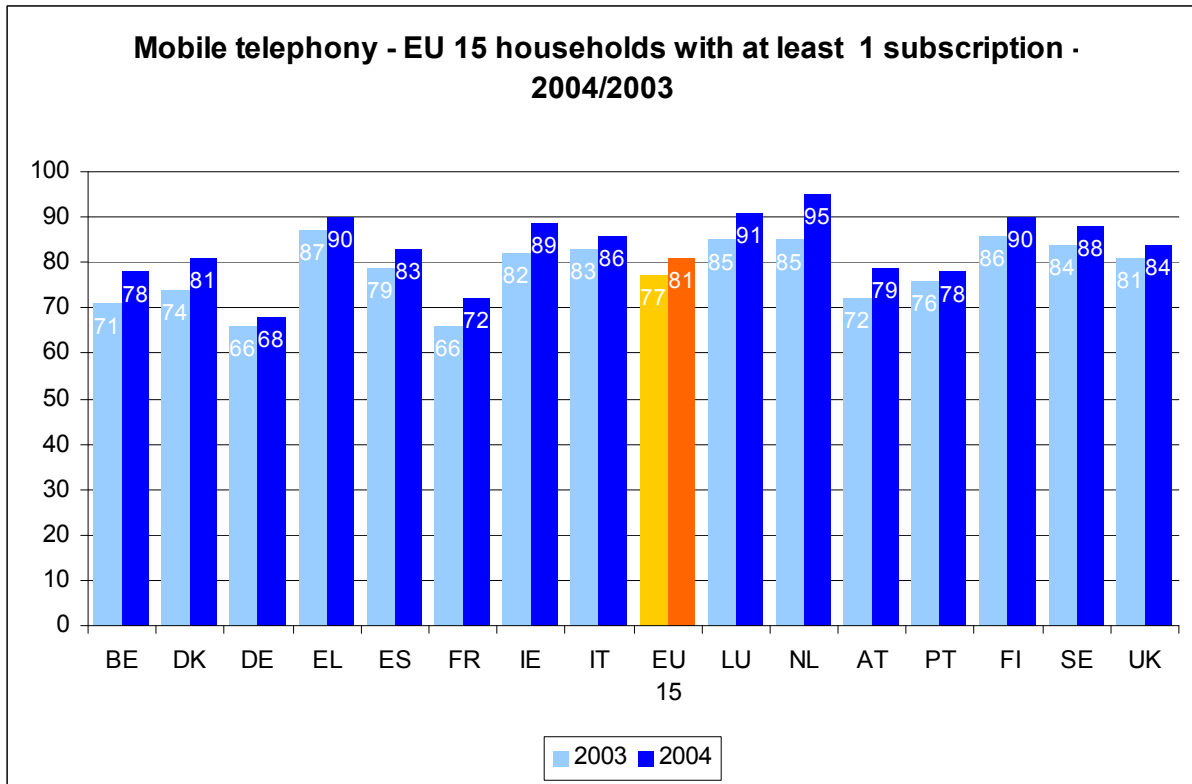
next graphs below). The data have been collected through face-to-face interviews based on a sample of 44.219 respondents age 15+ over 127 regions of the 15 pre-accession countries.

The 1999 survey took place in the second half of 1999 and was based over 44.000 household's face to face interviews in 130 regions of the 15 Member States.

The 2004 and 2003 surveys are available at the following address:

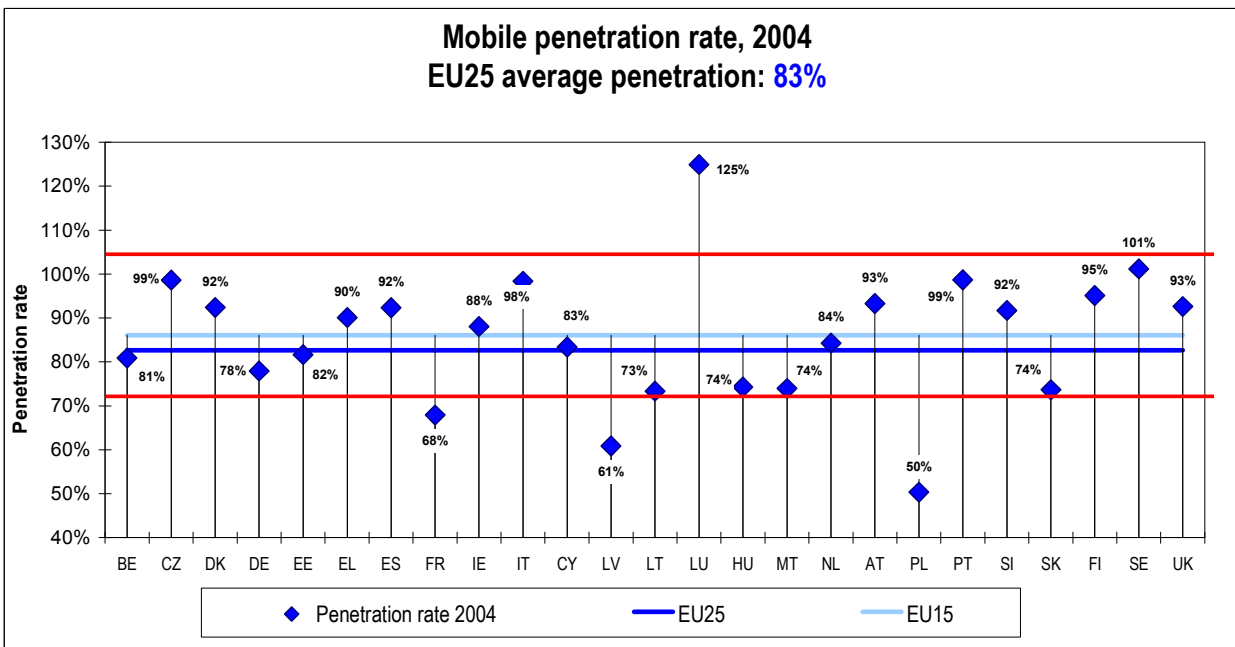
http://europa.eu.int/information_society/topics/ecom/useful_information/library/studies_ext_consult/index_en.htm

Graph III



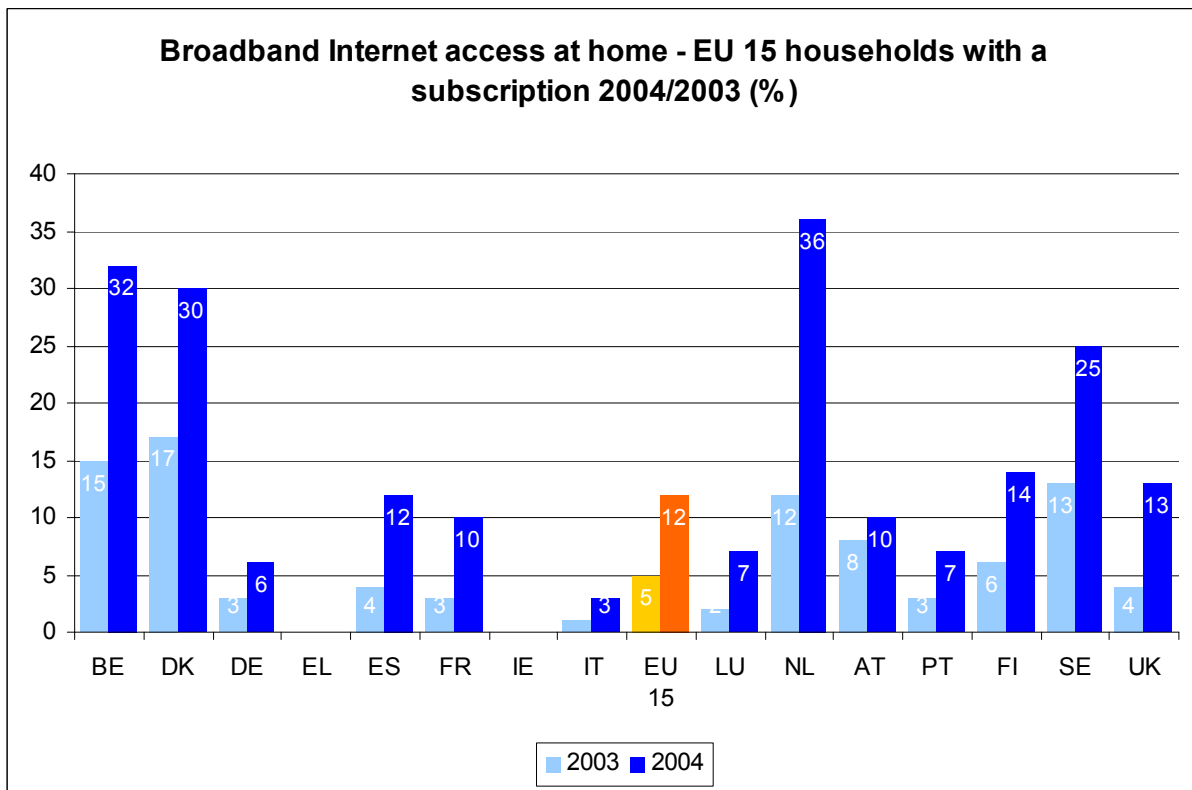
Source: Telecoms services indicators, residential survey, INRA, 2003 and 2004

Graph IV



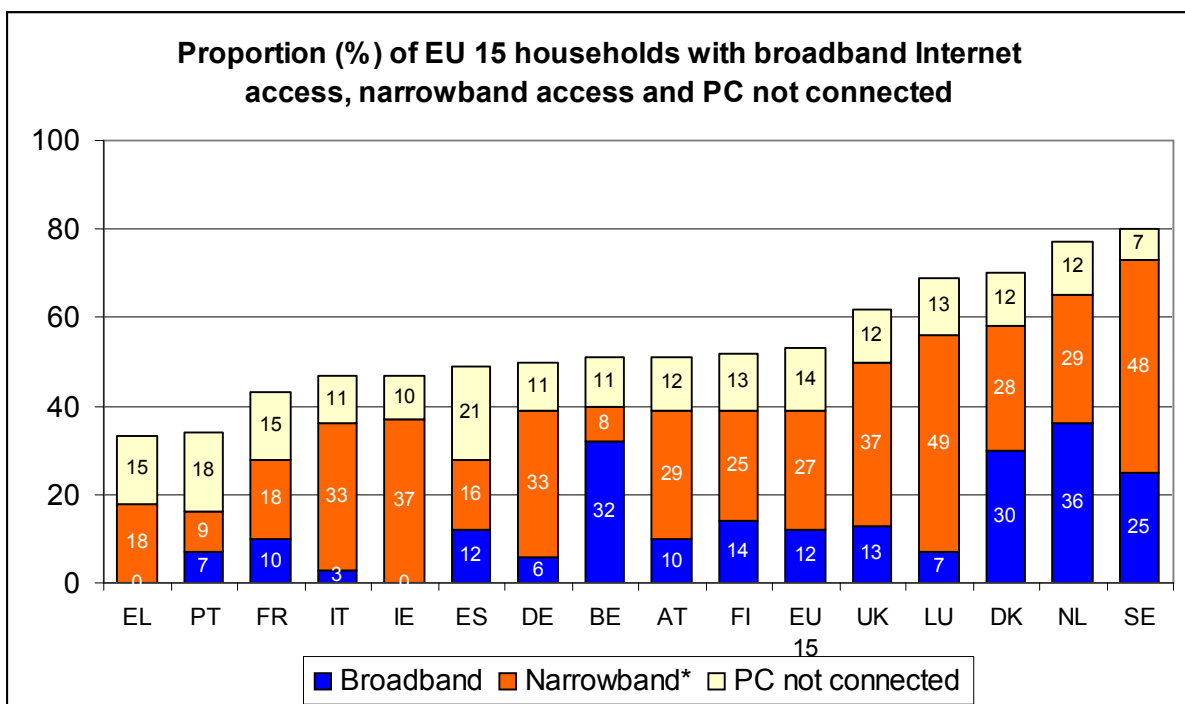
Source: 10th implementation report, COM (2004) 759

Graph V



Source: INRA, Telecoms Services Indicators, Residential surveys 2003 and 2004

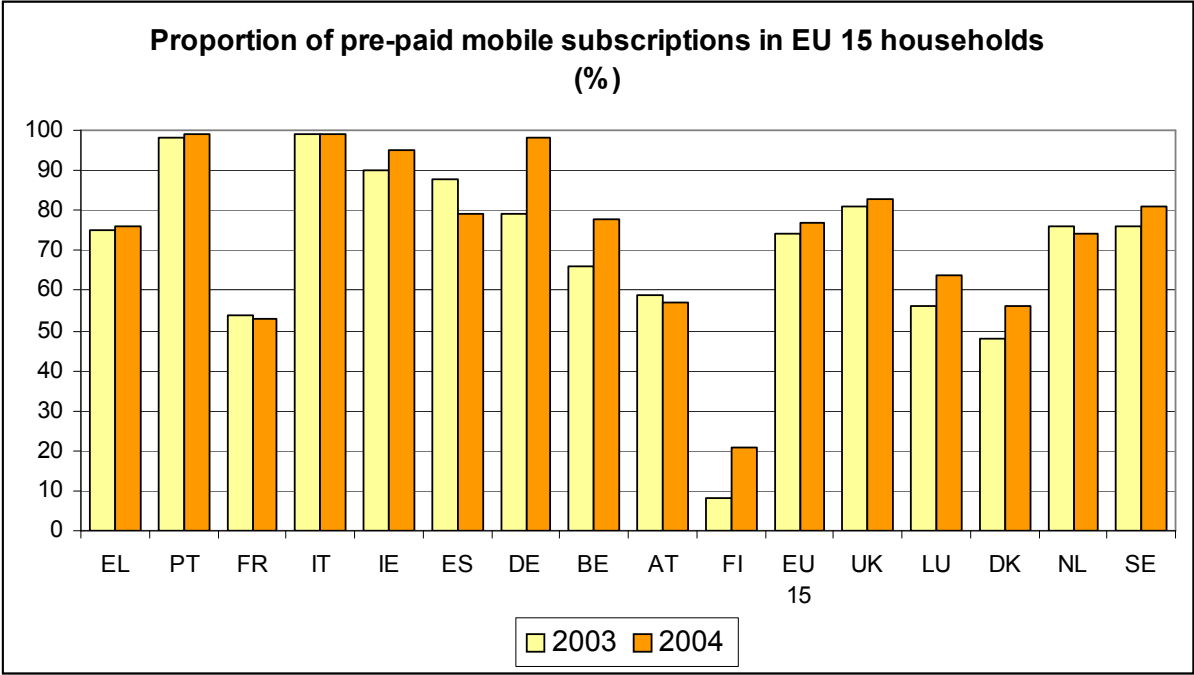
Graph VI



Narrowband*: includes also the “don’t know answers”

Source: Telecoms Services Indicators survey, INRA, 2004-10-11

Graph VII



Source: Telecoms services indicators, residential survey, INRA, 2003 and 2004