EUROPEAN COMMISSION
Information Society and Media Directorate-General

Lisbon Strategy and Policies for the Information Society
Economic and Statistical Analysis Unit

Brussels, 21st November 2010
DG INFSO/C4

COCOM10-29

COMMUNICATIONS COMMITTEE

Working Document

Subject: Broadband access in the EU: situation at 1 July 2010

This is a Committee working document which does not necessarily reflect the official position of the Commission. No inferences should be drawn from this document as to the precise form or content of future measures to be submitted by the Commission. The Commission accepts no responsibility or liability whatsoever with regard to any information or data referred to in this document.

European Commission
Information Society and Media

Commission européenne, B-1049 Bruxelles/ Europese Commissie, B-1049 Brussel –Belgium. Telephone: (32-2) 299 11 11.
Office: BU33 4/53. Telephone: direct line (32-2)296 85 00. Fax: (32-2) 296 88 75.
E-mail: infso-c4@ec.europa.eu

Explanatory note

The Commission has been publishing data on the number of broadband lines in the Member States gathered in the context of COCOM since 2003.

The COCOM broadband report has been expanded to keep with the technological changes of this dynamic market and now includes information on mobile broadband and speeds. The information on speeds is especially relevant now since the broadband targets of the Digital Agenda for Europe are expressed in terms of speeds.

In the past, the COCOM broadband report was published in 'Word' format only. In consequence, when third-parties wanted to use the statistical information from the report, they had to reintroduce all data by hand.

Moreover, the document did not include any mention of other statistics on broadband that are published by the Commission and that are publicly available in the annual Implementation Reports and the Digital Competitiveness Report. These statistics give a more complete overview of the market. Some stakeholders have expressed interest in knowing which other statistics are available from the Commission.

Given the significant attention paid to broadband data by several stakeholders (including Ministries, NRAs, consumers, network operators, etc.), in order to increase transparency and good analysis, the Commission services propose a new format for the COCOM broadband report, which will in the future consist of:

- One 'Word' document with the analysis. This document will contain annexes with references to other broadband-related statistics published by the Commission (data on coverage, retail and wholesale prices and the amount of broadband state aid), to increase awareness of all the statistical information available and to reduce the possibilities of fragmentation in the analysis of the sector.
- Two additional 'Excel' documents, which will be 'read-only' and will not contain confidential data:
  - First document containing all the data from all Member States and easy tools to construct all the graphs by market share, technology and speed. It will also allow third-parties and especially researchers to use easily this public information.
  - Second document that will allow to access all data on a specific Member State and to easily construct graphs on its broadband market.

Broadband access in the EU as at 1 July 2010

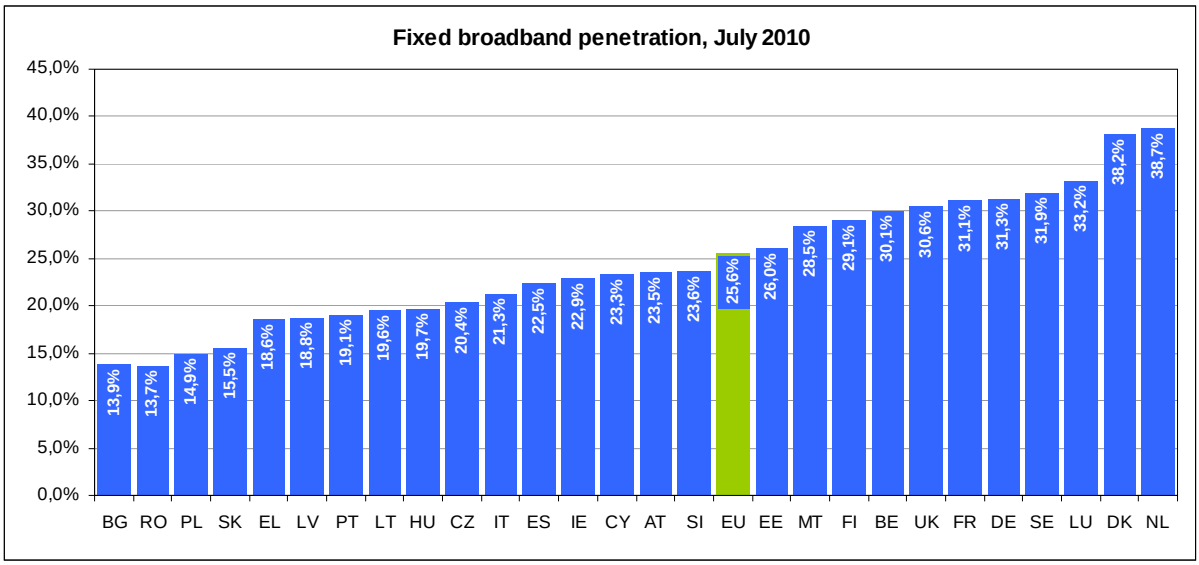
List of figures

1. Executive Summary

- **The EU Broadband market is moving towards higher speeds.** The share of lines provided through access technologies other than DSL is increasing (mainly fibre architectures and cable with Docsis 3.0).

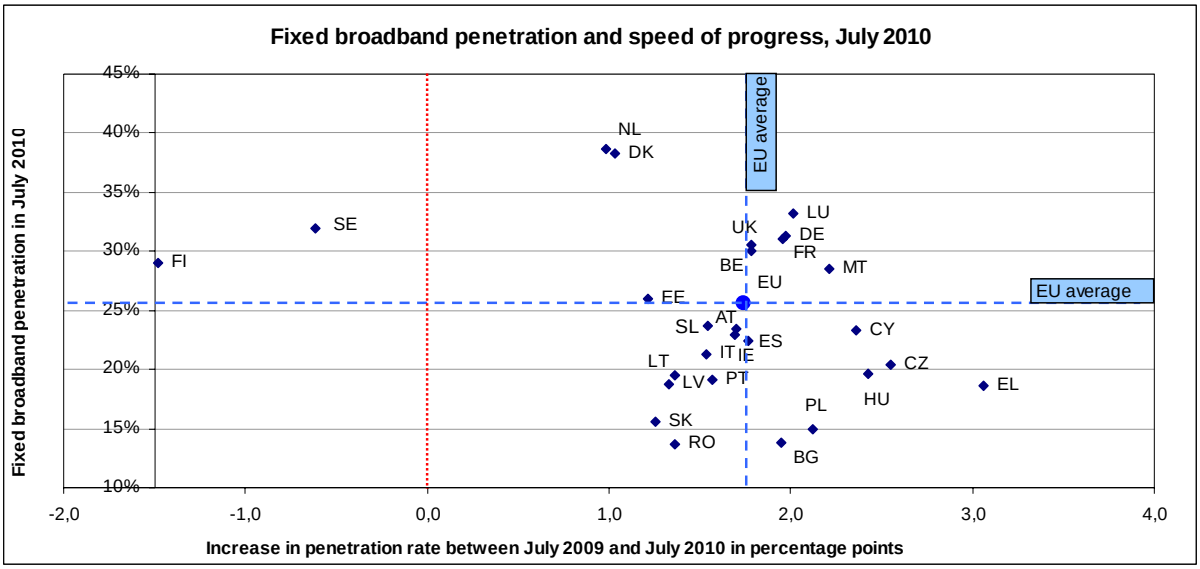
- **Take-up continues to slow-down and is now growing at the lowest rate since broadband data are collected within CoCom (2003)**: adding only 25.000 lines per day (32.000 in the same period the year before). While the economic crisis may have an impact on the aggregate level there is not a clear pattern of the effect of the crisis within Member States[1]. **The gap between MS is slightly decreasing** (the coefficient of variation[2] has decreased from 30% to 27% - the distance between the highest and the lowest performer in penetration has decreased by 1.6 pp), due to the fact that growth in leading countries is slowing down.

- As of July 2010, the number of fixed broadband lines per 100 habitants stood up at 25.6, from 24.8 in January 2010 and 23.9 in July 2009.

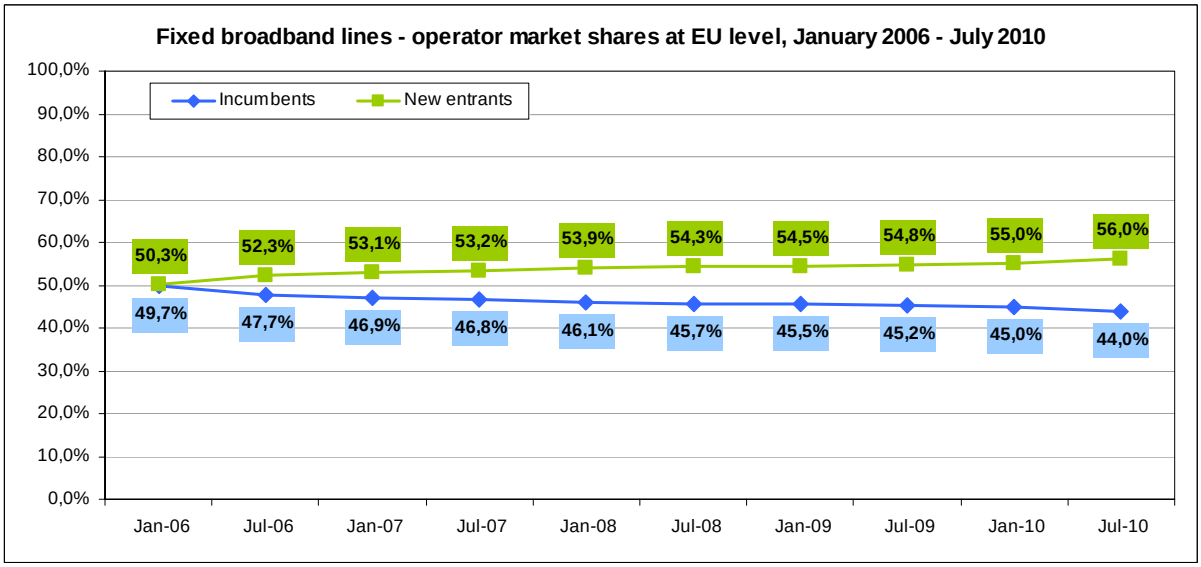


- In some Member States, take-up rates are close to 40%, and markets are mature[3]. The number of fixed broadband lines per 100 habitants would decrease in Sweden and Finland probably due to the impact of mobile broadband.

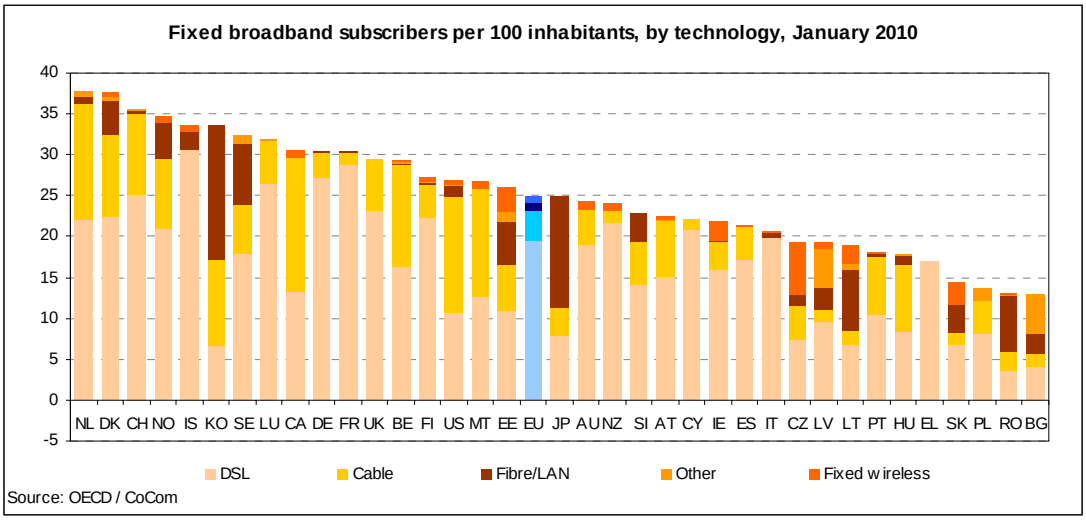
[1] The result of the regression of GDP growth in 2009 and the growth in the number of lines between July 2009 and July 2010 for the EU-27 Member States is not significant.
[2] Standard deviation divided by the average.
[3] With 2.4 persons on average on a European household and taking into account that CoCom provides figures for business too, we can assume that markets with more than 40 lines per 100 hab. are close to saturation.



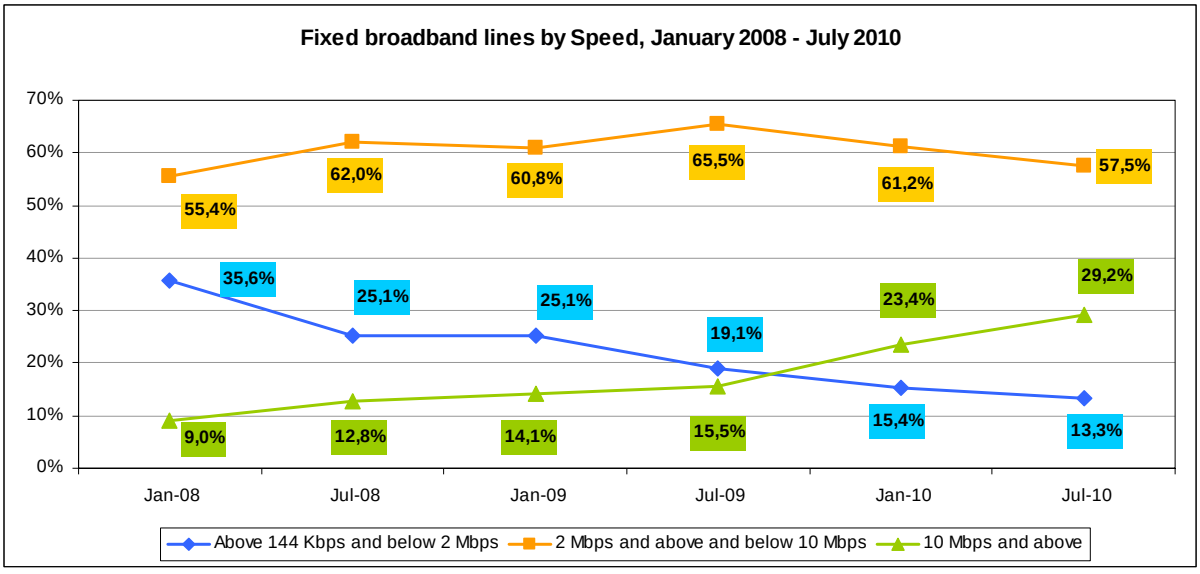
- **The average incumbent market share in the EU decreased slightly to 44% of the lines** (from 45% in January 2010). It has been, however, in the range 44% to 47% in the latest three years. Incumbent's control over end-users (including resale) is 47.1% (down from 48.3% six months ago). Major changes in the market shares should not be expected: the market is growing at a slow pace adding fewer lines. Another relevant factor worth looking at would be the conditions to change operator and the switching costs for broadband.



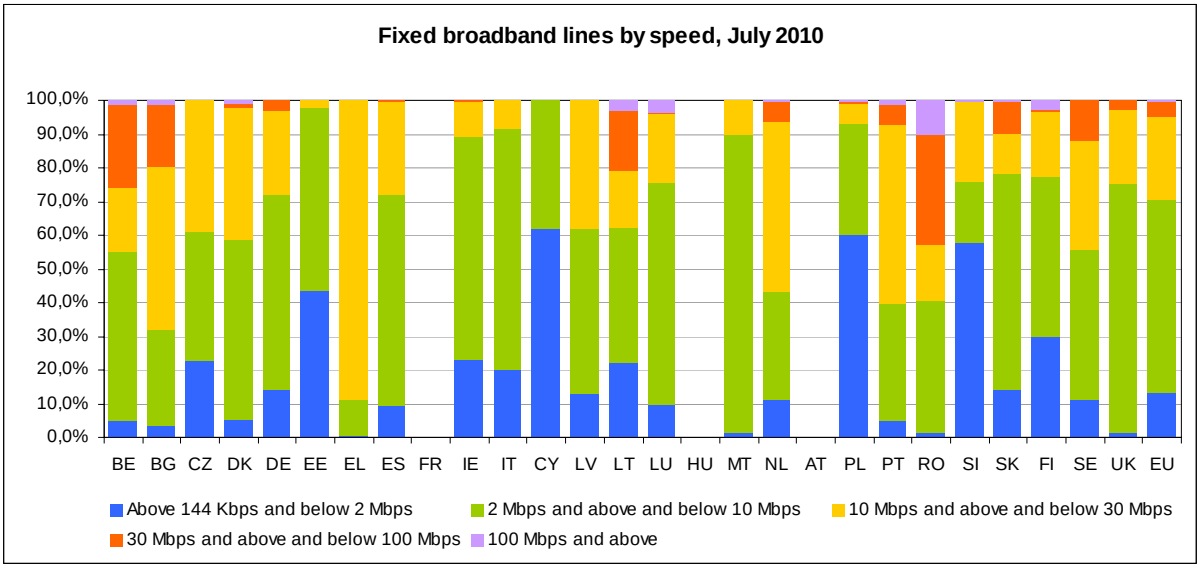
- As of January 2010, 9 EU Member States broadband penetration ranked in the top 15. **The US are also exhibiting slow growth and the EU gap with the US is being reduced** probably due to a catch-up effect (1.9 percentage points in January 2010 compared to 2.8 points in January 2009 and 3.4 points in January 2008). **Korea and Japan are well ahead in terms of very high-speed deployment**. While Korea broadband lines per 100 habitants keep growing, growth in Japan has come to a halt.



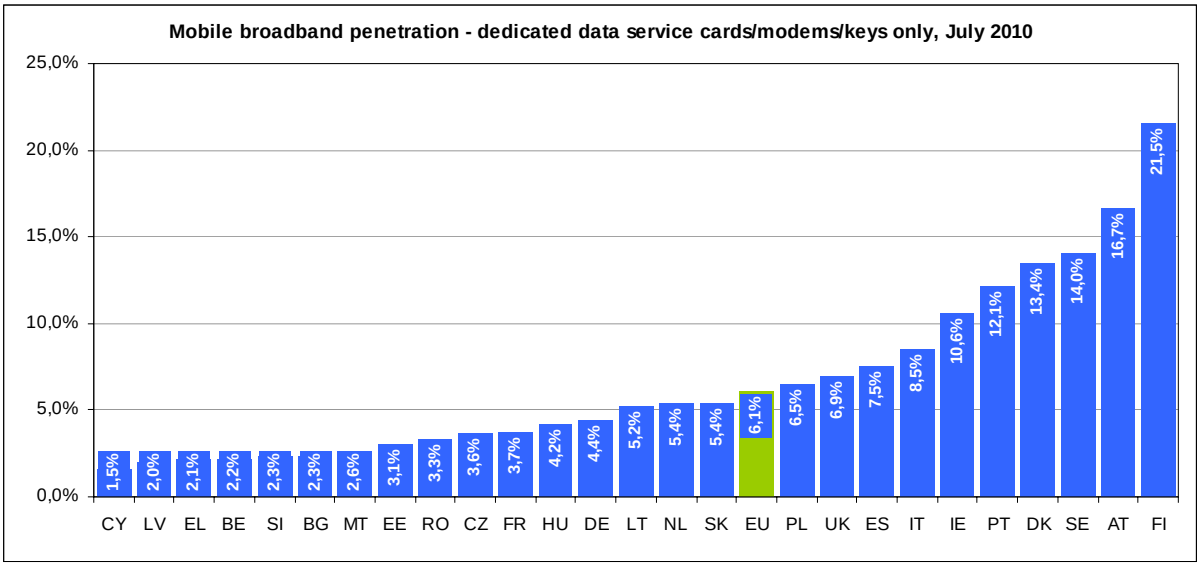
- As of July 2010, **29.2% of the broadband lines in the EU are equal or above 10 Mbps** (from 23.4% six months ago), a significant growth (+25% in six months).



- The Commission started to monitor within CoCom very high-speed broadband speeds in accordance with the Digital Agenda for Europe targets[4]. **Only 4.4% of the broadband lines in the EU are equal or above 30 Mbps, while 0.5% of the lines are equal or above 100Mbps.**



- The **penetration of mobile broadband as measured by dedicated data service cards/modems/keys was 6.1%** (from 5.2% in January 2010 and 4% in July 2009), **growing at a slower pace than before**. The Commission continues to work with BEREC in order to provide reliable statistics on mobile broadband use with smartphones.



[4] By 2020 all Europeans should have access to internet speeds of above 30 Mbps and 50% or more of European households should subscribe to internet connections above 100 Mbps.

- **In 2010 the European Commission took 16 decisions regarding broadband projects involving public funding**. 15 of these were found to be compatible with the Treaty (article 4(3) decision types), while one (East Win project) was not considered aid but rather a Service of General Economic Interest. **The total amount of the aid approved was €1, 617million**.

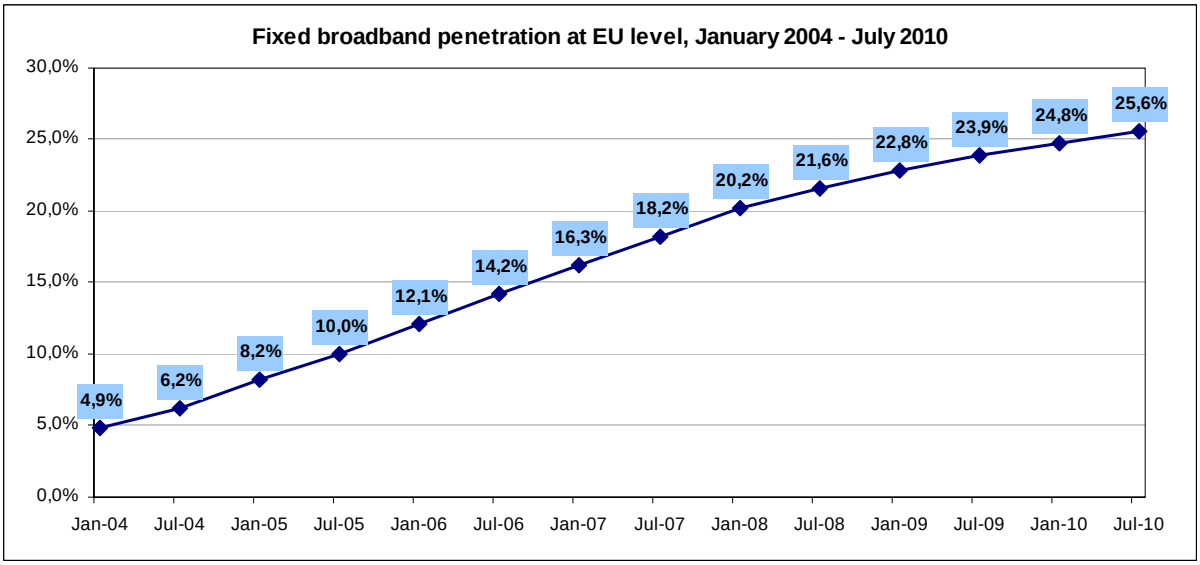
2. Broadband take-up

In the first six months of 2010, the EU broadband market continued to be the largest in the world: 128,356,776 lines as of the 1st of July 2010.

In the period January and July 2010 a total of 4,617,836 broadband lines were added (9,025,023 since July 2009), an increase of 3.7% (7.5% increase between July 2009 and July 2010).

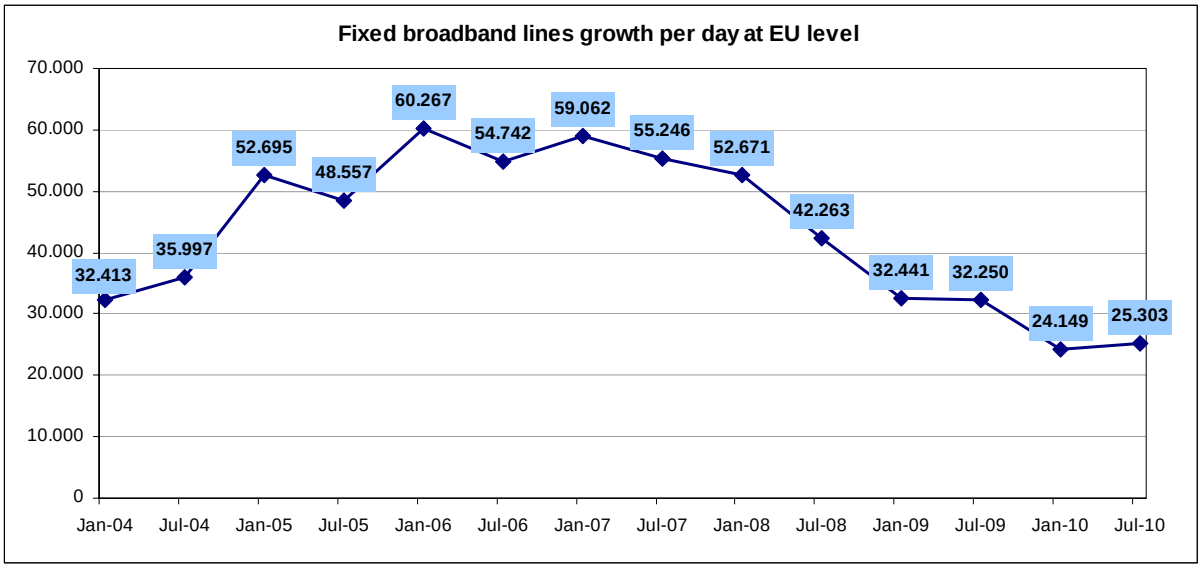
Broadband take-up continues to slow-down and is now growing at the lowest annual rate ever. As of July 2010, the number of fixed broadband lines per 100 habitants stood up at 25.6 (compared with 24.8 in January 2010): only 0.8 percentage points increase.

Figure 1 Fixed broadband penetration, International comparison as of 1st January 2010



The slowdown can be well seen in figure 2: net additions in the last year were around 25,000 lines per day (more than 32,000 in the year before).

Figure 2 Fixed broadband lines growth per day at the EU level



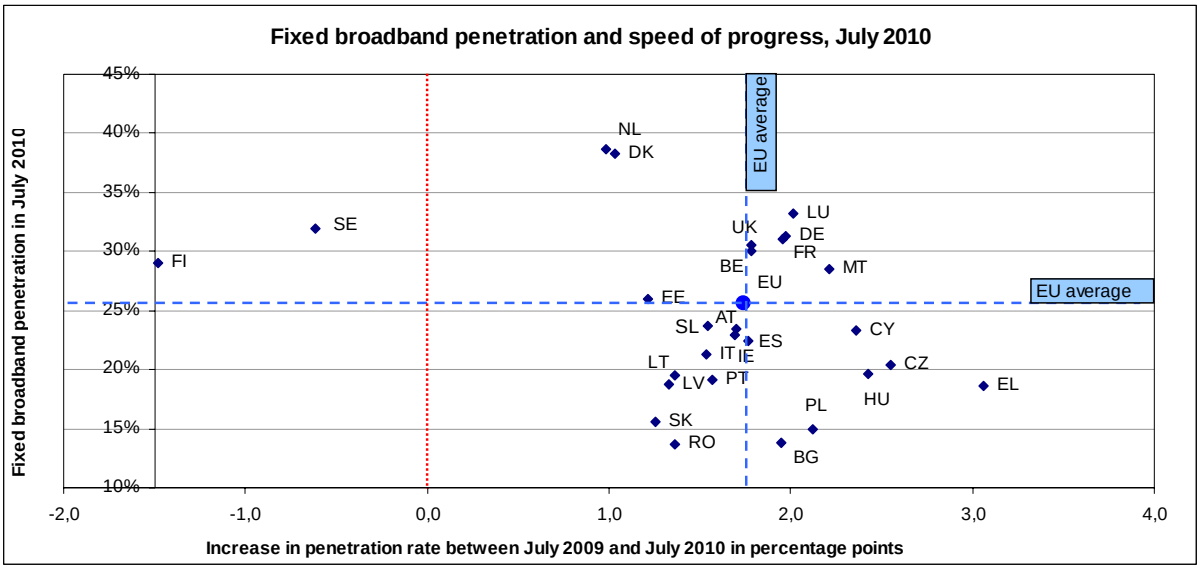
The broadband market showed a mixed picture depending on the Member State, those with lower penetration rates are not necessarily those with the highest growth. For instance, Slovakia with the fourth lowest penetration rate grew less than the EU average (while performing well in the past). On the contrary, Luxembourg, Germany and France continue to grow above average despite high penetration rates (figure 3)

The number of fixed broadband lines per 100 habitants decreases in Sweden and Finland) probably due to a fixed-to-mobile broadband substitution effect.

In Denmark, the growth rate has for the last couple of years been consistently around or below 1 percent. While in Member States with take-up rates close to 40% we could speak of broadband lines saturation[5], there is still large room for increases in the majority of the EU Member States to catch-up with the leaders.

[5] With 2.4 persons on average on a European household and taking into account that CoCom provides figures for business too, we can assume that markets with more than 40 lines per 100 hab. are close to saturation.

Figure 3 Fixed broadband penetration and speed of progress, July 2010



DSL continues to be the main technology in the EU broadband market, although slightly decreasing (from 78.7% on year ago to 77.9% in July 2010). This dominance of DSL is a limit to infrastructure based competition at the EU level.

Figure 4 Fixed broadband lines by technology at EU level, January 2006 - July 2010

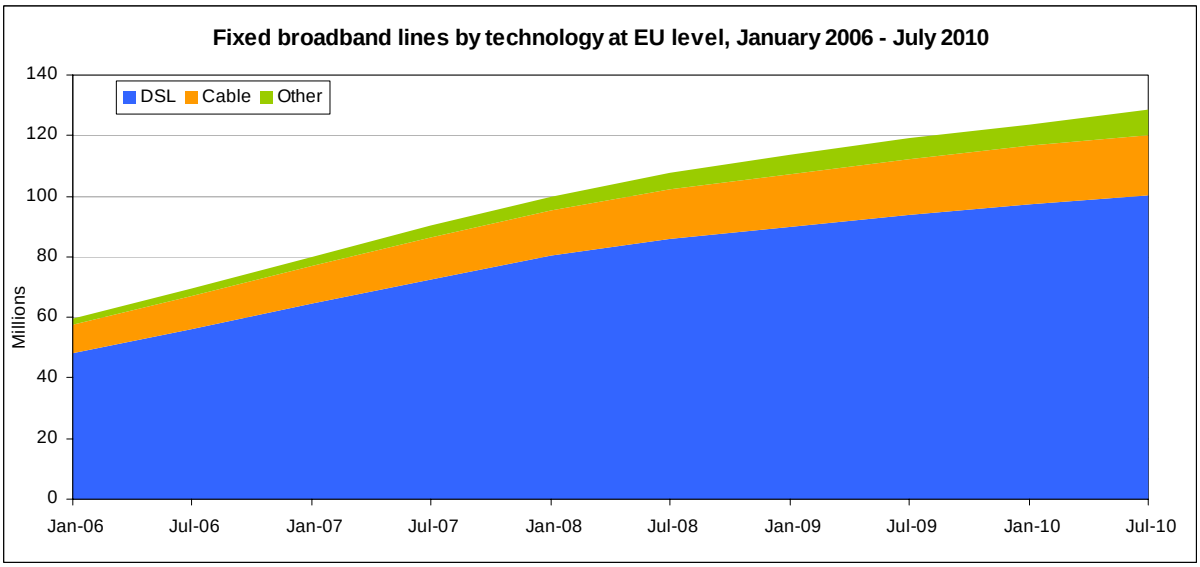
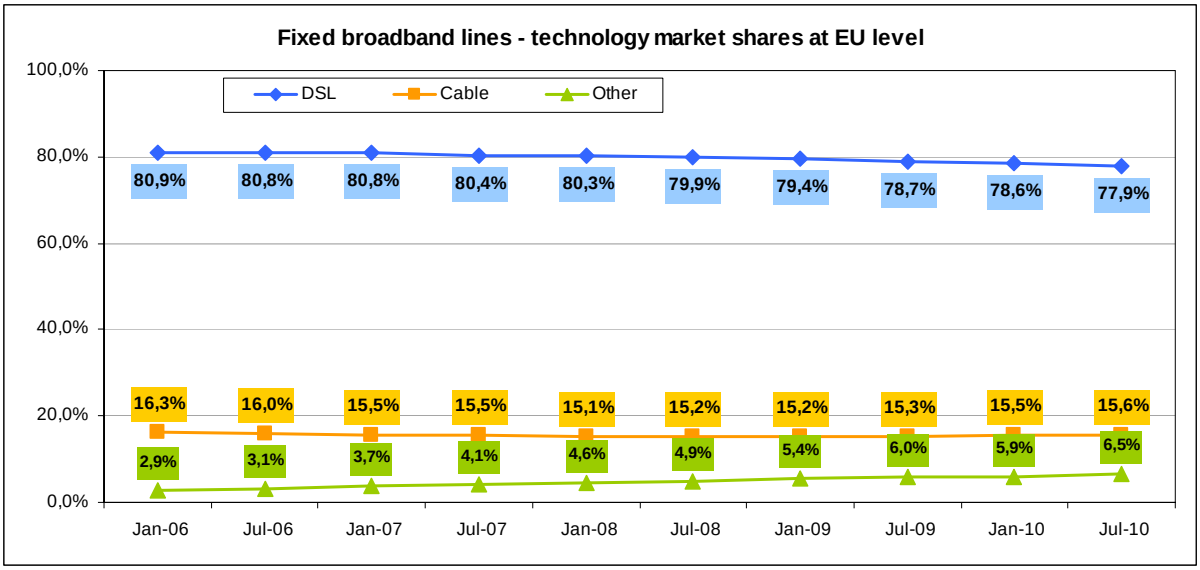


Figure 5 Fixed broadband lines by technology at EU level, January 2006 - July 2010



The share of DSL in the new additions is decreasing slightly. In the first six months of 2010, around 60% of the new added lines were based on PSTN (65% in the same period one year ago).

Figure 6 Fixed broadband net adds by technology at EU level, January 2006 - July 2010

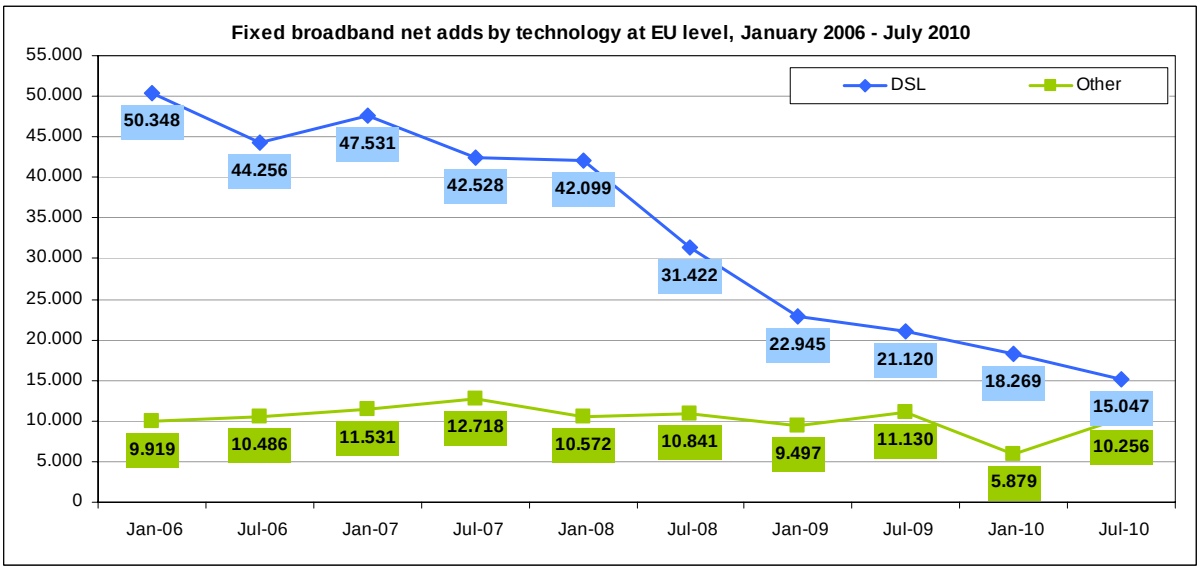


Figure 7 DSL lines and market growth in the EU, January 2006 - July 2010

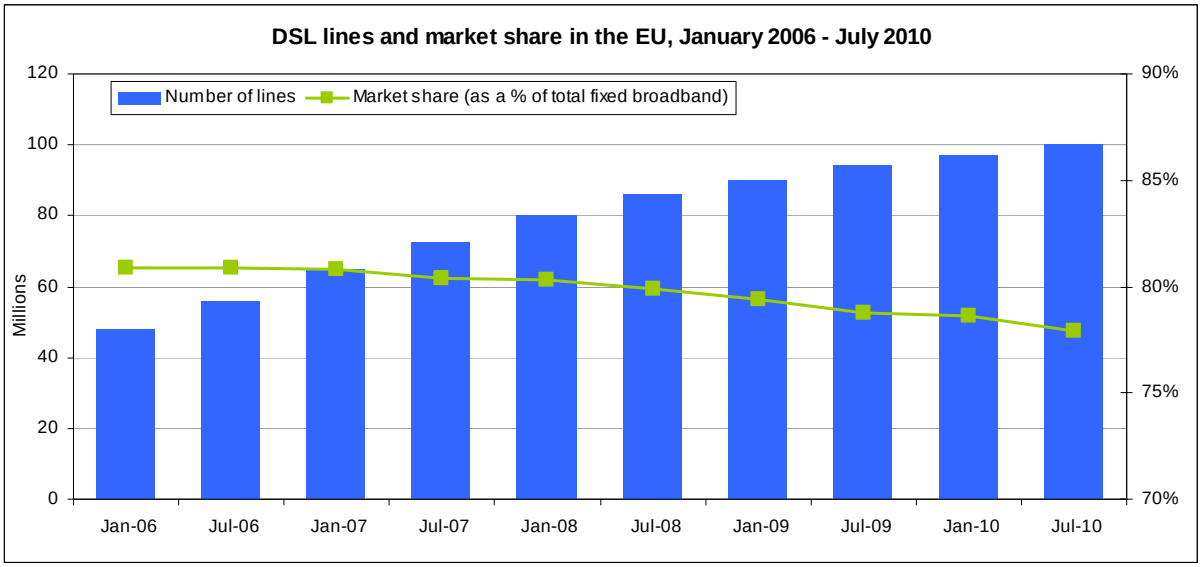
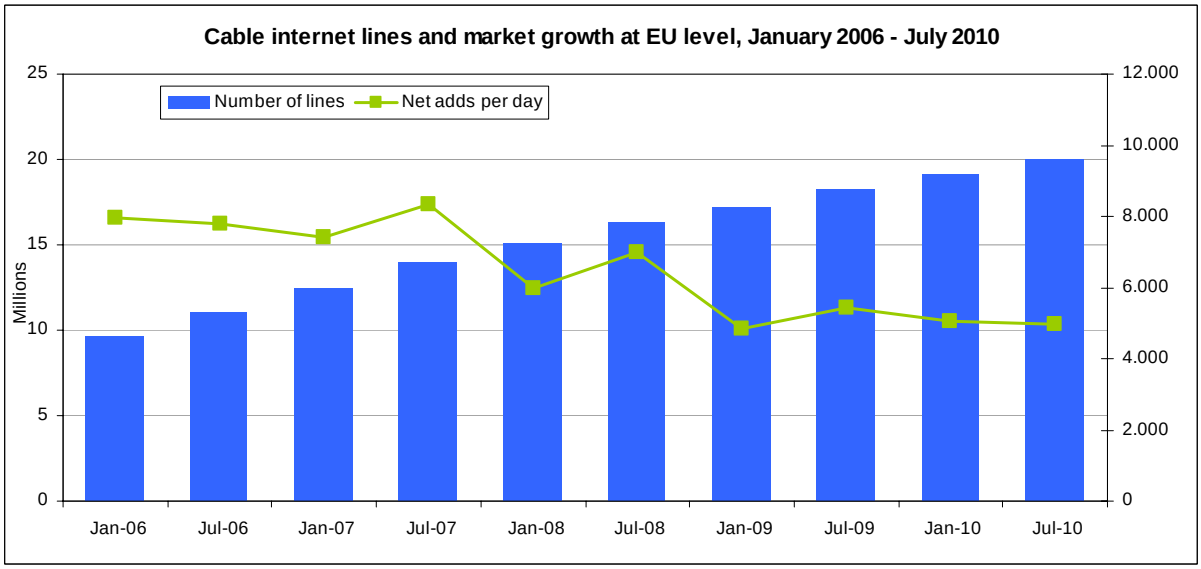


Figure 8 Cable internet lines and market growth at EU level, January 2006 - July 2010



Cable lines grew by 4.7% in the first six months of 2010 and now account for 20,041,087 lines (16% of the total lines). The strongest growth took place in Cyprus (+36% in this period) followed by Ireland (+15%). Cable is mostly present in Malta (46% of the total lines), Hungary (43%), Belgium (41%), Portugal (37%) and the Netherlands (35%). With the data available[6], 14% of the lines are very high speed Docsis 3.0 lines.

On the other hand, FTTH lines grew by 5.6% in the same period and now account for 2,206,486 lines (1.7% of the total lines). The biggest growth took place in Portugal (+154% in this period) followed by Latvia (+108%).

[6] Only 15 Member States provided figures on lines with Docsis 3.0.

Figure 9 Fixed broadband lines by technology at EU level – FTTH share, July 2010

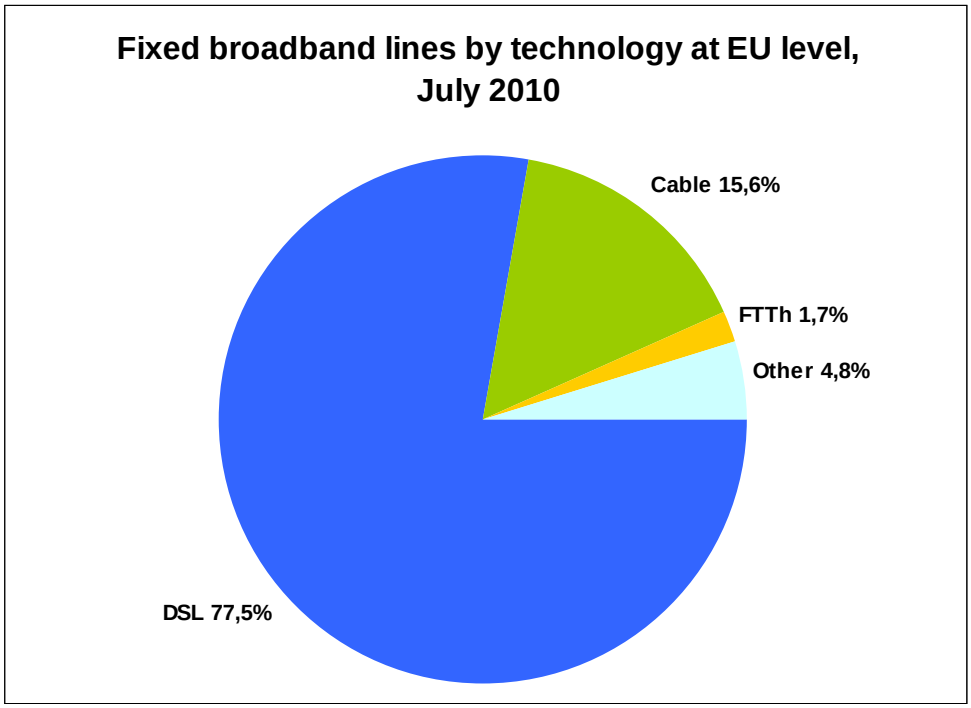
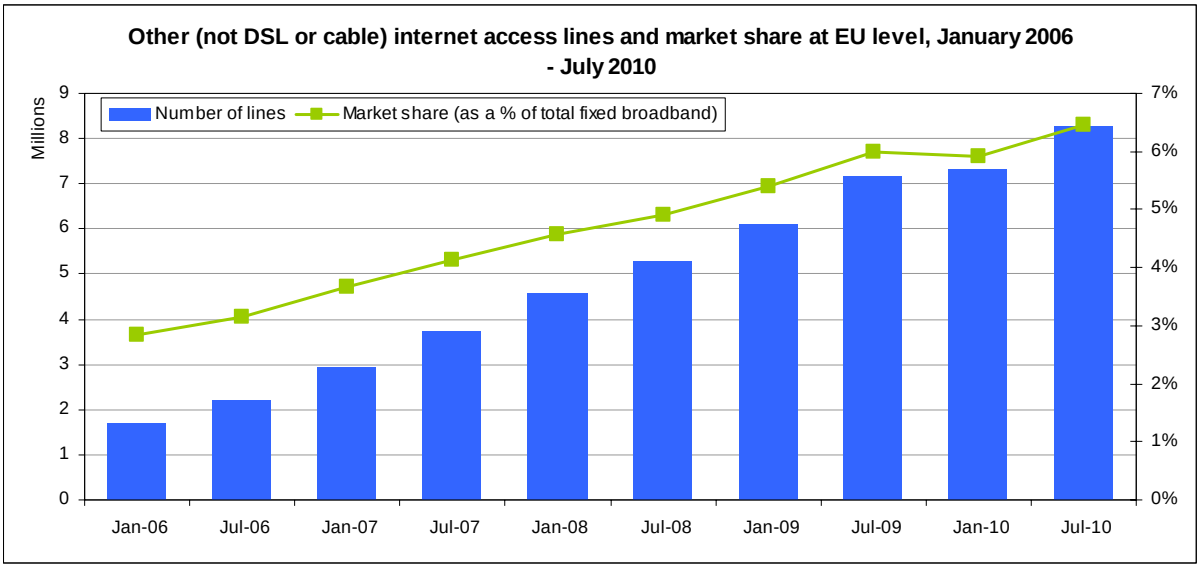


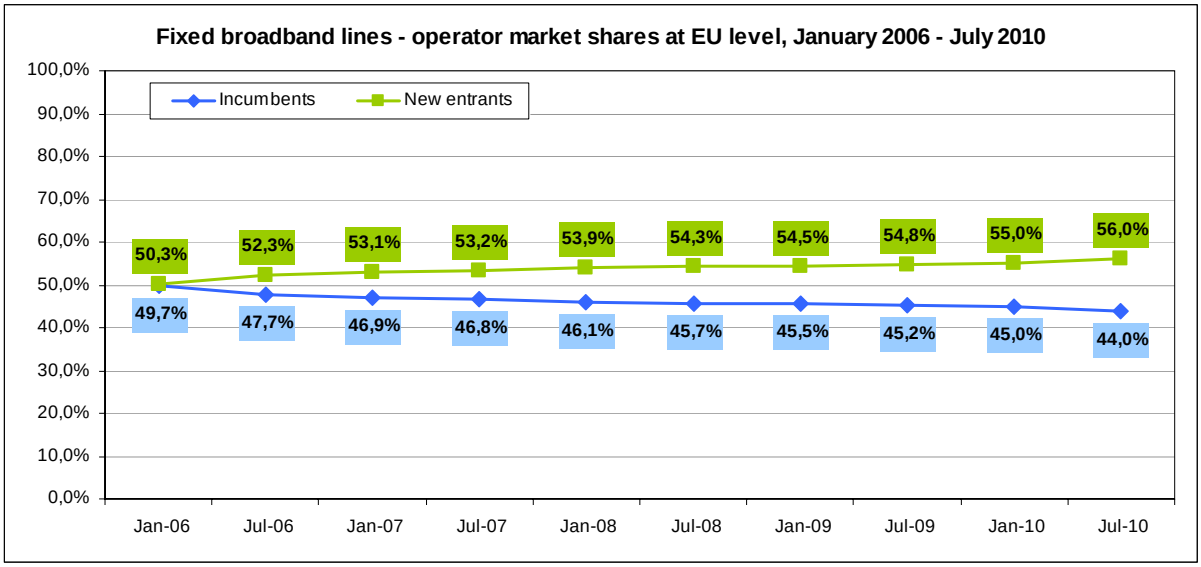
Figure 10 Other (not DSL or cable) internet access lines and market share at EU level, January 2006 - July 2010



3. Market shares

The competitive structure of the EU broadband market has not changed significantly in the first half of 2010. The average incumbent market share in the EU decreased slightly to 44% of the lines (from 45 % in January 2010). The average market share has been in the range 44% to 47% in the latest three years. Major changes in the market shares could not be expected: the market is growing at a slow pace adding fewer lines. Another relevant factor worth looking at would be the conditions to change operator and the switching costs for broadband.

Figure 11 Fixed broadband lines – operator market shares at EU level, January 2006-July 2010



New entrants in 2010 continue to add a similar number of lines per day than in 2009. At the same time, there has been a dramatic decrease in the number of net additions by the incumbent operators (50% less than in the same period one year ago).

Figure 12 Fixed broadband lines growth per day by operator at EU level, January 2006 - July 2010

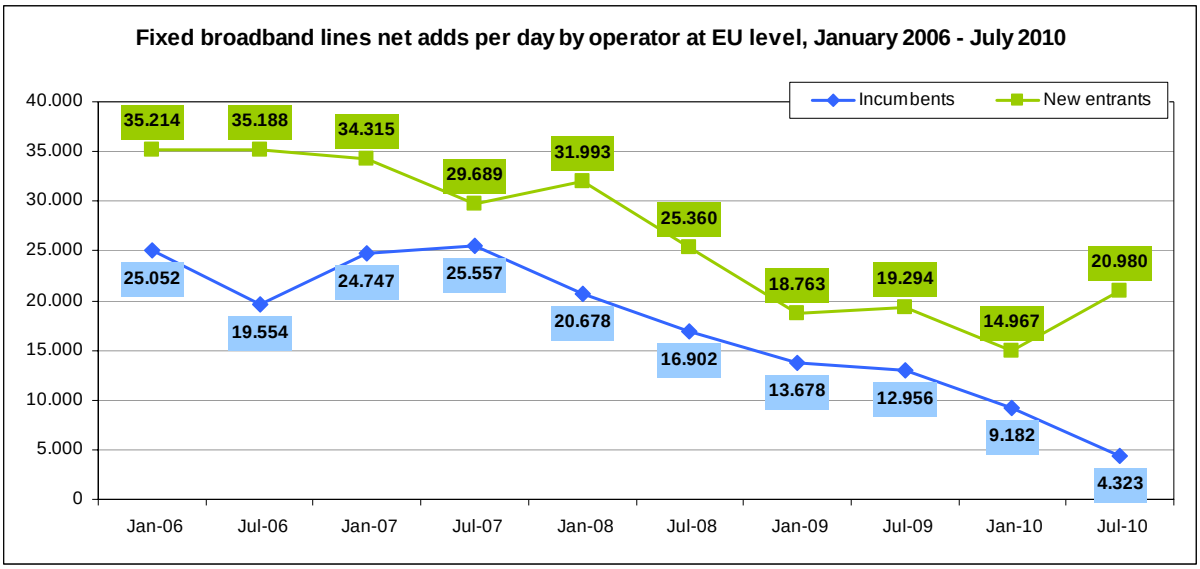
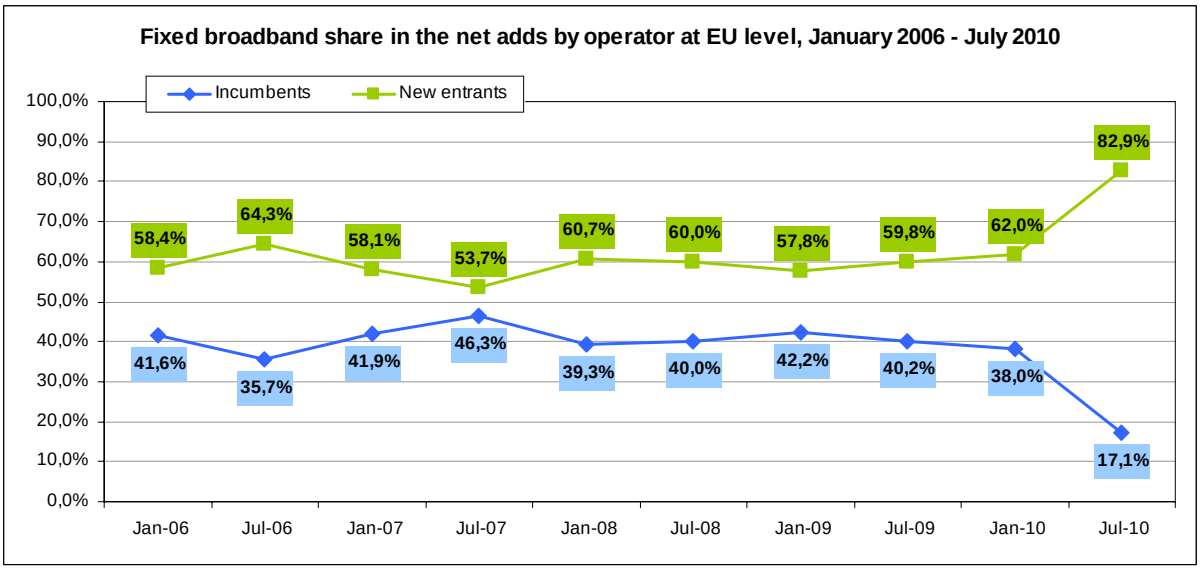


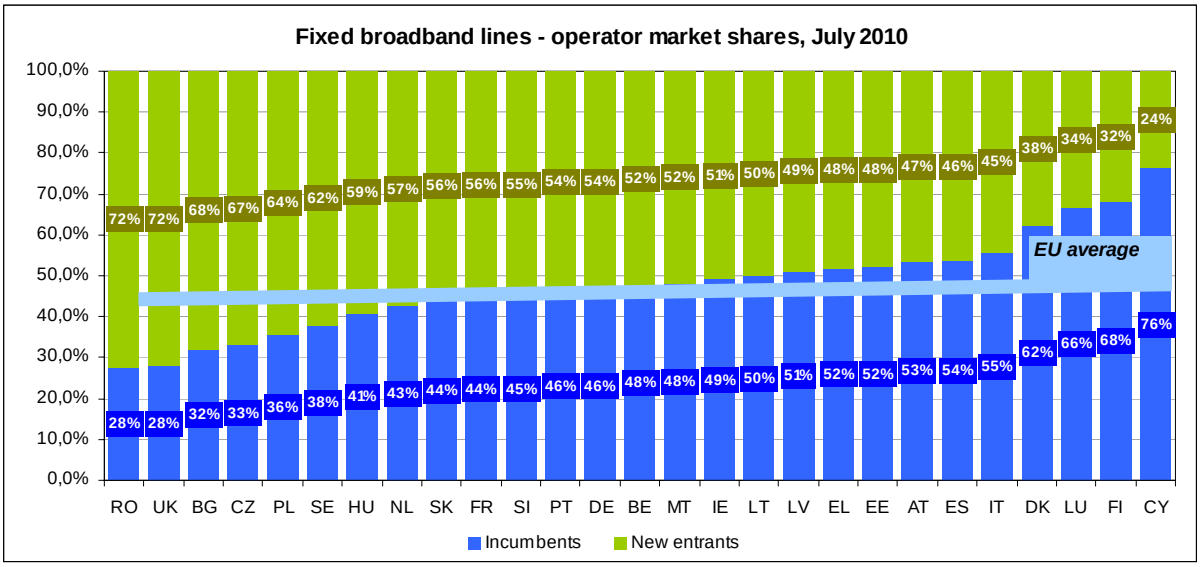
Figure 13 New additions market share per day at EU level, January 2006 - July 2010



Analysing the different Member States, the incumbent market share ranking remains almost unchanged. There is not a clear trend at EU level. The biggest decreases in the incumbent market shares took place in Poland (-11.6%, with a relatively low incumbent market share, 35.5%) and the Netherlands (-10.3%). The biggest increases in the incumbent market shares took place in Malta (+8.3%), a member states with an incumbent market share in line with the average.

The incumbent market shares increased in Bulgaria, Portugal, Malta, Lithuania, Austria, Latvia, Finland, and slightly increased (less than 0.5%) in Germany, Estonia and Hungary.

Figure 14 Fixed broadband lines – operator market shares, July 2010



Incumbent's control over end-users (including resale) is 47.1% (down from 48.3% six months ago). Resale lines are not significant anymore at EU level with the unbundlers climbing the ladder of investment to the benefit of more investment intensive forms of competition.

Figure 15 Fixed broadband lines – operator market shares at EU level (resale shown separately), July 2010

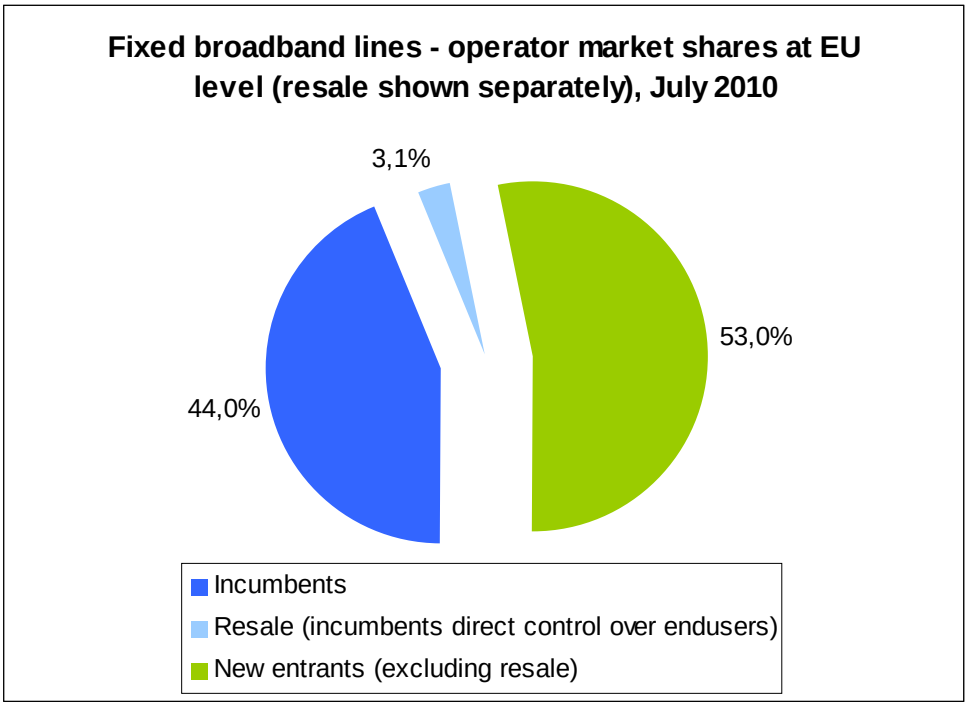
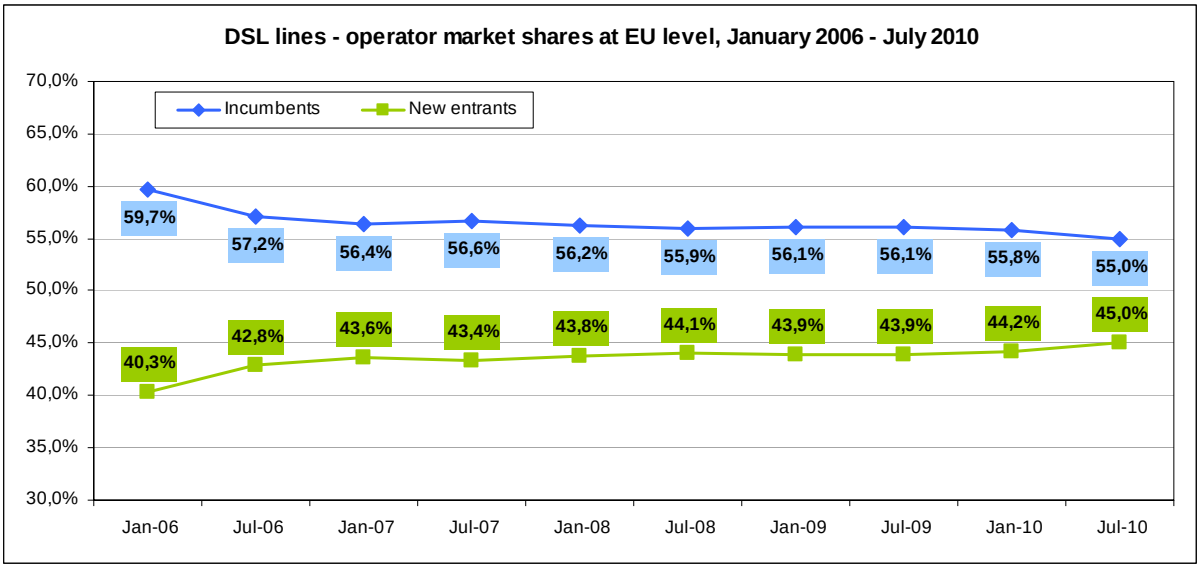


Figure 16 DSL lines – operator market shares at EU level, January 2006 - July 2010



New entrants DSL own network lines are significant in Slovakia (96%).

Local loop unbundling (fully unbundled lines and shared access) is again the main form of competition in the DSL market: 74.8% of the new entrants DSL lines (from 73.7% six months before). The sum of full LLU and shared access lines is higher in Czech Republic (97% of new entrants DSL lines). Shared access is particularly decreasing in Luxembourg, Poland, Latvia and France. Full LLU is increasing in Slovenia, Luxembourg and Denmark.

Bitstream is stable around 15% of the new entrants DSL lines, but is very important almost 100% of the lines, in Romania, Slovenia and Poland. Finally, resale represents a considerable part of the new entrants DSL lines in Lithuania (75%).

Figure 17 New entrants' DSL lines by type of access at EU level, July 2010

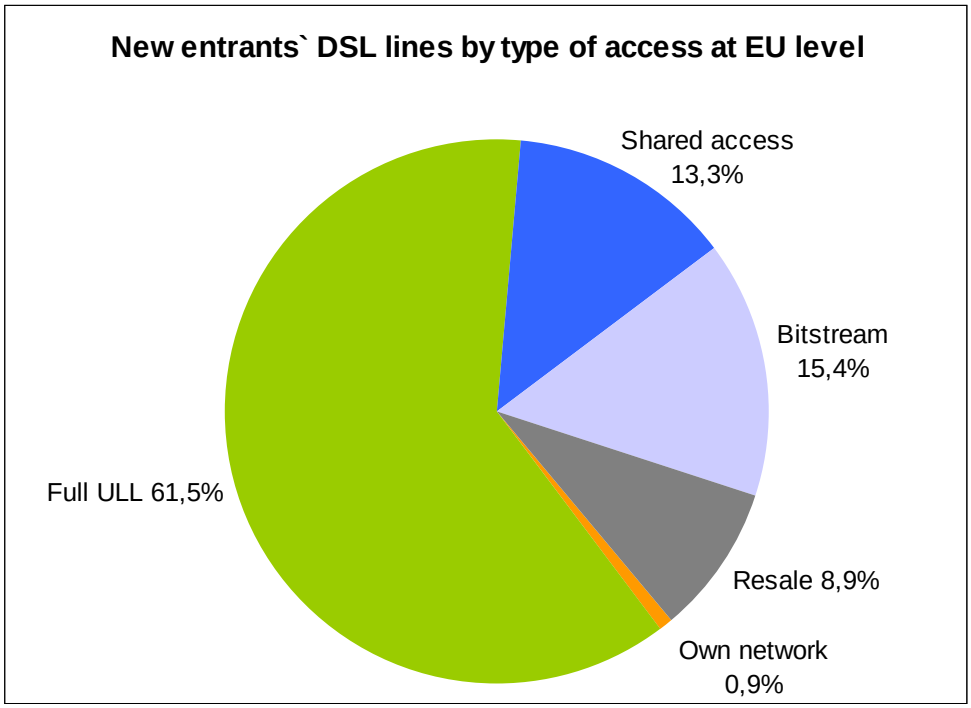


Figure 18 New entrants' DSL lines by type of access at EU level, July 2007 - July 2010

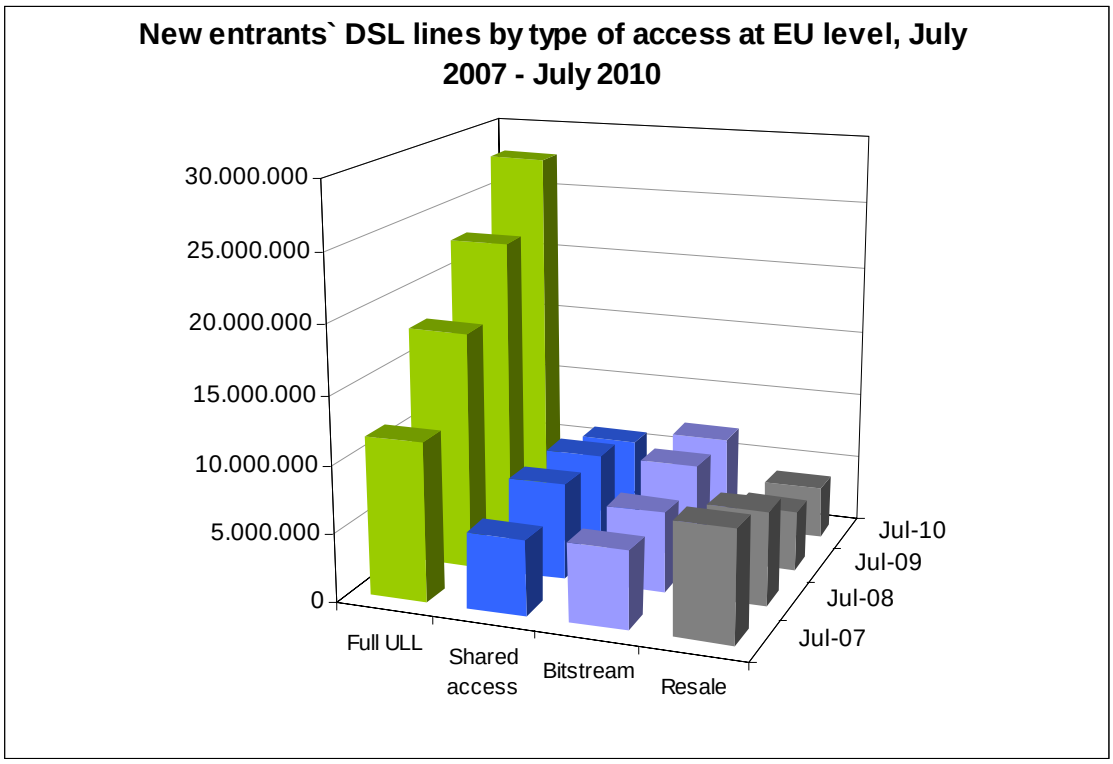
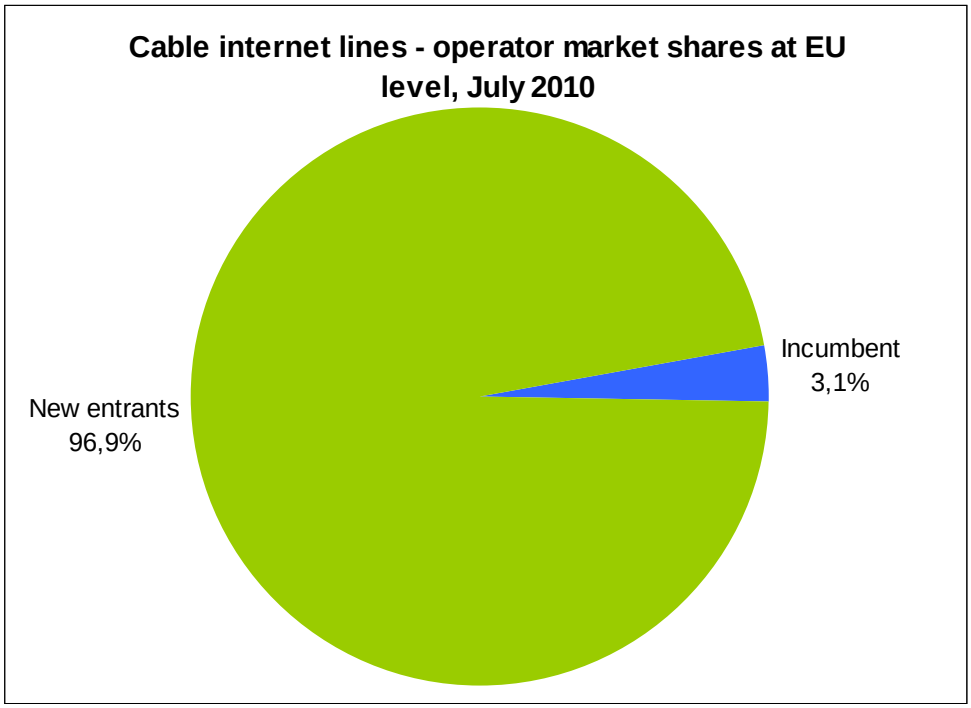


Figure 19 Cable internet lines – operator market shares at EU level, July 2010



There are no major changes in the cable broadband market structure: 97% of the cable broadband lines are in the hands of operators other than the traditional telecom incumbents (same figure as six months ago). The traditional incumbent telecom operators have a significant presence in the cable broadband market only in Denmark (66% market share), Finland (49%) and Hungary (17%).

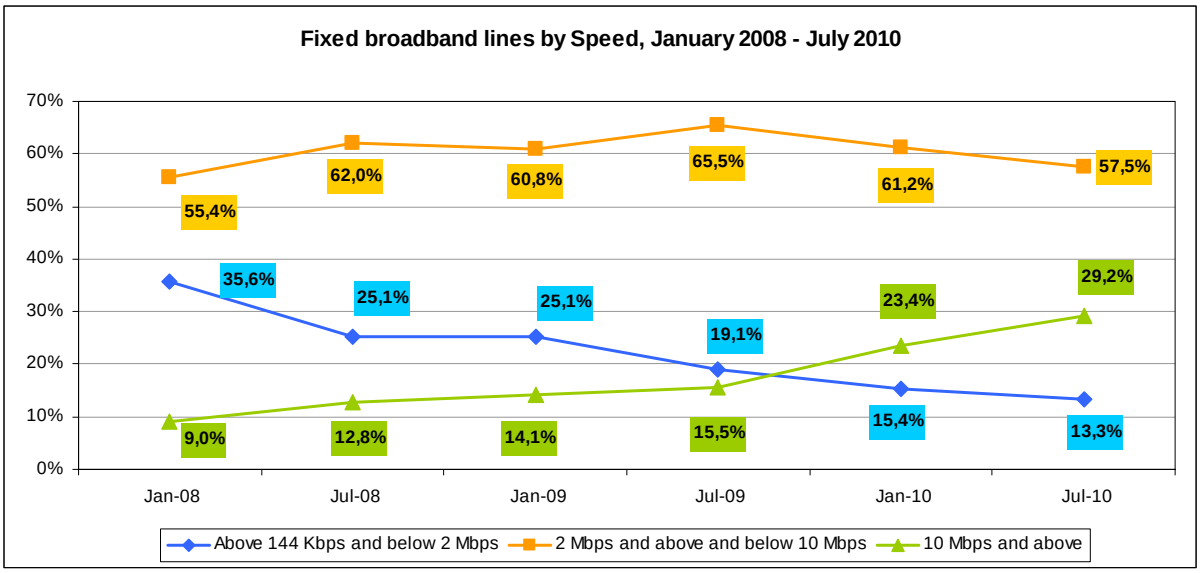
26% of the FTTH lines are in the hands of the incumbent (21% six months ago, although still a small amount). By Member State the picture is quite uneven. Accross Member States with significant FTTH figures, in Lithuania the incumbent has 99% of the FTTH lines (81% in Portugal, 80% in Spain, 79% in Hungary), while this figure is only 2% in Italy (as in Romania and Poland).

4. Speeds

As of July 2010, 87% of the broadband lines are above 2 Mbps (from 81% a year ago). There is a clear trend towards higher speeds.

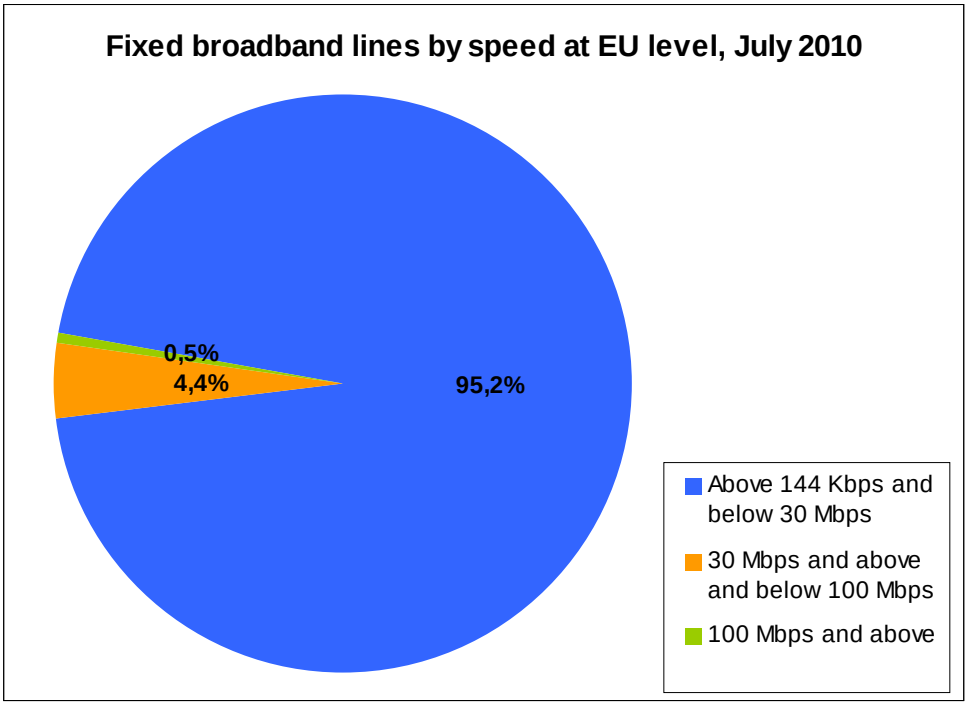
The Member States that made faster progress regarding the move towards speeds higher than 10Mbps were Greece, United Kingdom and Luxembourg.

Figure 20 Fixed broadband lines by speed, January 2008 - July 2010



The Commission started to monitor within CoCom very high-speed broadband speeds in accordance with the Digital Agenda for Europe targets[7]. Only 4.4% of the broadband lines in the EU are equal or above 30 Mbps and below 100 Mbps, while 0.5% of the lines are equal or above 100Mbps.

Figure 21 Fixed broadband lines by speed, July 2010



The European leaders in terms of very high speed broadband lines are Romania (with 43% of the lines equal or above 30 Mbps) and Belgium (26%). Other Member States such as Bulgaria, Lithuania, Sweden or Slovakia have high numbers regarding the lines equal or above 30 Mbps. Due to the absence of legacy infrastructure, Romania and Bulgaria are leapfrogging in terms of high speed.

On the other hand, the transition to higher speeds in other Member States with already high broadband penetration is mainly driven by the upgrade of existing infrastructures (with Docsis 3.0 with cable and VDSL for PSTN networks).

[7] By 2020 all Europeans should have access to internet speeds of above 30 Mbps and 50% or more of European households should subscribe to internet connections above 100 Mbps.

Figure 22 Fixed broadband lines by speed per Member State, July 2010

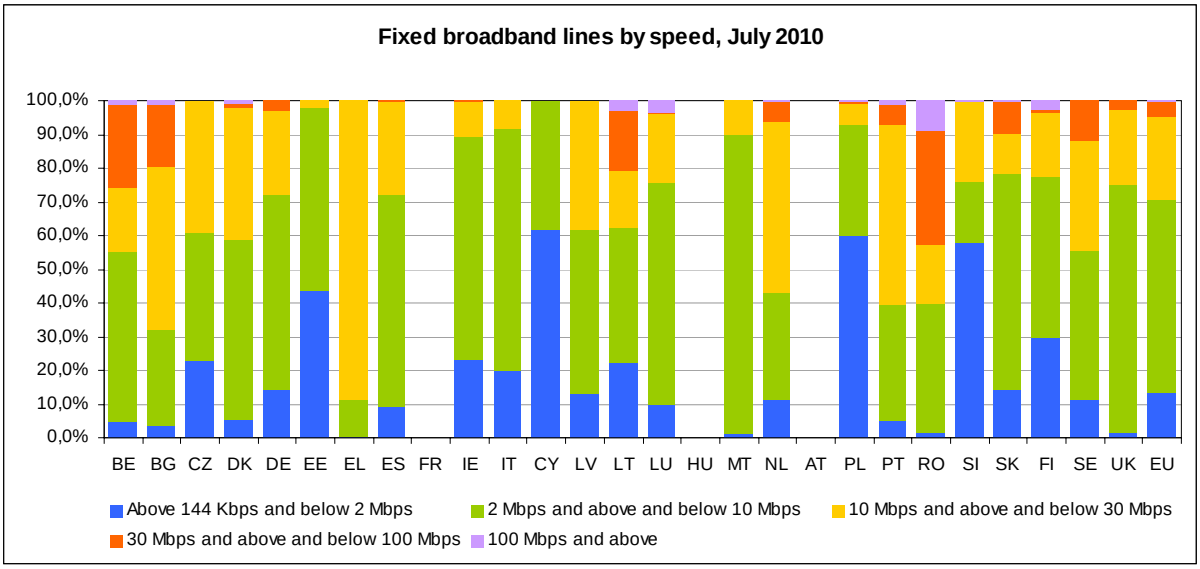
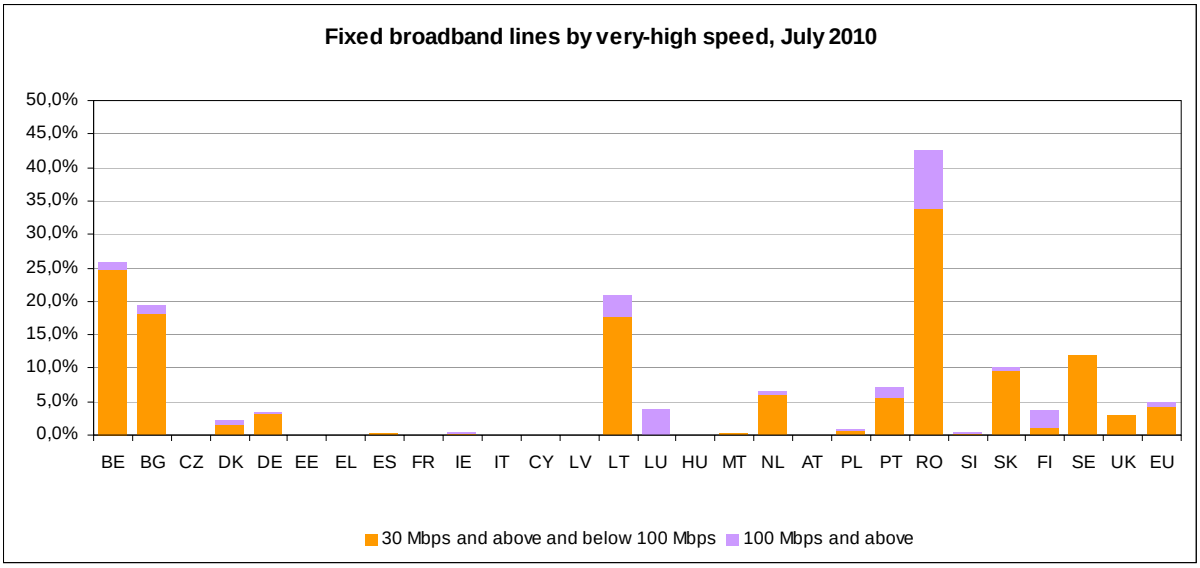


Figure 23 Fixed broadband lines by very high speed per Member State, July 2010

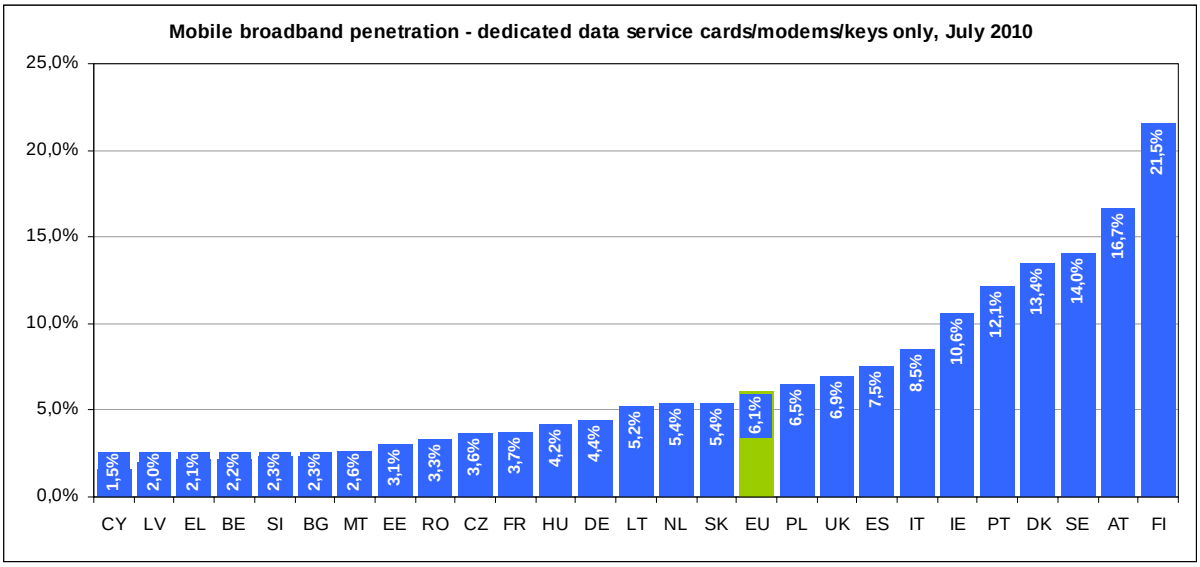


5. Mobile broadband

The highest growth takes place again in the mobile broadband market. The penetration of mobile broadband as measured by dedicated data service cards/modems/keys was 6.1% (from 5.2% in January 2010 and 4% in July 2009), growing at a slightly slower pace than in the previous period. Take-up measured by dedicated data cards/modems/keys grew by 30% in the year between July 2009 and July 2010. However, growth in the first half of 2010 was 15% while in the second half of 2009 growth was 23%. Finland tops the league with a 21.5% penetration rate.

In some Member States, like Austria, mobile broadband is considered a substitute product for basic broadband speed services. The biggest growth in mobile broadband markets took place in the Netherlands, Estonia and Poland.

Figure 24 Mobile broadband penetration – dedicated data service cards/modems/keys only, July 2010



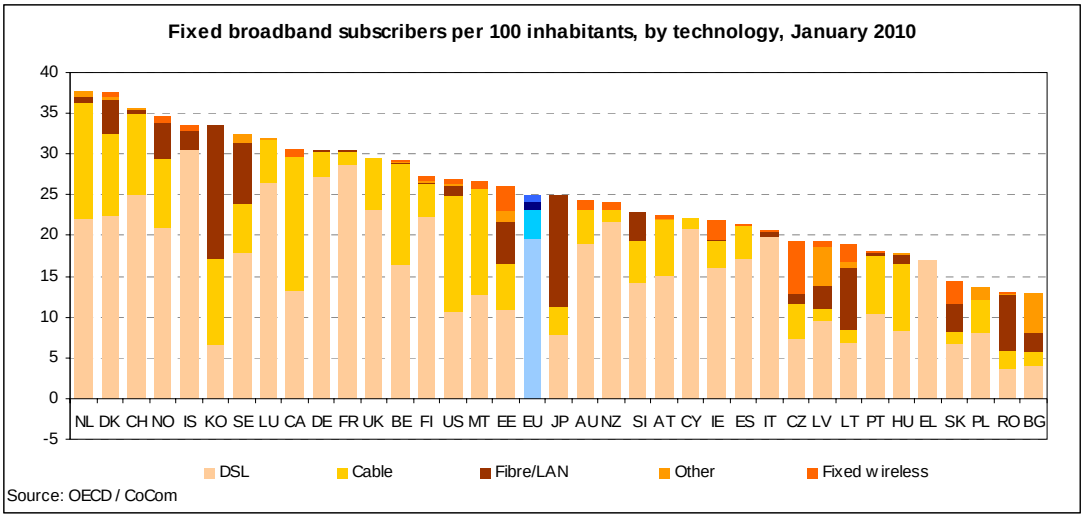
The Commission continues to work with BEREC in order to provide reliable statistics on mobile broadband use with smartphones. Due to the lack of available data for some Member States, the results are not included.

6. International comparison

At the end of 2009[8], the EU continued to be the largest broadband market in the world with almost 124 million lines (compared to 102 million in North America[9]) and some EU Member States enjoy some of the highest penetration levels.

In terms of ranking there have not been any significant changes since 2008: the Netherlands and Denmark continue to be the best performers, followed by Sweden, Luxembourg, Germany and France, which had penetration levels above 30% of the population, along with a group of five on-EU countries, Norway, Switzerland, Korea, Iceland and Canada.

Figure 25 Fixed broadband penetration, International comparison as of 1st January 2010



Despite the good penetration rate levels, most of the EU broadband lines are based on xDSL technologies and average speeds are usually lower than in other developed countries with high broadband penetration rates. As can be seen in figure 20, Korea and Japan have a very high proportion of fibre/LAN lines compared to other countries.

Lines based on fibre / LAN only represent around 3% of all broadband lines in EU-27, while this share is much higher in countries such as Japan (54%) or Korea (49%). In the US, fibre/LAN lines represented 5% of all broadband lines.

On the other hand, the EU continues to catch-up with the US in broadband take-up. The gap in penetration rates declined to 2.1 percentage points in January 2010, from 2.8 points in July 2009 and from 3.4 points in January 2008. The US penetration rate grew by 3.6% (compared

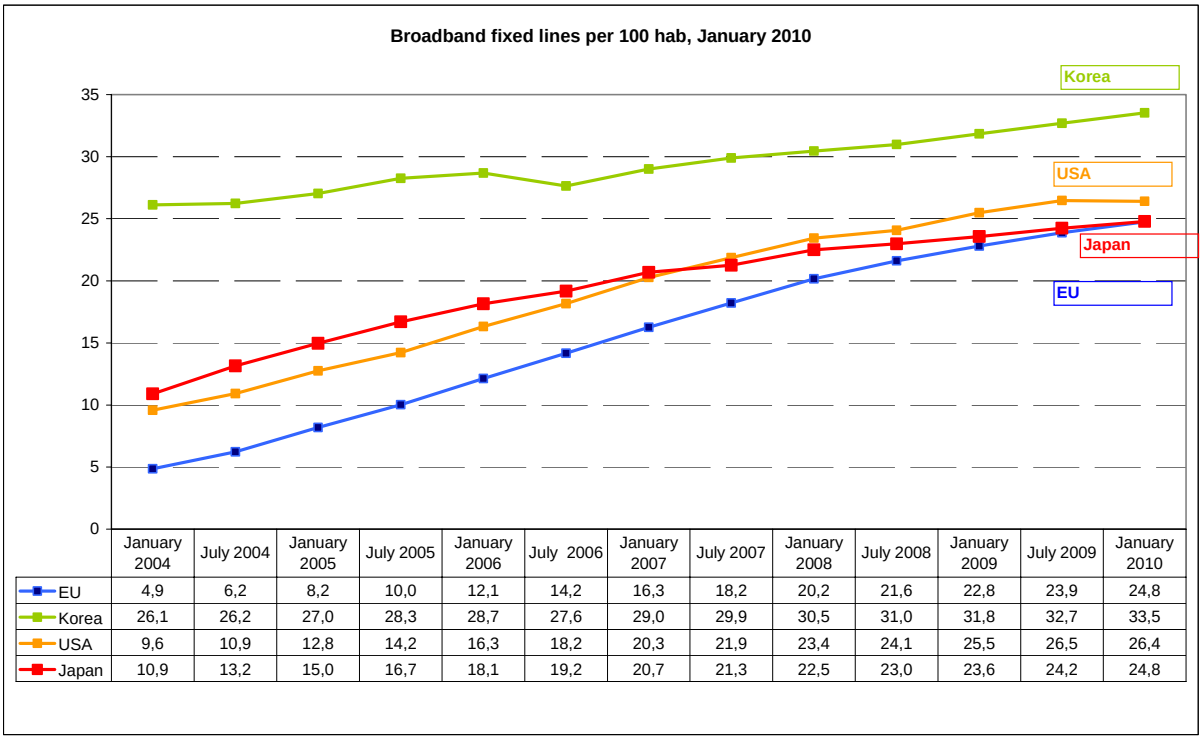
[8] In order to build the international comparison, since only data at the end of 2009 is available from OECD, this section is based for EU Member States on the previous data collection from CoCom (January 2010 - that appeared in the 15th Implementation and the 2010 Digital Competitiveness Reports).
[9] United States of America, Canada and Mexico.

with 8.6% in the EU) between January 2009 and January 2010 to reach a penetration level of 26.9%. Fixed broadband penetration growth in Japan has come to a halt (+2.4% between July 2009 and January 2010) and today penetration is similar in Japan and the EU.

On the other hand Korea grew by 5%, showing that there is still room for growth in markets with higher penetration rates.

A major difference between the EU and the US telecom market can be found in the different technology mix and levels of infrastructure-based competition. While 53% of the broadband lines in the US are based on cable (40% based on DSL), 78% of the broadband lines in the EU are based on DSL (and only 15% on cable).

Figure 26 Broadband fixed lines per 100 hab.: historical comparison of the EU with the US and Korea



	January 2004	July 2004	January 2005	July 2005	January 2006	July 2006	January 2007	July 2007	January 2008	July 2008	January 2009	July 2009	January 2010
EU	4,9	6,2	8,2	10,0	12,1	14,2	16,3	18,2	20,2	21,6	22,8	23,9	24,8
Korea	26,1	26,2	27,0	28,3	28,7	27,6	29,0	29,9	30,5	31,0	31,8	32,7	33,5
USA	9,6	10,9	12,8	14,2	16,3	18,2	20,3	21,9	23,4	24,1	25,5	26,5	26,4
Japan	10,9	13,2	15,0	16,7	18,1	19,2	20,7	21,3	22,5	23,0	23,6	24,2	24,8

Definitions

Definitions used in the tables for the collection of data:

- Fully unbundled lines: Fully unbundled lines supplied to other operators, excluding experimental lines. In the case of full unbundling, a copper pair is rented to a third party for its exclusive use.
- Shared access lines supplied by the incumbent to new entrants: Shared access lines supplied to other operators, excluding experimental lines. In the case of shared access, the incumbent continues to provide telephony service, while the new entrant delivers high-speed data services over that same local loop.
- Bitstream access: Supplied to new entrants. Bitstream access refers to the situation where the incumbent installs a high-speed access link to the customer premises and then makes this access link available to third parties, to enable them to provide high-speed services to customers. Bitstream depends in part on the PSTN and may include other networks such as the ATM network, and bitstream access is a wholesale product that consists of the provision of transmission capacity in such a way as to allow new entrants to offer their own, value-added services to their clients. The incumbent may also provide transmission services to its competitor, to carry traffic to a 'higher' level in the network hierarchy where new entrants may already have a broadband point of presence.
- Simple resale: In contrast to bitstream access, simple resale occurs where the new entrant receives and sells on to end users - with no possibility of value added features to the DSL part of the service - a product that is commercially similar to the DSL product provided by the incumbent to its own retail customers, irrespective of the ISP service that may be packaged with it. Resale offers are not a substitute for bitstream access because they do not allow new entrants to differentiate their services from those of the incumbent (i.e. where the new entrant simply resells the end-to-end service provided to him by the incumbent on a wholesale basis).
- Incumbent's DSL lines: Provided to end users by the incumbent, its subsidiaries or partners (for example an associated company such a joint venture providing ISP services),
- WLL: Internet broadband connections by means of wireless local loop (sometimes referred to as fixed wireless access)
- Cable modem: Internet broadband connections by means of cable TV access
- L.L. (other traditional wireline access): Internet broadband connections by means of dedicated capacity (Leased Lines) provided over metallic copper pairs, including tail ends or partial circuits. “Incumbent's leased lines” includes only retail lines and excludes lines provided to other operators. “New entrants' leased lines” includes all retail lines provided to end users, even if based on wholesale lines supplied by the incumbent.
- Other: Internet broadband connections by means of 3G, satellite, fibre optic, powerline communications, etc.
- Retail access: Access provided to end users.
- Incumbents are defined as the organisations enjoying special and exclusive rights or *de facto* monopoly for provision of voice telephony services before liberalisation,

regardless of the role played in the provision of access by means of technologies alternative to the PSTN.

- "New entrants" refers to alternative telecommunications operators, as well as internet service providers (ISPs).
- Broadband capacity: Downstream capacity equal to or higher than 144 Kbit/s
- Mobile BB lines - access to dedicated data services via data modems/cards/USB keys or a number of active users involved in transactions, made in last 90 days, whereby a user accessed advanced data services such as web/internet content, online multiplayer gaming content, VoD or other equivalent advanced data services (excluding SMS and MMS).

Methodology

The data in this document have been collected by the European Commission, Information Society and Media Directorate General, from national ministries and regulatory authorities except when noted. The definitions used have been agreed in the Communications Committee (COCOM).

Throughout the document broadband lines are defined as those with capacity equal to or higher than 144 Kbit/s.

Data refer to 1 July 2010.

In some cases information for some types of access is not available. In a number of countries certain figures are estimates, as the National Regulatory Authorities had not received consolidated data from operators. It should also be noted that in some cases information only refers to major broadband access providers and that broadband access lines provided by other small operators are not included.

The charts and tables in this document include primarily fixed broadband lines. Data on mobile broadband access is also available, however data has been provided by a limited number of countries.

This report includes information from all 27 Member States.

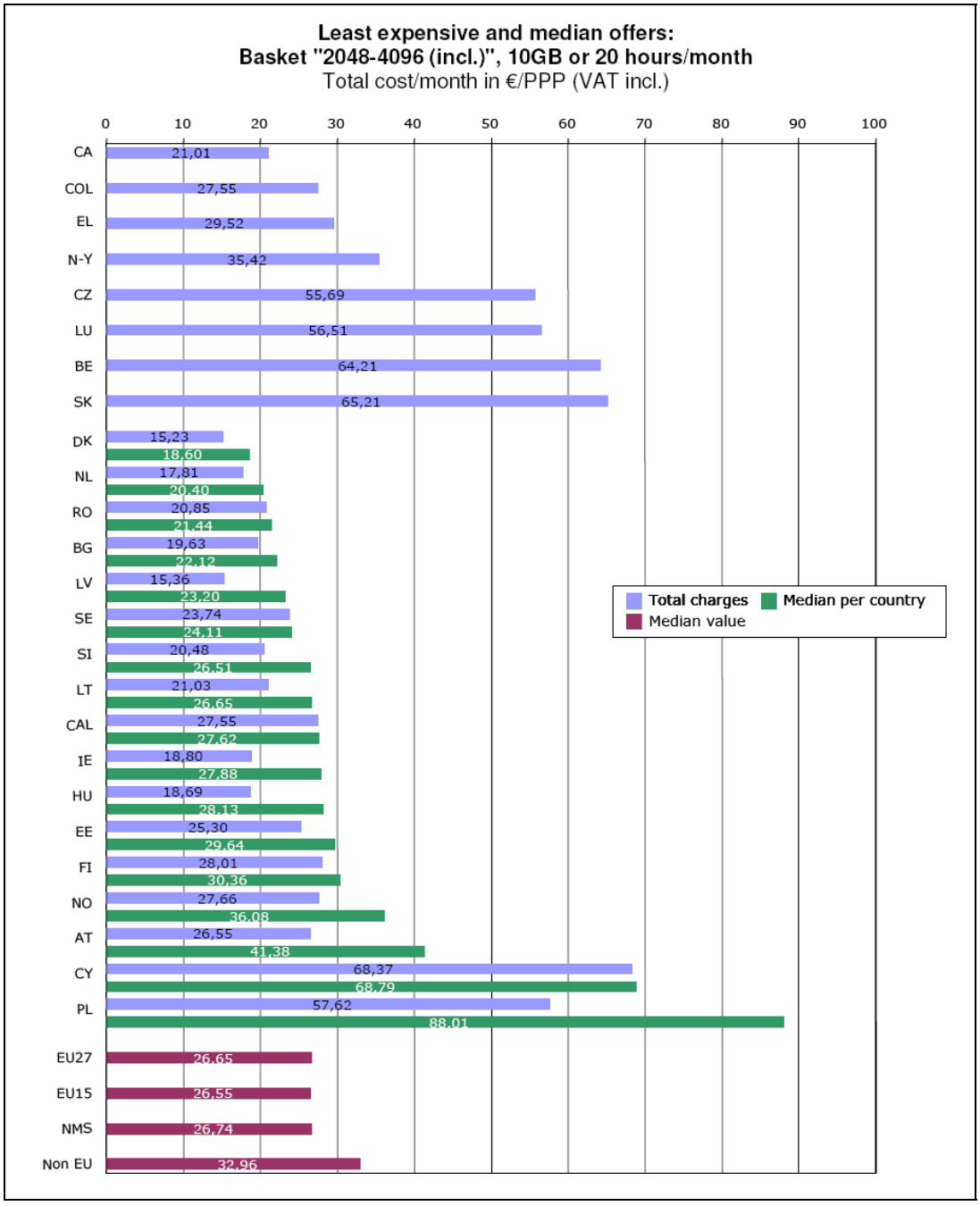
The following annexes are intended to provide an overview of complementary aspects of broadband also covered by the European Commission for the sake of transparency. The information included has already been published[10] and is accessible through the web.

[10] 15th Progress Report on the Single European Electronic Communications Market – 2009
http://ec.europa.eu/information_society/policy/ecomm/library/communications_reports/annualreports/15th/index_en.htm
Europe's Digital Competitiveness Report:
http://ec.europa.eu/information_society/newsroom/cf/document.cfm?action=display&doc_id=667
State aid – DG Competition: http://ec.europa.eu/competition/elojade/isef/index.cfm?clear=1&policy_area_id=3

ANNEX 1: Retail prices as of October 2009

The Commission has launched a new study on the broadband internet access cost in close collaboration with BEREC. The results will be available during 2011.

With regard to broadband retail prices, the median price for offers with download speeds between 2 and 4 Mbps in the EU-27 countries slightly decreased in 2009. For broadband lines with speeds between 4 and 8 Mbps, prices decreased significantly in the newer Member States while remaining more stable in the rest of the EU (Data as of October 2009).



Source: Van Dijk for the European Commission

ANNEX 2: Prices of the local loop

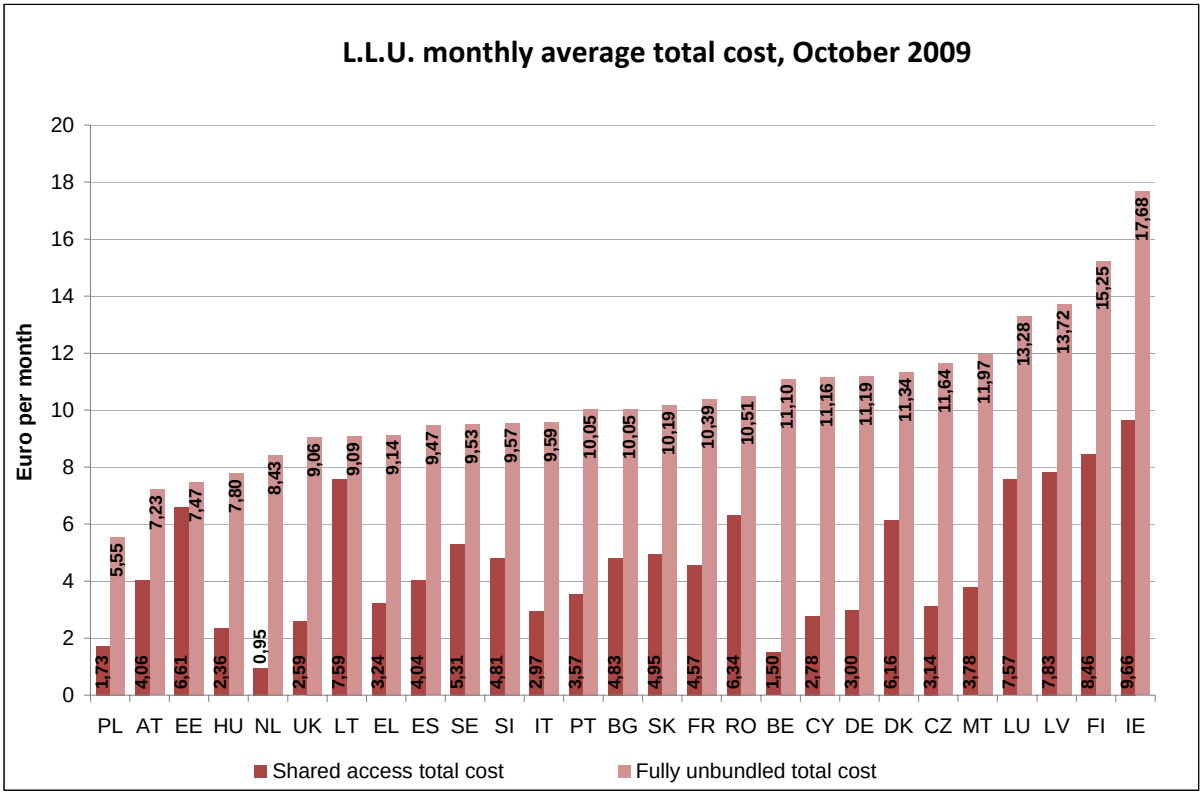
This annex illustrates the cost of connection and monthly rental for both Fully Unbundled Access (full LLU) and Shared Access (SA) to the loop. Monthly rental and connection fees are presented as well as the total average monthly cost, which is calculated as the monthly fee + the connection fee amortised over three years.

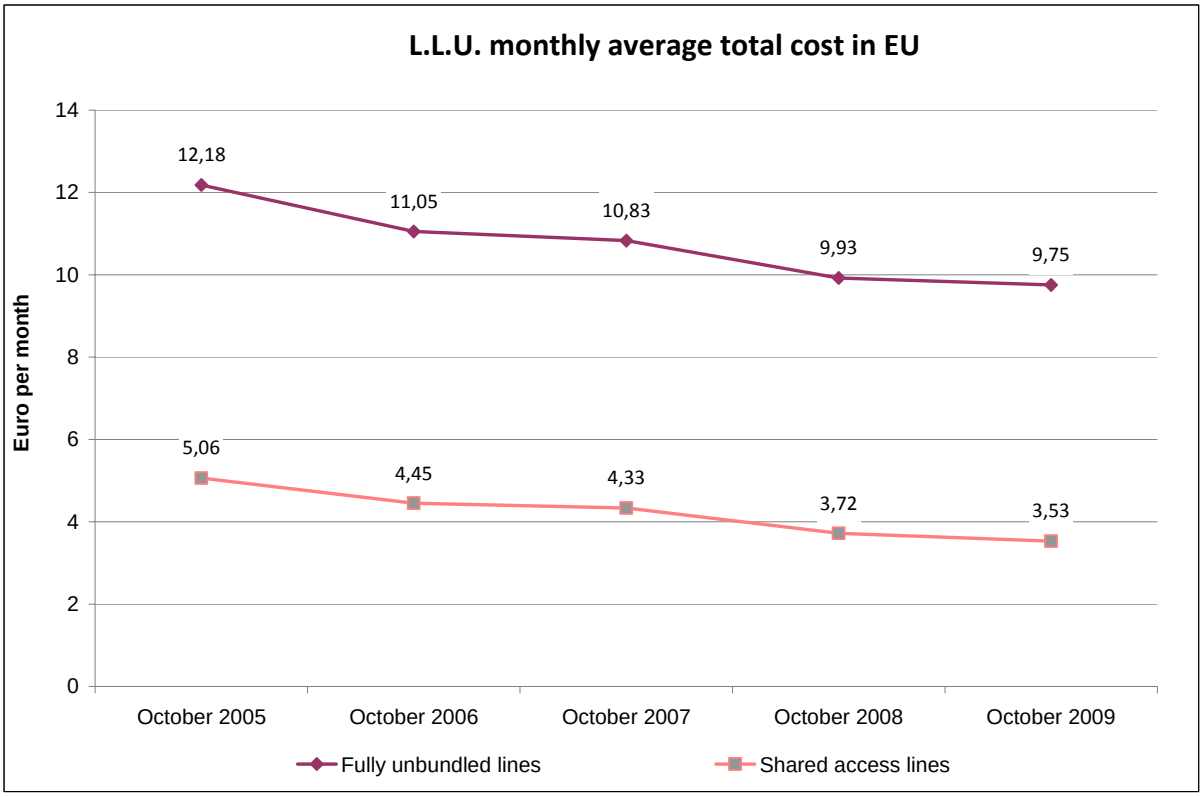
Unless otherwise stated in the footnotes[11], connection fees include the technical expertise to assess the speed that can be conveyed through and disconnection fees (where applicable). Furthermore, only the price for a single line is presented here (charges may be different in the

[11] **Prices per fully unbundled loop Connection**
Bulgaria: Cost of the test of access is not included. Disconnection fees are included (15 BGN, €7.67).
Czech Republic: Cost of test and disconnection fees are not calculated separately. Disconnection fees are only charged for co-location.
Cyprus: Costs are € 45.07 for active loops and €103.67 for inactive loops in 2009.
Denmark: No disconnection fees are included.
Spain: For full LLU connection the cost of the test is included, too. The price of the NTU (Network Termination Unit) installation is included.
Italy: Price of active pair with NP is presented (price of active pair without NP is €35.88). Cost to asses the speed ("qualification cost") is €11.56.
This cost is optional and only due if the line was not previously used for xDSL. Disconnection charge is €31.93 (€32.37 in 2008), which is not due if the customer migrates to a different OLO or to the incumbent.
Latvia: Connection (7.78 LVL, €11.1) and testing (27.08 LVL, €38.5) are included.
Lithuania: Figures include the cost of the test to access and the disconnection cost.
Malta: Disconnection fees are included (Full unbundled: €33). The splitter is to be procured by OAOs. Data are different compared to those in the 14th Progress Report as they include disconnection fees.
Austria: In case of full LLU there is no installation or connection fee during promotion periods.
Poland: Co-location costs are not included. Cost of non-active loops is €33.88 (143.83 PLN).
Portugal: The splitter is not provided by the incumbent. The test to assess the speed is not requested.
Netherlands: Price includes disconnection fees and the price of the test to assess the speed of the access line.
Romania: In case of full LLU connection the cost of the test to assess the speed and disconnection fees are included.
Slovakia: Costs of the test to assess the speed and disconnection fees are excluded
Finland: Data are the weighted average of 31 SMP operators providing LLU.
Prices per fully unbundled loop Monthly rental
Belgium: Blend of installations with and without customer visit. An additional €12.01 is charged if customer moves or leaves DSL. If customer changes from DSL operator no disconnection fee is charged.
Germany: New decision was taken in March 2009.
Austria: Regular LLU price was lowered to the value of the former promotional price.
Finland: Data are the weighted average of 31 SMP operators providing LLU.
Prices per shared access – Connection
Bulgaria: Cost of the test of access is not included. Disconnection fees are included (15 BGN, € 7.67).
Denmark: No disconnection fees are included.
Spain: The cost of the test is included. The price of the splitter provided by the incumbent is included.
Czech Republic: Cost of test and disconnection fees are not calculated separately. Disconnection fees are only charged for co-location. The price of
the splitter is included in the monthly rental for shared access.
Italy: Cost to asses the speed ("qualification cost") is €11.56. This cost is optional and only due if the line was not previously used for xDSL. Disconnection charge is €31.93 (€32.37 in 2008), which is not due if the customer migrates to a different OLO or to the incumbent.
Latvia: Connection (7.78 LVL, €11.1) and testing (27.08 LVL, €38.5) are included.
Lithuania: The cost of the test and disconnection are included. Frequency splitter's price is included.
Malta: Disconnection fees are included (€26.76). The splitter is to be procured by OAOs. Data are different compared to those in the 14th Progress
Report as they include disconnection fees.
Austria: No installation or connection fee applies during promotion periods.
Netherlands: Price includes disconnection fees and the price of the test to assess the speed of the access line.
Poland: Co-location and splitter's cost are not included. Cost of non-active loops is €33.88 (143.83 PLN).
Portugal: The splitter is not provided by the incumbent. The test to assess the speed is not requested.
Romania: Splitter price is included.
Slovakia: Costs of the test to assess the speed, disconnection fees and the price of the splitter are excluded
Finland: Data are the weighted average of 31 SMP operators providing LLU.
Prices per shared access – Monthly rental
Belgium: An additional €23.12 is charged if customer moves or leaves DSL. If customer changes from DSL operator no disconnection fee is charged.
France: Price includes splitters.
Austria: In 2008 the Shared Access monthly rental was 50% of full LLU.
Finland: Data are the weighted average of 31 SMP operators providing LLU.

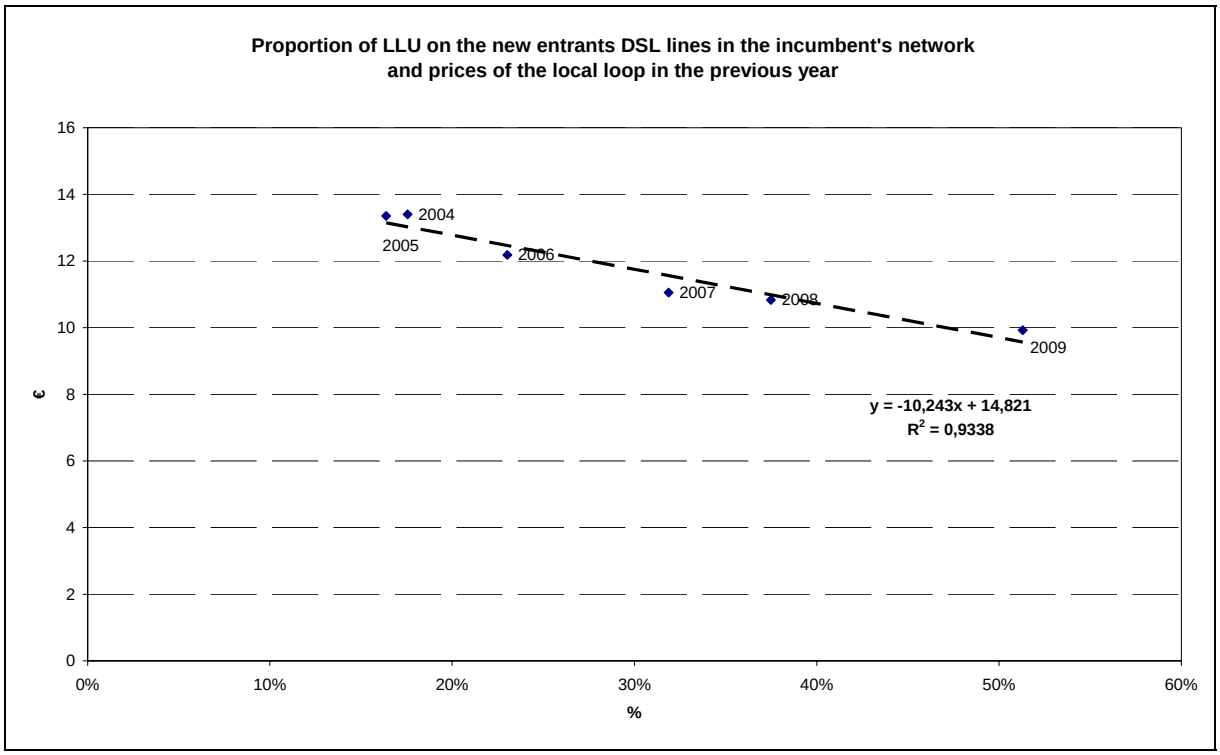
case of subsequent access). It is assumed that the loop is active and it will be used to provide both telephony and DSL services. Unless otherwise stated, figures exclude a whole range of additional one-off costs that may exist in some Member States.

The following charts illustrate the monthly total cost for the full Local Loop Unbundling and Shared Access (connection and monthly fees) based on the assumption that the loop is used for three years. The EU average since 2005 is also shown.

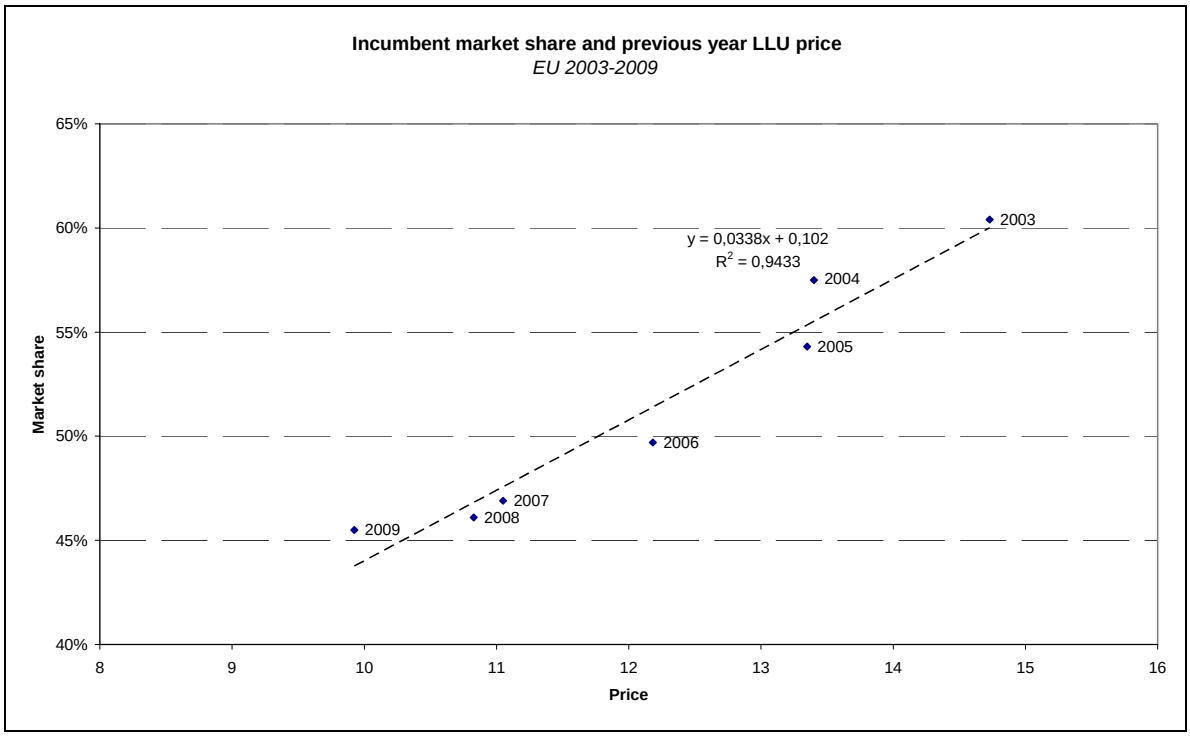



L.L.U. monthly average total cost in EU
Euro per month
14
12
10
8
6
4
2
0
12,18
11,05
10,83
9,93
9,75
5,06
4,45
4,33
3,72
3,53
October 2005
October 2006
October 2007
October 2008
October 2009
Fully unbundled lines
Shared access lines

Access regulation is based on the "ladder of investment" principle: the assumption that the new entrants will acquire capital assets progressively, as they acquire customers and revenues. In that sense, alternative operators based on the incumbent copper network would move from low-investment types of competition like bitstream to fully unbundled local loops, eventually replicating the incumbent's access network. Lower prices on the local loop have moved the new entrants to go from low-intensive capital expenditure solutions such as resale to higher investment like the full unbundling of the local loop (R^2=0.93).



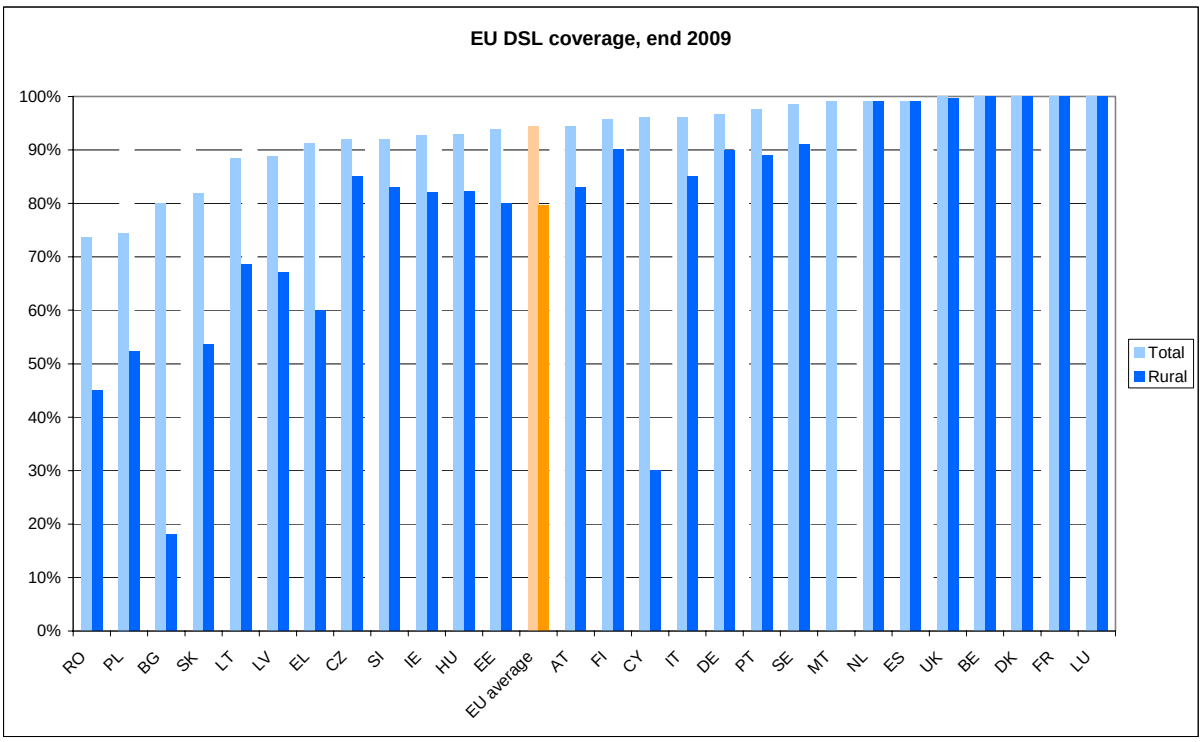
Despite there is high correlation (R^2=0.94) between the decreases in the price of the local loop and the decrease in the incumbent market share since the introduction of the first reference offers. In the latest four years the incumbent's wholesale market share has stagnated at European level and further reductions of the prices of the local loop had a lower impact in the incumbent market shares (R^2=0.78), probably due to the shrinking difference between retail and wholesale prices.



In line with these results, analysing the different Member States in 2010, there seems not to be a strong link between lower prices in the local loop and lower market shares for the incumbent (R^2=0.05 for the incumbent market share and the prices of the local loop).

ANNEX 3: DSL Coverage

Total DSL coverage increased from 92.7% of population in December 2008 to 94% in December 2009, while rural coverage reached 80% of rural population by end 2009 as opposed to 76.6% a year ago. Only six member states have DSL coverage below 90%.



Source: IDATE for European Commission

However, rural DSL coverage is still an issue in a number of countries. In Bulgaria, Romania and Cyprus rural coverage is still below 50%, although Romania and Cyprus made significant progress relative to the previous year. The gap in national coverage in 2009 between the best and worst performing country decreased by 6 pp and in rural coverage by 18 pp. As for total DSL coverage, the highest growth took place in Romania (6.4 pp), Poland (4.9 pp) and Slovakia (4.1 pp).

ANNEX 4: Broadband state aid developments

In 2010 the European Commission took 16 decisions regarding broadband projects involving public funding. 15 of these were found to be compatible with the Treaty (article 4(3) decision types), while one (East Win project) was not considered aid but rather a Service of General Economic Interest. The total amount of the aid approved was €1,617 million.

#	Decision name	MS	Decision Date	Aid amount (million €)	Decision type	Type
1	**N 383/2009 – DE - Amendment of the State aid broadband scheme N 150/2008**	GER	8/02/2010	2	Article 4(3)	Basic
2	**N 596/2009 – IT - Bridging the digital divide in Lombardia**	IT	8/02/2010	41	Article 4(3)	Basic
3	**N 30/2010 - SWE - Broadband development within the framework of rural development**	SWE	25/03/2010	28	Article 4(3)	NGA
4	**N 646/2009 - IT - National broadband plan for rural areas in Italy**	IT	30/04/2010	155	Article 4(3)	Basic
5	**N 62/2010 - FI - High speed broadband in Finland**	FI	6/05/2010	131	Article 4(3)	NGA
6	**N 461/2009 - UK - Cornwall & Isles of Scilly Next Generation Broadband**	UK	12/05/2010	60	Article 4(3)	NGA
7	**N 626/2009 - IT - NGA for industrial districts of Lucca**	IT	28/06/2010	7	Article 4(3)	NGA
8	**N 559/2009 – UK- North Yorkshire – Next Generation Broadband**	UK	28/06/2010	20	Article 4(3)	NGA
9	**N 53/2010 - DE - Federal framework programme on duct support, Germany**	GER	12/07/2010	600	Article 4(3)	NGA
10	**N 196/2010 - EE - Establishment of a Sustainable Infrastructure Permitting Estonia-wide Broadband Internet Connection (EstWin project)**	EST	20/07/2010	25	Article 4(2)	NGA
11	**N 407/2009 - ES - Optical fibre Catalonia (Xarxa Oberta)**	ES	11/08/2010	354	Article 4(3)	NGA
12	**N 699/2009 – ES - Desarrollo del programa de infraestructuras de telecomunicaciones en la Región de Murcia**	ES	12/08/2010	55	Article 4(3)	Basic
13	**N 391/2010 – DE – Broadband development in Hessen**	GER	12/10/2010	3	Article 4(3)	Basic
14	**N 299/2010 – DE- Prolongation of the Bavarian State Aid Broadband Scheme**	GER	26/10/2010	57	Article 4(3)	Basic
15	**N 424/2010 – ES – Broadband deployment in Galicia**	ES		68	Article 4(3)	NGA
16	**N 305/2010 – IT – Reduction of the digital divide in Trentino**	ITA		9	Article 4(3)	Basic