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Europe's Digital Progress Report 2017

Europe's digital progress report 2017

Contents

1. Connectivity: Broadband market developments in the EU

The Digital Economy and Society Index (DESI) is a composite index that summarises relevant indicators on Europe's digital performance and tracks the progress of EU Member States in digital competitiveness.

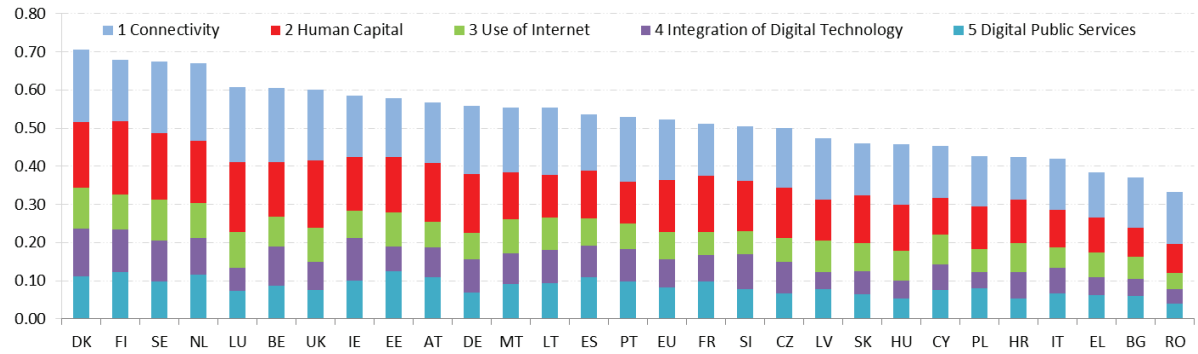
Denmark, Finland, Sweden and the Netherlands have the most advanced digital economies in the EU followed by Luxembourg, Belgium, the UK and Ireland. Whereas, Romania, Bulgaria, Greece and Italy have the lowest scores on the index.

Figure 1.1. The five dimensions of the DESI

1 Connectivity	Fixed Broadband, Mobile Broadband, Broadband speed and prices
2 Human Capital	Basic Skills and Internet Use, Advanced skills and Development
3 Use of Internet	Citizens' use of Content, Communication and Online Transactions
4 Integration of Digital Technology	Business digitisation and eCommerce
5 Digital Public Services	eGovernment

Source: European Commission, Digital Scoreboard

Figure 1.2. Digital Economy and Society Index (DESI) 2017 ranking



Source: DESI 2017, European Commission

As for Connectivity, the highest score was registered by the Netherlands followed by Luxembourg and Belgium. Croatia, Bulgaria and Poland had the weakest performance in this dimension of the DESI.

The Connectivity score looks at both the demand and the supply side of fixed and mobile broadband. Under fixed broadband, it assesses the availability as well as the take-up of basic and high-speed next-generation access (NGA) broadband and also considers the affordability of retail offers. On mobile broadband, the availability of 4G, radio spectrum and the take-up of mobile broadband are included.

A comparative assessement of fixed broadband across countries shows Luxembourg, Netherlands and the UK as the strongest performers. In contrast, Poland, Romania, Slovakia and Latvia are shown to be among the weakest performers. NGA subscriptions are particularly advanced in Belgium, Romania, the Netherlands and Portugal.

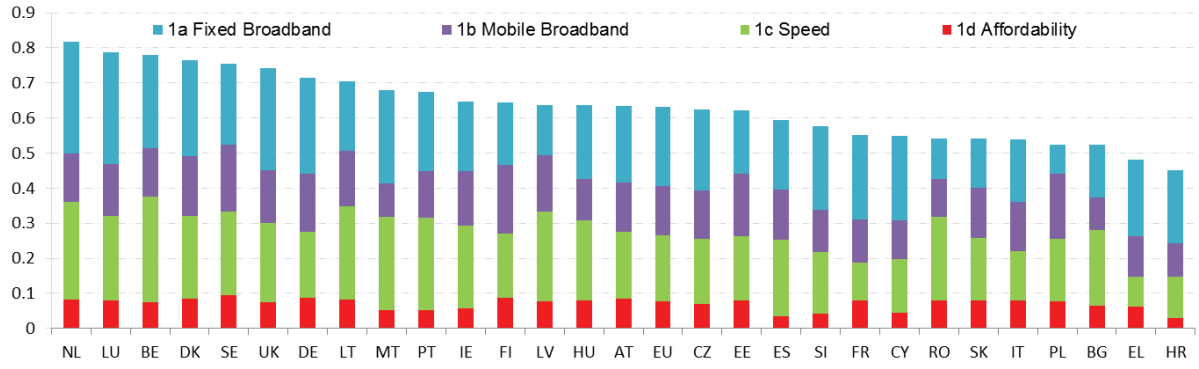
As for mobile broadband, the Nordic countries (Finland, Sweden and Denmark) lead Europe along with Estonia and Poland, while the lowest scores were registered by Bulgaria, Malta and Croatia.

Figure 1.3. EU average of Connectivity Indicators in DESI 2017

Connectivity Indicators in DESI 2017	EU
1a1 Fixed Broadband Coverage % households	**98%** 2016
1a2 Fixed Broadband Take-up % households	**74%** 2016
1b1 Mobile Broadband Take-up Subscriptions per 100 people	**84** June 2016
1b2 4G coverage % households (average of operators)	**84%** 2016
1b3 Spectrum % of the target	**68%** 2016
1c1 NGA Coverage % households	**76%** 2016
1c2 Subscriptions to Fast Broadband % subscriptions >= 30Mbps	**37%** June 2016
1d1 Fixed Broadband Price % income	**1.2%** price 2016, income 2015

Source: DESI 2017, European Commission

Figure 1.4. Digital Economy and Society Index (DESI) 2107, Connectivity



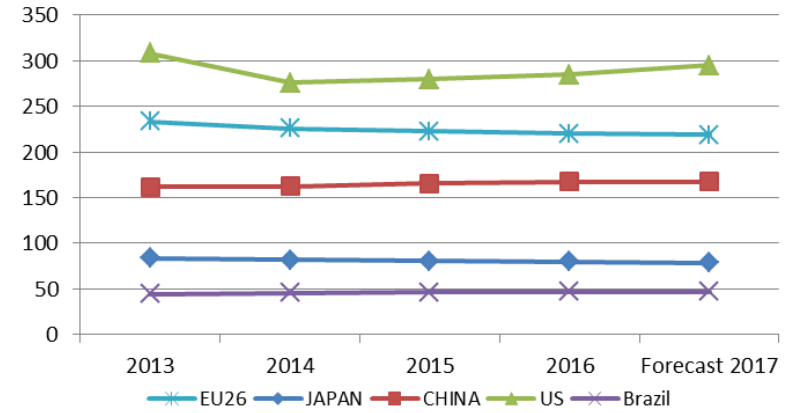
Source: DESI 2017, European Commission

Total telecom services revenues have declined by 6 % in Europe since 2013. Mobile and fixed voice revenues have decreased by 23 % since 2013. An increase in mobile data and internet services was not enough to offset the major decline in voice services.

Telecom operators in Europe generated less revenue than the US operators. Revenues fell from EUR 233 billion in 2013 to EUR 220 billion in 2016 in Europe. At the same time, the US revenues also slightly declined from EUR 308 billion to EUR 295 billion, which is higher than Europe despite its smaller population.

Note: this analysis is based on detailed figures from 26 Member States, which covered about 98% of the total EU market (total telecom carrier services).

Figure 1.5. Total telecommunication revenues per region, billion EUR, 2013-2017



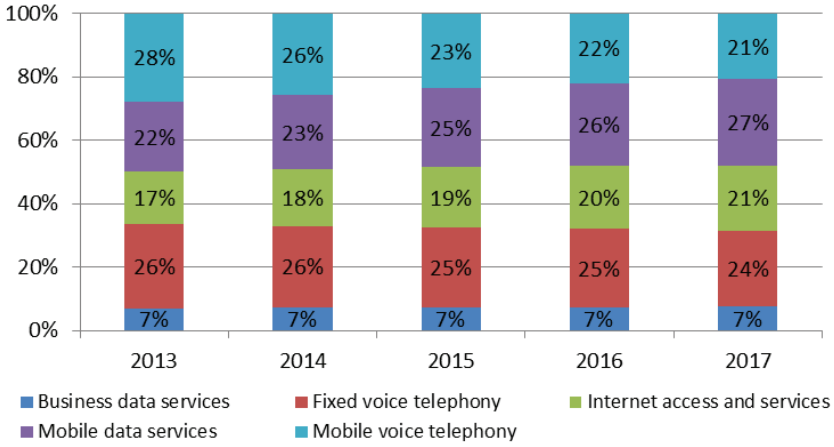
Source: 2016 EITO in collaboration with IDC.

Analysis of telecommunications revenues (carrier services) by segment shows a decline in voice services (both fixed and mobile) revenues. Fixed voice services have fallen by 15.3 % since 2013, compared to 29.9% for mobile services over the same period. Together, fixed and mobile voice services will represent 48 % of total telecom revenues in 2017, compared with 54 % in 2013.

Mobile data services will represent 27 % of total revenues, up from 22 % in 2013. The growth in mobile data services could not, however, compensate for the major decline in voice services.

Note: this analysis is based on figures from 7 Member States, Belgium, France, Germany, Italy, Spain, Greece, Spain and the UK, which covered about 70 % of the total EU market (total telecom carrier services).

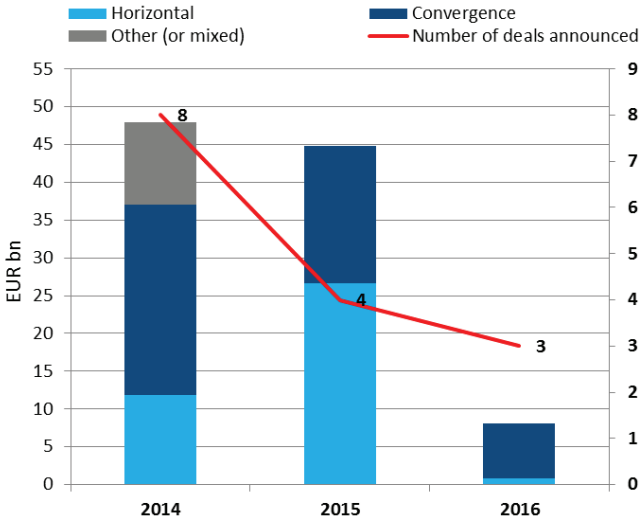
Figure 1.6. European telecommunications revenues by segment, % of total, 2013 – 2017



Source: 2016 EITO in collaboration with IDC.

In 2016, M&A activity among European telco operators decreased, especially when it comes to in-market consolidation. In-market consolidation of large networks continued to raise competition concerns, unlike the combination of large mobile and fixed networks.

Figure 1.7. Large telco mergers and acquisitions 2014-2016, value and number of deals announced



*Source: EC, based on company statements and press reports**

**Mergers valued at EUR 500 million or higher*

***In the case of joint ventures the reported Enterprise Value (EV) of one of the merging parties (with the higher EV) was used as a proxy. When not reported, the EV was estimated.*

Unlike in 2014 and 2015, no large-scale mergers were agreed in 2016 which would have led to the integration of large networks in the same market. Whilst Orange and Bouygues were in talks for an acquisition of Bouygues, no agreement has been reached.

The largest telco merger announced in 2016 was the merging of Vodafone`s and Liberty Global`s Dutch operations, creating a converged fixed-mobile player. In Spain, Masmovil, a fixed and virtual mobile operator, acquired the smallest mobile network, Yoigo. With this acquisition it becomes the fourth fixed-mobile player in a market characterised by a high level of fixed-mobile convergence. In Italy Enel Open Fibre acquired joint control over Metroweb - both provide wholesale broadband access services through fiber networks.

The European Commission continued to identify competition concerns stemming from the combination of large networks in the same markets (prohibition of Hutchison`s proposed acquisition of O2 in the UK and approval of Hutchison/VimpelCom JV in Italy conditional on the divestment of sufficient assets that will allow a new operator to enter the market). However, no competition concerns were raised due specifically to the combination of fixed and mobile networks, even if these were large networks (e.g. Liberty Global/Base in Belgium)

Broadband coverage: Basic broadband is available to everyone in the EU, while fixed technologies cover 98 % of homes. Next generation access (NGA) covers 76 %, up from 71 % six months ago. Deployment of 4G mobile continued to increase sharply. Rural coverage improved substantially in 4G and NGA.

Basic broadband is available to all in the EU, when considering all major technologies (xDSL, cable, fibre to the premises - FTTP, WiMax, HSPA, LTE and Satellite). Fixed and fixed-wireless technologies cover 98 % of EU homes.

NGA technologies (VDSL, Cable Docsis 3.0 and FTTP) capable of delivering at least 30 Mbps download are available to 76 %.

4G mobile (LTE) coverage increased by seven percentage points and reached 96 % (of homes covered by at least one operator).

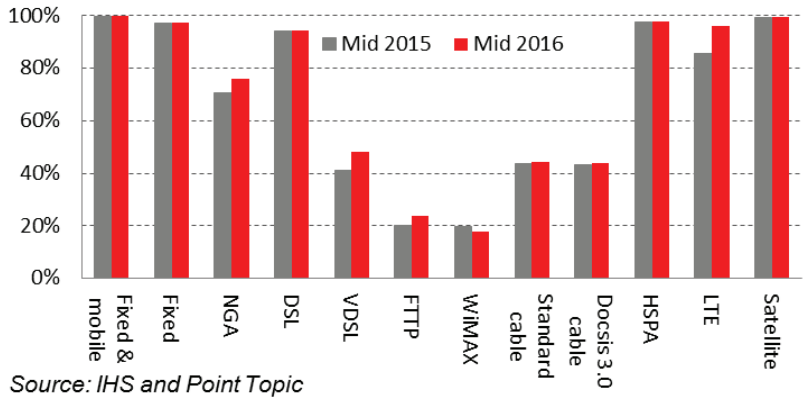
Rural 4G coverage went up from 36 in 2015 % to 80 % in 2016. NGA is available in 40 % of rural homes, compared with 30 % a year ago.

Our target (Digital Agenda for Europe)

Basic broadband for all by 2013: 100 % in 2016

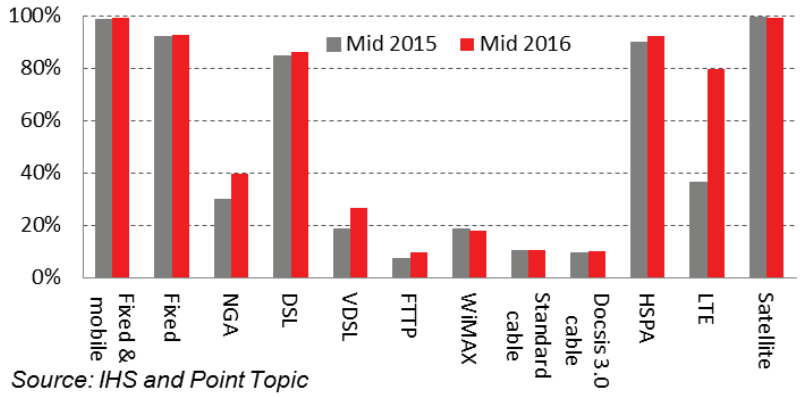
Fast broadband (>30Mbps) for all by 2020: 76 % in 2015

Figure 1.8. Total coverage by technology at EU level, 2015-2016



Source: IHS and Point Topic

Figure 1.9. Rural coverage by technology at EU level, 2015-2016



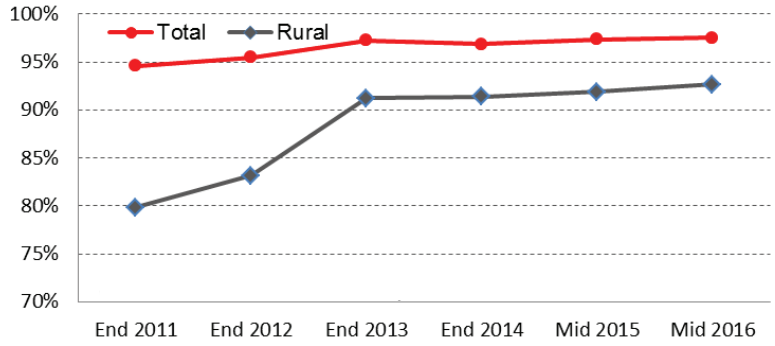
Source: IHS and Point Topic

Coverage of fixed broadband increased slightly to 98 %. In about half of the Member States more than 99 % of homes are covered. At the same time, Poland, Slovakia and Romania are lagging behind with less than 90 %.

Primary internet access at home is provided mainly by fixed technologies. Among these technologies, xDSL has the largest footprint (94 %) followed by cable (44 %) and WiMAX (18 %). Fixed coverage is the highest in the Member States with well-developed DSL infrastructures, and is over 90% in all but three Member States.

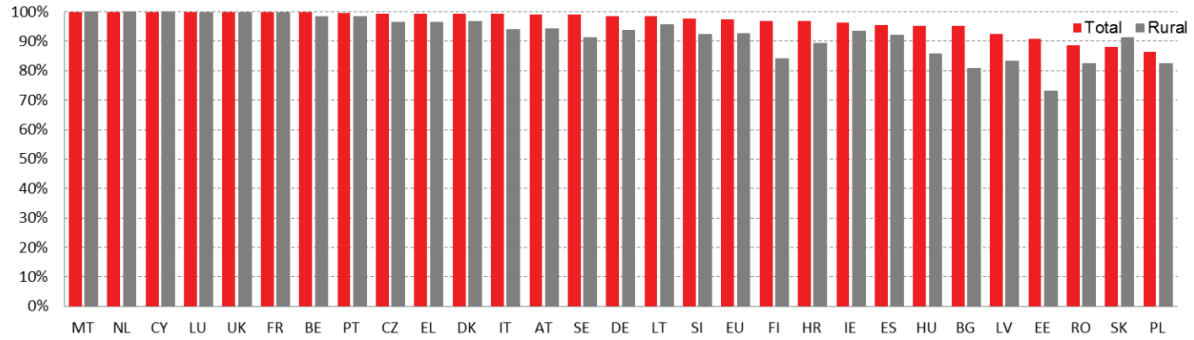
Overall coverage of fixed broadband has only marginally increased since 2011, but rural coverage improved by 13 percentage points. Developments have slowed down, as Member States have diverted their focus to NGA and wireless technologies.

Figure 1.10. Fixed broadband coverage in the EU, 2011-2016



Source: IHS, VVA and Point Topic

Figure 1.11. Fixed broadband coverage, June 2016



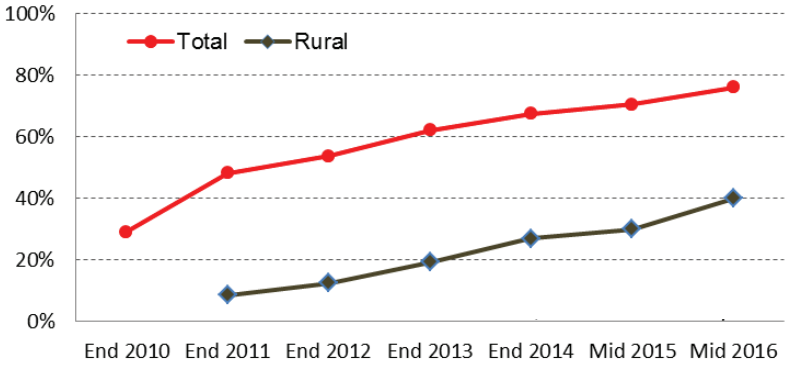
Source: IHS and Point Topic

Coverage of next generation access (NGA) technologies continued to increase and reached 76 %. NGA is getting more widespread in rural areas, covering 40% of homes.

For the purpose of this report, Next Generation Access includes VDSL, Cable Docsis 3.0 and FTTP. At mid-2016, VDSL had the largest NGA coverage at 48 %, followed by Cable (44 %) and FTTP (24 %). Most of the upgrades in European cable networks had taken place by 2011, while VDSL coverage is now 2.5 times larger than four years ago. VDSL increased most in Italy last year, growing from 41% in 2015 to 72% in 2016. There was a remarkable progress also in FTTP (from 10 % in 2011 to 24 % in 2016), but FTTP coverage is still low.

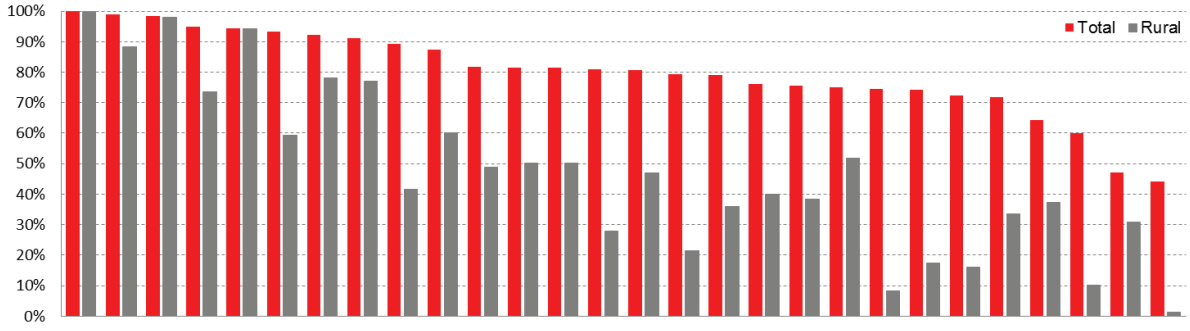
Rural NGA coverage went up by 10 percentage points, reaching 40 % of homes. NGA in rural areas is provided mainly by VDSL.

Figure 1.12. Next generation access (NGA) broadband coverage in the EU, 2010-2016



Source: IHS, VVA and Point Topic

Figure 1.13. Next generation access (FTTP, VDSL and Docsis 3.0 cable) coverage, June 2016

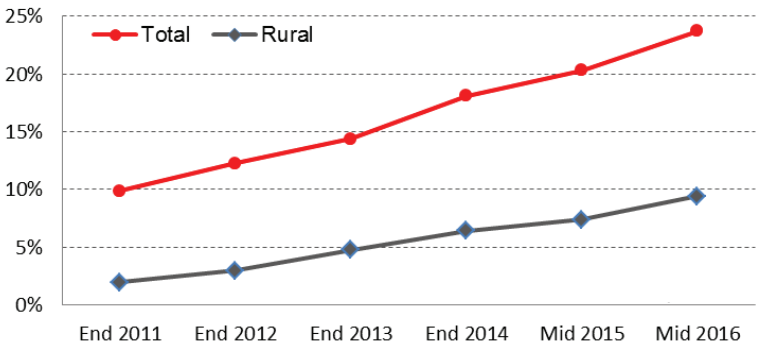


Source: IHS and Point Topic *Data not available for Lithuania*

Coverage of fibre to the premises (FTTP) grew from 10 % in 2011 to 24 % in 2016, while it remains a primarily urban technology. Portugal and Latvia are the leaders in FTTP in Europe.

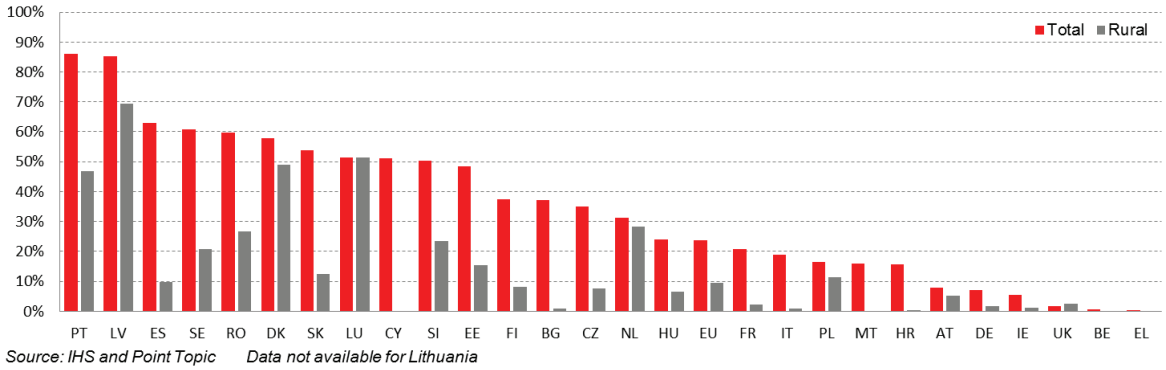
FTTP is catching up in Europe, as coverage for homes more than doubled since 2011. However, the FTTP footprint is still significantly lower than that of cable Docsis 3.0 and VDSL. In Portugal and Latvia more than 80 % of homes can already subscribe to FTTP services, while in Greece, Belgium, UK, Ireland, Germany and Austria less than 10 % can do so. FTTP increased the most in the Czech Republic last year (from 17 % to 35 %). FTTP services are available mainly in urban areas with the exception of Latvia, Denmark, Luxembourg, Romania and Netherlands, where more than 25 % of rural homes also have access to it.

Figure 1.14. Fibre to the premises (FTTP) coverage in the EU, 2011-2016



Source: IHS, VVA and Point Topic

Figure 1.15. Fibre to the premises (FTTP) coverage, June 2016



Source: IHS and Point Topic *Data not available for Lithuania*

Overall fixed broadband and NGA broadband coverage by region

Figure 1.16. Overall fixed broadband coverage by region, June 2016

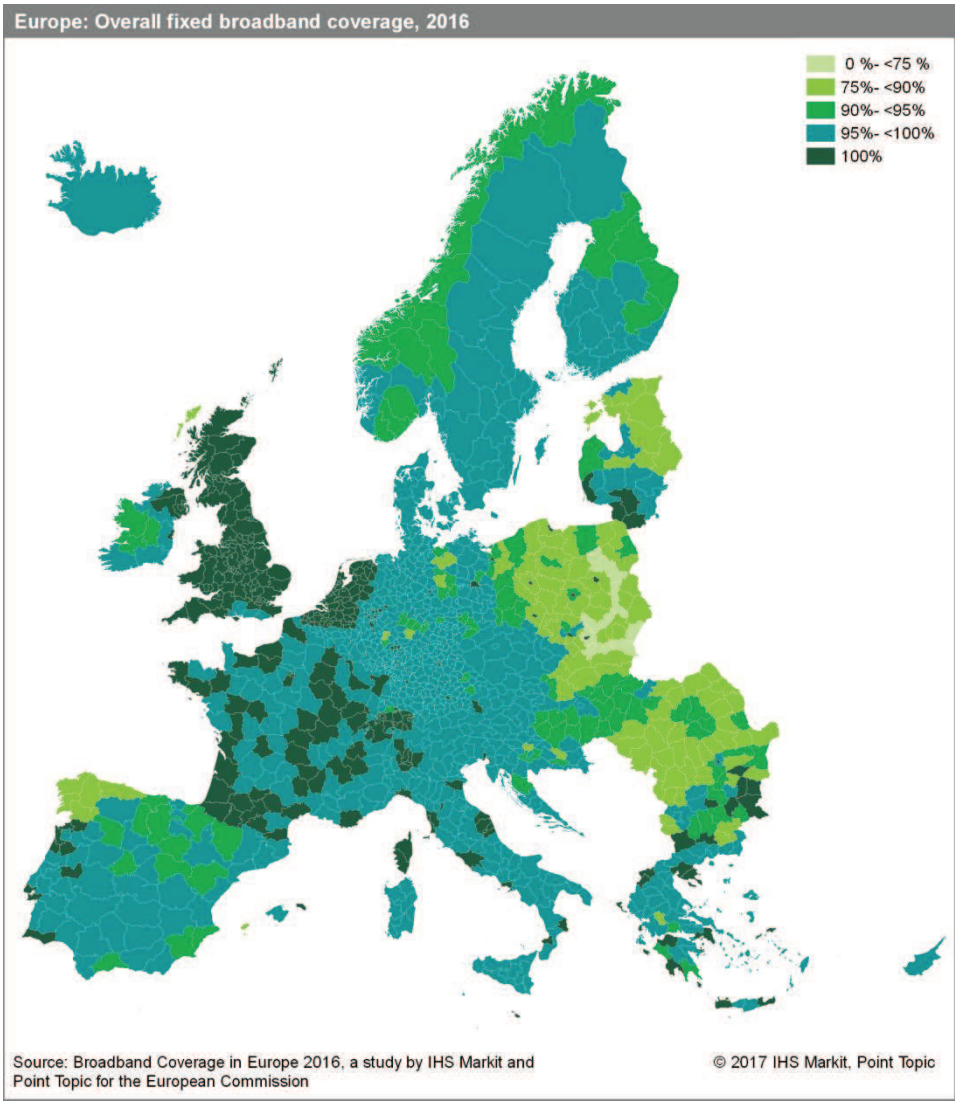
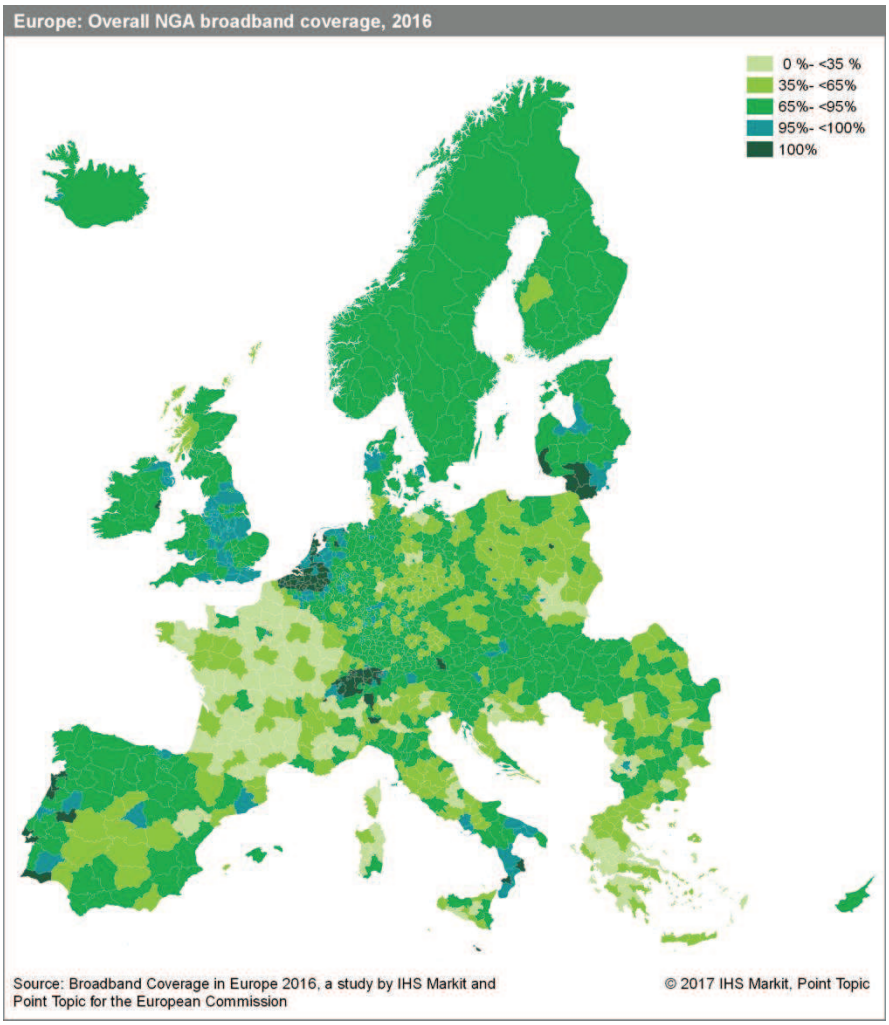


Figure 1.17. NGA broadband coverage by region, June 2016



Source: IHS and Point Topic

4G mobile coverage: 96% of homes are covered by at least one operator in Europe (overall coverage), up from 86% a year ago. Rural coverage went up from 36% in 2015 to 80% in 2016. Average 4G availability[1] stands at 84%.

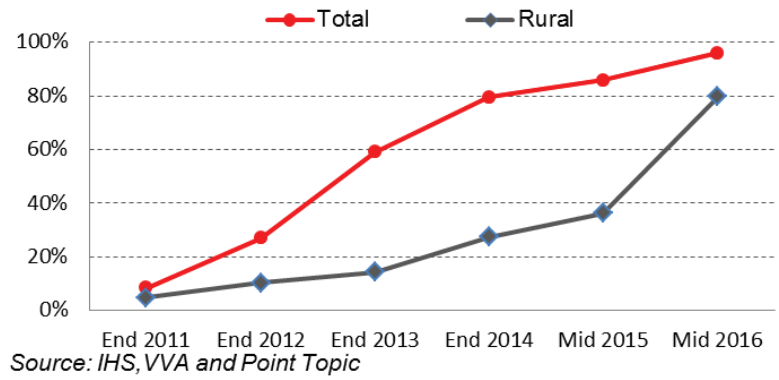
In 2016, deployment of 4G (LTE) continued and focused mainly on rural areas: overall coverage went up to 96 % of homes. In rural areas, already 80% of homes are covered by at least one operator.

Average 4G availability (calculated as the average of each operator's coverage) falls somewhat below the overall coverage and stands at 84%.

Average 4G coverage is above 90% in about half of the Member States, and is the lowest in Romania at 45%

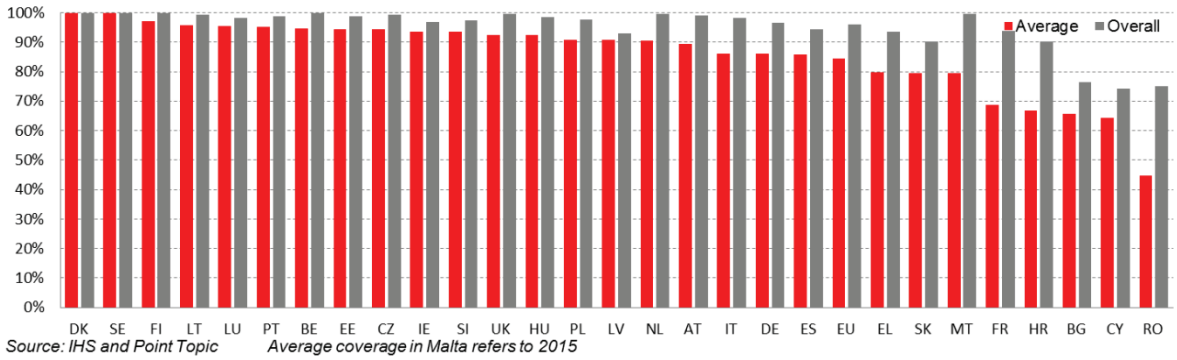
[1] This is a new indicator measuring the average of mobile telecom operator's coverage within each country. A different indicator was used to measure 4G coverage in previous versions of the Digital Scoreboard. The old 4G indicator measured the overall coverage of operators, and it showed higher figures than the new indicator.

Figure 1.18. 4G mobile broadband coverage in the EU, 2011-2016



Source: IHS, VVA and Point Topic

Figure 1.19. 4G (LTE) coverage, June 2016

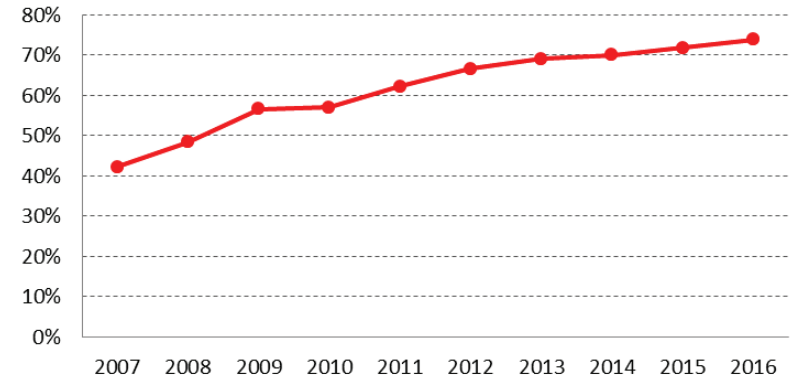


Source: IHS and Point Topic *Average coverage in Malta refers to 2015*

74 % of EU homes had a fixed broadband subscription in 2016. Luxembourg, the Netherlands and the UK registered the highest figures in the EU, while Italy, Bulgaria and Poland had the lowest take-up rates.

Although fixed broadband is available to 98 % of EU homes, 26 % of homes do not have a subscription. Growth in take-up was very strong until 2009, but then slowed down in the last few years, partially due to fixed-mobile substitution. At Member State level, take-up rates ranged from only 55 % in Italy to 96 % in Luxembourg.

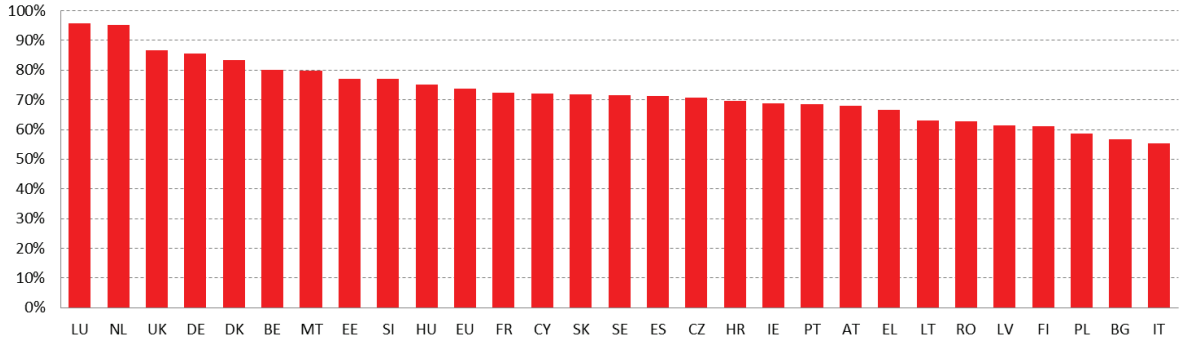
Figure 1.20. Households with a fixed broadband subscription at EU level (% of households), 2007-2016*



Source: Eurostat (ICT usage in households and individuals)

** Note: Penetration figures include also mobile subscriptions until 2009.*

Figure 1.21. Households with a fixed broadband subscription, 2016

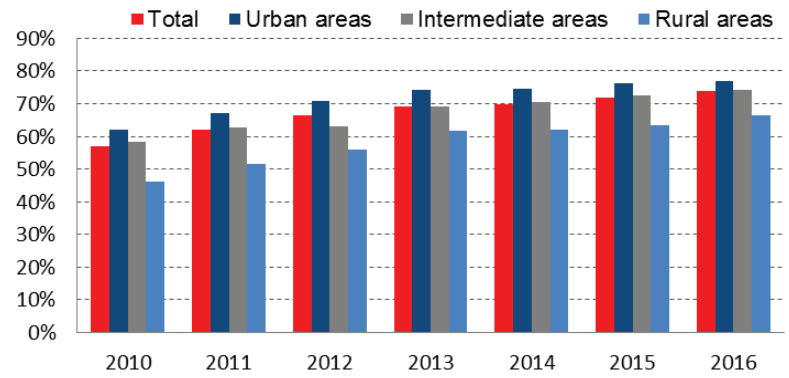


Source: Eurostat (ICT usage in households and individuals)

66 % of rural homes had a fixed broadband subscription across the EU in 2016. Luxembourg, the Netherlands, the UK and Germany registered the highest figures, while in four Member States, less than half of the homes subscribed.

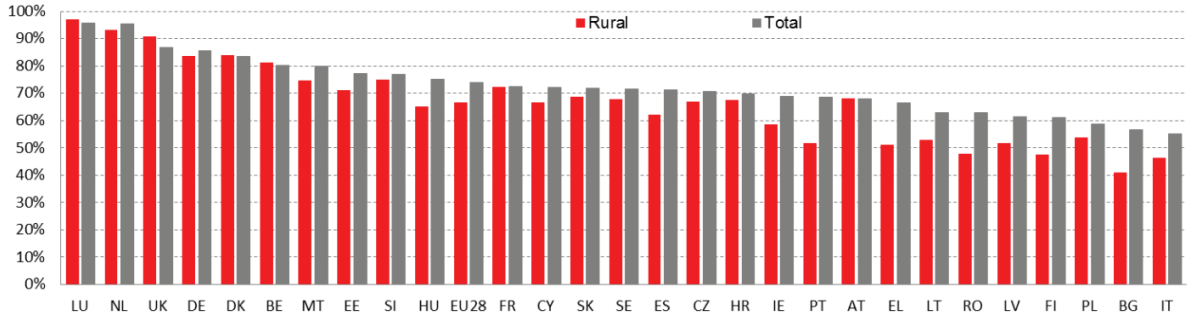
There is a substantial gap between rural and national penetration rates, although the gap has closed over the last six years, from 11 percentage points in 2010 to 7 percentage points in 2016. In Luxembourg, Netherlands, Germany, Belgium, Denmark, Austria, Croatia and Slovenia, rural and national penetration rates are almost identical. However, in Portugal, Bulgaria, Greece and Romania, where rural take-up is among the lowest in Europe, there are significant gaps of 15-17 percentage points compared to the national take-up.

Figure 1.22. Households having a fixed broadband connection per area at EU level (% of households), 2010-2016



Source: Eurostat (ICT usage in households and individuals)

Figure 1.23. Household fixed broadband penetration rural/total (% of households), 2016

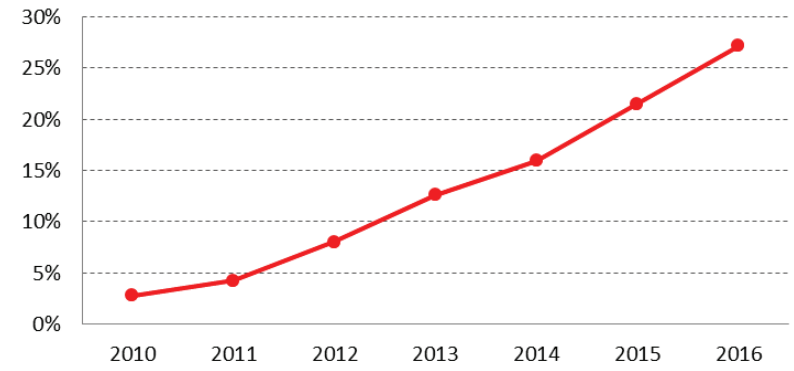


Source: Eurostat (ICT usage in households and individuals)

27 % of European homes subscribe to fast broadband access of at least 30 Mbps. There has been a significant increase since 2010. Belgium and the Netherlands are the leaders in Europe in fast broadband take-up.

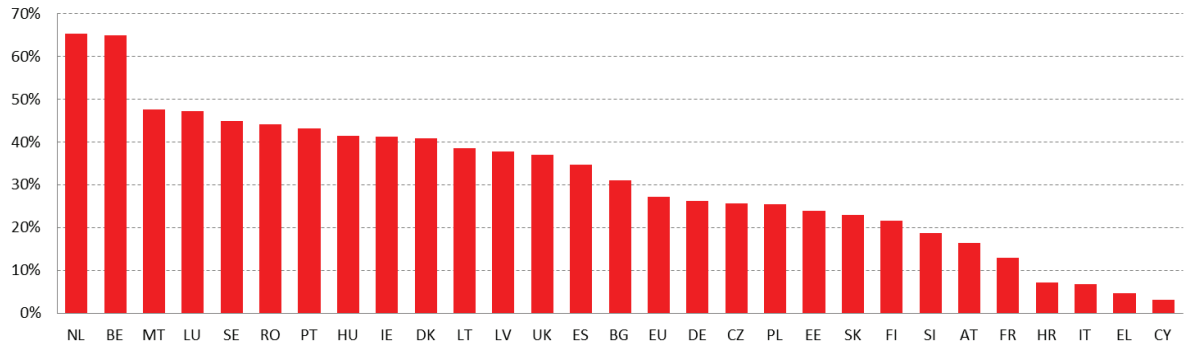
There has been a sharp upward trend in the take-up of fast broadband in the EU since 2010, triggered also by continuous deployment of infrastructure. Most cable subscriptions were migrated to high-speed plans, and high-speed VDSL and fibre services are also catching up. In Belgium and the Netherlands two thirds of homes already subscribe to fast broadband, while in Croatia, Greece, Italy and Cyprus, high-speed services still remain marginal.

Figure 1.24. Percentage of households with a fast broadband (at least 30Mbps) subscription at EU level, 2010-2016



Source: Communications Committee

Figure 1.25. Fast broadband (at least 30Mbps) household penetration, July 2016

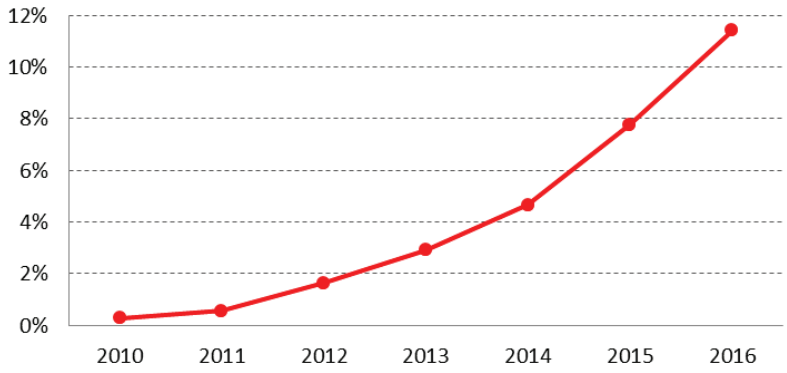


Source: Communications Committee

11 % of European homes currently subscribe to ultrafast broadband (at least 100 Mbps), a marked improvement from 0.3 % six years ago. Romania, Sweden, the Netherlands and Latvia are the most advanced in ultrafast broadband adoption.

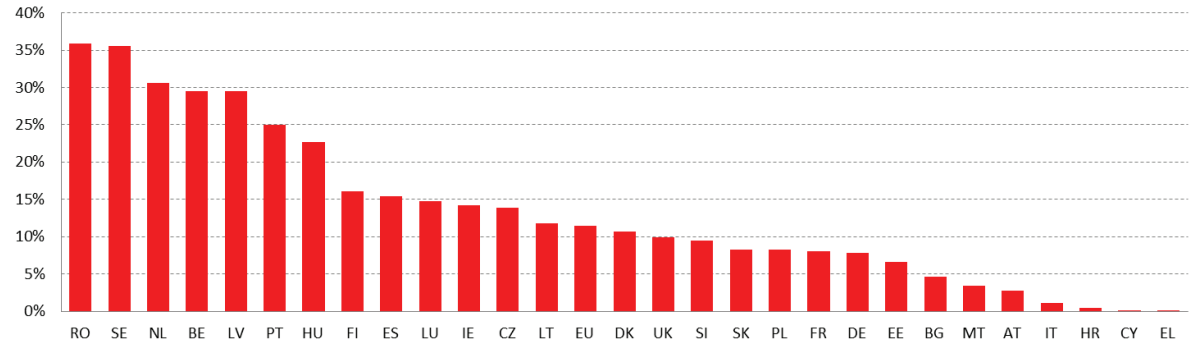
The Digital Agenda for Europe set the objective that at least 50 % of homes should subscribe to ultrafast broadband by 2020. In June 2016, 49 % of homes were covered by networks capable of providing 100 Mbps. As service offerings are emerging, take-up is growing sharply. The penetration is the highest in Romania and Sweden with over one third of homes subscribing to at least 100 Mbps. In Greece, Italy and Croatia take-up is low primarily due to the lack of superfast infrastructure. However, there may also be other factors involved as in Cyprus, where the infrastructure is available for many homes, take-up also continues to be slow.

Figure 1.26. Percentage of households with an ultrafast broadband (at least 100Mbps) subscription at EU level, 2010-2016



Source: Communications Committee

Figure 1.27. Percentage of households with an ultrafast broadband (at least 100Mbps) subscription, July 2015

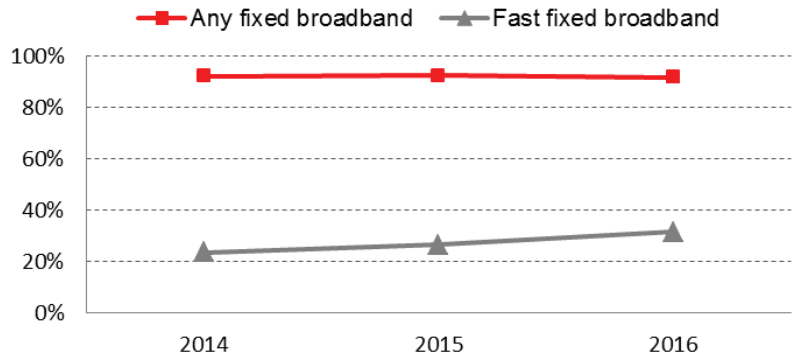


Source: Communications Committee

At EU level, 92 % of companies have a fixed broadband subscription. However, only 32 % benefit from fast broadband (at least 30Mbps). While almost all large companies use broadband, 8 % of small enterprises are not yet connected.

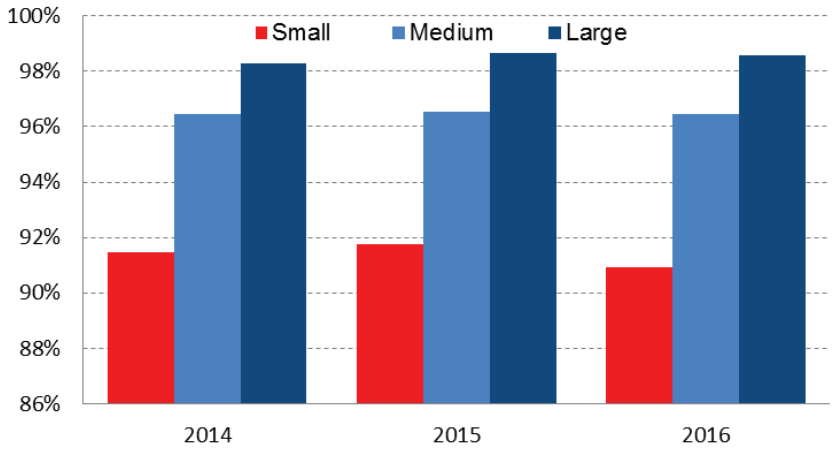
While the vast majority of European businesses use broadband, only one third of companies and 27% of private homes subscribed to fast broadband in 2016. The penetration of fast broadband varies greatly between companies of different size. While 62 % of large companies benefit from broadband speed of at least 30 Mbps, only 29% of small enterprises do so. Nevertheless, the penetration of fast broadband went up from 24 % to 32 % among all enterprises during the last two years.

Figure 1.28. Enterprises having a fixed broadband connection at EU level, 2014-2016



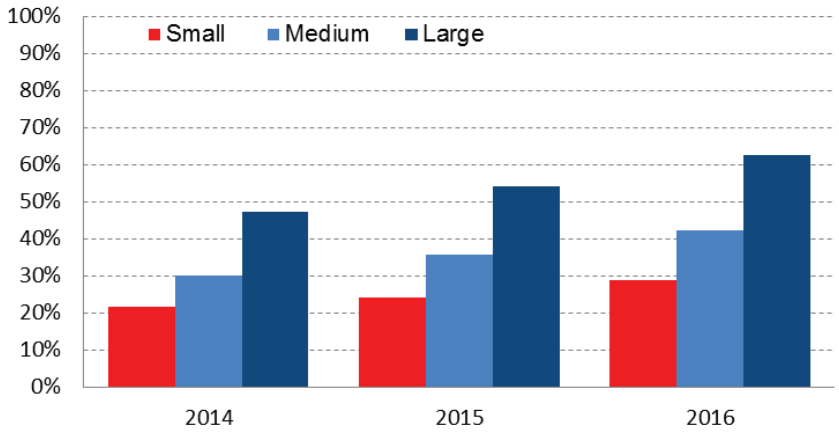
Source: Eurostat (ICT usage and e-commerce in enterprises)

Figure 1.29. Percentage of enterprises having a fixed broadband connection, by Enterprise size at EU level, 2014-2016



Source: Eurostat (ICT usage and e-commerce in enterprises)

Figure 1.30. Percentage of enterprises having a fast fixed broadband connection, by Enterprise size at EU level, 2014-2016

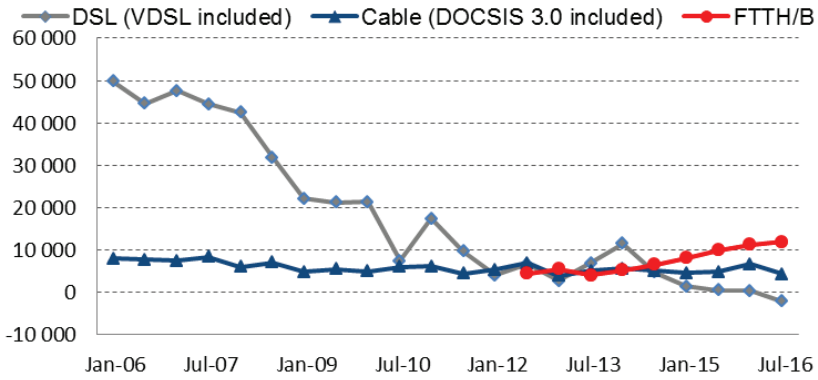


Source: Eurostat (ICT usage and e-commerce in enterprises)

67 % of subscriptions are xDSL, although xDSL is slightly losing market share. Cable is second with 19 % of the market. Fibre to the Home/Building is emerging.

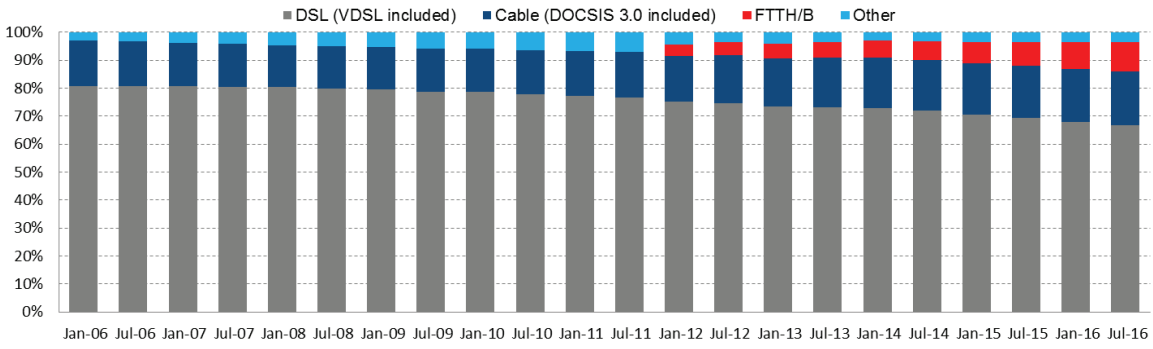
Although DSL is still the most widely used fixed broadband technology, its market share declined from 80 % in 2009 to 67 % in 2016. The second half of 2016 was the first time, when the number of xDSL subscriptions declined. The main challenger — cable — increased slightly its share during the same time period, but most of the gains were posted by alternative technologies such as FTTH/B. Nevertheless, DSL continues to be predominant, and its market share can be strengthened thanks to the increasing VDSL coverage.

Figure 1.31. Fixed broadband net adds by technology at EU level, 2006-2016



Source: Communications Committee

Figure 1.32. Fixed broadband subscriptions — technology market shares at EU level, January 2006 to July 2016



Source: Communications Committee

xDSL is particularly important in Greece and Italy, and has the lowest market share in Bulgaria, Lithuania and Romania. Cable has a very high market share in

Belgium, Hungary, Malta and the Netherlands. FTTH/B is the most widely used technology in Lithuania, Latvia, Romania, Bulgaria and Sweden.

The share of xDSL ranges from 12 % in Bulgaria to 100 % in Greece. DSL is generally less dominant in Eastern Europe. Looking at alternative technologies, cable is present in all but two Member States and it is the major technological competitor of DSL in the majority of the Member States.

FTTH and FTTB together represent 11 % of EU broadband subscriptions up from 9 % a year ago. In these technologies, Europe continues to lag behind global leaders such as South Korea and Japan.

Figure 1.33. Share of fibre connections in total fixed broadband, July 2016

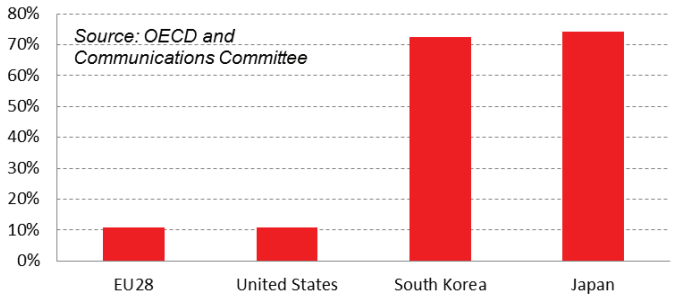
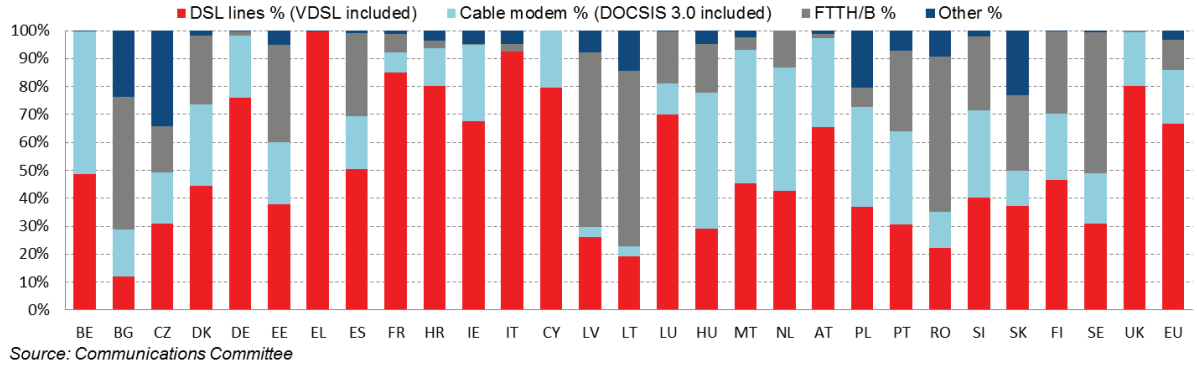


Figure 1.34. Fixed broadband subscriptions — technology market shares, July 2015

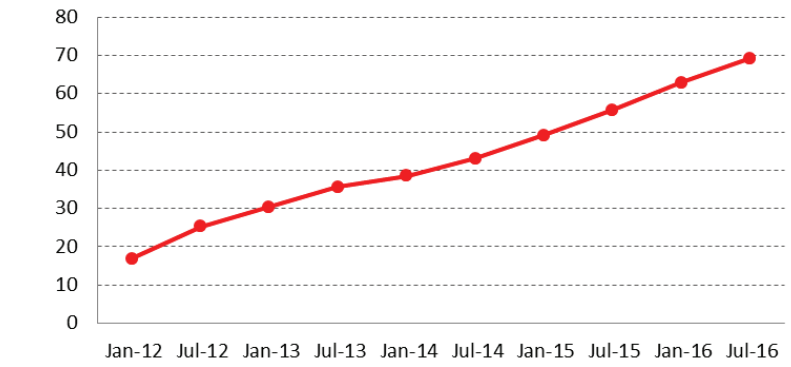


Source: Communications Committee

NGA subscriptions went up sharply by 20 million in the last two years, and already 42 % of all subscriptions are NGA. In Belgium, Romania and the Netherlands, over three quarter of fixed broadband subscriptions are NGA, while the same ratio is less than 10 % in Greece and Cyprus

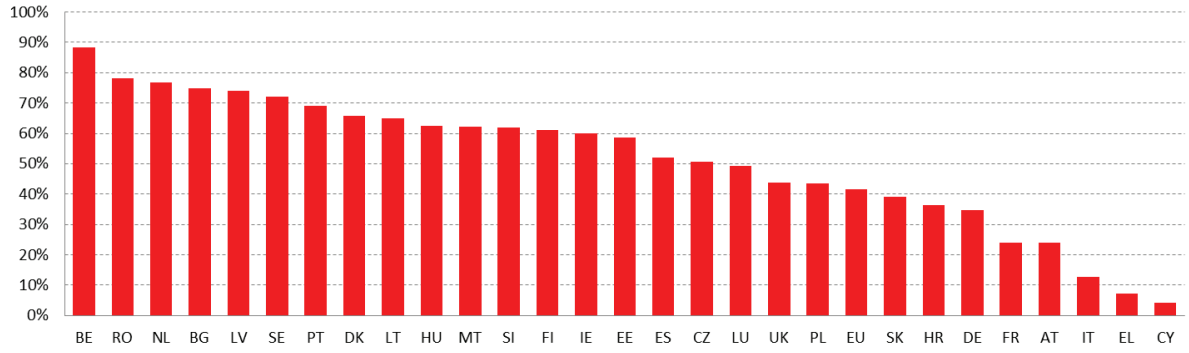
NGA subscriptions in the EU doubled during the last three years and account for 42 % of all EU fixed broadband subscriptions. At least two thirds of broadband subscriptions are NGA in Belgium, Romania, the Netherlands, Bulgaria, Latvia, Sweden, Portugal and Denmark. Whereas, Cyprus, Greece, Italy, Austria and France are lagging behind all other Member States

Figure 1.35. Evolution of NGA (FTTH, FTTB, VDSL, Cable Docsis 3.0 and other NGA) subscriptions (in millions) in the EU, 2012-2016



Source: Communications Committee

Figure 1.36. NGA (FTTH, FTTB, VDSL, Cable Docsis 3.0 and other NGA) subscriptions as a % of total fixed broadband subscriptions, July 2016

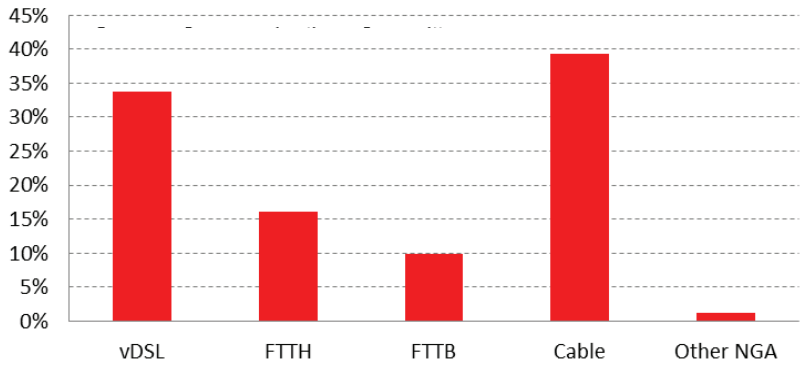


Source: Communications Committee

Cable Docsis 3.0 is currently the most widespread NGA technology in the EU both in coverage and take-up. VDSL subscriptions went up by 47% in the last twelve months.

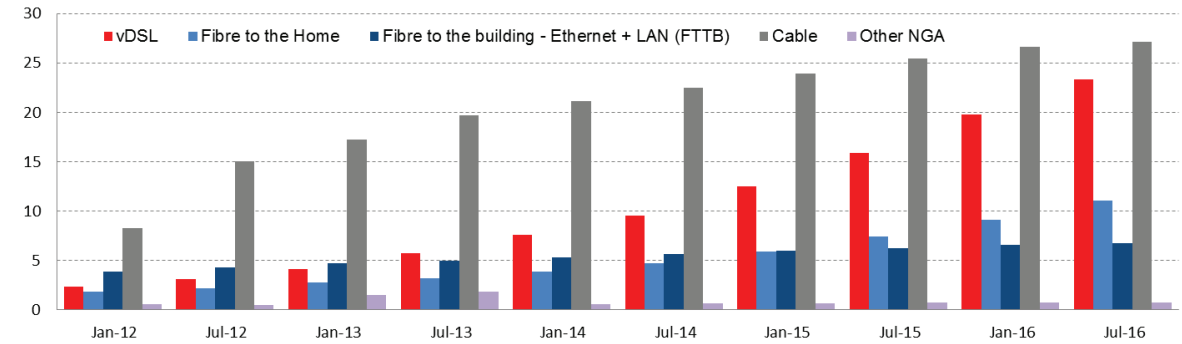
39 % of NGA subscriptions are Docsis 3.0, which is relatively high given cable broadband in total represents only 19 % of all EU fixed broadband subscriptions. While almost all the cable networks have been upgraded to NGA, only 51 % of the xDSL network is VDSL-enabled. Nevertheless, VDSL coverage went up by 17 % and the number of subscriptions by 47 % in the last twelve months. FTTH and FTTB have a 16 % and 10 % share in total NGA subscriptions, respectively.

Figure 1.37. Share of different NGA technologies in total NGA subscriptions at EU level, July 2016



Source: Communications Committee

Figure 1.38. NGA subscriptions (millions) by technology at EU level, January 2012 to July 2016



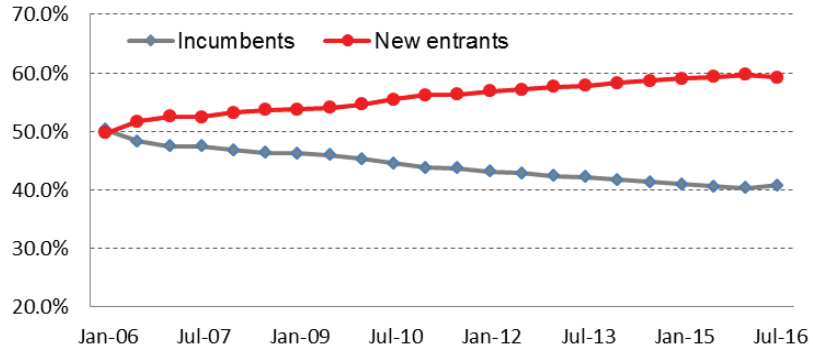
Source: Communications Committee

Competition in the fixed broadband market: new entrant operators are continuously gaining market share, but incumbents still control 41 % of subscriptions.

Incumbent operators are market leaders in almost all Member States, although their market share is decreasing gradually. During the last 10 years, new entrant operators have consistently posted higher net gains then the incumbents in each year, although a reverse in this trend has been observed over the last six months. Overall, market share of incumbents in the EU has decreased by 10 percentage points since 2006.*

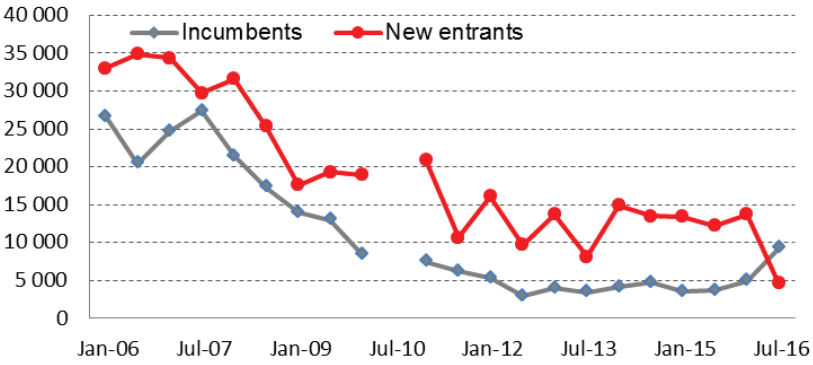
** Break in series in July 2010 due to modification of historical data.*

Figure 1.39. Fixed broadband subscriptions — operator market shares at EU level, January 2006 to July 2016



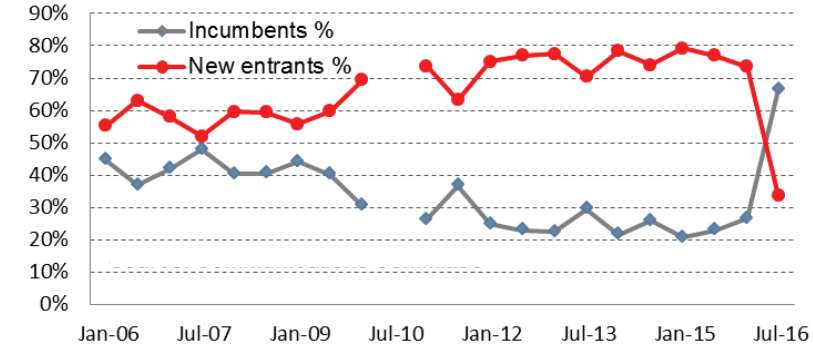
Source: Communications Committee

Figure 1.40. Fixed broadband subscriptions growth per day by operator at EU level, January 2006 to July 2016[2]



Source: Communications Committee

Figure 1.41. Fixed broadband subscriptions growth per day by operator at EU level, % of total, January 2006 to July 2016[3]



Source: Communications Committee

[2] Break in series in July 2010 due to modification of historical data.
[3] Break in series in July 2010 due to modification of historical data.