Connectivity
Broadband market developments in the EU

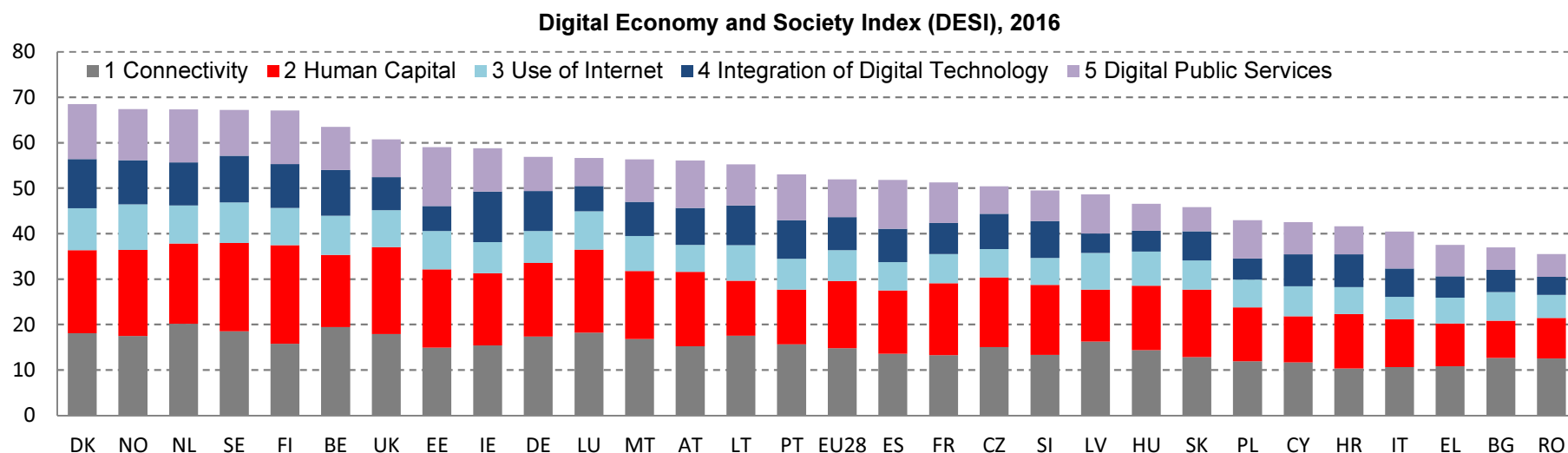Europe's Digital Progress
Report 2016

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, the Netherlands, Sweden and Finland have the most advanced digital economies in the EU followed by Belgium, the UK and Estonia.

Romania, Bulgaria, Greece and Italy have the least advanced economies in the EU.

The five dimensions of the DESI

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

Digital Economy and Society Index (DESI), 2016

■ 1 Connectivity ■ 2 Human Capital ■ 3 Use of Internet ■ 4 Integration of Digital Technology ■ 5 Digital Public Services

DK NO NL SE FI BE UK EE IE DE LU MT AT LT PT EU28 ES FR CZ SI LV HU SK PL CY HR IT EL BG RO

Source: European Commission, Digital Scoreboard

European Commission

As for Connectivity, the highest score was registered by the Netherlands followed by Belgium and Sweden. Croatia, Italy, Greece and Cyprus had the weakest performance in this indicator.

The Connectivity dimension 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 radio spectrum and the take-up of mobile broadband are included.
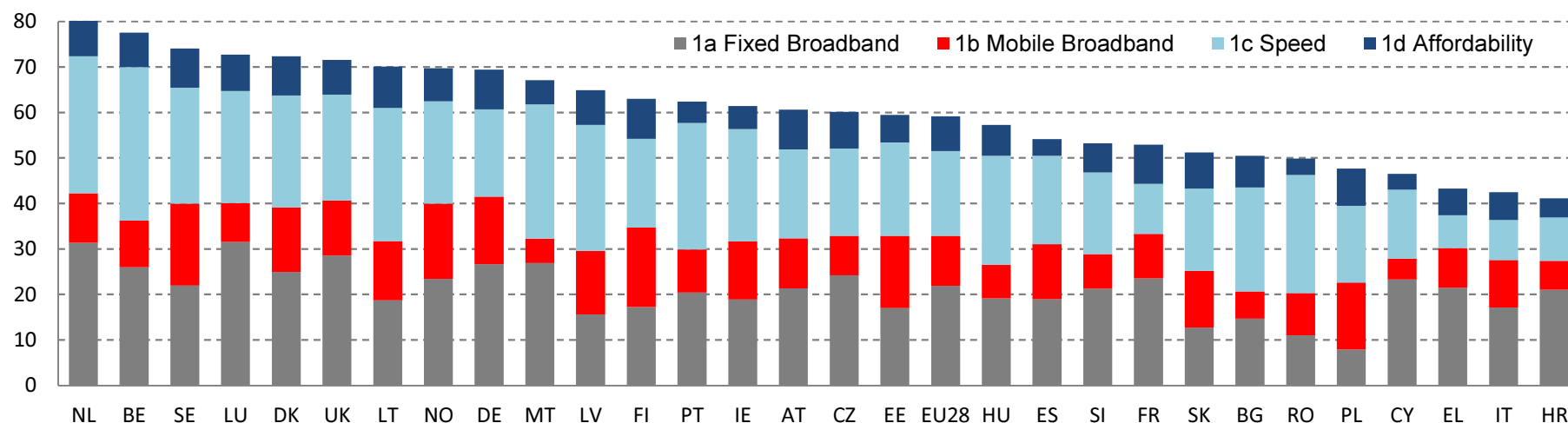
On the fixed side, Luxembourg, the Netherlands and the UK are the strongest, and Poland, Romania, Slovakia and Bulgaria the weakest. NGA subscriptions are particularly advanced in Belgium, Romania, the Netherlands and Lithuania.

As for mobile broadband, the Nordic countries (Finland, Sweden and Denmark) lead along with Estonia, while the lowest figures were registered by Hungary, Greece and Portugal.

Connectivity Indicators in DESI 2016	EU-28
1a1 Fixed BB Coverage % households	97 % (June 2015)
1a2 Fixed BB Take-up % households	72 % (2015)
1b1 Mobile BB Take-up Subscribers per 100 people	75 (June 2015)
1b2 Spectrum % of the target for spectrum to be harmonised at EU level	69 % (December 2015)
1c1 NGA Coverage % households, out of all households	71 % (June 2015)
1c2 Subscriptions to Fast BB % of subscriptions >= 30Mbps, out of fixed BB subscriptions	30 % (June 2015)
1d1 Fixed BB Price % individual gross income spent for the cheapest standalone Fixed Broadband subscription (lower values are better)	1.3 % (Access cost: 2015; Income: 2014)

Digital Economy and Society Index (DESI), Connectivity, 2016

Legend: ■ 1a Fixed Broadband ■ 1b Mobile Broadband ■ 1c Speed ■ 1d Affordability

Countries (left to right): NL, BE, SE, LU, DK, UK, LT, NO, DE, MT, LV, FI, PT, IE, AT, CZ, EE, EU28, HU, ES, SI, FR, SK, BG, RO, PL, CY, EL, IT, HR

Source: European Commission, Digital Agenda Scoreboard

Total telecom services revenues have declined by 10 % in Europe since 2012. **EU telecom CAPEX** has slightly increased in the same period.

Telecom operators in Europe generated less revenue than the US operators. Revenues went down from EUR 237 bn in 2012 to EUR 213 bn in 2016 (forecasted) in Europe. At the same time, the US also reduced its figures from EUR 252 bn to EUR 240 bn, surpassing Europe despite its smaller population. There have been large increases in emerging markets, especially in China, where there is still relatively low take-up of telecom services.

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).

Total telecommunication services revenues per region, billion EUR, 2012-2016

Legend: EU26, JAPAN, CHINA, US, Brazil
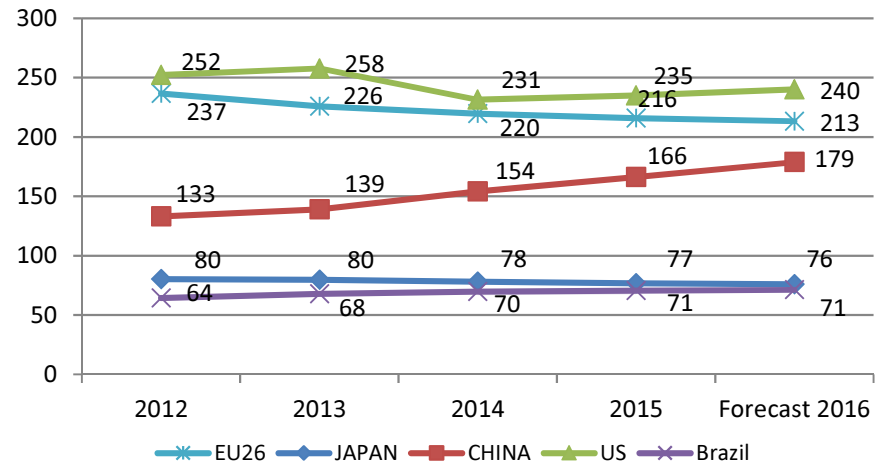
CAPEX figures remained stable over the last four years even though NGA coverage increased from 54 % to 71 %.

Mobile CAPEX spending represented 60 % of total spending

Share of fixed and mobile CAPEX in Europe, 2015

40%
60%

■ Mobile CAPEX spending   ■ Wireline CAPEX spending
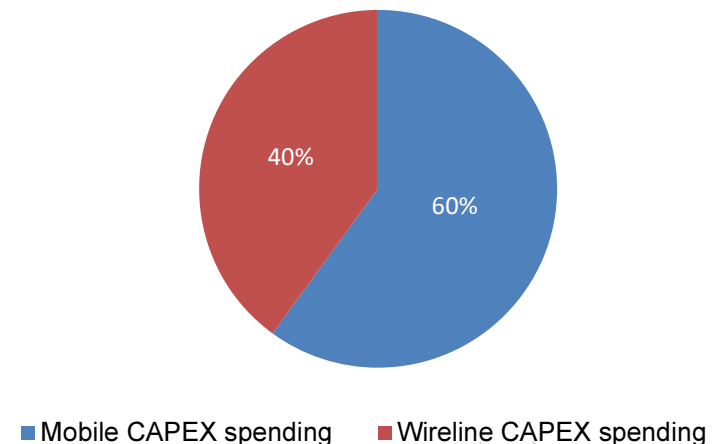
Source: 2015 EITO in collaboration with IDC.

Mobile voice and fixed voice revenues have decreased by over 25 % since 2012. **Mobile data** grew by 10 %, and will represent over a quarter of total telecom revenues at EU level in 2016.
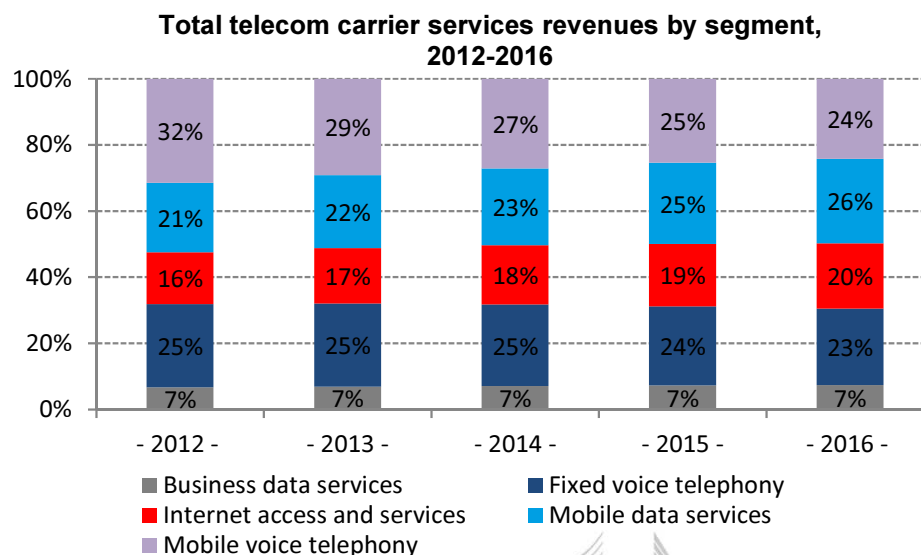
The revenues of the telecommunications sector went down by 10 % between 2012 and 2016 (forecasted figure).

Telecommunications revenues (carrier services) by segment showed, how voice services (both fixed and mobile) lost importance. Fixed voice decreased by 17.2 %, while mobile by 30.8 %. Fixed and mobile voice services made up 57 % of total telecom revenues in 2012, but will only represent 47 % in 2016.

Revenue growth rates 2012-2016	
Telecom carrier services	-10.0 %
Business data services	-0.8 %
Fixed voice telephony	-17.2 %
Internet access and services	13.1 %
Mobile data services	9.9 %
Mobile voice telephony	-30.8 %

By contrast, the growth in mobile data services (9.9 % between 2012 and 2016) is remarkable. Mobile data will represent over one quarter of total market revenue (26 %) in 2016. The growth in mobile data services could not, however, compensate for the major decline in voice.

Revenue from fixed internet access went up by 13.1 % since 2012, whereas business data services decreased by almost 1 % between 2012 and the forecasted figure for 2016, representing solely 7 % of total telecom revenue.

Total telecom carrier services revenues by segment, 2012-2016

	- 2012 -	- 2013 -	- 2014 -	- 2015 -	- 2016 -
Mobile voice telephony	32%	29%	27%	25%	24%
Mobile data services	21%	22%	23%	25%	26%
Internet access and services	16%	17%	18%	19%	20%
Fixed voice telephony	25%	25%	25%	24%	23%
Business data services	7%	7%	7%	7%	7%

■ Business data services   ■ Fixed voice telephony
■ Internet access and services   ■ Mobile data services
■ Mobile voice telephony

European Commission

In 2015, telecom operators continued to show significant interest in M&A in Europe, but cross-border mergers remain elusive. Mobile network owning operators continue to push for in-market consolidation.

Merger & acquisition (M&A) activity continued to be significant over the past year with several high value deals. Telecom operators showed a willingness to spend over EUR 45 bn* in 2015 in Europe to buy other *telco* or content companies. This is significant when compared to revenues of around EUR 216 bn in 2015**. Also, it does not include two proposed mobile joint ventures in Denmark and Italy.

* Based on reported values of the following acquisitions that were completed and/or negotiated and/or in the process of regulatory review in 2015: Liberty Global / controlling stake in De Vijver Media (Belgium — completed in 2015); Telia Sonera/Tele2 Norway (completed in 2015); Altice/PT Telekom (Portugal-completed in 2015), Orange/Jazztel (Spain — completed in 2015); Telefonica/DTS (Spain, completed in 2015), BT/EE (UK — completed in 2016), Hutchison/Telefonica UK (UK — blocked by the Commission in 2016); Liberty Global /Base (Belgium, cleared by the Commission in 2016); Altice/Bouygues (France-reportedly abandoned)

* * See slide 4

Truly cross-border mergers still seem to be elusive. In 2015 the main trend was still in-market consolidation or diversification in the same market.

Following acquisitions in Austria (2012), Ireland and Germany (2014), mobile companies continue to press for in-market consolidation in markets with four network-owning operators. This includes three large markets where four operators are still present. In the UK, Hutchison proposed to acquire Telefonica's UK subsidiary, O2. In Italy, Hutchison and Vimpelcom proposed to pool their mobile business in a joint venture. In France, Bouygues Telecom was first courted by Altice (Numericable) and then by Orange.

European Commission

Acquisitions by fixed operators seem to be driven to a significant extent by convergence, but can also lead to stronger fixed networks.

The highest value telecom deal agreed in 2015 was to create a leading fixed-mobile operator in the UK: the incumbent fixed operator in the UK agreed to buy the largest mobile operator, Everything Everywhere, a joint venture between Deutsche Telekom and Orange.

Liberty Global's acquisition of mobile operator Base in Belgium is another example of a large fixed operator buying its own mobile network.

The two acquisitions suggest that owning a mobile network is an advantage for a fixed operator, which is worth investing in even if the operator is already present in mobile as a virtual operator (and, in the case of Liberty Global in Belgium, had achieved a significant share of the market as a virtual operator).

Liberty Global's acquisition of two popular TV channels in Belgium and Telefonica's acquisition of leading pay-TV provider CanalPlus in Spain show the advantages for telco operators to own business providing content.

The Orange/Jazztel merger in Spain also led to a stronger converged player, combining Orange's mobile network with a combined fixed network of Orange and Jazztel. The Altice/PT Portugal deal saw Altice practically "swap" (as a result of the remedies) its cable company for the largest converged operator in Portugal.

European Commission

Based on European and national regulatory reviews of mergers, in-market consolidation continued to raise competition concerns. The combination of fixed and mobile networks was not considered problematic for competition, unlike the combination of fixed network operators with content providers.

Mergers **leading to in-market consolidation** continued to raise competition concerns and all but one of these mergers required an in-depth review. The Commission cleared the Orange/Jazztel merger and the Altice/PT Portugal merger subject only to remedies, including the divestment of fixed network assets. The Commission did not consider the remedies offered in the four to three MNO mobile mergers in Denmark and the UK as sufficient. These mergers did not go ahead. The Telia Sonera/Tele2 merger in Norway, which combined two of the three MNOs in the country, was cleared by the Norwegian competition authority subject to the divestment of network assets to allow the entry of a new MNO.

As for **'convergence mergers'** no competition concerns were raised by competition authorities due to the combination of fixed and mobile businesses per se. The BT/EE acquisition was cleared unconditionally by the UK competition authority. While competition concerns were raised in the case of Liberty Global's acquisition of MNO Base in Belgium, these were due to Liberty Global being in direct competition as an MVNO with Base in the Belgian mobile market. The Commission, however, approved the acquisition subject to remedies that allow at the same time a primarily media company in Belgium to become a full MVNO.

The acquisition of important content by telco operators with significant market positions raised concerns both in Belgium and in Spain. These were alleviated by remedies to ensure continued access to such content by rival telco operators.

European Commission

Broadband coverage: Basic broadband is available to everyone in the EU, while fixed technologies cover 97 %. Next generation access (NGA) covers 71 %, up from 68 % six months ago. Deployment of 4G mobile continued to increase sharply. Rural coverage remains significantly lower, especially in 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 97 % of EU homes.

NGA technologies (VDSL, Cable Docsis 3.0 and FTTP) capable of delivering at least 30 Mbps download are available to 71 %.

4G mobile (LTE) coverage increased by seven percentage points and reached 86 %.

Coverage in rural areas is substantially lower for fixed technologies (91 %), and especially for NGA (28 %).

Our Target

Basic broadband for all by 2013: 100 % in 2015

Fast broadband (>30Mbps) for all by 2020: 71 % in 2015

Total coverage by technology at EU level, Dec 2014 to Jun 2015
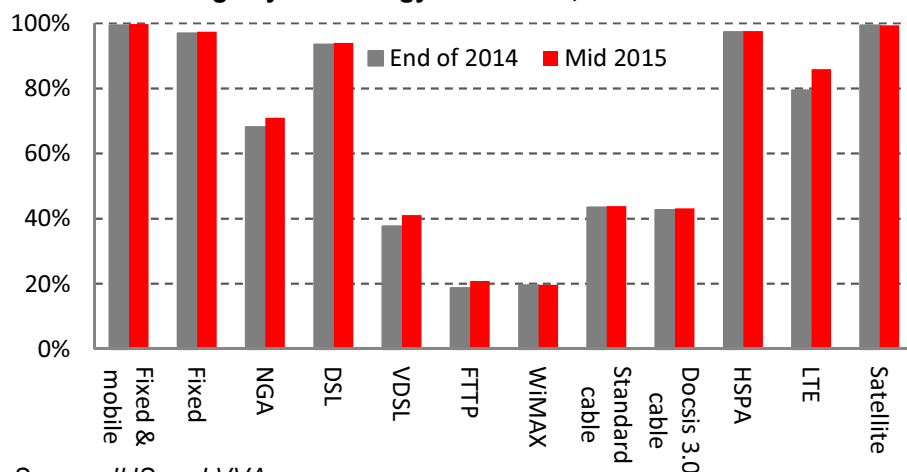
Source: IHS and VVA

Rural coverage by technology at EU level, Dec 2014 to Jun 2015

Source: IHS and VVA

European Commission
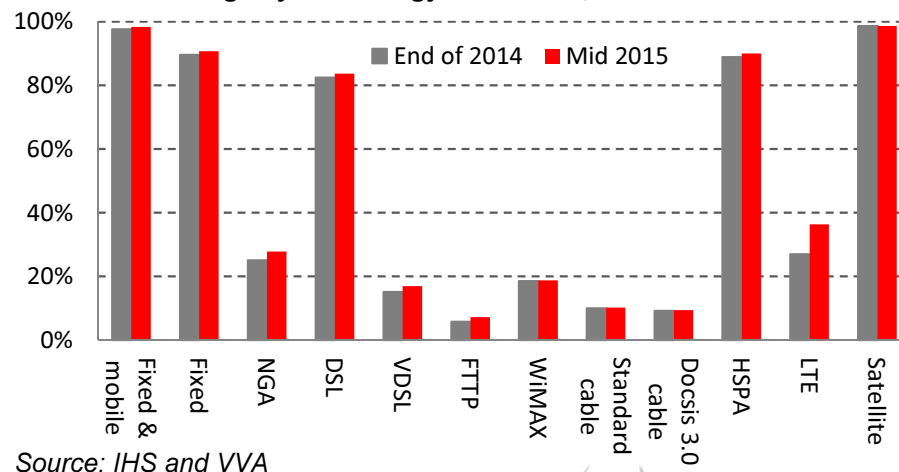
Coverage of fixed broadband remained at 97 %. In about half of the Member States more than 99 % of homes are covered. At the same time, Poland, Slovakia, Romania and Estonia are lagging behind with less than 90 %.

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 (20 %). Fixed coverage is the highest in the Member States with well-developed DSL infrastructures, and is over 90% in all but four Member States.

Overall coverage of fixed broadband has only marginally increased since 2011, but rural coverage improved by 11 percentage points. Developments have slowed down, as Member States rather focus on NGA and wireless technologies.

Fixed broadband coverage in the EU, 2011-2015

Source: IHS, VVA and Point Topic

Fixed broadband coverage, June 2015

Source: IHS and VVA

European Commission
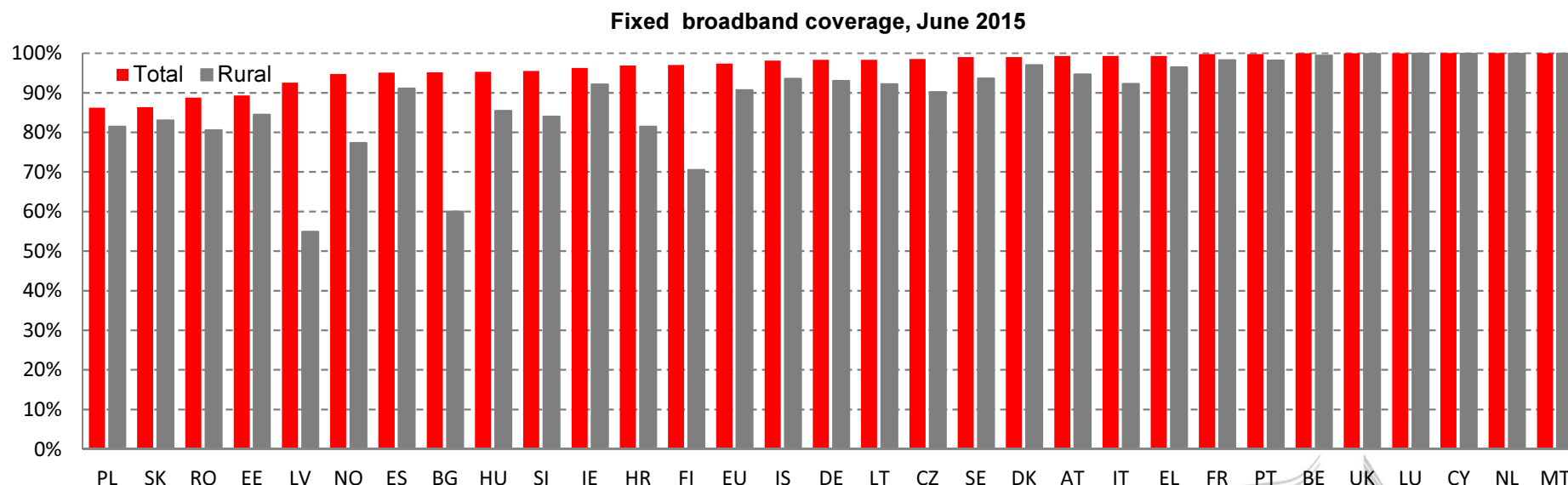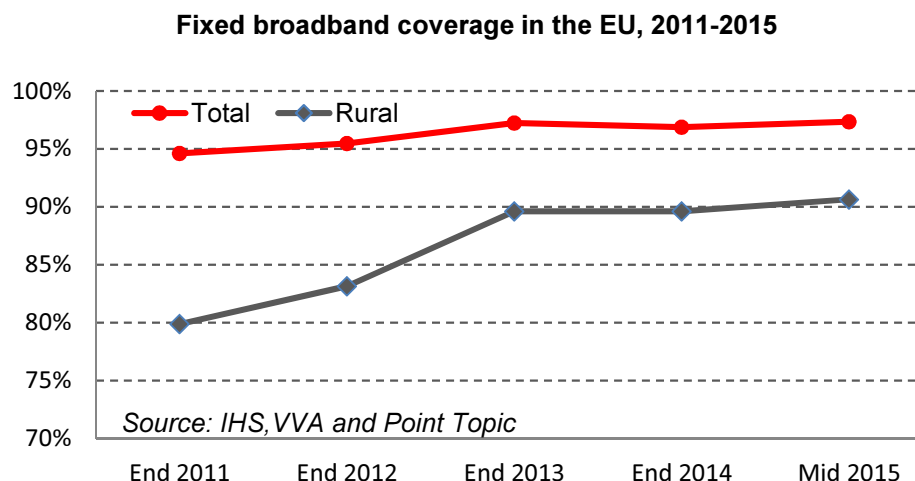
Coverage of next generation access (NGA) technologies continued to increase and reached 71 %. NGA deployments still focus mainly on urban areas, while only 28 % of rural homes are covered.

For the purpose of this report, next generation access includes VDSL, Cable Docsis 3.0 and FTTP. By mid-2015, Cable Docsis 3.0 had the largest NGA coverage at 44 %, followed by VDSL (41 %) and FTTP (21 %). Most of the upgrades in European cable networks had taken place by 2011, while VDSL coverage doubled in the last four years. There was remarkable progress also in FTTP growing from 10 % in 2011 to 21 % in 2015, but FTTP coverage is still low.

NGA networks are still very much limited to urban areas: only 28 % of rural homes are covered, mainly by VDSL.

Next generation access (NGA) broadband coverage in the EU, 2010-2015

Source: IHS, VVA and Point Topic
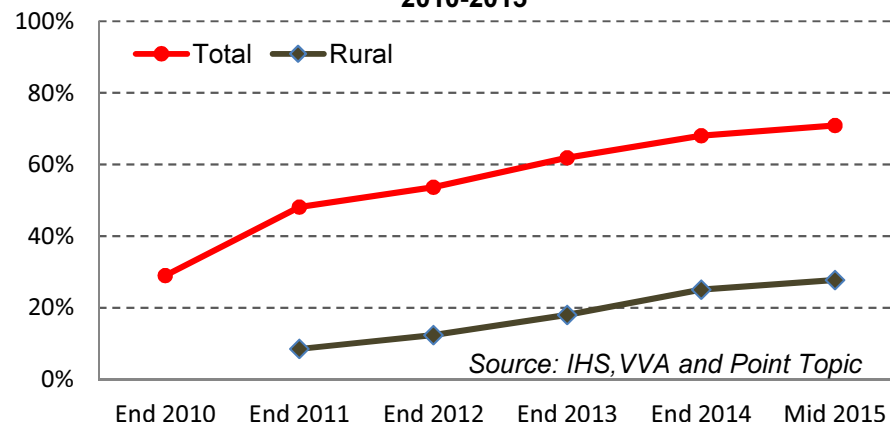
Next generation access (FTTP, VDSL and Docsis 3.0 cable) coverage, June 2015

Source: IHS and VVA

European Commission
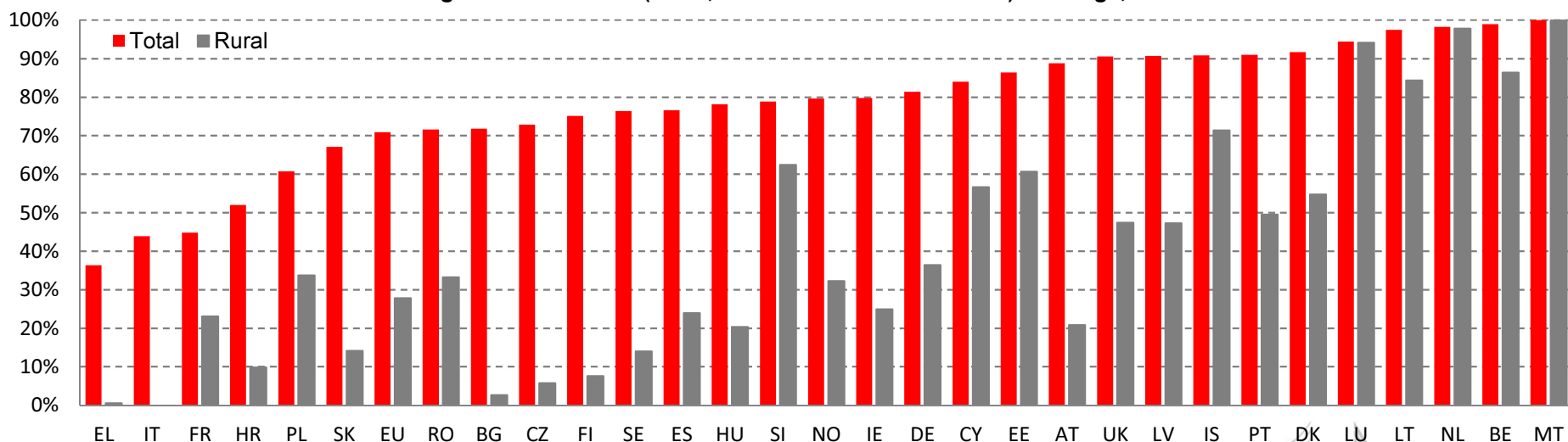
Coverage of fibre to the premises (FTTP) grew from 10 % in 2011 to 21 % in 2015, while it remains a primarily urban technology. Lithuania, Latvia, Portugal and Estonia are the leaders in FTTP in Europe.

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 Estonia, Portugal, Latvia and Lithuania more than two thirds of homes can already subscribe to FTTP services, while in Greece, the UK, Ireland, Germany, Austria and Poland only less than 10 % can do so. FTTP services are available mainly in urban areas with the exception of Lithuania, Latvia, Estonia, Denmark and Luxembourg, where more than one in three rural homes can also have access to it.

Fibre to the premises (FTTP) coverage in the EU, 2011-2015

Source: IHS, VVA and Point Topic
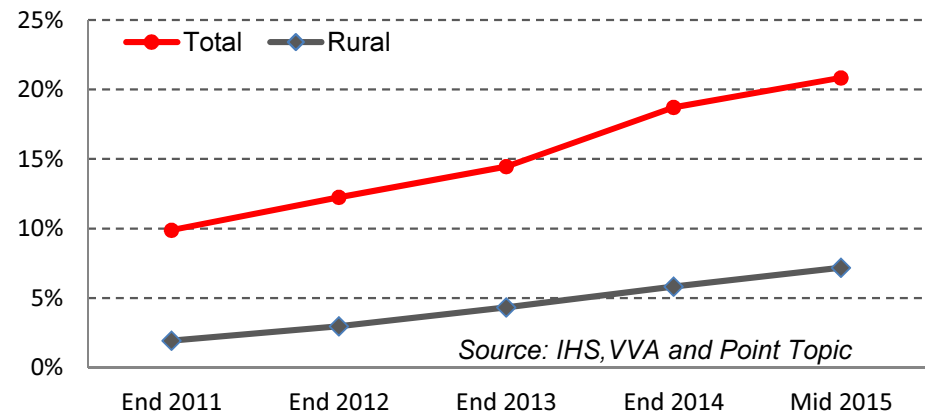
Fibre to the premises (FTTP) coverage, June 2015

Source: IHS and VVA

European Commission
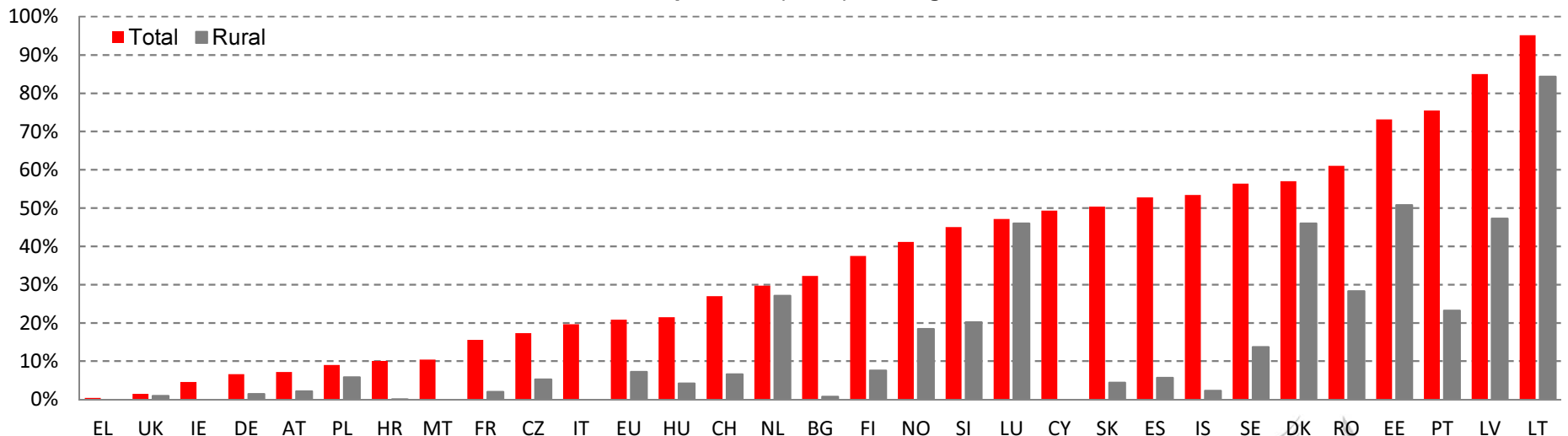
Overall fixed broadband and NGA broadband coverage by region.

Europe: Overall fixed broadband coverage, 2015

- 0% - <75%
- 75% - <90%
- 90% - <95%
- 95% - <100%
- 100%

Source: Broadband Coverage in Europe 2015, a study by IHS & VVA for the European Commission
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Europe: NGA broadband coverage, 2015

- 0%
- >0% - <35%
- 35% - <65%
- 65% - <100%
- 100%

Source: Broadband Coverage in Europe 2015, a study by IHS & VVA for the European Commission
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European Commission
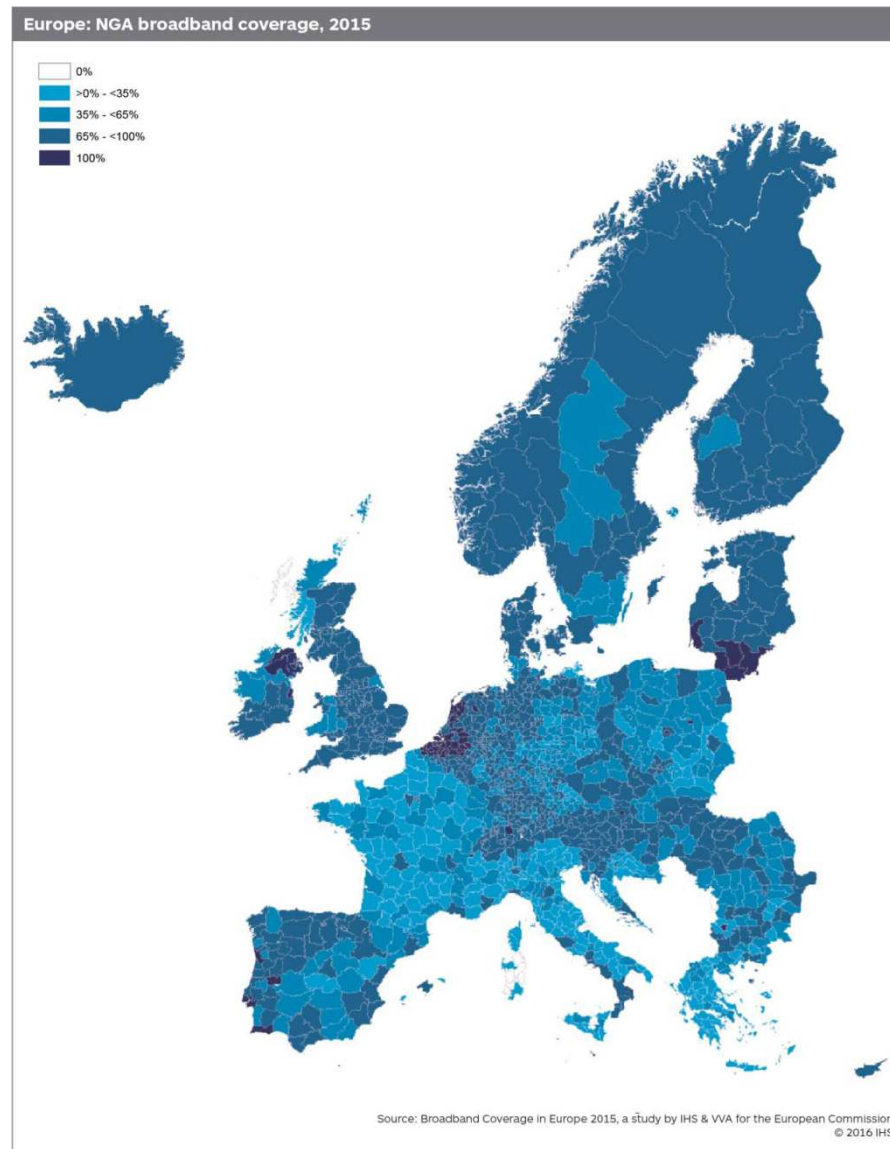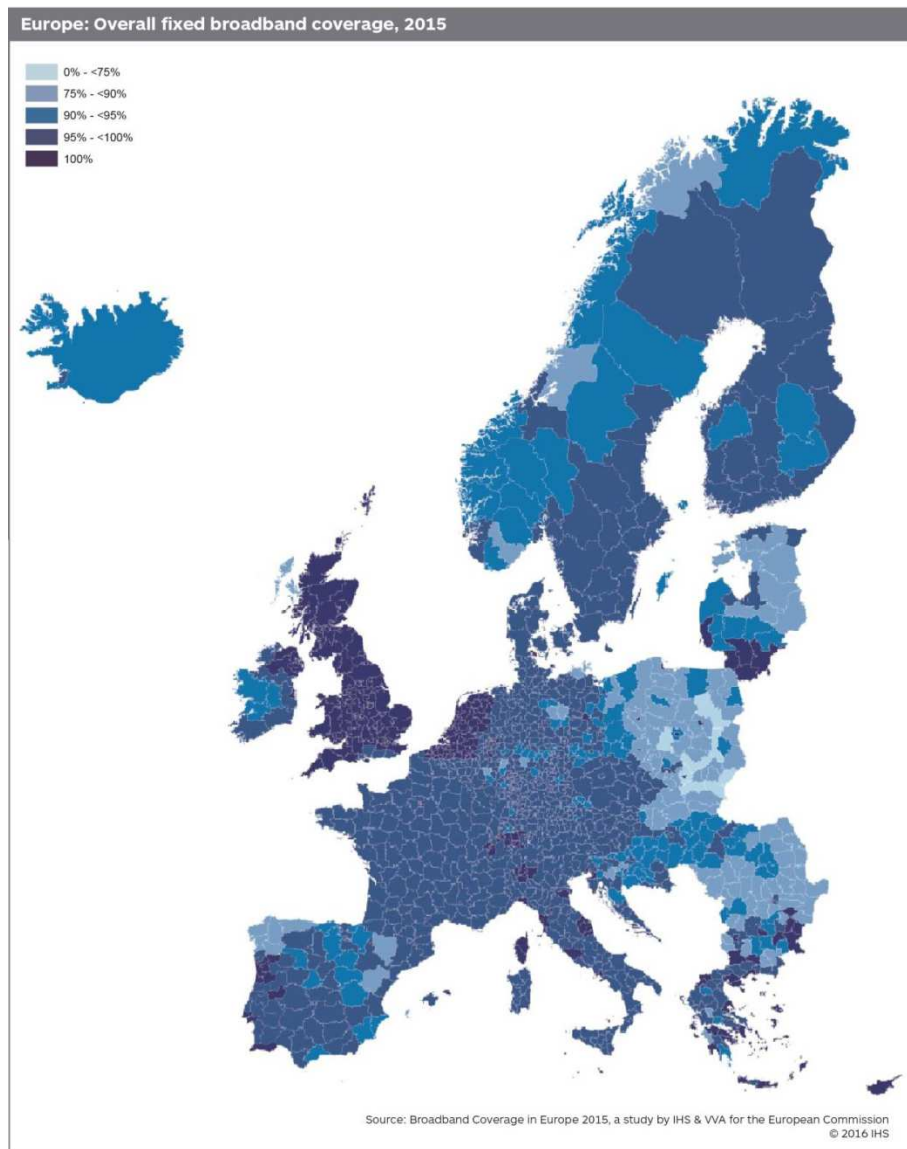
4G mobile broadband availability reached 86 %, up from 27 % in 2012. 4G has been commercially launched in all Member States.

In 2015, deployment of 4G (LTE) continued: coverage went up from 79 % of homes to 86 % in six months. Nevertheless, 4G coverage is still substantially below that of 3G (HSPA). As of October 2015, 80 % of Mobile Network Operators in the EU offered 4G services on LTE networks.

LTE is most widely developed in the Netherlands, Sweden and Denmark, while commercial 4G services were launched only last year in Bulgaria.

LTE deployment has focused so far mainly in urban areas, as only 36 % of rural homes are covered. However, in 14 Member States, LTE is also already available in the majority of rural homes, with very high rates in Denmark, Sweden, Slovenia, Luxembourg and the Netherlands.

Mobile broadband coverage in the EU, 2011-2015

Source: IHS, VVA and Point Topic

4G (LTE) coverage, June 2015

Source: IHS and VVA

European Commission

Broadband coverage by speed: 97% of European homes have access to at least 2 Mbps broadband, 68% to 30 Mbps.

Everyone in the EU can have access to broadband services, when considering fixed, mobile and also satellite technologies. These technologies normally provide more than 2 Mbps, but speed goes below this threshold for an estimated 3% of homes in Europe.

30 Mbps is available to 68 %, just below the NGA coverage of 71 %. At least 30Mbps broadband speed can be delivered through VDSL (but not for all connections), Cable Docsis 3.0, FTTP and to a lesser extent through LTE. It is assumed that Cable Docsis 3.0 and FTTP can deliver at least 30Mbps on their entire footprint.

The majority of VDSL connected homes connected homes can also access 30 Mbps, while actual speeds on LTE networks are typically below this level.

100 Mbps or more is available to around one in two EU homes, delivered either on FTTP or Cable Docsis 3.0 networks.

Speed definition: *actual download speeds are assessed, which users can typically reach most of the time during peak hours.*

Broadband coverage by speed at EU level, 2013-2015
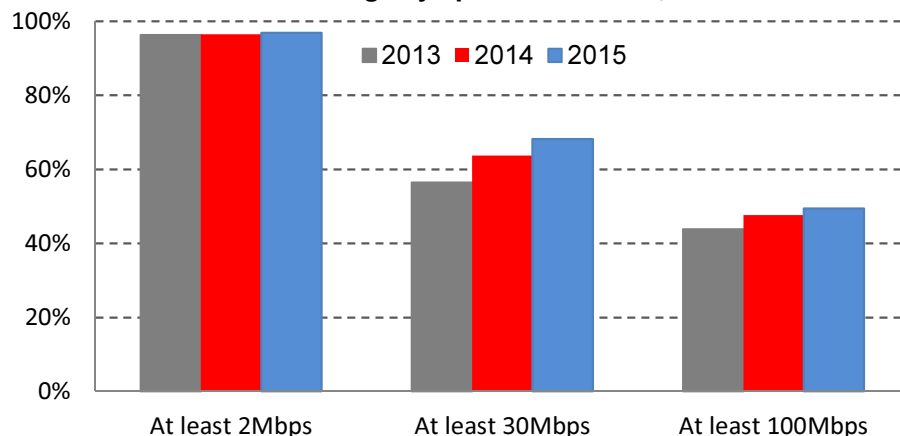
Source: IHS and VVA

Broadband coverage by speed and technology, June 2015


Source: IHS and VVA

European Commission
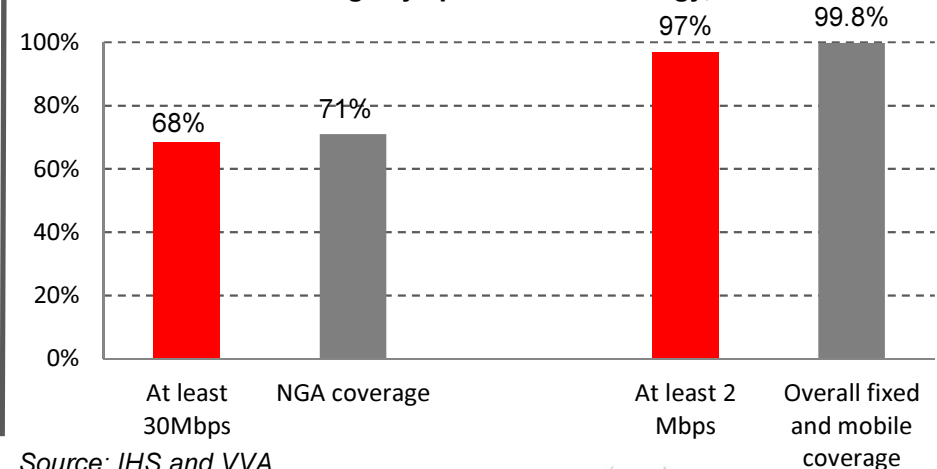
72 % of EU homes had a fixed broadband subscription in 2015. Luxembourg, the Netherlands and the UK registered the highest figures in the EU, while Italy, Bulgaria and Poland had the lowest take-up rates.

Although fixed broadband is available to 97 % of EU homes, 28 % of them do not have a subscription. Growth in take-up was very strong until 2009, but then slowed down in the last few years. This is partially due to fixed-mobile substitution (see slide 34).

At Member State level, take-up rates ranged from only 53 % in Italy to 94 % in Luxembourg.

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

Households with a fixed broadband subscription, 2007 – 2015*
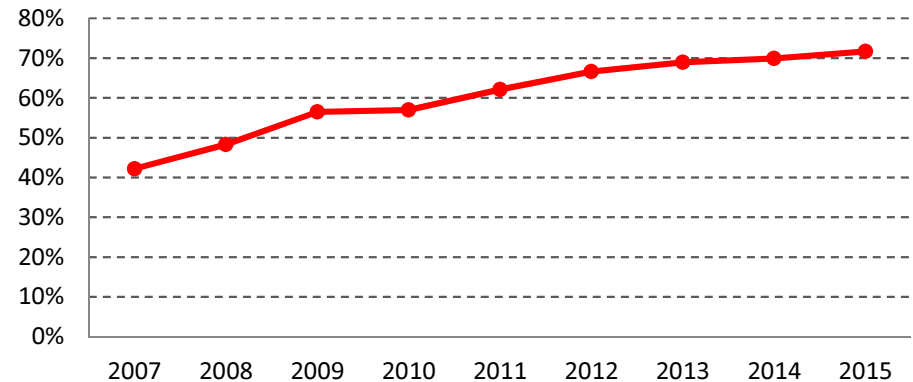
Source: Eurostat

Households with a fixed broadband subscription, 2015

Europe's Digital Progress Report 2016 – Connectivity

European Commission
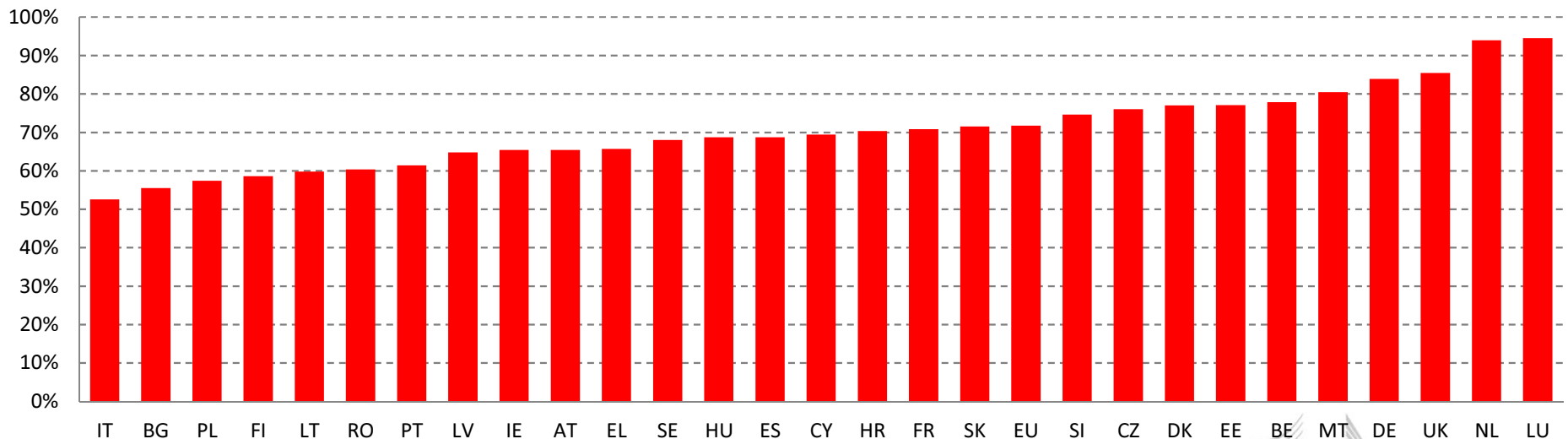
63 % of rural homes had a fixed broadband subscription across the EU in 2015. Luxembourg, the Netherlands, the UK and Germany registered the highest figures, while in six Member States, less than half of the homes subscribed.

There is a substantial gap between rural and national penetration rates, although the gap became smaller over the last five years (from 11 percentage points in 2010 to 9 percentage points in 2015).
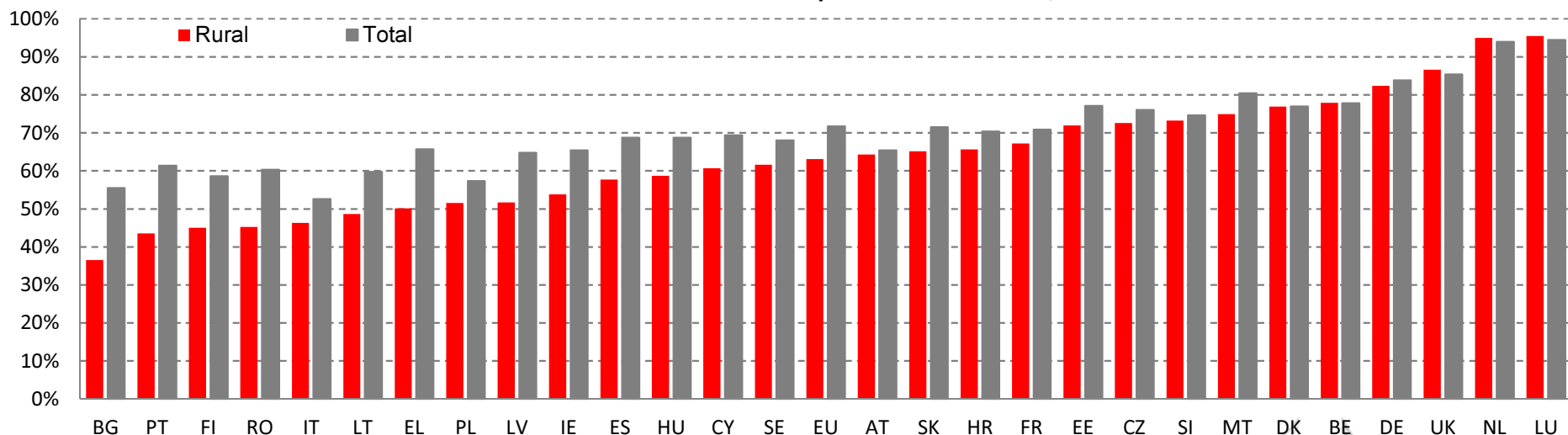
In Luxembourg, Germany, the UK, Belgium, Denmark, Austria and Slovenia, rural and national penetration rates are almost identical. However, in Portugal, Greece, Romania and Bulgaria, where rural take-up is the lowest in Europe, there are significant gaps of 15-18 percentage points compared to the national take-up.

Households having a fixed broadband connection per area at EU level, 2010-2015

Legend: Total, Urban areas, Intermediate areas, Rural areas
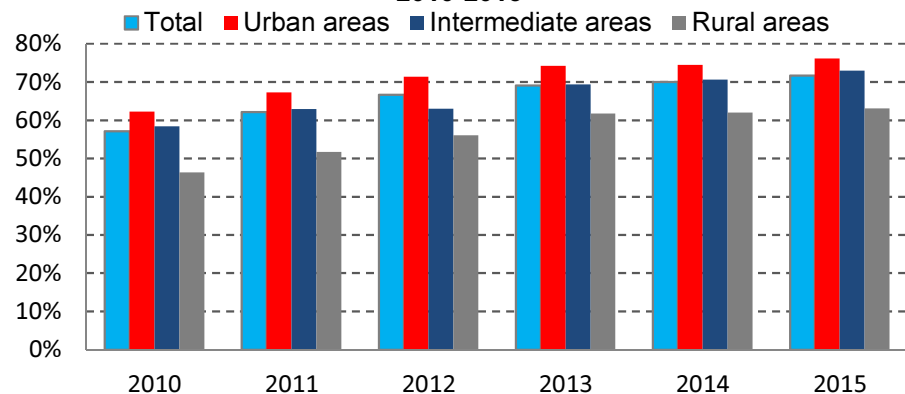
Source: Eurostat

Household fixed broadband penetration rural/total, 2015

Legend: Rural, Total

Source: Eurostat

Europe's Digital Progress Report 2016 – Connectivity

European Commission

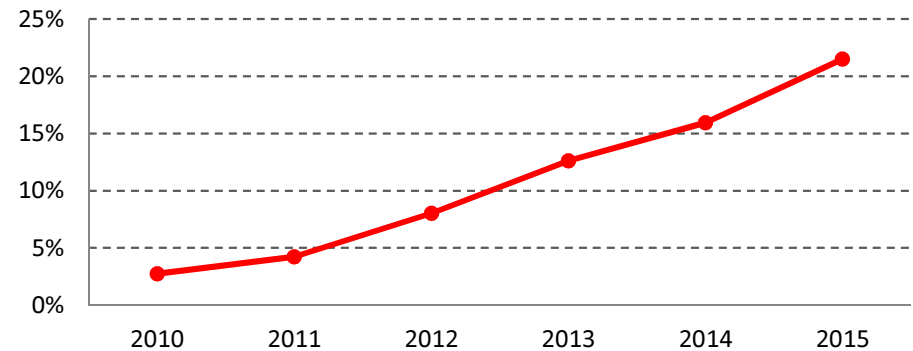**22 % of European homes subscribe to fast broadband access of at least 30 Mbps. There has been a significant increase since 2010. Belgium, the Netherlands and Malta are the leaders in Europe in fast broadband take-up.**

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 more than half of homes already subscribe to fast broadband, while in Croatia, Greece, Italy and Cyprus, high-speed services still remain marginal.

Percentage of households with a fast broadband (at least 30Mbps) subscription at EU level, 2010-2015

Source: Communications Committee and Eurostat

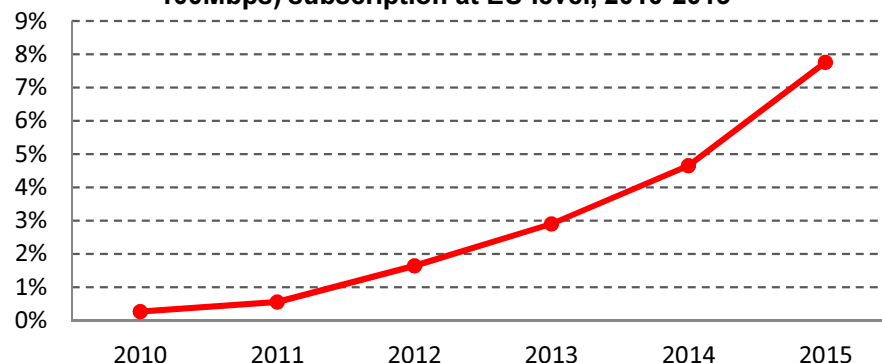**Fast broadband (at least 30Mbps) household penetration, July 2015**
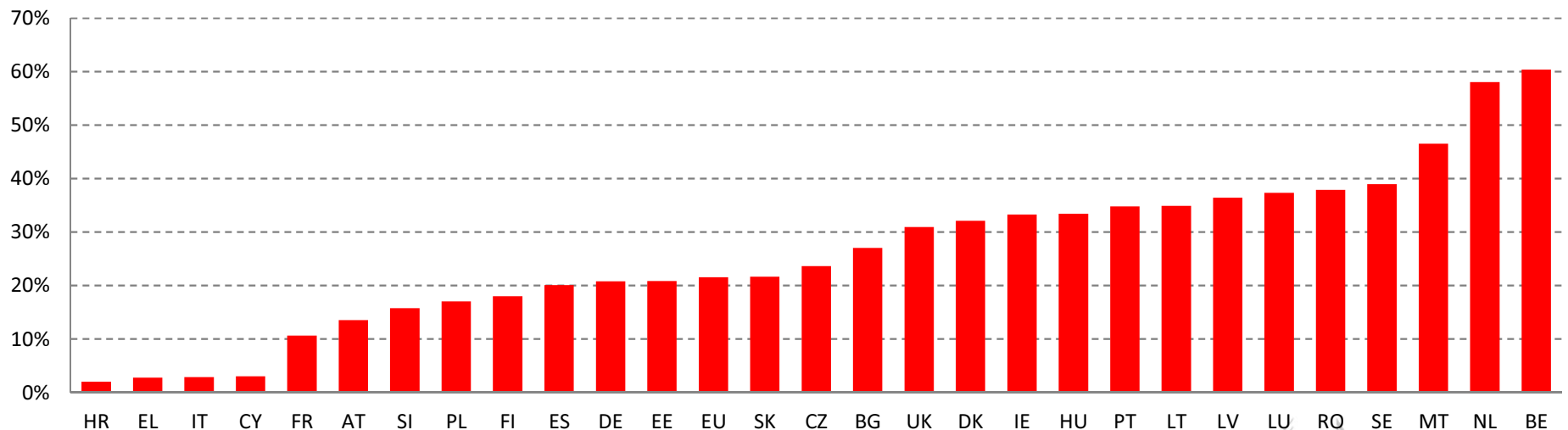
An estimated 8 % of European homes subscribe to ultrafast broadband (at least 100 Mbps), up from 0.3 % five years ago. Romania, Sweden and Latvia are the most advanced in ultrafast broadband adoption.

The Digital Agenda for Europe set the objective that at least 50 % of homes should subscribe to ultrafast broadband by 2020. From June 2015, 49 % of homes are 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, Sweden and Latvia. These three Member States have a high coverage of FTTP. In Greece, Italy and Croatia take-up is low mainly due to the lack of superfast infrastructure, while in Cyprus and Malta, where the infrastructure is available for many homes, still mainly lower speed offers are purchased.

Percentage of households with an ultrafast broadband (at least 100Mbps) subscription at EU level, 2010-2015

Source: Communications Committee and Eurostat

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


Source: Communications Committee and Eurostat

European Commission
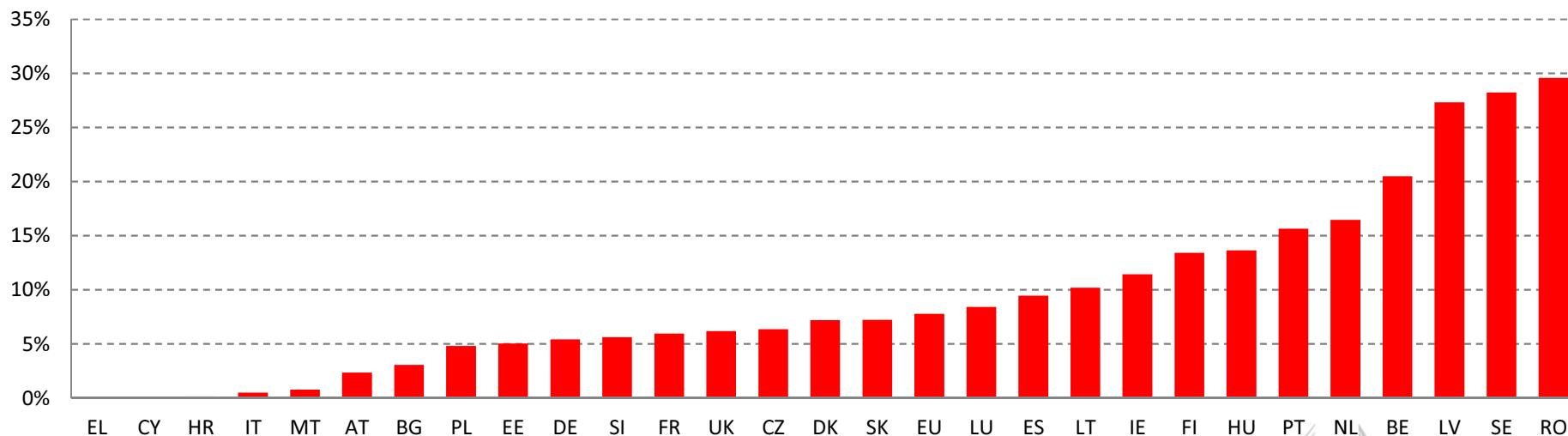
At EU level, 93 % of companies have a fixed broadband subscription. While almost all large companies use broadband, 8 % of small enterprises are not yet connected.

Enterprise connectivity went up from 84 % in 2010 to 93 % in 2015. Almost all large enterprises had a broadband subscription already in 2010, while there was a significant increase in the adoption of broadband in small and medium enterprises in the last five years. In medium-sized enterprises, the take-up rate grew from 92 % in 2010 to 97 % in 2015. At the same time, there was a 10 percentage point increase in penetration among small enterprises, but still 8% of small companies remain unconnected.

Percentage of enterprises having a fixed broadband connection at EU level, 2007-2015
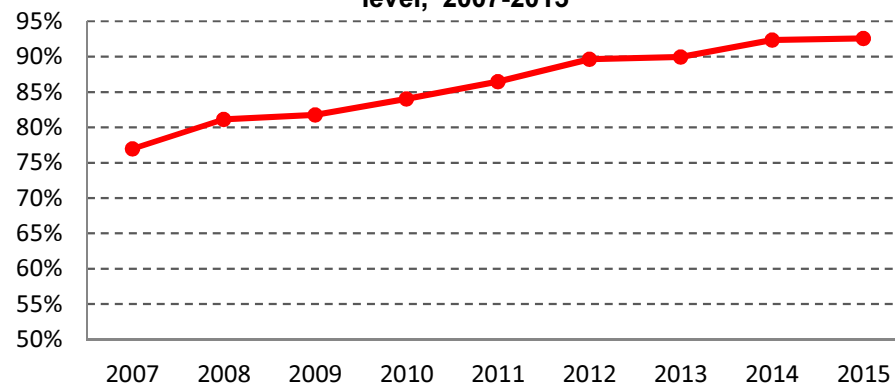
Source: Eurostat

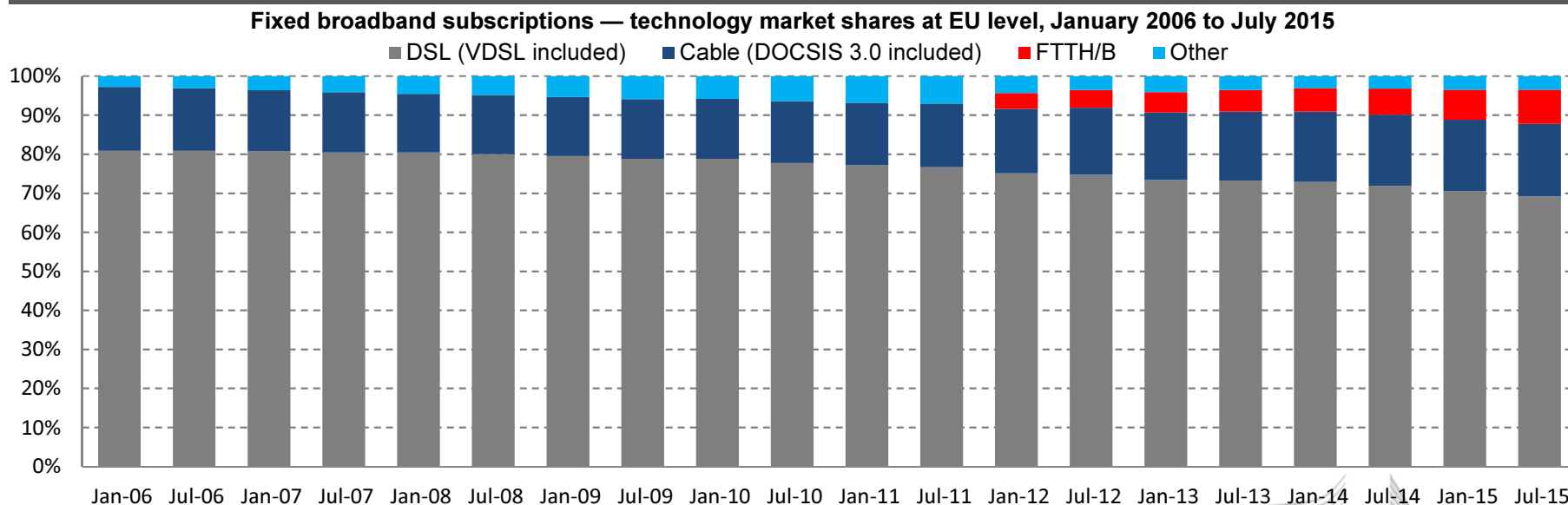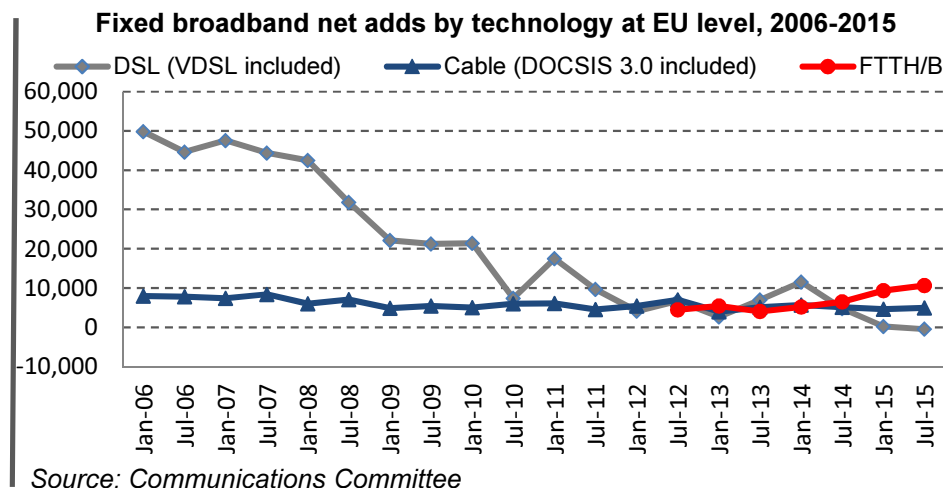**Percentage of enterprises having a fixed broadband connection, by enterprise size at EU level, 2010-2015**

■ Total ■ Small ■ Medium ■ Large

Source: Eurostat

European Commission
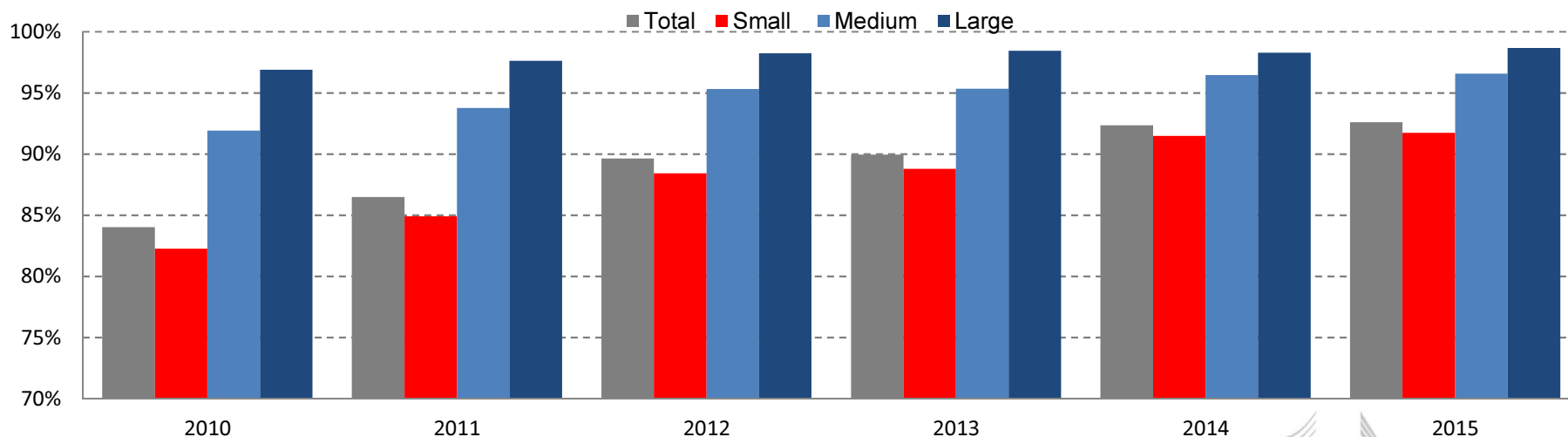
69 % of subscriptions are xDSL, although xDSL is slightly losing market share. Cable is second with 19 % of the market. Fibre to the Home/Building is emerging.

Although DSL is still the most widely used fixed broadband technology, its market share declined from 80 % in 2009 to 69 % in 2015. The main challenger — cable — increased slightly its share during the same time period, but most of the gains were posted by alternative technologies, especially FTTH/B.

Nevertheless, DSL continues to be predominant, and its market share can be strengthened thanks to the increasing VDSL coverage.
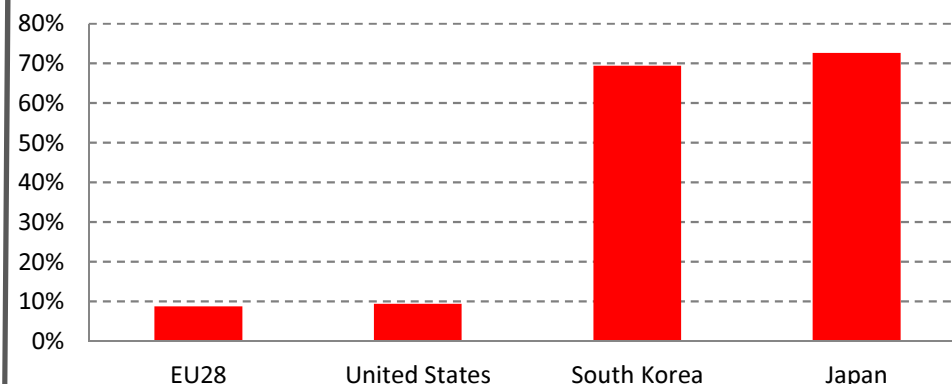
Fixed broadband net adds by technology at EU level, 2006-2015

Source: Communications Committee

Fixed broadband subscriptions — technology market shares at EU level, January 2006 to July 2015

Source: Communications Committee

European Commission

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 14 % 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 9 % of EU broadband subscriptions up from 7 % a year ago. In these technologies, Europe is still very much lagging behind South Korea and Japan.

Share of fibre connections in total fixed broadband, July 2015

Source: OECD and Communications Committee

Fixed broadband subscriptions — technology market shares, July 2015

- DSL lines % (VDSL included)
- Cable modem % (DOCSIS 3.0 included)
- FTTH/B %
- Other %
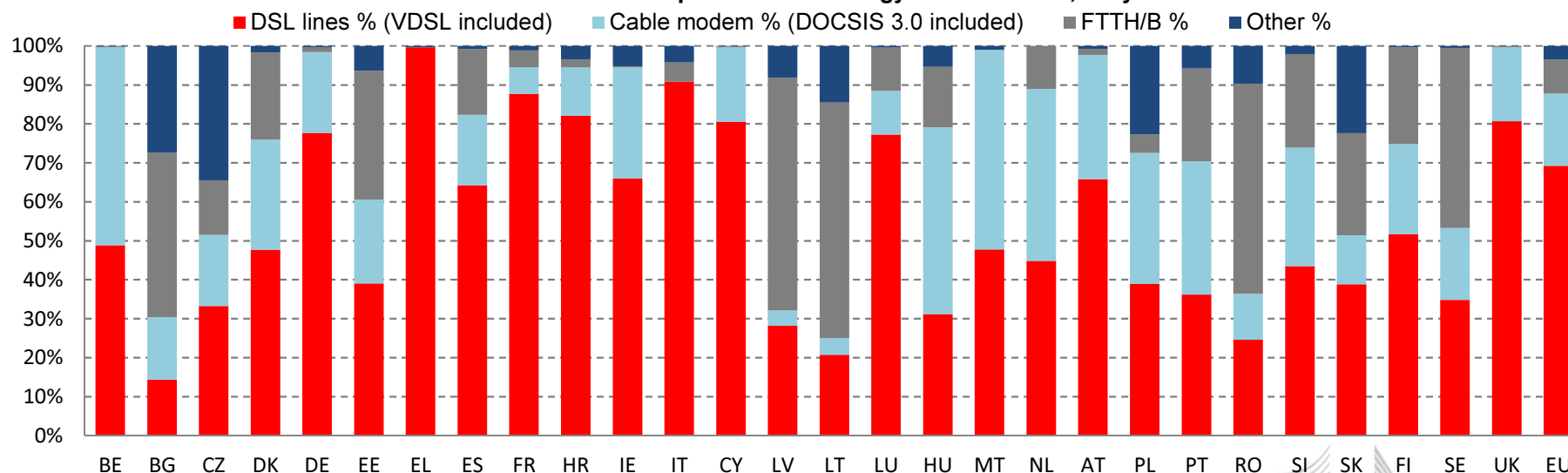
Source: Communications Committee

NGA subscriptions went up sharply by 21 million in the last two years, but only 35 % of all subscriptions are NGA. In Belgium and Romania, over 70 % of fixed broadband subscriptions are NGA, while the same ratio is less than 10 % in Greece, Cyprus and Italy.

Next Generation Access accounts for 35% of all EU fixed broadband subscriptions. The increase in NGA was mainly attributed to cable. 84 % of cable subscriptions have been upgraded to DOCSIS 3.0.

In the last 12 months, VDSL grew by 6.8 million, FTTH/B by 3.6 million and Cable Docsis 3.0 by 2.7 million.

The majority of broadband subscriptions are NGA in Belgium, Romania, Bulgaria, Latvia, the Netherlands, Sweden, Portugal, Lithuania, Malta, Denmark, Finland and Ireland. At the same time, Cyprus, Greece and Italy are very much lagging behind all other Member States.

Evolution of NGA subscriptions (in millions) in the EU, 2012-2015
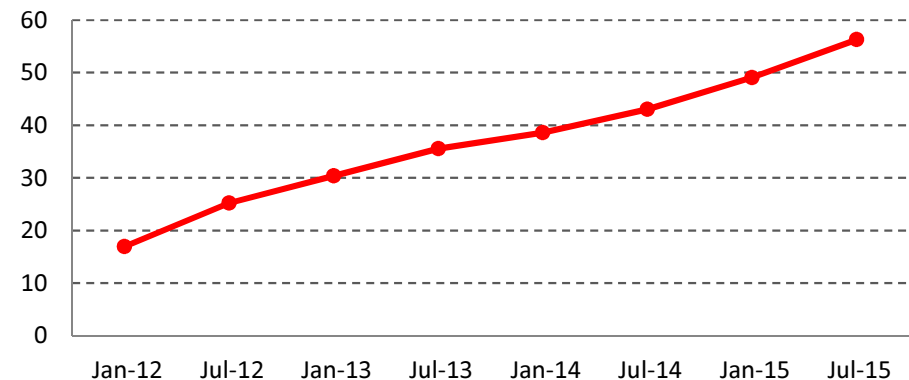
Source: Communications Committee

NGA (FTTH, FTTB, VDSL, Cable Docsis 3.0 and other NGA) subscriptions as a % of total fixed broadband subscriptions, July 2015
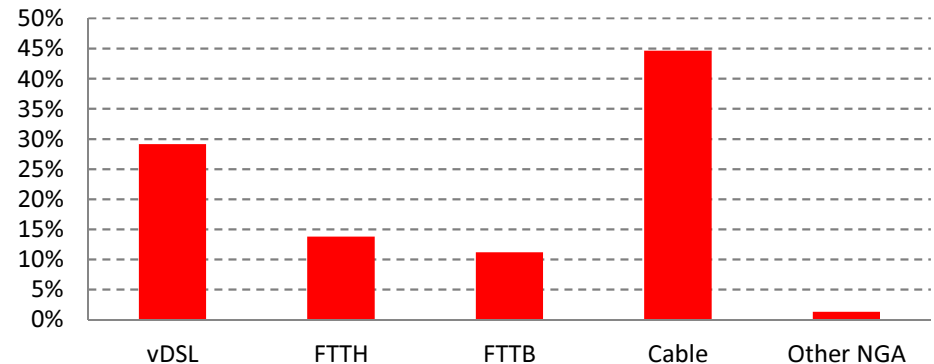

Source: Communications Committee

European Commission
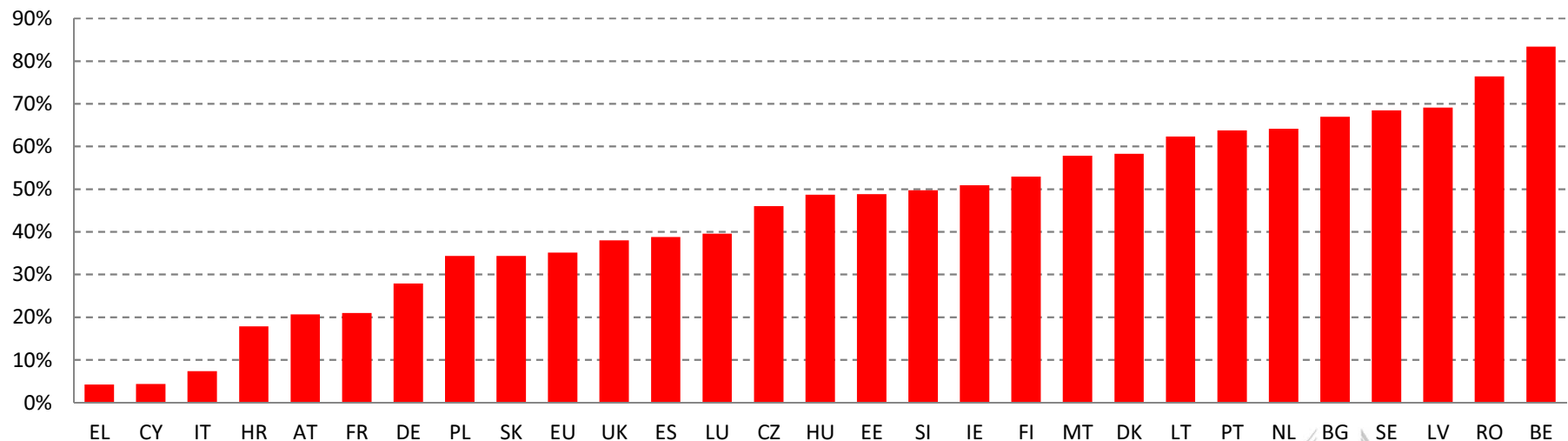
Cable Docsis 3.0 is currently the most widespread NGA technology in the EU both in coverage and take-up. **VDSL** subscriptions went up by 33% in the last six months.

45 % of NGA subscriptions are Docsis 3.0, which is remarkable since 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 44 % of xDSL network is VDSL-enabled. Nevertheless, VDSL coverage went up by 9 % and the number of subscriptions by 33 % in the last six months. FTTH and FTTB have a 14 % and 11 % share in total NGA subscriptions, respectively.

Share of different NGA technologies in total NGA subscriptions at EU level, July 2015

Source: Communications Committee

NGA subscriptions (millions) by technology at EU level, January 2012 to July 2015
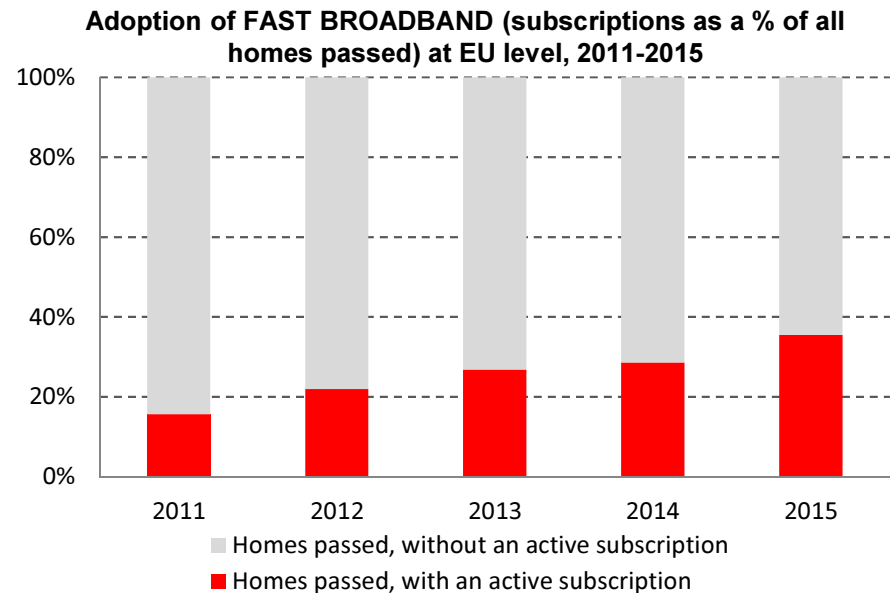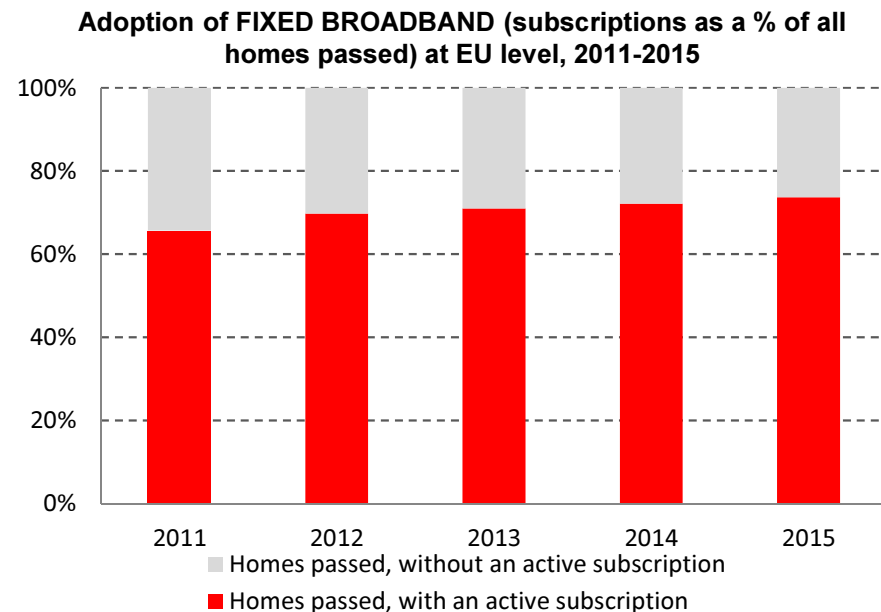

Source: Communications Committee

European Commission
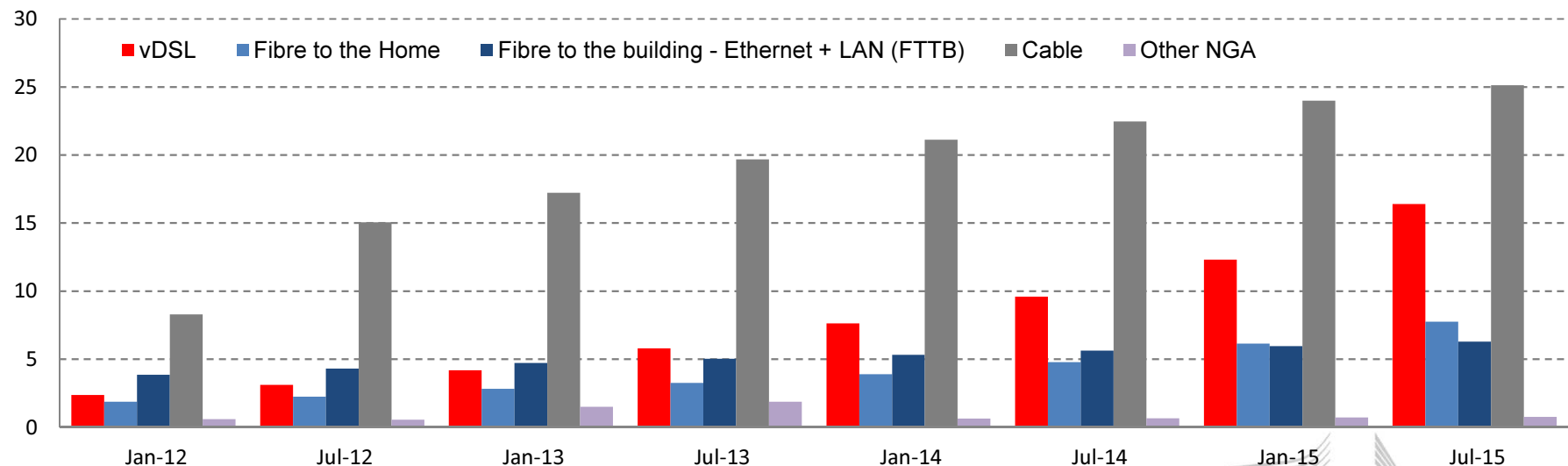
Fast broadband is available to 71 % of European homes, 35 % of these homes *(which equals to 25% of all European homes)* already subscribe.

Overall, fixed broadband (of at least basic quality) is available to 97 % of European homes, and 72 % subscribe meaning that more than three quarters of homes covered by a fixed technology have an active subscription. While overall fixed broadband coverage is close to be ubiquitous, the increase in subscriptions is slowly reaching saturation.

By contrast, for fast broadband technologies (capable of providing 30Mbps and above) both the coverage and the take-up are increasing. Demand is catching up with ongoing deployment, as the active versus all homes passed ratio went up from 16 % in 2011 to 35 % in 2015.
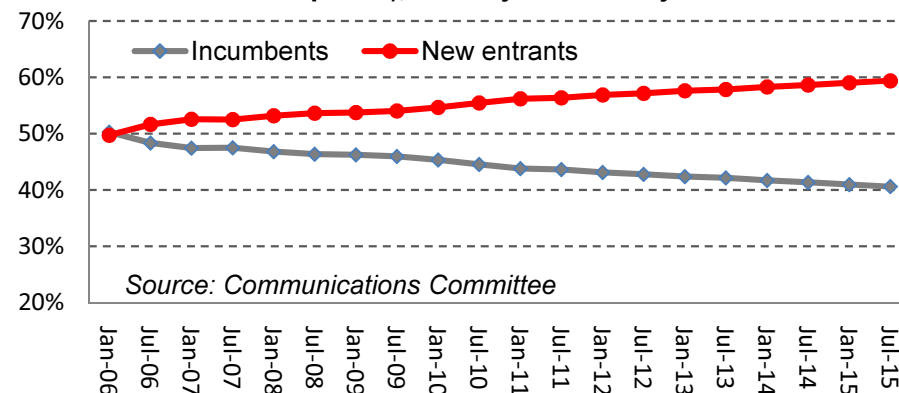
Adoption of FIXED BROADBAND (subscriptions as a % of all homes passed) at EU level, 2011-2015

Adoption of FAST BROADBAND (subscriptions as a % of all homes passed) at EU level, 2011-2015

Homes passed, without an active subscription
Homes passed, with an active subscription

Source: Commission services based on the Communications Committee, Eurostat and IHS & VVA

European Commission

Competition in the fixed broadband market: new entrant operators are continuously gaining market share, but incumbents still control 41 % of subscriptions.
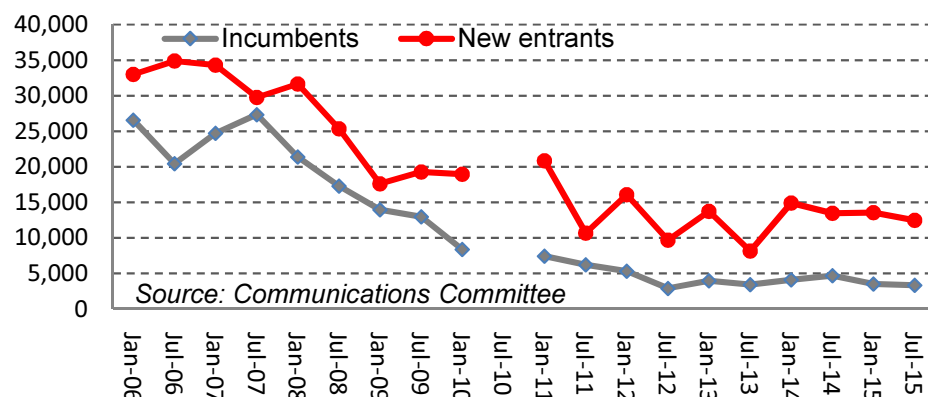
Incumbent operators are market leaders in almost all Member States, although their market share is decreasing. During the last 10 years, new entrant operators always posted higher net gains then the incumbents. In the last six months, new entrants yielded 79 % of the total net gain in the market. This, however, could not result in a significant change in the overall market share of new entrants because of the low growth rate of the total market.*

* Break in series in July 2010 due to modification of historical data.
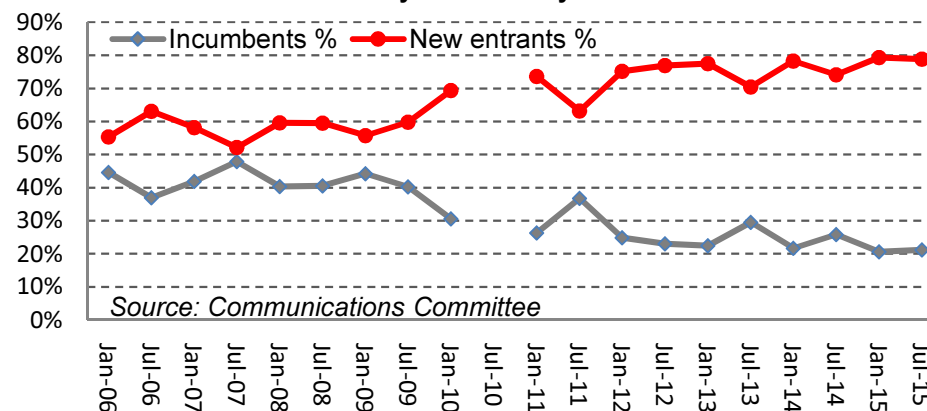
Fixed broadband subscriptions - operator market shares at EU level (% of subscriptions), January 2006 to July 2015

Source: Communications Committee

Fixed broadband subscriptions growth per day by operator at EU level, January 2006 to July 2015

Source: Communications Committee

Fixed broadband subscriptions growth per day by operator at EU level, January 2006 to July 2015

Source: Communications Committee

European Commission

Market share of incumbents show very large differences across Europe. In 7 out of the 28 Member States, more than half of the subscriptions are provided by incumbent operators.

Market shares are calculated at national level for incumbents and new entrants. However, broadband markets are geographically fragmented suggesting that a large number of homes are served by only one provider (most likely by the incumbent operator in this case).

Incumbents have the highest subscription market share in Luxembourg and Cyprus, where the small market size may favour concentration. Incumbents are the weakest in Europe in four Member States: Bulgaria, Romania, the Czech Republic and Poland. In all these four Member States, most of the subscribers use technologies other than xDSL.

**Fixed broadband subscriptions - operator market shares, July 2015**
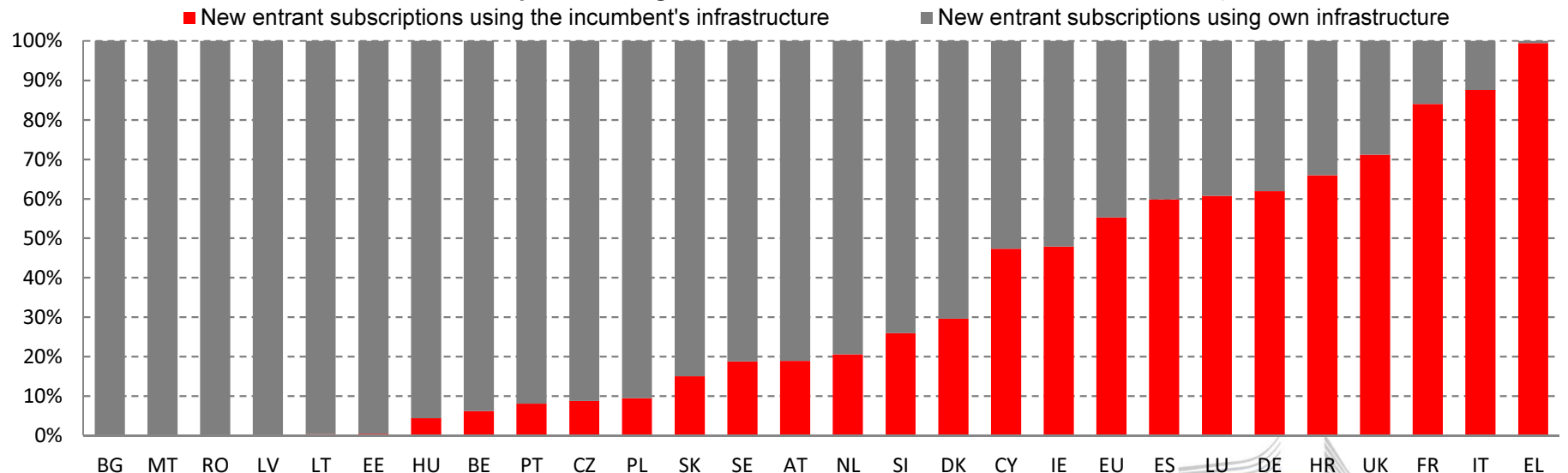

Source: Communications Committee

European Commission
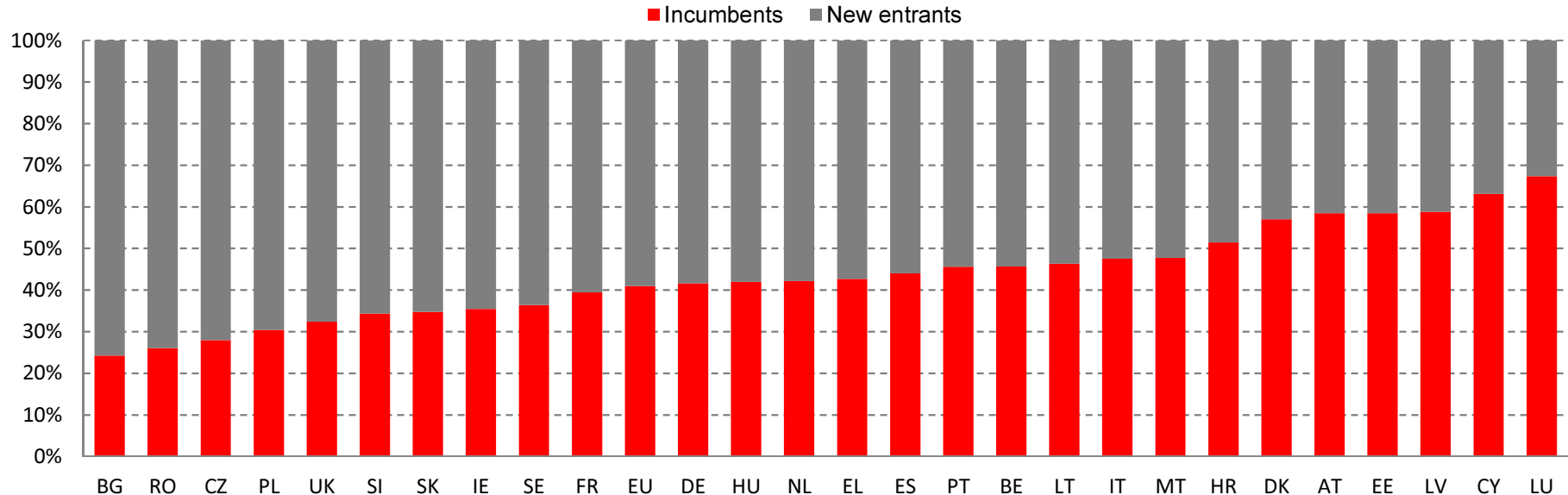
In the DSL market, unbundling reduced the dominance of incumbents, but in VDSL incumbents hold 63 % of subscriptions. Nevertheless, NGA is provided mainly by new entrants because of the high share of cable.

New entrant operators can compete with incumbents by using either the incumbent's network or their own network to offer internet access. In Greece, competition is entirely based on regulated access to the incumbent's access network, while in Italy and France over 80 % of subscriptions are DSL. In eastern European Member States, competition is rather based on competing infrastructures. This applies also to Belgium, Malta, Portugal and the Netherlands.

Incumbent's market share by technology (% of subscriptions) at EU level, July 2015

Source: Communications Committee
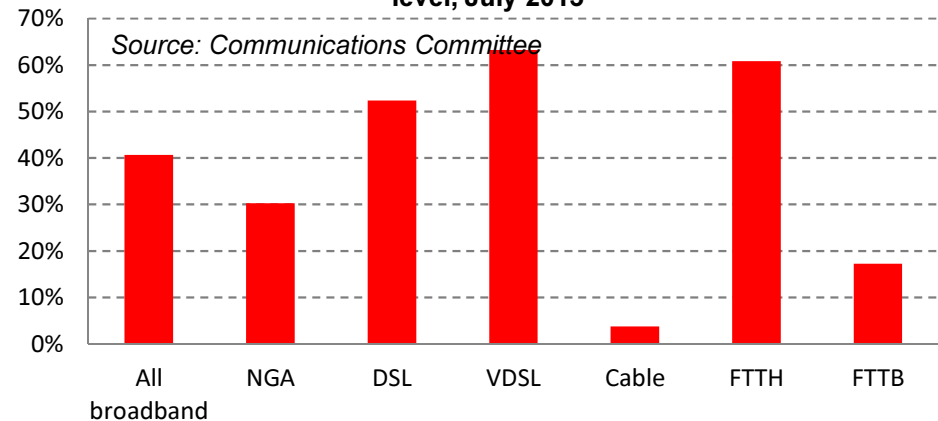
New entrants' subscriptions - using own infrastructure or the incumbent's network, July 2015

■ New entrant subscriptions using the incumbent's infrastructure   ■ New entrant subscriptions using own infrastructure

Source: Communications Committee

European Commission

52 % of DSL subscriptions belong to incumbents. New entrants mainly use Local Loop Unbundling to sell DSL. In six Member States, the new entrants' presence in the DSL market is marginal.

In Bulgaria, Romania, Latvia, Malta, Estonia and Lithuania, there is virtually no competition in the DSL market. These Member States, however, have strong platform competition. At the same time, in the UK, Greece, France, Italy and Spain, new entrants account for the majority of xDSL subscriptions. In all these Member States, the vast majority of new entrants' DSL subscriptions are provided through Local Loop Unbundling, but in Italy bitstream is also important.

New entrants' DSL subscriptions by type of access at EU level (VDSL excluded), 2012-2015

Legend: Own network — Full ULL — Shared access — Bitstream — Resale

Y-axis: 0; 10,000,000; 20,000,000; 30,000,000; 40,000,000; 50,000,000
X-axis: Jul-12, Jul-13, Jul-14, Jul-15

Source: Communications Committee

DSL subscriptions - operator market shares (VDSL included), July 2015

Legend: ■ Incumbent   ■ New entrants

X-axis: UK, FR, EL, ES, IT, EU, IE, DE, SI, HR, SE, DK, NL, LU, SK, PL, CY, CZ, PT, AT, HU, BE, LT, EE, LV, MT, RO, BG
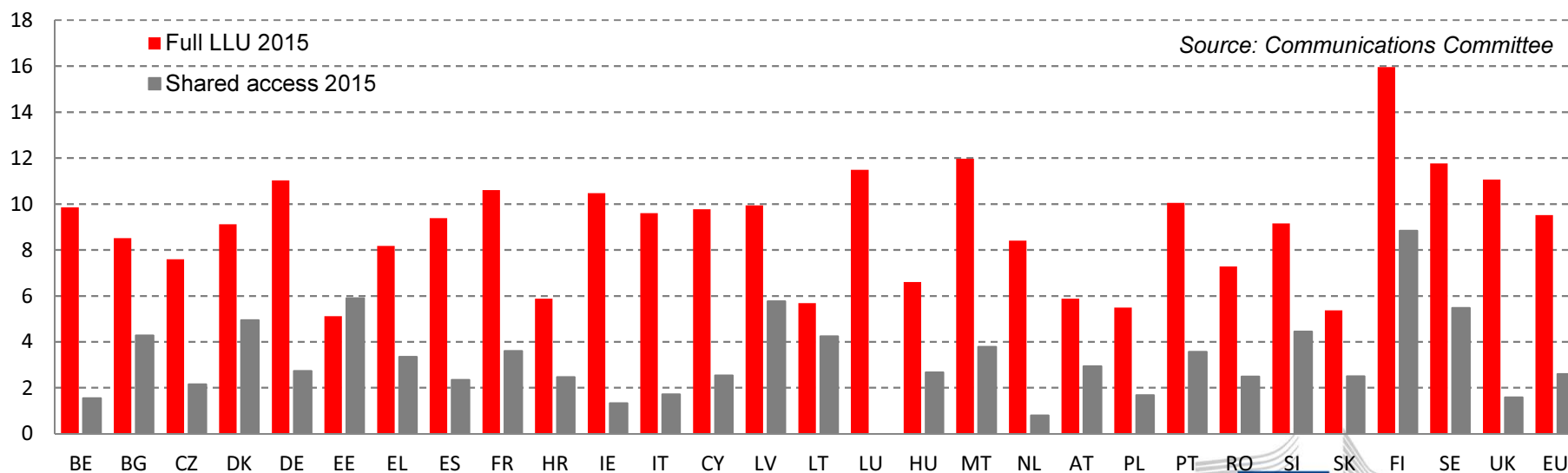
Source: Communications Committee

European Commission

Wholesale charges of Local Loop Unbundling went down by 22% for full access since 2005, but has been broadly stable since 2008.

Regulated wholesale charges giving access for new entrants to the local loop are important to effective competition in the xDSL market. The monthly average total cost (calculated as the monthly rental plus the one time connection charge distributed over a three year period) stood at EUR 9.5 for full access (provision of both voice and broadband) and at EUR 2.6 for shared access (provision of broadband only) as of October 2015.

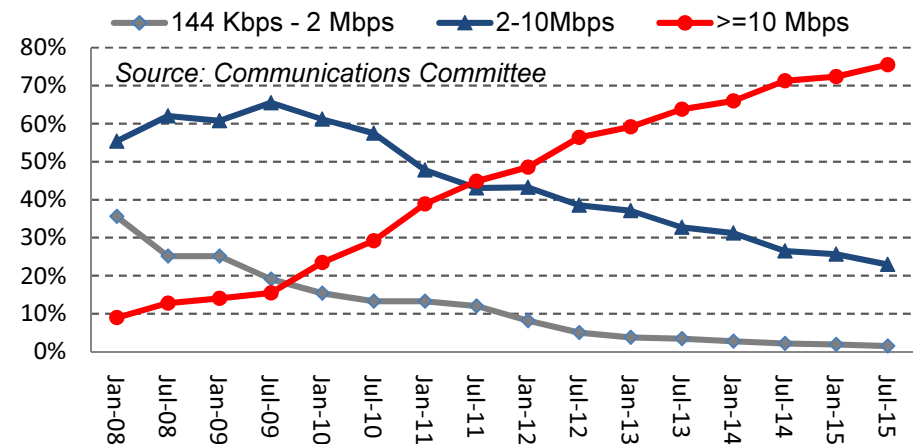**Local Loop Unbundling monthly average total cost (EUR) at EU level, 2005-2015**

Source: Communications Committee
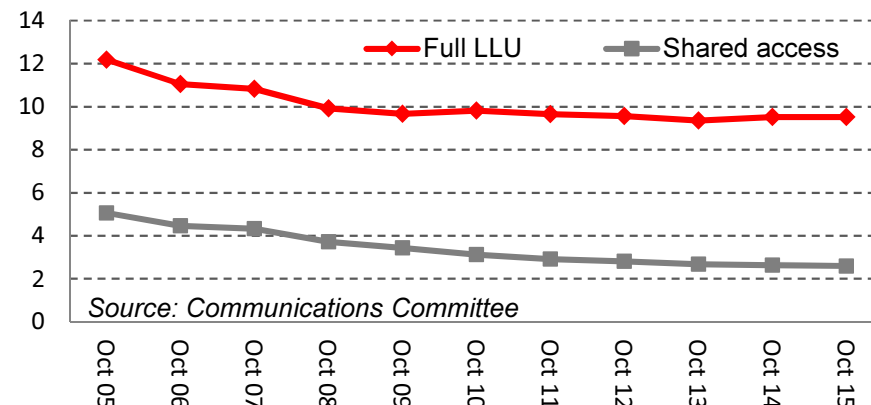
Local Loop Unbundling monthly average total cost (EUR), October 2015

Source: Communications Committee
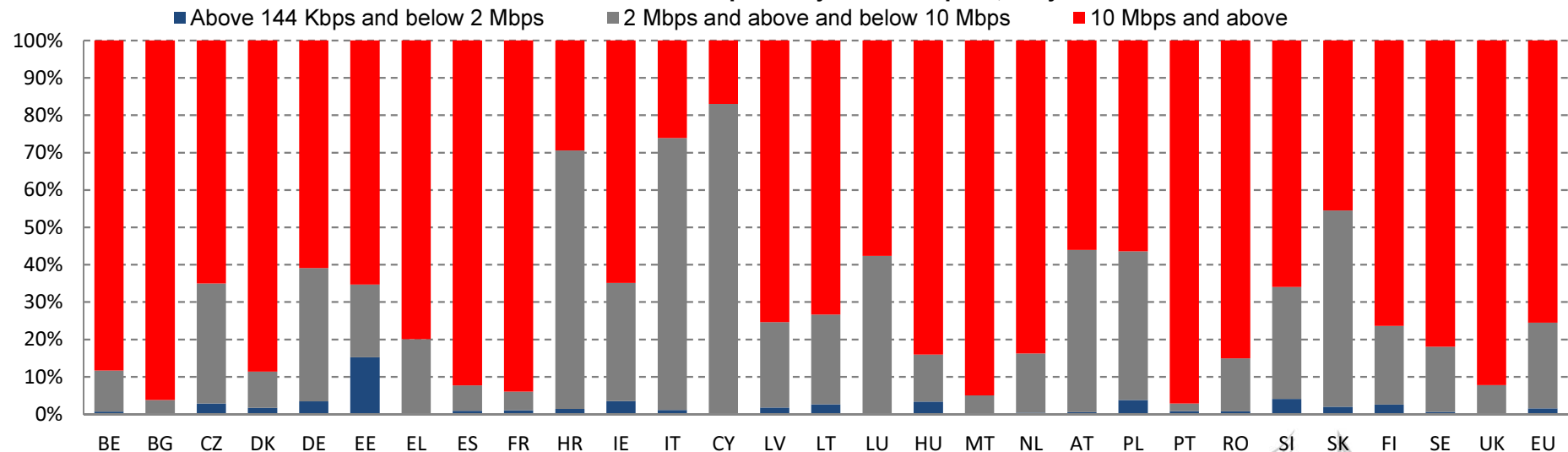
European Commission

Fixed broadband speeds: over 75 % of subscriptions are at least 10Mbps. <2Mbps is marginal (1.5 %).

Low speed fixed broadband subscriptions are becoming marginal: only 1.5 % of all subscriptions have less than 2 Mbps advertised download speed as opposed to 36 % eight years ago. At least 10 Mbps applies to more than 75 % of subscriptions, up from 9 % in 2008. However, broadband connections are still slow in Italy, Croatia and Cyprus, where less than one third of subscriptions are at least 10 Mbps. In Estonia, a relatively large proportion of subscriptions (15 %) are still below 2 Mbps.

Fixed broadband subscriptions by headline speed at EU level, 2008-2015

Source: Communications Committee

Legend: 144 Kbps - 2 Mbps | 2-10Mbps | >=10 Mbps

Fixed broadband subscriptions by headline speed, July 2015

Legend: Above 144 Kbps and below 2 Mbps | 2 Mbps and above and below 10 Mbps | 10 Mbps and above

Source: Communications Committee

European Commission

Fast and ultrafast broadband subscriptions grew by 36 % in 12 months. In Belgium, Latvia and Romania, the majority of subscriptions are at least 30 Mbps. Ultrafast (at least 100 Mbps) is most widespread in Belgium and Romania.

Despite the growth in fast and ultrafast subscriptions, they are still rare in the EU. In January 2015, only slightly more than one in four subscriptions were at least 30 Mbps and only 9 % were at least 100 Mbps.

In Belgium, Romania, Malta, Latvia, Portugal, Lithuania, Ireland, the Netherlands and Sweden, already more than 50 % are already at least 30 Mbps, while the same ratio is less than 10 % in Italy, Greece, Cyprus and Croatia. In ultrafast (at least 100 Mbps), Sweden, Latvia and Romania are the most advanced with more than 40 % of subscriptions.

Fixed broadband subscriptions by headline speed at EU level, 2008-2015
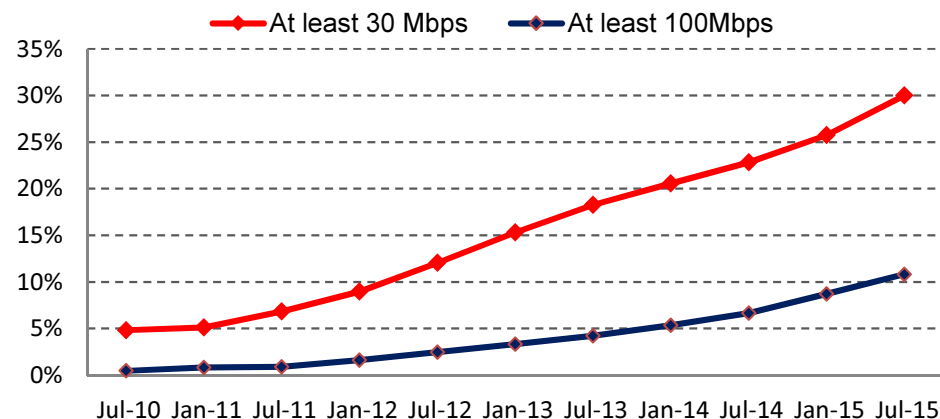
Source: Communications Committee

**Fixed broadband subscriptions by headline speed, July 2015**

Source: Communications Committee

European Commission
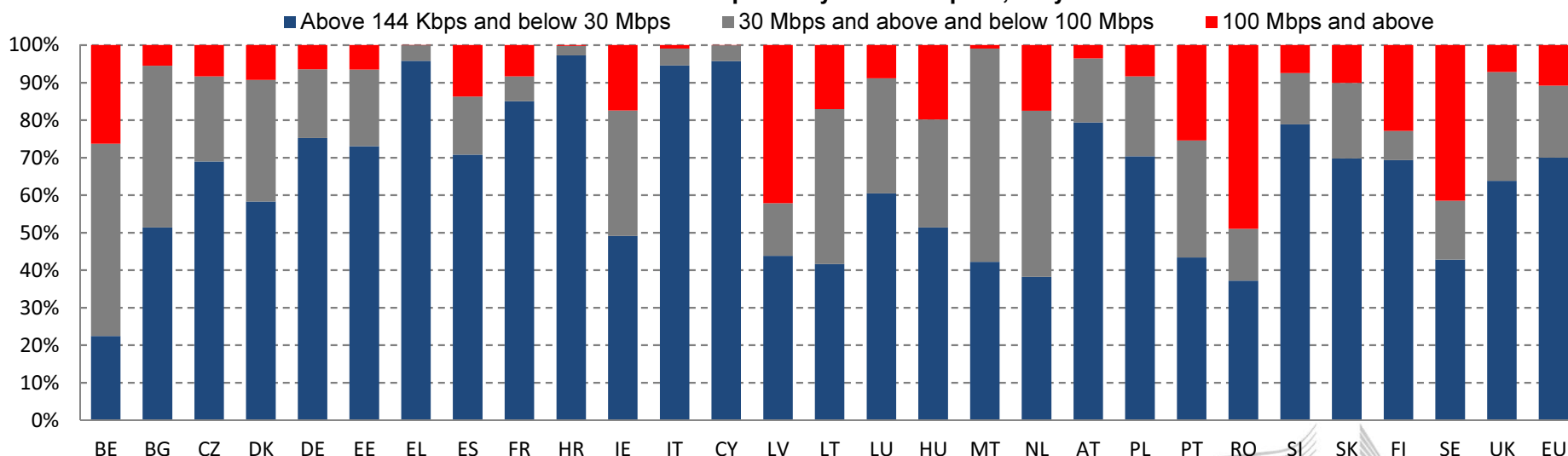
There are 75 active mobile broadband SIM cards per 100 people in the EU, up from 34 four years ago. The growth was linear over the last three years with over 40 million new subscriptions added every year.
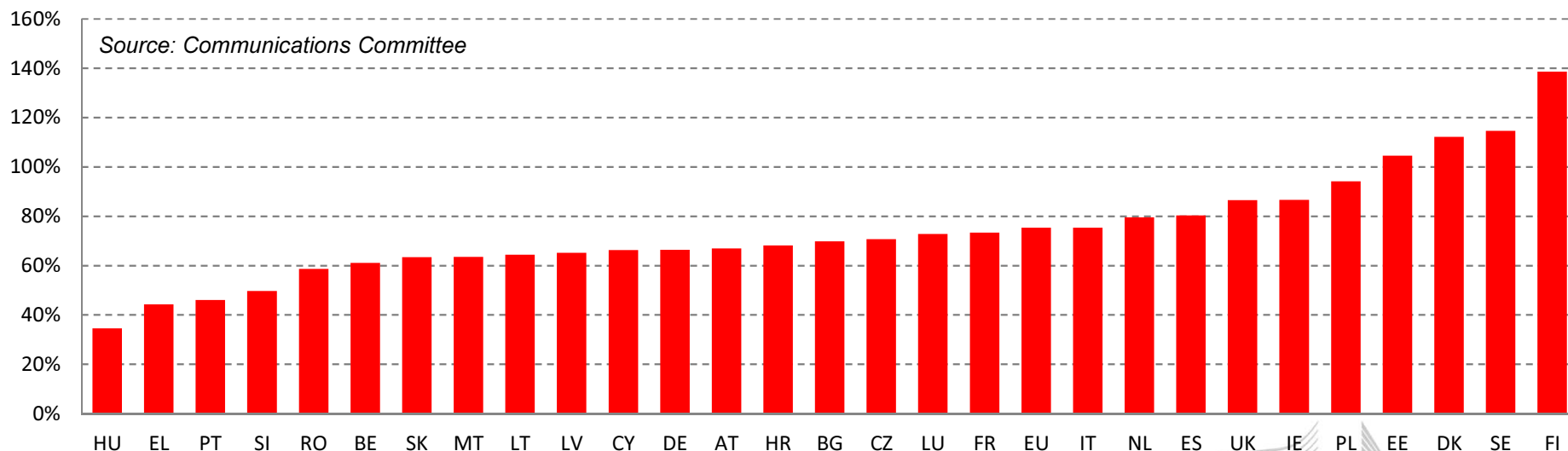
Mobile broadband represents a fast growing segment of the broadband market. More than 60 % of all active mobile SIM cards use mobile broadband.

In the Nordic countries and Estonia, there are already more than 100 subscriptions per 100 people, while in Hungary, Greece, Portugal and Slovenia the take-up rate is still below 50 %. Most of the mobile broadband subscriptions are used on smartphones rather than on tablets or notebooks.

Mobile broadband penetration at EU level, January 2009 to July 2015

Source: Communications Committee
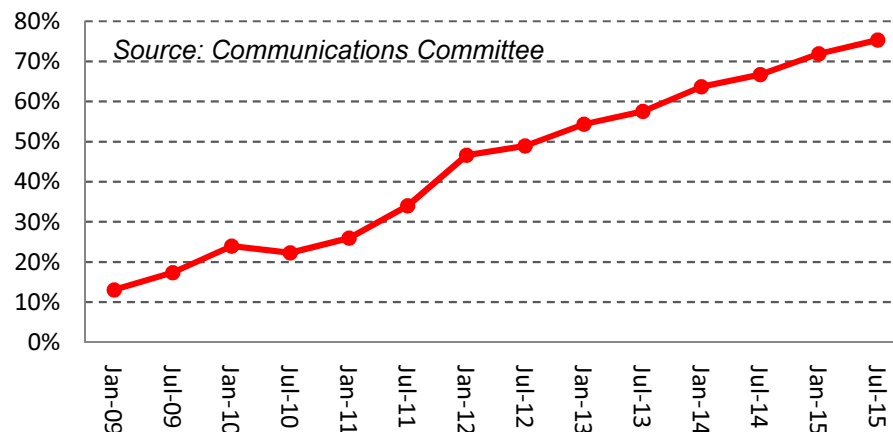
Mobile broadband penetration - all active users as a % of population, July 2015

Source: Communications Committee

European Commission

Mobile broadband is still mainly complementary to fixed broadband. In 2015, 8.1 % of EU homes accessed the internet only through mobile technologies. Finland and Italy were leaders in mobile access to internet with 31 % and 22 % of homes using it in 2015.

Europeans access the internet primarily with fixed technologies at home. However, there are a growing number of homes with only mobile internet use. The percentage of homes with purely mobile broadband access went up from 4.2 % in 2010 to 8.1 % in 2015. This indicates that mobile broadband is still mainly complementary to fixed broadband, but not a substitution product.
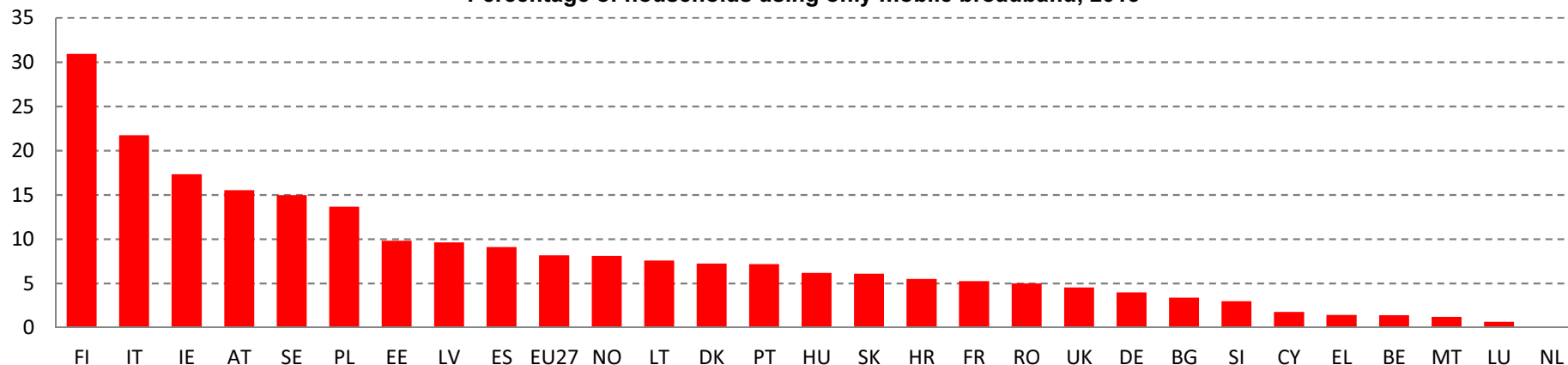
The Netherlands was the Member State with the lowest figure at less than 0.5 %.

By contrast, Finland and Italy were leaders in mobile access to internet with 30.9 % and 21.7 % of homes in 2015.

Percentage of households using only mobile broadband at EU level, 2010-2015
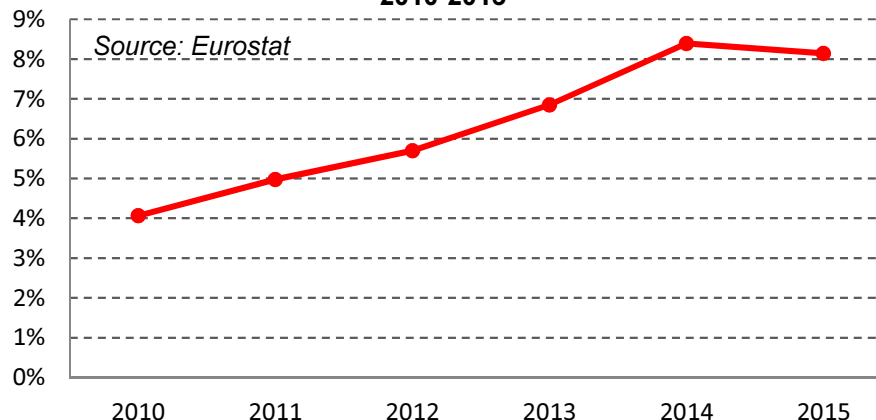
Source: Eurostat

Percentage of households using only mobile broadband, 2015
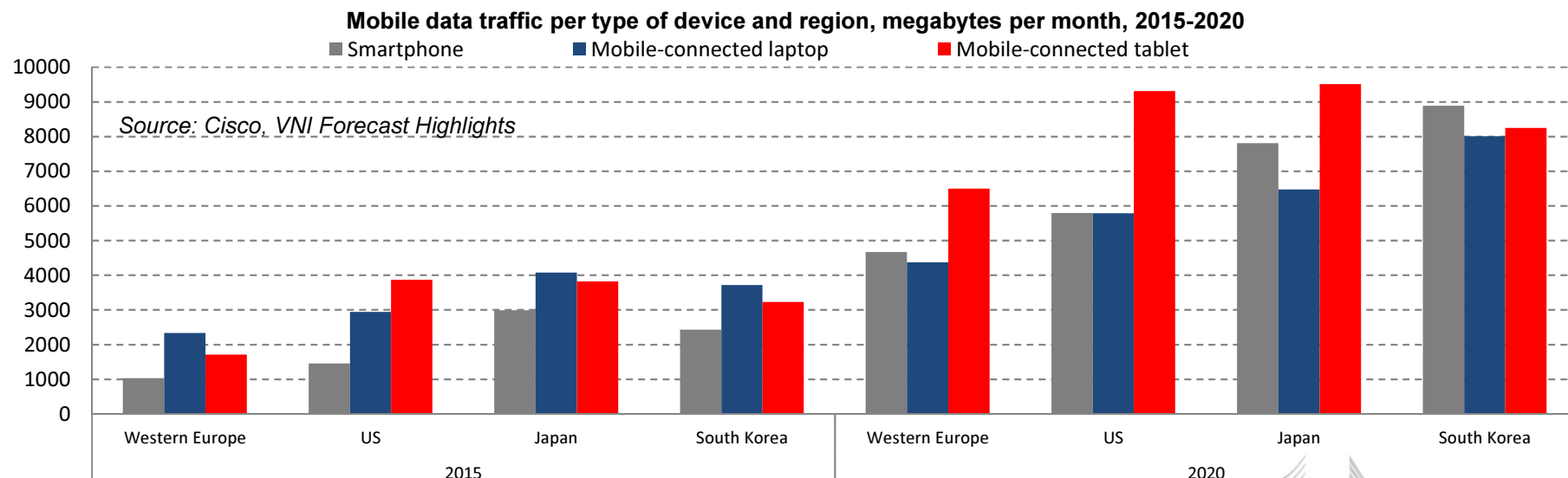
Source: Eurostat

Mobile broadband traffic: Tablets are expected to be the touchstone for mobile data traffic in 2020, exceeding smartphones and laptops in average usage. Mobile data traffic in 2020 is expected to be six times higher than in 2015.

Mobile data traffic in western Europe is expected to grow by six fold from 2015 until 2020, which represents a higher growth compared to the US (x6), South Korea (x5) and Japan (x4). Indeed, mobile data traffic will grow two times faster than fixed IP traffic from 2015 to 2020.

The average smartphone user in western Europe will generate 4.6 GB of mobile data traffic per month in 2020, up by 353 % from 2015. Laptop users will generate 4.4 GB and tablet users more than 6 GB.

Tablet devices in Europe will overtake mobile-connected laptops and smartphones in total data traffic. Currently, in western Europe, tablets represent 33 % of total mobile traffic. In 2020, their share will be 42 %, while in South-Korea and Japan tablets will weigh less than 40 % of total mobile traffic.

As for the US, tablets will represent 44 % of total mobile traffic by 2020, with 9 GB per month per user, as opposed to 6 GB in the EU.

Mobile data traffic per type of device and region, megabytes per month, 2015-2020

■ Smartphone ■ Mobile-connected laptop ■ Mobile-connected tablet

Source: Cisco, VNI Forecast Highlights

European Commission

Machine-to-machine communications: In western Europe, M2M modules currently generate 3 % of total mobile data traffic. By 2020, this figure will go up to 11.6 %, while M2M modules will represent more than half of the total connected mobile devices in western Europe.

M2M communications on mobile networks will continue to increase rapidly both in terms of traffic and the number of devices. M2M currently represents 19 % of all connected mobile devices. This ratio is forecasted to go up to 51 % by 2020 in western Europe. M2M traffic will also expand, but will still take a relatively low share of total traffic on mobile networks (12 %).

The US and Japan will show similar figures, while in South Korea both traffic and the number of M2M devices will be significantly higher proportionally.

Percentage of M2M modules of device connections by region, 2015-2020
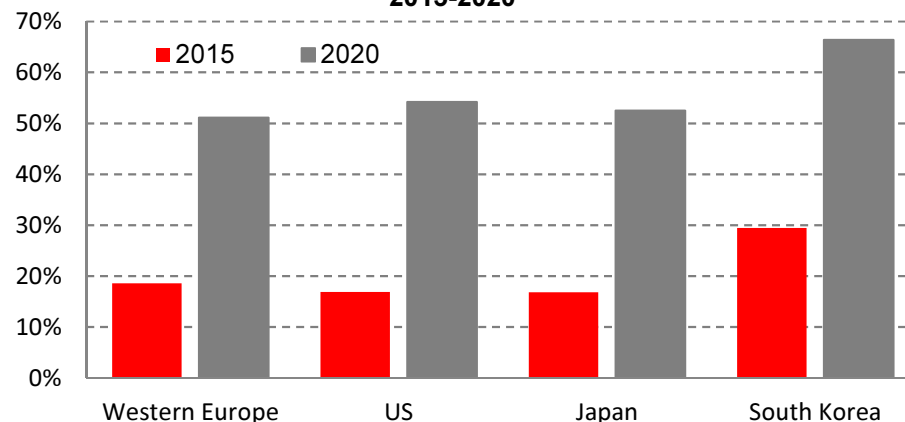
Source: Cisco, VNI Forecast Highlights

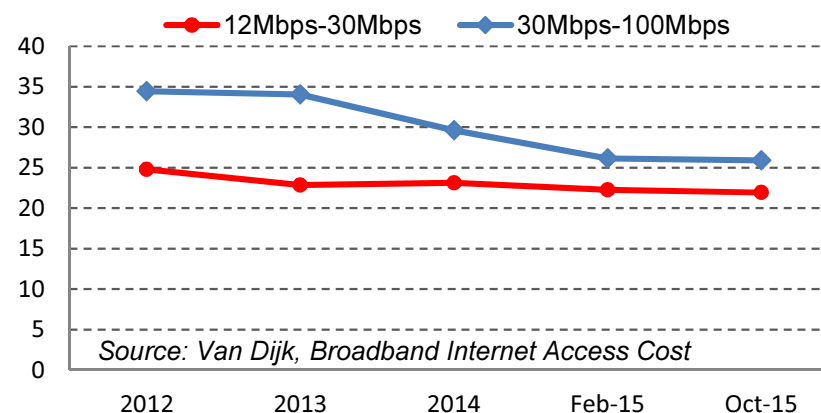**Percentage of traffic coming from M2M devices by region, 2015-2020**

Source: Cisco, VNI Forecast Highlights

European Commission
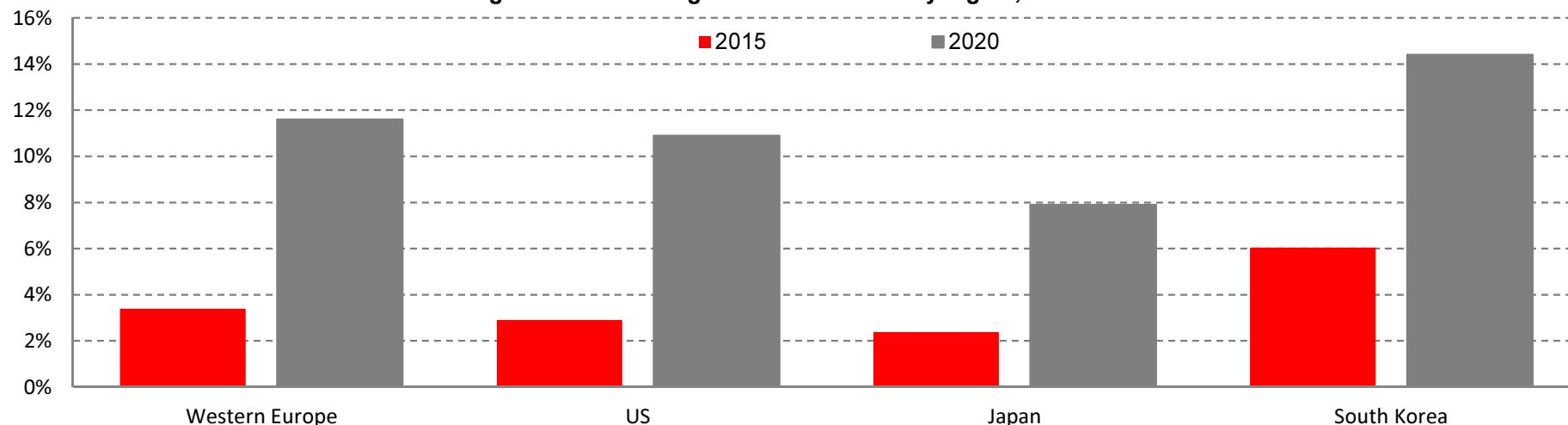
Prices* of high speed broadband access tend to decrease over time but remain dispersed across Member States.
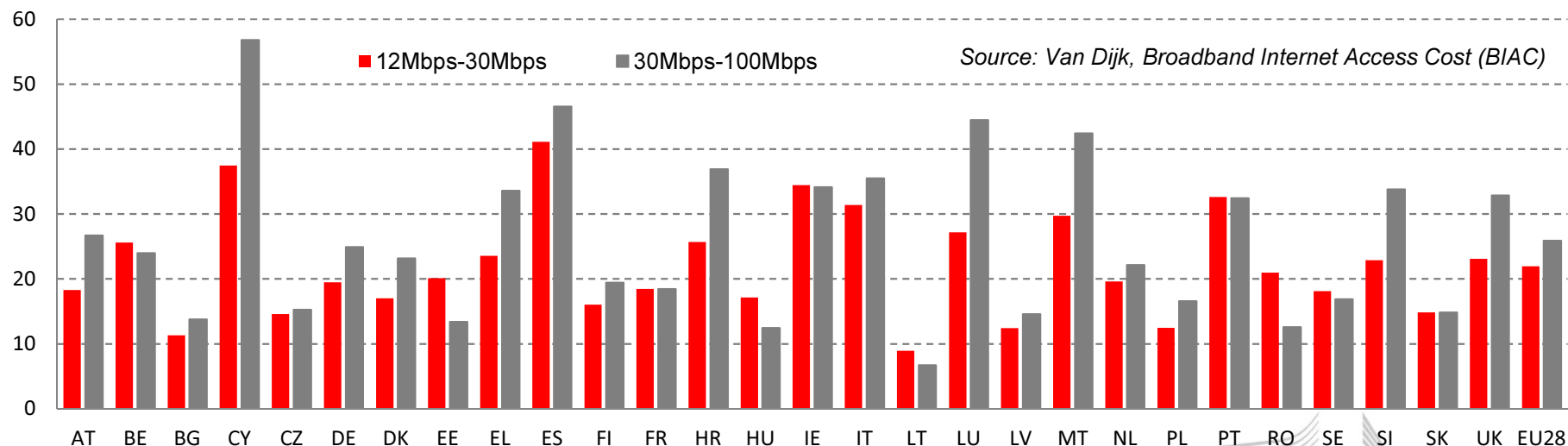
Broadband access prices remained dispersed across Europe: the minimum prices (calculated on Purchasing Power Parity) vary between EUR 6 and EUR 56 for a standalone offer with a download speed between 30 and 100 Mbps. The minimum prices were the lowest in Lithuania (EUR 6), Hungary (EUR 12) and Romania (EUR 13) and the highest in Cyprus (EUR 56), Spain (EUR 46) and Luxembourg (EUR 44). In Greece, Cyprus and Italy fast broadband (at least 30 Mbps) is still rare, representing less than 10 % of all subscriptions. The minimum price of standalone offers of 30 to 100 Mbps decreased from EUR 34 in 2012 to EUR 26 in 2015.

* Based on least expensive prices available and expressed in euros adjusted for purchasing power parity, VAT included.

Broadband retail prices (EUR PPP) – standalone offers at EU level, 2012-2016

- 12Mbps-30Mbps
- 30Mbps-100Mbps

Source: Van Dijk, Broadband Internet Access Cost

2012   2013   2014   Feb-15   Oct-15

Fixed broadband retail prices (EUR PPP) - standalone offers at EU level, October 2015

- 12Mbps-30Mbps
- 30Mbps-100Mbps

Source: Van Dijk, Broadband Internet Access Cost (BIAC)

AT BE BG CY CZ DE DK EE EL ES FI FR HR HU IE IT LT LU LV MT NL PL PT RO SE SI SK UK EU28

European Commission

Prices* of triple play bundles including high-speed broadband access, fixed telephony and television went down by 24 % since 2012.
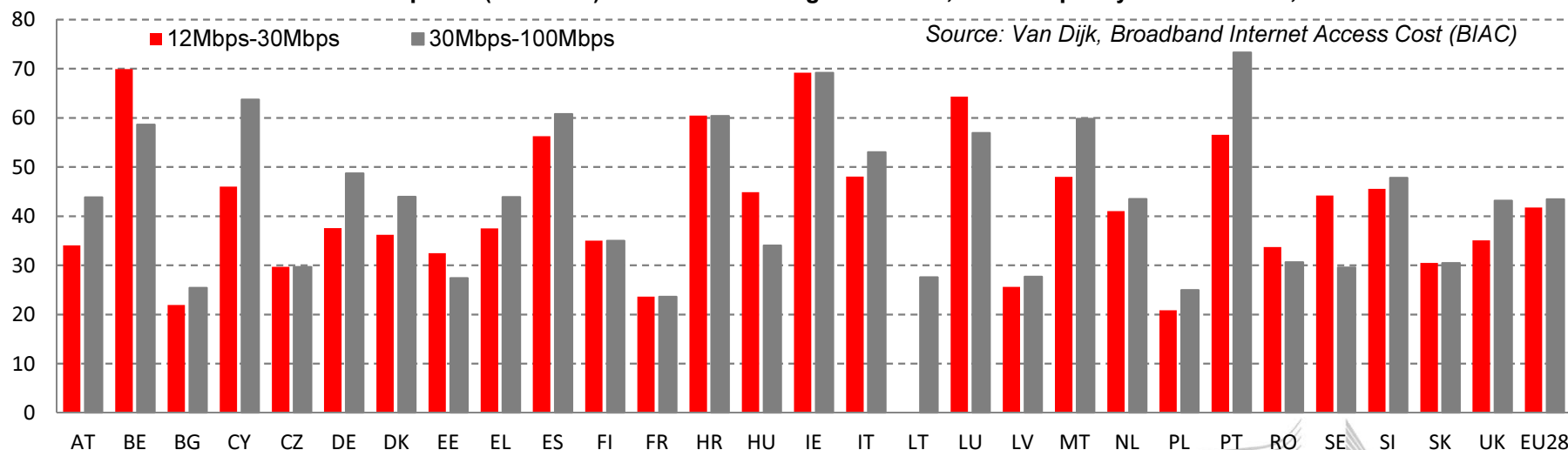
The minimum prices for triple play bundles including broadband access (with a download speed between 30 and 100 Mbps), fixed telephony and television vary between EUR 24 and EUR 73 in the EU. The minimum price was the lowest in France (EUR 24), Poland (EUR 24) and Bulgaria (EUR 25) and the highest in Portugal (EUR 73), Ireland (EUR 69), Cyprus (EUR 64) and Spain (EUR 61). Prices decrease over time, with the EU average going down from EUR 57 in 2012 to EUR 43 in October 2015.

*Based on least expensive prices available and expressed in euros adjusted for purchasing power parity, VAT included.

Broadband retail prices (EUR PPP) – bundles including broadband, fixed telephony and television at EU level, 2012-2016
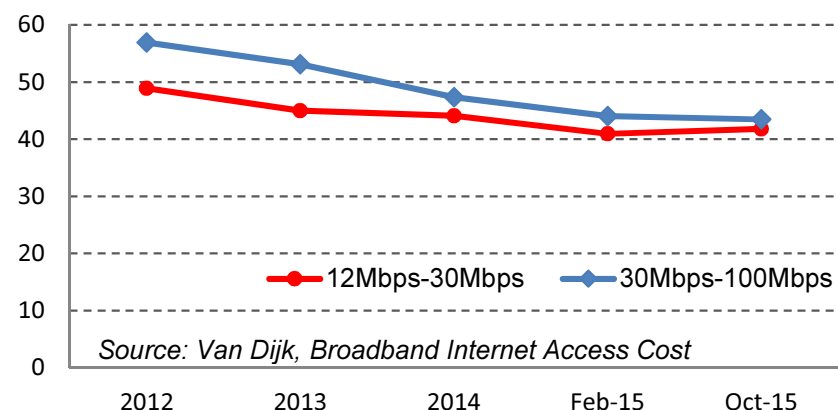
Legend: ● 12Mbps-30Mbps ◆ 30Mbps-100Mbps

Source: Van Dijk, Broadband Internet Access Cost

Fixed broadband retail prices (EUR PPP) - bundles including broadband, fixed telephony and television, October 2015

Legend: ■ 12Mbps-30Mbps ■ 30Mbps-100Mbps

Source: Van Dijk, Broadband Internet Access Cost (BIAC)

European Commission

Broadband take-up tends to be lower in Member States where the **cost of broadband access accounts for a higher share of income, but the correlation is not strong. The lowest income quartile of the EU population has a significantly lower take-up rate.**

Considering overall take-up, European average is 72 % of homes with Luxembourg, the Netherlands at the highest positions and Italy, Bulgaria and Poland lagging behind.

Statistics show that income plays an important role in subscription rates. The lowest income quartile has only 51 % take-up of fixed broadband as opposed to 89 % in the highest income quartile.

The lag in the lowest income quartile when compared with the national average is evident in Bulgaria, Romania, Hungary, Slovenia, Lithuania, Czech Republic, Croatia, Spain and Slovakia.

Fixed broadband household penetration by income quartiles at EU level, 2011-2015

Source: Eurostat

Low income — Medium low income
Medium high income — High income
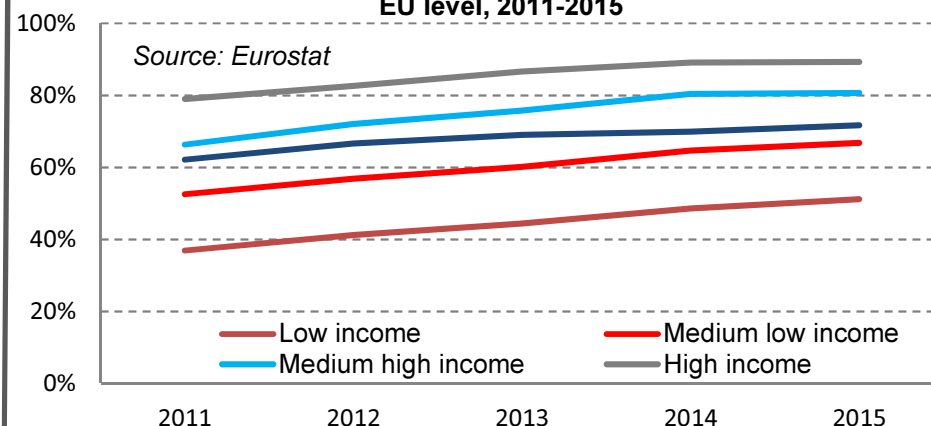
Household fixed broadband penetration and share of broadband access cost (standalone 12-30Mbps donwload) in disposable income, 2015

Source: Commission services based on Eurostat and Van Dijk
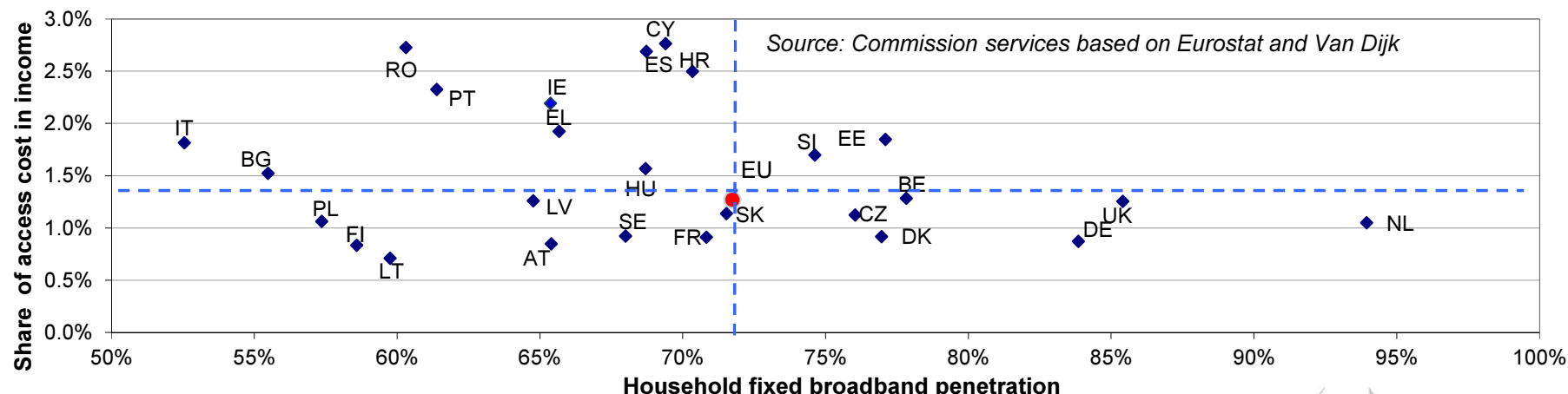
Data not available for Luxembourg and Malta.

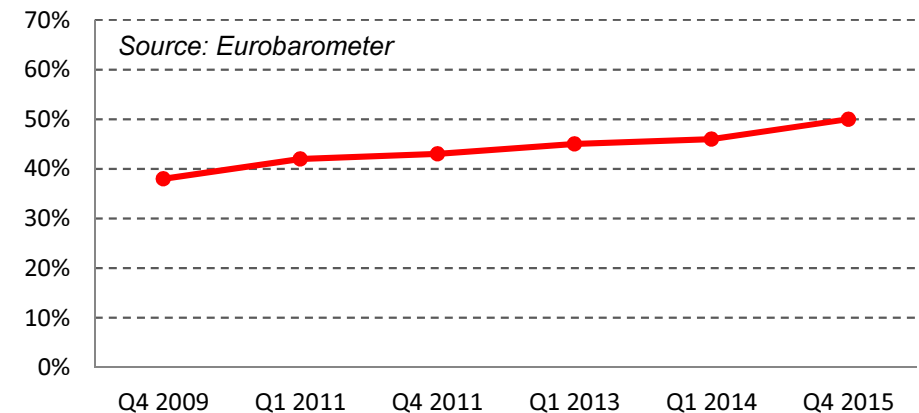**Europe's Digital Progress Report 2016 – Connectivity**

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European Commission

Half of all EU households subscribed to bundled communications services in 2015. 80 % of bundles include internet access. Fixed telephony + internet is the most popular type of bundle.

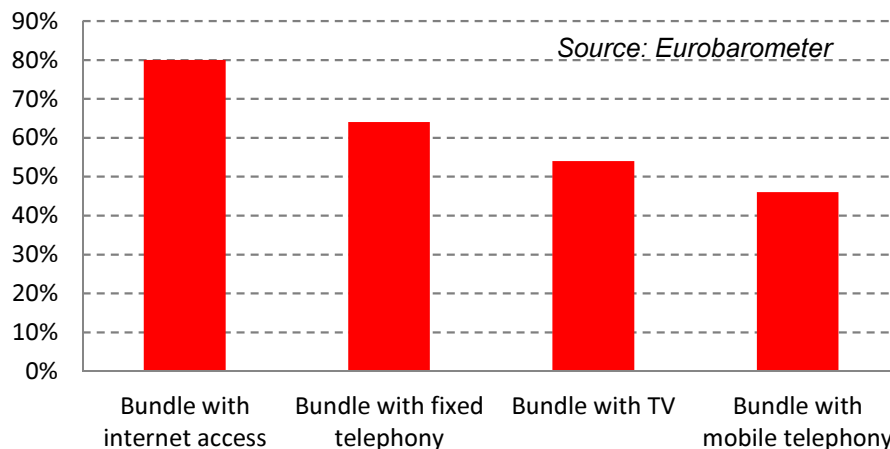50% of all EU households purchase bundled communications services, up from 38% six years ago.

The most popular bundle is fixed telephony + Internet followed by `triple play`: fixed telephony + internet + TV.

Internet access (either fixed or mobile) is present in 80 % of all service bundles, fixed telephony in 64 %, TV in 54 % and mobile telephony in 46 %.
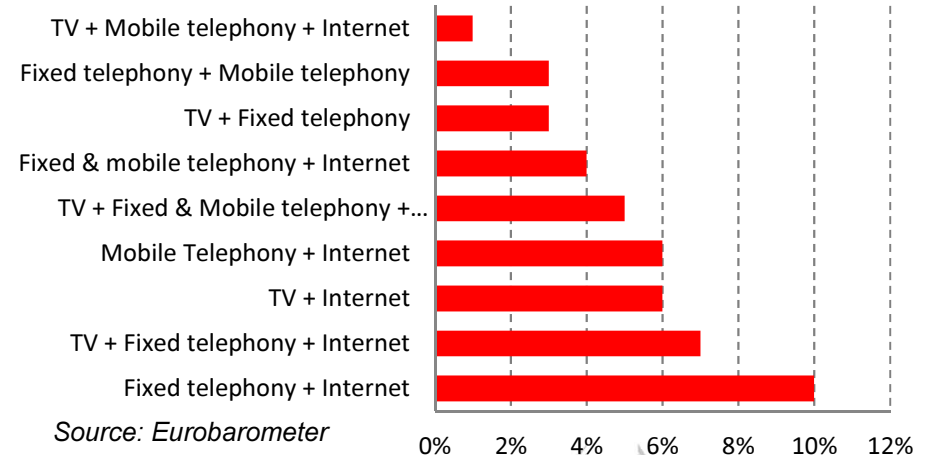
Percentage of households subscribing to bundled services at EU level, 2009-2015

Source: Eurobarometer

Popularity of different services in bundles at EU level, 2015

Source: Eurobarometer

Bundle with internet access · Bundle with fixed telephony · Bundle with TV · Bundle with mobile telephony

Popularity of different bundles (% homes with subscriptions) at EU level, 2015

- TV + Mobile telephony + Internet
- Fixed telephony + Mobile telephony
- TV + Fixed telephony
- Fixed & mobile telephony + Internet
- TV + Fixed & Mobile telephony +…
- Mobile Telephony + Internet
- TV + Internet
- TV + Fixed telephony + Internet
- Fixed telephony + Internet

Source: Eurobarometer

European Commission

Almost all Member States are late in transposing the Cost Reduction Directive (Directive 2014/61/EU) (1/2).

Since the major source of costs in network deployment is civil engineering costs (accounting for up to 80 % of the total costs), Directive 2014/61/EU includes measures to reduce the cost of deploying high-speed electronic communication networks. The Directive includes measures:

• facilitating access to physical infrastructures of all network operators (i.e. telecom operators, as well as energy, or other utilities);

• improving coordination of civil engineering works;

• providing transparency of permit granting procedures; and

• equipping and accessing buildings with in house physical infrastructure (e.g. mini-ducts) capable of hosting high-speed networks.

The deadline for Member States to transpose this Directive expired on 1 January 2016.

The transposed measures should apply at the latest from 1 July 2016 except for the obligation to equip buildings with in-building physical infrastructure and with an access point which applies to new buildings or major renovation works where planning permission has been submitted after 31 December 2016.

As of 31 March 2016, only one Member State (Italy) has notified complete transposition of the Directive. Eight Member States (Denmark, Spain, Lithuania, Austria, Poland, Slovenia, Slovakia and the United Kingdom) have notified partial transposition of the Directive, while the 19 remaining Member States have not notified any transposition measure so far. Delays in transposing and applying the measures provided in the Directive may limit opportunities to reduce deployment costs and exploit synergies, which is particularly important in those areas where NGA coverage is lagging behind or upgrades of networks are needed.

European Commission

Almost all Member States are late in transposing the Cost Reduction Directive (Directive 2014/61/EU) (2/2).

Consequently, the Commission on 23 March 2016 sent letters of formal notice to all 27 Member States who have not yet notified complete transposition of the Directive (except Italy). The letter of formal notice is the first step of an infringement procedure, which can lead to the referral of the Member State to the Court of Justice of the European Union. Information about national measures transposing the Directive is available here and ongoing infringement proceedings here.

MS		Status			Stage
BE		● ○ ○			LFN
BG		● ○ ○			LFN
CZ		● ○ ○			LFN
DK		○ ● ○			LFN
DE		● ○ ○			LFN
EE		● ○ ○			LFN
HR		● ○ ○			LFN
IE		● ○ ○			LFN
EL		● ○ ○			LFN
ES		○ ● ○			LFN
FR		● ○ ○			LFN
IT		○ ○ ●			
CY		● ○ ○			LFN
LV		● ○ ○			LFN
LT		○ ● ○			LFN
LU		● ○ ○			LFN
HU		● ○ ○			LFN
MT		● ○ ○			LFN
NL		● ○ ○			LFN
AT		○ ● ○			LFN
PL		○ ● ○			LFN
PT		● ○ ○			LFN
RO		● ○ ○			LFN
SI		○ ● ○			LFN
SK		○ ● ○			LFN
FI		● ○ ○			LFN
SE		● ○ ○			LFN
UK		○ ● ○			LFN
		19 8 1			

Following the adoption of the 2014 Recommendation on relevant markets, liberalisation of telecom markets has progressed across the EU.

Under EU telecoms legislation, appropriate regulatory measures on operators should be imposed only following a market analysis showing that a given market is not effectively competitive. This market analysis needs to be periodically carried out by the competent national regulatory authority.

The table shows an overview of markets which are still subject to ex ante regulation (red colour), have already been fully or partially deregulated (green/yellow colour), as well as the rounds of market analysis carried out since the adoption of the Regulatory Framework back in 2002. The 2014 Recommendation on relevant markets excluded from regulation two fixed telecoms markets and redefined two other markets in order to reflect market and technology developments. For markets not included in the Recommendation, ex ante regulation can be imposed only if a market analysis shows that the market does not tend towards effective competition.

Since the adoption of the 2014 Recommendation, the Commission observes the systematic liberalisation of non-regulated fixed telecoms markets across the EU. This trend confirms the Commission's assumption that those markets tend towards effective competition in the Member States. Most markets outside the scope of the Recommendation which are still regulated have only been reviewed once or twice since the entry into force of the Regulatory Framework and market regulation may no longer be suited to the effective competitive dynamics developed since the last round. Therefore ensuring a timely review of market analysis is key to align market regulation with technological and market developments.*

* Note: See Annex 1

European Commission

More EU harmonised spectrum available across Member States underpins future spectrum needs within the EU, while assignment in national markets differs (1/2).

Following the adoption in May 2015 of Commission Implementing Decision (EU) 2015/750, harmonising the 1.5 GHz band, the total amount of spectrum harmonised at EU level for wireless broadband use reached 1030 MHz during the reporting year. The authorisation process for this band was already completed by three Member States.

Moreover, with a view to reaching the radio spectrum policy programme (RSPP) 1200 MHZ target of EU-harmonised spectrum, the Commission in April 2016 adopted Implementing Decision (EU) 2016/687 harmonising the technical conditions of use of the 700 MHz band (already assigned by France and Germany).

The 800 MHz band (the 'digital dividend') is currently assigned in 25 Member States, 8 of which had been granted a derogation from the original deadline under Article 6(4) of the RSPP. Three Member States have not yet assigned and/or made available the 800 MHz band. While Cyprus and Malta have asked for an extension of the derogations they had been granted, Bulgaria benefits from the exception under Article 1(3) RSPP.

More EU harmonised spectrum available across Member States underpins future spectrum needs within the EU, while assignment in national markets differs (2/2).

When excluding the recently harmonised 1.5 GHz and 700 MHz bands, a 2 percentage points (from 69 to 71 %) increase in the EU-harmonised spectrum assigned on average across Member States for wireless broadband use can be reported since last year. Nevertheless, an average 30 % of harmonised spectrum still remains unassigned.

Lack of assignment may be due to different reasons depending on the circumstances in each Member States, such as delays in making the spectrum available and in the timely carrying out of assignment procedures, lack of market interest, use for defence purposes, etc.

In view of these different circumstances and regulatory conditions applicable to different bands, lack of assignment does not necessarily mean non-compliance with EU law.

Assigned spectrum in harmonised EU bands, May 2016
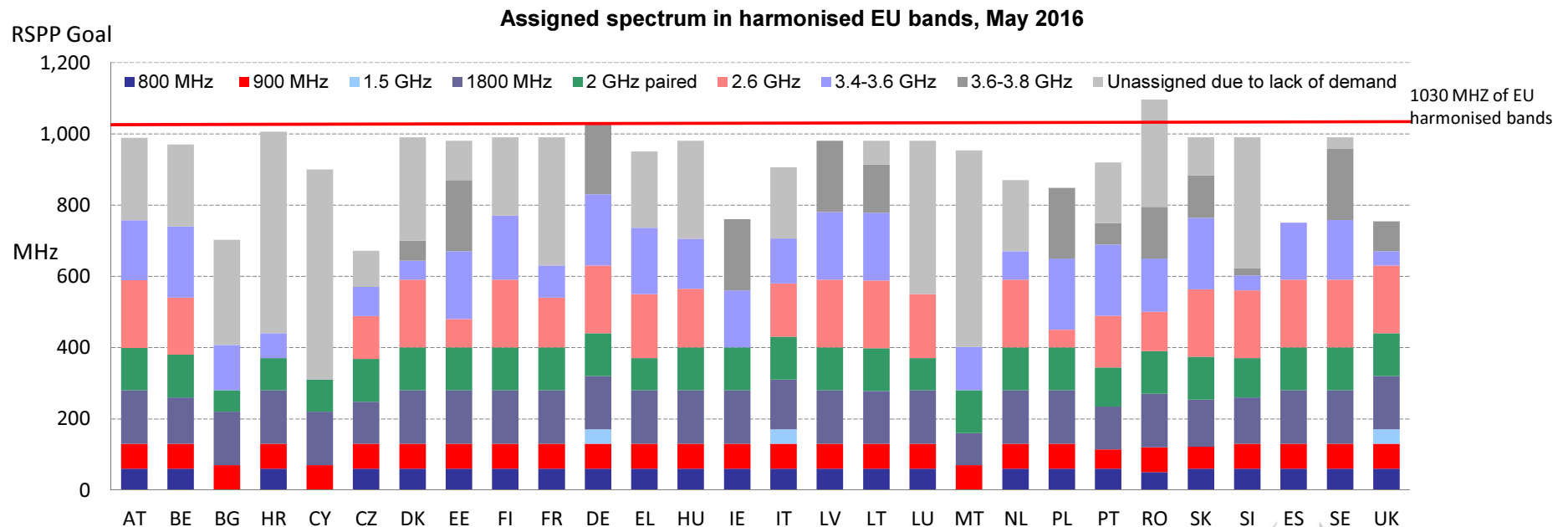
Source: Commission services

Note: Assigned spectrum include guard bands

European Commission

Broadband Targets: Overview of national broadband plans (1/4)

Since the adoption of the digital agenda for Europe (DAE) 2020 targets — i.e. coverage of 30 Mbps download for all Europeans and take-up of 100 Mbps subscriptions for at least 50 % of European households — most Member States have gradually adopted national broadband plans (NBPs). They are devised to integrate all relevant aspects of an effective broadband policy and resources enabling policy makers and public authorities to properly plan public interventions in the telecommunications sector.

At the time of writing, a large majority of Member States had already started implementing their NBPs, albeit with various time horizons ranging from 2017 to 2022. Some NBPs are standalone documents. Others are integrated within broader strategic approaches. In some Member States, multiple official documents drafted by different national authorities exist that specify aspects related to such broadband developments.

Content-wise, all Member States' NBPs focus on reaching minimum download speeds — in most cases in terms of coverage (availability of commercial offer on a given territory) and sometimes also penetration (actual take-up in the form of internet access subscriptions). In contrast, emphasis on upload data rates is rather exceptional (e.g. Denmark, Luxembourg or Ireland). In addition, operational measures to foster demand for digital applications and high-speed internet access are relatively infrequent.

Notably, some Member States have conducted consultations on their draft national broadband plans. These include for instance the Czech Republic ('Digital Czech Republic'), France ('National Programme for Very High Speed Broadband') and the Slovak Republic ('National Strategy for Broadband Access in the Slovak Republic).*

* OECD countries with public consultation procedures prior to drafting their national broadband plans are: Canada ('Improving Canada's Digital Advantage'), Ireland ('Next Generation Broadband'), Japan ('Path of light'), and the United States ('Connecting America: The National Broadband Plan')

European Commission

Broadband Targets: Overview of national broadband plans (2/4)

Although some NBPs do not have targets on penetration/uptake or have set targets on other features (e.g. upload speeds), the following general observations can be made:

• 17 Member States are fully aligned to the DAE-2020 targets (Bulgaria, Croatia, Cyprus, Czech Republic, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovakia and Spain);

• 8 Member States have an ambitious target on one or more of the parameters (coverage, take-up) — for instance aiming at Gigabit or 100 Mbps coverage for over 80 % of their population by 2020 — which, if reached, will help them achieve or even supersede all the DAE targets (Austria, Belgium, Denmark, Estonia, France, Luxembourg, Slovenia, Sweden); and

• 3 Member States pursue only a coverage dimension but with an earlier timeline and/or choose a quite distinct metric — that makes them difficult to assess against the DAE targets (Finland, Germany, United Kingdom).

Declared broadband targets in NBPs are, first and foremost, guideposts, whose practical feasibility and actual success will depend on the utilisation of appropriate means, including legal measures and financial resources. Therefore, it is important that Member States have the necessary resources and tools in place, rather than merely policy targets, to facilitate the effective rollout of broadband infrastructure on their territories.

European Commission

Broadband Targets: Overview of national broadband plans (3/4)

MS	NBP-Targets	MS	NBP-Targets
Austria	99 % coverage with 100 Mbps by 2020	Italy	100 % coverage with 30 Mbps by 2020. 50 % HH penetration of 100Mbps services by 2020
Belgium	50 % HH penetration with 1 Gbps by 2020	Latvia	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
Bulgaria	100 % coverage with 30 Mbps by 2020. 50 % of households and 80 % of businesses subscribing >100 Mbps by 2020	Lithuania	100 % coverage with 30 Mbps by 2020. 50 % penetration with 100 Mbps by 2020
Croatia	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020	Luxembourg	100 % coverage with 1 Gbps downstream and 500 Mbps upstream by 2020
Cyprus	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020	Malta	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
Czech Republic	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 MBps service by 2020	Netherlands	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
Denmark	100 % coverage with 100 Mbps download and 30 Mbps upload by 2020	Poland	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
Estonia	100 % coverage with 30 Mbps by 2020. 60 % HH penetration with 100 Mbps by 2020	Portugal	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
Finland	99 % of all permanent residences and offices should be located within 2 km of an optic fibre network or cable network that enables connections of 100 Mbps by 2019	Romania	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
France	100 % coverage with 100 Mbps by 2022	Slovakia	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020.
Greece	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps by 2020	Slovenia	98 % coverage with 100 Mbps, 2% coverage 30 Mbps by 2020.
Germany	100 % coverage with 50 Mbps by 2018	Spain	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020
Hungary	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020	Sweden	90 % coverage with 100 Mbps by 2020
Ireland	100 % coverage with 30 Mbps by 2020. 50 % HH penetration with 100 Mbps service by 2020, expecting upstream bandwidth around 17 to 21 Mbps.	United Kingdom	95 % coverage with 24 Mbps by 2017

European Commission

Broadband Targets: Overview of national broadband plans (4/4)

In a number of cases, Member States have decided to use extensively the European Investment and Structural Funds (ESIF) — notably the ERDF and the EAFRD — for a total programmed amount of over EUR 6 billion by 2020.

Countries like Poland and Italy plan to invest more than a EUR 1 billion of ERDF each; France, the Czech Republic, Spain and Hungary are in a range of EUR 700 million to EUR 400 million of ERDF each; Croatia, Greece and Slovakia between EUR 400 million and EUR 200 million of ERDF each. The administrative capacity to maximise the leverage effect on public (national or regional) and private co-funding (notably through the use of financial instruments) will be key to support projects rolling out the next generation of broadband networks.

ERDF investment in broadband and digital networks in ESIF Operational Programmes (million EUR)

Legend:
- > 60
- 43 - 60
- 26 - 43
- 9 - 26
- < 9
- No data
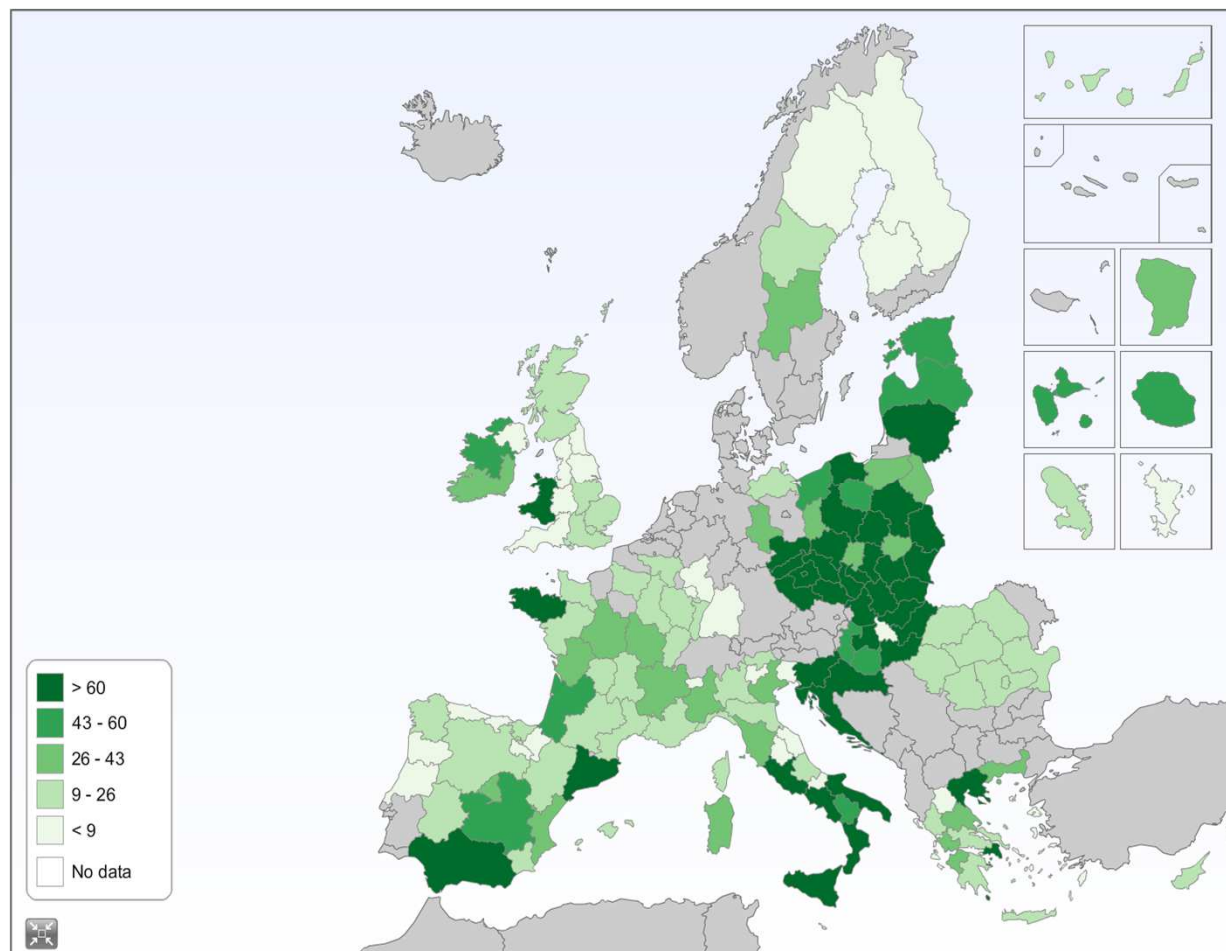
Source: European Commission, ICT monitoring Tool (http://s3platform.jrc.ec.europa.eu/ict-monitoring).

European Commission

Legend:
- Effective competition - no ex ante regulation (green)
- No effective competition - ex ante regulation (red)
- Partial competition - partial ex ante regulation (yellow)

- 1 — 1st round-competition/regulation
- 2 — 2nd round-competition/regulation
- 3 — 3rd round-competition/regulation
- 4 — 4th round-competition/regulation

	2014 RECOMMENDATION					2007 REC.		2003 RECOMMENDATION								
	Call term. on fixed network	Voice call term. on mobile networks	Wholesale local access	Wholesale central access	Wholesale high-quality access	Access to PSTN for res & non-res.	Call orig. on fixed network	Local/nat. Call for res.	Internat. call for res.	Local/nat. call for non-res.	Internat. call for non-res.	Retail LL	Transit on fixed network	Trunk segments LL	Access & call orig. on mobile network	Broadcast Transmis.
	Market 1	Market 2	Market 3a	Market 3b	Market 4	ex-Mkt 1	ex-Mkt 2	ex-Mkt 3	ex-Mkt 4	ex-Mkt 5	ex-Mkt 6	ex-Mkt 7	ex-Mkt 10	ex-Mkt 14	ex-Mkt 15	ex-Mkt 18
Austria	3	4	3	3	4	3	3	3	2	4	3	4	1	2	1	3
Belgium	2	2	2	2	1	2	1	3	1	3	1	1	2	1	1	w
Bulgaria	3	2	2	2	2	1	2	1	1	1	1	1	1	1		
Croatia	1	1	1	1	1	1	1	1		1		1		1		
Cyprus	2	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3
Czech Republic	4	4	3	3	3	4	4	2	2	2	1	2	1	1	1	2
Denmark	3	3	3	3	3	3	3	2	1	2	1	2	1	1	1	1
Estonia	3	3	3	3	3	3	3	1	1	1	1	1	1	2	1	3
Finland	2	1	3	3	1	2	3	2	1	2	1	2	2	1	V	3
France	4	4	4	4	2	4	4	1	1	1	1	2	1	2	W	4
Germany	3	4	3	3	1	3	2	2	1	2	1	2	2	1	1	3
Greece	3	3	3	3	2	2	2	3	1	3	1	2	3	2	1	1
Hungary	3	5	3	3	3	4	3	2	2	2	2	3	2	2	2	2
Ireland	3	1	2	2	2	3	2	2	2	2	2	2	2	2	1	2
Italy	2	3	3	3	2	3	2	2	2	2	2	2	2	2	2	2
Latvia	5	4	3	3	3	1	2	3	3	3	3	3	2	1	1	1
Lithuania	4	3	3	3	2	1	2	3	2	3	2	1	2	2	1	5
Luxemburg	2	3	2	2	2	2	2	2	2	2	2	2	1	1	1	
Malta	3	3	2	2	2	3	3	2	2	2	2	2	2	2	2	1
Netherlands	4	4	4	3	3	3	2	2	2	2	2	2	2	2	1	2
Poland	2	3	2	3	1	2	2	2	2	2	2	2	1	1	2	2
Portugal	1	2	2	2	2	2	2	2	2	2	2	1	1	2		2
Romania	2	2	2	1	1	2	2	1	1	1	1		2			1
Slovakia	3	3	2	2	2	4	4	2	2	2	2	2	2	1	1	2
Slovenia	2	5	3	3	2	3	3	2	1	1	1	2	3	1	3	2
Spain	3	3	3	3	3	3	2	2	2	2	2	2	2	3	1	3
Sweden	3	3	3	3	2	2	2	1	1	1	1	2	2	1	1	3
United Kingdom	3	4	2	3	4	4	3	2	2	2	2	3	2	3	1	1

Source: Commission services