The European Broadband Scorecard

Research Document

Publication date: 12 March 2014

Contents

Section 1

Introduction

1.1 Background to the European Broadband Scorecard

In December 2010, the Department for Culture, Media and Sport (DCMS), in partnership with the Department for Business, Innovation and Skills, published a strategy document entitled *Britain's Superfast Broadband Future*. The document set out the Government's ambition that the UK 'should have the best superfast broadband network in Europe by 2015'.[1] As well as committing to benchmark the UK against other EU countries, the Government intends to ensure that all UK premises can experience download speeds of at least 2Mbit/s by 2015 and that ninety per cent of premises can access superfast broadband. To this end, it has allocated £530 million to stimulate commercial investment in the rollout of high speed broadband in rural communities.[2]

The Broadband Delivery UK (BDUK) Rural Broadband Programme[3] is designed to provide faster speed broadband coverage beyond commercial operators' existing network footprints. The procurement phase is now complete and approximately half of the programme projects have begun rolling out superfast connections since the beginning of 2013. In February 2014, DCMS announced an additional £250m allocation to extend superfast broadband coverage to 95% of UK premises by 2017.

There are also a number of measures in place to increase mobile broadband coverage. The licences for some of the 4G mobile spectrum that was auctioned by Ofcom in 2013 included coverage obligations. One of the licences requires the holder, Telefonica UK Ltd (O2), to provide indoor reception to at least 98% of the UK population. In addition, DCMS has begun a £150m Mobile Infrastructure Project (MIP) to improve mobile coverage across the UK, particularly focusing on rural areas.

Within DCMS, BDUK proposed a Scorecard for measuring the development of the UK's broadband network relative to those in other EU countries, based on four headline indicators: coverage and take-up, speed, price and choice (Figure 1).

[1] DCMS / BIS, *Britain's Superfast Broadband Future*, 2010, p. 2, at http://www.culture.gov.uk/images/publications/10-1320-britains-superfast-broadband-future.pdf.
[2] See http://www.culture.gov.uk/what_we_do/telecommunications_and_online/7763.aspx.
[3] BDUK is part of the government's investment and policy approach to bringing forward network infrastructure upgrades and to improve the accessibility of services in locations where there is a weak commercial investment case. It is a team within DCMS created to deliver policies relating to stimulating private sector investment. See https://www.gov.uk/broadband-delivery-uk

Figure 1 BDUK's proposed metrics for inclusion in the Scorecard

Coverage and take-up	Speed	Price	Choice
Standard broadband coverage and take-up	Fixed download speed	Price of standard broadband	Market concentration in fixed broadband market
Superfast broadband coverage and take-up	Fixed upload speed	Price of superfast broadband	Market concentration in mobile broadband market
Mobile broadband coverage and take-up	Mobile download speed	Price of mobile broadband	

Source: BDUK

In December 2011, Ofcom agreed to identify, collate and publish the best available data relating to each of these metrics.[4] We revised BDUK's framework, splitting 'coverage and take-up' into two and including information on the proportion of the population that use the internet and perform tasks online (Figure 2).

Figure 2 Ofcom's proposed metrics for inclusion in the Scorecard

Coverage	Take-up and usage	Speed	Price	Choice
Standard broadband coverage	Standard broadband take-up	Fixed download speed	Price of standard broadband	Market concentration in fixed broadband market
Superfast broadband coverage	Superfast broadband take-up	Fixed upload speed	Price of superfast broadband	Market concentration in mobile broadband market
Mobile broadband coverage	Mobile broadband take-up	Mobile download speed	Price of mobile broadband	
	Use of online services			

In August 2012, the Secretary of State for Culture, Media and Sport set a further target that the UK should have the fastest broadband of any major European country by 2015.[5]

We published the first edition of this Scorecard in March 2013.[6] In it we set out the principles we would follow when choosing our data sources. We have repeated these principles below, in Sections 1.2 and 1.3.

The charts in this Scorecard focus on the UK's position relative to the other EU5 countries (France, Germany, Italy and Spain). The factors that affect the development of broadband networks, such as geography, population size and density, and legacy infrastructure, differ significantly between the 28 EU Member States. For this reason we consider it more appropriate to compare the UK's broadband network with those in other major European economies than with those in all EU28 countries. For completeness, however, Annex A provides EU27 data for the metrics in the Scorecard, where such data are available.

[4] Ofcom, *International Communications Market Report 2011*, 2011, p. 43, at http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/icmr/ICMR2011.pdf.
[5] See http://www.culture.gov.uk/news/ministers_speeches/9299.aspx.
[6] See *The European Broadband Scorecard*, 2013 at http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/bbresearch/scorecard

Croatia became the 28th EU member state in July 2013. Some of the data sources include figures for Croatia but some do not. In the interests of consistency we have omitted it from the metrics in Annex A this time. We anticipate being able to include Croatia in future updates to this report, subject to our stated principles.

Figure 3 EU27 country codes (highlighting EU5)

Code	Country	Code	Country	Code	Country	Code	Country
BE	Belgium	EL	Greece	LU	Luxembourg	RO	Romania
BG	Bulgaria	**ES**	**Spain**	HU	Hungary	SI	Slovenia
CZ	Czech Republic	**FR**	**France**	MT	Malta	SK	Slovakia
DK	Denmark	**IT**	**Italy**	NL	Netherlands	FI	Finland
DE	**Germany**	CY	Cyprus	AT	Austria	SE	Sweden
EE	Estonia	LV	Latvia	PL	Poland	**UK**	**United Kingdom**
IE	Ireland	LT	Lithuania	PT	Portugal		

Source: Eurostat

1.2 Challenges of providing data

Due to the complexity of gathering data across comparator countries we have faced a number of practical considerations in compiling the Scorecard. These relate to ensuring that the data we publish are comparable, reliable and the most recent available at the time of preparing the Scorecard. We have applied the same considerations for this edition of the Scorecard as we did for last year's.

Comparable. The notes to the charts in the Scorecard contain the definitions of 'standard' fixed-line broadband, 'superfast' fixed-line broadband and mobile broadband that Ofcom or other organisations used in collecting the relevant data. In some cases these are different in different charts and countries. However, in general, 'standard' fixed-line broadband comprises technologies capable of providing speeds over 144Kbit/s and less than 30Mbit/s and 'superfast' fixed-line broadband comprises technologies capable of providing speeds equal to or greater than 30Mbit/s.

We take these definitions of standard and superfast broadband from those that the European Commission (EC) uses in collecting data to measure progress against its Digital Agenda Targets.[7] We consider that the EC is one of the primary sources of robust data comparing broadband networks across the EU27 and as such it is appropriate to adopt its definitions in the Scorecard.

In the interests of transparency the Scorecard shows publicly available data (with the exception of pricing data, explained below). We publish the source of the data in the notes to the charts.

[7] See https://ec.europa.eu/digital-agenda/en/scoreboard.

As one of the aims of the methodology we used to compile this data was to ensure consistency across the EU27 to enable comparison between countries, the figures we publish here may differ from those that Ofcom or other organisations publish elsewhere, which may have been collected and analysed for a different purpose or using a different methodology.

One example of this difference is the Scorecard comparisons of 'take-up and usage' across the EU5. In general we consider household penetration a more useful measure of take-up among the population than premises penetration. Thus we have used one measure based on survey data that excludes business connections to illustrate fixed broadband penetration per 100 households (Figure 10). However we also present fixed broadband connections per 100 people (Figure 9), a measure of fixed broadband penetration based on industry data rather than survey data, for reasons of consistency and to enable cross-comparisons with measures of superfast and mobile broadband which use the same survey methodology.

The metrics in Figure 2 are useful indicators of how broadband networks compare across the EU at a given point in time. However, they are just that: given the diverse topography, population density and legacy infrastructure of EU states (to name just a few factors), the direct comparison of individual metrics does not take account of the dynamics and relative challenges of developing broadband networks in different countries.

Reliable. Where we have any comments about the basis on which we or our sources collected or analysed the data in the Scorecard we have noted these in the charts' accompanying commentary.

At the time of publication of the first Scorecard we did not consider that there were suitable data available to illustrate three of the metrics in Figure 2. These were fixed-line download speed, fixed-line upload speed and mobile download speed. We have once again not been able to identify fixed-line upload speed and mobile download speed datasets that might be considered for publication in this Scorecard.

Since the first Scorecard was published the Commission has published research on the quality of broadband services in the EU.[8] The results of this work do not yet cover all EU countries or all EU5 countries so we have decided not to include this work in the Scorecard. Other fixed-line download speed datasets are publicly available, however in our opinion there are limitations to the methodology used to obtain these datasets which mean that they may not offer comparable, robust estimates of national average fixed-line download speed. For this reason we have not included the data in this Scorecard. We discuss the availability of broadband speed data further in Annex B.

Most recent available. Collecting data across different countries can often take a long time. This means that some of our datasets may have been collected many months before the Scorecard's publication. Given the speed at which broadband markets are moving, comparable and robust data covering the EU5 may not reflect the state of individual markets at the time of this Scorecard's publication and more up-to-date information for each country may be available elsewhere. The notes to each chart set out the date to when its data refer.

For some metrics two data sets have become available since the last Scorecard, giving data for both 2012 and 2013. Where this is the case we have included the 2013 data in the Scorecard, since it is the most recent available. The 2012 data is included separately, in Annex C, in the interests of completeness.

---

[8] See *Quality of Broadband Services in the EU March 2012*, 2013 at https://ec.europa.eu/digital-agenda/en/news/quality-broadband-services-eu-march-2012

We have published data in the Scorecard that we consider best meet these challenges. However, we invite users to submit comments on how we might improve the quality and presentation of the data in future to market.intelligence@ofcom.org.uk by 1 July 2014.

1.3 Next steps

As we did in publishing this Scorecard and the first Scorecard, we will apply the following principles to determine if and when it is appropriate to publish an updated Scorecard in future:

- We will only publish data in the Scorecard that we consider sufficiently robust and that refer to as recent a period as possible;
- The Scorecard will contain comparable data covering all EU5 countries as far as possible;[9]
- Dependent on the availability of sufficiently robust data, future Scorecards should contain the metrics that this Scorecard contains as a minimum; and
- In the interests of transparency, we will publish publicly available data in the Scorecard if they are sufficiently robust, timely and allow helpful comparison between countries.

We currently intend to publish any future Scorecards in our annual *International Communications Market Report* ("the ICMR"), which contains communications sector data covering a number of comparator countries, including the EU5.[10] We decided not to include an update to the Scorecard in the 2013 edition of the ICMR because there was insufficient new data at the time to merit an update.

[9] We reiterate that the metrics in Figure 2 are *indicators* of how broadband networks compare across the EU at a given point in time.
[10] See http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr12/international/.

Section 2

The Scorecard

2.1 Overview

Figure 4 provides an overview of the UK's position relative to that of EU5 countries across the Scorecard's metrics (except price).

Figure 4 Overview of the UK's position on the Scorecard relative to the EU5 (excluding pricing)

Coverage	EU5	Take-up and usage	EU5	Speed	EU5	Choice	EU5
Standard broadband coverage	=1/5	Standard broadband take-up	1/5*	Fixed download speed	N/A	Market concentration in fixed broadband market	1/5
Superfast broadband coverage	1/5	Superfast broadband take-up	1/5 **	Fixed upload speed	N/A	Market concentration in mobile broadband market	1/5
Mobile broadband coverage	=1/5	Mobile broadband take-up	1/5	Mobile download speed	N/A		
		% accessing internet regularly	1/5				
		% never used internet	1/5				
		% buying goods or services	1/5				
		% interacted with public authorities	4/5				

** 1/5 for broadband take-up per 100 households. The UK ranks 3/5 for broadband take-up per 100 people. We consider the per household figure to be a more useful figure because broadband is usually shared amongst a household rather taken by individuals. In this case the per individual measure is distorted by differences in the average number of people per household across the comparator countries. The per household measure therefore gives a closer indication of the share of people that do or do not have a broadband connection.*

*** 1/5 for superfast broadband take-up per 100 people. No per household superfast broadband take-up figures are available.*

Figure 5 Overview of the UK's position on the Scorecard relative to the EU5: pricing

	Weighted average single-service pricing	Simple average bundle pricing	Best offer pricing
8Mbit/s, 10GB data, 350 mins	1/5	2/5	2/5
16Mbit/s, 20GB data, 350 mins	1/5	1/5	3/5
30Mbit/s, 30GB data, 350 mins	1/4	2/4	3/4
1GB data (mobile broadband only)			2/5
3GB data (mobile broadband only)			3/5
5GB data (mobile broadband only)			2/5

Note: (1) Weighted average single-service pricing is the sum of the weighted average prices of the three cheapest standalone fixed broadband and three cheapest standalone fixed voice services that fulfil each basket's requirements. We weight the averages for each service by the relevant providers' market shares. (2) Simple average bundle pricing is the mean of the three lowest prices for bundled fixed broadband and fixed voice services that fulfil each basket's requirements. (3) Best offer pricing is the lowest price that a consumer could pay for each basket of services including, where appropriate, bundled services. (4) We have used three baskets including fixed broadband and fixed voice telephony in our analysis: a fixed broadband connection with a minimum headline speed of 'up to' 8Mbit/s and 10GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month; a fixed broadband connection with a minimum headline speed of 'up to' 16Mbit/s and 20GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month; and a fixed broadband connection with a minimum headline speed of 'up to' 30Mbit/s and 30GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month. (5) The UK is ranked against fewer than five countries where tariffs fulfilling basket requirements were not available in comparator countries.

Figure 6 **Overview of the UK's position on the Scorecard relative to the EU5 over time, including data (excluding pricing)**

	Data	EU5 ranking
Standard broadband coverage	**95-100%** *(95-100%)*	**=1** *(=1)*
Superfast broadband coverage	**70-75%** *(55-60%)*	**1** *(3)*
Mobile broadband coverage	**95-100%** *(95-100%)*	**=1** *(=1)*
Fixed broadband connections per 100 households	**83** *(77)*	**1** *(1)*
Fixed broadband connections per 100 people	**34** *(32)*	**3** *(3)*
Superfast broadband connections per 100 people	**9** *(2)*	**1** *(3)*
Mobile broadband connections per 100 people	**84** *(64)*	**1** *(2)*
Percentage of individuals accessing the internet at least once a week	**87%** *(81%)*	**1** *(1)*
Percentage of individuals that have never used the internet	**8%** *(11%)*	**1** *(1)*
Percentage of individuals who bought or ordered goods or services online within the last 12 months	**77%** *(71%)*	**1** *(1)*
Percentage of individuals who interacted online with public authorities within the last 12 months	**41%** *(40%)*	**4** *(3)*
Percentage of fixed broadband lines operated by incumbent	**31%** *(31%)*	**1** *(1)*
Percentage market share of leading MNOs	**31%** *(33%)*	**1** *(=1)*

Note: Data and rankings for 2014 Scorecard listed in bold. Data and rankings for 2013 Scorecard listed in italics and parentheses.

Figure 7 Overview of the UK's position on the Scorecard relative to the EU5 over time, including data: pricing

		UK Rank	UK (£PPP)	FR (£PPP)	DE (£PPP)	ES (£PPP)	IT (£PPP)
Weighted average single-service pricing	8Mbit/s, 10GB data, 350 mins	**1/5**	**30**	45	45	53	48
	16Mbit/s, 20GB data, 350 mins	**1/5**	**30**	48	55	53	50
	30Mbit/s, 30GB data, 350 mins	**1/4**	**39**	n/a	59	67	46
Simple average bundle pricing	8Mbit/s, 10GB data, 350 mins	**2/5**	**26**	31	21	31	29
	16Mbit/s, 20GB data, 350 mins	**1/5**	**27**	33	32	31	30
	30Mbit/s, 30GB data, 350 mins	**2/4**	**35**	n/a	32	41	37
Best offer pricing	8Mbit/s, 10GB data, 350 mins	**2/5**	**21**	31	18	23	27
	16Mbit/s, 20GB data, 350 mins	**3/5**	**25**	31	22	23	27
	30Mbit/s, 30GB data, 350 mins	**3/4**	**31**	n/a	22	40	27
Best offer pricing	1GB data (mobile broadband only)	**2/4**	**6**	7	13	n/a	6
	3GB data (mobile broadband only)	**3/5**	**15**	12	19	28	8
	5GB data (mobile broadband only)	**2/5**	**15**	16	19	28	8

Note: (1) Data and rankings for 2014 Scorecard listed in bold. Data and rankings for 2013 Scorecard list in italics and parentheses. (2) Weighted average single-service pricing is the sum of the weighted average prices of the three cheapest standalone fixed broadband and three cheapest standalone fixed voice services that fulfil each basket's requirements. We weight the averages for each service by the relevant providers' market shares. (3) Simple average bundle pricing is the mean of the three lowest prices for bundled fixed broadband and fixed voice services that fulfil each basket's requirements. (4) 'Best offer' pricing is the lowest price that a consumer could pay for each basket of services including, where appropriate, bundled services. (5) We have used three baskets including fixed broadband and fixed voice telephony in our analysis: a fixed broadband connection with a minimum headline speed of 'up to' 8Mbit/s and 10GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month; a fixed broadband connection with a minimum headline speed of 'up to' 16Mbit/s and 20GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month; and a fixed broadband connection with a minimum headline speed of 'up to' 30Mbit/s and 30GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month. (6) The UK is ranked against fewer than five countries where tariffs fulfilling basket requirements were not available in comparator countries.

2.2 Coverage

Standard broadband, superfast broadband and mobile broadband coverage

Broadband network analysts Point Topic published the most recent estimates of standard, superfast and mobile broadband coverage at a national level for EU5 countries.[11] Prepared on behalf of the EC, the study was published in November 2013 and refers to year-end 2012. In the report Point Topic has estimated the proportion of households in each EU member state that can access standard or superfast broadband through any of the technologies that provide it.

Point Topic estimates standard and superfast broadband coverage as the proportion of households in a region that can access a fixed-line technology theoretically capable of providing headline download speeds of at least 144kbit/s and less than 30Mbit/s for standard broadband and 30+Mbit/s for superfast broadband.[12] It calculates mobile broadband coverage as the percentage of households within a region that can access an HSPA-upgraded 3G network.

The regions for which Point Topic collects data are the smallest of the EC's 'nomenclature of territorial units for statistics' (NUTS), NUTS 3. NUTS 3 regions generally contain populations between 150,000 and 800,000. Point Topic estimates the number of households within each region from its population.[13]

Point Topic estimates the proportion of households in a region that can access standard, superfast or mobile broadband as the mean of minimum possible coverage in the region (the proportion of households that can access the most widespread standard, superfast or mobile technology) and maximum possible coverage (the sum of coverage by all relevant technologies to a maximum of 100%).[14] Point Topic further calculates standard, superfast and mobile broadband coverage nationally as the sum of the number of households covered in each region.

Broadband coverage in Europe is developing quickly and Point Topic's superfast broadband coverage figure for the UK, which refers to year-end 2012, differs from our latest published coverage figure, which refers to June 2013. Point Topic reports that 70% of households could access superfast broadband in the UK at year-end 2012, while we calculate that six months later in June 2013 it was available to 73% of UK premises.[15]

---

[11] Point Topic / EC, *Broadband Coverage in Europe 2012*, 2013, at https://ec.europa.eu/digital-agenda/en/news/study-broadband-coverage-2012 .

[12] Point Topic defines DSL, FTTP, WiMAX and Standard Cable as capable of offering download speeds of at least 144kbit/s and less than 30Mbit/s. It defines Next Generation Access (NGA) technologies (VDSL, FTTP and DOCSIS3.0 cable) as capable of providing 30Mbit/s download speeds. Full methodological information on Point Topic's study is available at https://ec.europa.eu/digital-agenda/en/news/study-broadband-coverage-2012

[13] The study includes coverage estimates for 1294 NUTS 3 regions across the EU27.

[14] Example calculation of standard broadband coverage in a region where 95% of households can access DSL, 90% can access Standard Cable and 15% can access WiMax:
Minimum possible coverage = 95%
Maximum possible coverage (to a maximum of 100%) = 90% + 15% = 105% therefore 100%
Standard broadband coverage = (95% + 100%) / 2 = 97.5%

[15] Ofcom, *Infrastructure Report 2013 Update*, 2013, p. 2, at http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf.

Point Topic's figures are, to our knowledge, the only estimates of the proportion of households in EU countries able to access standard and superfast broadband through any of the fixed-line technologies that the study encompasses. However, in our view there are some factors additional to those above that affect how Point Topic measures coverage, of which readers should be aware:

- Point Topic calculates coverage by estimating the availability of technologies theoretically capable of providing certain headline speeds, however its figures may not always reflect the speeds actually available. For example, Point Topic reports that 100% of UK households could access standard broadband at year-end 2012 because ADSL technology had been rolled out to almost every UK telephone exchange. Ofcom's most recent analysis estimated that, in fact, 1.3% of UK premises were in potential broadband notspots in June 2012.[16] Equally, access to NGA technologies may not guarantee speeds of 30+Mbit/s. For example FTTC with VDSL over the copper sub loop between the cabinet and household is a technology capable of delivering superfast speeds. However, if the length of the sub loop is too long then it will not achieve 30Mbit/s.

- Point Topic did not receive consistent coverage data from all national regulatory agencies (NRAs) and operators. For example, in France there were no accurate figures available for DSL and DOCSIS3.0 (cable) coverage, which affect standard and superfast broadband coverage respectively. As a result Point Topic made estimates based on the information available to it.[17]

- NRAs and operators typically provide mobile broadband household coverage figures measured outdoors. Point Topic also chooses to report outdoor mobile broadband coverage.

  Geographic coverage and indoor coverage are likely to be significantly less than outdoor household coverage. We estimate that 22.9% of the UK's geographic area had no 3G signal from any operator in June 2013.[18]

  Household coverage data is also unlikely to adequately reflect local notspots that affect particular networks. We estimate that, in June 2013, only 79.7% of UK premises had a signal from all four operators and 0.9% of all UK premises had no 3G signal from any operator.[19]

Point Topic has not published margins of error for its figures. However, in acknowledgement of the difficulties of accurately measuring coverage to a single percentage point (and comparing countries where coverage levels are very similar), we report Point Topic's figures

---

[16] Ofcom, *Infrastructure Report 2012 Update*, p. 10 at http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/Infrastructure-report2012.pdf Ofcom has not performed this analysis since the 2012 report but has made the underlying data available should anyone wish to calculate it.

[17] For DSL coverage, Point Topic made an assumption based on the ratio of DSL copper lines to the global number of copper lines, an approach which it was aware would result in an inaccurate estimate of household coverage but which it made in the absence of more accurate information. For DOCSIS3.0 coverage it made an estimate. See Point Topic / EC *Broadband coverage in Europe in 2012*, 2013 p. 100 at https://ec.europa.eu/digital-agenda/en/news/study-broadband-coverage-2012

[18] [18] Ofcom, *Infrastructure Report 2013 Update*, p. 47, at http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf

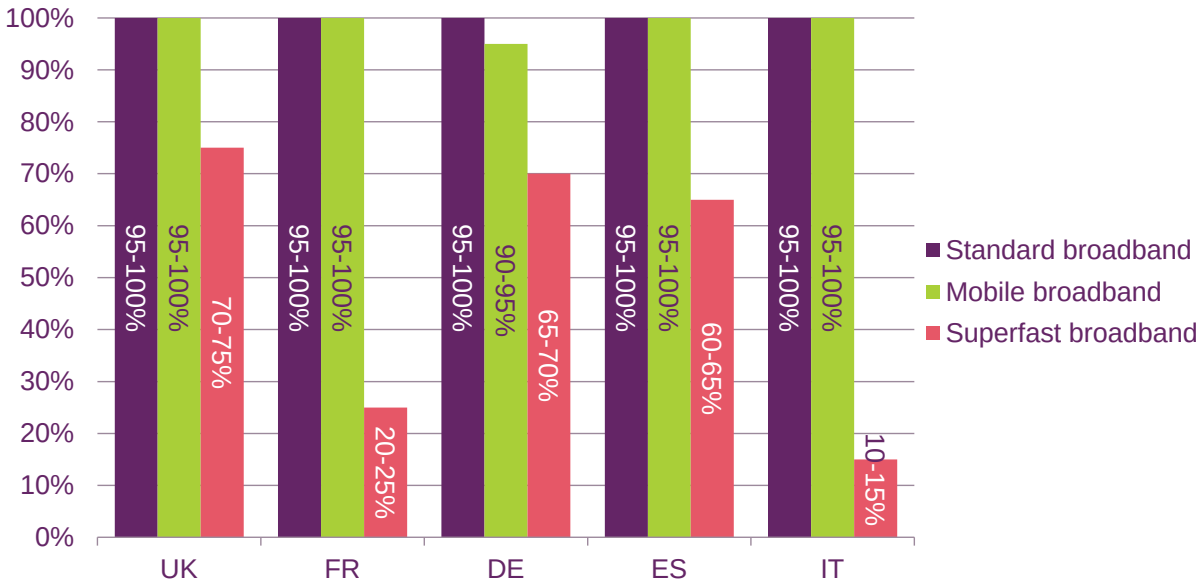
[19] Ibid

within bands of five percentage points. For example, 97% coverage or 95% coverage will be placed in the 95%-100% coverage band.

In all five comparator countries, at least 95% of households are in areas served by standard broadband. At least 95% of households are in areas served by mobile broadband in every EU5 country except Germany, where between 90% and 95% of households are in areas with coverage. However, it is important to note that Germany generally applies a more rigorous definition of mobile coverage than most countries, based on actual download speeds rather than simple reception of a signal.

Superfast broadband coverage has increased significantly in the UK since our last Scorecard, from 55-60% of households covered up to 70-75%. The UK now has the highest level of coverage amongst the EU5, overtaking Germany (65-70% of households covered) and Spain (60-65%). France's superfast broadband coverage (20-25%) has grown year on year but is lower than the level reported last year (35-40%) after Point Topic restated its data. Italy has the lowest level of superfast broadband coverage of the EU5 (10-15%).

Figure 8 Percentage of households in areas served by standard, superfast and mobile broadband



Source: Point Topic / EC, Broadband Coverage in Europe 2012, November 2013.
Note: (1) Data refer to year-end 2012. (2) Ofcom has banded Point Topic's figures within a range between the nearest integers divisible by 5. (3) 'Standard broadband' refers to DSL, FTTP, WiMAX and Standard Cable, the main fixed-line technologies capable of providing headline speed of at least 144kbit/s and less than 30Mbit/s download speed for end-users. (4) 'Superfast broadband' refers to NGA technologies, including VDSL, FTTP and DOCSIS3.0 cable, those needed to provide 30Mbit/s download speeds for end users. (5) 'Mobile broadband' refers to coverage by at least one HSPA-upgraded 3G mobile network. LTE coverage is not included.

UK superfast broadband coverage has risen quickly as a result of infrastructure programmes by commercial network operators. Openreach and Virgin Media's respective networks account for over 98% of all superfast broadband homes passed.[20] Openreach's programme to expand its superfast broadband footprint is ongoing and is due to end in 2015, while Virgin Media has focused on increasing speeds offered to the homes it already covers.

[20] See Ofcom *Infrastructure Report Update 2013* at http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf

A number of other smaller providers are also building and operating SFBB networks, including KCom in the Hull area, WightFibre on the Isle of Wight, Small World Cable in North West England and Western Scotland and a number of commercial schemes in new housing developments and community projects in rural areas.

The UK Government has committed to funding the further expansion of superfast broadband coverage beyond the major commercial programmes. It has made funding of £530m available, to be supplemented with additional funding from local authorities and devolved administrations, with the aim of achieving superfast broadband coverage of at least 90% which it expects to reach in 2016. The programme is being coordinated by Broadband Delivery UK. Additional funding of £250m has been allocated by Government, to be matched by local authorities, to extend coverage from 90% to 95% by 2017.

2.3 Take-up and usage

At the time of the Scorecard's preparation, the EC's Communications Committee (Cocom) and Eurostat offered the most recent assessments of broadband take-up in the forms of fixed broadband, superfast broadband and mobile broadband penetration per 100 people or per 100 households across the EU5.[21]

Cocom measures broadband penetration per 100 people based on NRA and operator data. Its figures refer to January 2013 and it publishes the following relevant metrics:

- Fixed broadband penetration per 100 people (Figure 9);
- Superfast broadband penetration per 100 people (Figure 11); and
- Mobile broadband connections per 100 people (Figure 12).

Eurostat publishes survey data on the proportion of households that had access to fixed broadband in Q1 2013 (Figure 10).

Fixed broadband take-up

Cocom reports that there were 34 fixed broadband connections of any speed per 100 people in the UK in January 2013. This was slightly fewer than in France (37) and the same as Germany (34). However penetration in the UK was considerably higher than in Italy (23 connections per 100 people) and Spain (25).

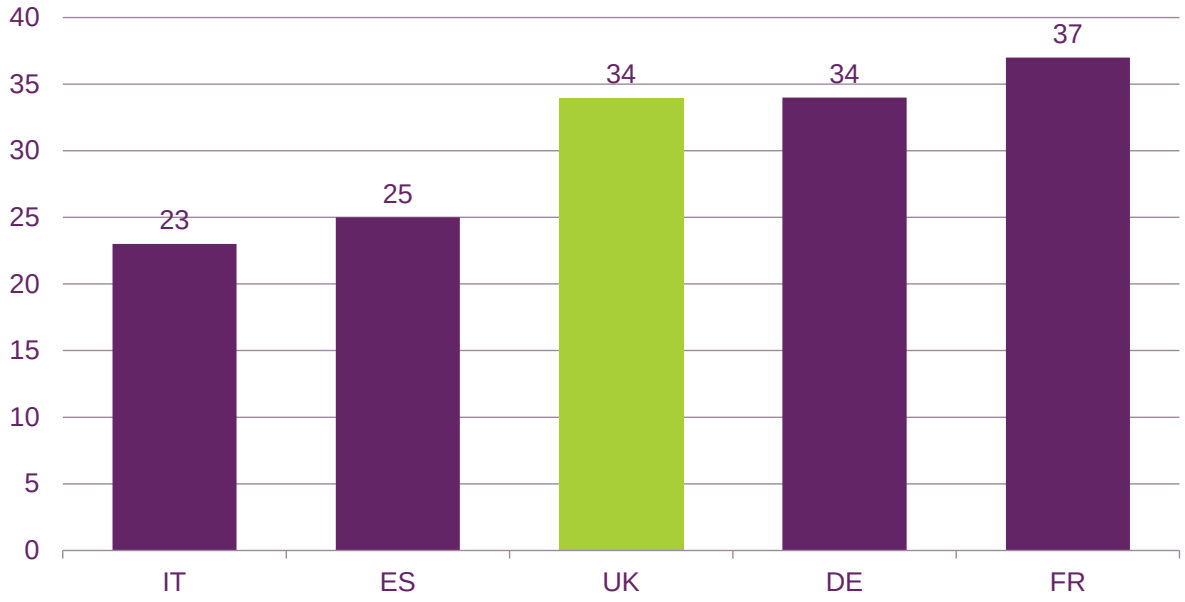
Our own data on the number of broadband penetration connections per person, based on IDATE, operator and Ofcom data and analysis, gave very similar results. These figures, published in the latest edition of the ICMR, give the same ranking order with France still leading the EU5 with 36 connections per 100 people, followed by Germany (35 connections per 100 people), the UK (34), Spain (24) and Italy (22).[22]

---

[21] Cocom, EC, *Digital Agenda Scoreboard 2013*, at http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?action=display&doc_id=2375 ; Eurostat, *Community survey on ICT usage by Households and Individuals*, 2013, at http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/comprehensive_databases or http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/database

[22] See Ofcom, *International Communications Market Report*, 2013, p. 293-294 at http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr12/international/.

Figure 9 Fixed broadband connections per 100 people



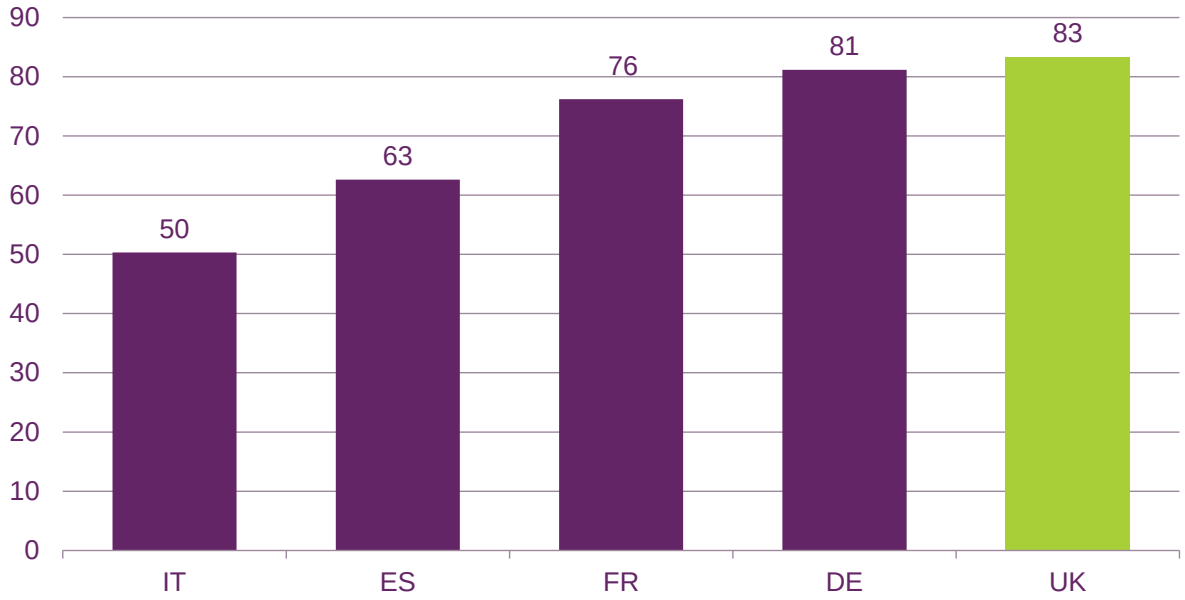
Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Note: (1) Data refer to January 2013. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections.

Eurostat data suggests that 83% of UK households had fixed broadband access at that time, the highest reported rate of household penetration among the EU5.

Our own research suggests that 75% of UK households had fixed access broadband connections in October-December 2013.[23]

[23] See Ofcom, Technology Tracker, Wave 3 2013, at http://stakeholders.ofcom.org.uk/binaries/research/statistics/2014Jan/Ofcom_Technology_Tracker_data_tables_for_publication_Wave_3_2013.pdf

Figure 10 Fixed broadband connections per 100 households



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections. (3) Data relates to households with at least one member aged 16-74 years.

Superfast broadband take-up

Cocom reports superfast broadband penetration, defining this as the number of broadband connections per 100 people that access the internet via NGA technologies theoretically capable of offering headline speeds of 30+Mbit/s, including VDSL, FTTP and DOCSIS3.0.[24]

In January 2013 Cocom reports that there were 9 superfast connections per 100 people in the UK, the highest superfast penetration rate among the EU5. According to Cocom's figures UK take-up grew very quickly over the year, up from 2 superfast connections per 100 people in 2012, to overtake previous EU5 leader, Spain.

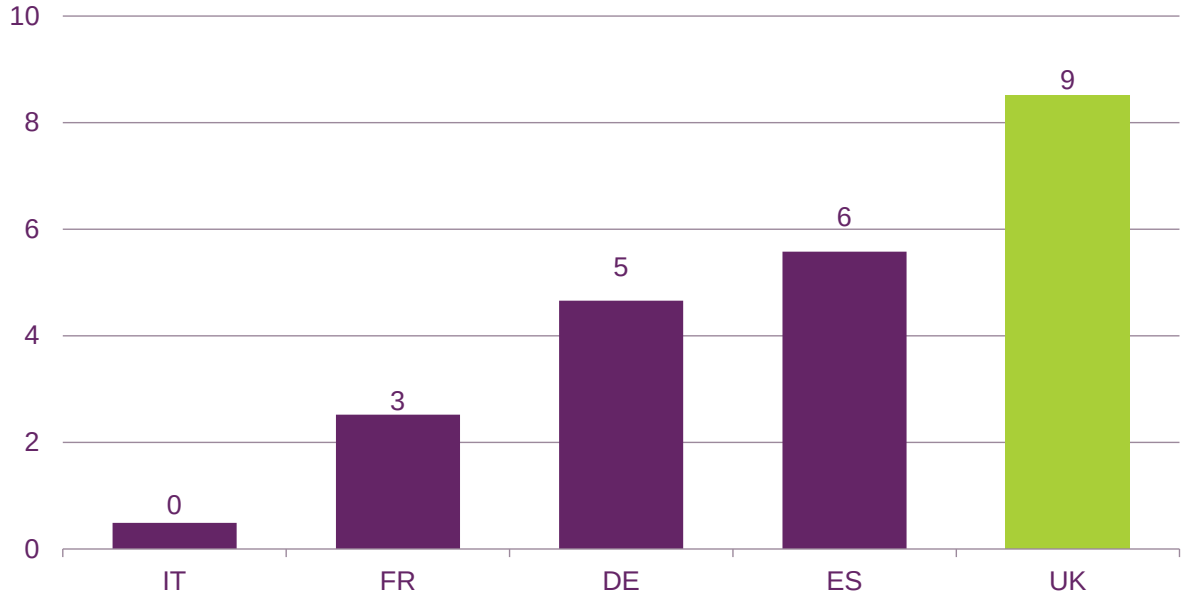
The large increase in UK superfast broadband penetration can be explained in part by the increased availability of 30+Mbit/s connections over the period between our Scorecards (See Figure 8 and accompanying commentary, above). It is also due in part to cable operator Virgin Media undertaking a programme of doubling the speed of all its broadband customers.[25] Last year's Scorecard identified a number of commercial and public initiatives

[24] Ofcom estimates that 16% of UK households had a superfast broadband connections in June 2013, based on figures included in Ofcom *Infrastructure Report 2013 Update*: 72% of UK households have fixed-line broadband connections (p. 19). Of these households, 22% have superfast connections (p. 3). Therefore the share of all households with superfast broadband connections is 22% x 72% = 16%. See http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf

[25]. Virgin Media began a programme upgrading all its customers to higher-speed packages offering headline download speeds of 20, 30, 60 or 120Mbit/s. See http://mediacentre.virginmedia.com/Stories/Virgin-Media-s-speed-doubling-starts-2380.aspx

to roll out superfast broadband which were then in progress.[26] The effects of these programmes are now being reflected in the penetration figures.

Figure 11 Superfast broadband connections per 100 people



Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Note: (1) Data refer to January 2013. (2) 'Superfast broadband' refers to NGA technologies, including VDSL, FTTP and DOCSIS3.0 cable, those needed to provide 30Mbit/s download speeds for end users.

Mobile broadband take-up

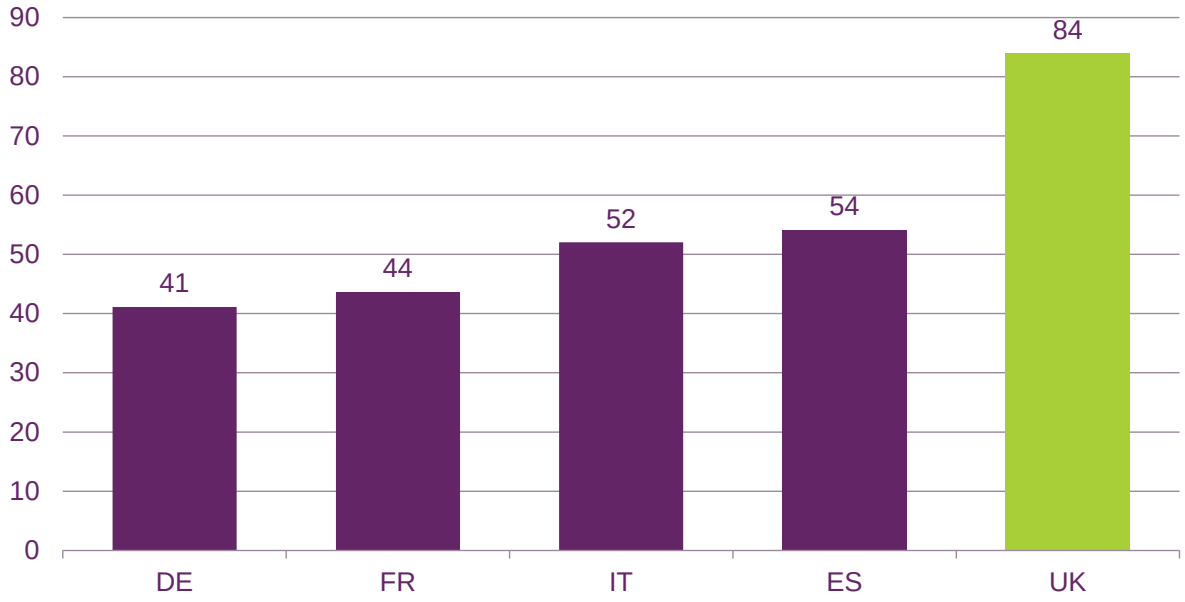
Cocom calculates mobile broadband penetration as the combined number of the following subscriptions per 100 people:

- Subscriptions that have connected to the internet in the preceding ninety days through a smartphone or web-enabled handset;
- Subscriptions to dedicated data services over a mobile network that are purchased separately from voice services as a standalone service (modems/dongles); and
- Subscriptions to dedicated data services over a mobile network that are purchased separately from voice services as an add-on data package requiring an additional subscription.

In the UK there were 84 such connections per 100 people in January 2013, up from 64 in January 2012. The UK now has the highest rate of penetration in the EU5, overtaking previous leader Spain where there were 54 mobile broadband connections per 100 people in January 2013. In Italy (52 connections per 100 people), France (44) and Germany (41) the rate of mobile broadband penetration was lower, although each saw big increases on the penetration levels in January 2012.

[26] See *The European Broadband Scorecard*, 2013, p. 14 at http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/scorecard.pdf

Figure 12 Mobile broadband connections per 100 people



Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Notes: (1) Data refer to January 2013. (2) Data combine the number of subscriptions that have connected to the internet in the preceding ninety days through a standard mobile subscription, the number of subscriptions to dedicated data services over a mobile network that are purchased separately from voice services as a standalone service (modem/dongle) and the number of subscriptions to dedicated data services over a mobile network that are purchased separately from voice services as an add-on data package requiring an additional subscription. (3) Mobile broadband connections may use technologies including 3G, HSPA and LTE.

Use of online services

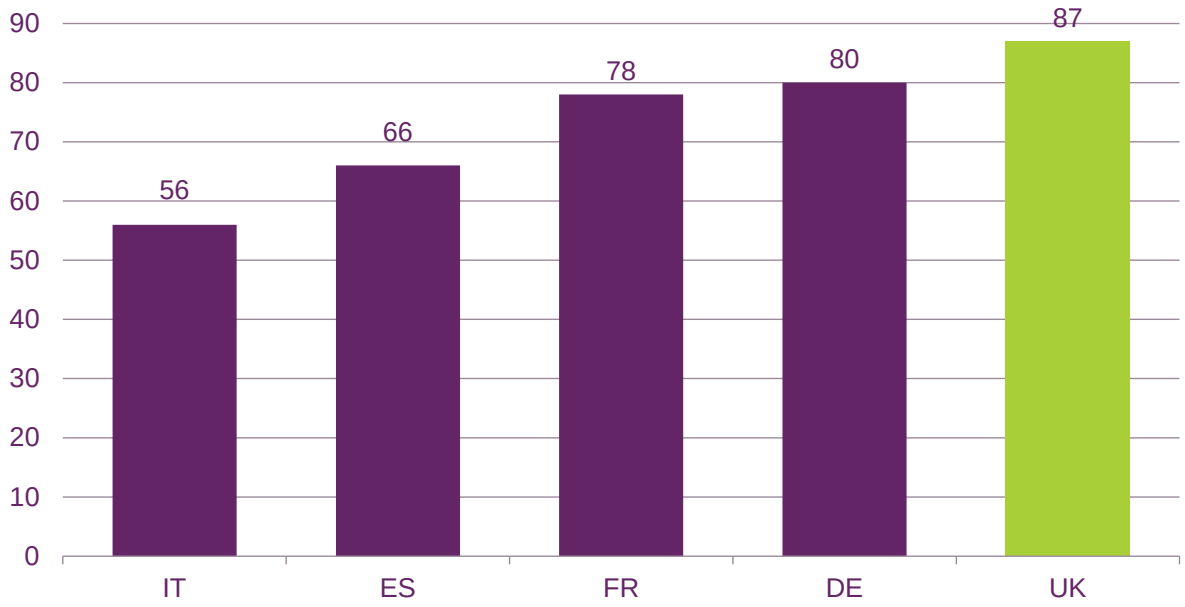
Eurostat survey data covering the EU5 includes the following metrics relating to internet usage:[27]

- The percentage of individuals accessing the internet at least once a week (Figure 13);
- The percentage of individuals who have never used the internet (Figure 14);
- The percentage of individuals who bought or ordered goods or services online within the last 12 months (Figure 15); and
- The percentage of individuals who have interacted online with public authorities within the last 12 months (Figure 16).

[27] See Eurostat, *Community survey on ICT usage by Households and Individuals*, 2013, at http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/database

In Q1 2013, the proportion of individuals who accessed the internet at least once a week was 87% in the UK, a higher proportion than in any other EU5 country. Italy contained the lowest proportion of individuals who accessed the internet weekly (56%), followed by Spain (66%), although the share of regular internet users grew across all five countries from the 2011 levels reported in our last Scorecard.[28]

Figure 13 Percentage of individuals accessing the internet at least once a week

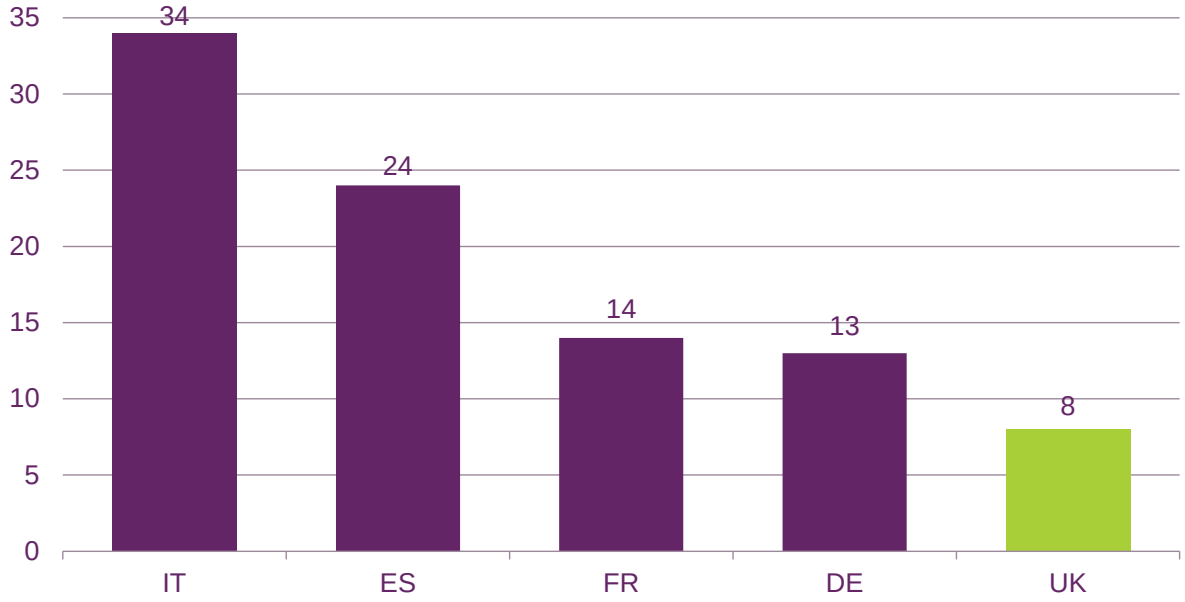


Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

The UK contained a lower proportion of individuals who had never used the internet than any other EU5 country in Q1 2013 (8%). Across the EU5 this group is shrinking as a proportion of the population: 13 per cent of people in Germany and 14 per cent of people in France had never been online during the period compared to figures of 16 and 18 per cent respectively in 2011. A larger proportion of people in Italy (34%) and Spain (24%) had never used the internet in Q1 2013 but both had fallen by five percentage points from their 2011 levels.

[28] See http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/bbresearch/scorecard for 2011 data. Q1 2012 data for usage metrics collected by Eurostat are included in Annex C of this report.

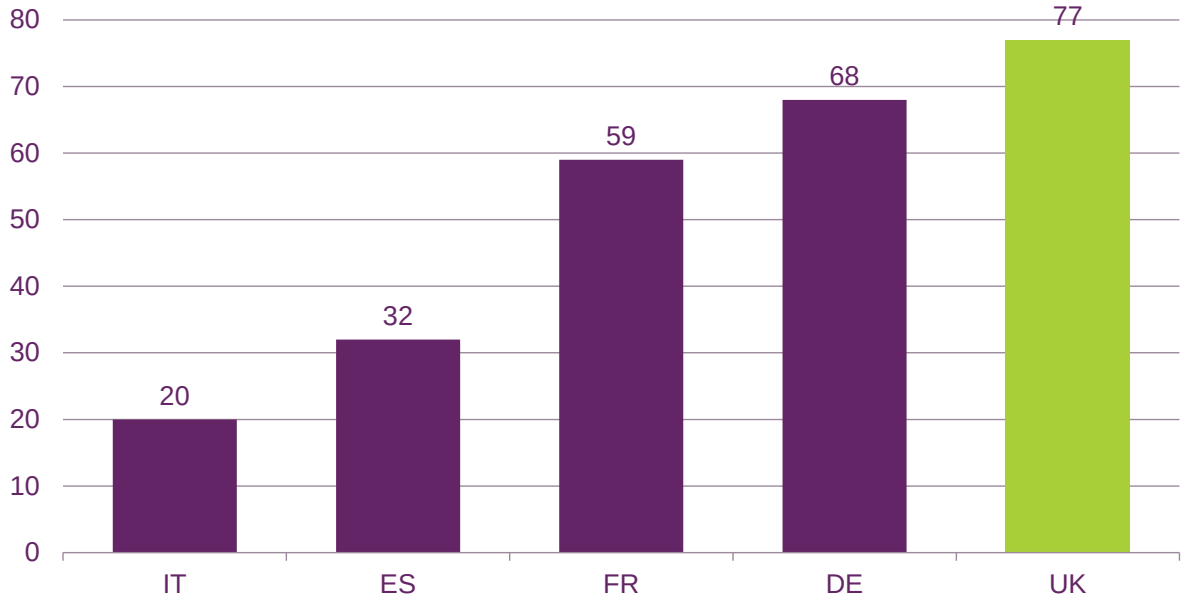
Figure 14 Percentage of individuals that have never used the internet



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

The UK contained the highest proportion of individuals who had bought or ordered goods or services online within the twelve months to Q1 2013 among the EU5 (77%). In Germany 68% of individuals had done so, while in Italy 20% had shopped online in the previous 12 months, the lowest proportion in an EU5 country.

Figure 15 Percentage of individuals who bought or ordered goods or services online within the last 12 months

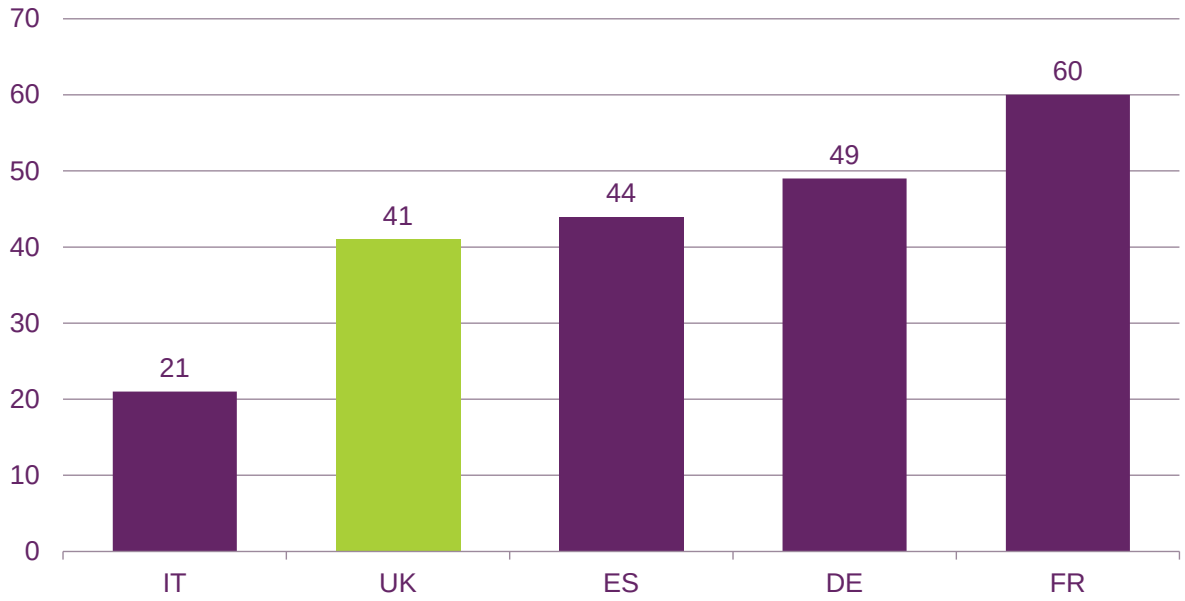


Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

A lower proportion of individuals had interacted with public authorities online in the twelve months to Q1 2011 in the UK (41%) than in France (60%), Germany (49%) or Spain (44%). Italy contained the lowest proportion of people who had interacted with public authorities online in the previous twelve months among the EU5 (21%). These proportions have not

changed significantly from their 2011 levels, with some small increases in 2012 being offset in part by small falls in 2013.

Figure 16 Percentage of population who interacted online with public authorities within the last 12 months



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

2.4 Pricing

Ofcom compares the price of communications services in the UK, France, Germany, Italy, Spain and the US in its *International Communications Market Report*.[29]

We do this using a model that incorporates the residential tariffs offered by the largest providers of consumer fixed broadband, fixed voice, mobile broadband and pay-TV services in these six countries, including bundled tariffs. Using this data, the model calculates the lowest possible monthly price at which a consumer could meet the usage requirements of pre-defined baskets of services.[30]

Using this model we have undertaken additional analysis to determine the monthly cost of three baskets of fixed broadband and fixed voice services among EU5 countries. We present them in three different ways:

- **Weighted average single-service pricing.** This is the sum of the weighted average prices of the three cheapest standalone fixed broadband and three cheapest standalone fixed voice services that fulfil each basket's requirements. We weight the averages for each service by the relevant providers' market shares (Figure 17);

[29] Ofcom, *International Communications Market Report 2013,* at http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr13/international/

[30] This model, provided by Teligen, incorporates the tariffs offered by those communications providers that make up 80% of the market by connection share for each service in each country, or a maximum of five providers for each service.

- **Simple average bundle pricing.** This is the mean of the three lowest prices for bundled fixed broadband and fixed voice services that fulfil each basket's requirements (Figure 18); and

- **'Best offer' pricing.** This is the lowest price that a consumer could pay for each basket of services including, where appropriate, bundled services (Figure 19).

In general, weighted pricing measures offer a more accurate reflection of the prices consumers are paying in a given market, as opposed to simple average and best price metrics which may reflect service offerings with relatively limited availability or low take-up. However, none of the individual pricing metrics is perfect in isolation, for the reasons outlined below, so we use them in conjunction to build up an overall impression.

We have used the following baskets in this analysis:

- A fixed broadband connection with a minimum headline speed of 'up to' 8Mbit/s and 10GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month;[31]

- A fixed broadband connection with a minimum headline speed of 'up to' 16Mbit/s and 20GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month; and

- A fixed broadband connection with a minimum headline speed of 'up to' 30Mbit/s and 30GB of data use per month, alongside a fixed line with 350 minutes of outgoing calls per month.

Each basket includes the relevant line rental fee for the fixed-line connection.

We have also analysed the price of mobile broadband services. Below, we display the single-service best offer prices of connections requiring 1GB, 3GB and 5GB of data per month using a datacard or dongle (not taking into account connection speed) (Figure 20).

We adjust all of our figures for purchasing power parity (PPP) so that they have equivalent purchasing power across countries. This adjustment makes cross-country comparisons fairer. Exchange rate fluctuations and changes in PPP between countries since last year mean that the figures included in the 2013 Scorecard are not directly comparable to those in this one. Where we make comparisons to baskets and prices in 2012 below we have used 2012 figures recalculated using 2013 PPP and exchange rates.

There are limitations to how accurately our analysis can reflect the prices that consumers actually pay:

- Analysis of single-service tariffs excludes bundled offers. Ofcom research suggests that, in October to December 2013, 68% of UK residential fixed broadband users purchased their service alongside other service/s as part of a bundle;[32]

---

[31] According to data compiled for Ofcom's *International Communications Market Report 2013,* the average monthly volume of fixed calls per exchange line across the EU5 countries was 345 minutes in 2012.

[32] See Ofcom, Technology Tracker, Wave 3 2013, at http://stakeholders.ofcom.org.uk/binaries/research/statistics/2014Jan/Ofcom_Technology_Tracker_data_tables_for_publication_Wave_3_2013.pdf

- Weighted averages give a better reflection of the prices a country's consumers pay because they take account of providers' market shares. That reduces the risk of averages being skewed by cheap services which relatively few consumers take up. However, the market share data needed for weighting is only available for single services, not for the bundled offers which make up a large share of purchases in some countries;

- Best offer pricing data reflects tariffs that may not be available to some consumers, (for example if they do not have access to the requisite infrastructure); and

- Average pricing data does not give an indication of the range of prices among the tariffs from which we take the average.

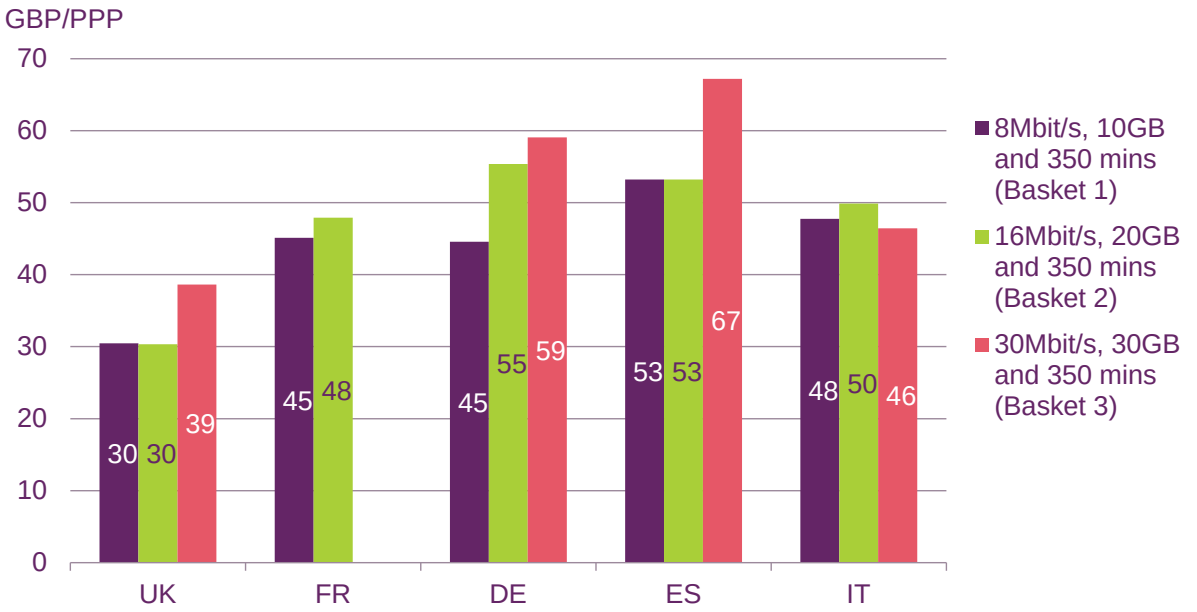
However, by defining the price of our baskets in different ways as set out above we have mitigated the risk that the analysis in the Scorecard distorts the experiences of consumers. We also believe that our data is the most reliable data available that compares fixed and mobile broadband prices across the EU5. We therefore consider that it is the most appropriate dataset for inclusion in the Scorecard.

The UK has maintained the same EU5 ranking positions on all but two of the average/basket combinations we have analysed (based on recalculated 2012 figures). Our analysis indicates that of the nine fixed telephony and broadband basket/metric combinations included in our analysis, six were cheaper in the UK in 2013 than in 2012, one was the same price and two had increased slightly. All three best offer prices for the mobile broadband baskets remained the same as last year. Only two best price offer basket rankings fell in the UK, in both cases as a result of heavy promotions being offered in other comparator countries.

Weighted average single-service pricing

The average of the three lowest available prices for standalone fixed broadband and fixed voice services, weighted by the relevant provider's market share, was cheaper in the UK than in any other EU5 country for all three baskets in 2013, as was the case in 2012. The weighted average monthly price of single-service tariffs for Basket 1, offering 8Mbit/s headline download speed, 10GB of data use and 350 voice minutes, was £30 in the UK in 2013, down from £35 in 2012. For Basket 2 (16Mbit/s, 20GB and 350 minutes) the weighted average stand-alone price was also £30 in 2013, down from £37 in 2012, while that of Basket 3 (30Mbit/s, 30GB and 350 minutes) fell to £39 from £40 during the year. The highest weighted average stand-alone prices for Baskets 1 and 3 were both found in Spain in 2013, and that for Basket 2 was found in Germany.

Figure 17 Weighted average single-service pricing for fixed broadband and fixed voice services



Source: Ofcom, using data supplied by Teligen.
Note: (1) Average of three lowest single-service tariffs available in each country, weighted by market share. (2) Data refer to July 2013. (3) In France no provider included in the Teligen model offered single service fixed broadband with a headline download speeds of 30Mbit/s or higher in July 2013. Broadband at 30Mbit/s or higher was only available as part of a bundle. (4) In some cases the weighted average price for a broadband connection is lower than it is for slower connection speeds. This is a result of the market share weighting for each speed, i.e. cheaper providers have greater market share at the faster connection speeds than they do at the lower speed. (5) Only one single-service fixed broadband package with connection speed above 30Mbit/s was available in Italy during the research period, unlike the lower speed packages which were offered by multiple providers, some of which were at a higher price. The 30Mbit/s package was on offer with a significant discount for the first 12 months. (6) PPP adjusted.

Simple average bundle pricing

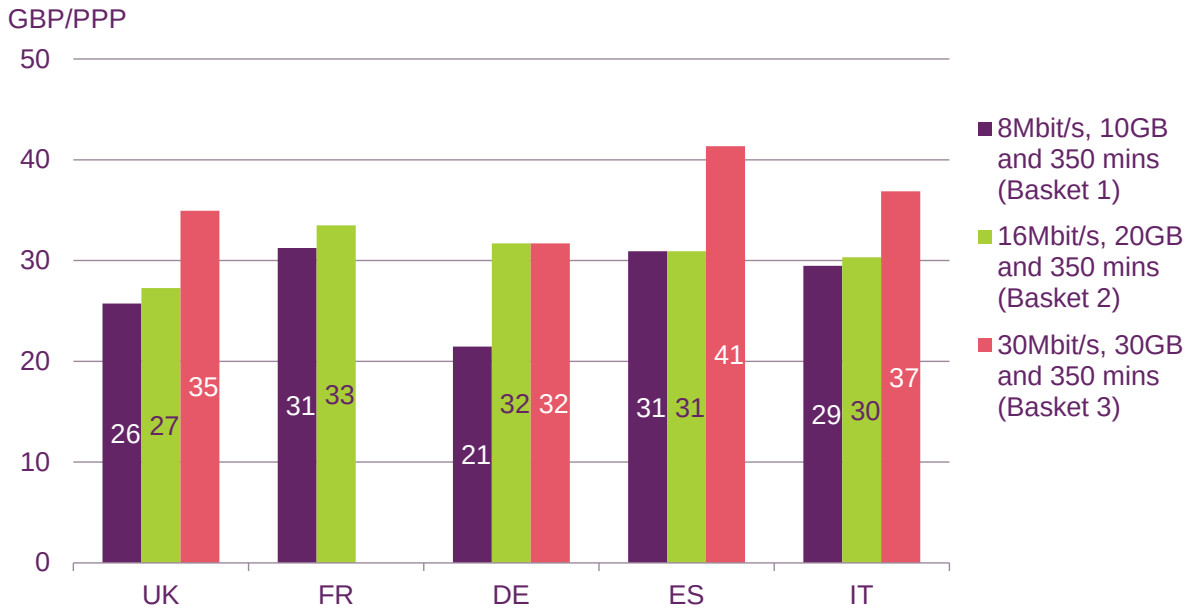
The UK offered the lowest available simple average bundled price for one basket and the second lowest average prices for two baskets in 2013.

The lowest weighted average price for Basket 2 (which includes a broadband connection of at least 16Mbit/s, 20GB of data and 350 minutes of fixed voice calls) was found in the UK in 2013 at £27 per month. The lowest average prices for Baskets 1 and 3 (Basket 1 with the same fixed voice use and 10GB of data use over a connection of at least 8Mbit/s, and Basket 3 with similar outgoing calls and 30GB of use over a connection of at least 30Mbit/s) were both found in Germany in 2013, at £21 and £32 per month respectively. In the UK, the average prices of these baskets were £26 per month and £35 per month respectively. No providers in France that are included in the Teligen model offered a bundled service which fulfilled the headline download speed and other requirements of this basket, so we cannot compare average bundle prices in France to those in the other EU5 countries

On a like-for-like basis, the average bundle price of Baskets 1 and 2 in the UK both increased by £1 per month in 2013, while that for Basket 3, which includes a superfast

broadband connection, fell by £3 per month over the same period.[33] There was a notable downward trend for bundle prices in Spain on this simple average measure, with significant price decreases since last year.[34]

Figure 18 Simple average bundle pricing for fixed broadband and fixed voice services



Source: Ofcom, using data supplied by Teligen.
Note: (1) Average of the three lowest bundled tariffs available in each country. (2) Data refer to July 2013. (3) In France no provider included in the Teligen model offered a fixed broadband and fixed voice only bundled service including fixed broadband with a headline download speed of 30Mbit/s or higher in July 2013. Many of the bundles available in France which meet the 30Mbit/s broadband connection speed threshold also include pay TV and/or mobile services as well so are not comparable. (4) PPP adjusted.

'Best offer' fixed line pricing

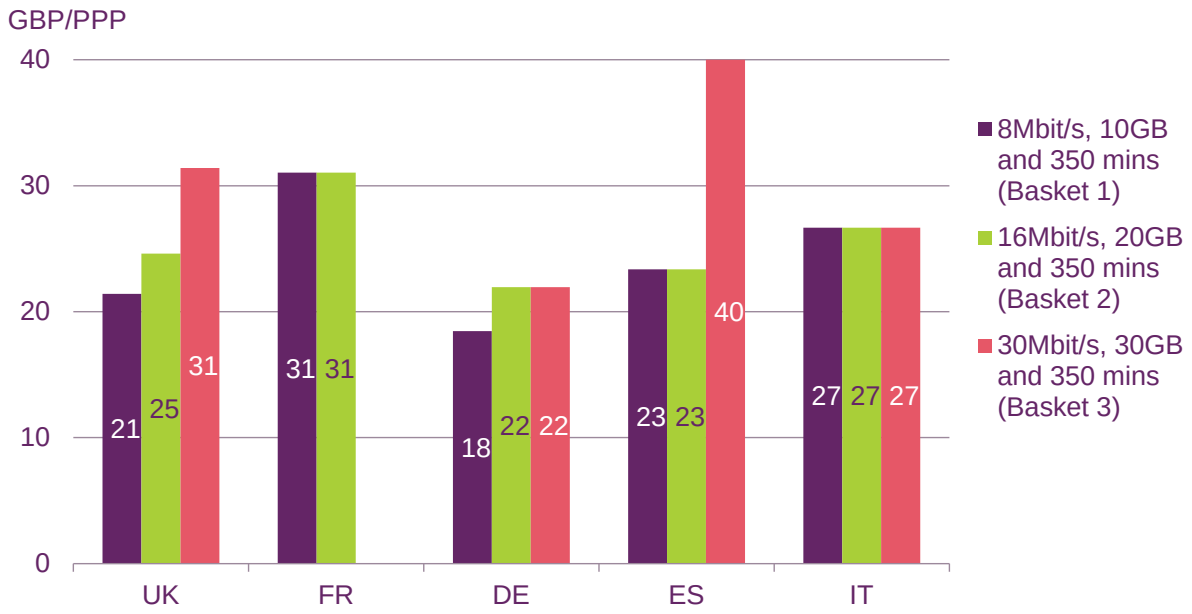
The best offer prices (including for bundled tariffs) of our three baskets of fixed broadband and fixed voice services give an indication of the lowest prices available in each country. As a result they reflect special promotional offers which some communications providers put in place to attract new customers. On this measure the UK offered the second cheapest price in the EU5 for Basket 1 and the third cheapest for Baskets 2 and 3.

Germany offered the lowest priced offer for Basket 1 (an 8Mbit/s headline download speed, 10GB of data use and 350 minutes package) at £18 per month, with the UK being second cheapest at £21 per month. Germany also offered the best offer price for Basket 2, (a 16Mbit/s connection, 20GB data and 350 minutes) and Basket 3 (30Mbit/s, 30GB and 350 minutes combination), both at £22 per month. Basket 2 was available in Spain at £23 per month and in the UK at £25 per month. The second lowest price for Basket 3 was in Italy, £27 per month, followed by the UK at £31 per month.

[33] See Ofcom *The European Broadband Scorecard*, 2013 at http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/scorecard.pdf
[34] Recalculated simple average bundle prices in Spain in 2013 were £42, £43 and £47 per month for the 8Mbit/s, 16Mbit/s and 30Mbit/s packages respectively.

It is worth noting that the UK best offer pricing deals all had larger market share than their cheaper equivalents in other EU5 countries. This suggests that the UK deals were available to more consumers than those in Germany (Baskets 1, 2 and 3), Spain (Basket 2) and Italy (Basket 3).

Figure 19 Best offer pricing for fixed broadband and fixed voice services, including bundled tariffs

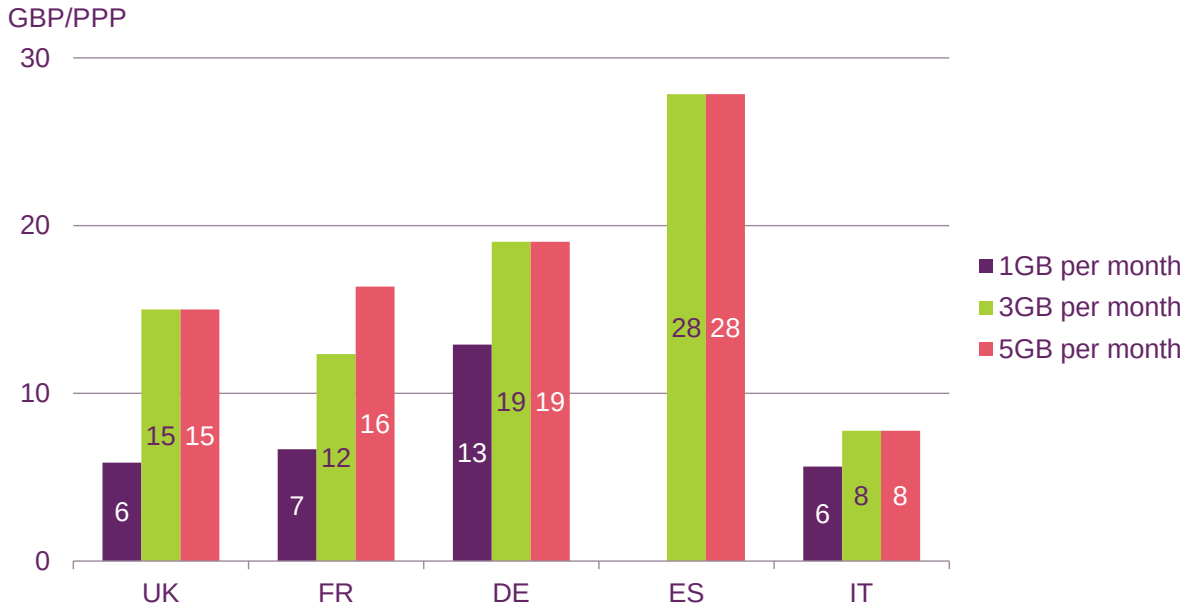


Source: Ofcom, using data supplied by Teligen.
Note: (1) Lowest tariff available in each country. (2) Data refer to July 2013. (3) In France no provider included in the Teligen model offered a bundled service including fixed broadband with a headline download speed of 30Mbit/s or higher. (4) PPP adjusted.

'Best offer' mobile broadband pricing

The lowest best offer prices for mobile broadband offering 1GB of data per month were in the UK and Italy, both at £6 per month. The cheapest best offer prices for mobile broadband offering 3GB per month and 5GB per month were in Italy (both £8), with UK operators offering the third-lowest prices for the 3GB per month data allowance and second-lowest price for 5GB (£15 for both). UK best offer prices were the same as those reported last year.

Figure 20 Best offer mobile broadband pricing



Source: Ofcom data supplied by Teligen.
Note: (1) Lowest tariff available from any of the largest providers by market share in each country. (2) Data refer to July 2013. (3) PPP adjusted.

2.5 Choice

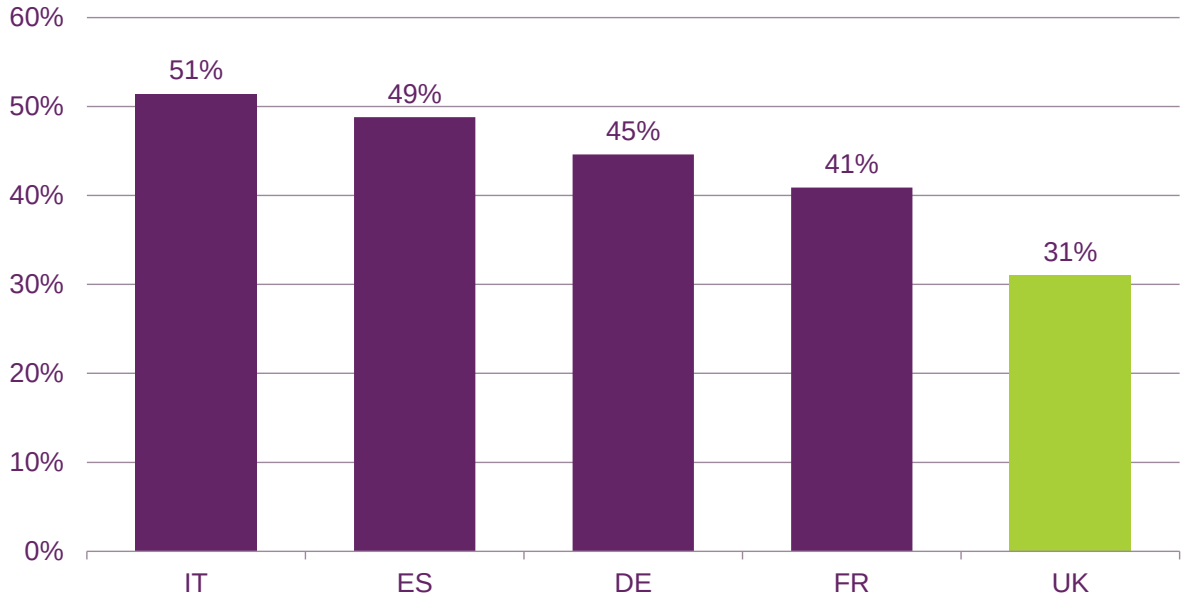
Market concentration in fixed broadband market

Figure 21 and Figure 22 illustrate two proxy measures of consumer choice in the broadband market: the percentage of all fixed broadband subscriptions that incumbent providers in EU5 countries operate[35] and the market share of the largest mobile network operator (MNO) in each EU5 market.[36] Cocom provides these market concentration data, which refer to January 2013 and October 2012 respectively.

The incumbent fixed broadband provider in the UK, BT, operated a lower proportion of lines (31%) than the incumbent provider in any other EU5 market. The second least-concentrated fixed broadband market was France (41%). The incumbent operated the highest proportion of lines in Italy (51%).

[35] See http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?action=display&doc_id=2375
[36] See http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?action=display&doc_id=2374

Figure 21 Percentage of fixed broadband lines operated by incumbent

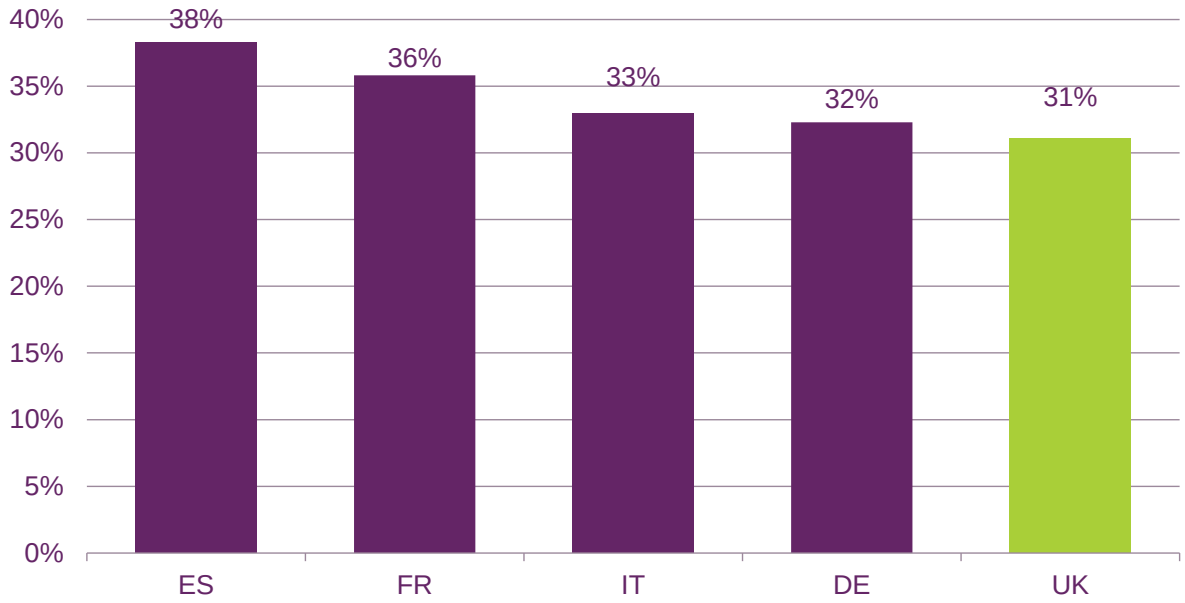


Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Note: (1) Data refer to January 2013. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections.

Market concentration in mobile connection market

EE (formerly Everything Everywhere) operated 31% of UK mobile connections in January 2013. In Germany and Italy the leading MNOs operated a slightly higher proportion of connections (32% and 33% respectively). The markets in Spain (where the leading MNO operated 38% of connections) and France (36%) were more concentrated. The leading MNO lost share in each of the EU5 countries except Italy, whose leading network held its share.

Figure 22 Percentage market share of leading MNOs



Source: Commission services, Financial indicators, fixed and mobile telephony, broadcasting and bundled services indicators, 2013.
Note: Data refer to October 2012.UK and Germany figures provided by Screen Digest.

Annex A: EU27 data

1.1 Overview

The charts in this Annex illustrate the Scorecard's metrics using data on all EU27 countries, where these data are available. We include these charts for completeness. However, as we explained above, we consider that it is more appropriate to compare the UK's broadband network against those of other major European economies, as we have done in the Scorecard, than against all EU countries.

The data below are from the same sources as those in the Scorecard except in the case of pricing, as Ofcom's pricing model only incorporates tariffs from EU5 countries. For last year's Scorecard we used data comparing the EU27 countries produced by Van Dijk Management Consultants for the EC. However we are not aware of a similar study being published since then, so we have chosen to omit EU27 price comparisons from the Scorecard this year.

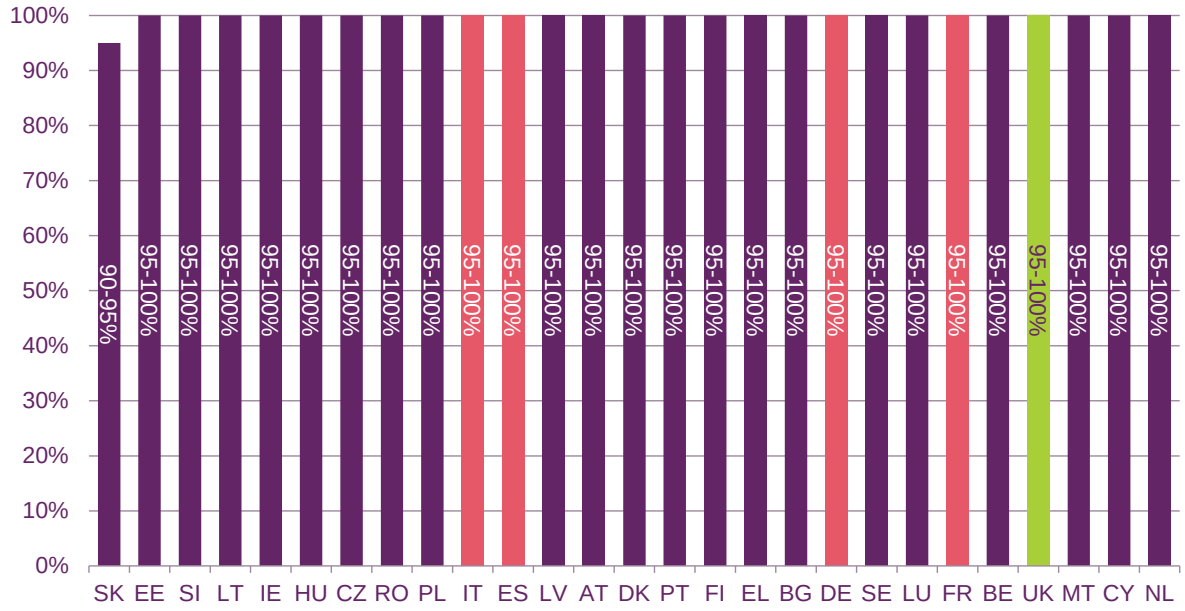
Figure 23 Overview of the UK's position on the Scorecard relative to the EU27

Coverage	EU27	Take-up and usage	EU27	Speed	EU27	Price	EU27	Choice	EU27
Standard broadband coverage	=1 /27	Standard broadband take-up	1 /26*	Fixed download speed	N/A	Price of standard broadband	N/A**	Market concentration in fixed broadband market	4/27
Superfast broadband coverage	=8/ 27	Superfast broadband take-up	13/ 27	Fixed upload speed	N/A	Price of superfast broadband	N/A**	Market concentration in mobile broadband market	2/ 27
Mobile broadband coverage	=1 /27	Mobile broadband take-up	4/27	Mobile download speed	N/A	Price of mobile broadband	N/A**		
		% accessing internet regularly	6/27						
		% never used internet	6/27						
		% buying goods or services	1/27						
		% interacted with public authorities	14/ 27						

** 1/26 for broadband penetration per 100 households (no 2013 data for Netherlands, which was ranked first in 2012). The UK ranked 5/27 for broadband penetration per 100 people. We consider the per household figure to be a more useful figure because broadband is usually shared amongst a household rather taken by individuals. In this case the per individual measure is distorted by differences in the average number of people per household across the comparator countries. The per household measure therefore gives a closer indication of the share of people that do or do not have a broadband connection. ** We derive the EU27 pricing data below from a different source to the EU5 pricing figures in the Scorecard, above. No update was available for this year.*

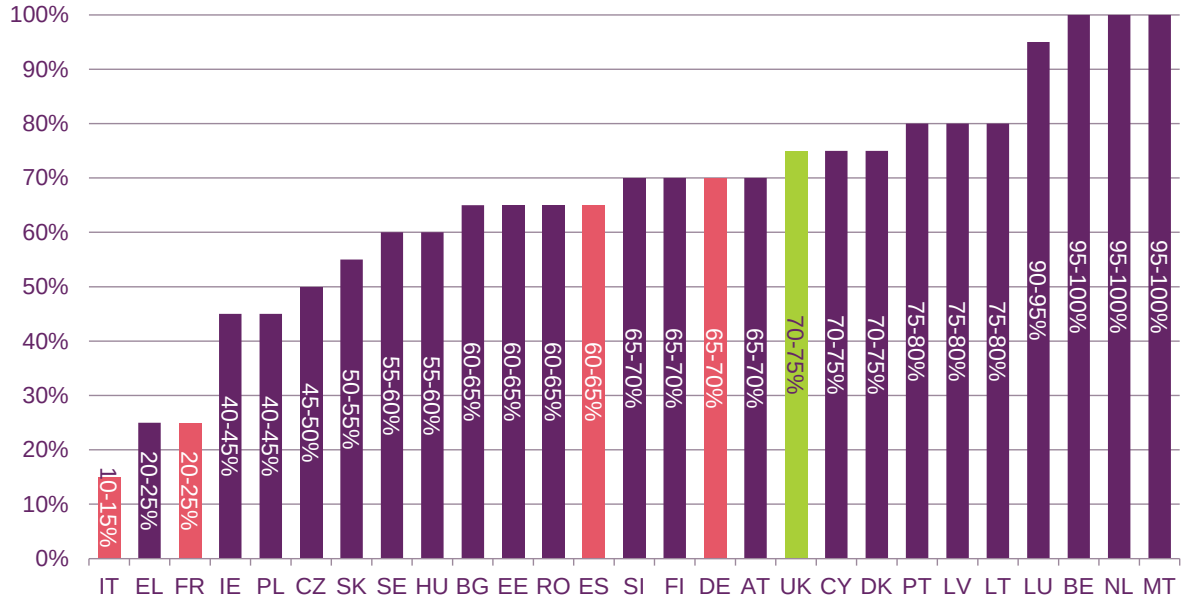
1.2 Coverage

Figure 24 Percentage of households in areas served by standard broadband



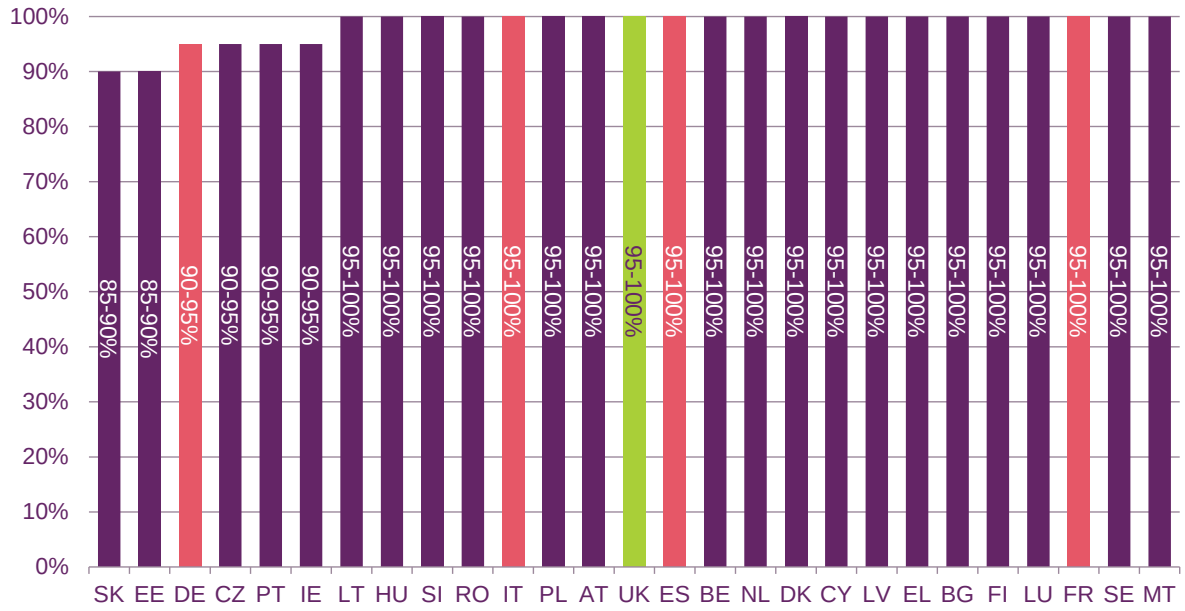
Source: Point Topic / EC, Broadband Coverage in Europe 2012, November 2013.
Note: (1) Data refer to year-end 2012. (2) Ofcom has banded Point Topic's figures within a range between the nearest integers divisible by 5. (3) 'Standard broadband' refers to DSL, FTTP, WiMAX and Standard Cable, the main fixed-line technologies capable of providing headline speed of at least 144kbit/s and less than 30Mbit/s download speed for end-users.

Figure 25 Percentage of households in areas served by superfast broadband



Source: Point Topic / EC, Broadband Coverage in Europe 2012, November 2013.
Note: (1) Data refer to year-end 2012. (2) Ofcom has banded Point Topic's figures within a range between the nearest integers divisible by 5. (3) 'Superfast broadband' refers to NGA technologies, including VDSL, FTTP and DOCSIS3.0 cable, those needed to provide 30Mbit/s download speeds for end users.

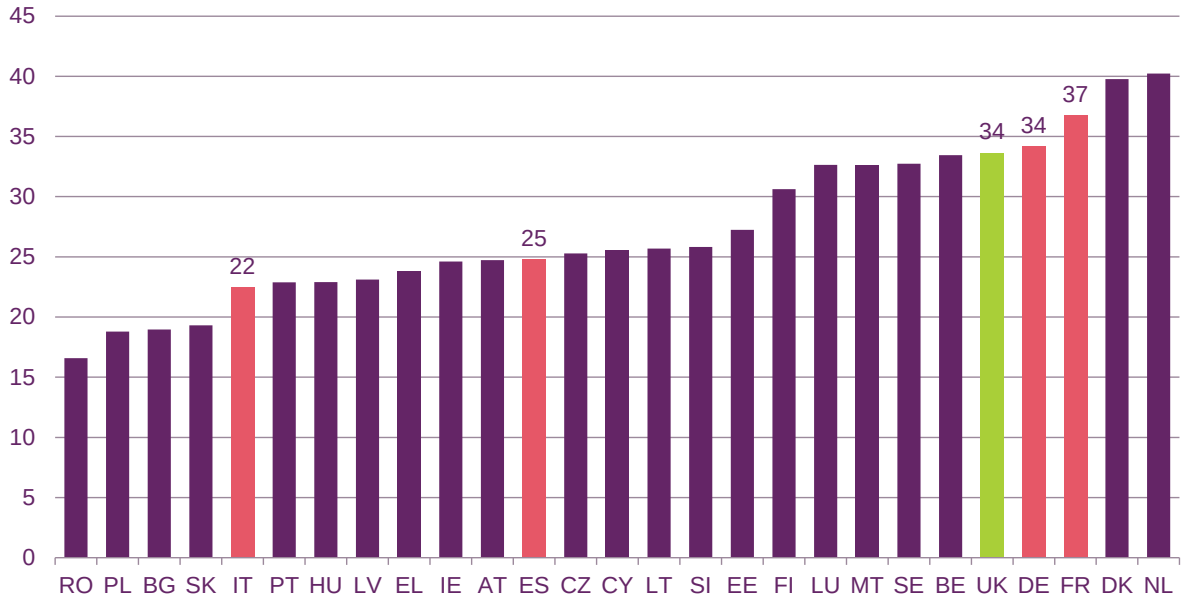
Figure 26 Percentage of households in areas served by mobile broadband



Source: Point Topic / EC, Broadband Coverage in Europe 2012, November 2013.
Note: (1) Data refer to year-end 2012. (2) Ofcom has banded Point Topic's figures within a range between the nearest integers divisible by 5. (3) 'Mobile broadband' refers to coverage by at least one HSPA-upgraded 3G mobile network.

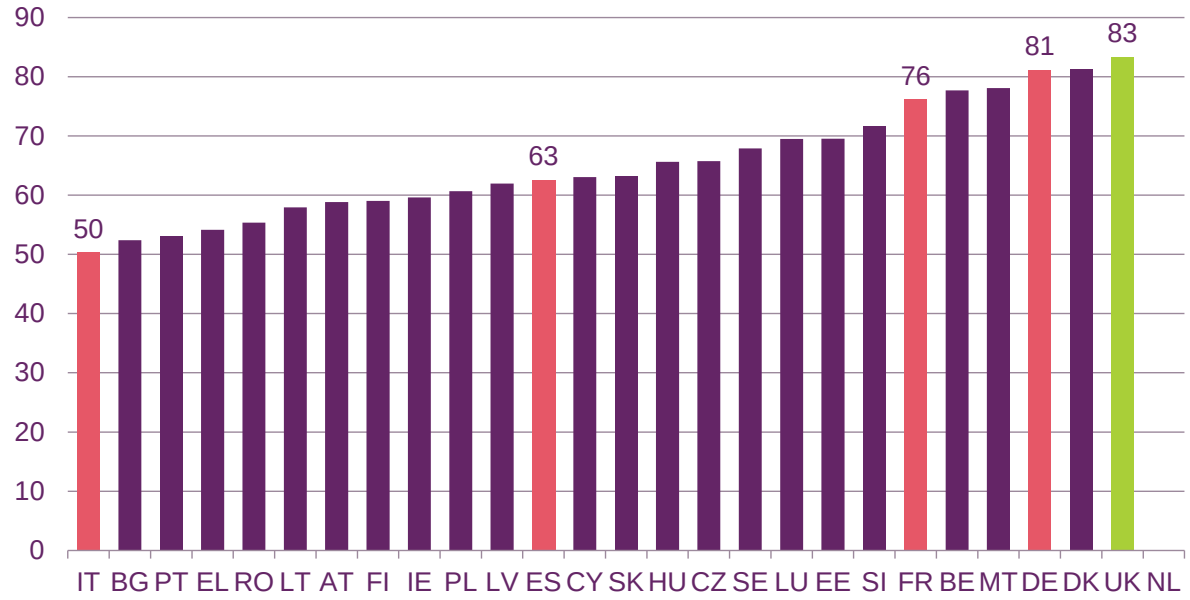
1.3 Take-up and usage

Figure 27 Fixed broadband connections per 100 people



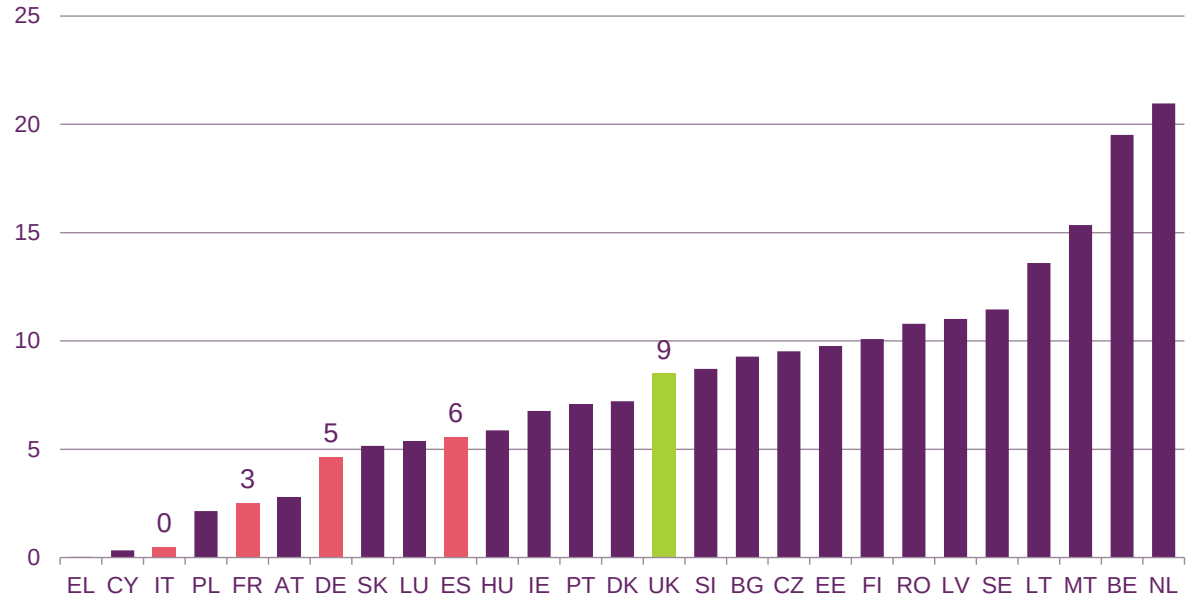
Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Note: (1) Data refer to January 2013. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections.

Figure 28 Fixed broadband connections per 100 households



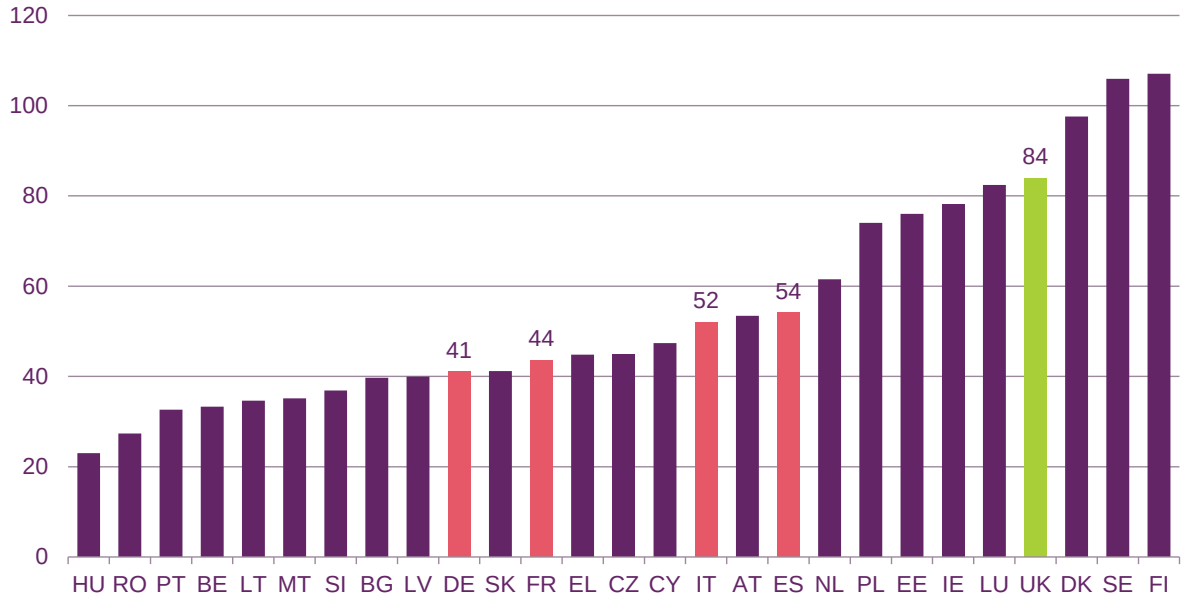
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections. (3) Data relates to households with at least one member aged 16-74 years. (4) No 2012 data available for Netherlands; Netherlands had higher number of connections per household than the UK in 2011

Figure 29 Superfast broadband connections per 100 people



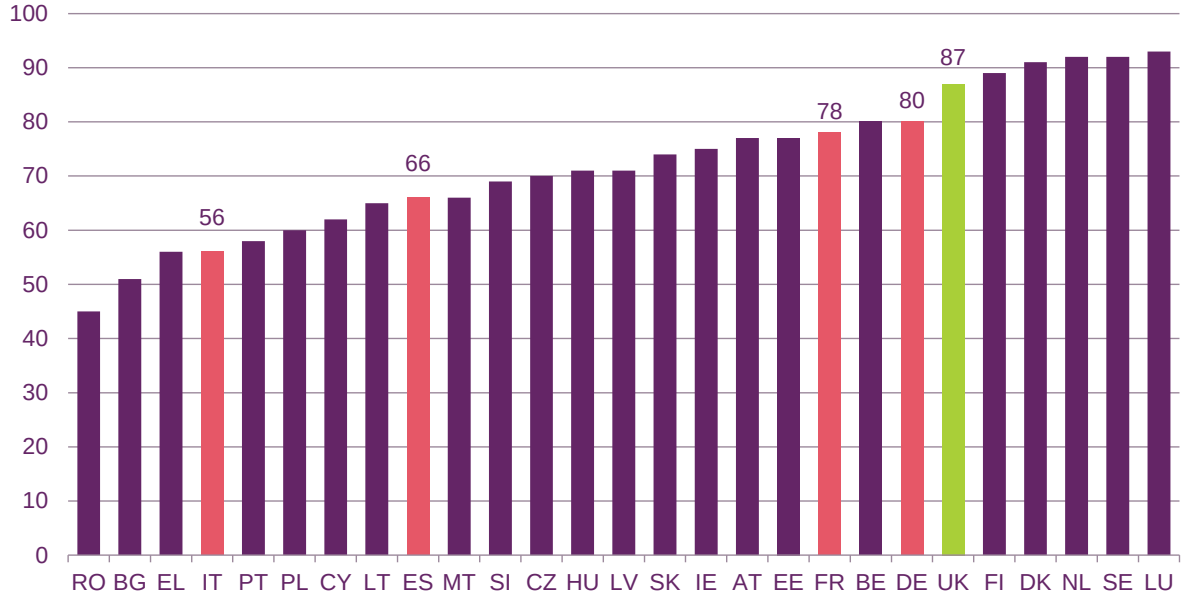
Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Note: (1) Data refer to January 2013. (2) 'Superfast broadband' refers to NGA technologies, including VDSL, FTTP and DOCSIS3.0 cable, those needed to provide 30Mbit/s download speeds for end users.

Figure 30 Mobile broadband connections per 100 people



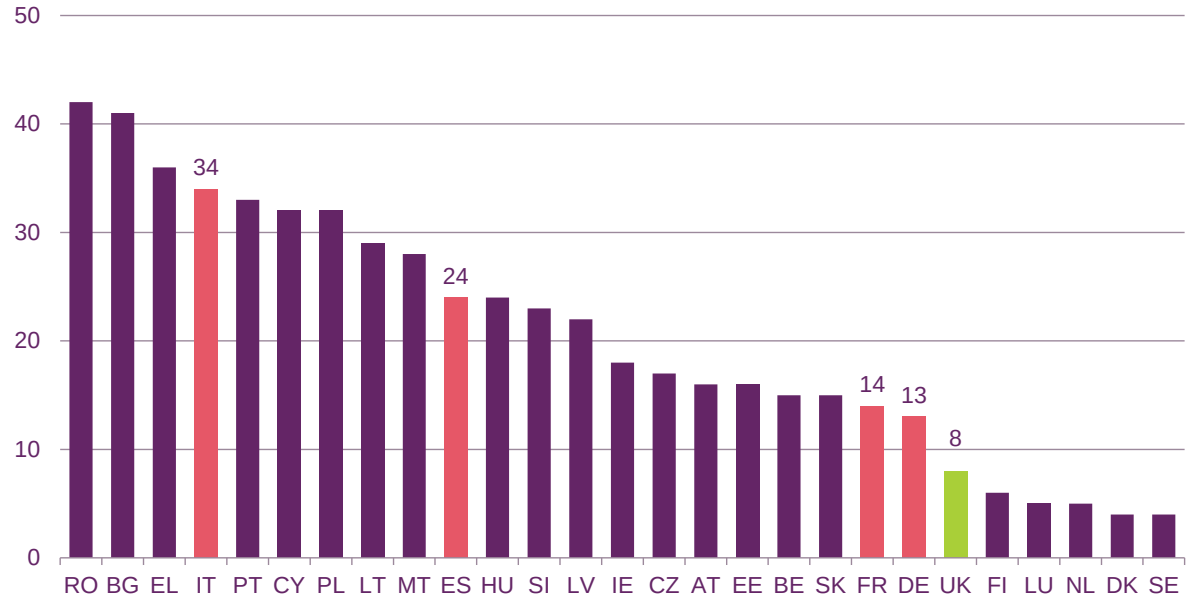
Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Notes: (1) Data refer to January 2013. (2) Data combine the number of subscriptions that have connected to the internet in the preceding ninety days through a standard mobile subscription, the number of subscriptions to dedicated data services over a mobile network that are purchased separately from voice services as a standalone service (modem/dongle) and the number of subscriptions to dedicated data services over a mobile network that are purchased separately from voice services as an add-on data package requiring an additional subscription. (3) Mobile broadband connections may use technologies including 3G, HSPA and LTE.

Figure 31 Percentage of individuals accessing the internet at least once a week



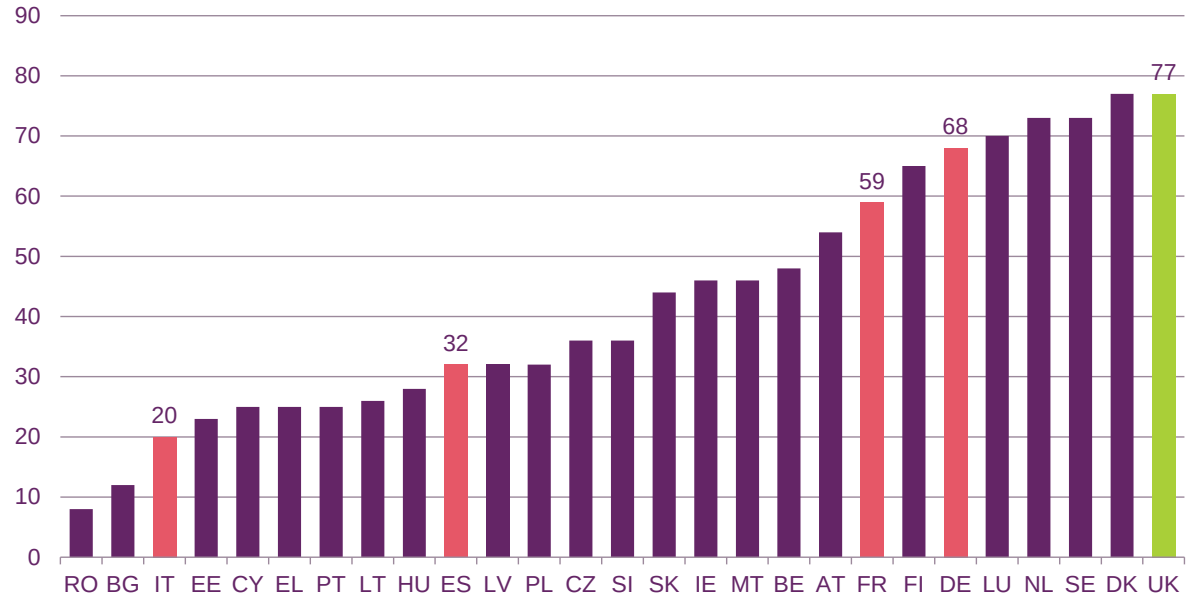
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

Figure 32 Percentage of individuals that have never used the internet



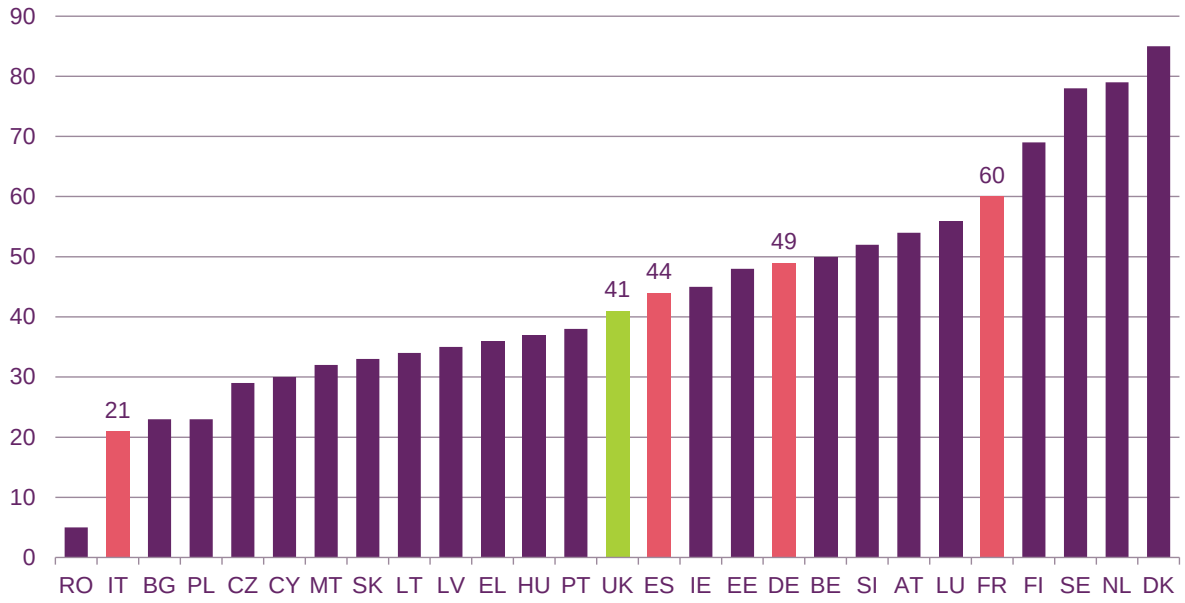
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

Figure 33 Percentage of individuals who bought or ordered goods or services online within the last 12 months



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

Figure 34 Percentage of population who interacted online with public authorities within the last 12 months



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

1.4 Price

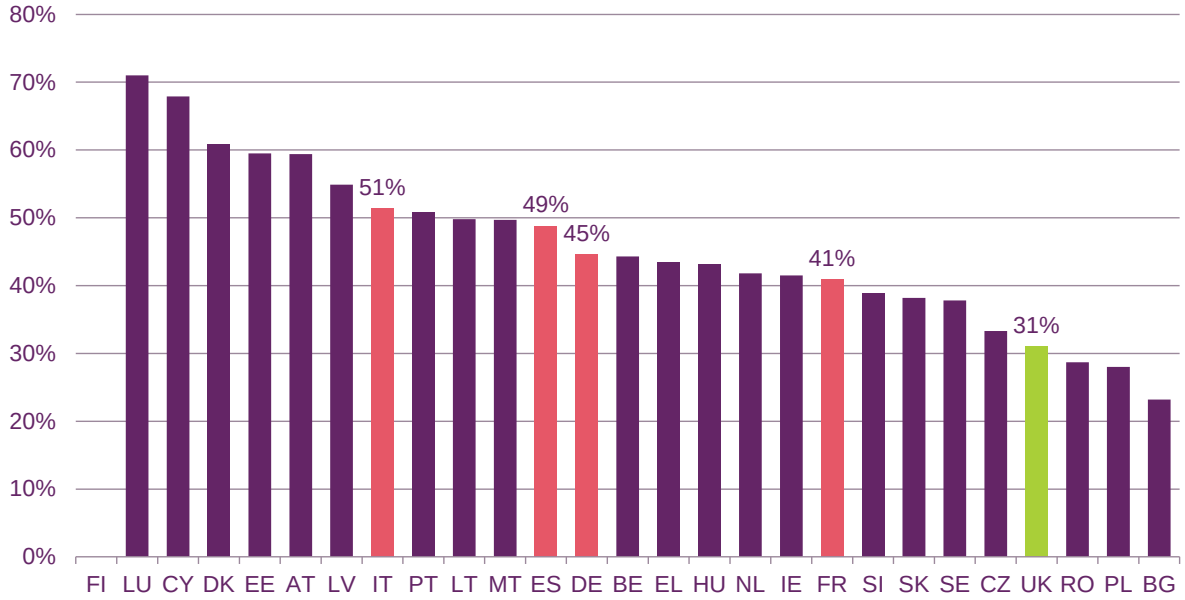
We have included analysis from our Teligen model in the Scorecard because it uses the most recent pricing data available for the EU5; however, it does not include tariffs from all EU27 countries.

Last year's Scorecard included price comparisons for the EU27. The results were taken from a report commissioned by the EC and conducted by Van Dijk Management Consultants (VDMC).[37] The EC has not commissioned the same analysis this year and we have been unable to locate an alternative which satisfies our criteria. As a result we have chosen to omit any price analysis for the EU27 from this year's Scorecard.

[37] See VDMC / EC, *Broadband Internet Access Cost 2012*, 2012, at http://ec.europa.eu/digital-agenda/en/news/broadband-internet-access-cost-2012-biac.

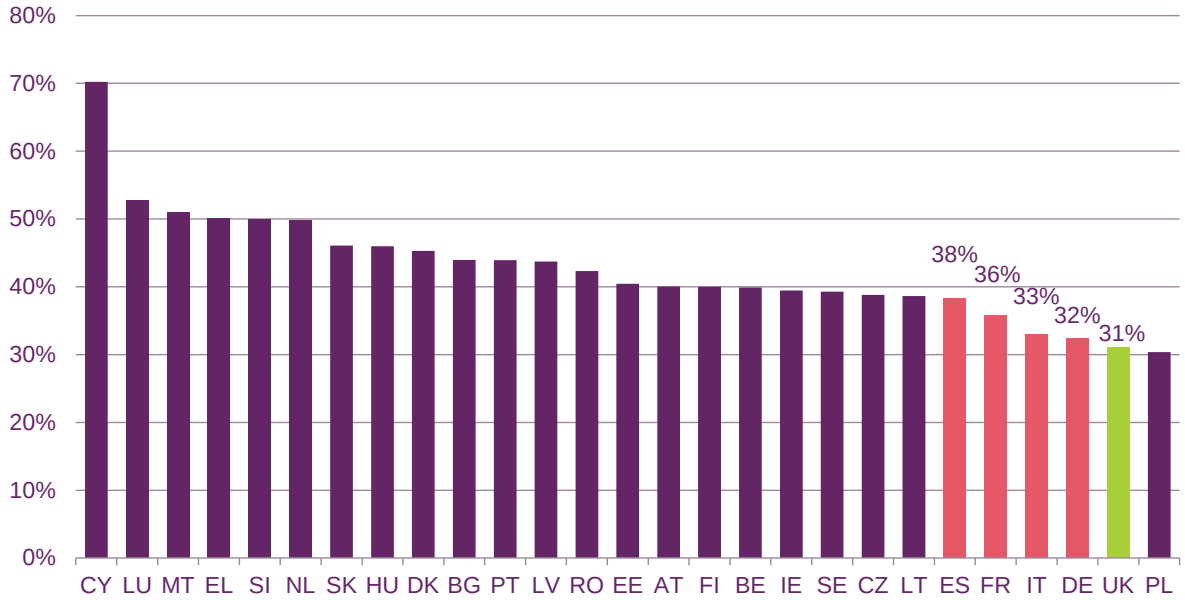
1.5 Choice

Figure 35 Percentage of fixed broadband lines operated by incumbent



Source: Cocom, EC, Digital Agenda Scoreboard 2013.
Note: (1) Data refer to January 2013. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections.

Figure 36 Percentage market shares of leading MNOs



Source: Commission services, Financial indicators, fixed and mobile telephony, broadcasting and bundled services indicators, 2013
Note: Data refer to October 2012.UK, Germany, Netherland and Greece figures provided by Screen Digest.

Annex B: Analysis of broadband speed data

Below we set out our analysis of existing fixed-line broadband download speed datasets and why we have not published this metric in the Scorecard. We have not been able to identify fixed-line broadband upload speed and mobile broadband download speed datasets that might be considered for publication in this Scorecard.

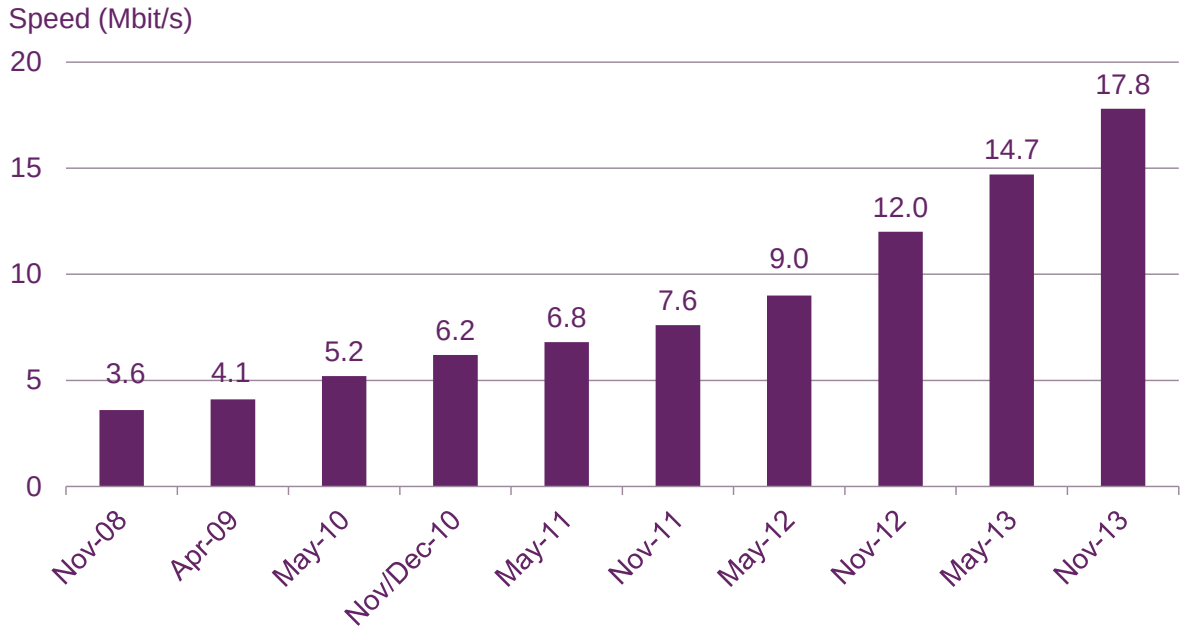
2.1 Ofcom's speed measurement work in the UK

To estimate the UK's national average broadband speed with appropriate accuracy, Ofcom tests a carefully-controlled sample of consumers' broadband connections using hardware installed in their homes.

Ofcom has measured the broadband speed that consumers receive in the UK since 2008. We publish our results twice a year, including the average speed of broadband in the UK. Broadband speed analysts SamKnows currently collect this data on our behalf. Our most recent published figure for the average speed of broadband in the UK is 17.8Mbit/s, which was derived from data collected in November 2013.

The chart below shows the average UK broadband speed since 2008.

Figure 37 Average broadband download speed in the UK: 2008-2013



Source: SamKnows measurement data for all panel members

Notes: (1) Data have been weighted by ISP package and LLU/non-LLU connections, rural/urban, geographic market classification and distance from exchange to ensure that they are representative of UK residential broadband consumers as a whole. (2) As sufficient sample sizes were not available for consumers on packages of 'up to' 2Mbit/s or less, data collected for these packages in April 2009 has been factored in, in proportion to share of all connections in November 2013. (3) Data collected from single-thread download speed tests prior to November/December 2010 and multi-thread download speed tests for November/December 2010 onwards.

SamKnows obtain the data using test equipment called 'white boxes' in homes. White boxes are connected to the customer's modem or router and run tests to measure the speed of the broadband line.

As we know how the boxes are distributed, their location, the package to which the home subscribes and how and when the tests take place, we are confident that our data generates a reliable estimate of the average UK broadband speed that consumers experience.

In June 2013 the Commission published a report into the quality of broadband services in the EU. This report was based on data collected for the Commission by SamKnows using the same approach as Ofcom uses for its broadband speeds work. The results of this work do not yet cover all EU countries or all EU5 countries. This is because the numbers of white boxes distributed for the work have not yet reached sufficiently high levels in some EU countries to allow the results of the measurements to be reported. As a result we have decided not to include any results from this in this Scorecard

2.2 Other ways to measure speed

There are alternative ways to measure the speed of broadband networks, which have generated a number of fixed-line broadband speed datasets.[38] Drawing on our experience of collecting fixed-line speed data, we believe that there are limitations to the methodologies used to obtain these datasets that mean that we cannot be confident that they offer estimates of national average speed based on comparable testing and samples across countries and that are reflective of the speeds that consumers experience in practice. For these reasons we have not included the data in this Scorecard. We examine these alternative methods and their limitations below.

Sync speed measurement. The sync speed is the maximum speed a broadband line can support and is normally higher than the average speed consumers actually receive. As part of the process of collecting data for publication in Ofcom's *Infrastructure Report*, we survey a large majority of the broadband lines in the UK to obtain their sync speed from network providers.[39] This requires the largest communications providers in the country to provide data on every broadband line they operate. In our most recent analysis of data derived from this method, collected in June 2012, we calculated that the average UK fixed-line download speed was 12.7Mbit/s.

This approach provides an accurate measure of the consumer access network's performance. However, it does not take account of factors such as contention, traffic management policies or protocol overheads, so its results usually exceed the speed that consumers will experience in practice.

Software testing. These are tests of end users' connections that do not require the installation of hardware on the user's premises. For example, users can test their connection speed using downloaded applications, the providers of which may collate results to estimate national average broadband speeds. Alternatively, some content providers estimate users' connection speed from the time taken to deliver content of a known size. Both methods of testing are inexpensive to perform and can generate data from a large number of consumers quite easily.

However, it is more difficult to control the environment in which software testing generates its results in comparison with equipment-based testing, for example:

---

[38] See for example www.speedtest.net and www.akamai.com.
[39] Ofcom, *Infrastructure Report 2012 Update*.

- The use of an end user's broadband connection in a separate session during a test can affect its results;

- Deriving data from the time required to deliver small amounts of content may not take account of the effect of the start-up processes of network protocols;

- Connection speed may not affect the time required to deliver data if providers stream that data at a constant speed (typically the case with video);

- Variation in the amounts of data that end users consume in different countries and their transit or peering arrangements can skew some software-based testing; and

- The use of Wi-Fi to access broadband service can affect its speed and levels of Wi-Fi adoption may vary between countries.

2.3 Publishing broadband speed data in the Scorecard

Software testing can be a useful tool for consumers and generates large amounts of international data. However, given the factors set out above, we do not consider this data suitable for deriving comparable national average fixed-line download speed estimates.

We will keep the availability of data relating to fixed-line download speed, fixed-line upload speed and mobile download speed under review, so as to publish it in future versions of the Scorecard if possible.

Annex C: 2012 data

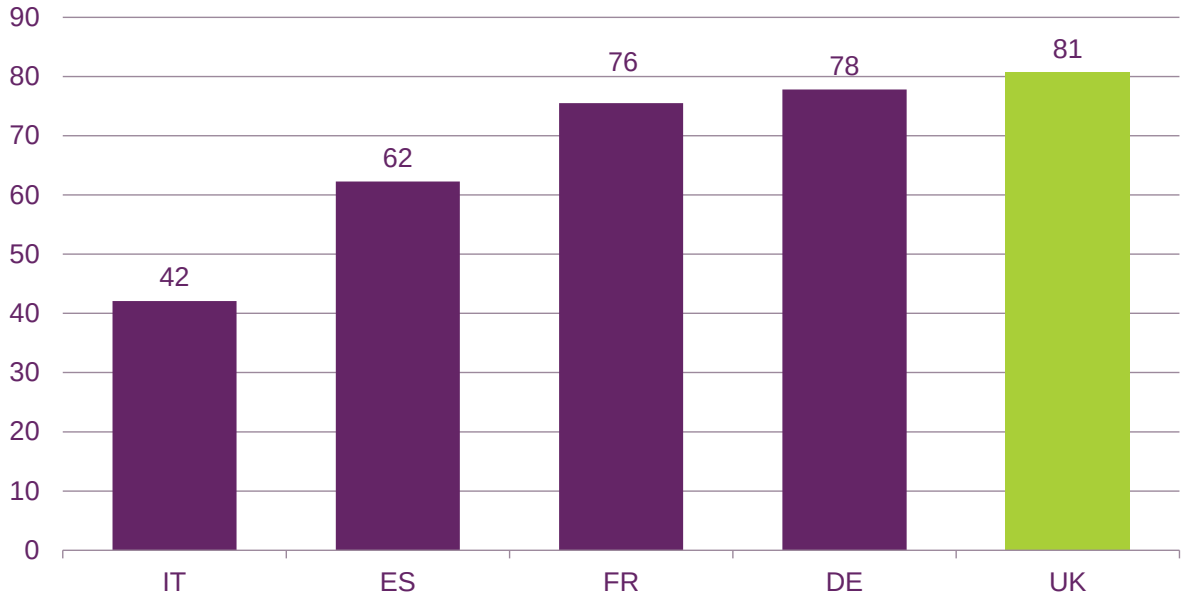
3.1 Overview

The charts in this Annex illustrate the Scorecard's metrics using data from 2012 for the EU5 and EU27 countries. This data was not available for the 2013 Scorecard. However, more recent data on the following metrics was available for the 2014 Scorecard and Annex A. Where this was the case we used the most recent data in preference. We include these charts for completeness.

The data below are from the same sources as those in the Scorecard.

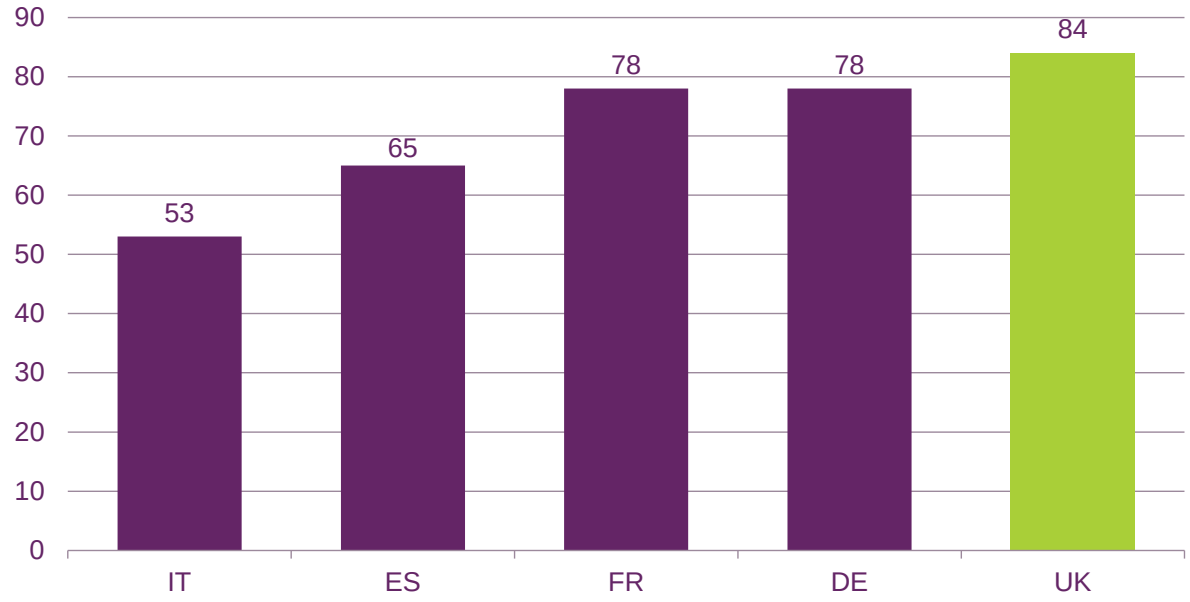
3.2 EU5 data

Figure 38 Fixed broadband connections per 100 households



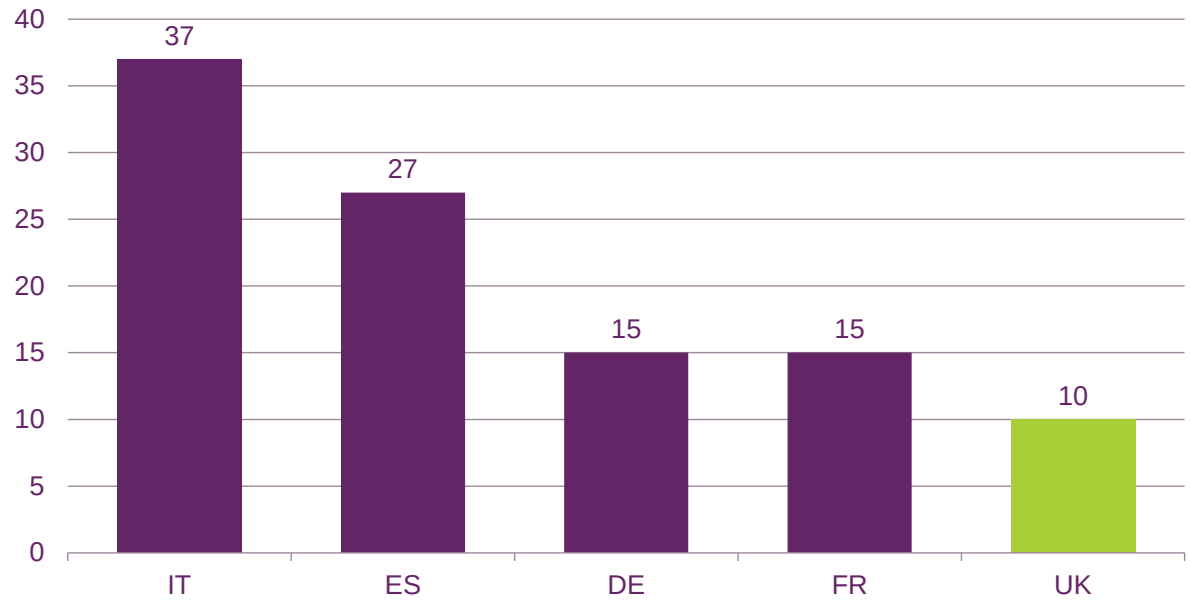
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data refer to all forms of fixed-line broadband, including standard and superfast connections. (3) Data relates to households with at least one member aged 16-74 years.

Figure 39 Percentage of individuals accessing the internet at least once a week



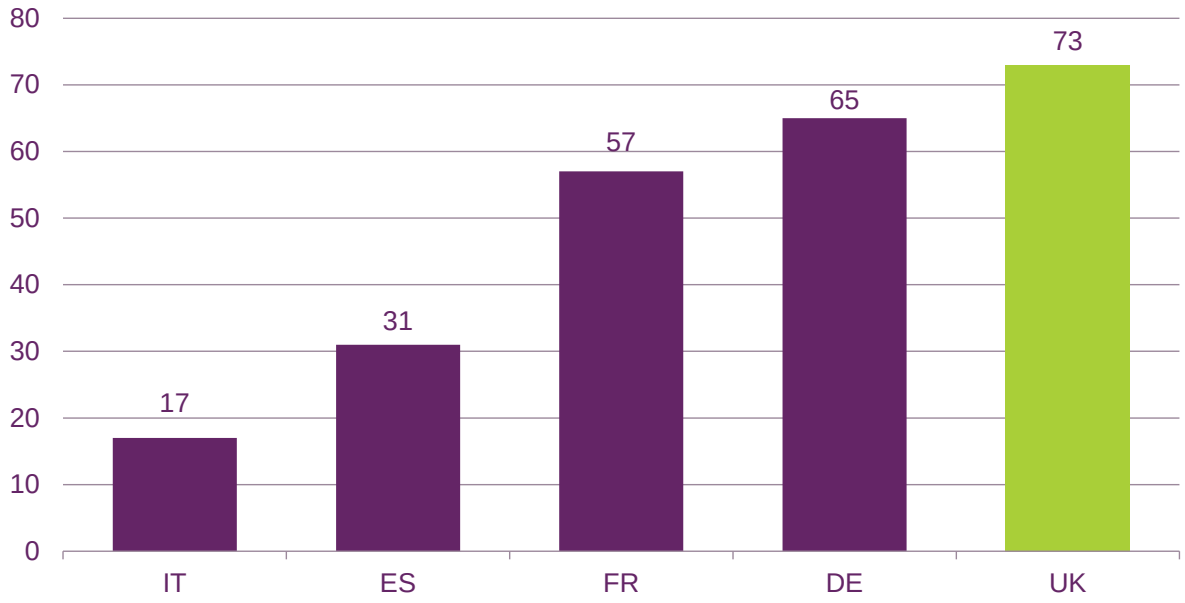
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

Figure 40 Percentage of individuals that have never used the internet



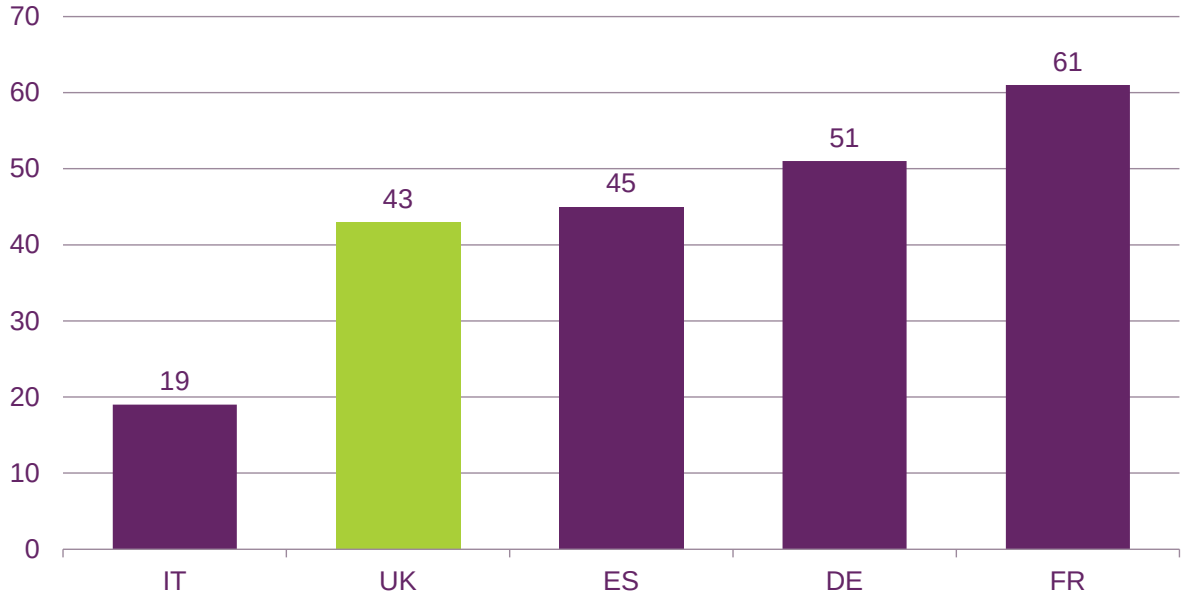
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

Figure 41 **Percentage of individuals who bought or ordered goods or services online within the last 12 months**



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

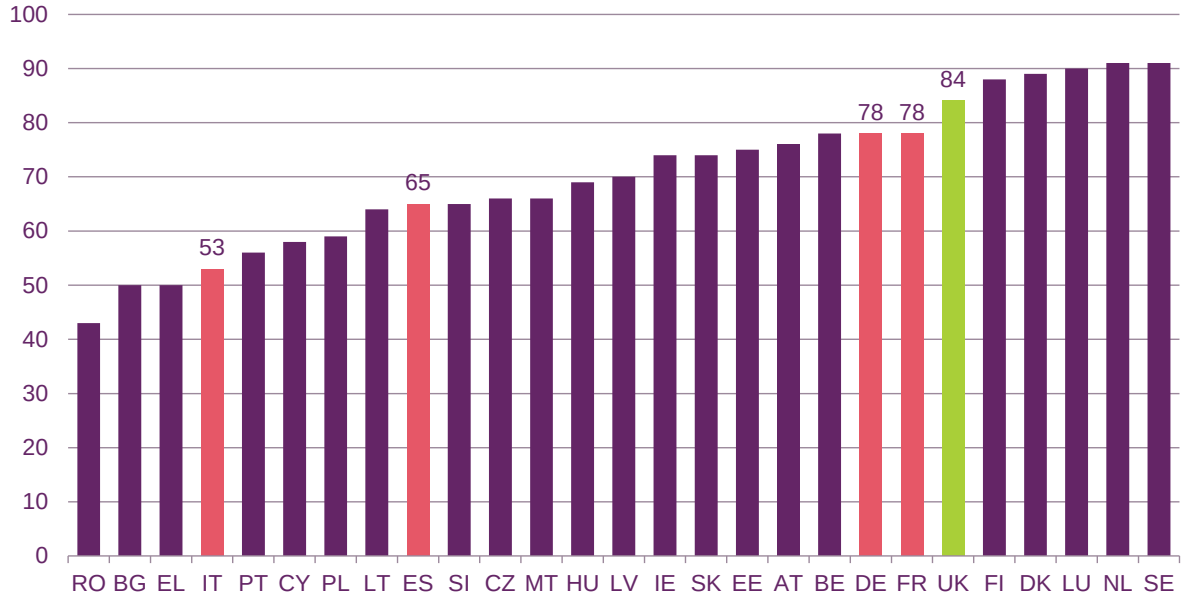
Figure 42 **Percentage of population who interacted online with public authorities within the last 12 months**



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

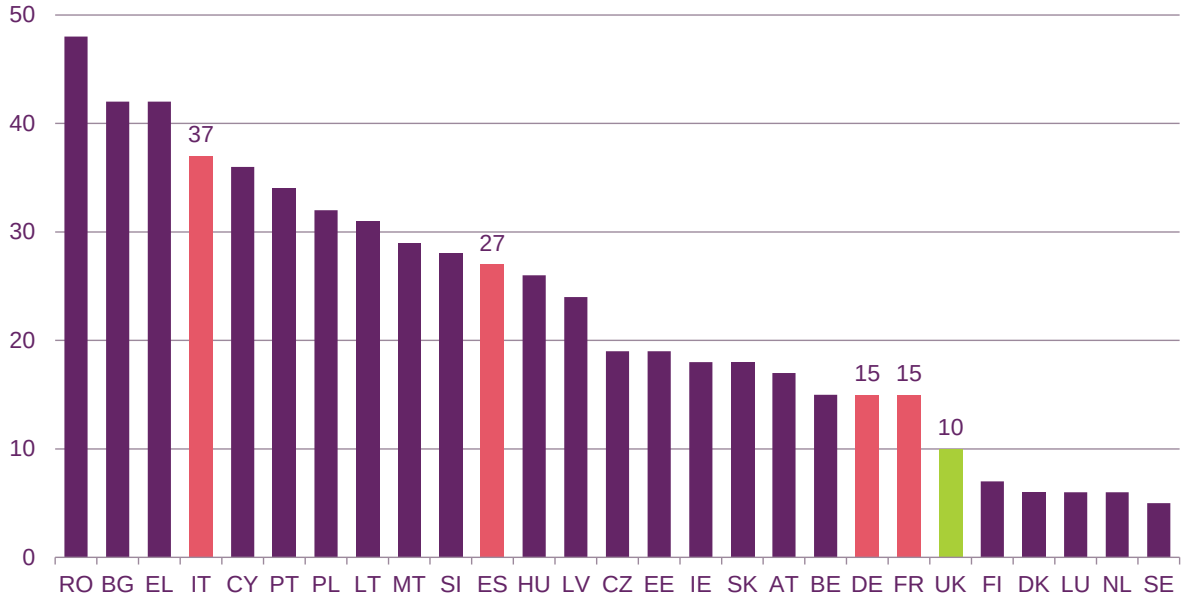
3.3 EU27 data

Figure 43 Percentage of individuals accessing the internet at least once a week



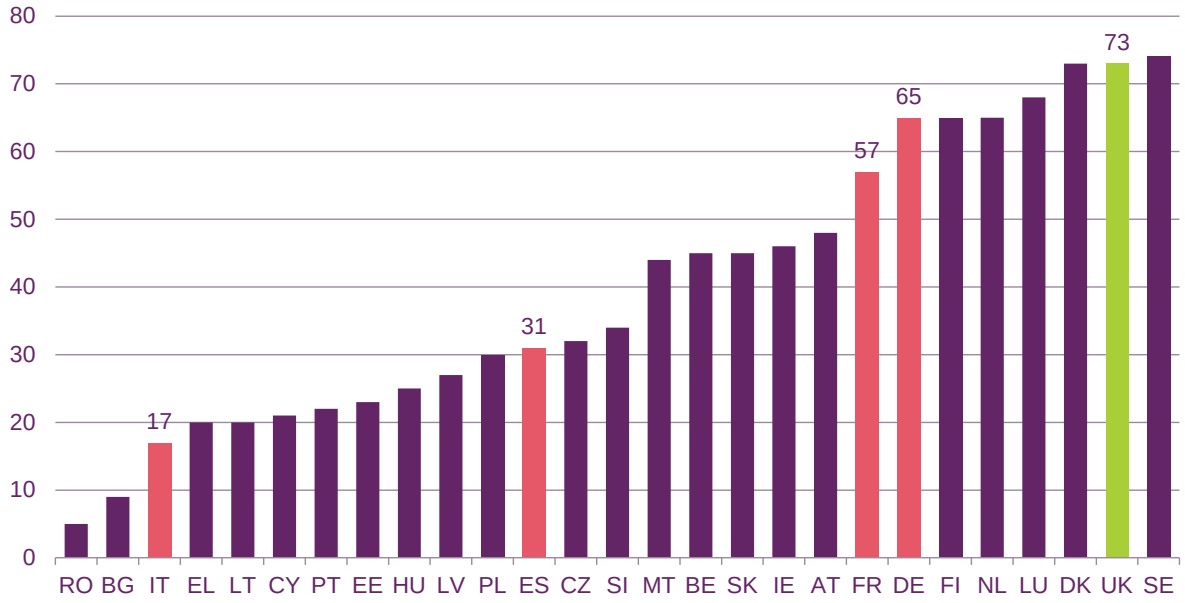
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

Figure 44 Percentage of individuals that have never used the internet



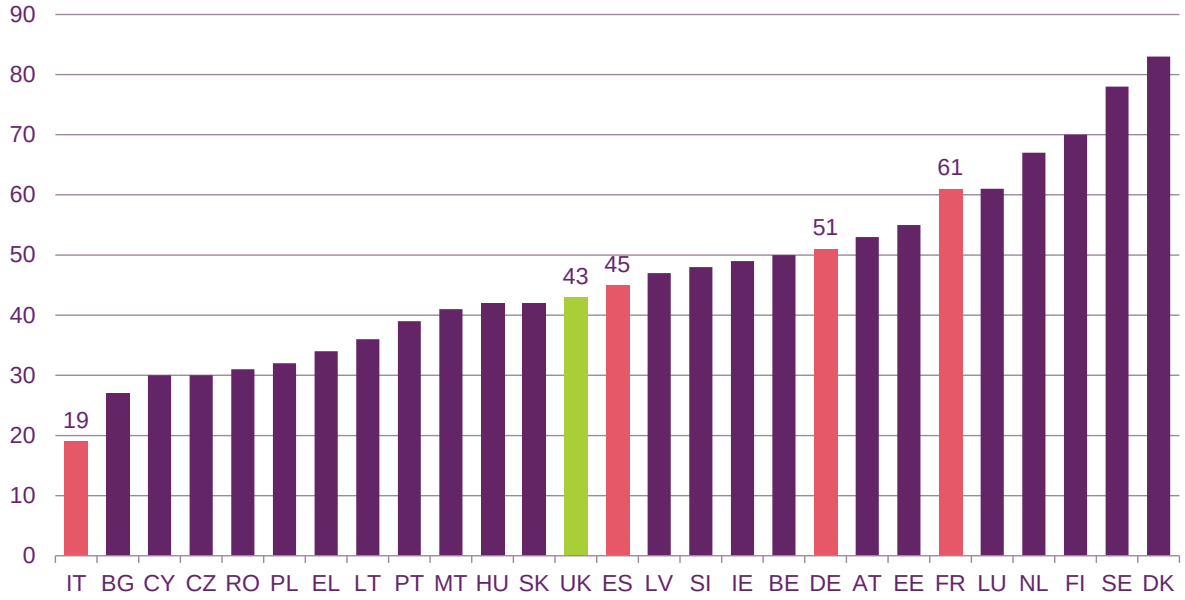
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

Figure 45 **Percentage of individuals who bought or ordered goods or services online within the last 12 months**



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.

Figure 46 **Percentage of population who interacted online with public authorities within the last 12 months**



Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2012.
Note: (1) Data refer to Q1 2012. (2) These data cover individuals aged 16 to 74.