

# THE COMMUNICATIONS MARKET REPORT

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## About this document

This is the eleventh year that Ofcom has published the *International Communications Market Report*, which provides comparative international data on the communications sector. The report forms a number of purposes: to benchmark the UK's communications sector, to learn from market and regulatory developments in other countries, and to provide the context for Ofcom's regulatory initiatives. It also contributes to the richness of the information we draw upon, enabling us to better understand how our actions and priorities can influence outcomes for citizens and consumers, and for communications markets more generally.

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# Introduction

This report provides comparative international data on the communications sector. It compares the availability, take-up and use of services in the UK against 17 comparator countries:

1. France (FRA)
2. Germany (GER)
3. Italy (ITA)
4. The United States of America (USA)
5. Japan (JAP)
6. Australia (AUS)
7. Spain (ESP)
8. Sweden (SWE)
9. The Netherlands (NED)
10. Poland (POL)
11. Singapore (SGP)
12. South Korea (KOR)
13. Brazil (BRA)
14. Russia (RUS)
15. India (IND)
16. China (CHN)
17. Nigeria (NGA)

For some of the analysis, including our own consumer research (which includes countries one to eight in the list above), we focus on a smaller subset of comparator countries. The countries listed were chosen in order to provide international comparability. The European countries allow for comparison with our neighbouring markets, while Brazil, Russia, India and China (the BRIC countries) are recognised as a developing block of countries. Nigeria provides an African context to our reporting.

In the *Broadband Scorecard* (which is presented in its own section of the *Telecoms and networks* chapter this year), we now include Portugal (POR) as an additional comparator country, to provide an example of where duct and pole access is taking place.

A number of different data sources have been used to inform our analysis, including: research data commissioned by Ofcom, data already held by Ofcom, and data sourced from desk or custom research, or from third parties, as well as discussions with industry bodies, operators, regulators and commentators. Data in the report generally cover the 2015 calendar year, although other data – notably from Ofcom’s consumer research – are more recent.

Comparisons between data in this report and its predecessors will not always be possible, due to changes in definitions and re-statements over time, the methods of collecting data and the availability of new data sources. For reasons of sampling and definitions, some UK data published in this report may not be directly comparable with data published in other Ofcom reports, such as the *UK Communications Market Report* and the *Connected Nations 2016* report.<sup>1</sup> We have highlighted incomparability in a number of key instances in this report.

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<sup>1</sup> <https://www.ofcom.org.uk/research-and-data/infrastructure-research/connected-nations-2016>

## Methodological note

We have detailed below some explanation behind the major data sources used in this report. Other data sources we have used are: Ampere Analysis, Analysys Mason, App Annie Intelligence, comScore, Deloitte, Ecommerce Europe, Eurodata TV Worldwide, Médiamétrie, Populus, the Reuters Institute, the World Advertising Research Centre, Wik-Consult, WorldDAB and YouGov. We would like to thank all of the providers for their contributions to the data presented in this report.

### IHS Markit

Consultancy firm IHS provided data that we have drawn on mainly for the *TV and audio-visual*, *Radio* and *Telecoms and networks* chapters. IHS has attempted to verify sources and provide market estimates where data are incomplete.

### Teligen

Telecoms pricing consultancy Teligen built a bespoke model to enable our analysis of comparative international pricing, and populated it with specifically-sourced tariff data. This year's report uses data from July 2015 and July 2016.

### PricewaterhouseCoopers

We have sourced data from PwC's Global media entertainment outlook 2016 – 2020 for use in the *UK in Context*, *TV and audio-visual*, *Radio* and *Internet and online content* chapters. The data cover global TV revenues, global radio revenues and global advertising expenditure, as well as fixed and mobile internet advertising expenditure. The interpretation and manipulation of data is solely Ofcom's responsibility, and an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015, has been applied.

### Ofcom consumer research

The consumer research undertaken by Ofcom for this report was conducted online with a minimum of 1,000 respondents in each of the nine countries (weighted to 1,000 per country, 9,000 overall): the UK, France, Germany, Italy, the US, Japan, Australia, Spain and Sweden. Because the research was undertaken online, samples, and therefore results, may differ from other consumer research conducted by Ofcom, including that published in the *Communications Market Report 2016*, which included face-to-face and telephone interviews. Any differences in the results of the research (e.g. year on year) are reported only if they are statistically significant. Further information on our consumer research methodology is presented in Appendix C of the *Technical appendix*.<sup>2</sup>

### International Monetary Fund

All currency conversions use the average market exchange rates across 2015, as provided by the International Monetary Fund (IMF).<sup>3</sup> We have opted to convert data from each year at this fixed rate, so that currency fluctuations do not obscure market trends. The exception to this methodology is in the international price benchmarking analysis, where we have used purchasing power parity-adjusted exchange rates (see Appendix A of the *Technical appendix*).<sup>4</sup> All figures in this report are nominal unless otherwise stated.

### Links to other Ofcom publications

There are a number of metrics in the ICMR 2016 that are similar to those in the *Connected Nations 2016* report.<sup>5</sup> The data used in the ICMR differ from those used in *Connected Nations* on a number of counts, such as time period (data presented in the ICMR are generally end-2015 unless otherwise stated, compared to June 2016 for *Connected Nations* data) and definitions (e.g. '4G outdoor premises mobile coverage, any operator' vs. '4G indoor mobile coverage, all operators'). Full clarification and explanations of these similarities are presented in the *Measuring the networks: the methodologies behind Ofcom's research reports*.<sup>6</sup>

<sup>2</sup> <https://www.ofcom.org.uk/research-and-data/cmr/cmr16/international>

<sup>3</sup> <http://www.imf.org/external/index.htm>

<sup>4</sup> <https://www.ofcom.org.uk/research-and-data/cmr/cmr16/international>

<sup>5</sup> <https://www.ofcom.org.uk/research-and-data/infrastructure-research/connected-nations-2016>

<sup>6</sup> <https://www.ofcom.org.uk/research-and-data/infrastructure-research/connected-nations-2016>



# The International Communications Market 2016

## 1 The UK in context

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# 1.1 The UK consumer in context

## **Communications services play a crucial role in people's lives**

The ability to access and use reliable communications services has become fundamental to the way people work and live in the UK and internationally; as demand for communications grows, the infrastructure that serves them needs to keep pace with their needs.

## **Those in the UK are among the heaviest users of smartphones**

UK smartphone owners spend an average of 66 hours per month browsing online on their phone, higher than in most other comparator countries. People in the UK are more likely to use apps to access specific services 'on-demand' than those in most other comparator countries. For example, use of an app among smartphone/tablet users to order a takeaway or to book a taxi is highest in the UK (33% and 19% respectively). UK smartphone/tablet users are also among the most likely to use an app for making a bank transfer (48%).

## **The UK is a nation of online shoppers**

In the UK six in ten internet users say they shop online at least once week, and four in ten mobile phone users say they use their device to browse shopping websites or apps at least once a week. The growth in online shopping has fuelled the volume of parcels sent by post in recent years, and the relative ease of shopping online has opened up opportunities to buy and sell from people and companies in other countries. Six in ten respondents in the UK say they have knowingly purchased something from another country in the past year. The popularity of going online for consumer activities in the UK is reflected in the nation's per-capita turnover for e-commerce, which stood at £1760 per person in 2015 – the highest of all the comparator countries.

## **Those in the UK are the most avid users of catch-up services**

Technological innovation and increased connectivity has revolutionised how we consume content. As with the use of on-demand apps, people in the UK are also heavy consumers of on-demand audio-visual media content. Six in ten respondents in the UK say they watch catch-up or on-demand TV or films on free-to-access broadcaster services, more than in all the other comparator countries. Sixteen per cent of respondents in the UK said they would miss catch-up TV more than any other type of programming, if it were not available.

## **The UK leads the way in digital radio**

DAB coverage is highest in the UK out of all the comparator countries, at 97% population coverage. Take-up of digital radio sets is also highest in the UK, at 33% in 2016.

## **Consumption of news online has grown considerably in recent years**

Among UK online users, using the internet as a main source for news has increased since 2015, and it is now more popular than TV for some types of news (such as local news and sports news). More than a third (35%) of online news users in the UK now say they use social media for news, and 8% cite it as their main source. Overall, the UK is middle ranking among other countries in terms of the use of social media as the main source of news.

**BENCHMARKING THE UK WITH EIGHT COUNTRIES ON MEDIA AND COMMUNICATIONS** ICMR 2016



Ofcom consumer research (online interviews conducted by Populus: October 2016)

**UNITED KINGDOM ▲ HIGHEST AMONG ALL COUNTRIES**



**61%** watch catch-up or on-demand TV or films from free-to-access broadcaster services

**33%** watch TV or films using video-on-demand services through a pay-TV provider

**16%** would miss catch up TV more than any other type if they didn't have access to it

**42%** say they watch live/ broadcast TV for 'high quality TV programmes'

**33%** have a digital radio set in their home

**74%** Do at least once a week: online banking

**59%** online shopping

**33%** Done in the last 12 months through an app: ordered food from a restaurant/ takeaway

**19%** booked a cab/ taxi

**Average**

**38%**  of live TV watchers

**15%** 

**7%** 

**29%** 

**13%** 

**57%** 

**40%** 


**21%** 

**12%** 

**Pop: 64.1m**




**FRANCE ▲ HIGHER THAN THE UK**



**89%** have a bundle of media and telecoms services with the same provider


**75%** personally sent business mail in the last month


**56%** use a high-definition (HD) TV set

**41%** would miss live TV or films on free-to-access channels more than any other type if they didn't have access to it



**77%** of those with >1 service

**41%** of post senders

**47%** 

**22%** 

**Pop: 66m**

**GERMANY ▲ HIGHER THAN THE UK**



**78%** personally use a landline phone

**50%** watch programmes from other countries (not Germany or USA) on SVoD services

**47%** ever sell things online

**21%** consider radio to be their main source for regional/ local news

**59%** 

**29%** of VoD users


**37%** 

**9%** 

**Pop: 80.6m**




**ITALY ▲ HIGHER THAN THE UK**





**91%** personally use a mobile phone


**75%** listen to the radio at least once a week


**47%** ever watch downloaded rented or purchased video/ films

**19%** have an ultra-HD TV set in the home



**80%** 

**57%** 



**21%** 

**10%** 

**Pop: 59.8m**

**UNITED STATES** ▲ **HIGHER THAN THE UK**

49% are very satisfied with their mobile phone service 36% of mobile owners


40% subscribe to a video-on-demand (SVoD) service 29%

42% are very satisfied with amount of SVoD programming produced in their own country 25% of VoD users


39% currently have and use any smart products:

- 20% Car with connected features
- 17% Smartwatch
- 17% Smart sound system
- 16% Home automation

34% 12% 10% 9% 8%



Pop: 318.9m



**JAPAN** ▲ **HIGHER THAN THE UK**




73% use a computer, mobile or tablet for listening to music on video sharing sites such as YouTube 59% of device owners

59% say they watch live TV to watch programmes in the moment - such as news and sport 44%

58% watch recorded TV or films 51%



20% personally use a handheld games console 9%



Pop: 127.3m



**AUSTRALIA** ▲ **HIGHER THAN THE UK**





63% have a DVD or blu-ray player in their home 57%


61% have a desktop computer in their home 53%

55% have an FM radio set in their home 42%

28% have mobile broadband internet access (dongle, datacard, etc) in their home 17%



Pop: 23.1m



**SPAIN** ▲ **HIGHER THAN THE UK**




91% use instant messaging at least once a week 65%

87% personally use a smartphone 72%

76% have a pay-monthly (contract) mobile phone 52%

53% read national newspapers at least once a week 43%



Pop: 46.8m



**SWEDEN** ▲ **HIGHER THAN THE UK**




68% have 4G on their mobile phone already, or are likely to get it in the next 12 months 59% of mobile owners

64% made a bank transfer through an app in the last 12 months 48%

55% read local newspapers at least once a week 34%

15% have smart home security/ home automation 8%



Pop: 9.6m





# 1.2 The 'connected' consumer

## 1.2.1 Overview

Advances and improvements in network infrastructure, as well as the convergence of media and communications, have led to an increasingly connected world. This is reflected in the wide availability and take-up of connected mobile devices (e.g. smartphones and tablets). Consumers are at the centre of this connected and converged landscape, and now have access to a range of services giving instant access on any device, at the touch of an app.

The increased availability of apps has transformed the way we order goods and services, manage our financial affairs, and access audio and video entertainment. Services offering the delivery of food (e.g. Deliveroo, Just Eat) and transport (e.g. Uber, Halo) typify apps designed to make people's lives easier and enable the use of services 'on-demand'. Many of these services originated in the US and have since been rolled out internationally.



In addition to making themselves connected, consumers can make their households connected. This has given rise to the 'Internet of Things' (IoT), a term that relates to devices' ability to communicate with each other, with little or no human intervention.<sup>7</sup> The scope of the IoT is broad and covers a range of applications across a wide variety of industries. For the purpose of this report, our research focuses on the use of the IoT for domestic and consumer purposes.

This section largely draws on data from our consumer research specifically related to the use of connected devices and services, in the context of on-demand apps and the IoT.

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<sup>7</sup> This contrasts with more traditional applications, where a device such as a smartphone or tablet is used by an individual for interpersonal communications or to consume content.

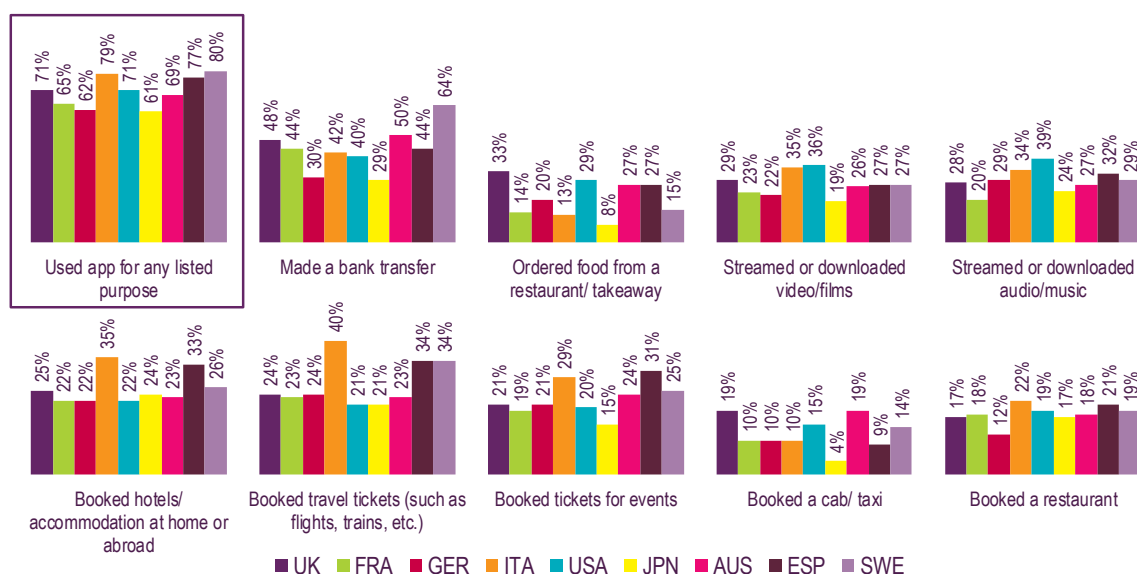
## 1.2.2 On-demand apps

The most commonly stated use for an on-demand app, across all comparator countries, was to make a bank transfer

Seven in ten smartphone/tablet users in the UK have used an on-demand app in the past 12 months. Use was highest in Sweden and Italy, where four-fifths claimed to have used this type of app. The most frequent type of use across all comparator countries was to make a bank transfer, with half of all UK smartphone/tablet users claiming to have done this. The UK ranked highly for other uses of on-demand apps, such as ordering food from a restaurant or takeaway (33%), and booking a taxi (19%).

**Figure 1.1 Claimed use of on-demand apps: 2016**

Proportion of respondents who use a smartphone or tablet (%)



Source: Ofcom consumer research, October 2016

Base: All respondents who personally use a smartphone or tablet UK=790, FRA=830, GER=830, ITA=952, USA=764, JPN=786, AUS=842, ESP=911, SWE=843

Q10a Nowadays there are many apps for smartphones or tablets that can be used to buy and consume services from companies. Which of these have you done through apps the last 12 months?

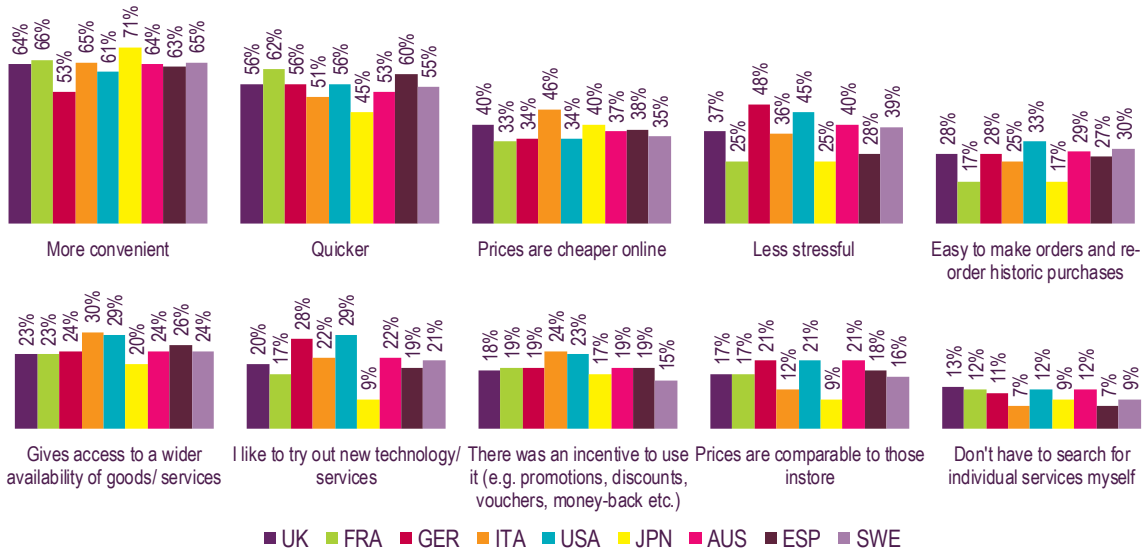
### One of the main reasons for using on-demand apps is convenience

The main reasons given for using on-demand apps were convenience and speed; in the UK, these reasons were given by 64% and 56% of users respectively. Furthermore, nearly four in ten (37%) on-demand app users in the UK claimed that using an app was less stressful, a reason that was particularly important for users in Germany (48%) and the US (45%).

Cheaper prices were also a factor for use of on-demand apps; four in ten users in the UK said that they used them because prices were cheaper online.

**Figure 1.2 Reasons for using on-demand apps: 2016**

Proportion of respondents who use on-demand apps on a smartphone or tablet (%)



Source: Ofcom consumer research, October 2016

Base: All respondents who personally use on-demand apps on a smartphone or tablet

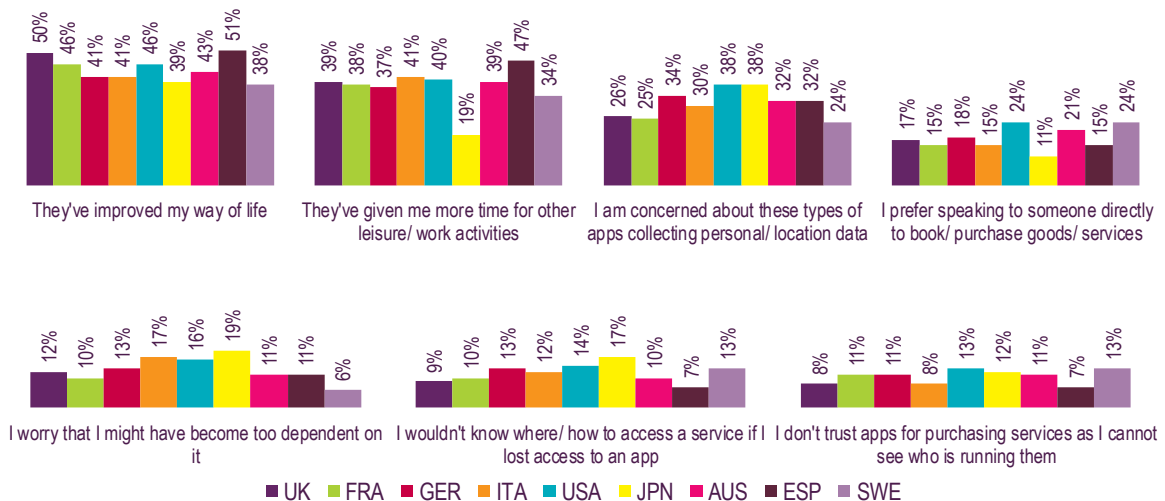
UK=575, FRA=549, GER=524, ITA=759, USA=551, JPN=482, AUS=609, ESP=724, SWE=666

Q10b For which of the following reasons do you order services via these types of apps?

Half of all UK on-demand app users felt that the use of apps had improved their way of life, and four in ten (39%) said that the use of apps had given them more time for other leisure or work activities. Those in the UK (along with those in Sweden and France) were the least concerned about apps collecting personal data, whereas those in Japan, Germany and US expressed the most concern.

**Figure 1.3 Attitudes towards on-demand apps: 2016**

Proportion of respondents who use on-demand apps on a smartphone or tablet



Source: Ofcom consumer research, October 2016

Base: All respondents who personally use on-demand apps on a smartphone or tablet

UK=575, FRA=549, GER=524, ITA=759, USA=551, JPN=482, AUS=609, ESP=724, SWE=666




Q10c Which of the following statements about the use of apps for purchasing or consuming services apply to you personally?

### 1.2.3 Consumer engagement with the 'Internet of Things'

Increases in processing power, and the availability of wireless networks, have expanded the scope of the IoT, as well as the number of IoT applications (often referred to as 'smart' products/services) that have been brought to market or are in development.

Here, we focus on use of the IoT for domestic applications and consumer purposes, such as systems for home monitoring and connected car features. Below are some examples of domestic IoT applications that are currently available.

Figure 1.4 Examples of domestic IoT applications

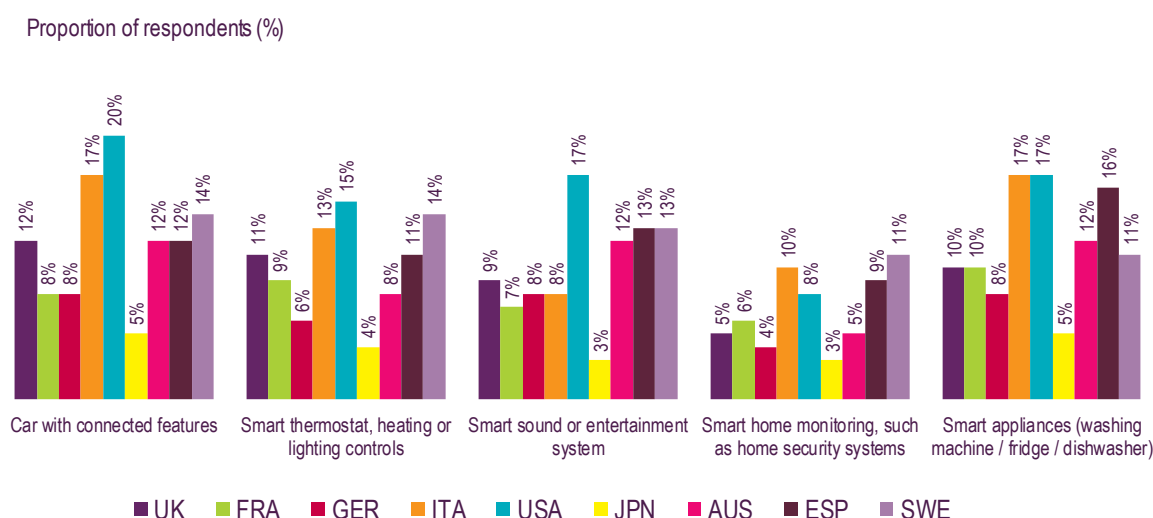
	 <b>Smart Home</b>	 <b>Connected Car</b>	 <b>Wearables</b>
<b>DESCRIPTION</b>	Devices and services that allow people to remotely monitor and control features of their home e.g. heating, lighting, security system, domestic appliances	Online content and information e.g. navigation and infotainment (streaming media) via screens and speakers  Remote real time monitoring of car inc. faults and security/ location  Autonomous driving and navigation  Automatic notification of accidents to emergency services	Devices worn by users, providing them with information prompts e.g. email notifications or as a more convenient way to control another device  Devices worn to monitor and record vital signs for health or fitness purposes
<b>Example DEVICES</b>	IP security camera  Smart thermostat  Smart lightbulb	On-board infotainment system  Vehicle engine computer  Car alarm	Smart watch  Fitness tracker  Blood pressure monitor
<b>Example PROVIDERS</b>	Utility companies e.g. British Gas  Communications providers e.g. O2, AT&T  Security firms e.g. ADT  Device manufacturers e.g. Nest, Belkin	Car manufacturers e.g. General Motors, Ford  Device manufacturers e.g. Pioneer  Platforms e.g. Apple & Google  Comms providers e.g. Verizon, AT&T	Consumer device manufacturers e.g. Apple, Samsung, Fitbit  Specialist medical equipment manufacturers e.g. Medtronic

Source: Ofcom desk research

## A small minority of respondents say they have access to ‘smart home’ or connected car devices

In the UK, 12% of internet users claimed<sup>8</sup> that they used a car with connected features, while 11% said they already used smart thermostat, heating or lighting controls. Similarly, one in ten respondents in the UK said they used a smart appliance such as a washing machine, fridge or dishwasher. Claimed personal use of all types of connected devices/ services we asked about was highest in the US.

**Figure 1.5 Use of domestic IoT applications: 2016**



Source: Ofcom consumer research, October 2016. Base: All respondents UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000  
 Q.10d Connected or smart products can use the internet to perform actions automatically, or remotely access the product via an internet connection. For each of the devices and services shown below, please can you indicate whether you use it already

## One in ten respondents in the UK claim to use a smart watch or fitness monitor

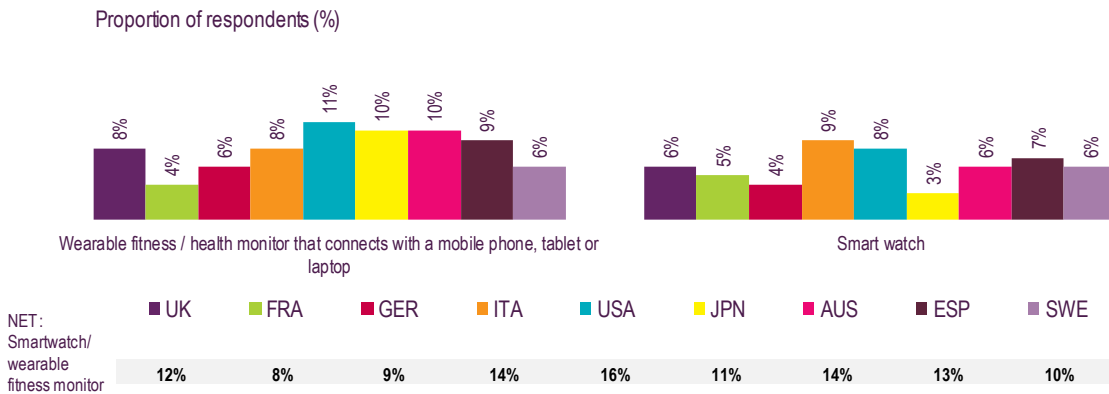
Smart watches offer the ability to receive notifications / messages from the user’s smartphone and control some of the phone’s functions. Some smart watches such as the Apple Watch and those running Android Wear allow third-party apps to extend the device’s functionality. Fitness trackers generally focus on a narrower set of functions related to the recording (and streaming to a smartphone) of vital signs such as pulse, and measures of activity (e.g. number of footsteps). However, the distinction between smart watches and some fitness trackers is blurred - some smart watches include a fitness tracking functionality and not all smart watches allow additional functionality to be added via third-party apps.

In the UK, 12% of respondents said they used a smart watch or a wearable health / fitness monitor, higher than in France (8%) and Germany (9%), but lower than in the US (16%).

<sup>8</sup> As this is claimed behaviour, it may be higher than actual incidences for a number of reasons. Firstly, as connectivity is increasingly embedded into a range of everyday objects as part of their standard functionality, it becomes more difficult to distinguish between connected and unconnected devices (especially if they do not have an associated consumer app). This may make it harder for respondents to accurately identify their use of IoT services and products. Secondly, as many connected devices and services are relatively recent to the market, they are more likely to be used by technically-aware early adopters, who may be more likely than the population as a whole to be members of online research panels.



**Figure 1.6 Use of fitness monitors and smart watches: 2016**



Source: Ofcom consumer research, October 2016 Base: All respondents UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000  
 Q.4a Which devices do you PERSONALLY use either at home or elsewhere?

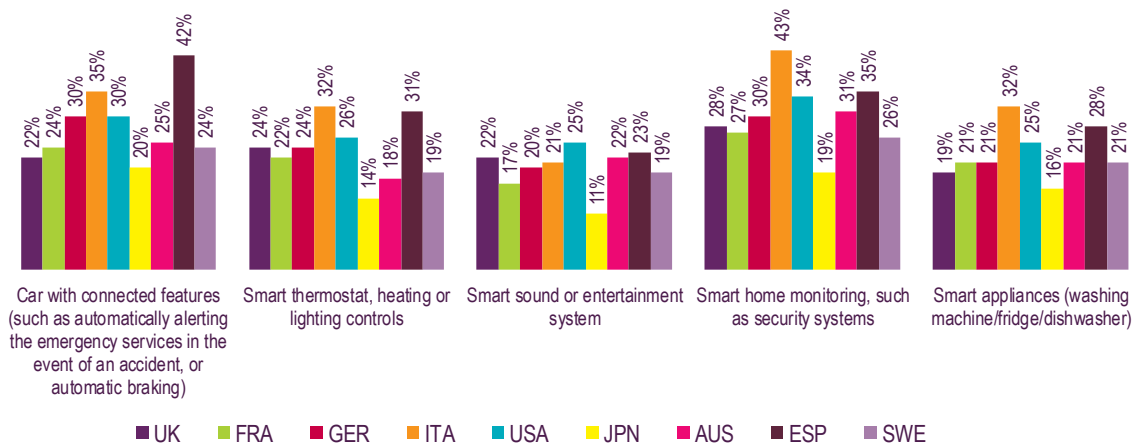
**A quarter of those in the UK without a smart home thermostat, heating or lighting controls said there were very interested in owning them**

Italy (32%) and Spain (31%) had the highest proportion of respondents who indicated that they were very interested in owning these types of devices in the future; this compared to 24% in the UK.

Those in Italy were also the most interested in smart home monitoring (43%), while Spain had the highest future interest in a car with connected features (42%). These compared to 28% and 22% respectively in the UK.

**Figure 1.7 Interest in ownership of domestic IoT applications: 2016**

Proportion of respondents without the named product/service (% who rated interest as 8-10)



Source: Ofcom consumer research, 2016, Base: All those without the specified device (varies by type) - Car with connected features UK=874, FRA=924, GER=930, ITA=849, USA=808, JPN=962, AUS=874, ESP=887, SWE=869  
 Q.10di On a scale of 1-10, where 10 is extremely interested and 1 is not at all interested, how interested are you in owning the following types of products yourself? NET 8-10

# 1.3 News consumption

## 1.3.1 Overview

Consumption of news online has grown considerably in recent years. Among UK online users, using the internet as a main source for news has increased since 2015, and it is now more popular than TV across some types of news.

Drilling down into how people are using news online, according to Reuters Institute data, more than a third (35%) of online news users in the UK now say they use social media for news, and 8% say this is their main source. Overall, the UK is middle-ranked among other countries in terms of the use of social media as a main source of news.

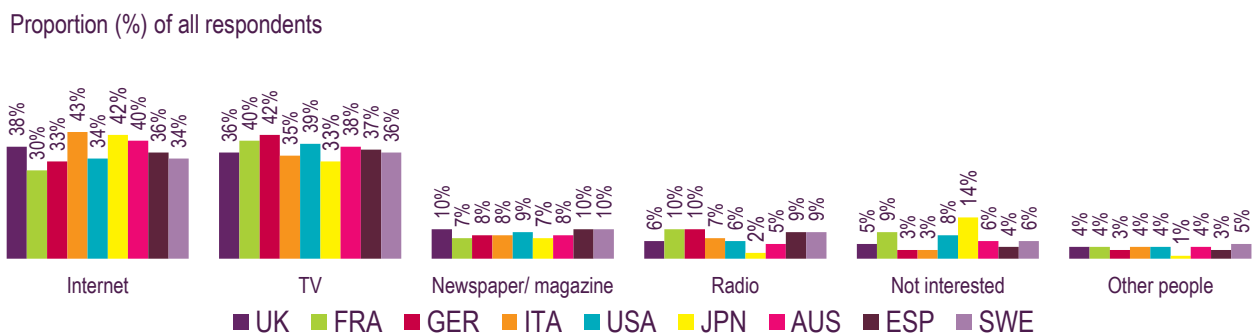
The UK is also middle-ranked among other countries in relation to the extent to which people trust news organisations and journalists; 42% of online news users in the UK say they trust news organisations, while 29% say they trust journalists. However, Ofcom’s consumer research shows that two-thirds of UK respondents have a ‘media-savvy’ approach to search engines, agreeing that some websites listed on a search engine return page will be accurate and some will not. One in five think that if a website has been listed by a search engine, it must be true, and a further one in ten don’t think about it and just use the sites they like the look of. Respondents in Japan are more media-savvy about this issue; 70% agree that some results are accurate and some are not, while those in Spain are less so (55%).

## 1.3.2 Sources used for types of news

### The internet has continued to increase in importance as the main source of certain types of news in the UK

Across all our comparator countries, the internet and TV were the top two platforms cited by online respondents<sup>9</sup> as their main source for news about the world. In the UK, the internet was specified by 38% of respondents, similar to TV at 36%.

**Figure 1.8 Main sources of news about the world: 2016**



Source: Ofcom consumer research, October 2016  
 Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000  
 Q.11 Which, if any, is your main source for the following information? News about the world

<sup>9</sup> Note that these UK figures differ from those in Ofcom’s *News Consumption Report*. Reasons for this include differing methodologies - this survey is based on online users while the news survey is asked of all UK adults.

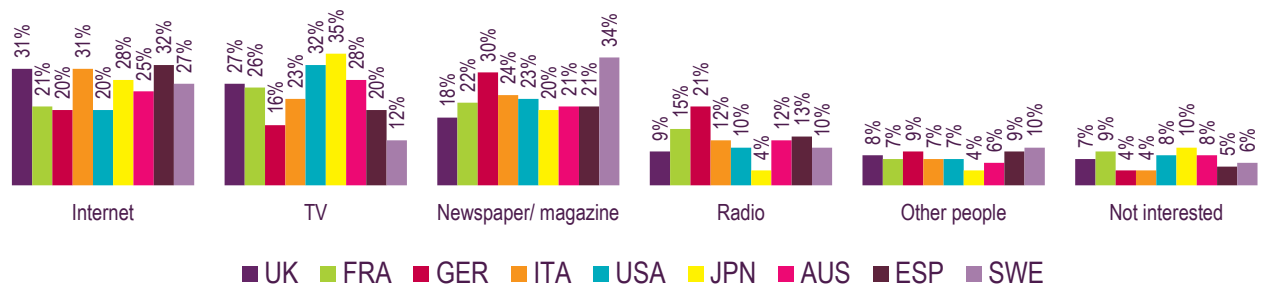
## The internet is the main source of local or regional news for UK respondents

The UK was one of four comparator countries in which online users were more likely to nominate the internet as their main source of local and regional news than any other source. In the UK, the number of respondents choosing the internet has increased from 26% to 31% since 2015; it has overtaken television as the most popular medium for this purpose.

Newspapers and magazines continue to be more popular than radio as a main source of local and regional news. However, the figure in the UK is comparatively low, at 18%, compared to 34% in Sweden and 30% in Germany; in both these countries newspapers/magazines ranked higher than TV and internet for local/regional news.

**Figure 1.9 Main sources of regional / local news: 2016**

Proportion (%) of all respondents



Source: Ofcom consumer research, October 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

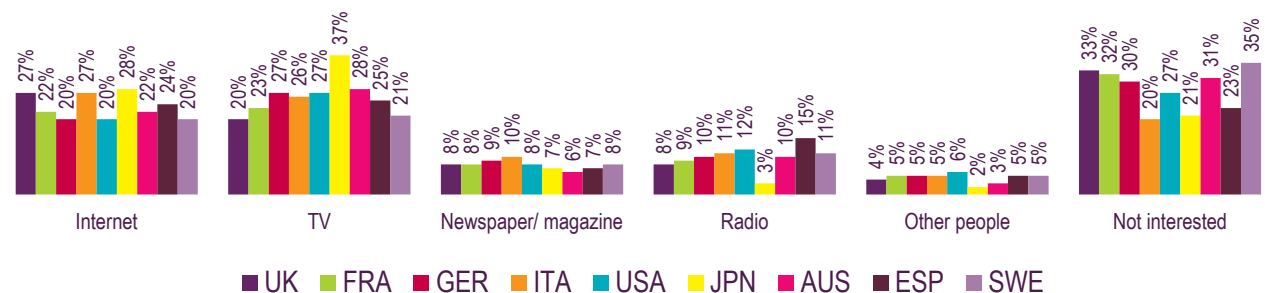
Q.11 Which, if any, is your main source for the following information? Regional / local news

## The internet is the main source for sports news in the UK

The internet and TV were the most-cited platforms for sports news in the majority of our comparator countries. In the UK, people were more likely to nominate the internet than TV for this.

**Figure 1.10 Main sources of sports news: 2016**

Proportion (%) of all respondents



Source: Ofcom consumer research, October 2016

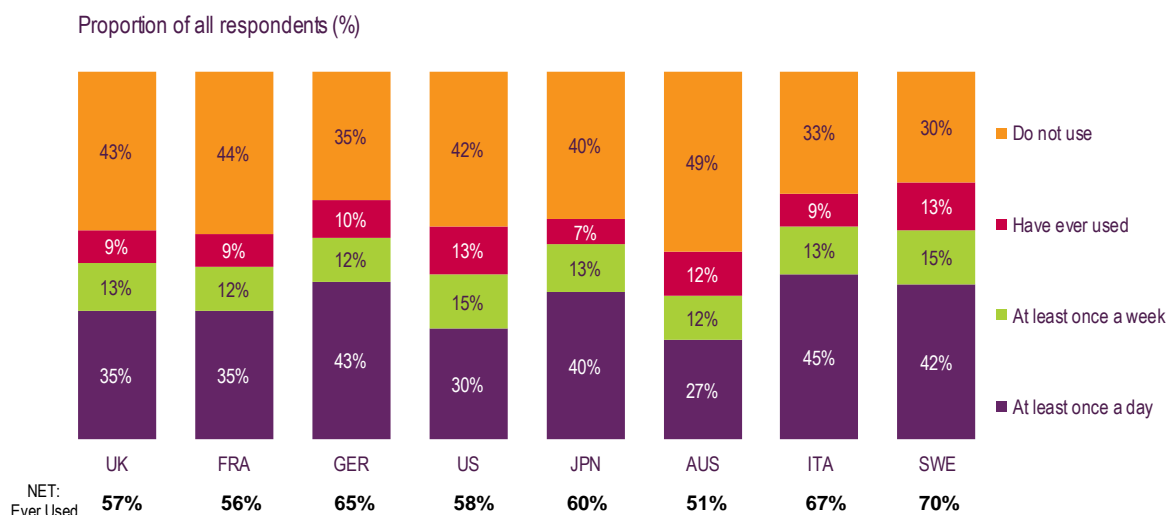
Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

Q.11 Which, if any, is your main source for the following information? Sports news

## More than a third of internet users use their mobile phone to read the news at least once a day in the UK

People are increasingly using their smartphone to access online content. According to Deloitte research, 35% of users in the UK claimed to read the news on their smartphone at least once a day, ranking the UK in the middle of comparator countries. Italy had the highest proportion of users who used their device to read the news at least once a day (45%). In all of our comparator countries, more than half of smartphone users say they have ever read the news on their phone, with the UK at 57%, in line with France and the US.

**Figure 1.11 Use of mobile phone to read the news: 2016**



Source: Deloitte Global Mobile Consumer Survey 2016

Base: All adults 18-75 who have a smartphone, UK=3251, FRA=1547, GER=1588, ITA=1707, USA=1530, JPN=1021, AUS=1681, SWE=1758

Q61\_04 Activities use mobile phone to do – Read the news

Note: Figures have been rounded

We now focus on findings from the Reuters Institute *Digital News Report*, published in June 2016.<sup>10</sup>

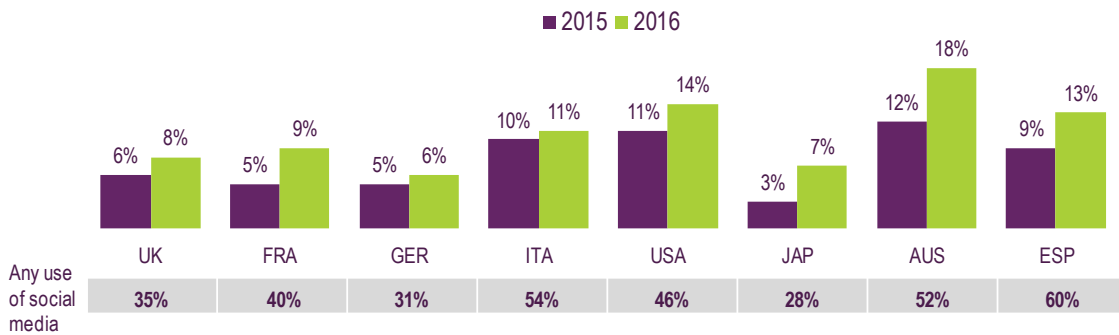
## People in Australia, the US and Spain are the most likely to nominate social media as their main source of news

More than a third (35%) of online news users in the UK now say they use social media for news, and 8% say it is their main source. In Australia, one in five respondents say that social media is their main news source, up from 12% in 2015, representing year-on-year growth of 50%.

<sup>10</sup> Ofcom, along with a variety of partners, provides support for this project. The research provides comparisons about news consumption between 26 countries. For the ICMR, we have chosen to use data comparing the UK, France, Germany, Italy, the US, Japan, Australia, Spain, and Sweden. The report shows how news is perceived quite differently across countries, and how consumption habits differ considerably in a number of areas, particularly in relation to social media. The report is available at: <http://www.digitalnewsreport.org/>. In the UK, the survey was completed by an online panel of 2024 news users for YouGov in January/February 2016. For methodological details please see <http://www.digitalnewsreport.org/survey/2016/survey-methodology-2016/>

**Figure 1.12 Use of social media as main source for news: 2016**

Proportion of respondents who used any source of news in the last week (%)



Source: Reuters Institute / YouGov research, Jan/Feb 2016

Base: All in each country who used a source of news in the last week (between around 1500 and 2000 in each country)

Q4: You say you've used these sources of news in the last week. Which would you say is your MAIN source of news?

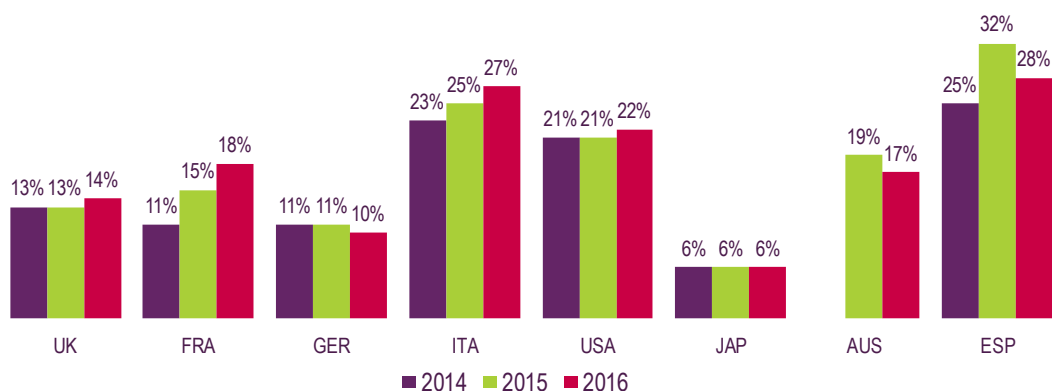
### Levels of interaction with news on social media vary by country

There are various ways in which people use social media for their news consumption. Some look at other people's comments; others click on links to videos or articles sent to them, either by friends or by news organisations; some look at 'what's trending' lists.

Around one in six online news users in the UK say that they comment on news using social media; those in Spain, Italy and the US are more likely to do this. Online users in Germany and Japan are the least likely to comment.

**Figure 1.13 Commenting on news on social media, by country: 2014 - 2016**

Proportion of news users that comment on news on social media (%)



Source: Reuters Institute / YouGov research, Jan/Feb 2016

Base: Total sample (about 1500 to 2000 in each country)

Q13: During an average week, in which, if any, of the following ways do you share or participate in news coverage?

### 1.3.3 Trust in news organisations

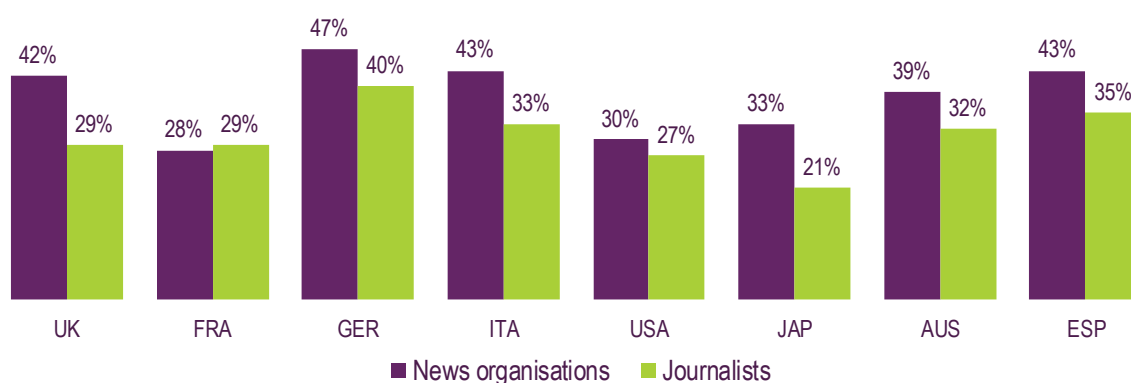
#### Respondents are more likely to trust news organisations than journalists in all countries except France

Given the increased variety in the types of news source available to people, it is important to consider the relative trust that people say they have in news. Across our comparator countries, people in Germany are the most likely to say they trust news organisations, while those in France are the least likely.

The differential between trust in an organisation and in journalists is greatest in Japan and the UK, where respondents are more likely to trust the organisation than the journalist.

**Figure 1.14** Extent of trust towards news organisations and journalists: 2016

Proportion of all respondents (%) who say they trust news organisations and journalists



Source: Reuters Institute / YouGov research, Jan/Feb 2016

Base: Total sample (between around 1500 and 2000 in each country)

Q6: Thinking about news in general, do you agree or disagree with the following statements? I think you can trust most journalists most of the time. I think you can trust most news organisations most of the time.

### 1.3.4 Perceptions of accuracy in search engine results

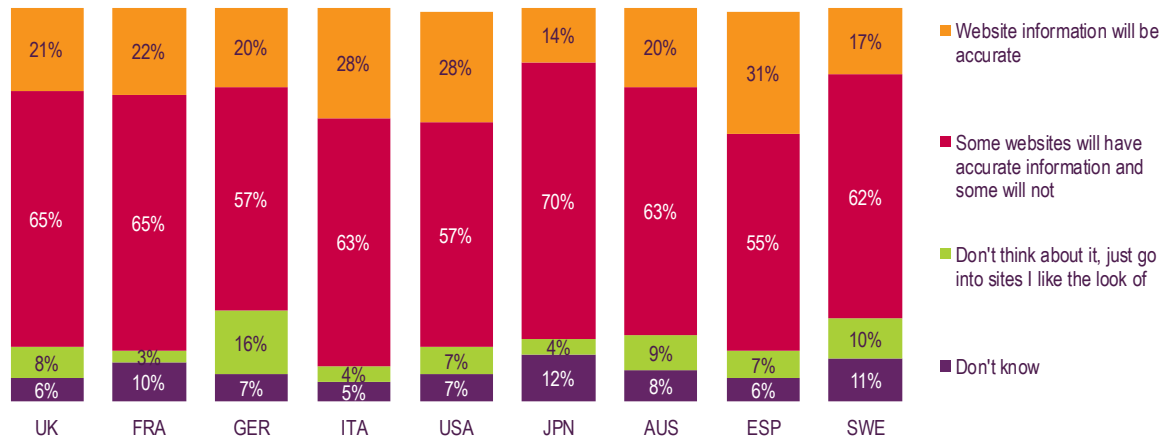
#### In the UK, nearly two-thirds of people are aware that not all websites returned by a search engine will contain accurate information

Our consumer research also examined respondents' trust in search engines. This maps the extent to which people say they think that the information provided on search engine results will be accurate.

Sixty-five per cent of respondents in the UK said they understand that some websites will provide accurate information and some may not. The UK was second to Japan as the country in which this was the most common answer. Respondents in Spain, Italy and the US were more likely than those in other comparator countries, including the UK, to think that the information returned by a search engine will be accurate.

**Figure 1.15 Perceptions of the accuracy of search engine results pages: 2016**

Proportion (%) of all respondents who ever use a search engine



Source: Ofcom consumer research, October 2016

Base: Total sample, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

Q.11a When you use a search engine to find information, you enter a query in the search box and the search engine will then show some links to websites in the results pages. Which of these is closest to your opinion about the level of accuracy of the information detailed in the websites that appear on the results page?

# 1.4 The UK communications industry in context

## 1.4.1 Overview

The communications sector's total global revenue (incorporating the telecoms, television, postal and radio sectors) was £1,165bn in 2015. Telecoms and TV were the largest sectors, contributing £802bn and £263bn respectively.

UK communications sector revenues remained the fifth highest of our comparator countries. In 2015, as in recent years, the three largest communications markets by revenue were the US, China and Japan. Outside the top three, total UK revenue was second only to Germany. The UK generated £761 per head across our communications industries in 2015, which was the highest of the EU5.<sup>11</sup> This figure was £312 lower than the US, which once again had the highest revenue per head of our comparator countries, at £1,073 per person.

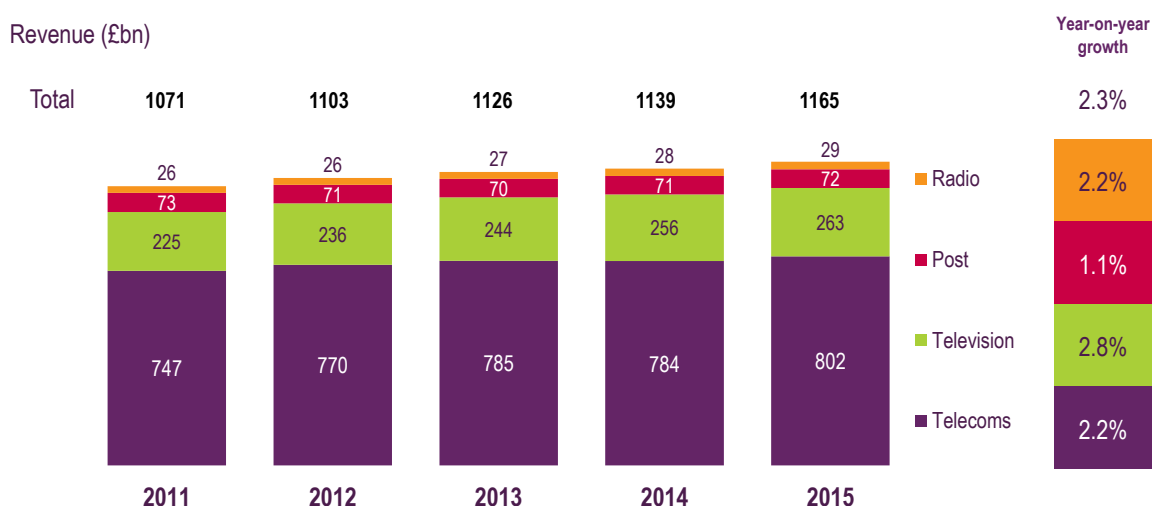
Global advertising expenditure was £308bn in 2015. TV accounted for the largest amount of advertising expenditure, at £106bn, followed by the internet (£102bn).

## 1.4.2 Communications sector revenues

### The communications sector generated £1,165bn in revenue in 2015

Globally, communications services generated £1,165bn in revenue in 2015. As in previous years, telecoms services generated the greatest proportion of global communications revenue, with TV generating the second largest.

**Figure 1.16 Global communications revenues: 2011 – 2015**



Source: Data derived from various sources: PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook) for television and radio revenues (both include advertising, licence fees and subscription services only), WIK Consult / Ofcom estimates for postal revenues which refers to letter mail only. IHS for telecoms revenues, which refer to retail revenues for fixed voice, broadband and mobile services. Interpretation and manipulation of data are solely Ofcom's responsibility. All figures are nominal.

Note: Postal revenues are for our 17 comparator countries and include letters only.

<sup>11</sup> EU5 countries are the UK, France, Germany, Italy and Spain



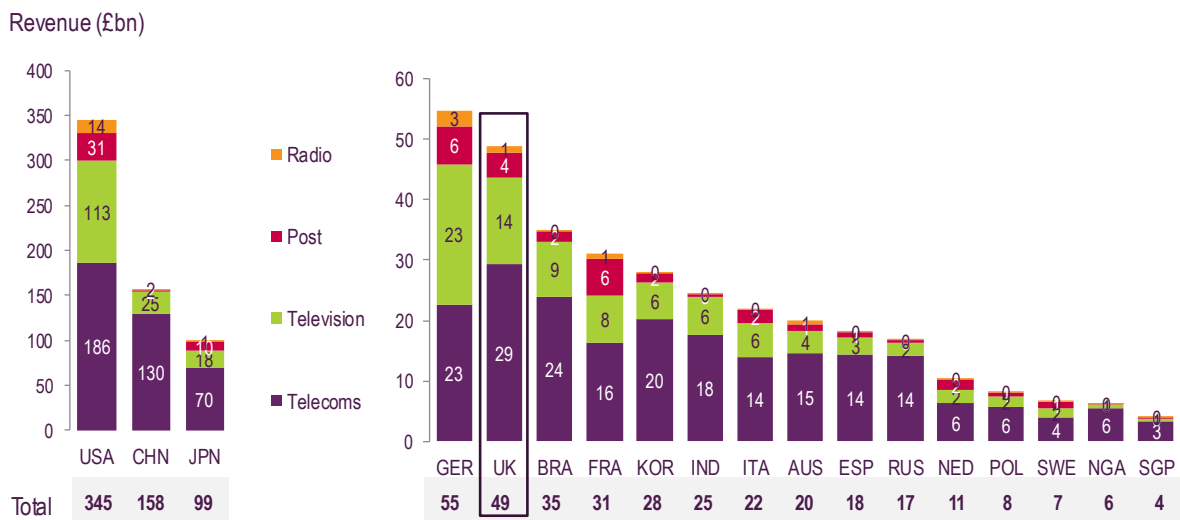
## UK telecoms revenues are the fifth highest among all our comparator countries

In 2015, as in recent years, the three largest communications markets by revenue were the US (£345bn), China (£158bn) and Japan (£99bn).

At £186bn, the revenues of the US telecoms industry alone were greater than the combined industries' revenues in any other country. The US also commanded the largest revenue among our comparator countries in radio, post and television.

Total revenue across the four industry sectors in the UK was £49bn in 2015. Aside from the US, China and Japan, this was second only to Germany (£55bn) among the remaining comparator countries. UK telecoms revenues were the largest among our European comparator countries, with Germany second. UK television revenues, at £14bn, were second to Germany at £23bn.

**Figure 1.17 Communications sector revenues, by country: 2015**



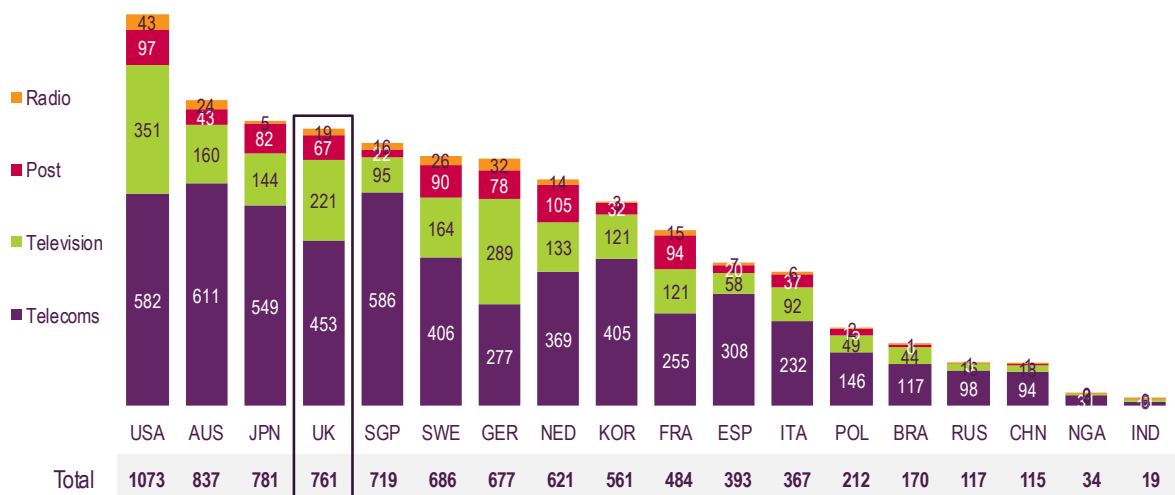
Source: Data derived from various sources: PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook) for radio revenues (include advertising, licence fees and satellite subscription services only), WIK Consult / Ofcom estimates for postal revenues (letters only), IHS / industry data / Ofcom for television and telecoms revenues (telecoms revenues refer to retail revenues). Interpretation and manipulation of data are solely Ofcom's responsibility. All figures are nominal.

Note: Postal revenue data are not available for Nigeria.

## UK communications revenue per head was the highest of the EU5 countries in 2015

The UK generated £761 in communications service revenue per person in 2015, the highest average spend across the EU5 and fourth among all our comparator countries. This figure was £312 lower than the US, which continued to have the highest revenue per head of our comparator countries, at £1,073 per person.

**Figure 1.18 Communications sector revenue per head: 2015**



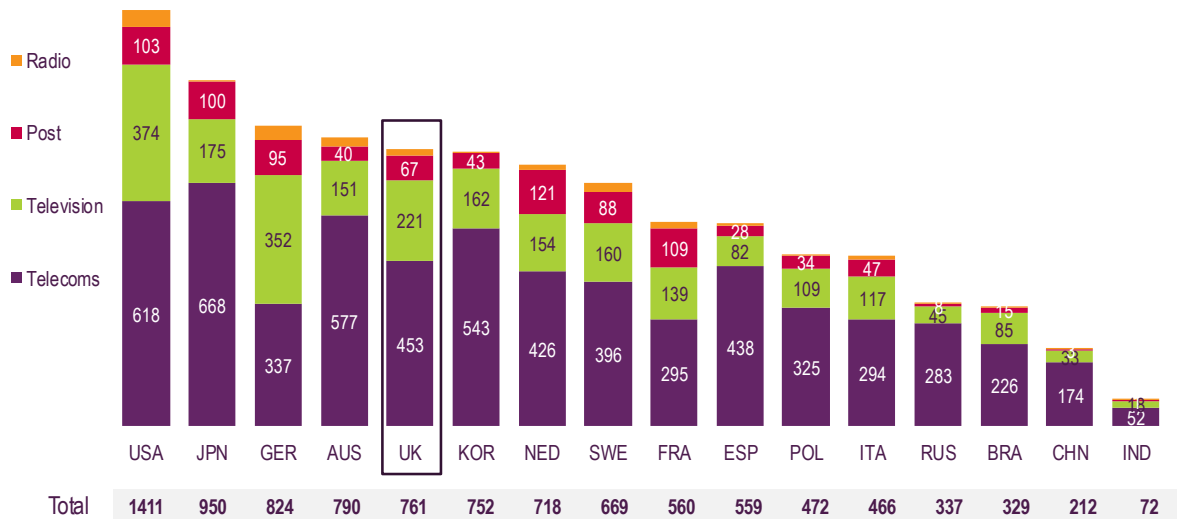
Source: Data derived from various sources: PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook) for radio revenues (include advertising, licence fees and satellite subscription services only), WIK Consult / Ofcom estimates for postal revenues (letters only). IHS / industry data / Ofcom for television and telecoms revenues (telecoms revenues refer to retail revenues). Interpretation and manipulation of data are solely Ofcom's responsibility. All figures are nominal.

Note: Postal revenue data are not available for Nigeria.

Figure 1.19 (below) uses OECD purchasing power parity data to adjust absolute revenue per capita, taking account of varying price levels across countries in order to provide a view of revenue in relation to consumer spending power in each country. After adjustment,<sup>12</sup> the revenue per head in the US increases to £1,411. Japan and Germany overtake Australia as the countries with the second and third highest revenues per head countries respectively, dropping the UK down to fifth position.

<sup>12</sup> Please see section 1.1.6 of Appendix A, in the *Technical appendix*: <https://www.ofcom.org.uk/research-and-data/cm/cmr16/international>

**Figure 1.19 Communications revenues per head, adjusted for comparative price levels: 2015**



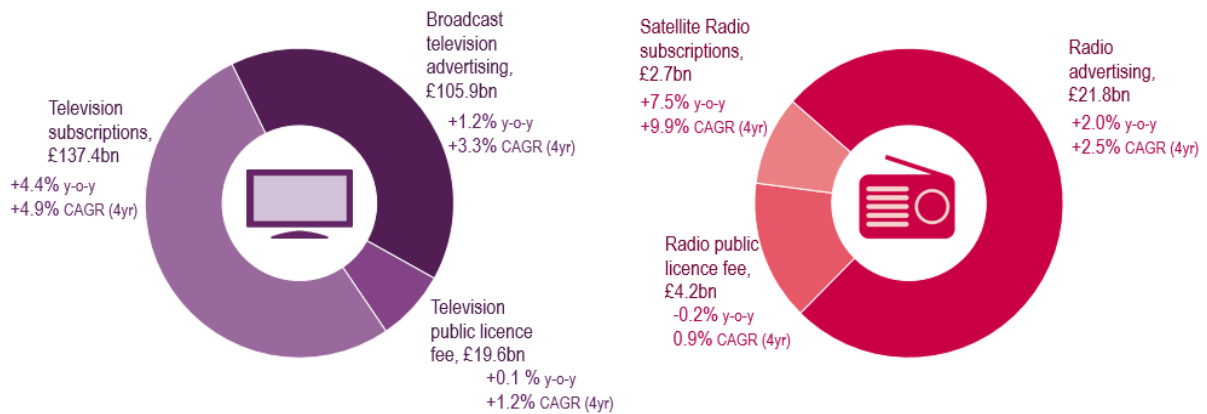
Source: Data derived from various sources: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook) for radio revenues (include advertising, licence fees and satellite subscription services only), Wik Consult / Ofcom estimates for postal revenues (letters only). IHS / industry data / Ofcom for television and telecoms revenues (telecoms revenues refer to retail revenues). Interpretation and manipulation of data are solely Ofcom's responsibility. Figures adjusted using data from <http://stats.oecd.org>. comparative price levels (CPL) to adjust for purchasing power parity (PPP). CPLs are ratios of PPP for consumption expenditure to exchange rates. They measure differences in price levels between countries by indicating the number of units of a common currency required to buy the same volume of products in each country. All figures are nominal. N.B. Nigeria and Singapore are not shown in the above figure as these two countries are not included in the OECD database.

### Subscription revenues continue to grow in the global television industry

Of the £262.9bn that the television industry generated in 2015, subscription revenues contributed the largest proportion of revenue, at £137.4bn. Broadcast television advertising revenue accounted for £105.9bn, with public funding revenue at £19.6bn in 2015.

In the radio industry, satellite subscription revenue stood at £2.7bn in 2015. Revenue from radio advertising was £21.8bn in 2015, with public licence fee revenue at £4.2bn.

**Figure 1.20 Sources of global revenue for radio and television industries: 2015**

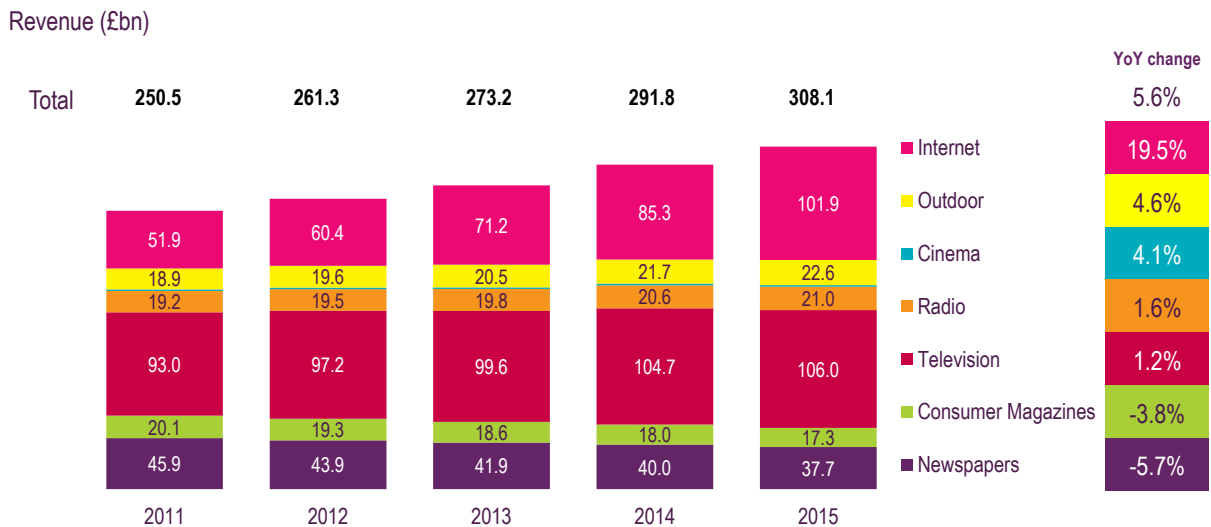


Source: All data derived from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Notes: Ofcom is responsible for all growth calculations displayed. All figures are nominal.

**Global advertising expenditure was £308bn in 2015**

As in previous years, TV and internet accounted for the largest proportion of this, at £106bn and £102bn respectively.

**Figure 1.21 Global advertising expenditure, by medium: 2015**



Source: Data derived from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Notes: Ofcom is responsible for all growth calculations displayed. All figures are nominal

## 1.5 International regulatory context

This section provides an overview of recent and ongoing regulatory developments at EU<sup>13</sup> and international levels in the communications sector. It does not aim to be a comprehensive examination of regulatory frameworks across the comparator countries, but highlights significant developments to provide some context to the analysis in this report.

### 1.5.1 Significant developments in the telecommunications sector

#### The EU regulatory framework for electronic communications

In May 2016, the European Commission (EC) published its *Digital Single Market* (DSM) strategy,<sup>14</sup> setting out a vision for achieving an internal market in Europe, in which anyone can access and purchase digital goods and services, regardless of their country of origin.

Comprising 16 actions, the DSM is now well under way and the EC has published a number of legislative initiatives that are expected to be adopted by the European Parliament and Council (28 Member States) in the coming year. A review of the regulatory framework for electronic communications (commonly referred to as the 'Framework', soon to be renamed *the Electronic Communications Code*) is one of these legislative initiatives.

The Framework, originally adopted in 2002,<sup>15</sup> sets the regulatory principles for electronic communications network and service regulation, including the suite of remedies that regulators can impose on operators with significant market power, as well as principles for spectrum authorisation and use. It defines the permitted scope of universal service obligations (USO<sup>16</sup>) and includes sector-specific measures on consumer protection. The Framework was last revised in 2009 and currently comprises five Directives. It applies to all electronic communications networks and services, retail and wholesale, as well as associated facilities and services.

In September 2015, the EC launched its second review of the Framework with a public consultation,<sup>17</sup> and in September 2016 it published legislative proposals (*the Electronic Communications Code*).<sup>18</sup>

The overriding policy focus of the Code is the deployment and take-up of very high-speed networks. While retaining the core tenets of the economic regulation framework that has been in place since 2002, the proposals seek to increase investment incentives (including, in some cases, through lighter-touch regulation).

The scope of the Code is also broader than that of the current Framework, in that it now includes some over the top<sup>19</sup> services, which will become subject to a limited number of new regulatory obligations. The EC is also seeking to simplify and increase the level of harmonisation of consumer protection provisions across the EU, while explicitly enabling

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<sup>13</sup> The consequences of the UK's EU referendum vote will be unclear for some time. The UK currently remains a member of the EU and the EU regulatory frameworks continue to apply.

<sup>14</sup> <http://ec.europa.eu/priorities/digital-single-market/>

<sup>15</sup> [http://europa.eu/legislation\\_summaries/information\\_society/legislative\\_framework/l24216a\\_en.htm](http://europa.eu/legislation_summaries/information_society/legislative_framework/l24216a_en.htm)

<sup>16</sup> The universal service obligation (USO) is a minimum set of services of specified quality which should be available to all users at an affordable price.

<sup>17</sup> <https://ec.europa.eu/digital-agenda/en/news/public-consultation-evaluation-and-review-regulatory-framework-electronic-communications>

<sup>18</sup> [http://europa.eu/rapid/press-release\\_IP-16-3008\\_en.htm](http://europa.eu/rapid/press-release_IP-16-3008_en.htm)

<sup>19</sup> Over-the-top players (OTTs): service providers offering a wide variety of applications and services, including communications services, over the internet.

regulators to apply rules on switching and contract termination to all elements of a retail bundle. In addition, the EC is removing certain services from the scope of the mandatory USO, while recasting the objectives of the USO from one of service availability to one of affordability. Finally, the EC is proposing greater EU-level oversight over national spectrum auctions, and greater coordination in the timing and terms of spectrum awards.

The EC is also proposing a strengthening of the independence of national regulators, and the transformation of the Body of European Regulators for Electronic Communications (BEREC – the network of EU national regulators) into a European agency.<sup>20</sup>

### **International mobile roaming**

The European regulatory framework for international mobile roaming was originally set out in the first *EU Roaming Regulation* (EC 717/2007), and subsequently updated in 2009 and 2012.<sup>21</sup> This has now been superseded by measures agreed as part of the *Connected Continent Regulation*, which entered into force in April 2016 and set out a timeline for the abolition of retail roaming surcharges. The Regulation also introduced new net neutrality rules, covered below.

The new international roaming rules seek to abolish retail roaming surcharges by 15 June 2017 (known as ‘roam like at home’), subject to the EC legislating to reduce wholesale roaming price caps by that date (legislative proposals for which were tabled on 15 June 2016). As a preliminary step, a substantial reduction in retail roaming surcharges was applicable from 30 April 2016, when the current maximum retail surcharges were reduced to the level of the current wholesale caps.

From June 2017, operators will be allowed to implement fair-use policies (essentially, limits to ‘roam like at home’) to prevent the abuse of regulated roaming services, and to retain surcharges up to the retail caps (if they can demonstrate to their National Regulatory Authority (NRA) that they cannot cover the costs of providing roaming). In September 2016, the EC tabled a draft Implementing Act on the application of the fair use policy for ‘roam like at home’ (based on principles of ‘permanent residence’ or ‘stable links’ to a Member State, rather than on time or volume usage limits). The Implementing Act also sets out criteria for the assessment of exceptional applications for exemptions from the requirement to offer ‘roam like at home’ pricing.

The Implementing Act has to be in place by 15 December 2016, and the accompanying wholesale measures have to come into effect as soon as possible, before the planned introduction of ‘roam like at home’ on 15 June 2017.

### **Traffic management and net neutrality**

The net neutrality debate – about the extent to which a principle of non-discrimination should apply to internet traffic across networks – has continued to preoccupy national regulators and governments across the world, and particularly in Europe and the US, where new rules have been the subject of extensive discussion during 2016.

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<sup>20</sup> BEREC is a forum for cooperation, knowledge-exchange and sharing best practices between independent National Regulatory Authorities (NRAs). The European Council, The European Parliament and the EC regularly seek the advice of BEREC on a range of policy issues, while NRAs and the EC are required to take the utmost account of any opinion, recommendation, guidelines, advice or regulatory best practice adopted by BEREC. BEREC’s annual Work Programmes can be consulted here: [http://berec.europa.eu/eng/about\\_berec/annual\\_work\\_programme/](http://berec.europa.eu/eng/about_berec/annual_work_programme/).

<sup>21</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:172:0010:0035:EN:PDF>

There is broad global support for the principle that internet service providers (ISPs)<sup>22</sup> should not become gatekeepers to online content, applications and services rather than neutral providers of access to them, to avoid the risk of compromising the continued operation of the internet as an open platform for innovation. However, there is significant disagreement about what exactly this means for ISPs, with strongly held and divided views about practices such as 'zero-rating'.<sup>23</sup>

By late 2016 there was net neutrality legislation or regulation in place in at least six countries outside the EU:

- a 2010 Chilean net neutrality law forbids ISPs from discriminating between content providers or from blocking users from accessing lawful content;
- Singapore's telecoms regulator maintains a ban on blocking access to lawful content (following a 2011 consultation);<sup>24</sup>
- in 2012, provisions in a Peruvian law that enables and promotes broadband investment required ISPs to respect network neutrality;
- Israel introduced a net neutrality requirement for mobile broadband services in 2011, and extended these to fixed-line services in 2014; and
- in Brazil, the 2014 *Civil Rights Framework for the Internet*<sup>25</sup> included net neutrality rules.

In Europe, the *Connected Continent Regulation* introduced rules on net neutrality that came into force on 30 April 2016. The Regulation requires ISPs (fixed and mobile) to treat all traffic equally and establishes a right for all end-users to access and distribute lawful content, applications and services of their choice. It also introduced new transparency requirements for ISPs. Under the Regulation, ISPs may use reasonable traffic management measures, but blocking and throttling are allowed only in a limited number of circumstances, such as preserving network security and managing network congestion. In August 2016, BEREC issued guidelines on the implementation of the rules by NRAs.

In Europe, the *Connected Continent Regulation* introduced rules on net neutrality that came into force on 30 April 2016. The Regulation requires ISPs (fixed and mobile) to treat all traffic equally and establishes a right for all end-users to access and distribute lawful content, applications and services of their choice. It also introduced new transparency requirements for ISPs. Under the Regulation, ISPs may use reasonable traffic management measures, but blocking and throttling are allowed only in a limited number of circumstances, such as preserving network security and managing network congestion. In August 2016, BEREC issued guidelines on the implementation of the rules by NRAs.

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<sup>22</sup> Internet service provider (ISP): a company that provides access to the internet.

<sup>23</sup> An online content service is 'zero-rated' on an internet access service when use of the content service does not count against the data cap applying to the internet access service.

<sup>24</sup> [https://www.imda.gov.sg/~media/imda/files/inner/pcdg/consultations/20101111\\_netneutrality/netneutralityexplanatorymemo.pdf](https://www.imda.gov.sg/~media/imda/files/inner/pcdg/consultations/20101111_netneutrality/netneutralityexplanatorymemo.pdf)

<sup>25</sup> <https://www.publicknowledge.org/documents/marco-civil-english-version>



## Next-generation access (NGA)<sup>26</sup> and broadband roll-out

The *Digital Agenda* presented by the EC forms one of the seven pillars of the *Europe 2020 Strategy*, which sets objectives for the growth of the European Union by 2020. Among other goals, it sets NGA coverage targets by 2020: download rates of 30 Mbit/s for all European citizens and for at least 50% of European households to be subscribing to internet connections above 100 Mbit/s.

More recently, the EC has extended its thinking beyond 2020 to address longer term broadband needs and has talked of a 'Gigabit society' by 2025: all schools, transport hubs and main providers of public services as well as digitally intensive enterprises should have access to internet connections with download/upload speeds of 1 Gbit/s. In addition, all European households, rural or urban, should have access to networks offering a download speed of at least 100 Mbit/s (which can be upgraded to 1 Gbit/s), and all urban areas, major roads and railways should have uninterrupted 5G wireless broadband coverage.

The EC aims to meet this through initiatives that will incentivise investments and reduce the costs of NGA deployment (e.g. by encouraging co-investment and the sharing of civil infrastructure). Various European countries have defined their own roll-out strategies and begun to implement them. Despite the common goals, the type and speed of NGA rollout varies considerably across European countries.

The recent BEREC report *Challenges and drivers of NGA roll-out and infrastructure competition*<sup>27</sup> highlights a number of factors that impact on a country's NGA deployment (e.g. the model of competition, based to a large degree on the technologies deployed). The report shows that factors which are largely exogenous to NRAs' sector specific regulation have a significant impact on NGA deployment:

- Infrastructure competition (mostly from DOCSIS 3.0 networks deployed by cable operators);
- Demand-side factors (i.e. end-user demand for services that require higher bandwidth and an associated willingness to pay a premium for higher bandwidths); and
- Supply-side factors (i.e. factors which influence the costs or the quality of NGA deployment including public policy initiatives, and the degree of urbanisation).

The type of NGA roll-out is largely shaped by the legacy infrastructure and the existing civil infrastructure, hence revealing strong elements of path-dependency. However, the regulatory approach also has a strong bearing on the degree and type of competition that emerges, and on prices – currently, several NRAs are considering how best to balance the longer-term goal of increased infrastructure competition based on passive infrastructure access, while retaining service-based competition using the active wholesale products of the incumbent.

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<sup>26</sup> Next-generation access networks (NGA): New or upgraded access networks that can allow substantial improvements in broadband speeds. This can be based on a number of technologies such as fibre-to-the-cabinet, DOCSIS 3.0 (sometimes known as 'cable') and fibre-to-the-premises, all of which are network technologies that use fibre optic technology to varying degrees.

<sup>27</sup> [http://www.berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/6488-berec-report-challenges-and-drivers-of-nga-rollout-and-infrastructure-competition](http://www.berec.europa.eu/eng/document_register/subject_matter/berec/reports/6488-berec-report-challenges-and-drivers-of-nga-rollout-and-infrastructure-competition)



In the UK, Ofcom published the initial conclusions of its *Digital Communications Review* (DCR) in February 2016<sup>28</sup> which, among other areas of focus, explicitly supported investment and innovation in ultrafast broadband networks such as fibre to the home (FTTH) through pricing and access remedies.

In other European countries, approaches vary to the relative application of passive or active remedies. In France, for example, no active FTTH remedies have been imposed,<sup>29</sup> as the French regulator pursues a policy of incentivising infrastructure competition and the deployment of FTTH.

As the broadband technologies deployed by incumbents evolve from ADSL<sup>30</sup> to FTTx,<sup>31</sup> some NRAs have concluded that passive access to passive optical networks (PONs) is not technologically feasible, and have therefore opted for virtual unbundled local access (VULA)<sup>32</sup> or bitstream remedies. In Germany, the incumbent is required to offer VULA and other managed wholesale remedies such as bitstream access as a condition to implementing vectoring technology.<sup>33</sup>

In Italy, the NRA has insisted that the incumbent and access seekers work together to find a mutually acceptable vectoring solution, while NRAs elsewhere in Europe have allowed incumbents to implement vectoring solutions providing the incumbent offers enhanced bitstream services to access seekers so as to allow competitors to continue to compete when vectoring technology is deployed.

Communications providers around the world are also looking to upgrade their networks to make use of more efficient technologies such as fibre, and are migrating from traditional transmission standards to standards used to route data via internet protocol (IP)<sup>34</sup>. Many communication providers in Europe, the US and Asia have migrated their backbone to next generation core networks (NGNs)<sup>35</sup> by overlaying and upgrading their legacy backbone

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<sup>28</sup> <https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/digital-comms-review/conclusions-strategic-review-digital-Communications>

<sup>29</sup> However, there are active VDSL (Very high bit rate digital subscriber line) remedies. Digital subscriber line (DSL) refers to a family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high-speed digital lines.

<sup>30</sup> Asymmetric digital subscriber line (ADSL): A digital technology that allows the use of a standard telephone line to provide high-speed data communications. It allows higher speeds in one direction (towards the customer) than the other.

<sup>31</sup> Fibre-to-the-x (FTTx): This comprises the many variants of fibre optic access infrastructure. These include fibre to the home (FTTH), fibre to the premises (FTTP), fibre to the building (FTTB), fibre to the node (FTTN), and fibre to the cabinet (FTTC).

<sup>32</sup> VULA is an enhanced bitstream solution that allows access seekers to deliver services over the incumbent's NGA access network with a degree of control that is similar to that achieved when taking over the physical line to the customer.

<sup>33</sup> Vectoring enhances the achievable speeds of VDSL to close to its theoretical potential by cancelling out cross-interference on lines, but it does not lend itself easily to a multi-operator solution.

<sup>34</sup> Internet protocol (IP): The packet data protocol used for routing and carrying messages across the internet and similar networks.

<sup>35</sup> Next-generation core networks (NGN): internet protocol-based core networks which can support a variety of existing and new services, typically replacing multiple, single service legacy networks.

public switched telecommunications networks (PSTN)<sup>36</sup> with a single IP-based network. Many are now also starting to migrate their access lines to IP.<sup>37</sup>

Governments and regulatory agencies have also examined policies of imposing structural remedies to enhance the deployment of high-speed broadband networks. For example, in Australia, Brazil, New Zealand, Singapore and South Africa, governments have created new state-owned operators in order to participate directly in the construction of broadband networks.

The trade-off that governments and regulatory agencies often have to contend with is the desire to 'future-proof' investments and accelerate the transition to a 'gigabit society' by adopting a FTTP policy, balanced with the need to spread the large investment required over a longer period by adopting a multi-technology approach.

In October 2016, the EC published a study (*Costing the new potential connectivity needs*) which examined six different connectivity options (based on the choice of technology and extent of coverage in place by 2025) and the associated deployments costs for each scenario. The costs across the EU ranged from €55bn to €249bn for extending the access network to the majority of residential premises (80-100% coverage).<sup>38</sup>

## 1.5.2 Significant developments in the area of content regulation and the protection of audiences

### The EU content regulatory framework

In Europe, the *Audiovisual Media Services Directive* (AVMSD)<sup>39</sup> is the common framework for the regulation of television and video-on-demand (VoD) content. Last reviewed in 2007, the AVMSD sets out common minimum rules for television content, focusing on the protection of minors, incitement to hatred, advertising, and the promotion of European works. It also ensures that pan-European broadcasters have to comply only with a single set of rules: those of the country in which they are established (the country-of-origin principle).

Following a public consultation in 2015<sup>40</sup> on the fitness of the rules, the EC published a legislative proposal to update the AVMSD in May 2016, including:

- extending the scope of the Directive to cover certain internet-delivered services (via the regulation of 'video-sharing platforms' (VSPs) such as YouTube, in relation to harmful content and hate speech);
- relaxing the rules on commercial communications; harmonising rules on protecting minors;
- extending the right of Member States to charge levies on on-demand revenues to fund content investment; and

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<sup>36</sup> Public switched telephone network (PSTN): The network that manages circuit-switched fixed-line telephone systems.

<sup>37</sup> In Europe, 19 countries have already finished their migration to IP in access lines, some as the result of a move to NGN in the access layer. Developments in regions such as Latin America, Africa and the Arab States have been slower but are following a similar trend.

<sup>38</sup> <http://bookshop.europa.eu/en/costing-the-new-potential-connectivity-needs-pbKK0116744/?CatalogCategoryID=CXoKABst5TsAAAEjepEY4e5L>

<sup>39</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:095:0001:0024:EN:PDF>

<sup>40</sup> <https://ec.europa.eu/digital-agenda/en/news/public-consultation-directive-201013eu-audiovisual-media-services-avmsd-media-framework-21st>

- introducing detailed requirements for ensuring the independence of NRAs.

In the meantime, and in part feeding into the AVMSD review process, national regulators in Europe continue to work on implementation at the national level, and to co-operate in a number of regulatory bodies. One of them is the European Regulators Group for Audiovisual Media Services (ERGA),<sup>41</sup> a group of EU audiovisual regulators, set up to advise the EC on the application of the AVMSD.<sup>42</sup>

National regulators in Europe also cooperate on a wider basis through the European Platform of Regulatory Authorities (EPRA),<sup>43</sup> an independent group of regulators from 46 countries, which meets twice a year to share best practice.

### **Content protection and controls in an online environment**

Child online protection<sup>44</sup> (and the wider protection of audiences online) has in recent years moved up the international political agenda. As the existing EU content framework, the AVMSD, applies content regulation to only a limited number of online services, new models of cooperation and participation are emerging, featuring combinations of co- and self-regulation and media literacy initiatives.<sup>45</sup>

Notably, in the UK, all of the country's mobile operators and the four largest fixed-line ISPs offer network-level content filtering services on a voluntary basis. Since the announcement of the provision of filtering by fixed providers, Ofcom has published a series of reports on the protection of children online.<sup>46</sup> In addition, Ofcom publishes regular media literacy and viewer research data, to aid understanding and identify areas of concern, including a report on audience understanding and expectations of protection measures and standards across different media.<sup>47</sup>

The trend for self-regulatory initiatives continued during 2016, notably with Facebook, Twitter, YouTube and Microsoft agreeing a voluntary code of conduct with the EC covering a commitment to act to combat the spread of illegal hate speech online in Europe.<sup>48</sup> Such increased attention to the role that the internet is seen to play in the dissemination of

<sup>41</sup> <http://ec.europa.eu/digital-agenda/en/audiovisual-regulators>

<sup>42</sup> In 2015 ERGA conducted work on regulatory independence, the scope of the AVMSD, territorial jurisdiction and the protection of minors. In 2016, ERGA continued its work notably on the protection of minors, and on 5 October 2016 adopted an opinion on the proposal to amend the AVMSD. See <https://ec.europa.eu/digital-single-market/en/news/erga-opinion-avmsd-proposal>

<sup>43</sup> <http://www.epra.org/>

<sup>44</sup> The term 'child online protection' in this case relates to the protection of minors (traditionally meaning, in regulatory terms, broadcast content-related rules for the protection of young viewers) in the online space. In many countries, the broadcast related rules for minors are only applicable to tv-like services online and not all video and content services online.

<sup>45</sup> Ofcom defines media literacy as: "the ability to access, understand and create communications in a variety of contexts".

<sup>46</sup> The internet safety reports, see:

[https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0019/27190/internet-safety-measures.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0019/27190/internet-safety-measures.pdf);

<https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/internet-policy/internet-safety-2>;

[https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0016/31732/third\\_internet\\_safety\\_report.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0016/31732/third_internet_safety_report.pdf). Ofcom published a fourth internet safety report in December 2015, providing an update on the ISPs' filtering, including the extension of the offer to existing customers and reporting on our 2015 media literacy research.

<sup>47</sup> <https://www.ofcom.org.uk/research-and-data/tv-radio-and-on-demand/tv-research/protecting-audiences-online-world>

<sup>48</sup> [http://europa.eu/rapid/press-release\\_IP-16-1937\\_en.htm](http://europa.eu/rapid/press-release_IP-16-1937_en.htm)

extremism and radicalisation is also reflected in the EU Directive of December 2015 on combating terrorism.<sup>49</sup>

Other significant self-regulatory initiatives include the collaborative programme run since 2014 between the British Board of Film Classification (BBFC), the Netherlands' regulator NICAM and others, on You Rate It, a tool to enable members of the public to age-rate user-generated video content online across different territories and platforms.

Statutory and co-regulatory arrangements are typical across the EU in relation to those online services which are covered by the AVMSD (VoD services which are established in a Member State of the EU). These include obligations on regulated providers to restrict minors' access to 'stronger' material, such as sexually explicit programmes, through access control mechanisms. France operates a statutory age classification system for VoD content, with associated scheduling restrictions and information requirements. In the UK, there are obligations on providers of stronger material to verify the ages of viewers before allowing access.

In some cases, the statutory framework is complemented by self-regulatory bodies: in Italy, the Committee for Media and Minors oversees the provision of access control mechanisms under a code, with AGCOM, the NRA, as a statutory back-stop.

The EC's proposals for the revision of the AVMSD extend EU regulation dealing with the protection of minors to video-sharing platforms (VSPs) – of which YouTube is the most prominent example. The Directive seems to propose VSP obligations very similar to the current practices of YouTube: content deemed to be inappropriate is flagged by users and subsequently reviewed by YouTube against its own standards framework. However, under the proposals this would be overseen and potentially enforced by NRAs. The details of any such VSP regulation will be the subject of further discussion and negotiation during 2017.

### **Media pluralism and ownership rules**

Media pluralism remained high on the European agenda, after a debate and an EC consultation on media pluralism and freedom, including the role of NRAs, sparked by an earlier report from a high-level group (HLG)<sup>50</sup> of experts for the EC.

The debate has focused on whether there is a greater need for harmonisation of rules on media pluralism at the European level. On the basis of one of the HLG's recommendations, and as an attempt to gather further data, a number of EU countries conducted pilot studies in 2014 and 2015, using the media pluralism monitor tool developed in 2009, which is a set of indicators to measure 'threats' to pluralism. The study has been extended to all Member States and the full results should be published shortly.

In parallel, the Council of Europe (CoE) has created a Committee of Experts on Media Pluralism and Transparency of Media Ownership (MSI-MED), whose task is to analyse best practices in the CoE's Member States and prepare standard-setting proposals around ensuring a pluralist media landscape, diversity in media content and transparency in media ownership.<sup>51</sup>

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<sup>49</sup> [http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/european-agenda-security/legislative-documents/docs/20151202\\_directive\\_on\\_combatting\\_terrorism\\_en.pdf](http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/european-agenda-security/legislative-documents/docs/20151202_directive_on_combatting_terrorism_en.pdf)

<sup>50</sup> <http://ec.europa.eu/digital-agenda/en/high-level-group-media-freedom-and-pluralism>

<sup>51</sup> <http://www.coe.int/en/web/freedom-expression/committee-of-experts-on-media-pluralism-and-transparency-of-media-ownership-msi-med->

On 1 March 2016 Australia announced a proposed package of changes to its media ownership laws. This included the repeal of the 75% reach rule (which prevents the creation of national television networks by banning networks from broadcasting to more than 75% of the population), and the '2/3' cross-media ownership rule (which restricts media companies from controlling more than two out of three platforms in any market across newspapers, television and radio).

In the US, the FCC must complete a review of its broadcast ownership rules every four years, and repeal or modify any rules that are no longer in the public interest. It did not complete its 2010 review, announcing that it would combine it with its 2014 review. This review concluded in August 2016, with the FCC retaining existing broadcast ownership rules, including the prohibition on cross-ownership of newspapers and television stations. The FCC also introduced new rules for reporting shared-services agreements (i.e. a broadcaster will be deemed to have an ownership interest in any station where that owner sells 15% or more of its advertising time – a common arrangement in the US, known as the 'sidecar'. This change will have the effect of tightening rules that limit companies to owning just one TV station in small and medium local markets).

### 1.5.3 Spectrum policy and management – international context

Radio spectrum, a key public asset required for communications services, continues to be used increasingly intensively. As transmissions do not stop at international borders, there exists a formal framework of cooperation between countries to minimise cross-border interference within and between services; to achieve the mobile use of wireless services at global and European levels; and to help create economies of scale that drive the availability of services, and desirable outcomes such as lower prices, for consumers.

Three key international structures coordinate spectrum at the international and European levels:

- The International Telecommunications Union (ITU)<sup>52</sup> which defines the global framework for spectrum use in the Radio Regulations. The Radio Regulations are a UN treaty, revised approximately every four years at World Radiocommunication Conferences (WRC);<sup>53</sup>
- the European Conference of Postal and Telecommunications Administrations (CEPT/ECC)<sup>54</sup> which has a broader membership than the EU, with 48 Member States; and
- in the European Union, the Radio Spectrum Committee (RSC)<sup>55</sup> (comprising EU national governments) and the Radio Spectrum Policy Group (RSPG)<sup>56</sup> (comprising EU national spectrum authorities).

Ofcom acts for the UK in the above fora by virtue of a Government Direction<sup>57</sup> and contributes to the workings of CEPT/ECC, where spectrum harmonisations measures are developed and published.

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<sup>52</sup> <http://www.itu.int/ITU-R/>

<sup>53</sup> <http://www.itu.int/ITU-R/index.asp?category=conferences&mlink=wrc&lang=en>

<sup>54</sup> <http://www.cept.org/ecc>

<sup>55</sup> <https://ec.europa.eu/digital-single-market/en/radio-spectrum-committee-rsc>

<sup>56</sup> <http://rspg-spectrum.eu/>

<sup>57</sup> <https://www.ofcom.org.uk/about-ofcom/international/spectrum/mou>

## **ITU and the World Radiocommunication Conference (WRC) 2019**

The preparatory process for the next WRC, WRC-19, is in its early stages. For Ofcom, the main process involves engagement with the Government, regulators and stakeholders to inform the UK position across all the agenda items on which we engage with our European colleagues in CEPT and on which, through negotiation, leads to the establishment of European common positions (ECPs) on many of the agenda items considered at a WRC. Ofcom will also be engaging in the preparations of other regional groups outside Europe, and will participate in discussions with other administrations around the world.

Ofcom leads for the UK in the development of the UK position for WRC and at the Conference itself. We are in the process of developing initial views on a number of WRC-19 agenda items, including:

- supporting additional allocations for mobile broadband, including 5G, in bands above 24 GHz;
- supporting the consideration of the frequency bands 17-19 GHz and 27.5-29.5 GHz for use by earth stations in motion; and
- supporting the assessment of frequency bands between 5 150 MHz and 5 925 MHz for additional spectrum availability for Wi-Fi and compatible wireless broadband technologies.

Other items that WRC-19 will be considering include: studies related to wireless power transfer (WPT); the regulatory conditions applied to non-geostationary satellite systems in the bands around 37.5 and 51.4 GHz; the allocation status applied to earth exploration satellites in the 450-470 MHz band; and spectrum needs and regulatory provisions for the introduction and use of the global aeronautical distress and safety system (GADSS).<sup>58</sup>

## **European Conference of Postal and Telecommunications Administrations (CEPT)**

The European Conference of Postal and Telecommunications Administrations (CEPT),<sup>59</sup> is a collective of 48 countries across Europe, and includes non-EU countries such as Russia, Turkey, Norway and Switzerland. CEPT's activities include cooperation on commercial, operational, regulatory and technical standardisation issues related to postal, telecommunications and radio spectrum harmonisation.

Within CEPT, the Electronics Communications Committee (ECC) considers and develops policies on electronic communications activities in a European context, taking account of European and international legislation and regulation. The ECC produces spectrum harmonisation measures (concerning spectrum use by all sectors), which are then adopted by CEPT member countries. CEPT is also the recognised regional organisation for the European preparations going into World Radiocommunication Conferences.

The EC takes due account of the work of international organisations, such as CEPT and ITU, where they are seeking the development of technical implementing measures. This normally takes the form of an RSC mandate to CEPT to undertake this technical work and then report to the EC.

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<sup>58</sup> A list of all the issues to be considered and decided upon at WRC-19 can be found here:

<http://www.itu.int/en/ITU-R/study-groups/rcpm/Pages/wrc-19-studies.aspx>

<sup>59</sup> <http://www.cept.org/ecc>



## Radio Spectrum Committee (RSC)

The RSC<sup>60</sup> is responsible for developing legislative technical decisions to ensure harmonised conditions of use across Europe for the availability and efficient use of radio spectrum. It comprises Member States' representatives and is chaired by the EC. Once legislative harmonisation decisions are passed, they are binding upon the 28 EU Member States.

Part of the Member States' remit within the RSC is to draft and approve mandates to the CEPT. These mandates, on which Member States provide both technical and policy input and direction, normally specify the tasks to be undertaken, including the technical analysis required to establish minimum technical requirements to ensure harmonised conditions for the viable and efficient use of radio spectrum.

## Radio Spectrum Policy Group (RSPG)

The RSPG<sup>61</sup> is a high-level advisory group assisting the EC and the European Parliament (at its request) in the development of radio spectrum policy. It comprises representatives of the spectrum management authorities for each Member State (which in some cases are independent regulators, in some the relevant government ministry, and in many cases both) and the EC.

The RSPG's work programme<sup>62</sup> is delivered by a number of working groups and currently covers:

- the spectrum needs of the *Digital Single Market* (including the Framework review);
- intelligent transport systems (ITS);
- the Internet of Things (IoT);
- 5G;
- WRC-19;
- Programme making and special events (PMSE); and
- EU assistance in bilateral coordination ('good offices').

The RSPG has already adopted Opinions under this work programme on the Framework Review consultation<sup>63</sup> and on a European spectrum strategy for 5G.<sup>64</sup> Draft Opinions on ITS and IoT have been published for public consultation.<sup>65</sup>

### 1.5.4 Significant developments and activities in the postal sector

The EC published legislative proposals in September 2016 aimed at ensuring greater transparency in and regulatory oversight over cross-border tariffs, especially for SMEs and users in remote areas. These proposals included:

- a requirement for NRAs to annually assess the affordability of a range of cross-border postal tariffs and the publication by the EC of public listed prices of universal service providers (USPs) in order to increase peer competition and transparency; and

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<sup>60</sup> <https://ec.europa.eu/digital-single-market/en/radio-spectrum-committee-rsc>

<sup>61</sup> <http://rspg-spectrum.eu/>

<sup>62</sup> [http://rspg-spectrum.eu/wp-content/uploads/2013/05/RSPG16-007\\_rev\\_sept\\_2016.pdf](http://rspg-spectrum.eu/wp-content/uploads/2013/05/RSPG16-007_rev_sept_2016.pdf)

<sup>63</sup> [http://rspg-spectrum.eu/wp-content/uploads/2013/05/RSPG16-001-DSM\\_opinion.pdf](http://rspg-spectrum.eu/wp-content/uploads/2013/05/RSPG16-001-DSM_opinion.pdf)

<sup>64</sup> [http://rspg-spectrum.eu/wp-content/uploads/2013/05/RPSG16-032-Opinion\\_5G.pdf](http://rspg-spectrum.eu/wp-content/uploads/2013/05/RPSG16-032-Opinion_5G.pdf)

<sup>65</sup> <http://rspg-spectrum.eu/public-consultations/>

- third-party access to multilateral cross-border agreements between USPs, including a role for regulators in approving an access reference offer and adjudicating on any disputes.

The proposals are currently being considered by the European Parliament and Council.

Meanwhile, the European Regulators' Group for Post (ERGP)<sup>66</sup> has been considering the state of the European postal sector, including noting decreasing letter mail volumes and changing user needs, in particular the growth in e-commerce shopping, and assessing the impacts of such changes on the sustainability of the USO. By the end of 2016, the ERGP will publish reports on a variety of issues, including:

- comparative working methods for considering the efficiency of postal operators;
- current and future postal universal services given changes in postal end-user needs;
- an analysis of service quality, complaint handling and consumer protection in 2015;
- transparency for online sellers and consumers for cross-border parcels delivery; and
- the development of end-to-end competition and access regulation across the EU.

With a wider membership than the ERGP, the Committee of European Postal Regulators (CERP)<sup>67</sup> brings together representatives of the regulatory authorities in 64 states, including EU Member States, EU candidate countries, the EEA and other Eastern European countries. It has two working groups, one dealing with postal policy and the other working on Universal Postal Union (UPU)<sup>68</sup> issues. In 2016, the work of CERP focused on preparations for the Universal Postal Union (UPU) Congress in Istanbul. The Congress agreed on a reformed structure for the organisation and revised terminal dues rates, to be applied between USPs for delivery of each other's letter and parcel items.

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<sup>66</sup> The ERGP is a network of European postal regulators tasked with sharing best practice and advising its members and the EC. See [http://ec.europa.eu/growth/sectors/postal-services/ergp\\_en](http://ec.europa.eu/growth/sectors/postal-services/ergp_en). As well as the ERGP, a number of international bodies are active in the postal sector. The Universal Postal Union (UPU), a UN body, is the primary forum for cooperation between UN Member States concerning postal services. See <http://www.upu.int>

<sup>67</sup> <http://www.cept.org/cerp/>

<sup>68</sup> <http://www.upu.int>



# The International Communications Market 2016

## 2 Comparative international pricing

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## 2.1 Comparative international pricing

### 2.1.1 Overview

In this section we compare UK communications service prices with those in France, Germany, Italy, Spain and a representative state of the US (we use Illinois as it is broadly representative of the US as a whole).

Our methodology, developed with pricing consultancy Teligen, is based on the use of services by five 'typical' households. It uses a pricing model that matches tariffs to these usage requirements. The methodology was developed to address the difficulties in comparing prices resulting from issues such as service bundling, tariff complexity and promotional discounting.

We include an overview of our methodology (which is required in order fully to understand our findings), a summary of those findings by service, followed by analysis on a household-by-household basis. The full methodology is in Appendix A of the *Technical appendix*.<sup>69</sup>

#### UK prices compare well overall

- The UK ranked second among our six comparator countries in 2016, unchanged since 2015, with only France performing better when looking at a combination of stand-alone, bundled and 'lowest-available' prices.
- Low prices in France were, to a large extent, due to it having the cheapest bundled services among our six countries. Consumers in all countries were able to pay lower prices by bundling services, but savings in the UK were comparatively low.
- Low prices in the UK were largely due to comparatively low-priced mobile phone services, particularly for tariffs that include a high data allowance.
- In addition to low mobile prices, the UK also benefited from the cheapest 'weighted average' and 'lowest-available' dual-play standard broadband and fixed voice bundle prices, among our comparator countries in 2016. However, it compared less well for similar bundles of services that included a superfast broadband connection.
- In general, UK stand-alone and bundle prices increased in nominal terms in 2016,<sup>70</sup> although the UK did benefit from falling prices for higher-use mobile services. There were similar patterns in other countries, although France and Italy benefited from notable declines in dual-play (fixed voice and fixed broadband) bundles, and pay-TV prices.
- The table below ranks our comparator countries in terms of 'weighted average' stand-alone, 'weighted average' bundled, and 'lowest-available' pricing (including bundles) across the five household usage profiles used in our analysis.
- The UK had the second-lowest lowest prices among our comparator countries for all three of these metrics in 2016. France overtook the UK in terms of stand-alone prices during the year, ranking first for all three metrics, and overall.
- While the UK's overall rank was unchanged, there was evidence of weakening performance compared to other comparator countries; the UK's average position

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<sup>69</sup> <https://www.ofcom.org.uk/research-and-data/cmr/cmr16/international>

<sup>70</sup> Prices are reported in nominal terms. OECD data show that the CPI change in the year to July 2016 was in the range  $\pm 1\%$  in all of the countries included in this chapter of the report. Analysis shows that adjusting for inflation does not change any country rankings in 2015.

across all of the household usage profiles and pricing metrics used in our analysis fell from ranking 1.8 in 2015 to 2.3 in 2016. In fact, in 2016 the UK's rank dropped on seven occasions compared to 2015, while there was only one instance where it improved.

**Figure 2.1** Summary of 'weighted average' and 'lowest-available' pricing: 2016

Overall pricing rank			'Weighted average' stand-alone pricing			'Weighted average' bundles service pricing			'Lowest available' pricing, including bundles		
1	-	France	1	↑	France	1	-	France	1	-	France
2	-	UK	2	↓	UK	2	-	UK	2	-	UK
3	↑	Germany	3	-	Germany	3	-	Italy	3	-	Germany
4	↓	Italy	4	-	Italy	4	-	Germany	4	-	Italy
5	-	Spain	5	-	Spain	5	-	Spain	5	-	Spain
6	-	USA	6	-	USA	6	-	USA	6	-	USA

Source: Ofcom, using data supplied by Teligen

### UK prices for stand-alone fixed voice services that can be used with broadband are comparatively expensive

- The total UK 'weighted average' stand-alone fixed voice price of the four landline connections included in our analysis was the second cheapest among our five comparator countries in 2016.<sup>71</sup>
- However, the cheapest option for all four connections was a BT tariff that cannot be used in conjunction with an ADSL or fibre broadband service, and is therefore suitable for only a small proportion of UK households, given that most households with a landline have a fixed broadband connection.
- Excluding this tariff from the analysis results in the UK having the second most expensive total 'weighted average' stand-alone fixed voice price for the four usage profiles used in our analysis.
- The UK was also second most expensive in terms of the total 'lowest available' stand-alone fixed voice prices.
- On a few occasions, the least expensive option for households that did not need fixed broadband connectivity included buying bundled services that included fixed broadband, as these were cheaper than the equivalent stand-alone (solus) voice services.

### Prices for higher-use mobile phone connections fell substantially in the UK in 2016

- The total 'weighted average' price of the eight mobile phone connections used in our analysis fell by 38% in the UK in 2016, although this was largely due to a 64% fall in the 'weighted average' price of the highest-use connection that we have included in our analysis. There were notable falls in the price of the highest-use connections in our other comparator countries during the year.

### The UK tended to perform better for lower use households

- In terms of the total price of fulfilling our household's usage requirements, the UK tended to perform better for the lower-use households, and better in terms of stand-alone prices than for bundled and 'lowest-available' prices.
- The UK had the lowest 'weighted average'<sup>72</sup> stand-alone price for the late adopter household, and the cheapest 'lowest-available'<sup>73</sup> price for the basic needs household,

<sup>71</sup> BT is the only UK provider whose stand-alone fixed voice services are included in our analysis.

but tended to rank less well for households that required a superfast broadband connection.

- France had the lowest prices for most households and metrics, mainly because it benefits from comparatively cheap mobile, pay-TV and bundled service prices, the latter partly due to the availability of triple-play services delivered over naked-DSL and fibre. The US had the highest price for all three metrics across all five household usage profiles in 2016.

**Figure 2.2 Summary of ‘weighted average’ stand-alone, ‘weighted average’ bundled, and ‘lowest-available’ household usage profile pricing: 2016**

Weighted average stand-alone service pricing (£ per month)				
			Price	Change
Basic needs household	1	↑ GER	43	3
	2	↓ UK	44	6
	3	- FRA	44	1
	4	↑ ESP	48	-3
	5	↓ ITA	49	2
	6	- USA	72	-14
late adopter household	1	- UK	80	6
	2	- FRA	89	-13
	3	↑ ITA	105	-14
	4	↓ GER	112	-5
	5	- ESP	162	16
	6	- USA	224	27
Mobile power-user household	1	↑ FRA	96	-108
	2	↓ UK	122	-71
	3	↑ ITA	185	-92
	4	↓ GER	238	-1
	5	↑ ESP	244	-126
	6	↓ USA	298	-21
Connected family household	1	↑ FRA	178	-8
	2	↓ UK	181	-1
	3	↑ ITA	272	16
	4	↓ GER	281	39
	5	- ESP	351	31
	6	- USA	427	46
Sophisticated couple household	1	- FRA	131	-14
	2	↓ UK	143	-5
	3	- ITA	162	-9
	4	- GER	208	-4
	5	- ESP	239	6
	6	- USA	342	26

Weighted average bundled service pricing (£ per month)				
			Price	Change
Basic needs household	1	↑ FRA	33	-4
	2	↓ UK	36	2
	3	- GER	46	2
	4	- ITA	51	5
	5	- ESP	57	-1
	6	- USA	91	5
late adopter household	1	- FRA	36	-4
	2	↓ UK	57	1
	3	↑ GER	59	-13
	4	↓ ITA	60	-10
	5	- ESP	93	0
	6	- USA	148	-18
Mobile power-user household	1	- n/a	-	-
	2	- n/a	-	-
	3	- n/a	-	-
	4	- n/a	-	-
	5	- n/a	-	-
	6	- n/a	-	-
Connected family household	1	- FRA	128	7
	2	↑ ITA	146	-29
	3	↓ UK	149	8
	4	- GER	212	31
	5	- ESP	213	-38
	6	- USA	335	-11
Sophisticated couple household	1	- FRA	85	-3
	2	- ITA	86	-6
	3	↓ UK	103	-4
	4	- GER	155	13
	5	- ESP	164	-21
	6	- USA	268	-31

‘Lowest available’ pricing including bundles (£ per month)				
			Price	Change
Basic needs household	1	↑ UK	27	-1
	2	↑ FRA	28	-5
	3	↓ GER	31	3
	4	↑ ESP	37	-5
	5	↓ ITA	37	4
	6	- USA	43	-1
late adopter household	1	- FRA	16	-13
	2	↑ GER	45	-11
	3	↓ UK	49	8
	4	- ITA	54	-3
	5	- ESP	75	-9
	6	- USA	101	-51
Mobile power-user household	1	- FRA	63	-6
	2	↓ UK	101	-7
	3	↑ ITA	117	-78
	4	↓ GER	178	-9
	5	- USA	213	-12
	6	- ESP	215	-73
Connected family household	1	- FRA	117	32
	2	↑ ITA	128	-11
	3	↓ UK	142	6
	4	- GER	155	-12
	5	- ESP	180	-28
	6	- USA	322	-8
Sophisticated couple household	1	- FRA	73	-1
	2	- ITA	77	-6
	3	↑ GER	101	-23
	4	↓ UK	103	-4
	5	- ESP	119	-51
	6	- USA	177	-62

Source: Ofcom, using data supplied by Teligen

<sup>72</sup> This is the average of the lowest price offered by each operator that provides a suitable bundled tariff in each country, weighted by their market shares

<sup>73</sup> This was the lowest price that a consumer can pay for a service/basket of services, including, where appropriate, ‘bundled’ services.

### **Promotional discounting can result in significant savings for UK consumers**

- A trend that we have identified in UK communications service pricing over recent years is the increasing importance of promotional discounting (i.e. new customers receiving a reduced price for a set amount of time when taking a new service). The analysis in this report includes such promotions, with average monthly prices calculated over each tariff's minimum contractual term.
- Compared to list prices, UK promotional discounts resulted in an average price reduction of 13% in the total 'weighted average' bundled price across the household usage profiles that required fixed telecoms services in 2016. This proportion was similar to those in Italy and France (15% and 14% respectively), while among our other comparator countries the proportion ranged from 6% in Spain to 9% in Germany.
- While the average saving across the relevant baskets was 13% in the UK in 2016, this is an average across the total relevant household's total 'weighted average' bundled prices, including any out-of-bundle service use and services that were not discounted. As such, the proportional discounts on the monthly fees of those services/bundles that did benefit from discounting will be higher.

## 2.1.2 Methodology

### The basic principles of the methodology

We constructed five household usage profiles, and for each of these defined an appropriate basket of communications services. We have made some changes to the household usage profiles used in the analysis in this report in order to reflect changes in the use of communications services, such as increasing the requirements for fixed and mobile data use (and the speed/technology of these connections), as well as reducing the requirement for SMS messaging. The same household usage profiles are used in the analysis of the 2015 and 2016 prices, to enable a like-for-like comparison between years.

**Figure 2.3 Summary of household usage profiles used in the analysis<sup>74</sup>**

'Typical' household type		Summary	Fixed voice	Mobile voice	Mobile messaging	Mobile handset data	Fixed line broadband	Mobile broadband	Television
1	Basic needs	A low use household with basic needs	Medium use	Low use	None	None	None	None	Free-to-air with HD
2	Late adopters	A broadband household with basic needs	High use	Low use	Low use	Low use	Low use	None	Basic pay-TV with HD & DVR
3	A mobile 'power user'	A mobile-only household	None	High use	High use	High use 4G	None	High use	Basic pay-TV with sports, HD & DVR
4	Connected family	A family household with multiple needs	Medium use	Medium use	Medium use	Medium use- some 4G	Medium use superfast	None	Premium pay-TV with sports, films HD & DVR
5	Sophisticated couple	An affluent two person household	Low use	Medium use	Medium use	Medium use 4G	High use ≥100Mbit/s	None	Basic pay-TV with films, HD & DVR

Source: Ofcom

We included a wide range of variables within the services in each household usage profile, so that they represent actual use by consumers. For example:

- Fixed voice minutes were distributed by whether they were to fixed or mobile lines, by call distance (local, regional, national and international, including a range of international destinations) and by time of day (day, evening, weekend). Non-geographic calls were excluded from the analysis.
- Mobile calls (and messages) were split between fixed line, 'on-net' and 'off-net' mobiles, selected international destinations (for some users), and voicemail.
- Call set-up costs and unit, per-second and per-minute charging were incorporated where relevant, and a function for averaging cost for different of call lengths was used, based on an approach used for price benchmarking by the Organisation for Economic Co-operation and Development (OECD).

<sup>74</sup> Note: More detailed summaries of each household usage profile's usage requirements can be found in Figure 2.12, Figure 2.16, Figure 2.20, Figure 2.23 and Figure 2.27.

- Incoming calls to mobile phones were included, in recognition of the different charging mechanism in the US.
- The broadband components were defined both by minimum headline speed and by minimum data requirements.
- The television element includes the hardware cost but, in a change from previous years, we exclude the TV licence fee (see section 1.1.6 of Appendix A in the *Technical appendix*<sup>75</sup> for more details).
- Because of difficulties in comparing channels and their programmes, four tiers of pay-TV were considered, each of which requires HD content and a DVR:
  - The most basic pay-TV service available that offers channels over and above the channels available on free-to-air TV.
  - A service including basic pay-TV channels over and above those available on free-to-air TV and premium sports content (top-tier football matches or NFL in the US).
  - A service including basic pay-TV channels over and above those available on free-to-air TV and premium film content (first-run Hollywood films).
  - A premium service defined as a top-price entertainment package combined with premium sports and film content.

For the most basic household, terrestrial free-to-air (FTA) TV services were considered, but actual take-up of pay-TV services varies between markets, based on the FTA and pay-TV services that are available. IHS data included in the TV section of this report (Chapter 4) shows that, in 2015, the proportion of households that took pay-TV services ranged from 30% in Spain to 84% in the US among the six countries included in our price comparisons (in the UK it was 62%).

### **Hardware costs**

The cost of broadband modems and routers, digital set-top boxes and DVRs were included in household usage profiles (and amortised over an appropriate period in order to attribute a monthly cost). This was necessary because such equipment is often inseparable from the service price, as operators frequently include subsidised or 'free' equipment (for example, a Wi-Fi router), but seek to recoup the cost of these devices from subscriptions and service payments across the life of a contract. For similar reasons, we included connection and/or installation costs.

In a change from previous reports, we have excluded costs relating to mobile handsets from the analysis. The reasoning behind this is that many advanced smartphone devices cost hundreds of pounds, often more than the total cost of the services that are consumed on them over the typical two-year minimum contractual period. As a result, the inclusion of the handset cost can distort the mobile pricing results. By excluding handset cost from the analysis, we hope that it will give a more accurate representation of mobile service pricing. Although a wide range SIM-only tariffs are available in all of the comparator countries, a downside of our revised methodology is that, in most cases, the analysis is based on a minority of the available services (i.e. SIM-only tariffs).

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<sup>75</sup> <https://www.ofcom.org.uk/research-and-data/cmr/cmr16/international>



## Tariff data

In July 2016, details were collected of every tariff and every tariff combination (including bundled services) from the three largest operators by retail market share in each country (and from more than three operators, if this was required to ensure a minimum coverage of 80% of the overall market). Bundled tariffs (i.e. those that incorporate more than one service) were also collected. Only those tariffs which were published on operators' websites were included (i.e. the analysis excludes bespoke tariffs which are only offered to certain customers).

Our model identified the tariffs that offer the lowest price for meeting the requirements of each of the households, with all prices converted to UK currency using purchasing power parity (PPP) adjustment based on OECD comparative price levels and exchange rates as at 1 July 2016.

## Analysis

We undertake three types of analysis for each household usage profile:

- **'Weighted average' stand-alone pricing:** This is the average of the lowest stand-alone price for each individual service offered by each operator in each country, weighted by their market shares. Although this provides a useful comparison of the relative costs of communications services, a limitation of this analysis is that an increasing number of providers do not offer stand-alone services.
- **'Weighted average' bundle pricing:** This is the average of the lowest bundled service prices (including separate stand-alone services, where a bundle does not include all of the services required by the household) offered by each operator that provides a suitable bundled tariff in each country, weighted by their fixed broadband market shares. It should be noted that fixed broadband shares are used to weight the results, regardless of whether or not the bundles in question include fixed broadband, and we do not undertake this analysis for the mobile power-user (mobile-only) household usage profile.
- **'Lowest-available' pricing:** This is the lowest price that a consumer can pay for this basket of services, including, where appropriate, 'bundled' services (i.e. buying more than one service in a package, for example a 'triple-play' bundle consisting of fixed voice, broadband and pay TV). This analysis is important in order to provide a true picture of the position of consumers in each market, since they increasingly buy multiple services from single operators.

There are, however, two drawbacks to this type of analysis.

- 'Bundled' service offerings are typically not available to all consumers, as they are often limited to geographic areas where premises are connected either to a cable network or an unbundled telephone exchange.
- Even in areas where these services are available, take-up may be low. Therefore, although the 'lowest-available' price provides insight into the lowest prices available to some customers, it is not as good a reflection of the prices that consumers are actually paying as the 'weighted average' analysis.

## Limitations of the analysis

We consider that a basket-based, multi-platform approach is the most useful way to compare international pricing of communications services. However, in addition to the points

raised above, there are some other limitations to our methodology, and the following notes and caveats are important in interpreting the analysis below.

- The analysis assumes a rational consumer with full understanding of their usage requirements, who is prepared to shop around and undertake some complex calculations to identify the best value tariff. In reality, many consumers do not act in this way, and few will be on the lowest-cost combination of services for their usage profile.
- In looking only at tariffs available from the largest operators in each country, lower prices that might be available from smaller operators are not included. Nevertheless, we believe that using the prices of the largest operators is appropriate, both because they are the best reflection of the general consumer experience and because their pricing both defines, and is defined by, the competitive environment in which they operate.
- Although we have been as comprehensive as possible, tariffs are often highly complicated and there are some components which we have been unable to incorporate into our model. For example, some benefits are available only to certain types of consumers, such as *BT Basic* in the UK, which offers lower-price line rental to low-income consumers in receipt of certain benefits.
- In order to calculate the 'weighted average', we have used market share calculations based on operators' retail customers. Market share calculations are based on the overall subscriber base, not the subscriber base for the particular tariff (for which figures were not available). In addition, the 'average bundle' pricing calculation uses providers' fixed broadband market shares, regardless of whether or not the bundle includes fixed broadband.
- Pay-TV services are a component of four of the household usage profiles we use in the analysis. However, it has not been possible to compare like-for-like subscriptions, principally because of differences in the composition of basic and premium channels across the six countries. Consequently, quantitative comparison of international TV pricing is arguably less meaningful than for telecoms services. This is also an issue in the pricing of 'triple-play' services, where there is wide variation in the types of TV content.
- For television services, there are only two operators with nationwide coverage and/or significant market share in some countries (or only one, for some premium TV offerings). In these instances, we have identified the cheapest tariff from each of them and calculated a 'weighted average' based on their market shares.
- Some services (e.g. LLU-based fixed telecoms services and some broadband services) are not available nationally, and some providers operate only in certain areas. This is particularly true for services that are available only where local exchanges have been unbundled, and for IPTV, which requires a high-speed broadband connection.
- We have not defined whether the mobile phone component in a household usage profile is pre-pay or post-pay. We believe this enables better international comparison, given the very different pre-pay/ post-pay splits in different countries (for example, over 80% of mobile connections in Italy are pre-pay, but less than 20% in France are pre-pay). However, a consequence of this is that the analysis does not recognise the different characteristics of the services; for example, a pre-pay mobile

may be the only option available to consumers with a poor credit rating and may also offer advantages to those whose use varies from month to month.

- Representative pricing in the US as a whole is difficult, due to large regional variations that result from local incumbent telecoms operators and cable operators offering localised prices for fixed-line services. We used tariffs available within the state of Illinois, which we chose because it is broadly representative of the US as a whole in terms of wealth and rural-urban split. Nevertheless, the US pricing data included in this report should not necessarily be viewed as representative of the whole country.
- In order to ensure that the changes we identify within countries have been driven by changes in the market (rather than simply by changes in the currency exchange rate), we have used the same PPP-adjusted exchange rate in 2016 and applied it to 2015 data. This means that there may be some distortions in the relative positions of countries, compared to the positions reported in 2015.
- The prices are reported in nominal terms. OECD data<sup>76</sup> show that the CPI change in the year to July 2016 was in the range  $\pm 1\%$  in all six of the countries included in the analysis in this chapter of the report, and adjusting for inflation does not change any country rankings in 2015.

## Report structure

We start the analysis by looking at the individual components of our five household usage profiles, in order to compare the relative prices of services across these countries. This is both in terms of the lowest prices available when they are purchased on a stand-alone basis, the 'weighted average' stand-alone cost across the largest operators in each market, and dual-play fixed voice and fixed broadband bundles.

Then we look in more depth at the cost of fulfilling the requirements of each of our household usage profiles in each nation, in terms of 'weighted average' stand-alone prices, 'weighted average' bundle prices and also the 'lowest-available' price.

### 2.1.3 Pricing, by service

#### Stand-alone (solus) fixed voice summary

As consumers increasingly buy voice services in a 'bundle' with broadband, fewer standalone fixed voice services are available. In the UK, BT was the only provider included in the pricing database that offered stand-alone (solus) fixed voice services in July 2015 and July 2016, so the UK's 'weighted average' and 'lowest-available' stand-alone prices were identical.<sup>77</sup> This was also the case in France in 2016; Orange was the only provider whose stand-alone landline services were included in the pricing model.

The UK had the second lowest total 'weighted average' stand-alone prices. The lowest overall prices were found in the US, which was the only country where prices fell (by 5%) between 2015 and 2016. Conversely, the UK had the largest increase in the total 'weighted average' stand-alone price during the year, up by 6%.

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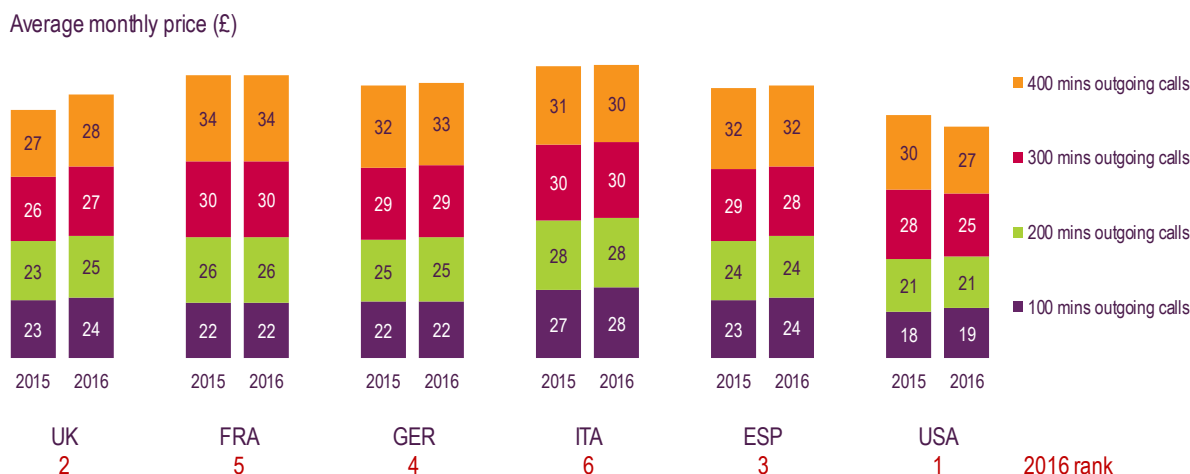
<sup>76</sup> <https://data.oecd.org/price/inflation-cpi.htm>

<sup>77</sup> Sky and Virgin Media also offer stand-alone fixed voice services, but these are excluded from the analysis as they are not offered for sale on their websites, and there are other UK operators of stand-alone landline services that are not included in the Teligen model.

BT's *Home Phone Saver 2019* service (which is a voice tariff, only available to consumers buying a standalone service, and offers line rental and inclusive UK geographic calls for £21.99 a month, with the price held until 2019) was the cheapest UK tariff for all four of our households' connections (with an additional *Friends & Family International* call add-on for the two higher-use connections). In all cases, this tariff was cheaper than comparable services that can be used with an ADSL or fibre broadband connection, including line rental saver tariffs. Excluding *Home Phone Saver 2019* from the analysis resulted in the UK having the second-highest total 'weighted average' stand-alone price for these four connections among our countries in 2016 (after France), and a 10% increase in this total during the year.

To a large extent, increasing UK fixed voice prices over recent years have been the result of line rental price increases. For example, in the year to July 2016, BT's standard monthly charge for its most basic landline service (*Unlimited Weekend Plan*, which includes bundled weekend calls to landlines) increased by 12% to £18.99. There were similar percentage increases in the price of T-Home's basic *Call Start* service in Germany and AT&T's *Primary Residential Line* service in the US during the year (11% and 12% respectively). Prices were unchanged for Orange's *Principal* service in France, Telecom Italia's *Voce* service in Italy and Movistar's *Linea Individual* service in Spain.

**Figure 2.4 'Weighted average' solus fixed-voice pricing: 2015 and 2016**



Source: Ofcom using data supplied by Teligen

Note: 'Weighted average' of cheapest tariff from each operator by market share in each country; July 2015 and July 2016; PPP adjusted

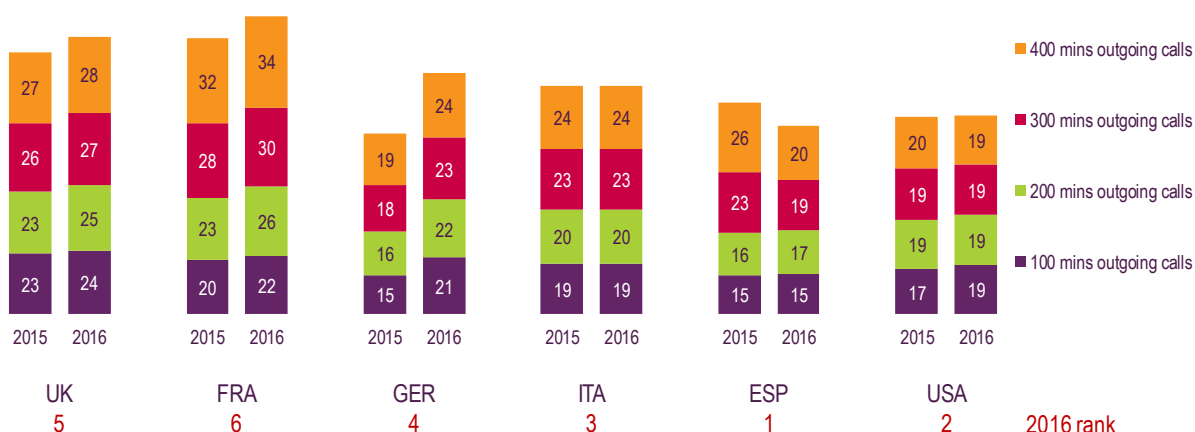
The cheapest total 'lowest-available' price for the four fixed voice connections required by our household usage profiles was in Spain in 2016. The UK had the second-highest total 'lowest-available' price for these connections in 2016, after France.

The largest increase in total 'lowest-available' stand-alone fixed voice service prices for the four households was in Germany, where the total price increased by 33% during the year. This was largely because Kabel Deutschland's tariffs, which had been the lowest prices option for three of the four households in 2015, were withdrawn following Kabel Deutschland's acquisition by Vodafone. In the UK the total 'lowest-available' price increased by 6% during the year, the third largest increase after Germany and France (8%).

The UK continued to have the second most expensive total 'lowest available' stand-alone price for these four connections in 2016 when *Home Phone Saver 2019* was excluded from the analysis.

**Figure 2.5 'Lowest-available' solus fixed-voice pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

Note: July 2015 and July 2016 data; PPP adjusted

### 2.1.4 Stand-alone mobile summary

Our five household usage profiles include eight mobile phone connections which vary in terms of usage requirements and the distribution of call and messaging volumes (e.g. the proportion of calls which are to national mobiles, to national geographic numbers and to international numbers).

**Figure 2.6 Summary of mobile connections used in the analysis**

	Outbound voice minutes per month	Outbound SMS per month	Data use per month	4G required
Connection 1	50	None	None	No
Connection 2	50	25	100MB	No
Connection 3	150	100	500MB	No
Connection 4	250	50	1GB	No
Connection 5	200	200	2GB	Yes
Connection 6	300	150	3GB	Yes
Connection 7	100	250	5GB	Yes
Connection 8	1,000	300	15GB	Yes

Source: Ofcom

Our analysis shows that, overall, the UK had the lowest 'weighted average' price for the eight mobile connections used in our analysis in 2016, due to a 38% fall in the total price during the year.

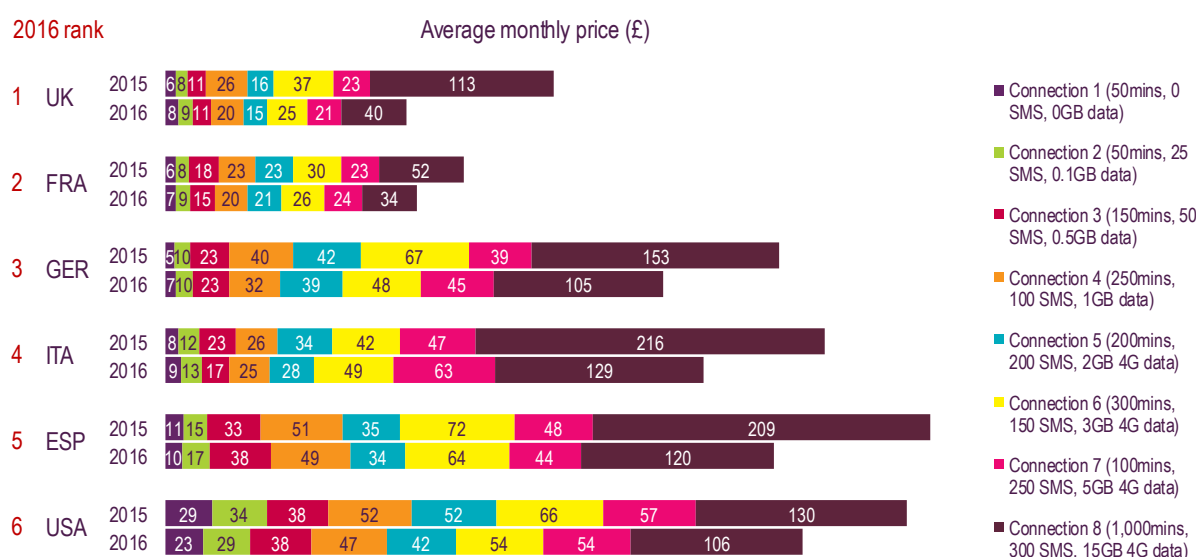
This fall was mainly due to a 64% decline in the 'weighted average' price of the highest usage connection (Connection 8) which requires 1,000 minutes of outgoing calls, 300 SMS messages and 15GB of 4G data per month. This reflects that very high data allowances are becoming more common, whereas previously they were niche (and expensive) tariffs aimed at a small segment of users. 'Weighted average' prices fell for six of the eight connections

used in the analysis in the UK during the year; for the two lowest-use connections (Connections 1 and 2) they increased (by 37% and 14% respectively).

The total 'weighted average' price for all eight connections fell in all six of our countries in 2016, again largely due to falling prices for the highest-use connection, due to the increasing availability of SIM-only tariffs that include larger bundled data allowances. Despite these declines, the 'weighted average' price of Connection 8 remained high in most countries in 2016; the UK and France were the only comparator countries in which this was less than £100 per month.

In most of our comparator countries, there were price increases for the lower-use mobile phone connections that are included in our analysis. The US was the only country where the total 'weighted average' price of Connections 1 and 2 fell in 2016, and among our other comparator countries, the 'weighted average' price increase for these two connections ranged from 5% in France to 24% in the UK. In the UK, these increases were largely due to operators increasingly focusing on post-pay tariffs, and data rather than voice use.

**Figure 2.7 'Weighted average' stand-alone mobile pricing: 2015 and 2016**



Source: Ofcom using data supplied by Teligen

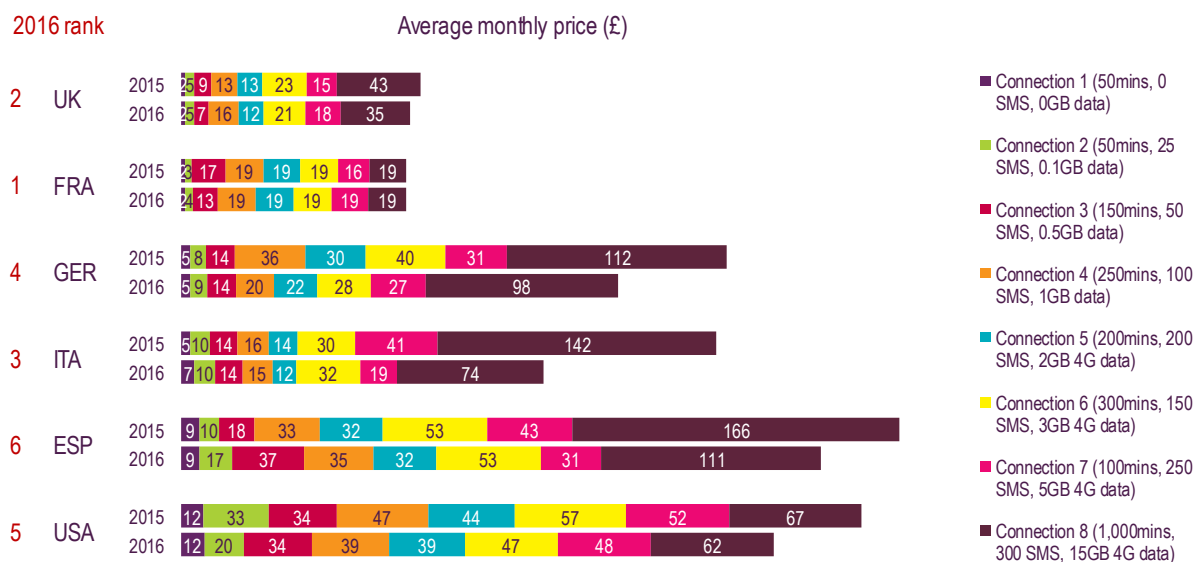
Note: 'Weighted average' of best-value tariff from each of the largest operators by market share in each country; July 2015 and July 2016; PPP adjusted.

The total 'lowest-available' price of our eight connections fell in all of our six countries in 2016, with France having the cheapest total price during the year. The largest fall in the total 'lowest-available price' for the eight connections during the year was a 32% decrease in Italy, which was, to a large extent, the result of a £68 per month (48%) fall in the 'lowest-available' price of the highest-use connection (Connection 8).

In the UK, which had the second-cheapest total 'lowest-available' price for all eight connections in 2016, the total price fell by 5% during the year, due to falling 'lowest-available' prices for three of our eight connections. The total post-pay UK 'lowest-available' price for our eight connections also fell by 5% during the year, while the total pre-pay 'lowest-available' price fell by 30%. Despite the higher rate of decline in pre-pay prices during the year, the total pre-pay 'lowest-available' price in 2016 was 7% more expensive than the total 'lowest-available' post-pay price.

The UK 'lowest-available' prices for the two lowest-use connections (Connections 1 and 2) were unchanged in 2016, while there were increases in the 'lowest-available' prices for Connections 4, 5 and 7. Virgin Mobile, EE and Three each offered two of the eight UK 'lowest-available' tariffs for our connections in 2016.

**Figure 2.8 'Lowest-available' stand-alone mobile pricing: 2015 and 2016**



Source: Ofcom using data supplied by Teligen  
 Note: July 2015 and July 2016 data; PPP adjusted.

### 2.1.5 Dual-play fixed-line and fixed broadband bundle summary

It is difficult to compare fixed broadband prices, as in all our comparator countries, fixed broadband is typically bought alongside a fixed voice service. Therefore, we do not look at stand-alone fixed broadband services in this report. Instead, we compare the prices available for a 'dual-play' bundle of broadband and voice services using a basket that includes a minimal number outgoing voice calls.<sup>78</sup>

There are some instances in this analysis where the 'weighted average' price of higher speed and usage services is lower than that of those with lower speeds and usage, notably in France in 2016. In most cases, this relates to those providers which offer the various service tiers used in our analysis in each country, and their comparative prices.

For example, while there were three ISPs included in the pricing model which offered services that fulfilled the requirement of the  $\geq 10\text{Mbit/s}$ , 25GB connection in France in 2016, only one, SFR, offered dual-play services that suited the needs of the  $\geq 30\text{Mbit/s}$  and  $\geq 100\text{Mbit/s}$  service combinations. In fact, SFR's discounted *Offre Box THD SFR by Numericable* service, which included an 'up to' 100Mbit/s fixed broadband connection, was its lowest-priced option for all three service combinations. As this cost less than its competitors' cheapest services for the  $\geq 10\text{Mbit/s}$  service, the two higher-use connections have a lower 'weighted' average price.

<sup>78</sup> It is not possible to run the Teligen pricing model without the inclusion of any outgoing fixed voice call minutes, where a household requires fixed voice services, so we have included a requirement for one outgoing one-minute weekend call to a local destination.



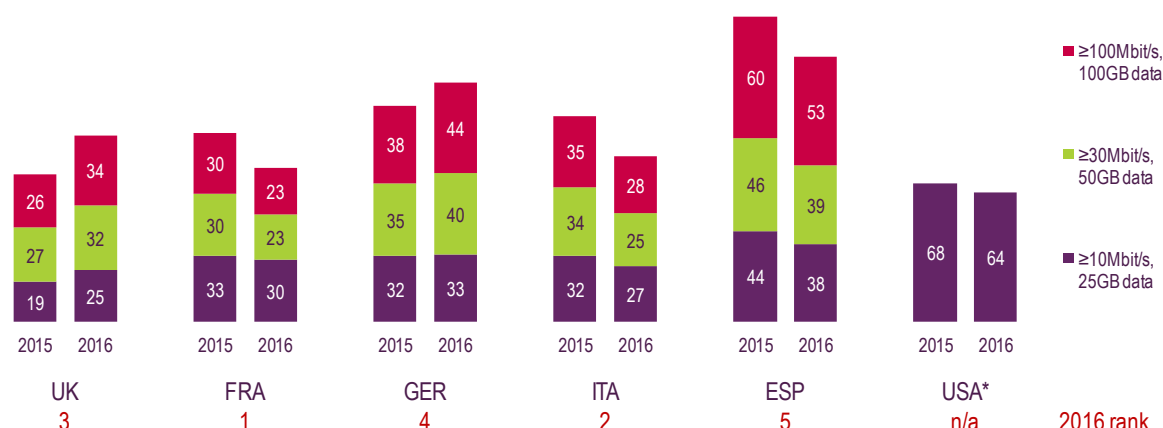
The UK had the third-cheapest total 'weighted average' stand-alone prices for the three dual-play service types included in the analysis in 2016, after France and Italy. The highest prices were in Spain (comparable totals were not available for the US as no dual-play services offering headline speeds of 'up to' 30Mbit/s or higher were available in either 2015 or 2016).

The total weighted average price of the three service combinations increased by 27% in the UK in 2016, the largest increase among our comparator countries. The biggest increase was in the average price of the ≥100Mbit/s and 100GB of data service. This was because Virgin Media (the only UK ISP included in the pricing model that offered services at this speed) increased the standard price of its *Broadband 100MB + Phone Size M (LRS)* service by 12%, and reduced the duration of the £10 per month promotional discount (which was available in both 2015 and 2016) from one year to nine months.

For the two lower-speed connections, the increasing 'weighted average' prices were due to two factors. First, the increasing average standard prices for almost all the cheapest tariffs for these connections that were offered by the ISPs included in the pricing model. Second, changing market shares and a reduction in the depth of the discounts available in 2016, which was not fully offset by the longer average duration of these discounts. Germany was the only other comparator country in which the total 'weighted average' price increased in 2016, while the largest decline was in Italy, where it fell by 20%.

**Figure 2.9 'Weighted average' fixed broadband and fixed-line bundle pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom, using data supplied by Teligen

Notes: July 2015 and July 2016; PPP adjusted; \*No suitable dual-play services for the two higher speed/ use services were offered by any of the providers included in the pricing model in the US.

There was a similar increase in the total 'lowest-available' price of the three dual-play services included in the analysis in the UK in 2016, up by 26%. Again, this was the largest increase among our comparator countries, and was mainly due to Virgin Media (which offered the 'lowest-available' prices for the two higher-use services in 2015) increasing its prices. It was also a reflection of the promotional tariffs that were available in July 2015 and July 2016. Overall, the UK was the second most expensive among our comparator countries in 2016; prices were lowest in Germany and highest in Spain (again, in the US there were no suitable dual-play services for the two highest-use connections).

The 'lowest-available' price for the standard broadband dual-play bundle (a ≥10Mbit/s service with 25GB of use per month) ranged from £17 per month in the UK to £56 per month

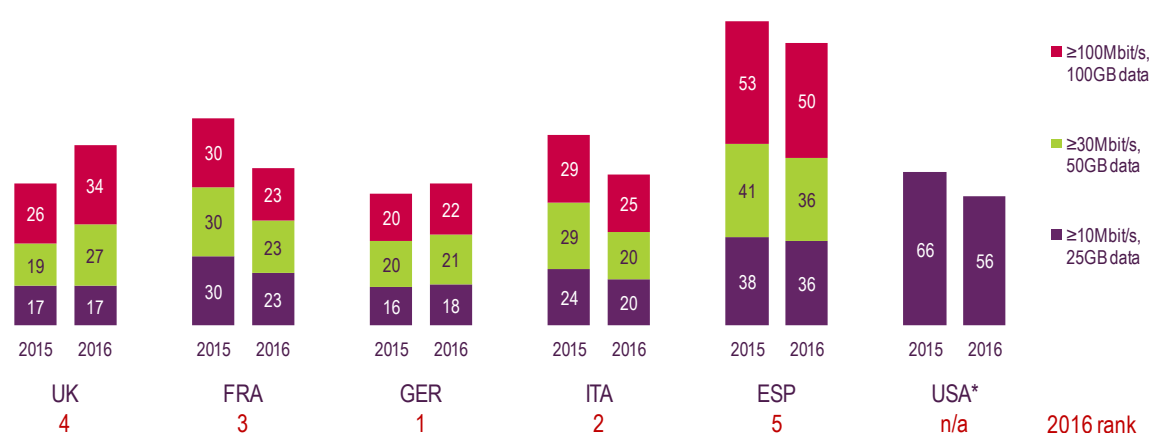


in the US. Similarly, the 'lowest-available' price for the  $\geq 30\text{Mbit/s}$  dual-play bundle (which requires 50GB of use) ranged from £23 per month in France to £36 in Spain, and that of the  $\geq 100\text{Mbit/s}$ , 100GB connection from £23 in France to £50 in Spain.

The UK had the highest price premium of the  $\geq 30\text{Mbit/s}$ , 50GB basket over the  $\geq 10\text{Mbit/s}$ , 25GB basket, at £10 per month, while there was no such premium in France and Spain, and in Germany and Italy it was less than £4 and £1 respectively. Similarly, while there was no price premium for the 100Mbit/s and 100GB of data per month basket over the  $\geq 30\text{Mbit/s}$ , 50GB basket in France, it ranged from £1 a month in Germany to £14 a month in Spain (in the UK it was £8, the second highest amount among the comparator countries for which data were available).

**Figure 2.10 'Lowest-available' fixed broadband and fixed-line bundle pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom, using data supplied by Teligen

Notes: July 2015 and July 2016; PPP adjusted; \*No suitable dual-play services for the two higher speed/use services were offered by any of the providers included in the pricing model in the US.

### 2.1.6 Stand-alone pay-TV summary

It is difficult to compare TV packages, as a result of differences in the number and types of channels provided by different services. For example, the UK's cheapest premium pay-TV service with first-run Hollywood films and top-league football in 2016 (Sky's *Original Bundle* + *Sky Sports & Movies with Sky+ HD Box*) included 290 channels (including 20 premium channels), more than three times as many as the cheapest comparable service in France, Canalsat's *Seriés Cinema par TNT w Multisports* tariff.

In a change from previous years, our analysis excludes TV licence fees. The reasoning behind this is that while there is no TV licence in Spain and the US, there are other mechanisms by which public service broadcasting content is funded. This makes it difficult to ascertain the total cost of ownership of pay-TV services in these countries, and we have therefore excluded the cost of the TV licence from our analysis to allow a like-for-like comparison of TV service pricing.

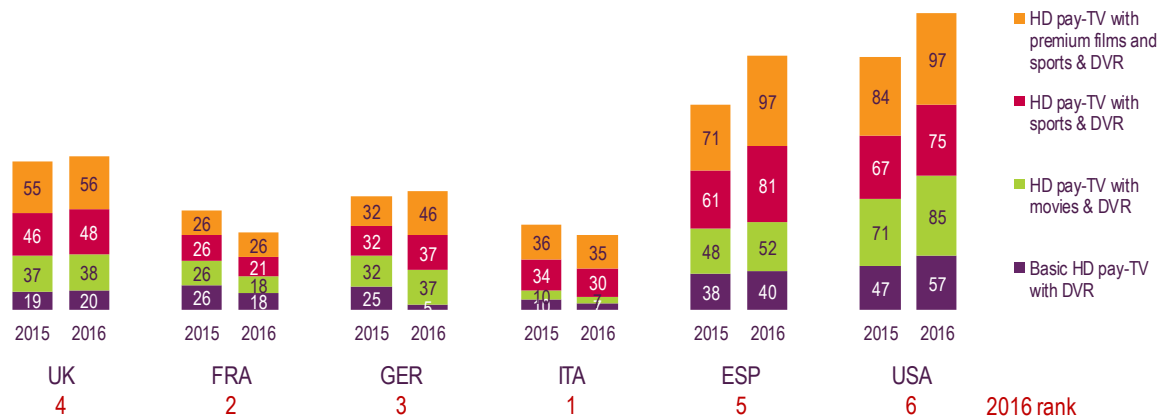
Italy had the cheapest total 'lowest-available' stand-alone price for the four pay-TV services included in the analysis in 2016, while the highest prices were found in the US.

Overall, the UK had the third most-expensive total 'lowest-available' retail stand-alone prices for the four pay-TV services included in our analysis, following a 3% increase during the

year. The price changes in the total 'lowest-available' price among the other comparator countries ranged from a 22% fall in France to a 24% increase in Spain. Virgin Media provided the UK's 'lowest-available' price for the most basic pay-TV service, with HD and a DVR, with its *More TV with TiVo 500GB service*, while Sky offered the lowest prices for the other three services, in all cases its *Original Bundle with Sky+ HD service with Sky Sports and Sky Movies add-ons*, as required by the household.

**Figure 2.11 'Lowest-available' stand-alone pay-TV pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

Note: Basic pay-TV is defined as the minimum price required to purchase a pay-TV package which includes channels not available over free-to-air TV. Premium TV is defined as the best package of top-league football (NFL in the US) and a top price film/ entertainment package; the lowest tariff available for the pay-TV component of each household usage profile from any of the largest operators by market share in each country, July 2015 and July 2016; PPP adjusted.

## 2.1.7 Analysis of household usage profile prices

Having provided an overview of findings on a stand-alone basis, we now look at the prices of baskets of communications services, which are designed to be representative of five household types.

### Household 1: a low-use household with basic needs

Our first basket contains a usage pattern typical of a retired low-income couple who have a fixed line from which they make five hours of calls a month. Both have a mobile phone from which they make 50 minutes of calls per month, but they do not send any SMS messages or use any mobile data services. They watch free-to-air multichannel digital television, which is available in all of our comparator countries.

**Figure 2.12** Composition of the ‘basic needs’ household

Fixed-line voice	Fixed broadband	Mobile	Mobile broadband	Television
300 call minutes	None	<b>Connection 1</b> 50 call minutes  <b>Connection 2</b> 50 call minutes	None	Free-to-air

Source: Ofcom

### Weighted ‘average stand-alone’ prices

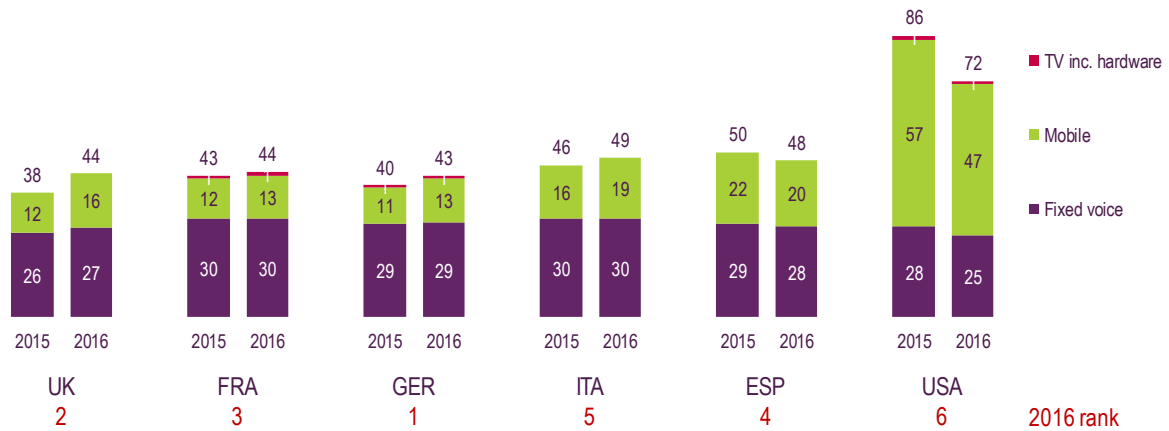
The lowest ‘weighted average’ cost of fulfilling the requirements of the *basic needs* household in 2016 was in Germany at £43 a month. The UK ‘weighted average’ stand-alone price was £44 per month, the second lowest among our comparator countries and a 16% increase compared to 2015.

The ‘weighted average’ price of the fixed voice element of this household’s basket ranged from £25 per month in the US to £30 per month in Italy and France, among our comparator countries in 2016 (the UK had the second-lowest stand-alone fixed voice price for the basket, at £26 per month). The only service contributing to the UK ‘weighted average’ was BT’s *Home Phone Saver 2019* service (which cannot be used in conjunction with an ADSL or fibre broadband service, with an optional *Friends & Family International* call add-on).

The UK had the third cheapest ‘weighted average’ cost of fulfilling this household’s mobile requirements in 2016, despite a 37% increase in the ‘weighted average’ mobile price for this household during the year. This increase was mainly due to EE withdrawing a pre-pay mobile service that had been the lowest-priced option in 2015, resulting in a service that cost more than twice as much being its lowest priced tariff for this household’s required use.

**Figure 2.13 The basic needs household: ‘weighted average’ stand-alone pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

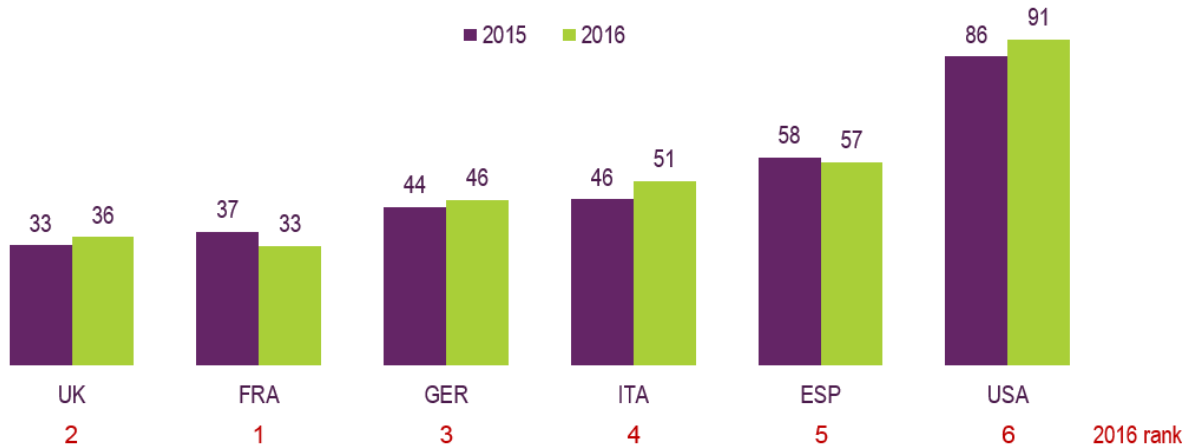
Note: ‘Weighted average’ of best-value stand-alone tariff from each operator by market share in each country; July 2015 and July 2016; PPP adjusted

### Weighted ‘average bundle’ prices

The UK had the second lowest ‘weighted average’ bundled service price for the *basic needs* household in 2016, at £36 per month. The lowest price was in France (£33 per month) and the highest in the US, at £91. The change in the average bundled price for the *basic needs* household usage profile in 2016 ranged from an 11% decrease in France to an 11% increase in Italy. In the UK, the average increased by 7% during the year, the second largest increase among our countries. The UK and France were the only countries where the ‘weighted average’ bundled price for this household was lower than the ‘weighted average’ stand-alone price.

**Figure 2.14 The basic needs household: ‘weighted average’ bundled service pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

Note: ‘Weighted average’ of best-value bundled tariff from each operator by market share in each country; July 2015 and July 2016; PPP adjusted

## ‘Lowest-available’ pricing

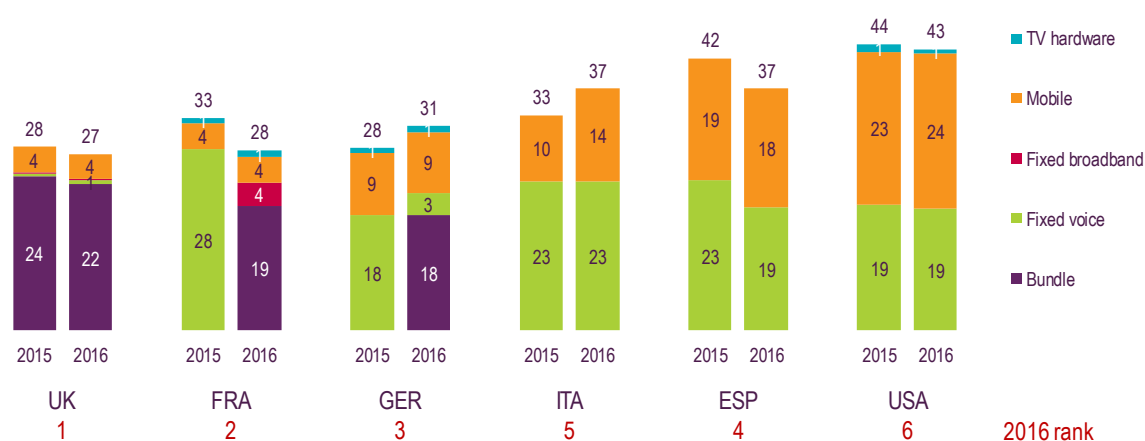
‘Lowest-available’ pricing analysis shows the lowest possible cost of fulfilling the household’s usage requirements, using the tariffs of the largest providers in each country, including both stand-alone and bundled tariffs.

The UK had the cheapest ‘lowest-available’ price to fulfil the requirements of the *basic needs* household in 2016, at £27 a month. This was £1 a month (4%) less than in 2015. The UK was one of three comparator countries where the ‘lowest-available’ priced option included a fixed broadband connection in 2016, despite the household basket not requiring one. As was the case in France and Germany, it was cheaper to buy a dual-play fixed voice and fixed broadband bundle in the UK, than to buy a stand-alone fixed voice service which fulfilled the household’s usage requirements; in the UK this was Sky’s *Broadband Unlimited + Talk Anytime Extra* dual-play fixed voice and ADSL broadband service.

In both 2015 and 2016, the cheapest option for the household’s two low-use mobiles in the UK was Three’s pay-as-you-go *SIM Only 321* tariff. This was only marginally more expensive than the cheapest option in France in 2016, Free’s *Mobile EUR 2* service.

**Figure 2.15 The basic needs household: ‘lowest-available’ pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

Note: Lowest tariff available for each service type from any of the largest operators by market share in each country, July 2015 and July 2016; PPP adjusted; where a service is included in a bundle any additional usage charges are recorded separately against the relevant service.

## Household 2: a broadband household with basic needs

The second basket is representative of a couple of ‘late adopters’ who are fairly heavy users of the fixed-line phone, have a basic fixed broadband connection, and who both have a mobile phone that they use occasionally for voice and SMS.

**Figure 2.16 Composition of the late adopter household**

Fixed-line voice	Fixed broadband	Mobile	Mobile broadband	Television
400 call minutes	Minimum 10Mbit/s headline speed 25GB data	<b>Connection 1</b> 50 call minutes 25 SMS 100MB data  <b>Connection 2</b> 50 call minutes 25 SMS 100MB data	None	HD pay-TV with a DVR

Source: Ofcom

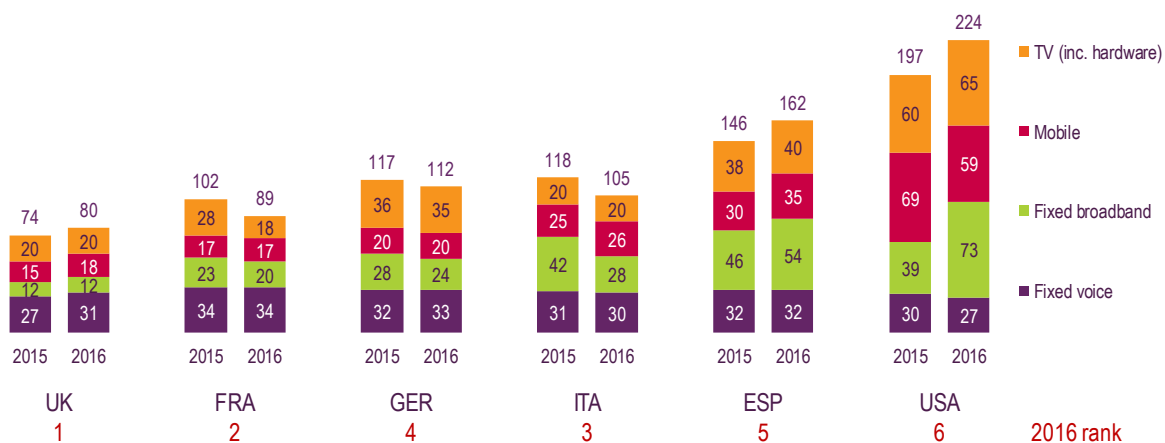
### Weighted ‘average stand-alone’ prices

The lowest ‘weighted average’ stand-alone price of fulfilling the usage requirements of the *late adopter* household was in the UK in 2016 at £80 a month, a £6 per month (8%) increase compared to 2015.

The UK was one of three comparator countries where the ‘weighted average’ stand-alone price of the *late adopter* household increased in 2016, along with Spain and the US. In the UK, this increase was mainly due to increasing fixed voice and mobile prices, although there were also small increases in the price of the household’s fixed broadband and TV use during the year. Among the other comparator countries, the change in the total ‘weighted average’ stand-alone price of the household ranged from a 12% drop in France and Italy to a 13% increase in the US.

**Figure 2.17 The late adopter household: ‘weighted average’ stand-alone pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

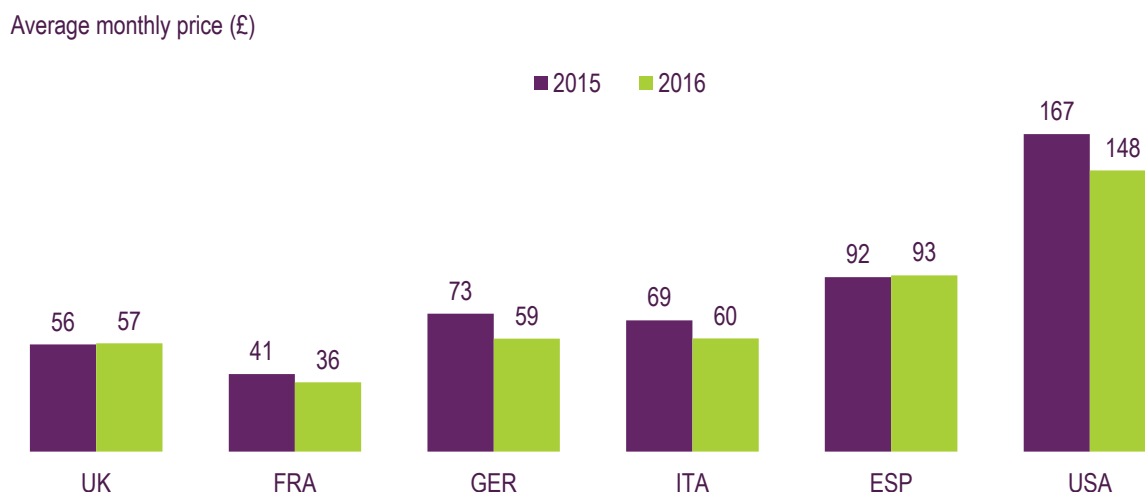
Note: ‘Weighted average’ of best-value tariff from each of the largest operators by market share in each country; July 2015 and July 2016; PPP adjusted

### Weighted ‘average bundle’ prices

As was the case with the *basic needs* household, the UK had the second-lowest ‘weighted average’ bundled price for the *late adopter* household in 2016, after France. Along with Spain, the UK was one of two of our comparator countries in which the *late adopter* household’s ‘weighted average’ bundle price increased in 2016, up by £1 per month (2%) to £57. The total ‘weighted average’ bundle price for the *late adopter* household’s usage

requirements was lower than the total ‘weighted average’ stand-alone price in all of our comparator countries in 2016. This suggests that it is cheaper in general to buy bundled than stand-alone services for this household’s usage profile, and the average savings, when bundling, range from 29% in the UK to 59% in France.

**Figure 2.18 The late adopter household: ‘weighted average’ bundled service pricing: 2015 and 2016**



Source: Ofcom using data supplied by Teligen

Note: ‘Weighted average’ of best-value bundled tariff from each operator by market share in each country; July 2015 and July 2016; PPP adjusted

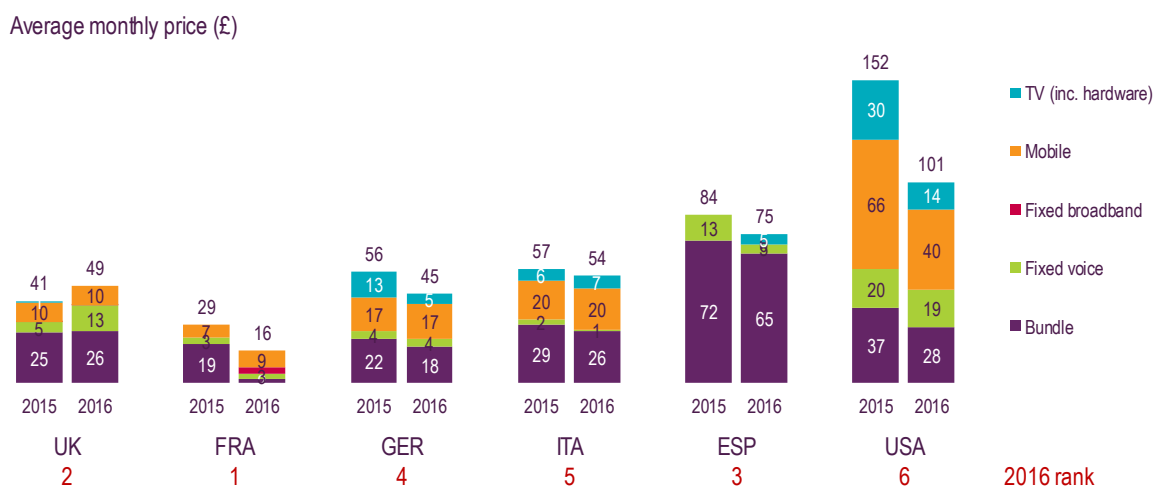
### ‘Lowest-available’ pricing

The cheapest ‘lowest-available’ price required to fulfil the *late adopter* household’s usage requirements was in France in 2016, at £16 a month. The UK had the third-cheapest ‘lowest-available’ price for this household in 2016, at £49 per month, an £8 per month (19%) increase compared to 2015.

France also had the largest proportional fall in the ‘lowest-available’ price for the *late adopter* household in 2016, because the Bouygues Telecom triple-play service, *Offre Bbox en zone dégroupée*, which was included in the ‘lowest-available’ service combination, was discounted from €19.99 to €1.99 for the whole of the service’s 12-month minimum term. This contributed to the total ‘lowest-available’ price in France falling by 46% in 2016 (the UK was the only comparator country where it increased during the year).

In all of our comparator countries, the ‘lowest-available’ priced combination of services involved buying more than one service from the same provider. In the UK, this was an EE triple-play service, *Broadband & Anytime + Mobile Calls + International Extra (LRS) + EE TV*, which had a promotional discount of £5 a month on its standard monthly fee (£31) throughout its 18-month minimum term.

**Figure 2.19 The late adopter household: ‘lowest-available’ pricing: 2015 and 2016**



Source: Ofcom using data supplied by Teligen

Note: Lowest tariff available for each service type from any of the largest operators by market share in each country, July 2015 and July 2016; PPP adjusted; where a service is included in a bundle any additional usage charges are recorded separately against the relevant service

### Household 3: a mobile ‘power user’

The third basket represents a single-person household typical of a young professional person who lives alone. This person lives in a mobile-only household and is a heavy user of both a mobile phone and of mobile broadband (using a mobile ‘dongle’ to connect to the internet). They have an HD pay-TV service with premium sport content (i.e. top league football or NFL in the US).

We do not include a ‘weighted average’ bundled service price for the *mobile power-user* household, because it is not as relevant as it is for the other household usage profiles, due to the limited bundling of mobile phone and mobile broadband services.

**Figure 2.20 Composition of the mobile power-user household**

Fixed-line voice	Fixed broadband	Mobile	Mobile broadband	Television
None	None	1,000 call minutes 200 SMS 15GB 4G data	15GB over 30 days per month	HD pay-TV with premium sports and a DVR

Source: Ofcom

### Weighted ‘average stand-alone’ prices

The cheapest ‘weighted average’ stand-alone cost of fulfilling the requirements of the *mobile power-user* household was in France in 2016, at £96 a month. The UK had the second-lowest ‘weighted average’ stand-alone price for this household in 2016, at £122 per month; a £71 per month (37%) fall compared to 2015, which was due to a decline in the price of the mobile phone element of the basket.

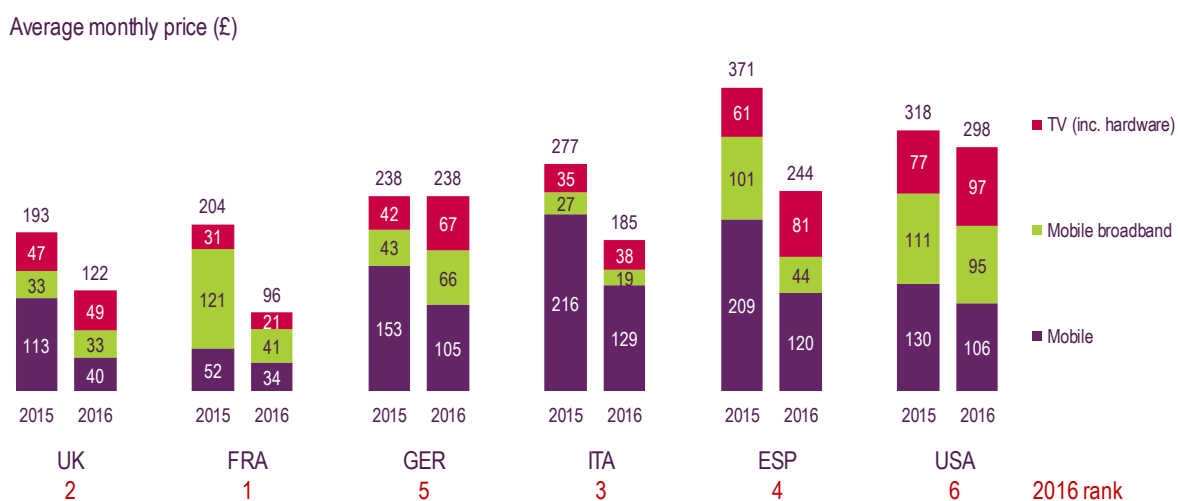
In all comparator countries, there was a notable fall in the ‘weighted average’ price of the high-use mobile phone connection required by the household; these ranged from an 18% decline in the US to a 64% drop in the UK, the result of the introduction of tariffs with higher data allowances (this connection requires 15GB of 4G data per month). Declining mobile prices resulted in a fall in the total ‘weighted average’ cost of the basket in all of our comparator countries except Germany, where the decline in mobile was offset by increasing



'weighted average' prices for the household's mobile broadband connection and basic pay-TV with premium sports package, and where, therefore, the total 'weighted average' price was unchanged. The UK was the only other comparator country where the 'weighted average' mobile broadband price increased during the year, albeit by just 1%.

The *mobile power-user* household includes a basic pay-TV service (defined as the lowest subscription required to receive channels that are not available on free-to-view television) along with premium sport channels. Because of the variation in numbers and types of channels, and the quality of programming, like-for-like comparison is more problematic than for telecoms services. However, the lowest 'weighted average' pay-TV price for the household was in France at £21 per month, while it was highest in the US at £97 per month (in the UK it was £49, the third lowest average among our comparator countries).

**Figure 2.21 The mobile power-user household: 'weighted average' stand-alone pricing: 2015 and 2016**



Source: Ofcom using data supplied by Teligen

Note: 'Weighted average' of best-value tariff from each of the largest operators by market share in each country; July 2015 and July 2016; PPP adjusted.

### Weighted 'average bundle' prices

The services required by the *mobile power-user* household are not frequently offered as part of a bundle, so analysis of 'weighted average' bundle prices is not useful for this usage profile.

### 'Lowest-available' pricing

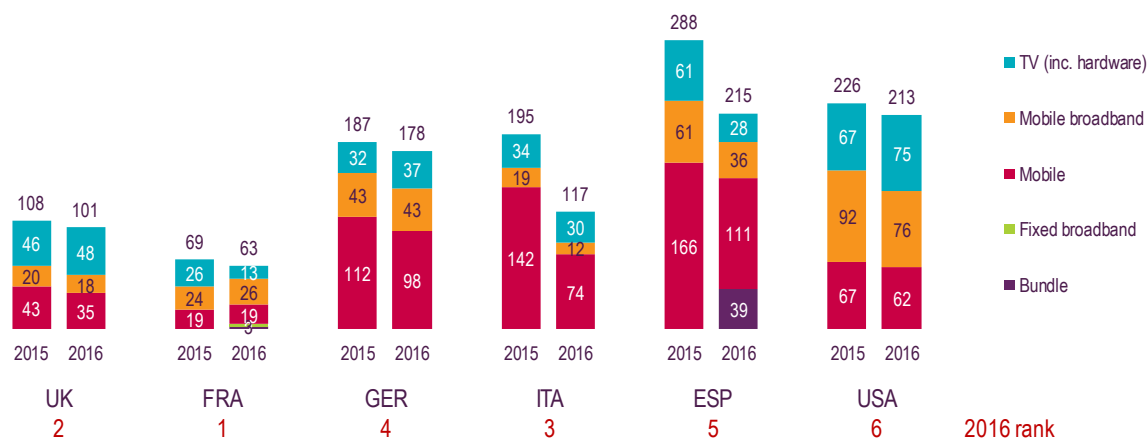
The cheapest 'lowest-available' price for fulfilling the requirements of the *mobile power-user* household in 2016 was in France at £63 per month, £6 a month (9%) less than in 2015. This was due to the availability of a heavily discounted Bouygues Telecom triple-play service (*Offre Bbox en zone dégroupée w BOUQUET beIN SPORTS*), which was discounted from €19.99 per month to €1.99 per month for its entire 12-month minimum term.

The UK had the second-cheapest 'lowest available' price for this household, at £101 per month, a £7 per month (7%) fall compared to 2015, which was mainly due to a fall in the lowest price available for the household's high-use mobile phone connection. In most countries, there is low availability of bundles of mobile phone, mobile broadband and/or pay-TV services offering significant bundle discounts. France and Spain were the only other countries where the lowest-priced combination of services to fulfil the *mobile power-user* household's requirements involved buying bundled services and, in both cases, these also

included fixed voice and fixed broadband services that were not required by the household's usage profile.

**Figure 2.22 The mobile power-user household 'lowest-available' pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

Note: Lowest tariff available for each service type from any of the largest operators by market share in each country, July 2015 and July 2016; PPP adjusted

#### Household 4: a family household with multiple needs

The *connected family* household represents usage levels typical of a family of two parents and two teenage children, each with their own mobile handset but with different mobile usage profiles, with the adults using more voice and the children more messaging and data. They are heavy users of the fixed-line phone and the internet, requiring a minimum headline connection speed of 'up to' 30Mbit/s, and they subscribe to a premium television package for watching HD sport and the latest films, and a digital video recorder (DVR).

**Figure 2.23 Composition of the connected family household**

Fixed-line voice	Fixed broadband	Mobile	Mobile broadband	Television
200 call minutes	Minimum 30Mbit/s headline speed 50GB data	<b>Connection 1</b> 250 call minutes 50 SMS 1GB data  <b>Connection 2</b> 150 call minutes 100 SMS 500MB data  <b>Connection 3</b> 100 call minutes 250 SMS 5GB data  <b>Connection 4</b> 100 call minutes 250 SMS 5GB 4G data	None	HD pay-TV with premium sports & films and a DVR

Source: Ofcom

## Weighted 'average stand-alone' prices

The UK had the second-lowest 'weighted average' stand-alone price for this household in 2016, at £181 a month. This was a £1 a month (1%) fall compared to 2015. The lowest 'weighted average' price for the household was found in France, at £178 per month.

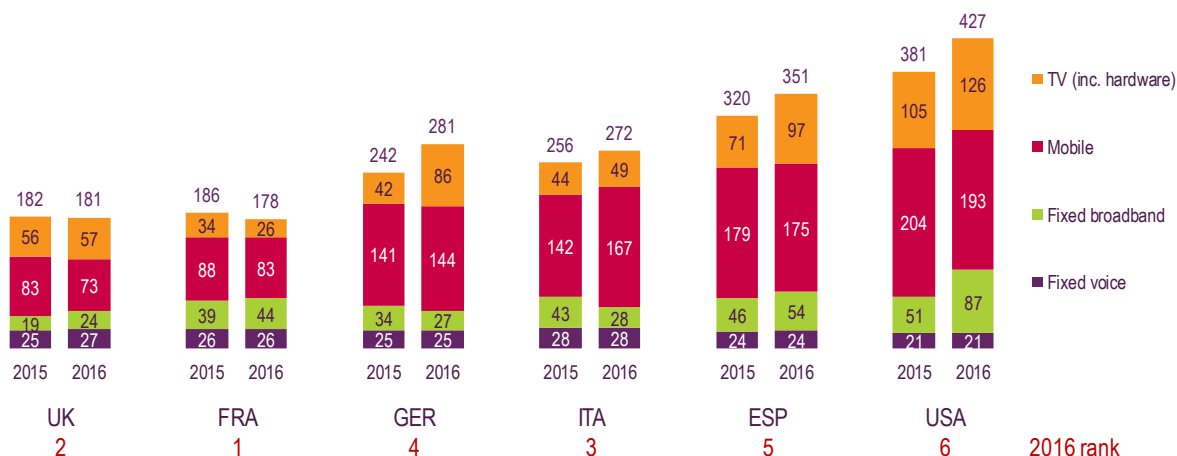
The main reason for variations in the total 'weighted average' price among our comparator countries was the cost of the household's four mobile phone connections. The mobile phone element's proportion of the *connected family* household's usage ranged from 40% in the UK to 61% in Italy. The UK had the lowest total 'weighted average' price for the household's four mobile phone connections in 2016, at £72 per month, a £10 per month (12%) fall compared to 2015.

The lowest 'weighted average' price for the *connected family* household's fixed broadband connection, which requires a headline speed of at least 30Mbit/s, and 50GB of use per month, was also found in the UK in 2016, at £24 a month. This was £5 a month (25%) more than it had been in 2015, due to BT increasing the price of its *Unlimited BT Infinity 1* service and reducing the level of promotional discount that was available to new customers (although the headline speed of the service increased from 'up to' 38Mbit/s to 'up to' 52Mbit/s during the year). The 'weighted average' price of fulfilling the 200 outgoing minutes of fixed voice calls required by the household was £27 per month in the UK in 2016, a £2 a month (10%) increase since 2015 and the second-highest 'weighted average' price after Italy (£28 per month).

The television element of this basket requires an HD pay-TV service with premium sports, films and a DVR, for which the UK had the third-lowest price, after France and Italy, in 2016 at £57 per month. This was £2 per month (3%) more than in 2015.

**Figure 2.24 The connected family household: 'weighted average' stand-alone pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

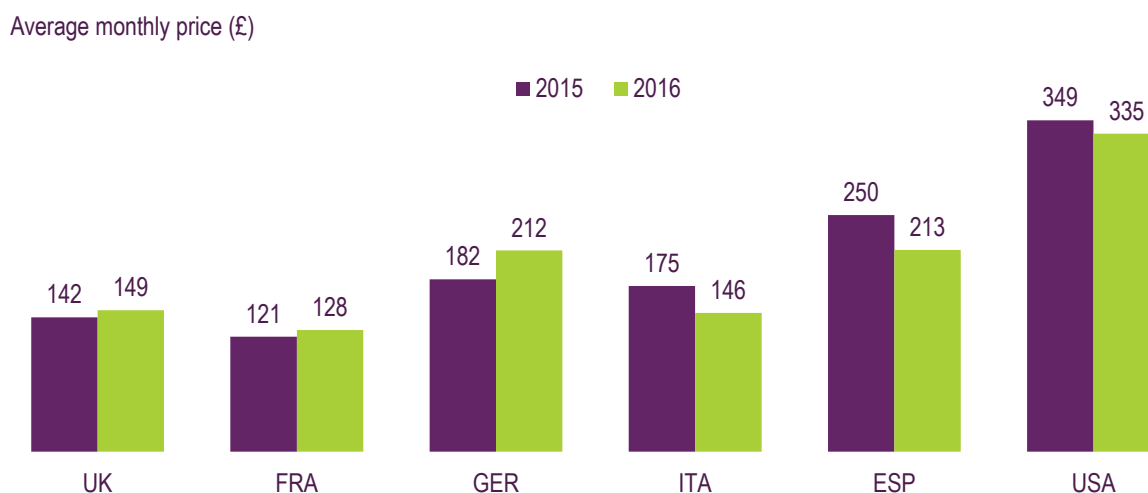
Note: 'Weighted average' of best-value tariff from each of the largest operators by market share in each country; July 2015 and July 2016; PPP adjusted

## Weighted 'average bundle' prices

The UK had the third-lowest 'weighted average' bundled price for the *connected family* household in 2016, at £149 per month; £8 per month (6%) higher than in 2015. The change in the 'weighted average' bundled price among our other comparator countries ranged from a 3% fall in the US to a 17% increase in Germany.

The total 'weighted average' stand-alone price of the *connected family* household's use was higher than the total 'weighted average' bundle price in all of our comparator countries in 2016, suggesting that, in general, it is cheaper to buy bundled rather than stand-alone services for this usage profile. The average savings that were available when bundling ranged from 17% in the UK to 46% in Italy.

**Figure 2.25 The connected family household: 'weighted average' bundled service pricing: 2015 and 2016**



Ofcom using data supplied by Teligen

Note: 'Weighted average' of best-value bundled tariff from each operator by market share in each country; July 2015 and July 2016; PPP adjusted

### 'Lowest-available' pricing

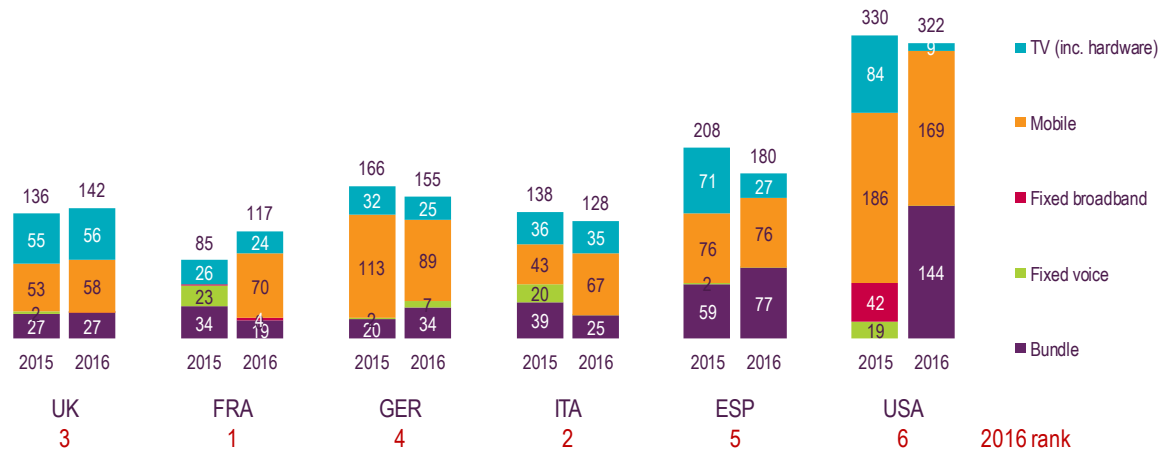
The 'lowest-available' price for the *connected family* household's requirements was in France in 2016, at £117 per month. The UK had the third-cheapest 'lowest-available' price for the household at £142 per month, £6 per month (4%) lower than in 2015.

In all of our comparator countries, the cheapest price to fulfil the *connected family* household's requirements included purchasing a bundle of services. The 'lowest-available' priced combination of services for the *connected family* household in the UK included a Sky triple-play bundle (*Broadband Fibre Unlimited + Talk Anytime Extra plus Original Bundle + Sky Sports & Movies with Sky+ HD Box*) plus separately purchased mobile services.

In France, the total 'lowest-available' price increased by £32 per month (37%), the largest increase among our comparator countries during the year. This was due to SFR withdrawing its *Forfait Power Illimites + 40GB SIM Fiber* service during the year, leaving a more expensive combination of services, including an SFR triple-play bundle of fixed voice, fixed broadband, and pay-TV services (*Offre Box THD Starter SFR by Numericable Online + beIN Sport + PASS CINÉMA*) as the lowest-priced option.

**Figure 2.26 The connected family household: ‘lowest-available’ pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

Note: Lowest tariff available for each service type from any of the largest operators by market share in each country, July 2015 and July 2016; PPP adjusted; where a service is included in a bundle any additional usage charges are recorded separately against the relevant service

**Household 5: an affluent two-person household**

The *sophisticated couple* household is typical of an affluent young couple of high-end users. They both have 4G mobiles and are fairly heavy users of mobile voice and data services and, to a lesser extent, SMS. They have a fixed line with relatively low use, are heavy internet users with a broadband connection with a headline speed of 100Mbit/s or more), and an HD pay-TV service with premium film content (i.e. first-run Hollywood films) and a DVR.

**Figure 2.27 Composition of the sophisticated couple household**

Fixed-line voice	Fixed broadband	Mobile	Mobile broadband	Television
100 call minutes	Minimum 100Mbit/s headline speed 100GB data	<b>Connection 1</b> 300 call minutes 150 SMS 3GB 4G data  <b>Connection 2</b> 200 call minutes 200 SMS 2GB 4G data	None	HD pay-TV with premium films and a DVR

Source: Ofcom

**Weighted ‘average stand-alone’ prices**

France had the lowest ‘weighted average’ stand-alone price for the *sophisticated couple* household in 2016, at £131 a month (Figure 2.24). The UK had the second-lowest ‘weighted average’ stand-alone price for this household, at £143 a month, a £5 a month (3%) fall compared to 2015.

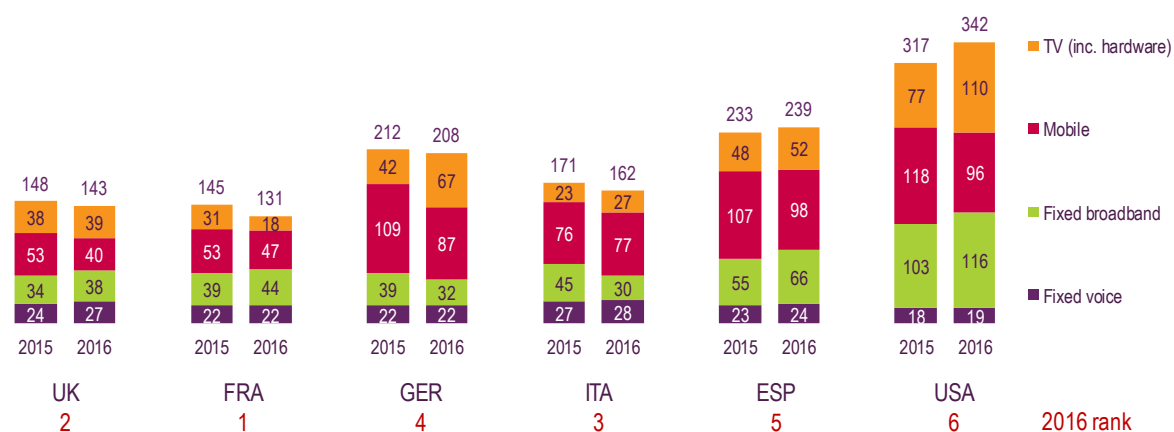
The *sophisticated couple* household had the lowest fixed voice use of all the household usage profiles, with 100 minutes of outgoing calls per month. The UK had the second-highest ‘weighted average’ stand-alone price for this usage profile, at £27 a month, a £2 per month (10%) increase compared to 2015, but the lowest ‘weighted average’ stand-alone

cost of satisfying this household’s mobile requirements in 2016, at £40 a month. This was £13 per month (24%) less than in 2015, mainly due to a fall in the average price for the household’s higher-use mobile, which resulted from falling prices for O2 and Three’s cheapest tariffs for this connection. The UK had the lowest ‘weighted average’ prices for both of the household’s mobile phone connections.

The *sophisticated couple* household requires a fixed broadband connection with 100GB of use and a headline (advertised) download speed of at least ‘up to’ 100Mbit/s. ‘Weighted average’ monthly prices for this connection ranged from £30 in Italy to £116 in the US (in the UK it was £38, the third-lowest average among our comparator countries). The *sophisticated couple* household also requires a pay-TV service with premium films, for which the UK also had the third-cheapest ‘weighted average’ price in 2016, at £39 per month.

**Figure 2.28 The sophisticated couple household: ‘weighted average’ stand-alone pricing: 2015 and 2016**

Average monthly price (£)



Source: Ofcom using data supplied by Teligen

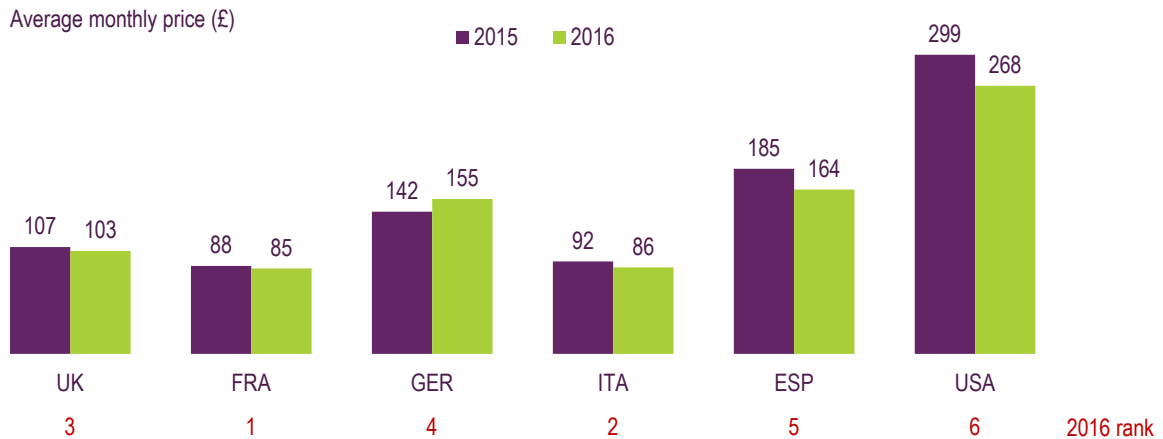
Note: ‘Weighted average’ of best-value tariff from each of the largest operators by market share in each country; July 2015 and July 2016; PPP adjusted.

### Weighted ‘average bundle’ prices

France had the lowest ‘weighted average’ bundled service price for the *sophisticated couple* household in 2016, at £85 per month. The UK had the third-lowest ‘weighted average’ bundled price for this household in 2016, at £103 per month. This was a £4 per month (4%) fall compared to 2015.

The ‘weighted average’ bundle price fell in all of our comparator countries in 2016, except Germany, where it increased by 9%. Spain and the US had the largest falls during the year, down by 11% and 10% respectively. The total average bundled service price of this household was lower than the total ‘weighted average’ stand-alone price in all of our comparator countries except the US in 2016, suggesting that, in most cases, it is cheaper to buy bundled rather than stand-alone services for this usage profile. The average savings that were available when bundling ranged from 22% in the US to 37% in France.

**Figure 2.29 The sophisticated couple household: ‘weighted average’ bundled service pricing: 2015 and 2016**



Ofcom, using data supplied by Teligen

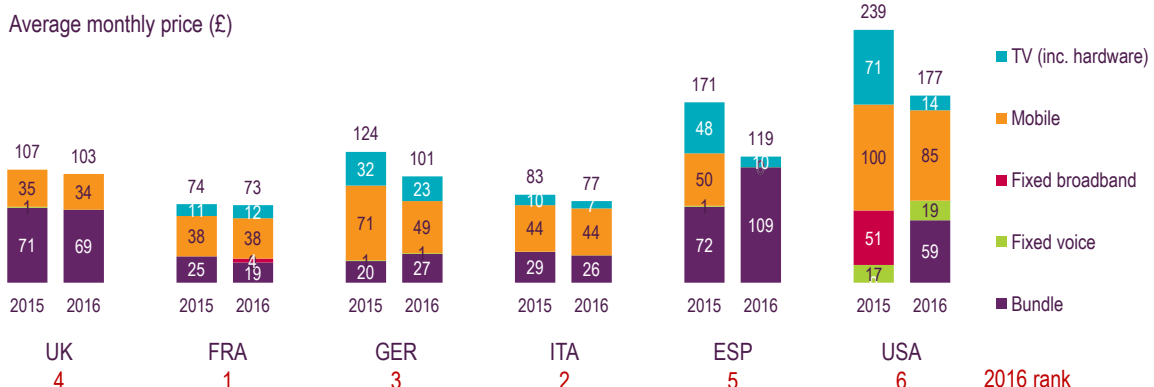
Note: ‘Weighted average’ of best-value bundled tariff from each operator by market share in each country; July 2015 and July 2016; PPP adjusted

### ‘Lowest-available’ pricing

The cheapest ‘lowest-available’ pricing for the *sophisticated couple* household was in France in 2016, at £73 a month, while in the UK it was £103 per month, £4 a month (4%) less than in 2015 and the third most expensive price among our comparator countries. The UK ‘lowest-available’ price was identical to the ‘weighted average’ bundled price in the UK, as Virgin Media was the only UK provider included in the Teligen pricing model offering 100Mbit/s fixed broadband.

The ‘lowest-available’ price for the *sophisticated couple* household included buying bundled services in all of our comparator countries in 2016. In the UK, this included a Virgin Media bundle of fixed voice, fixed broadband and pay-TV services (*Big Kahuna Bundle - Broadband 200MB + TV Size XL with TiVo 500GB + Sky Movies + Phone Size XXL*), along with separately purchased EE and Three mobile phone services.

**Figure 2.30 The sophisticated couple household: ‘lowest-available’ pricing: 2015 and 2016**



Source: Ofcom, using data supplied by Teligen

Note: Lowest tariff available for each service type from any of the largest operators by market share in each country, July 2015 and July 2016; PPP adjusted; where a service is included in a bundle any additional usage charges are recorded separately against the relevant service.





# The International Communications Market 2016

## **3 Telecoms and networks**

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## 3.1 Telecoms: overview and key market developments

### A note on the data presented in this chapter

The aim of the ICMR is to benchmark the UK communications sector against a range of comparator countries. In order to allow for international comparability, we have had to source and use the best metrics available. As a result, some of the metrics presented in this chapter differs from those presented in the *Connected Nations* 2016 report on several counts, such as time periods and definitions.

For example, the data used in the Telecoms chapter are for the year ended December 2015 while the data shown in *Connected Nations* 2016 report relate to June 2016. In terms of definitions, 3G and 4G mobile coverage in the ICMR represent outdoor population coverage from at least one operator. However, the *Connected Nations* report focuses on the percentage of premises that have indoor coverage from all four operators, as well as geographic coverage from all four operators. In the case of mobile coverage, there is no international industry standard and available figures used in the ICMR tend to be based on total outdoor coverage.

### 3.1.1 Overview

#### **Mobile services made up the greatest proportion of telecoms revenues in most of our comparator countries**

Total retail telecoms revenues across our comparator countries were £597bn in 2015, with mobile voice and mobile data services contributing almost two-thirds (64%) of this total. Mobile services made up the greatest proportion of telecoms revenues in most of our comparator countries.

#### **The UK had the highest number of fixed voice connections per 100 people, of all comparator countries**

The UK had 62 fixed voice connections per 100 people (including managed VoIP) in 2015, up one connection since 2014. The UK was one of only three comparator countries where fixed voice take-up increased.

#### **The proportion of total fixed voice connections that were managed VoIP increased in all comparator countries**

In the UK, managed VoIP connections made up only 16.2% of the total, ranking the UK twelfth among the comparator countries. However, the UK proportion had increased, by 1.7pp, since 2014.

#### **The UK had the second highest average number of monthly fixed voice call minutes per person**

In all our comparator countries, the average monthly fixed voice call minutes per person declined in 2015. The UK ranked second among our comparator countries, at 122 minutes per person per month, down 12 minutes per month (8.8%) since 2014.

#### **The UK had the highest average per-capita revenue for fixed voice services**

The highest average revenue for fixed voice services (including managed VoIP services) was generated in the UK in 2015, at £11.58 per person per month. It was lowest in China, India and Nigeria, at less than £1 per person in all three countries.

### **Household penetration of fixed broadband reached 80% in the UK**

The household penetration of fixed broadband increased across most of our comparator countries in 2015. In the UK, it reached 80% by end of 2015, an increase of 3 percentage points since 2014, putting the UK fifth among our comparator countries.

### **Fixed data traffic volumes grew in most of our comparator countries**

With the increasing use of high-speed fixed broadband services, fixed data traffic volumes grew in most of our comparator countries in 2015, pushing down the price per unit of fixed broadband data across most markets. However, there were some countries where the prices increased as more consumers migrated to superfast services, which tend to be more expensive than standard broadband. In the UK, fixed data volumes per head reached 27GB per month as the price declined by 7%, to £0.26 per GB in 2015.

### **Seventy-two per cent of respondents in the UK were satisfied with the reliability of their household fixed broadband services**

Overall satisfaction with fixed broadband services was 70% or higher in five out of nine of the comparator countries in which our consumer research took place, with the UK at 76%. The UK ranked highest, along with the US, on satisfaction with the reliability of household fixed broadband services.

### **The majority of our comparator countries had more mobile connections than people**

In the majority of our comparator countries, the number of mobile connections per 100 people was up in 2015; it ranged from 77 in India to 175 in Russia. The UK was ninth of 18 comparator countries, with 131 mobile connections per 100 people.

### **Most comparator countries saw an increase in the number of average mobile call minutes per person**

In the UK, average use increased by 3.3% to 184 minutes per person in 2015, putting the UK ninth among the comparator countries.

### **The average number of monthly mobile messages per person decreased in most of our comparator countries**

This is mainly due to increasing smartphone take-up, as these devices enable consumers to access alternative text-based services, such as email and instant messaging. The UK had the third highest average mobile messaging use among the comparator countries, with 131 messages per person per month.

### **Eighty-five per cent of respondents in the UK indicated that they were satisfied with their overall mobile service**

Overall satisfaction with mobile services was 80% or higher in five out of nine of the comparator countries in which our consumer research took place, with the UK at 85%.

### **Mobile data consumption increased in all comparator countries**

In 2015, mobile data volumes per capita per month increased in all our comparator countries. In the UK, mobile data consumption reached 1.2GB per head per month, with 4G data accounting for over 85% of total volumes, while the price per unit declined by 33% to £6.68, partly because bundled data allowances continued to increase.

**Figure 3.1 Key metrics: 2015**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN	NGA
Telecoms service revenues (£bn)	29	16	23	14	186	70	15	14	6	4	6	3	20	24	14	18	130	6
Monthly telecoms revenues per capita (£)	38	21	23	19	48	46	51	26	31	34	12	49	34	10	8	1	8	3
Total fixed voice revenues, incl. managed VoIP (£bn)	9	4	6	4	23	12	3	3	1	1	1	0.5	2	7	4	2	5	0.02
Fixed voice connections per 100 population (incl. managed VoIP)	62	60	46	38	38	44	38	41	41	36	15	36	51	21	25	2	18	0.1
Managed VoIP connections as % of total fixed voice connections	16	67	58	15	49	54	11	31	80	52	27	32	38	17	8	0.4	6	n/a
Monthly outbound fixed voice call minutes per capita (mins)	122	109	144	68	99	77	101	68	78	85	20	73	92	62	76	4	7	0.1
Total fixed broadband revenues (£bn)	5	2	3	2	38	17	5	3	1	1	1	1	5	6	2	1	40	0.004
Average monthly fixed data volumes per capita (GB)	27	15	12	8	22	38	15	11	19	35	5	21	50	3	5	0.2	4	0.001
Superfast fixed broadband coverage (% of households)	88	41	77	44	88	98	31	77	98	78	53	99	100	54	67	4	48	1
Total mobile revenues (£bn)	15	10	14	9	126	41	7	9	4	2	4	2	13	11	8	15	85	6
Mobile connections per 100 population	131	128	141	155	117	138	130	118	139	164	147	167	117	124	175	77	98	83
Monthly outbound mobile voice call minutes per capita	184	197	118	236	367	159	170	148	138	255	199	220	207	170	321	141	173	70
Mobile broadband connections per 100 people (4G/3G)	110	75	105	108	103	138	125	107	94	126	118	146	117	84	36	11	57	34
Average monthly mobile data volumes per capita (GB)	1.2	0.8	0.6	1.1	2.6	2.4	1.6	0.7	0.6	4.2	1.2	1.9	3.0	0.3	0.3	0.0	0.2	0.1
4G mobile network availability (% of population coverage of at least one operator)	93	80	95	91	98	99	89	81	100	99	100	100	100	48	59	6	87	14
4G as % of all mobile connections	36	27	20	17	50	49	54	26	31	39	14	44	71	10	9	0.2	29	1
4G as % of total mobile data use	85	65	70	47	82	82	75	67	57	57	54	67	97	50	55	8	61	2

Source: IHS / industry data / Ofcom

Note: For the purposes of this table most of the figures have been rounded to the nearest whole number. The superfast fixed broadband coverage in this table differs from the 89% premise coverage for speeds of 'up to' 30Mbit/s or more and 90% for speeds of 'up to' 24Mbit/s or more stated in our Connected Nations 2016 report, which were calculated based on detailed premises-level data inputs provided by UK communications providers and relate to June 2016.

### 3.1.2 Broadband Scorecard

We have benchmarked the UK against 18 other European and global peers using a number of broadband metrics, as summarised in Figure 3.2.<sup>79</sup> Our key findings include:

- ADSL fixed broadband services are widely available in most of our comparator countries. Eight countries, including the UK, had ADSL coverage of 99% or more households by the end of 2015, while Nigeria was the only country where ADSL-based services were available to less than half of households.
- Standard fixed broadband services offering advertised speeds of 'up to' 10Mbit/s or more were available to 95% or more of households in eight of our comparator countries, including the UK (97%), at the end of 2015. Singapore, South Korea and Japan had the highest availability of these services.
- The UK compared favourably to most of the comparator countries in terms of the availability of superfast broadband products (those with advertised speeds of 'up to' 30Mbit/s) ranking seventh at 88% of households. South Korea had the highest household superfast product availability at almost 100%, while the Netherlands was highest among our European comparator countries, at 98%.
- The UK performed well on the availability of fibre broadband (FTTx) networks; 84% of households were in areas served by fibre, ranking fifth after the Netherlands, South Korea, Singapore and Japan. South Korea, Japan and Singapore typically tend to lead on deployment of new infrastructure, and rank highly on many metrics.
- The UK, however, is notable for its limited availability of 'full fibre' fibre-to-the-building/fibre-to-the-home (FTTB/H) services, which can offer download speeds of 1Gbit/s or more. These services were available to just over 1% of UK households at the end of 2015, ranking the UK 17<sup>th</sup> out of 19 countries. In countries such as South Korea, Singapore and Japan, 'full fibre' services were available to more than 95% of homes.
- The comparatively low availability of 'full fibre' services in the UK is partly a result of BT's decision to use VDSL for the last-mile connectivity of most of its fibre broadband network, and the UK's lowest rank (18<sup>th</sup>) was for the proportion of fixed broadband connections that were 'full fibre'. Japan ranked first on the proportion of 'full fibre' broadband connections (73%) followed by South Korea (71%) and Singapore (60%).
- The proportion of superfast broadband connections with an advertised speed of 'up to' 30Mbit/s or higher increased in all of our comparator countries. In seven comparator countries, more than half of fixed broadband connections were superfast at the end of 2015. In the UK, this proportion was 40%, ranking ninth among our 19 countries. The UK ranked better on connections with advertised speeds  $\geq 30$ Mbit/s and  $< 100$ Mbit/s (fifth, at 32%), than on those with advertised speeds  $\geq 100$ Mbit/s where it was 11<sup>th</sup> with 7%.<sup>80</sup>
- Eleven comparator countries had 4G mobile population coverage of 90% or more at the end of 2015, while six had 99% or higher coverage. The UK ranked tenth on availability of 4G networks (93%),<sup>81</sup> an increase of 9pp since the end of 2014.

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<sup>79</sup> The EU5 and EU28 scorecards are provided as appendices to this report. Both can be found at: <https://www.ofcom.org.uk/research-and-data/broadband-research/eu-broadband-scorecard>

<sup>80</sup> The UK ranks 17/19 on household coverage of ultrafast fixed broadband with advertised speeds of 300Mbit/s or higher (2%) based on figures provided by Analysys Mason as of September 2016.

<sup>81</sup> This represents outdoor population coverage from at least one operator. This differs from the 4G (figure of 72.2%) and 3G (78.1%) coverage stated in our *Connected Nations* 2016 report, which focuses on the percentage of premises that have indoor coverage from all operators.

**Figure 3.2 Broadband Scorecard: UK's position relative to 18 other comparator countries: 2015**

	UK RANKING																			Lead Country	
	LOWEST										HIGHEST										
COVERAGE (HOUSEHOLDS)	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
ADSL																				99.9%	100%
CABLE																				47%	99%
FTTx																				84%	100%
VDSL																				83%	95%
FTTB/H				1%																	99%
Advertised speed >=10Mbit/s																				97%	100%
Advertised speed >=30Mbit/s																				88%	100%
Advertised speed >=100Mbit/s																				48%	100%
3G mobile																				99.0%	100%
4G mobile																				93%	100%
<b>CONNECTIONS</b>	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Lead Country	
ADSL																				59%	90%
CABLE																				19%	57%
FTTx																				22%	73%
FTTB/H				0.3%																	73%
>=10Mbit/s and <30Mbit/s																				53%	79%
>=30Mbit/s																				40%	92%
>=30Mbit/s and <100Mbit/s																				32%	49%
>=100Mbit/s																				7%	66%
3G mobile																				48%	66%
4G mobile																				36%	71%
<b>USAGE</b>	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Lead Country	
Fixed data per capita per month																				27GB	50 GB
Mobile data per capita per month																				1.2GB	4.2 GB

Source: IHS

Notes:

1. For the purposes of this table most of the figures have been rounded to the nearest whole number.
2. Coverage and connections data are for the year-end 2015
3. Mobile broadband includes all data connections made via 3G or 4G cellular networks, including those made via mobile handsets and using dedicated mobile data dongles and SIMs.
4. In order to provide a comparative benchmark across all 19 countries, 4G (93%) and 3G (99%) mobile coverage encompasses outdoor population coverage from at least one operator. This differs from the 4G (72.2%) and 3G (78.1%) coverage stated in our Connected Nations 2016 report, which focuses on the percentage of premises that have indoor coverage from all operators. The report can be found here: <https://www.ofcom.org.uk/research-and-data/infrastructure-research/connected-nations-2016>



### 3.1.3 Availability and take-up of 4G services continue to grow

#### 4th generation (4G) mobile communications standard

4G stands for 4<sup>th</sup> generation, and describes the 4<sup>th</sup> generation mobile communications standard, which allows internet access at higher speeds than previous standards. All premium smartphones can use 4G services while still being compatible with the previous standards, 2G and 3G.

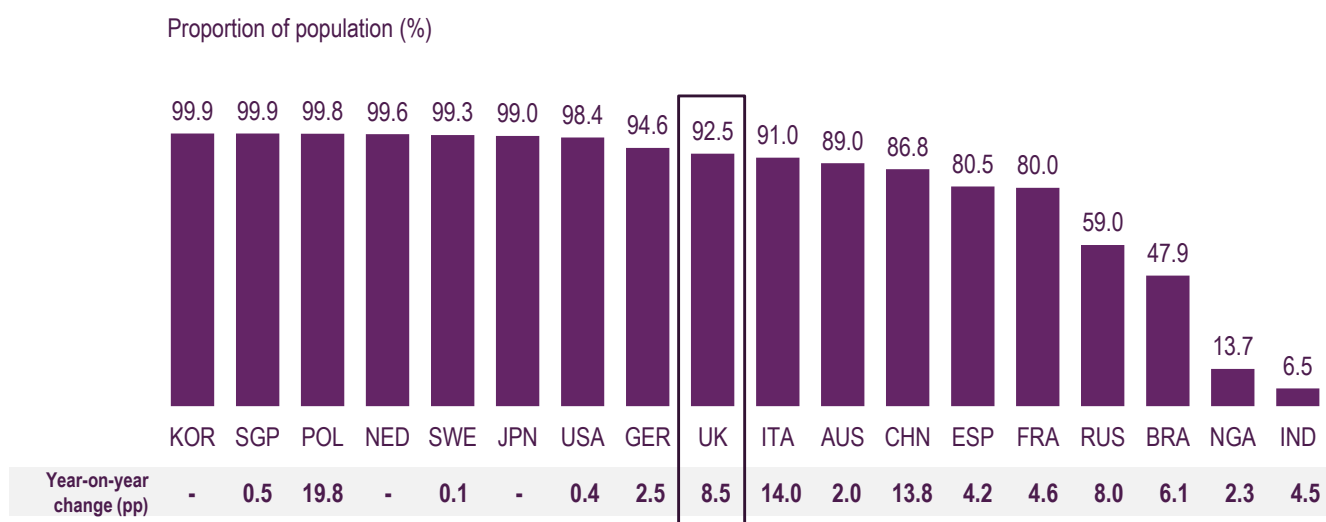
The first commercial 4G service in the UK was launched in October 2012 by EE after it was granted a licence modification allowing it to use its existing 1800MHz spectrum for 4G. The auction for 4G spectrum concluded in February 2013, with EE, Telefonica (O2), Vodafone, Three and Niche Spectrum Ventures Ltd (a BT Group subsidiary) receiving licences. Vodafone and Telefonica launched their 4G services in August 2013, while Three started its London-based release in December 2013, followed by national roll-out in March 2014.

#### 4G population coverage increased by 8.5 percentage points in the UK in 2015

In six of our 18 comparator countries, 4G population coverage<sup>82</sup> was 99% or higher at the end of 2015; South Korea and Singapore had the highest coverage at 99.9%. The availability of 4G mobile services is higher in countries where a high proportion of the population is located in urban areas, where it is typically most economic to deploy mobile networks.

The UK ranked ninth<sup>83</sup> of our 18 comparator countries and second among the EU5 countries, behind Germany, at the end of 2015, at 92.5%, 8.5 percentage points (pp) higher than a year previously.

**Figure 3.3 4G population coverage: end-2015**



Source: IHS

Note: 4G is the fourth generation network technology deployed by cellular operators. The definition is limited to those networks using one of the LTE (long term evolution) standards such as FDD-LTE

<sup>82</sup> In order to provide a comparative benchmark across all 18 countries, 4G mobile coverage in the UK encompasses outdoor coverage from at least one operator. This differs from the 4G (72.2%) coverage stated in our *Connected Nations 2016* report, which focuses on the percentage of premises that have indoor coverage from all operators.

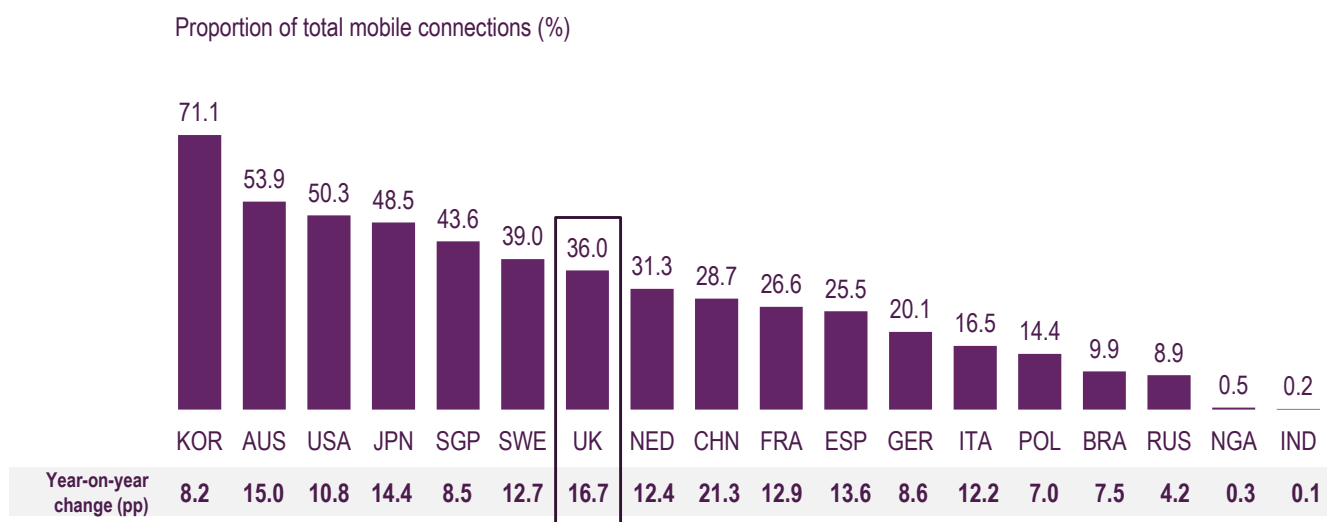
<sup>83</sup> In the *Broadband services* section of this chapter, the UK ranks tenth among 19 comparator countries.

(frequency division duplexing LTE) or TD-LTE (time division LTE); HSPA+ networks or WiMAX networks are not included.

### In the UK, 36% of mobile connections were 4G at the end of 2015

Take-up of 4G services is typically highest in countries where the commercial launch of 4G services occurred earlier. South Korea had the highest proportion of mobile connections that were 4G-enabled at the end of 2015, at 71.1%. The UK ranked seventh of the 18 comparator countries, while among the EU5 countries the UK had the highest proportion of mobile connections that were 4G, at 36%. All our comparator countries had an increase in take-up of 4G services in 2015, with the UK experiencing the second highest increase (16.7pp) after China (21.3pp).

**Figure 3.4 4G mobile connections as a proportion of total mobile connections: end-2015**



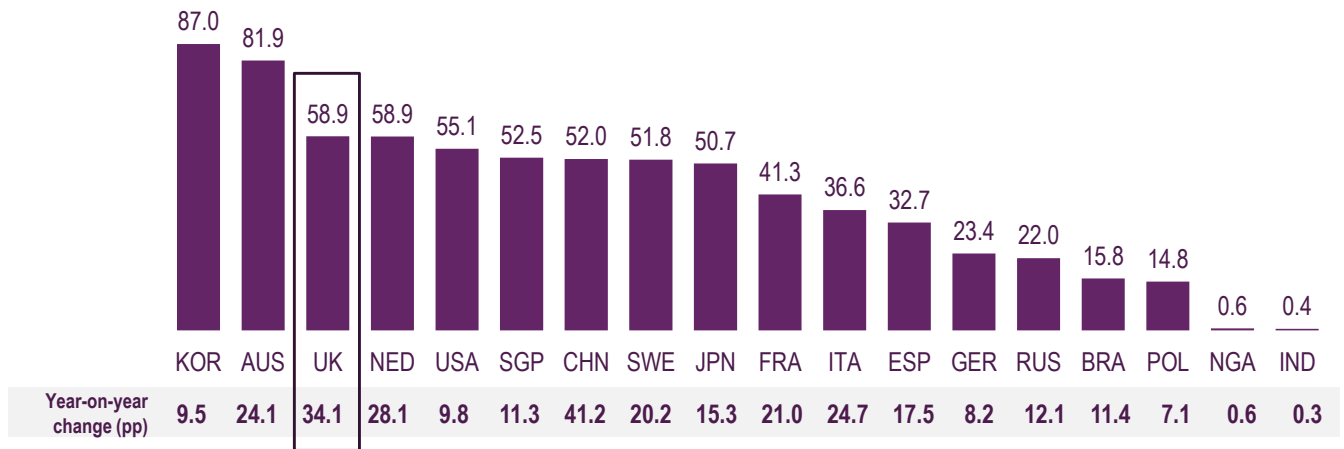
Source: IHS / industry data / Ofcom

### In half of our comparator countries 4G revenues accounted for more than 50% of total mobile service revenues in 2015

South Korea had the highest proportion of total mobile revenues generated by 4G mobile services in 2015, at 87%. In the UK, 4G revenues accounted for 59% of total mobile service revenues in 2015, the third highest proportion among our comparator countries.

**Figure 3.5 4G mobile revenue as a proportion of total mobile revenue: 2015**

Proportion of total mobile revenues (%)

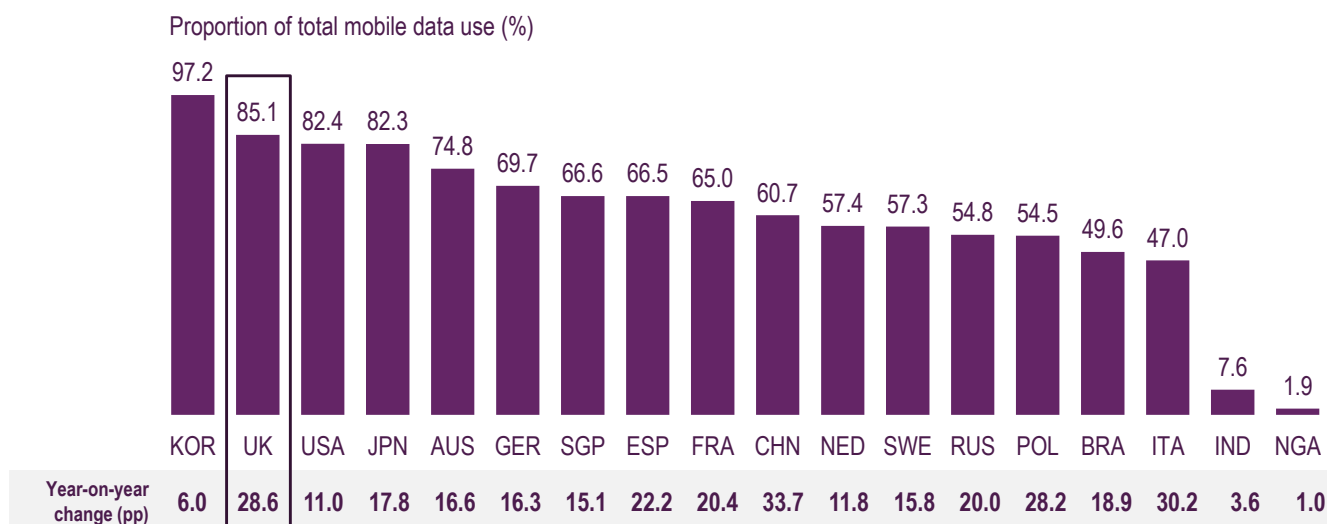


Source: IHS / industry data / Ofcom

## In the UK, 85.1% of mobile data use was generated by 4G services in 2015

In most comparator countries, more than half the total mobile data use was generated by 4G services in 2015, led by South Korea, where almost all mobile data use was 4G (97.2%). This is due to the very high population coverage in South Korea and the high number of 4G mobile connections as a proportion of total mobile connections. The UK had the second highest proportion of 4G mobile data use in 2015, at 85.1%, 28.6pp higher than in 2014.

**Figure 3.6 4G mobile data use as a proportion of total mobile data use: 2015**

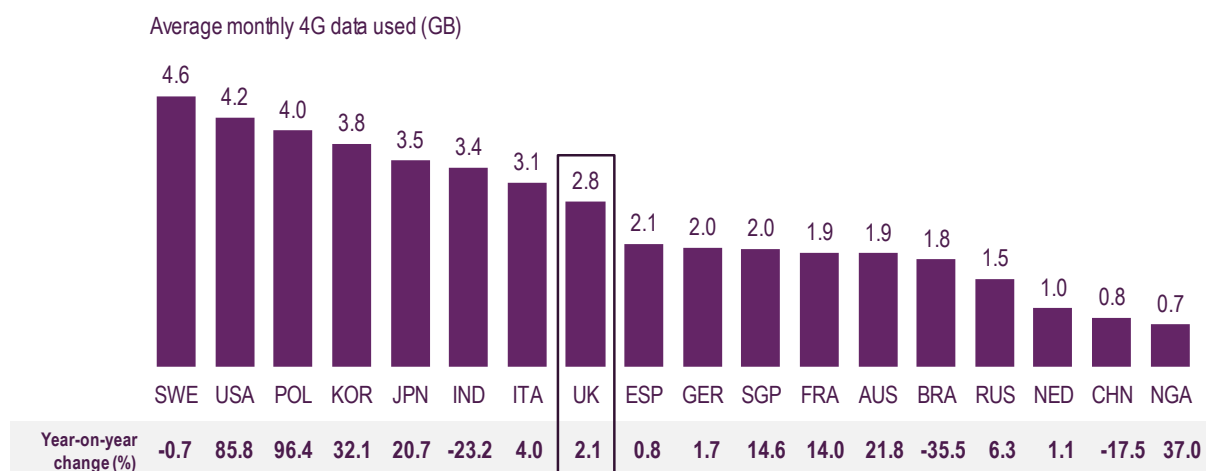


Source: IHS / industry data / Ofcom

## Sweden had the highest average monthly 4G mobile data use per 4G connection, of all our comparator countries in 2015, at 4.6GB

Average monthly 4G mobile data use was 2.8GB in the UK in 2015, eighth among our comparator countries. The majority of the countries saw an increase in 2016, and 4G data use in Poland and the US almost doubled compared to the previous year. In the UK, the average monthly 4G mobile data use per 4G connection increased by 2.1% in 2015.

**Figure 3.7 Average monthly 4G data use per 4G connection: 2015**



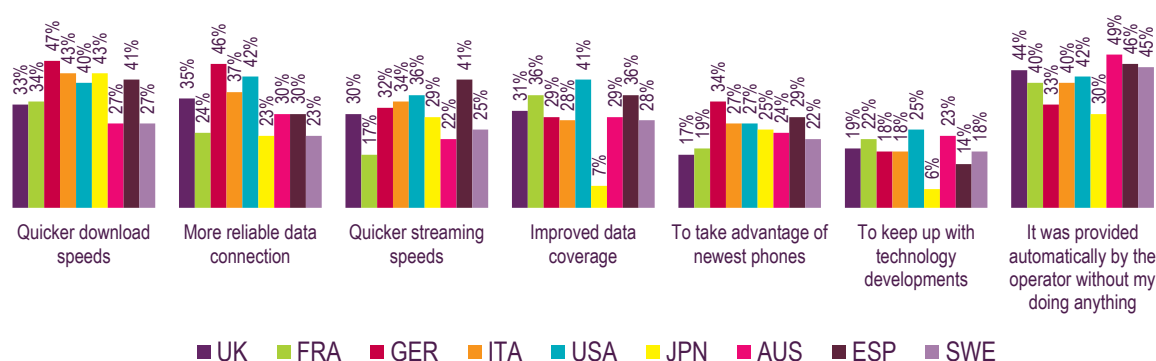
Source: IHS

## In the UK, 33% of respondents chose 4G for its quicker download speed in 2016

In the UK, the most common reason for choosing 4G, among respondents who either had or were likely to get a 4G service, was that the operator automatically provided the service to them (44% of respondents). Around three in ten respondents in the UK chose 4G for its quicker download or streaming speed, more reliable data connection or improved data coverage. Less than two in ten respondents in the UK chose 4G in order to take advantage of the latest handsets or to keep up with technology developments (17% and 19% respectively).

**Figure 3.8 Reasons for choosing 4G: 2016**

Proportion of respondents who have or are likely to get 4G (%)



Source: Ofcom consumer research, 2016

Base: All respondents who have or are likely to get a 4G contract, UK=609, FRA=607, GER=419, ITA=689, USA=666, JPN=424, AUS=680, ESP=705, SWE=659

Q.26 You said that you have/ are likely to get a 4G service [in the next 12 months]. Which of the following are reasons why you got/ are likely to get a 4G contract?

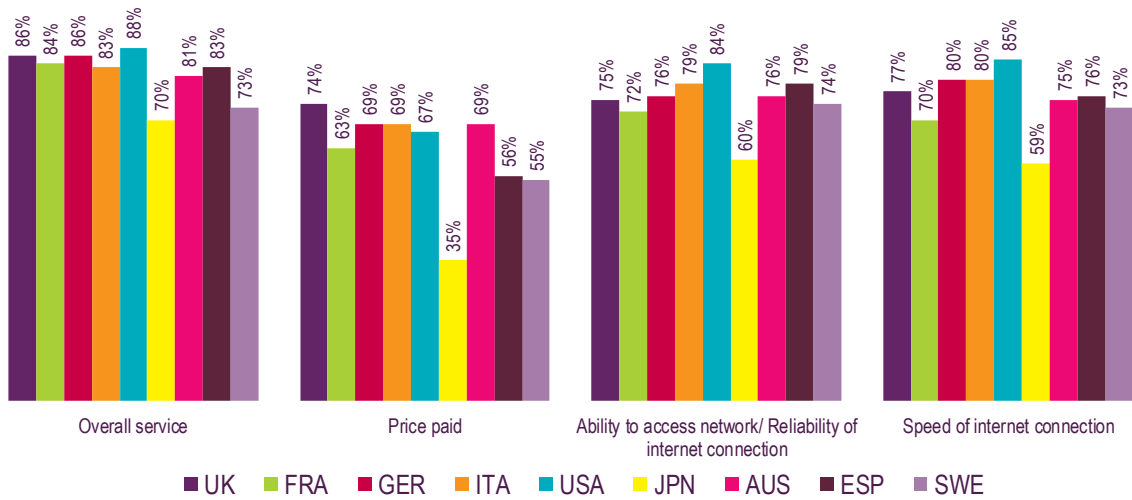
## In the UK, over eight in ten respondents with 4G services on their smartphone were satisfied with the overall service

In all our comparator countries, a higher proportion of people with 4G indicated they were satisfied with their overall mobile service than with the price paid. At least eight in ten respondents said they were satisfied with their service in all countries except Japan (70%) and Sweden (73%).

The UK had comparatively high levels of satisfaction with the price paid for mobile phone services (74%), while satisfaction with the reliability, and the speed of the internet connection were 75% and 77% respectively.

**Figure 3.9 Satisfaction with 4G mobile phone services: 2016**

Proportion of those with 4G on their smartphone (%) – net rating 8-10 on aspects of service



Source: Ofcom consumer research, 2016

Base: All respondents with a smartphone who are on a 4G network, UK=455, FRA=454, GER=290, ITA=466, USA=485, JPN=331, AUS=515, ESP=507, SWE=523

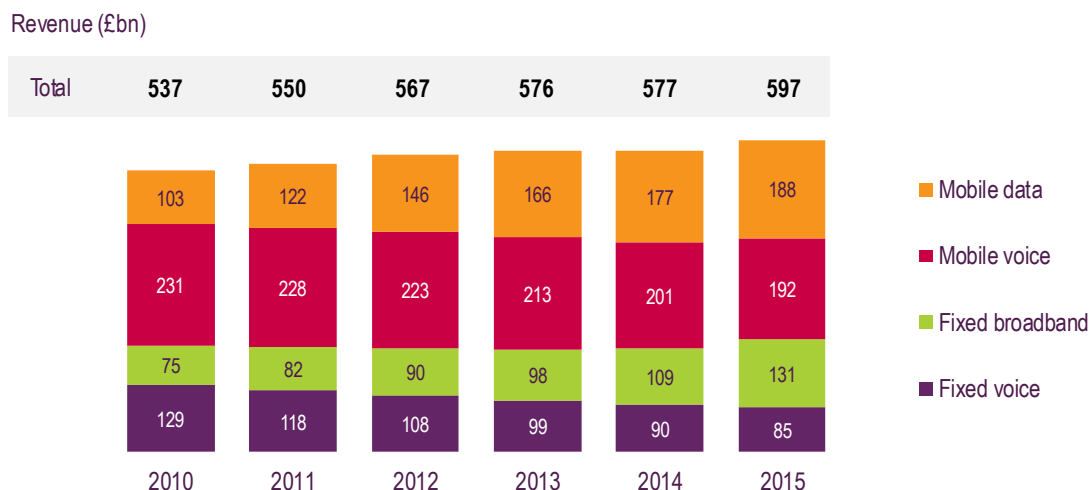
Q.27 To what extent are you satisfied or dissatisfied with the following aspects of your mobile phone service?

## 3.2 The telecoms industry

### Mobile voice and mobile data services generated 63.8% of total telecoms revenues across our comparator countries in 2015

Total retail telecoms revenues across our comparator countries were £597bn in 2015. Mobile voice services generated the greatest proportion of this total in 2015, at 32.2% (£192bn), followed by mobile data at 31.6% (£188bn), while fixed broadband contributed 22.0% (£131bn) and fixed voice 14.2% (£85bn).

**Figure 3.10 Total comparator country retail telecoms revenues, by sector: 2010 - 15**



Source: IHS / industry data / Ofcom

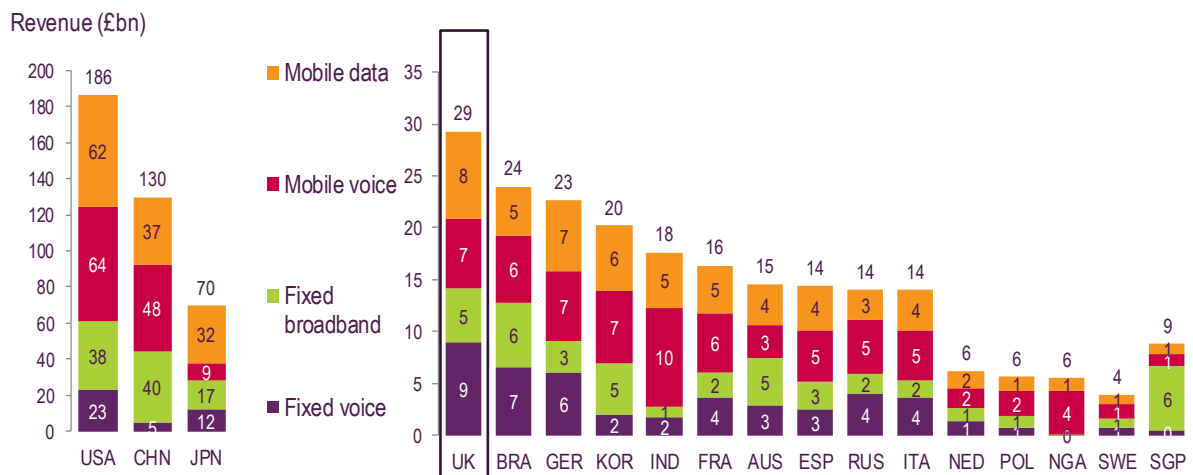
Note: Fixed voice revenues include managed VoIP revenues; fixed and mobile voice revenues include access/line rental revenues and may include revenues relating to bundled data services. All figures expressed in nominal terms.

### The UK had the fourth highest retail telecoms revenues of all comparator countries in 2015

The US had the highest retail telecoms revenues of all comparator countries, at £186bn in 2015. Between them, the US and China generated more than half (52.9%) of the total. The UK generated £29bn, the fourth highest total of our comparator countries. Mobile services (mobile data and mobile voice) made up the greatest proportion of telecoms revenues in all the countries we looked at, except for Australia and Brazil. In Australia, fixed broadband, while in Brazil, fixed voice made up the greatest proportion.



**Figure 3.11 Telecoms service retail revenues, by country and sector: 2015**



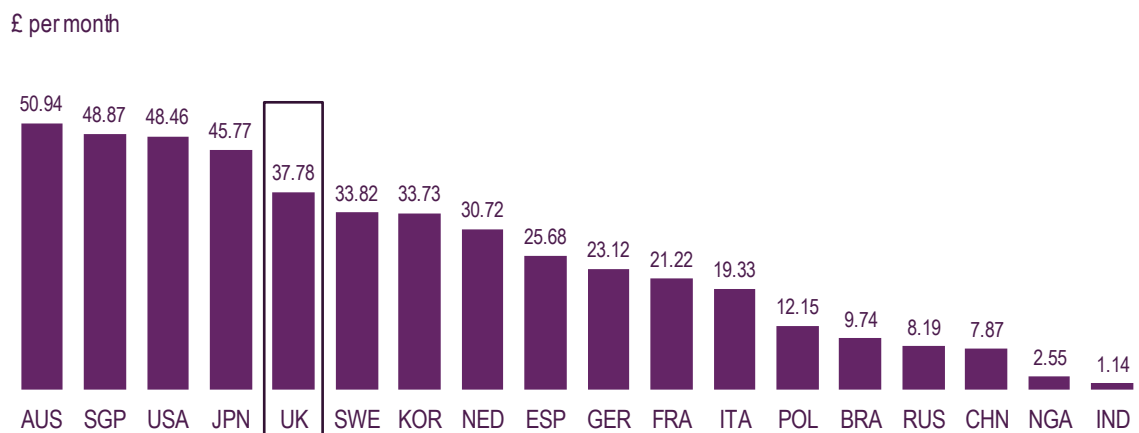
Source: IHS / industry data / Ofcom

Note: Fixed voice revenues include managed VoIP revenues. All figures expressed in nominal terms.

**The UK had the fifth highest per-capita monthly telecoms service revenues, of all the comparator countries, in 2015**

The UK had the fifth highest average telecoms revenues of the comparator countries, at £37.78 per person per month. Revenues were lowest among the BRIC countries and Nigeria.

**Figure 3.12 Per-capita monthly telecoms service revenues: 2015**



Source: IHS / industry data / Ofcom.

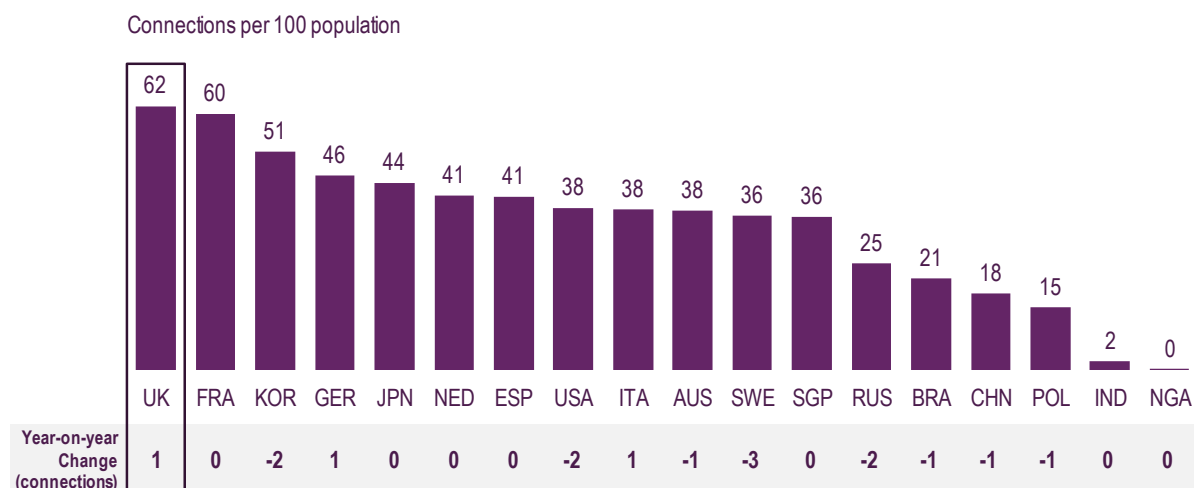
Note: Includes spend by businesses, and is therefore not representative of average consumer spend; all figures expressed in nominal terms.

## 3.3 Fixed voice services

**The UK had the highest number of fixed voice connections per 100 people, of all comparator countries, in 2015**

The UK had 62 fixed voice connections per 100 people (including managed VoIP) in 2015, up one connection since 2014. The UK was one of only three comparator countries where fixed voice take-up increased (alongside Germany and Italy).

**Figure 3.13 Fixed voice connections per 100 people: end of 2015**



Source: IHS / industry data / Ofcom

Note: Includes managed VoIP connections

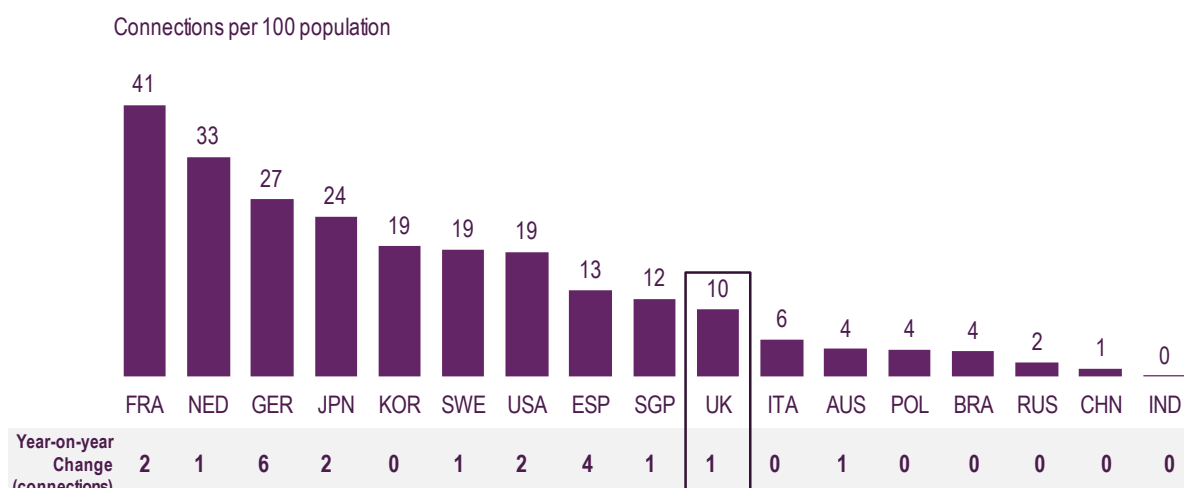
**France had the highest number of managed VoIP<sup>84</sup> connections per 100 people in 2015**

The UK had ten managed VoIP<sup>85</sup> connections per 100 people in 2015, up by one connection since 2014. In the majority of our comparator countries the number of managed VoIP connections per 100 people had increased since 2014, only in South Korea and Brazil did this measure decline.

<sup>84</sup> Managed VoIP refers to the provision of a packet-switched voice over internet protocol (VoIP) service over a fixed broadband network such as xDSL, FTTP and cable. Managed VoIP includes VoIP as a primary service (such as VoIP over FTTP or naked xDSL) and as a secondary service (such as VoIP over xDSL, where the subscriber also pays a monthly fee for a PSTN line). OTT VoIP services consumed over fixed broadband connections, such as Skype, are not included within the definition of managed VoIP because they do not support emergency calling and are therefore not marketed as landline replacement services.

<sup>85</sup> The *Narrowband Market Review* consultation document stated that in the UK, managed VoIP is not used in the residential sector to any significant extent.

**Figure 3.14 Managed VoIP connections per 100 people: end of 2015**



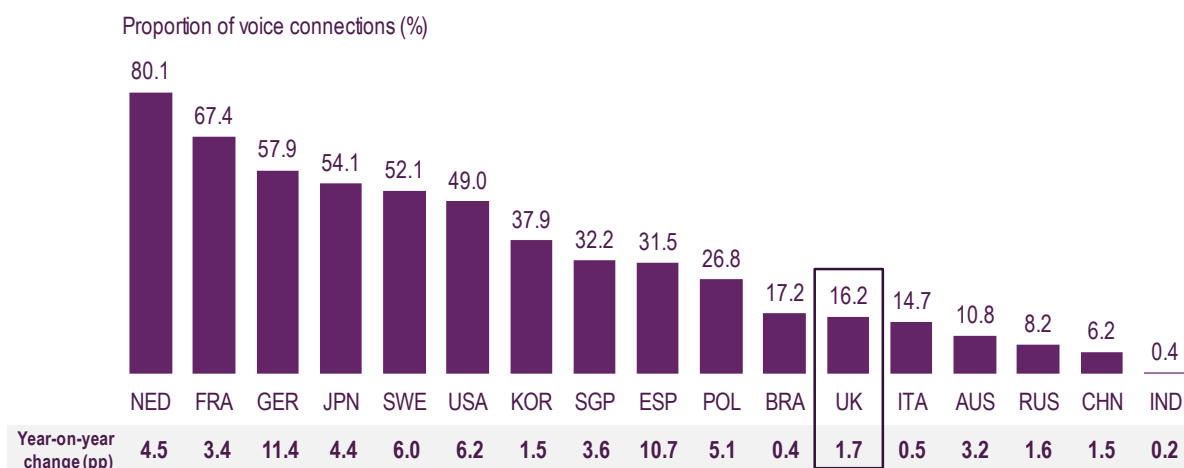
Source: IHS / industry data / Ofcom

Note: Nigeria is not shown on the chart as it has no managed VoIP connections.

**The proportion of total fixed voice connections that were managed VoIP increased in all comparator countries in 2015**

At 80.1%, the Netherlands had the highest percentage of managed VoIP connections as a proportion of total fixed voice connections in 2015, up by 4.5pp since 2014. India was the lowest, at less than 1%. In the UK, managed VoIP connections made up only 16.2% of the total, twelfth among the 17 comparator countries. However, the UK proportion had increased, by 1.7pp, since 2014. Germany experienced the highest increase, at 11.4pp, followed by Spain at 10.7pp.

**Figure 3.15 Proportion of total voice connections that are managed VoIP: end-2015**



Source: IHS / industry data / Ofcom

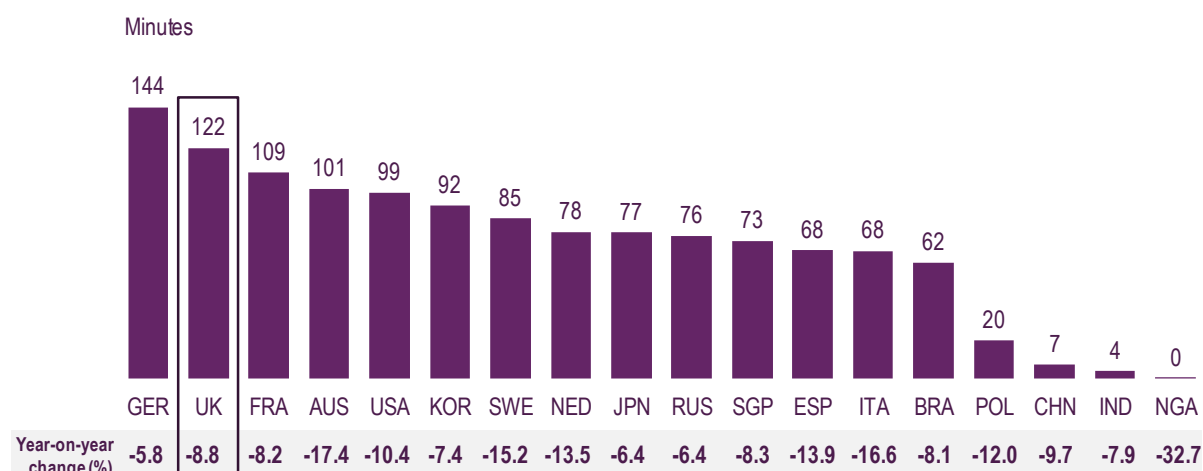
Note: Nigeria is not shown on the chart as it has no managed VoIP connections.

**Germany had the highest average minutes of monthly fixed voice calls in 2015**

The average number of monthly fixed voice call minutes per person ranged from less than one minute in Nigeria, to just over 144 minutes in Germany. The UK ranked second among our comparator countries, at 122 minutes per person per month. However, this was down by 12 minutes per month (8.8%) since 2014. All other comparator countries experienced declining fixed voice use in 2015, largely due to the continued substitution of fixed voice services with mobile voice services, and growth in the use of alternative communication

methods. While Nigeria had the largest proportional year-on-year fall (32.7%), this was only a small decrease in volume terms.

**Figure 3.16 Per capita monthly fixed voice call minutes: 2015**

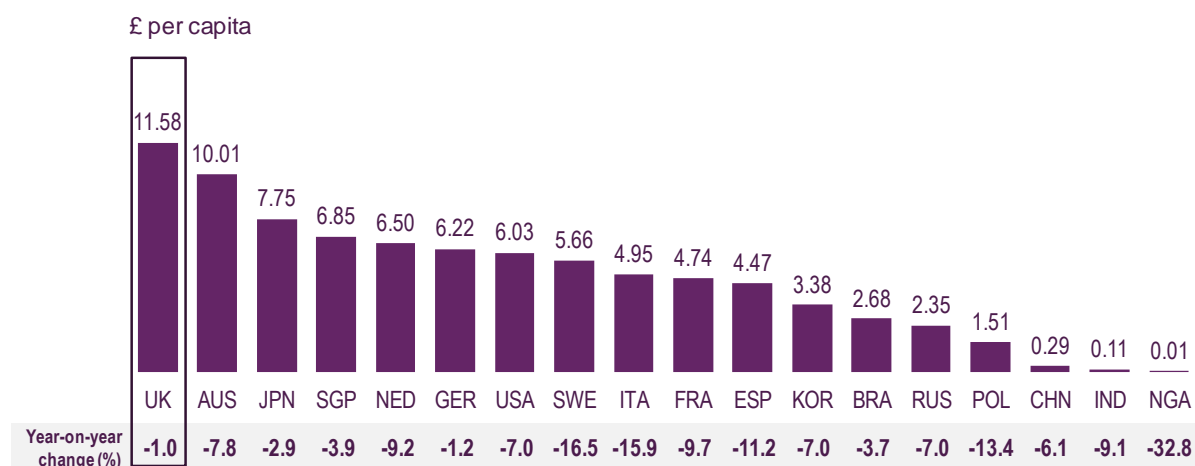


Source: IHS / industry data / Ofcom.  
Note: Includes managed VoIP calls.

**The UK had the highest average per-capita revenue for fixed voice services in 2015**

The highest average revenue for fixed voice services (including managed VoIP services) was generated in the UK in 2015, at £11.58 per person per month. It was lowest in China, India and Nigeria, at less than £1 per person in all three countries. As shown in Figure 3.16, monthly fixed voice call minutes per capita were also lowest in these countries.

**Figure 3.17 Average monthly per-capita fixed voice revenues: 2015**

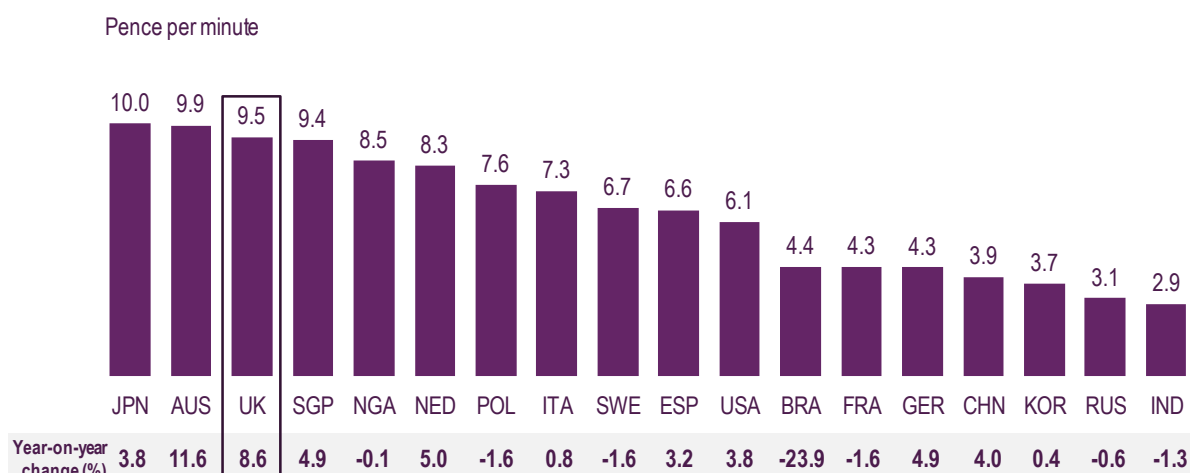


Source: IHS / industry data / Ofcom  
Note: Includes managed VoIP revenues. All figures expressed in nominal terms.

**The UK had the third-highest average price of a fixed voice call minute, among our comparator countries, in 2015**

At 10 pence per minute, the average price of a fixed voice call minute was highest in Japan (though similar to Australia at 9.9 pence). Conversely, it was lowest in India, at 2.9 pence. The UK had the third highest price, at 9.5 pence per minute in 2015, an 8.6% increase compared to 2014.

**Figure 3.18 Average price of a fixed voice call minute: 2015**



Source: IHS / industry data / Ofcom

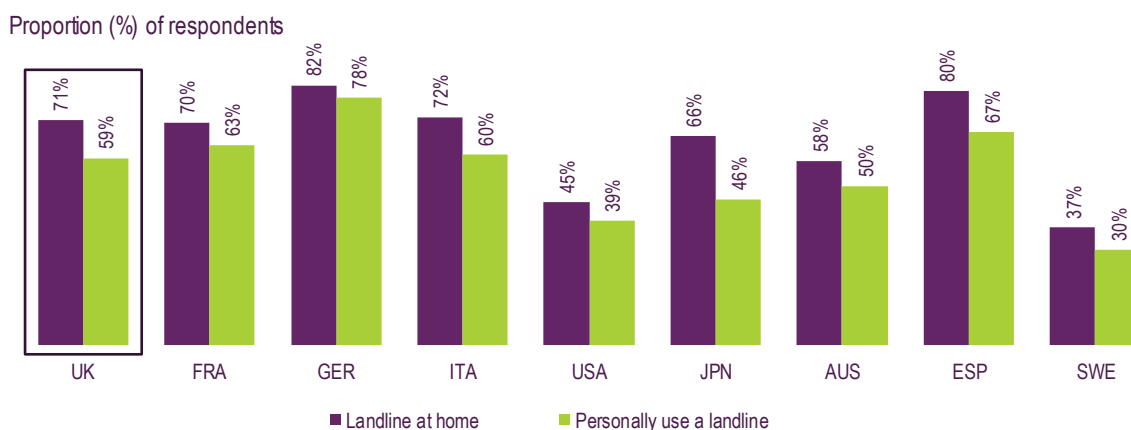
Note: Includes managed VoIP calls. All figures expressed in nominal terms.

**Twelve per cent of respondents in the UK did not use their household landline in 2016**

Across all our comparator countries, the proportion of people who said they personally used fixed telephony services was lower than the proportion who said they had a landline in their home. In some countries these differences may be driven by the fact that a landline is often required to buy fixed broadband services, so consumers may subscribe to a landline service even if they do not use it for fixed telephony services.

The proportion of respondents who indicated that they have a landline in their home ranged from 37% in Sweden to 82% in Germany. Similarly, the proportion of respondents who used a landline for fixed telephony services ranged from 30% in Sweden to 78% in Germany. In the UK, 71% of respondents said they had a landline, with 59% personally using it. This means that 12% of respondents in the UK did not use their household landline in 2016.

**Figure 3.19 Household take-up and personal use of fixed telephony services: 2016**



Source: Ofcom consumer research, 2016

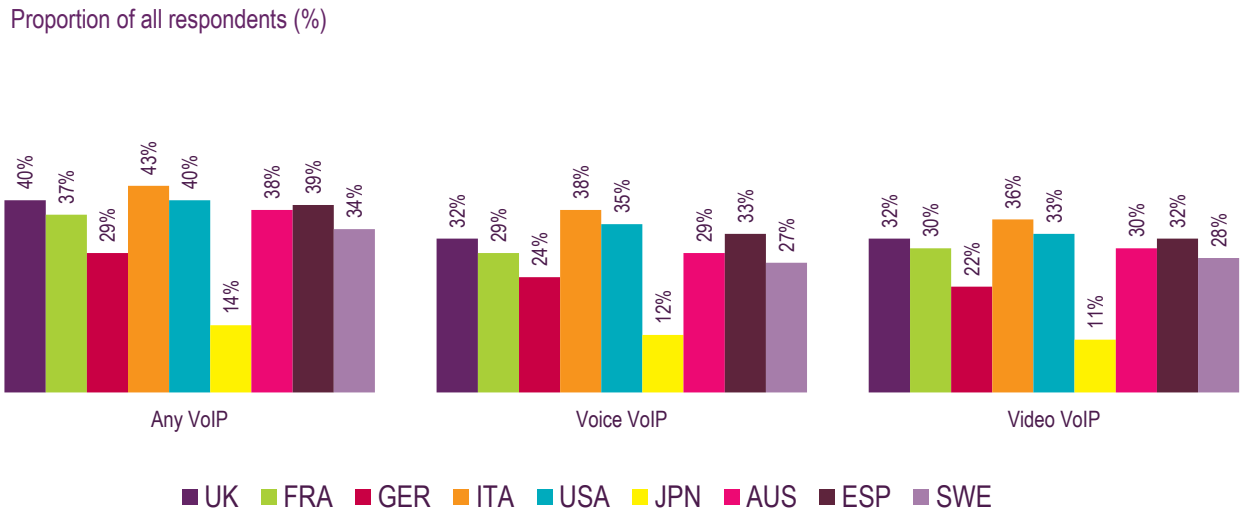
Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

Q.4bi Which of the following services do you have in your home? Q.4bii Which of the following services do you personally use at home or elsewhere?

**In the UK, 40% of respondents claimed to use voice or video calls through VoIP services at least once a week**

In the UK, two in five respondents said they used VoIP services for voice or video calls at least once a week. Equal proportions (32%) used them for voice calls and for video calls. VoIP use in Japan was lower than in all the other comparator countries.

**Figure 3.20 Use of VoIP services at least once a week: 2016**



Source: Ofcom consumer research, 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

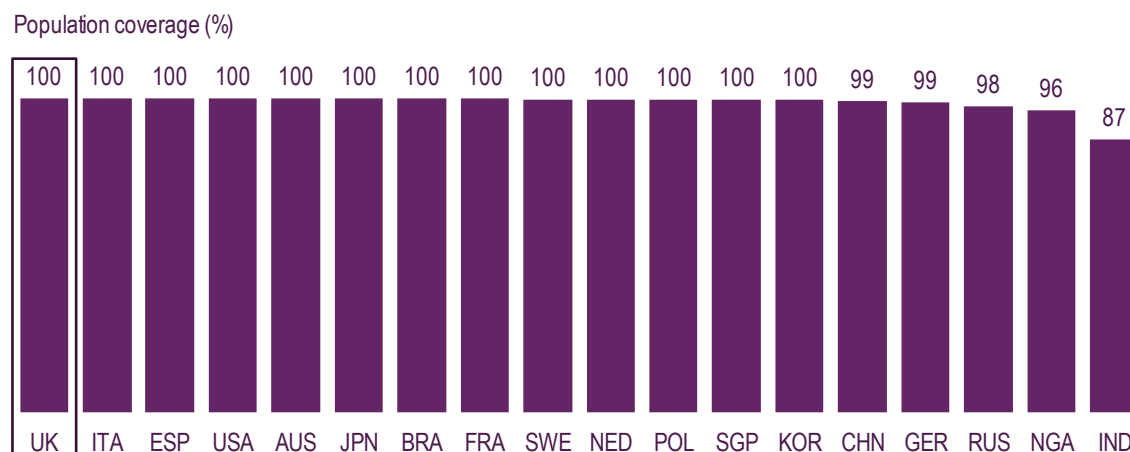
Q.9 How often do you use the internet on any of your devices for each of the following activities? Any VoIP, making voice calls (not video) through VoIP services, making video calls through VoIP services: at least once a week

## 3.4 Mobile voice and messaging services

The majority of our comparator countries had 99% or higher population coverage<sup>86</sup> of 2G

Fifteen of our 18 comparator countries had 2G population coverage of 99% or higher at the end of 2015: only in Russia, Nigeria and India was 2G availability lower (at 98%, 96% and 87% respectively).

**Figure 3.21 2G mobile network availability: end-2015**



Source: IHS / industry data / Ofcom

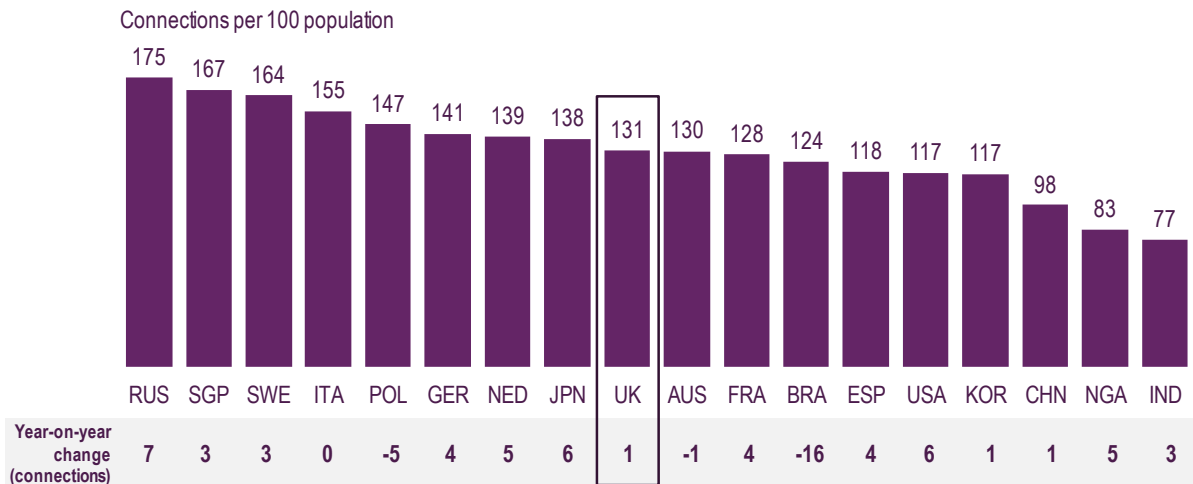
The majority of our comparator countries had more mobile connections than people in 2015

The number of mobile connections per 100 people ranged from 77 in India to 175 in Russia in 2015. The UK was ninth of 18, with 131 mobile connections per 100 people. In only three countries (Poland, Australia and Brazil) did the number decrease between 2014 and 2015. Brazil had the greatest decrease, down by 16 connections, following a purge of inactive pre-pay mobile connections. In comparison, Russia experienced the greatest increase, up by seven connections per 100 people.

<sup>86</sup> Outdoor coverage by at least one operator, geographic coverage would be lower. The UK figure differs from the 67% stated in our *Connected Nations 2016* report, which measures indoor coverage by all operators, voice and text (incl. VoLTE).



**Figure 3.22 Mobile connections per 100 people: end of 2015**



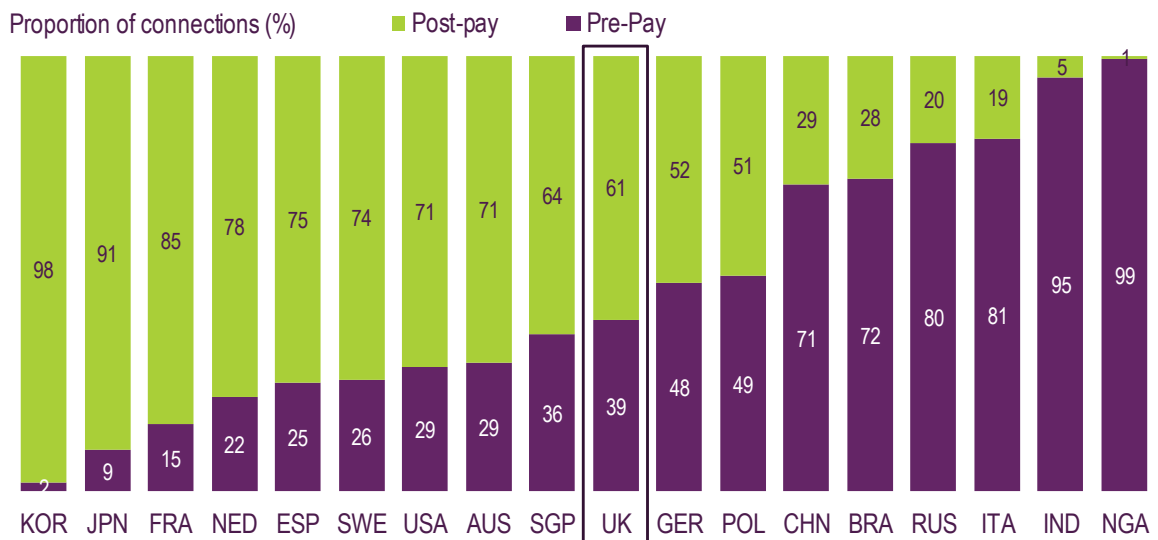
Source: IHS / industry data / Ofcom

**Over 60% of mobile connections in the UK were post-pay in 2015**

The proportion of mobile connections that were post-pay grew in most of our comparator countries in 2015. This proportion was highest in South Korea, where 98% of connections were post-pay. This compares to 61% in the UK, up 1.7pp compared to 2015, and ranking the UK tenth of the 18 countries.

Conversely, the proportion of mobile connections that were pre-pay was highest in Nigeria, at 99% in 2015. In general, pre-pay connections tend to be more popular in developing countries, probably because they give consumers more flexibility due to the lack of an ongoing financial obligation as well as the increased likelihood of consumers not having easy access to a bank account.

**Figure 3.23 Mobile connections, by type: end of 2015**

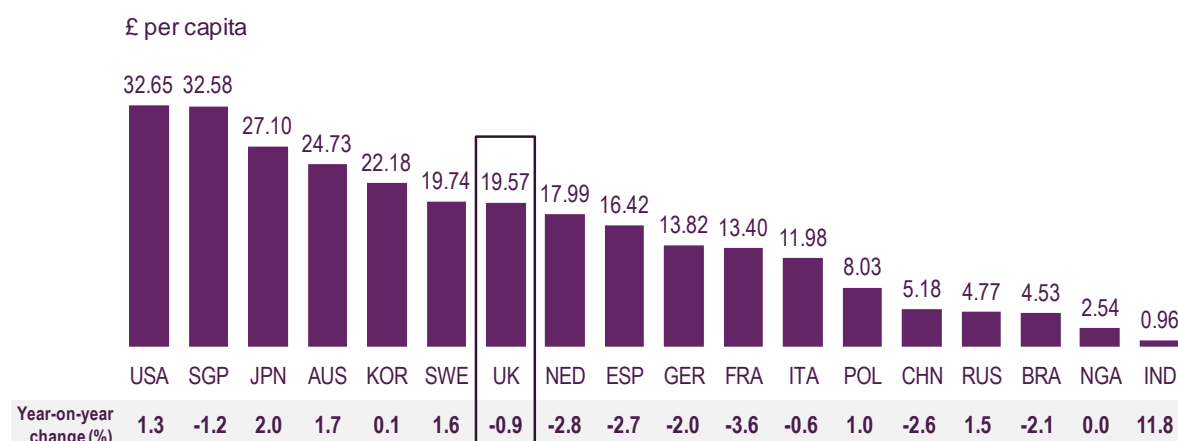


Source: IHS / industry data / Ofcom

## Average per-capita monthly mobile retail revenue in the UK was £19.57 in 2015

Per-capita spend on mobile services ranged from £32.65 per month in the US to less than £1 per month in India in 2015. In the UK, the average spend was £19.57 per person – the seventh highest of our comparator countries.

**Figure 3.24 Average per-capita monthly retail mobile revenue: 2015**



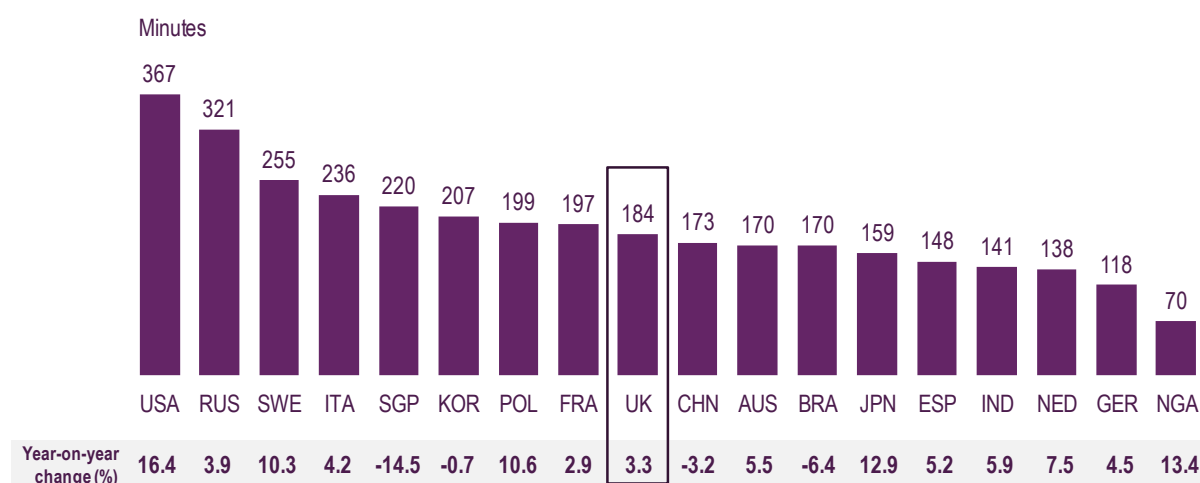
Source: IHS / industry data / Ofcom.

Note: All figures expressed in nominal terms.

## Most comparator countries saw an increase in the number of average monthly mobile call minutes per person

Average outgoing per-capita mobile call minutes were highest in the US in 2015, at 367 per month; the US also had the largest percentage increase since 2014 (16.4%). Average outgoing monthly mobile call minutes per person increased in the majority of our comparator countries in 2015, with the exception of Singapore, South Korea, China and Brazil. In the UK, average use increased by 3.3% to 184 minutes per person, putting the UK ninth highest of the comparator countries.

**Figure 3.25 Average per-capita monthly mobile voice call minutes: 2015**



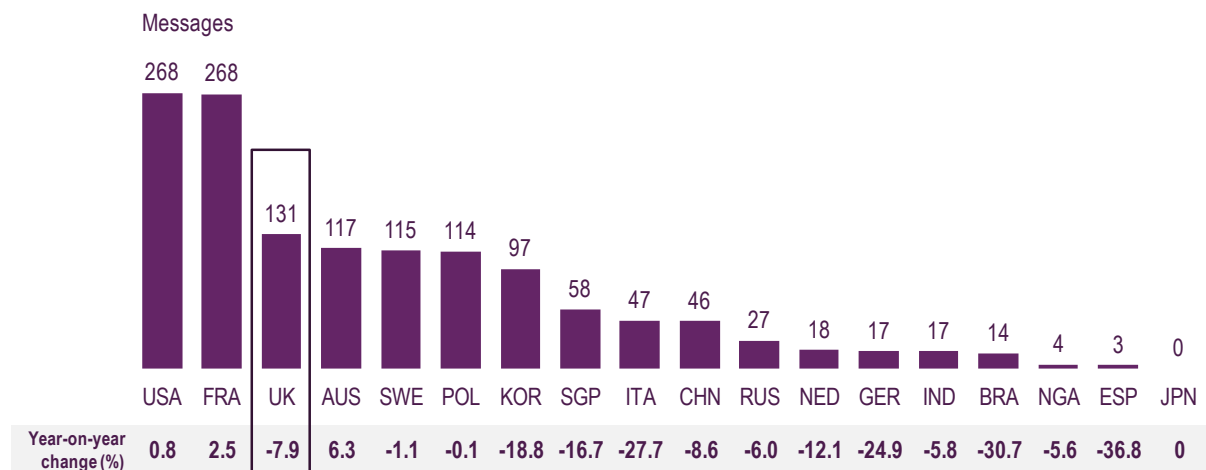
Source: IHS / industry data / Ofcom

## The UK had the third highest average number of monthly mobile messages per person

The average number of monthly mobile messages per person (which includes SMS and MMS messages) ranged from zero in Japan (where, as mentioned earlier, consumers tend

to use email and instant messaging rather than traditional mobile messaging services) to 268 in the US and France. The UK had the third highest average mobile messaging use among the comparator countries, with 131 messages per person per month. In only three countries (the US, Australia and France) was there a year-on-year increase, while all the other countries saw a decline (down 7.9% in the UK). This decline was mainly due to increasing smartphone take-up, as these devices enable consumers to access alternative text-based services, such as email and instant messaging.

**Figure 3.26 Average per-capita monthly mobile messages: 2015**



Source: IHS / industry data / Ofcom

Note: Includes SMS and MMS

**In the majority of our comparator countries SMS text messaging was the most popular regular activity undertaken on a mobile phone**

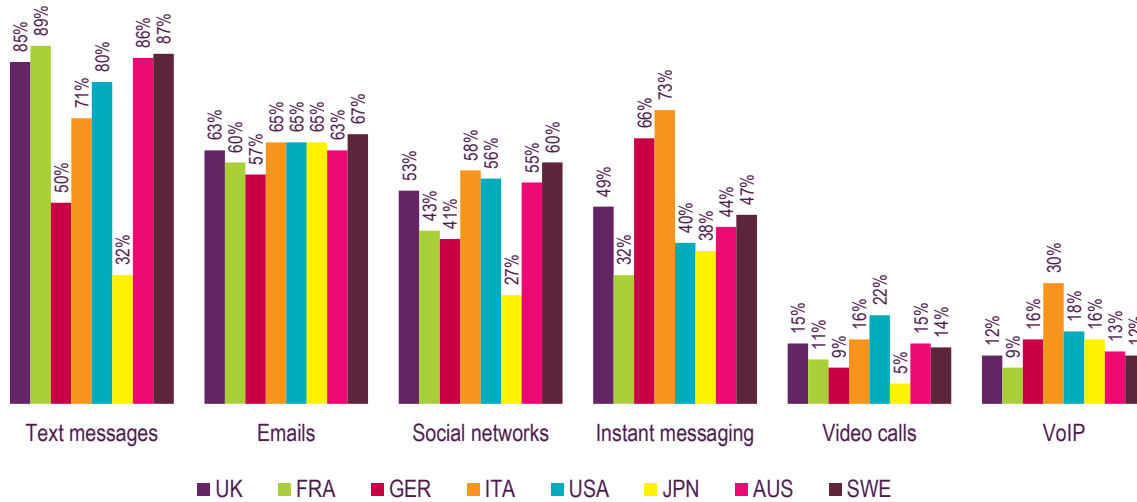
In five out of eight of the comparator countries in which our consumer research took place, SMS text messaging was the most common communication activity undertaken at least once a week on a mobile phone. Eight in ten or more mobile phone users aged 18-75 in these countries reported texting at least once a week. In the UK, the majority (85%) cited texting at least weekly, compared to around half (49%) for instant messaging.

Email was a popular activity across our comparator countries, with more than half of respondents in all eight countries claiming to use email on their phone at least once a week. In the UK 63% of respondents said that they regularly did this.

Across our comparator countries, VoIP and video calls were less likely to be regularly undertaken on a mobile phone than text messages, emails, social networking or instant messaging. In the UK VoIP was 12%, and video calls 15%.

**Figure 3.27 Communication activities on a mobile phone at least once a week: 2016**

Proportion of those with a mobile phone (%)



Source: Deloitte Global Mobile Consumer Survey 2016

Base: All adults 18-75 who have a phone or smartphone

UK=3712, GER=1838, JPN=1431, AUS=1864, ITA=1862, SWE=1906, FRA=1847, USA=1774

Q.34 Please state which, if any, you have used (at least once a week)?

Note: Text messaging is not relevant for Japan, as respondents may have confused text messaging with similar services that are available.

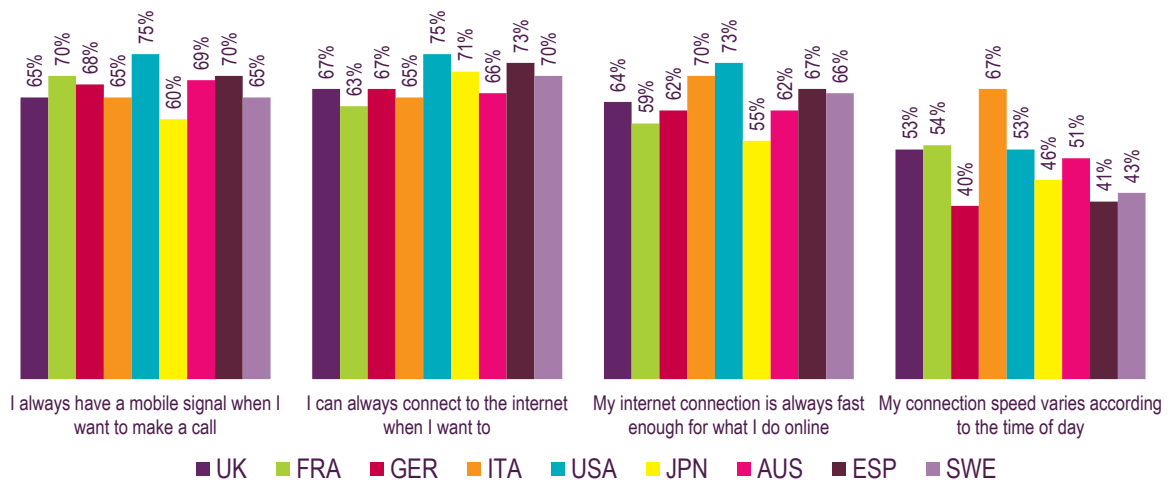
### Two-thirds of mobile users in the UK stated that they always have a mobile signal

In the UK, around two-thirds of mobile users claimed that they always had a mobile signal when they wanted to make a voice call, that they could always connect to the internet on their mobile network when they wanted to, and that they had a fast-enough internet connection.

Of our comparator countries, the US had the highest proportion of respondents who claimed to always have a mobile signal when they wanted to make a voice call (75%). Italy had the highest proportion of mobile users who found that mobile speed varied according to the time of the day (67%). In the UK, 53% of respondents said that their mobile speed varied throughout the day.

**Figure 3.28 Mobile phone connectivity: 2016**

Proportion of those with a mobile phone (%)



Source: Ofcom consumer research, 2016

Base: All respondents who use a smartphone or mobile phone, UK=799, FRA=825, GER=861, ITA=939, USA=782, JPN=759, AUS=851, ESP=877, SWE=854 (mobile signal). Base: all respondents who use a smartphone, UK=730, FRA=781, GER=791, ITA=922, USA=695, JPN=740, AUS=794, ESP=873, SWE=811 (internet connection)

Q.24 Thinking about when you use your mobile phone, please select an answer to each of the following...

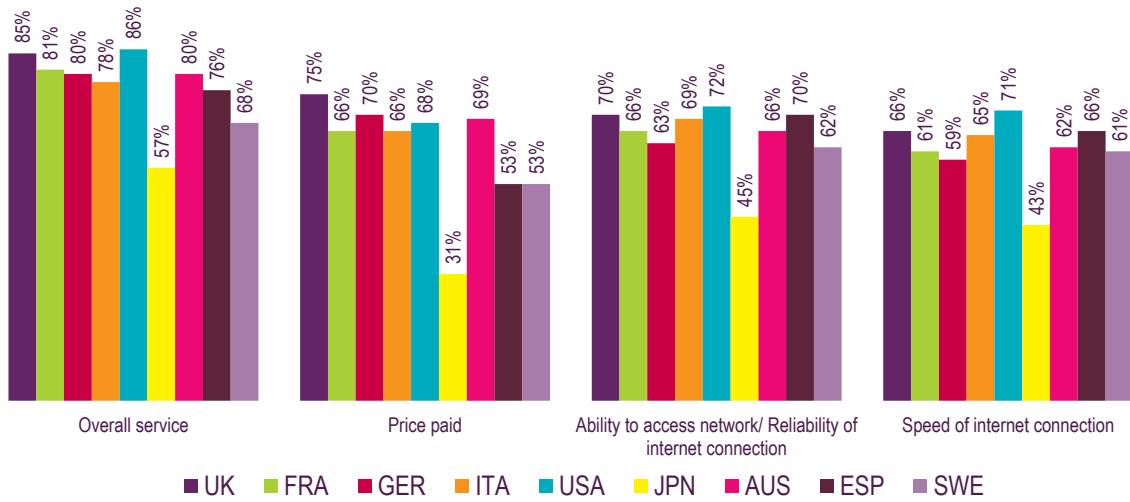
**Eighty-five per cent of respondents in the UK indicated that they were satisfied with their overall mobile service**

Consumer satisfaction with different aspects of mobile services was comparatively high in the UK, with more than six in ten respondents saying that they were either very, or fairly, satisfied with the price paid for their mobile service, the ability to access the network and the speed of their internet connection.

Overall satisfaction with mobile services was 80% or higher in five out of nine of our comparator countries in which our consumer research took place, with the UK at 85%. By comparison, satisfaction levels with all of the mobile service aspects we asked about were low in Japan, particularly in relation to price (31%).

**Figure 3.29 Satisfaction with mobile service: 2016**

Proportion of those with a mobile phone (%) – very or fairly satisfied with aspects of service



Source: Ofcom consumer research, 2016

Base: All respondents with a mobile phone, UK=799, FRA=825, GER=861, ITA=939, USA=782, JPN=759, AUS=851, ESP=877, SWE=854

Q.27 To what extent are you satisfied or dissatisfied with the following aspects of your mobile phone service?

## 3.5 Broadband services

This section benchmarks the UK's performance against that of comparator countries, in terms of various fixed and mobile broadband market indicators.<sup>87</sup>

In previous years, the *European Broadband Scorecard* has been published as a stand-alone report, comparing broadband development across EU countries. However, this year we have included the Scorecard as a section within the Telecoms chapter of the *International Communications Market Report*, and have widened its scope by including additional non-EU comparator countries. In addition to the data on the 18 countries included in this report, we have included Portugal, to provide an example of a country where duct and pole access already exists. Our aim is to provide a more comprehensive view of the development of fixed and mobile broadband infrastructure and services in different countries.<sup>88</sup>

We focus on the UK's position using broadband metrics including coverage, take-up, speed and choice, wherever sufficiently comparable, reliable and consistent data are available. A comparison of fixed broadband service pricing can be found in the *International pricing benchmarking* chapter of the report (Chapter 2).

For the purpose of continuity with previous reports, we also compare the metrics for the EU5 and EU28,<sup>89</sup> where such data are available.

### 3.5.1 Coverage

**The UK was one of eight comparator countries where ADSL was available to 99% or more households in 2015.**

In eight of our comparator countries, including the UK, ADSL networks have been deployed to 99% or more households.<sup>90</sup> Nigeria was the only comparator country in which ADSL networks had been deployed to less than half of all households (4%), although coverage there had increased marginally since 2014.

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<sup>87</sup> Mobile broadband includes all data connections made via 3G or 4G cellular networks, including those made via mobile handsets and using dedicated mobile data dongles and SIMs.

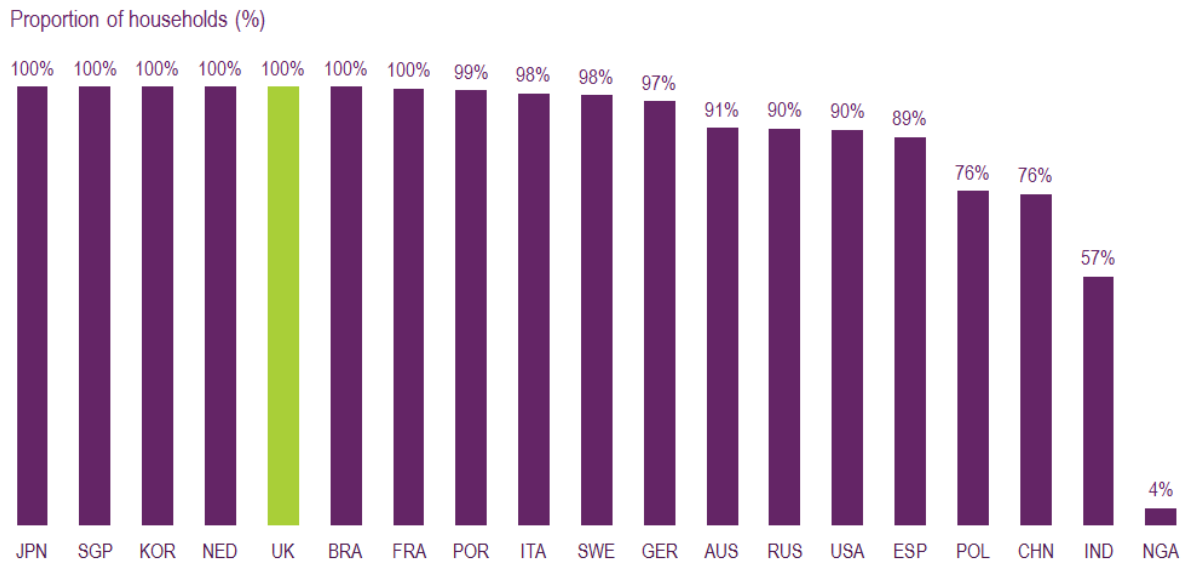
<sup>88</sup> Portugal (in addition to Spain and France) has used duct access to build extensive FTTP networks, encouraging innovation and providing improved service quality and faster broadband speeds. [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0021/63444/digital-comms-review.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0021/63444/digital-comms-review.pdf)

<sup>89</sup> The EU5 and EU28 appendices can be found here: <https://www.ofcom.org.uk/research-and-data/broadband-research/eu-broadband-scorecard>

<sup>90</sup> It is important to note that some premises in ADSL-enabled areas may not be able to receive broadband services, or may only be able to access very low speeds due to reasons such as long length, or poor quality, of the copper telephone line from the premises to the local exchange.



**Figure 3.30 Percentage of households in areas served by ADSL broadband: year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. All figures have been rounded to the nearest whole number.

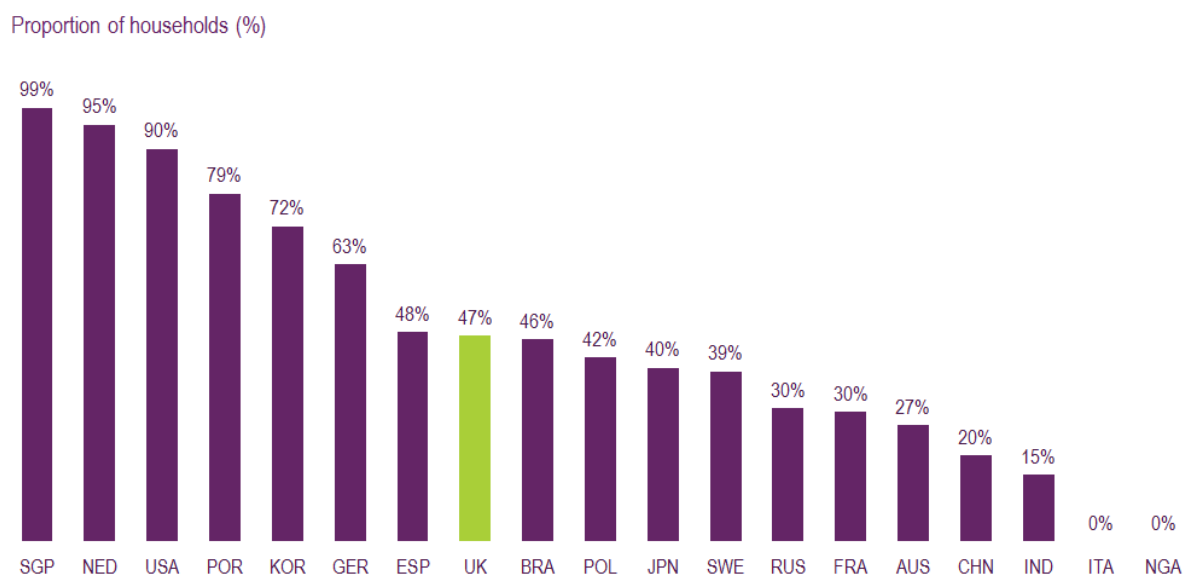
### The UK ranked eighth in cable broadband coverage

Singapore had the highest coverage of cable broadband network, deployed largely by StarHub Ltd, at 99% of households at the end of 2015.

The Netherlands had the second highest cable availability, at 95%, followed by the US (90%), while the UK ranked eighth (47%). In the UK, Virgin Media (the largest cable broadband provider), is extending its DOCSIS3.1 network through 'Project Lightning',<sup>91</sup> which is expected to extend cable and FTTP to up to 60-65% of UK premises by 2020.

<sup>91</sup> <http://www.virginmediabusiness.co.uk/news-and-events/news/news-archives/2015/Virgin-Media-and-Liberty-Global-announce-largest-investment-in-UKs-internet-infrastructure-for-more-than-a-decade/>

**Figure 3.31 Percentage of households in areas served by cable broadband: year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. All figures have been rounded to the nearest whole number.

### The UK ranked fifth in terms of fibre network availability

All our comparator countries have been focusing on expanding their coverage of broadband networks to provide faster broadband access to more of their population, and adopting different investment approaches to network deployment. In some countries, network deployment initiatives have been funded by service providers and/or launched through public-private partnerships, while in many others, publicly-funded projects have been launched to expand networks into areas where commercial investment is not viable.

In the UK, total household fibre availability (which includes VDSL and some fibre-to-the-premises) was 84% at the end of 2015, an increase of four percentage points since the end of 2014. Among all the comparator countries, the UK ranked fifth, behind the Netherlands (100%), South Korea (100%), Japan (97%) and Singapore (95%).

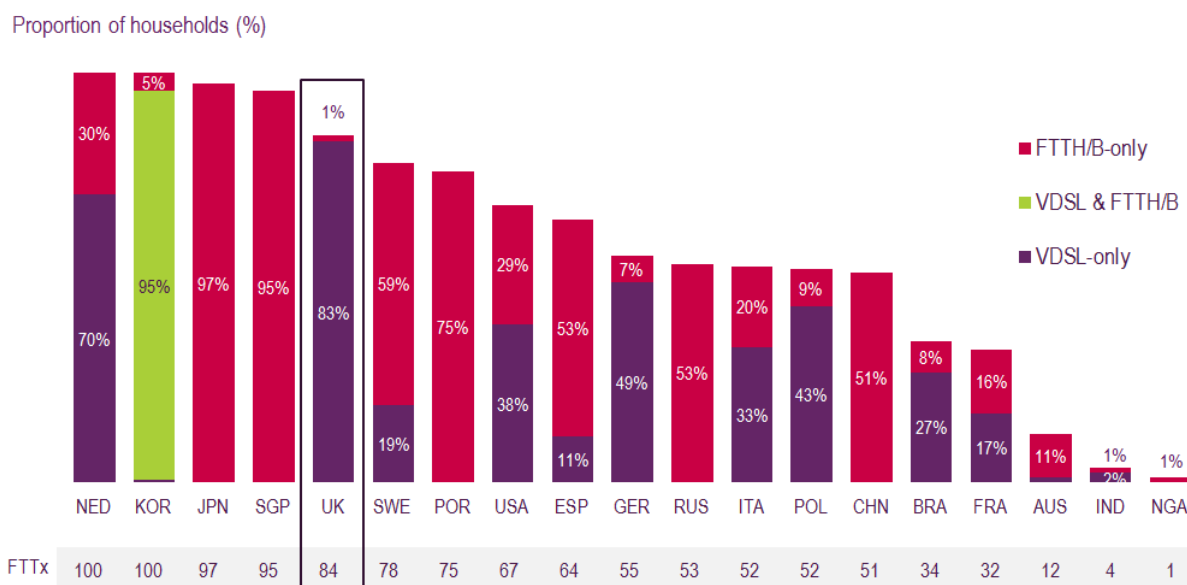
The UK ranked second in terms of VDSL coverage, at 83% of households, an increase of four percentage points since 2014, behind South Korea (95%). The Netherlands, which led the overall availability of FTTx, ranked third on VDSL (70%), followed by Germany (49%) ranked fourth.

'Full fibre' technologies (FTTH/B) were available to just over 1% of UK households by the end of 2015,<sup>92</sup> lower than all the other comparator countries except India and Nigeria. This is in part a result of BT's decision to use VDSL for the last-mile connectivity of most of its fibre broadband network, rather than FTTH/B. In contrast to the UK, countries such as South Korea, Singapore and Japan had availability to over 95% households in 2015.

A number of providers, of varying scale and reach, are committed to deploying full fibre services and we would expect to see coverage increase over the coming year.

<sup>92</sup> In the *Connected Nations* 2016 report, we have reported that just under 2% of premises are covered by FTTP networks.

**Figure 3.32 Percentage of households in areas served by FTTx broadband networks (including VDSL and FTTH/B): year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. All figures have been rounded to the nearest whole number.

### UK superfast broadband availability increased in 2015, although it continued to lag behind countries such as South Korea, Japan and Singapore

At the end of 2015, standard fixed broadband services with an advertised speed of 10Mbit/s or more were available to almost all households in three comparator countries (South Korea, Japan and Singapore). Standard broadband with advertised speeds of 10Mbit/s or more was available to 97% of households in the UK, an increase of one percentage point (pp) since 2014. The UK ranked seventh in terms of availability of superfast broadband (SFBB) products (those with advertised speeds of 30Mbit/s or more), at 88% of households. Services with advertised speeds of 100Mbit/s or more were available to 48% of households in the UK.

In Ofcom's *Connected Nations 2016* report,<sup>93</sup> we state that 100%<sup>94</sup> of UK premises were able to receive fixed broadband<sup>95</sup> services by June 2016, and that 89% were able to receive superfast broadband services with an actual download speed of 30Mbit/s or higher.<sup>96</sup>

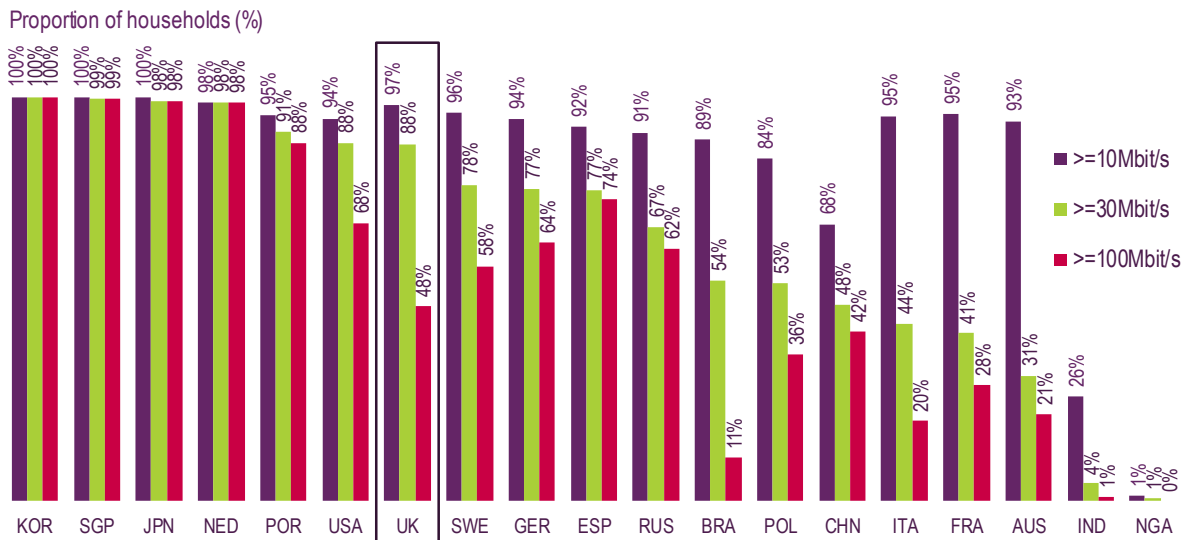
<sup>93</sup> <https://www.ofcom.org.uk/research-and-data/infrastructure-research/connected-nations-2016>

<sup>94</sup> There may be a very small number of UK residential properties that may not be able to receive broadband services, or may only be able to access very low speeds.

<sup>95</sup> Fixed broadband is a data service or connection generally defined as being 'always on' and providing a bandwidth greater than narrowband connections.

<sup>96</sup> We calculated this based on detailed premises-level data inputs provided by UK communications providers.

**Figure 3.33 Percentage of households passed by fixed broadband networks: year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next-generation access technologies. All figures have been rounded to the nearest whole number.

### Availability and adoption of ultrafast broadband<sup>97</sup> is increasing

For this report, we have defined ultrafast services as those delivering a download speed of 300Mbit/s or more,<sup>98</sup> delivered over fibre or hybrid fibre-coaxial cable networks.<sup>99</sup>

The deployment of ultrafast broadband has started to gather pace, although roll-out is largely limited to developed countries mainly in Asia-Pacific that already have high availability of superfast broadband. Singapore ranked first, with universal availability of ultrafast broadband, followed by South Korea at 98%, as at September 2016.

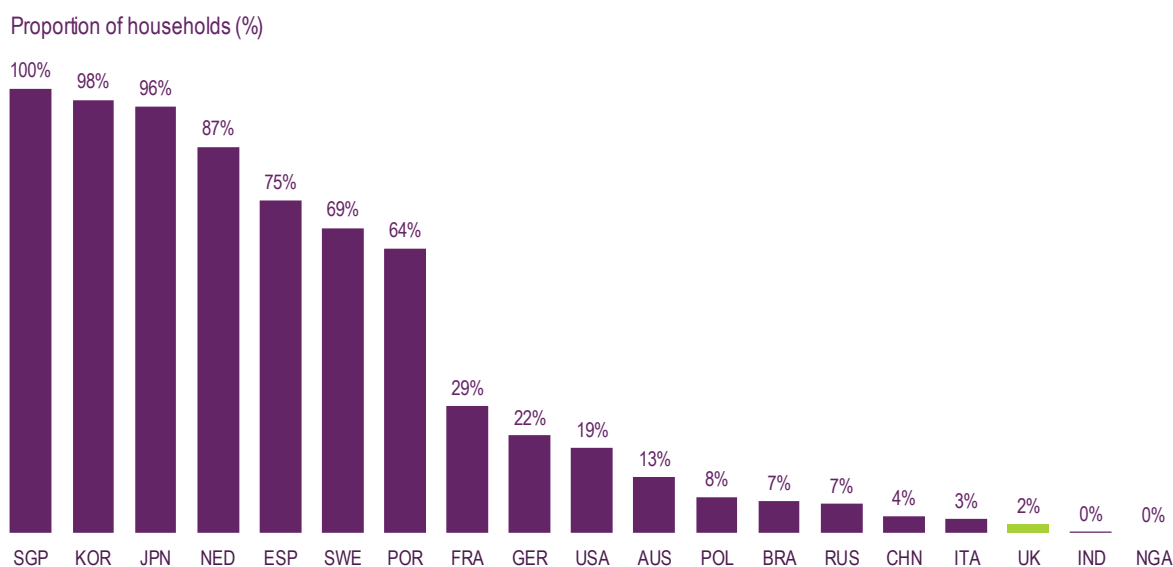
The availability of ultrafast broadband networks is relatively lower in Europe. Among our European comparator countries, only four had ultrafast household availability of 50% or more, with the Netherlands in the lead (87%) due to the availability of ultrafast cable broadband services followed by Spain (75%), Sweden (69%) and Portugal (64%). Among the EU5, France had the highest ultrafast availability at 29%. In the UK, ultrafast broadband was available to 2% of households, the lowest among all comparator countries except India and Nigeria.

<sup>97</sup> We were not able to obtain data on household availability of ultrafast broadband services from IHS (which provided the coverage-related metrics in the rest of this chapter) and we therefore use September 2016 figures provided by Analysys Mason, which are based on the availability of ultrafast networks capable of supporting advertised speeds of 300Mbit/s or higher. Due to the difference in methodology and time period for which the information is available, the ultrafast broadband product availability data shown below are not comparable with other coverage information in this chapter.

<sup>98</sup> There is not yet a consensus on a definition for ultrafast services. We will continue to monitor the coverage of these faster services and may, if appropriate, refine our definition as the market evolves.

<sup>99</sup> Ultrafast services rely on technologies such as GPON, EPON, active Ethernet, DOCSIS3.0 or 3.1, and G.fast.

**Figure 3.34 Percentage of households in areas served by ultrafast broadband products (with advertised speeds of 300Mbit/s or more): September 2016**



Source: Analysys Mason

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. All figures have been rounded to the nearest whole number.

### Six comparator countries had 4G mobile broadband population coverage of 99% or more

Eight of our comparator countries had at least 95% population in areas served by 4G mobile broadband, and six (Japan, South Korea, Singapore, Poland, the Netherlands and Sweden) had 99% or higher. The UK ranked tenth<sup>100</sup> among our 19 comparator countries, with 93% population coverage,<sup>101</sup> an increase of 9pp compared to end-2014.

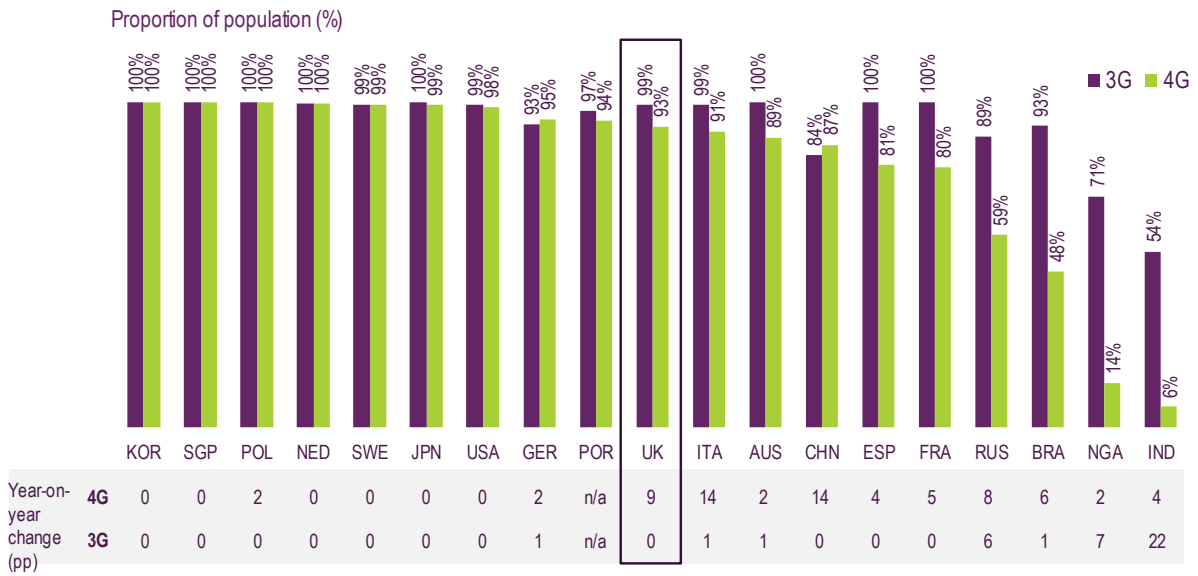
In 13 comparator countries, including the UK, 95% or more of the population was in areas served by 3G mobile broadband. All the countries with less than 95% coverage were developing markets, except for Germany<sup>102</sup> (93%).

<sup>100</sup> In the *Key Market Developments* section **Error! Reference source not found.** of this chapter, the UK ranks ninth among 18 comparator countries.

<sup>101</sup> In order to provide a comparative benchmark across all 19 countries, 4G (93%) and 3G (99%) mobile coverage in the UK encompasses outdoor coverage from at least one operator. This differs from the 4G (72.2%) and 3G (78.1%) coverage stated in our *Connected Nations 2016* report, which focuses on the percentage of premises that have indoor coverage from all operators.

<sup>102</sup> Note that Germany's 3G coverage is likely to be understated as the country generally applies a more rigorous definition of mobile coverage, which is based on actual download speeds rather than simple reception of a signal.

**Figure 3.35 Percentage of population in areas served by 3G and 4G mobile broadband: year-end 2015**



Source: IHS

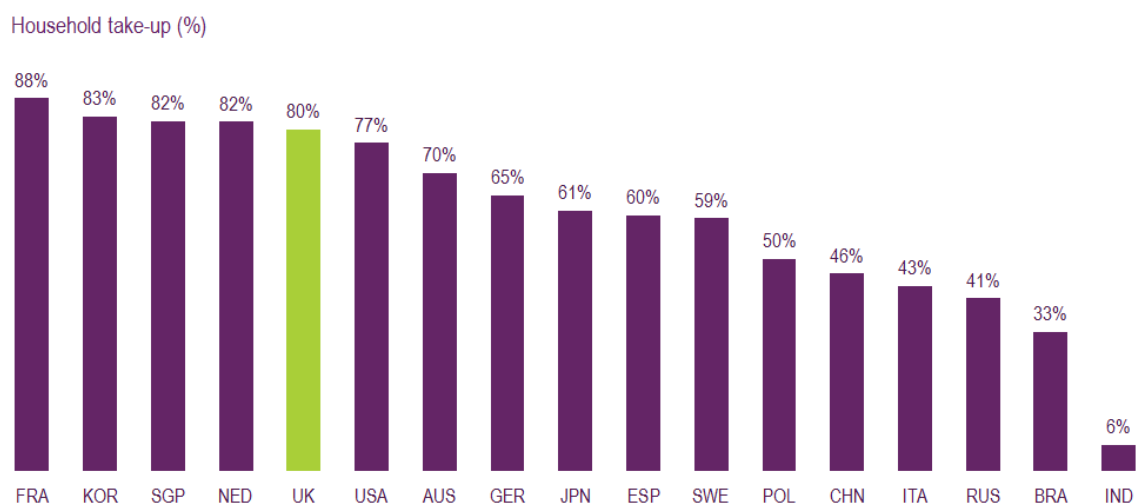
Note: NGA is the country code for Nigeria. All figures have been rounded to the nearest whole number. Data in this chart differs from the 4G (72.2%) and 3G (78.1%) coverage stated in our Connected Nations 2016 report, which focuses on the percentage of premises that have indoor coverage from all operators.

### 3.5.2 Take-up and use

#### Household penetration of fixed broadband reached 80% in the UK at the end of 2015

At the end of 2015, 88% of households in France subscribed to residential fixed broadband services,<sup>103</sup> the highest among the comparator countries for which figures were available, followed by 83% in South Korea. The UK ranked fifth at 80%, an increase of 3pp since 2014.

**Figure 3.36 Household penetration of fixed broadband services: year-end 2015**



Source: IHS

Note: Data for Portugal and Nigeria are not included in the comparison. All figures have been rounded to the nearest whole number.

#### The proportion of fixed broadband connections with a headline speed of 30Mbit/s or higher increased in all of the comparator countries in 2015

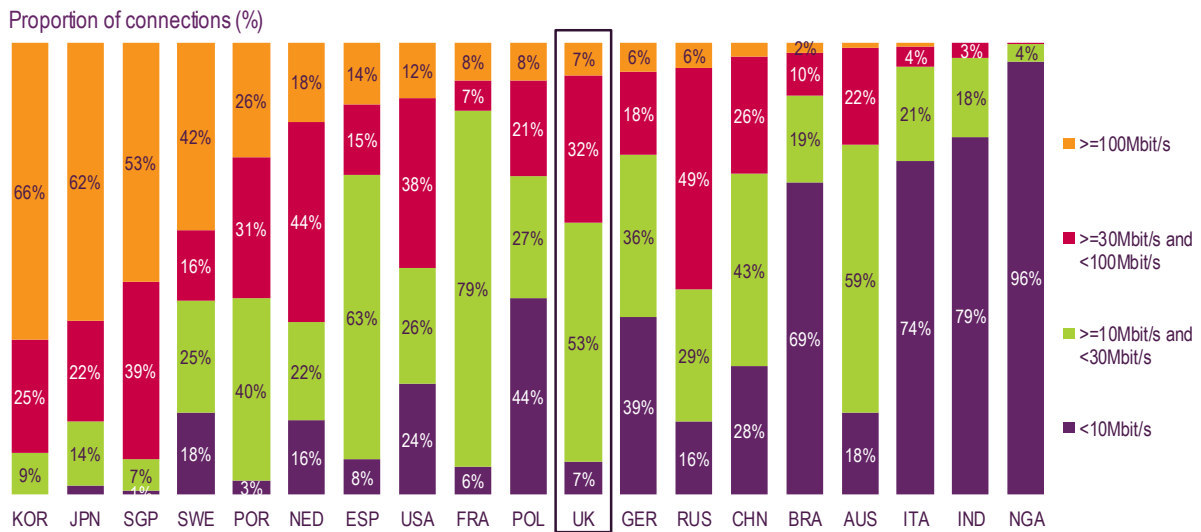
Singapore had the highest share of fixed broadband connections with advertised speed of 30Mbit/s or higher at the end of 2015, at 92, while Nigeria ranked lowest at 0.3%. The UK ranked ninth, with 40%<sup>104</sup> of connections having a headline speed of 'up to' 30Mbit/s or higher.

South Korea (66%), Japan (62%) and Singapore (53%) had the highest proportions of connections at headline speeds of 100Mbit/s or higher, due to the early introduction and high availability of fibre networks in these countries. This compares to 7% in the UK, an increase of one percentage point since year-end 2014.

<sup>103</sup> This metric represents the number of households that subscribe to residential fixed broadband services.

<sup>104</sup> This differs from the figure of 32.3% stated in our *Connected Nations 2016* report, which measures the maximum sync speed recorded which, in most cases, will be lower than the advertised speed.

**Figure 3.37 Proportion of fixed broadband connections, by advertised speed: year-end 2015**



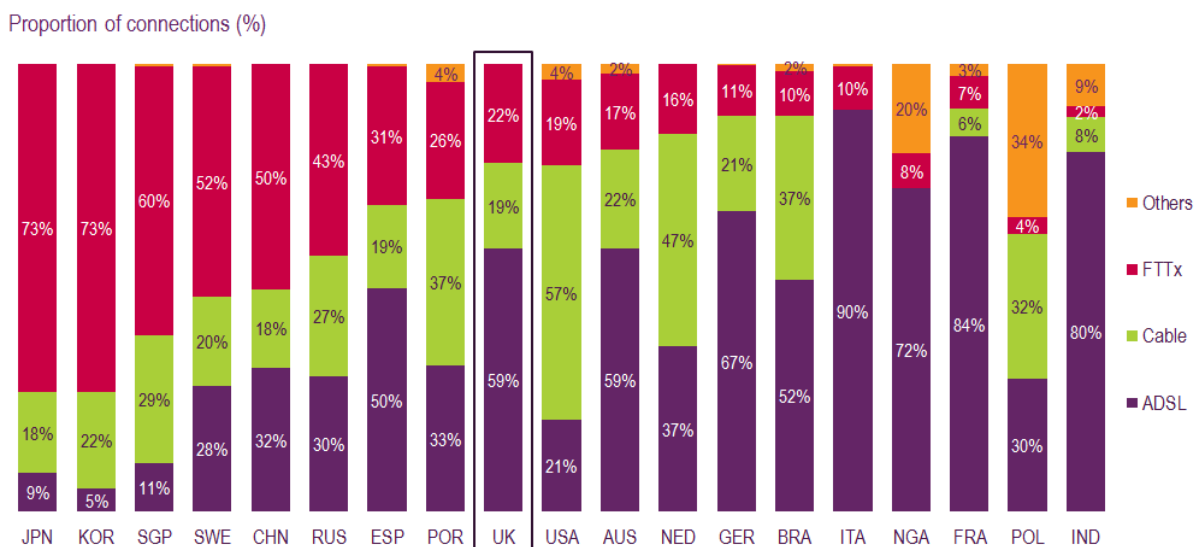
Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. All figures have been rounded to the nearest whole number.

**China was the fastest growing market for FTTx connections, which accounted for 50% of total fixed broadband connections in 2015**

FTTx accounted for half or more of fixed broadband connections in five of our comparator countries at the end of 2015. The UK was ninth, at 22% FTTx connections, while FTTH/B accounted for just 0.3% of total fixed broadband connections. China was the fastest growing market (up 18pp since 2014), as China Telecom and China Unicom increased their focus on deployment of FTTB/H networks.

**Figure 3.38 Percentage of fixed broadband connections, by technology: year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. All figures have been rounded to the nearest whole number.

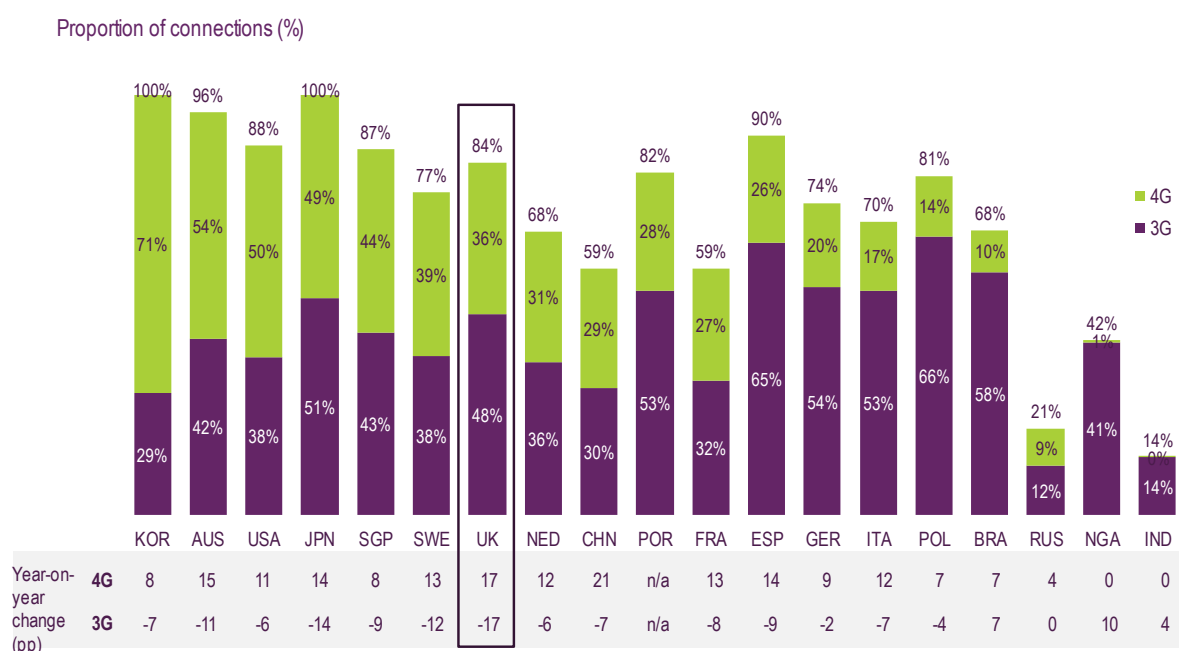


**In the UK, 4G connections accounted for 36% of total mobile connections at the end of 2015, a 17pp year on year increase**

At the end of 2015, 4G mobile broadband connections accounted for at least 50% of total mobile connections (including M2M connections) in South Korea, Australia and the US. South Korea ranked first, with 71%, having migrated its remaining 2G connections onto 3G or 4G networks in 2015. Among our comparator countries, only Japan and South Korea had all their mobile connections on 3G or 4G networks.

The UK was seventh (36% of total UK mobile connections were 4G at the end of 2015), up by 17pp from year-end 2014. The increased availability of 4G networks and growing consumer appetite for mobile data has helped drive take-up of 4G services in the UK.

**Figure 3.39 Percentage of 3G and 4G connections as a proportion of total mobile connections: year-end 2015**



Source: IHS

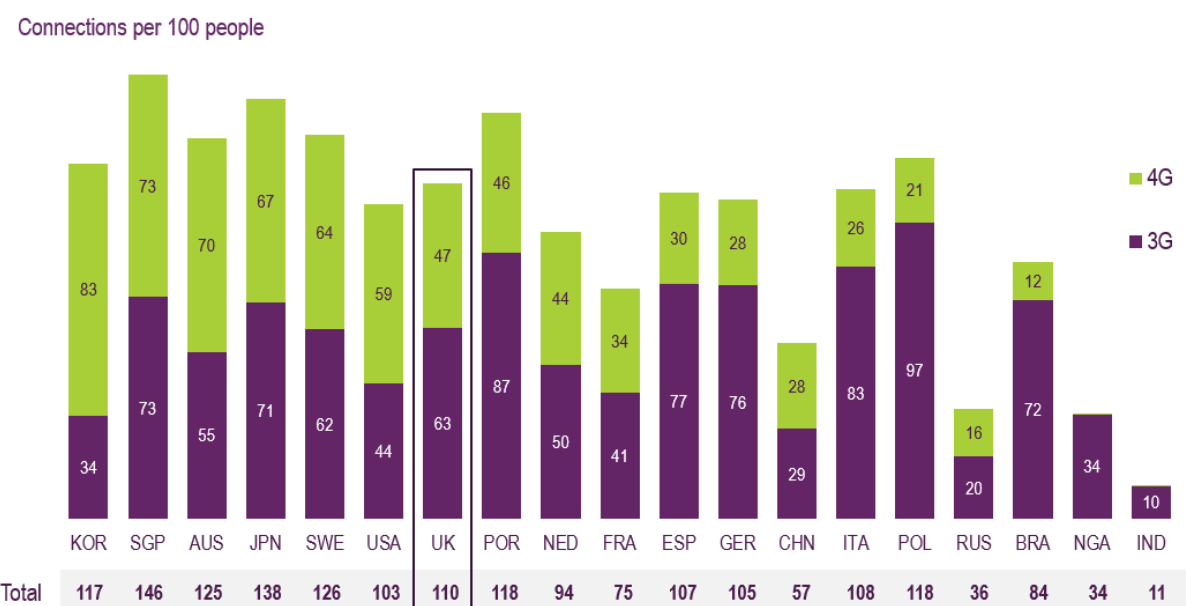
Note: NGA is the country code for Nigeria. All figures have been rounded to the nearest whole number. The countries are ranked by 4G connections as a proportion of total mobile connections

**Mobile broadband connections per 100 people increased in all of the comparator countries at the end of 2015**

Singapore had the highest number of mobile broadband connections (aggregating 3G and 4G) per 100 people at 146, driven by high rates of multi-SIM and multi-device use. India had the fewest connections (11), due in part to the low levels of 3G and 4G availability, which is concentrated largely in urban areas. By comparison, the UK had 110 mobile broadband connections per 100 people, ranking eighth among our comparator countries.

The number of 4G mobile broadband connections per 100 people had increased in all comparator countries at the end of 2015. South Korea led this growth (83), while the UK ranked seventh (47). Poland had the most 3G connections per 100 people, at 97, while the UK fell from 84 3G connections per 100 people (year-end 2014) to 63, as customers migrated to 4G services.

**Figure 3.40 Mobile broadband connections per 100 people: year-end 2015**



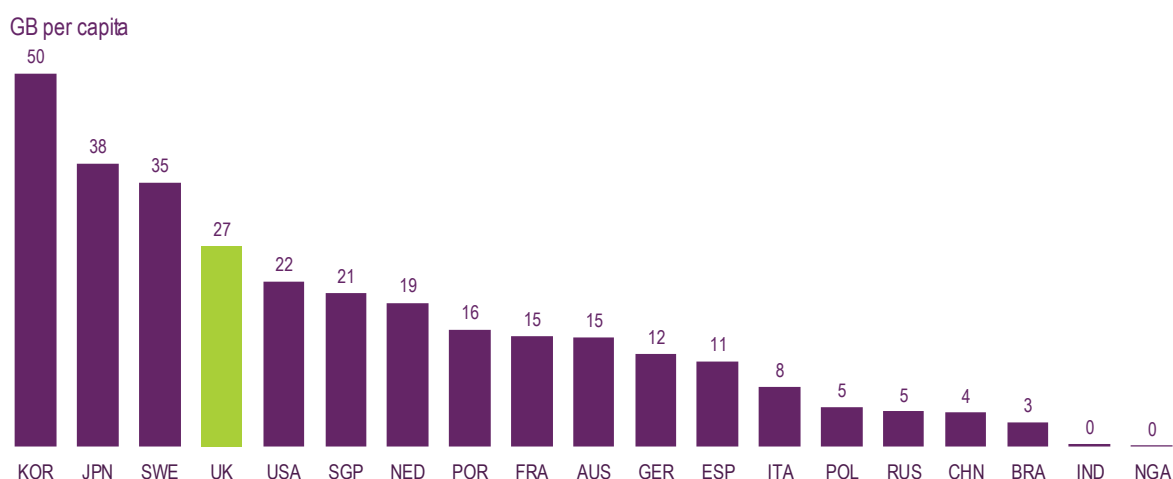
Source: IHS

Note: Mobile broadband includes all data connections made on cellular networks, including those made via mobile handsets and using dedicated mobile data dongles and SIMs. NGA is the country code for Nigeria. All figures have been rounded to the nearest whole number. The countries are ranked by 4G connections per 100 people.

**The UK ranked fourth for fixed data volume consumption per head, at 27GB per month in 2015**

With the increase in availability and adoption of fixed broadband, data traffic volumes grew in most of our comparator countries in 2015. South Korea had the highest fixed data volume per head, at 50GB per month. The UK was fourth, at 27GB, an increase of 5GB (from 22GB in 2014).

**Figure 3.41 Fixed data volume per capita per month: 2015**



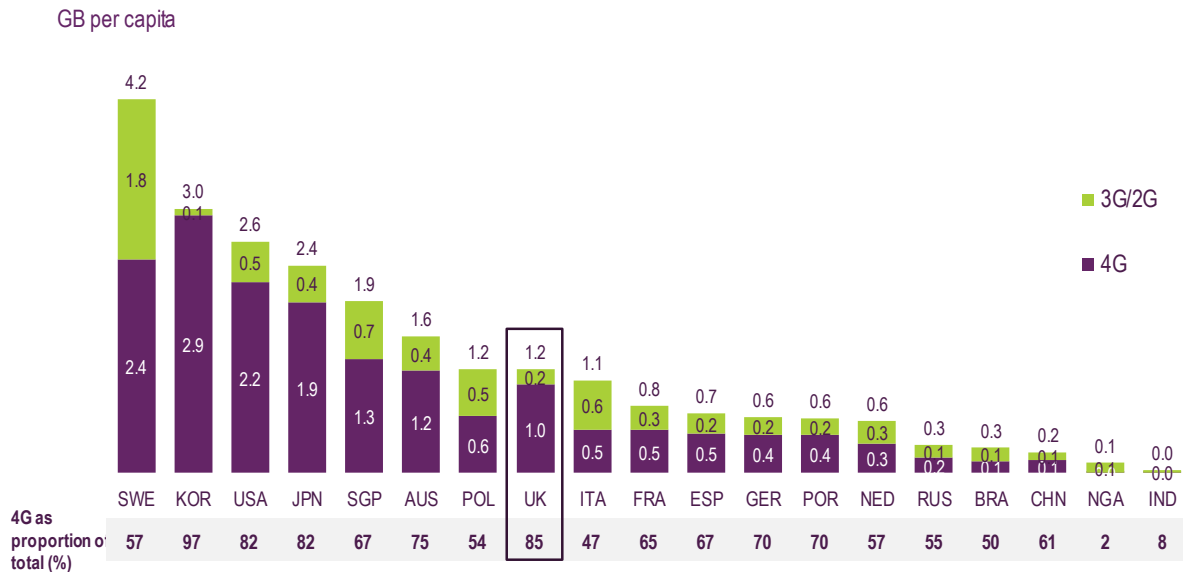
Source: IHS

Note: NGA is the country code for Nigeria. All figures have been rounded to the nearest whole number.

**Mobile data volume per capita in the UK reached 1.2GB per month in 2015, an increase of 63% since 2014.**

In the UK, the increasing adoption of smartphones, used by 72% of the respondents in the UK, and 4G services, has led to this growth in mobile data consumption, which reached 1.2GB per month in 2015, with 4G data accounting for 85% of total mobile data volume. Please see chapter 6 *Internet and online content* for further details on smartphone take-up among our comparator countries. Sweden had the highest mobile data volume per person, at 4.2GB per month, followed by South Korea at 3.0GB per month.

**Figure 3.42 Mobile data volume per person per month: 2015**



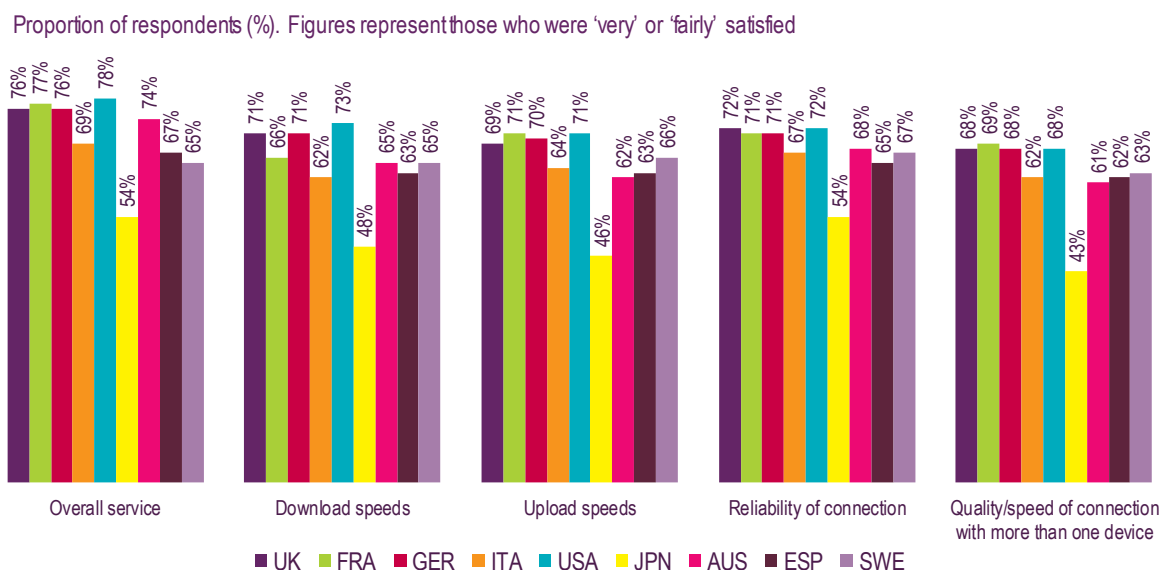
Source: IHS

Note: NGA is the country code for Nigeria

**Of all our comparator countries, the UK and the US had the highest levels of satisfaction with reliability of household fixed broadband services**

In the UK and the US, 72% of respondents were either 'very' or 'fairly' satisfied with the reliability of their fixed broadband connection in 2016. More than three-quarters of respondents in the UK were also satisfied with their overall fixed broadband service.

**Figure 3.43 Satisfaction with fixed broadband service: 2016**



Source: Ofcom consumer research 2016

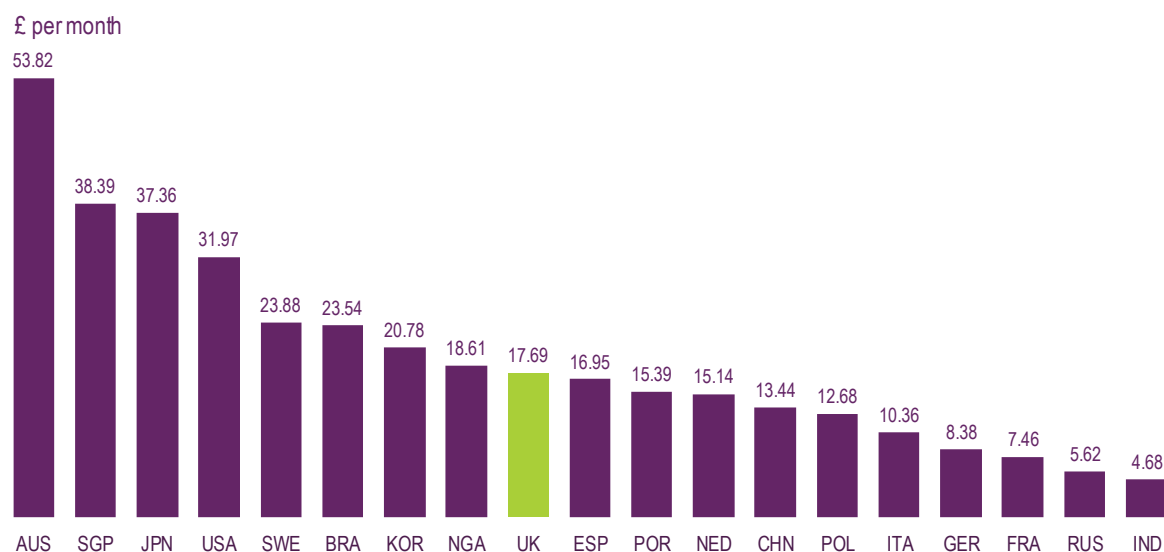
Base: All respondents who use the internet at least once a week, UK=744, FRA=786, GER=655, ITA=644, USA=531, JPN=513, AUS=656, ESP=679, SWE=701

Q.30 To what extent are you satisfied or dissatisfied with the following aspects of your current home broadband service? A: Very or fairly satisfied

**Australia had the highest average fixed broadband revenue per connection, at £53.82 per month in 2015**

Fixed broadband revenue per connection was highest in Australia in 2015, at £53.82 per month, followed by Singapore at £38.39. China had the largest increase in average revenue per connection, driven by an increase in the adoption of faster broadband services. The UK ranked ninth, at £17.69 in 2015.

**Figure 3.44 Average monthly fixed broadband revenue per connection: 2015**



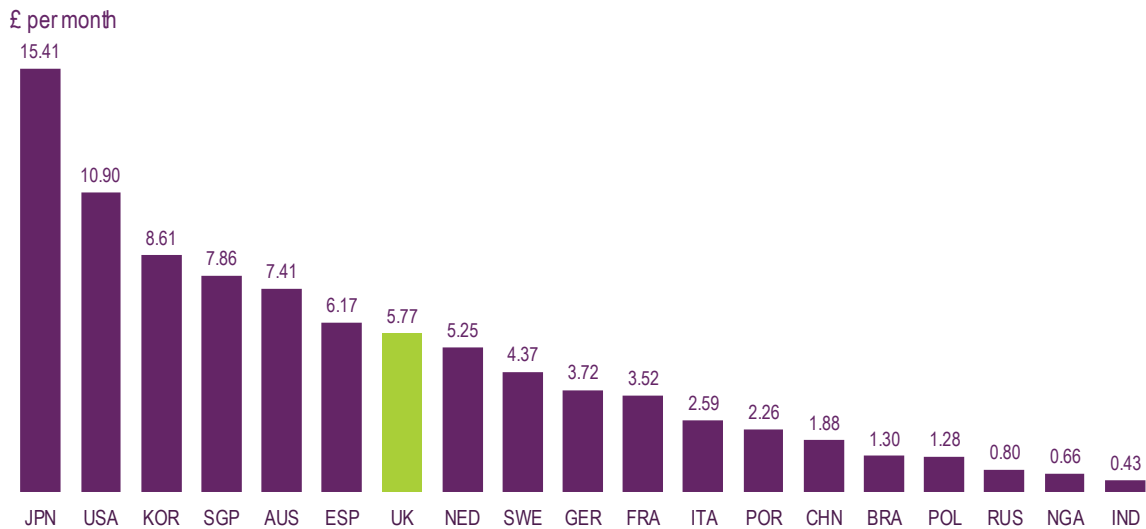
Source: IHS

Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies.

**Average monthly non-messaging mobile data revenue per mobile connection in the UK was £5.77 in 2015**

In 2015, the average monthly non-messaging mobile data revenue per mobile connection ranged from £0.43 in India to £15.41 in Japan. The US and Japan were the only comparator countries where non-messaging mobile data revenues were more than £10 per connection per month. In the UK, the average monthly non-messaging mobile data revenue reached £5.77 in 2015, as more consumers migrated to 4G services and data consumption increased.

**Figure 3.45 Average non-messaging mobile data revenue per mobile connection: 2015**



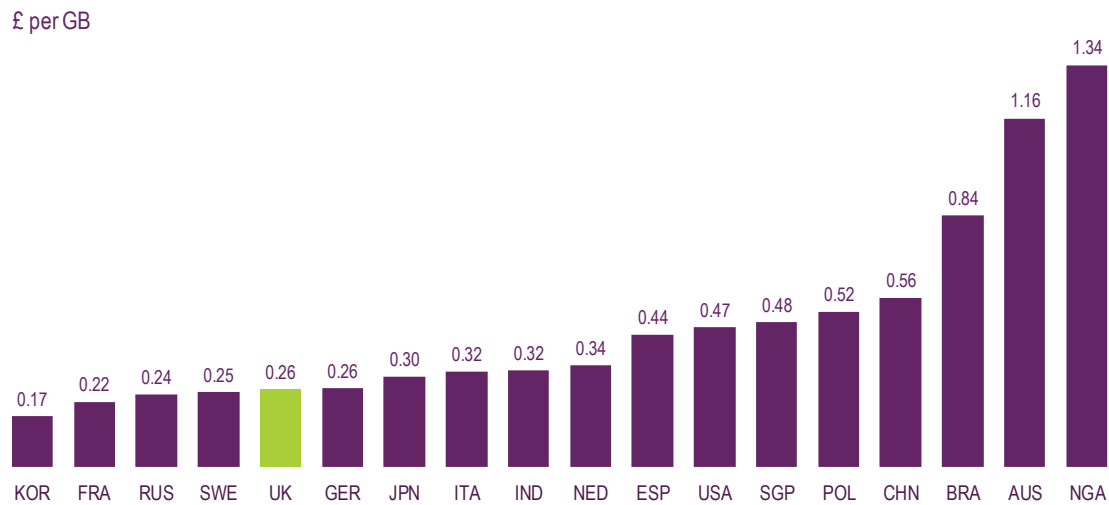
Source: IHS

Note: NGA is the country code for Nigeria

**Nigeria had the highest price per GB for fixed broadband data, at £1.34 in 2015**

Price per GB of fixed broadband data is calculated using volume of fixed broadband data traffic and fixed broadband revenue. South Korea had the cheapest price for fixed broadband data, at £0.17, per GB, while Nigeria was the most expensive, at £1.34, of the comparator countries for which figures were available. Prices in many markets declined, although there were exceptions such as China, where the price increased by 8.2% to £0.56 in 2015, as more consumers migrated to FTTx services. The UK ranked fifth, at £0.26 per GB, a decline of 6.9% since 2014.

**Figure 3.46 Price per unit for fixed broadband data consumption: 2015**



Source: IHS

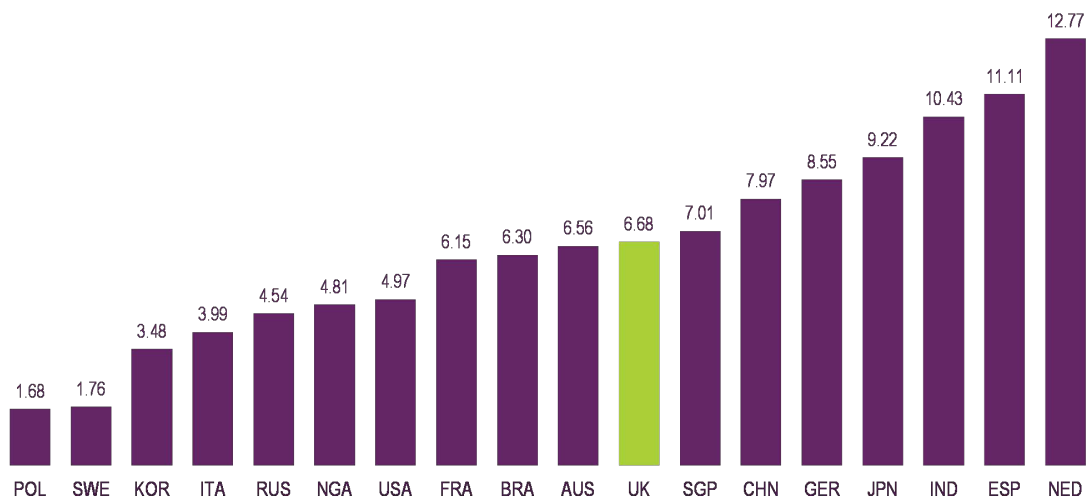
Note: NGA is the country code for Nigeria, and does not refer to next generation access technologies. Data for Portugal are not included in the comparison.

**Price per GB for mobile data declined by 53% in the US, to £4.97 per GB in 2015**

Price per GB of mobile data is calculated using the volume of mobile data traffic and mobile non-messaging data revenues. Price per GB for mobile data declined across all the countries for which figures were available, in part because providers continued to increase bundled data allowances to cater for the growing appetite for mobile data services.

The Netherlands had the highest price per unit for mobile data in 2015, at £12.77, although this price was 40% lower than in 2014 (£21.30). The UK ranked eleventh, with the price of mobile data declining by a third, to £6.68, in 2015.

**Figure 3.47 Price per unit for mobile broadband data consumed: 2015**



Source: IHS

Note: NGA is the country code for Nigeria.

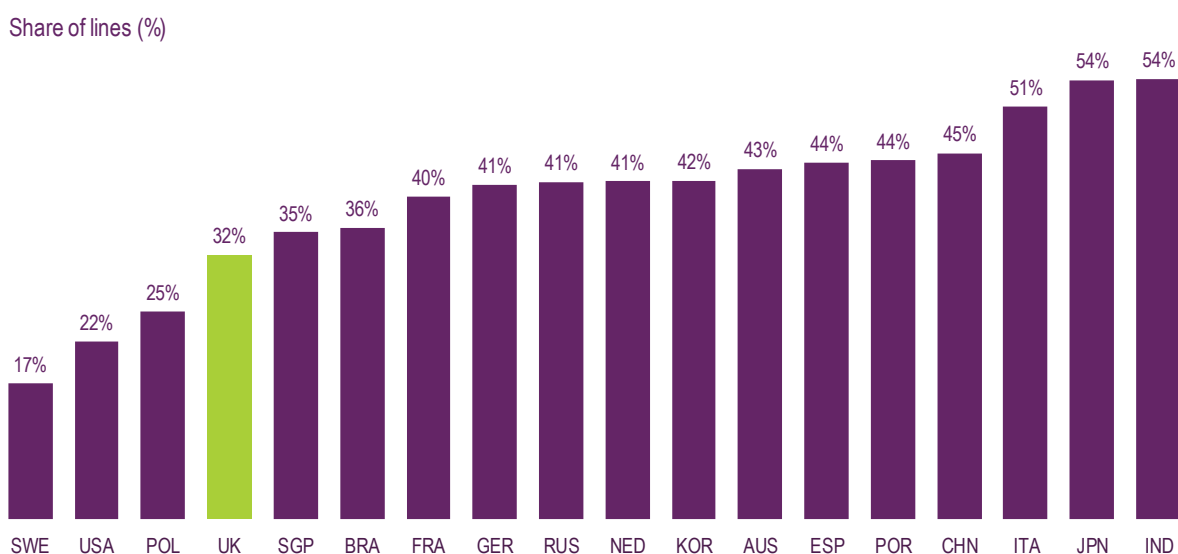
### 3.5.3 Choice

To compare the amount of choice available to consumers in the fixed and mobile broadband markets, we have used some proxy measures of consumer choice. For the fixed broadband market, we have compared the percentage of fixed broadband subscriptions that the incumbent provides, while for the mobile broadband market, we have considered the market share of the largest mobile network operator (MNO) and the Herfindahl-Hirschman index of market concentration (HHI) in each country (Figure 3.50).

#### The proportion of retail fixed broadband lines operated by incumbents remains broadly stable

The incumbent fixed broadband providers in India (BSNL) and Australia (Telstra) operated the highest proportion of lines, at 54%, closely followed by the Italian incumbent (Telecom Italia) at 51% at the end of 2015. The US and Sweden were the only comparator countries in which the incumbent fixed broadband provider operated less than 25% of lines at the end of 2015. In the UK, incumbent provider BT operated 32% of fixed broadband lines, lower than that of the incumbent providers in all other EU5 markets and many other comparator countries. However, in 2016, BT completed the acquisition of EE, which has a small share of the fixed broadband market, so BT's overall retail share of fixed broadband lines is likely to increase.

**Figure 3.48 Percentage of fixed broadband lines operated by incumbent: year-end 2015**



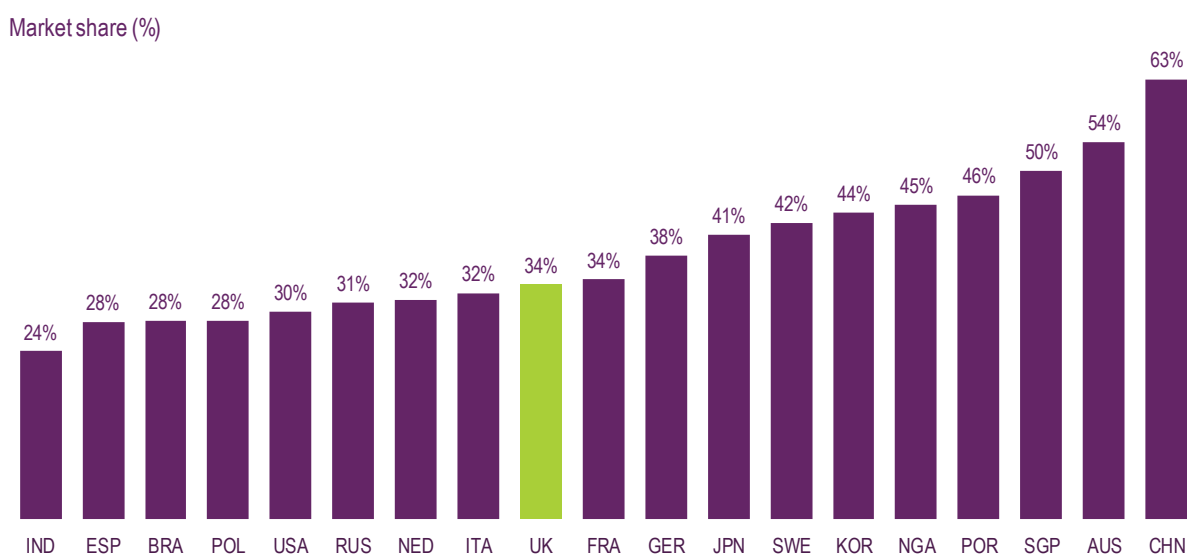
Source: IHS

Note: Data for Nigeria are not included in the comparison. All figures have been rounded to the nearest whole number.

#### China Mobile had the largest market share of any leading MNO in the comparator countries, at 63% at the end of 2015

Among the comparator countries, India was the only country where the leading MNO (Bharti Airtel) had less than 25% share of mobile connections at the end of 2015. China's leading MNO and the largest mobile operator in the world by number of connections, China Mobile, had a 63% share. The second most concentrated market was Australia, where Telstra had a 54% share, followed by Singapore, where SingTel had a 50% share. In the UK, the largest MNO, EE, had a 34% market share (including wholesale and hosted MVNO connections).

**Figure 3.49 Percentage retail<sup>105</sup> market share of leading MNO: year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria. All figures have been rounded to the nearest whole number.

**China was the most concentrated market, with HHI of 4,679 in 2015, as the leading MNO held the biggest share of the market**

We have used HHI in order to compare concentration in mobile markets.

This index is estimated by taking the absolute value of the market share of each firm in the industry (e.g. 25 if the market share is 25%) and then squaring this number. The sum of these values for all firms is the HHI, and can theoretically range from close to zero for a market with a large number of firms of equal size, to 10,000 for a monopoly. As the calculation is based on market shares for a specific period, even small changes of a few percentage points in market share can impact HHIs, thereby affecting the overall rankings.

In our sample of countries<sup>106</sup> China was the most concentrated MNO market in 2015, with an HHI of 4,679. This is a result of China Mobile’s high share of mobile connections (63%) and only two competitors. In contrast, India had the lowest HHI (1,534), as the largest MNO in India, Bharti Airtel, only had a 24% subscriber share, with up to nine MNOs in some regions<sup>107</sup>. However, in India, as well as in the US and Brazil, some MNOs have regional licences and do not compete at the national level. Given that the HHI below is based on national subscriber figures, concentration measurements at a geographic level are likely to be different for countries with regional mobile licences.

<sup>105</sup> In some comparator countries, the mobile connections used to calculate MNO market shares include wholesale and hosted MVNO connections.

<sup>106</sup> The MNO market shares used for calculating these HHIs include wholesale and hosted MVNO shares.

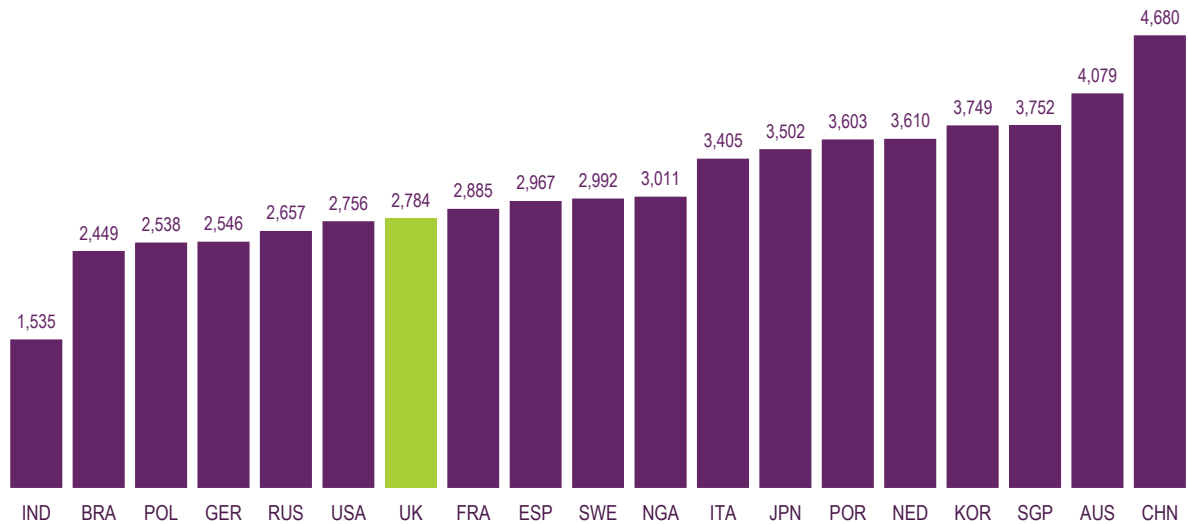
<sup>107</sup> In India, the country is divided into 22 circles (i.e. regions), with licences being awarded on a per-circle basis. As a result, the number of active MNOs varies between different circles.

[http://www.trai.gov.in/WriteReadData/PressRealease/Document/Press\\_Release\\_No.97\\_Eng\\_07\\_10\\_2016.pdf](http://www.trai.gov.in/WriteReadData/PressRealease/Document/Press_Release_No.97_Eng_07_10_2016.pdf)



In our comparison the UK ranked sixth with an HHI of 2,877;<sup>108</sup> a lower concentration index than Japan, South Korea and Germany but higher than the US and Russia, among others.

**Figure 3.50 Mobile market HHI, MNOs (including wholesale and hosted MVNO): year-end 2015**



Source: IHS

Note: NGA is the country code for Nigeria

<sup>108</sup> In November 2016 we published *Award of the 2.3 and 3.4 GHz spectrum bands: Competition issues and auction regulations* document. Here, the HHI indices were calculated using a different source for the market share data (Analysys Mason), covering a different set of countries. As a result, the estimated HHIs are different, especially for the Netherlands (3,495), France (2,788) and Sweden (2,859), with small differences for Italy (2,812), Spain (2,970) and the UK (2,869). See figure A6.22 of [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0026/93545/award-of-the-spectrum-bands-consultation.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0026/93545/award-of-the-spectrum-bands-consultation.pdf)

# The International Communications Market 2016

## 4 TV and audio-visual

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# 4.1 TV and audio-visual: overview and key market developments

## 4.1.1 Overview

### **Subscription revenues continued to make up over half of total TV revenue**

Global TV revenues from broadcast advertising, channel subscription and public funding including licence fees reached £263bn in 2015. Subscription revenues continue to make up over half of total revenue, at £137bn. TV revenue per capita in the UK was £221 in 2015, the third highest of our comparator countries after Germany (£289) and the US (£351).

South Korea had the highest take-up of pay TV at 99%, compared to the UK which had one of the lowest of our comparator countries at 62%. Just over half of UK television homes received an HD service in 2015 (51%), putting the UK in tenth position among our 18 comparator countries.

### **Declines in viewing to broadcast TV occurred across many countries**

The UK experienced a year-on-year decline in viewing to broadcast TV (-1.9%), with people watching an average of 3 hours 36 minutes of TV each day. Within the UK, time-shifted viewing contributed 29 minutes, or 13%, to total daily viewing. This figure, however, was not enough to counter-balance the overall decline in live viewing.

Many of our comparator countries also experienced a decline in viewing to broadcast TV. This decrease is likely to be partly driven by the increased availability and popularity of over-the-top services, such as Netflix and Amazon Prime Video.

### **The UK ranked third for online TV and video revenues**

The UK ranked third for online TV and video as revenues grew across each of our comparator countries. Although still small relative to the overall TV market, online TV and video revenue in the UK was £1.35bn in 2015. Per capita, the UK generated £20.81 of online TV and video revenue, compared to the US at £29.03.

### **The UK had the third largest proportion of subscribers to Video on Demand services**

Take-up of subscription Video on Demand services delivered via the open internet stood at 30% of UK television households in 2015, compared to 21% in 2014. Recently released films remained the most watched content on services such as Netflix and Amazon Prime Video, cited by 69% of UK subscribers, but original programming made by the service provider is gaining traction as 60% cited this as content they watch.

**Figure 4.1 Key metrics: 2015**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN	NGA
<b>TV revenue (£bn)</b>	14.3	7.8	23.3	5.5	113	18.2	3.8	2.7	2.3	1.6	1.9	0.5	6.1	9.1	2.2	6.3	24.8	0.6
<b>Revenue per cap (£)</b>	221	121	289	92	351	144	160	58	133	164	49	95	121	44	16	5	18	3
<i>from advertising</i>	64	37	74	39	133	62	80	32	41	48	17	53	37	20	10	2	9	0.1
<i>from subscription</i>	99	52	86	34	218	53	52	22	72	81	30	43	77	23	5	3	9	3
<i>from public funds</i>	58	32	130	19	0	29	27	4	20	35	2	0	7	1	0	0	0	0
<b>Online TV revenues (£m)</b>	1,347	502	453	271	9,348	632	306	161	228	210	61	13	151	464	147	114	2613	0.06
<b>Largest TV platform</b>	Dsat	IPTV	Dsat	DTT	Dcab	Dcab	DTT	DTT	Dcab	DTT	Dsat	DTT	IPTV	Dsat	Dsat	Dsat	Dcab	Aterr
<b>% of homes (main set)</b>	47	41	44	71	42	56	64	67	47	25	49	36	34	49	39	42	50	53
<b>DTV take-up (%)</b>	100	95	73	100	97	100	100	100	89	75	87	98	79	71	70	78	87	47
<b>Pay TV take-up (%)</b>	62	76	56	32	84	75	35	30	99	82	82	62	99	31	69	90	71	16
<b>OTT SVoD take-up (%TV hh)</b>	30	7	16	6	67	4	19	7	16	35	6	No data	7	6	No data	1	4	No data
<b>DSO* date</b>	2012	2011	2008	2012	2009	2012	2013	2010	2006	2007	2013	2017	2012	2018	2019	2018	2020	2017
<b>TV viewing (min/day)</b>	216	224	223	254	274	262	196	234	190	154	264	N/A	193	234	246	N/A	155	N/A

Sources: IHS / industry data / Ofcom. Notes: pay-TV take-up refers to the number of TV households that pay for a DTT, satellite, cable or IPTV subscription service. Notes: Online TV revenues refers to advertising, subscription, retail and rental on-demand revenue derived from online services delivering TV and video content. Pay-TV take-up refers to the number of TV households that pay for a DTT, satellite, cable or IPTV subscription service. OTT SVoD refers to subscription services that offer video-on-demand content (VoD) delivered via the internet, or services that offer live streaming to a selection of channels/content as well as VoD content.

For the purposes of this table most figures have been rounded to the nearest whole number.

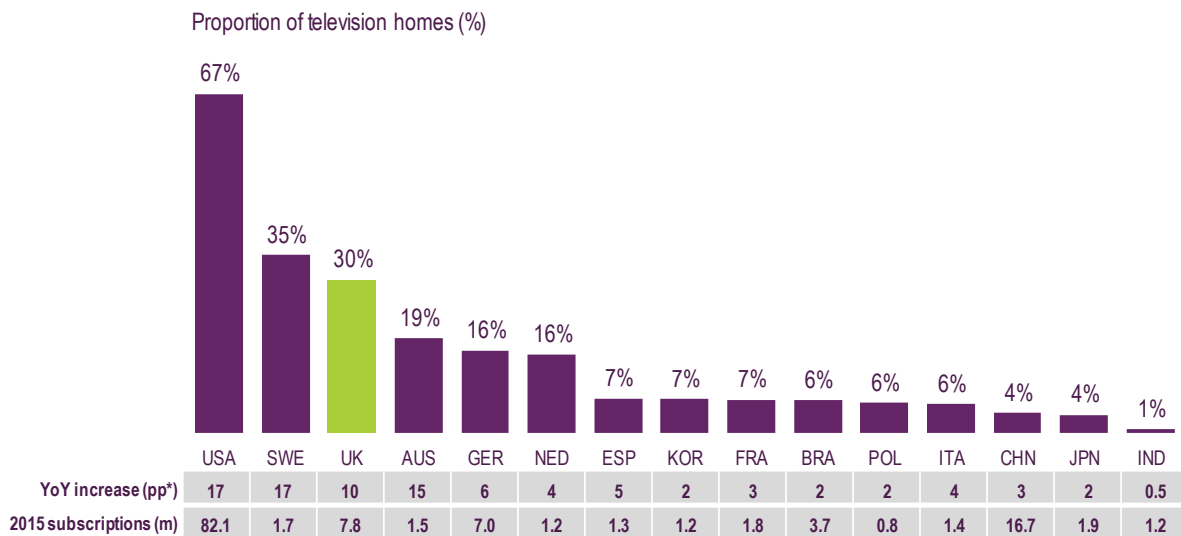
\*DSO = Digital switchover

### 4.1.2 Subscriptions to video-on-demand services continue to grow

#### The UK had the third largest proportion of subscribers to over-the-top video-on-demand (SVoD) services in 2015

There were 7.8 million subscribers to these types of services<sup>109</sup> in the UK in 2015. This equates to 30% of UK television households, up 10 percentage points year-on-year.

**Figure 4.2 Television households' subscriptions to over-the-top VoD services: 2015**



Source: Ampere Analysis. Data were unavailable for Russia and Singapore. Figures include subscriptions to services that offer video on demand, live streaming and catch-up services delivered over the internet, such as Netflix, Amazon, Hulu, iQIYI, Hollywood VIP, Youku Premium, Ditto TV, WWE, TVing and Now TV.

\*pp = percentage points

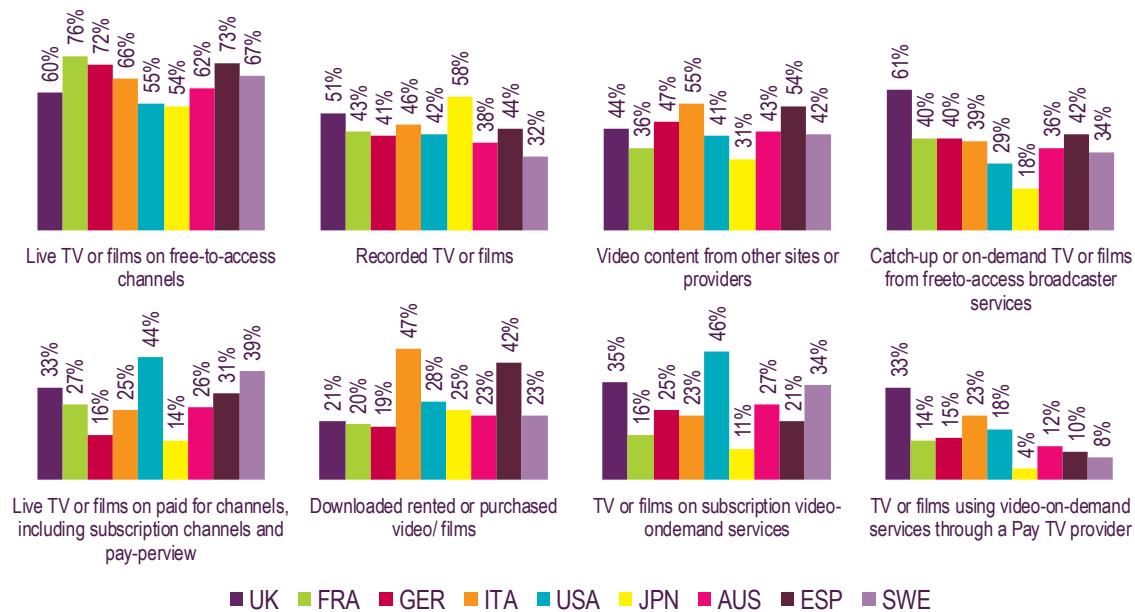
#### Six in ten UK respondents watched catch-up or on-demand TV or films on free-to-access services

Live TV or films on free-to-access channels, were the most-watched type of content across most comparator countries. However, in Japan 'recorded TV or films' was the most popular answer (at 58% of respondents) and in the UK 'Catch-up or on-demand TV or films from free-to-access broadcaster services' scored one percentage point above live viewing (61% and 60% respectively). The UK leads the way in the use of free-to-access broadcaster services such as the BBC iPlayer and All4 by some margin; the second highest result in this category was returned by Spain (42%).

<sup>109</sup> Audio-visual over-the-top video on demand services, in this context, refers to subscription services that offer video-on-demand content (SVoD) delivered via the internet, or services that offer live streaming to a selection of channels/content as well as VoD content. These services include Netflix, Amazon, Hulu, iQIYI, Hollywood VIP, Youku Premium, Ditto TV, WWE, TVing and Now TV among others. Not all services are universally available in all comparator countries.

**Figure 4.3 Types of content watched: 2016**

Proportion of all respondents (%)



Source: Ofcom consumer research, October 2016

Q.8a Which of the following types of content do you watch?

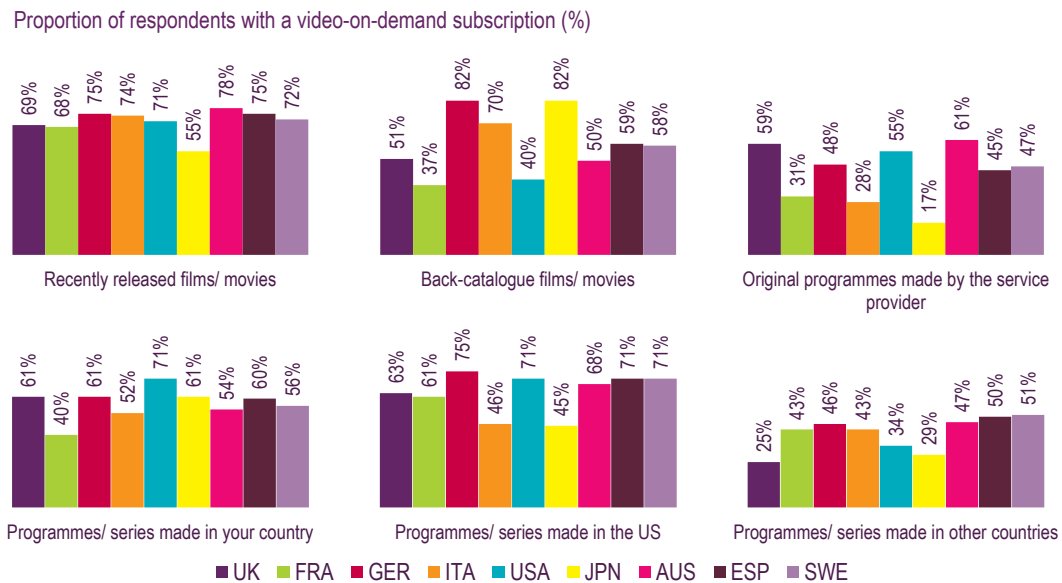
Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

**Seven in ten SVoD users in the UK watch recently released films / movies**

Taking a closer look at subscription VoD (SVoD) in the UK, 69% of those who subscribe to a VoD service claimed to watch recently released films/ movies. This was closely followed by programmes/ series made in the US, and programmes/ series made in the UK.

Recently released films/movies and back-catalogue films/movies were the most popular types of programme watched by individuals or families on subscription services across all our comparator countries. Original programmes, made by the service provider, were watched by more than half the respondents in English-speaking countries (and Germany). The proportion in non-English speaking countries was significantly lower. Italy and Japan were the only countries where respondents were more likely to choose programmes made in their own country than programmes made in the US.

**Figure 4.4 Types of programmes watched on SVoD services: 2016**



Source: Ofcom consumer research October 2016

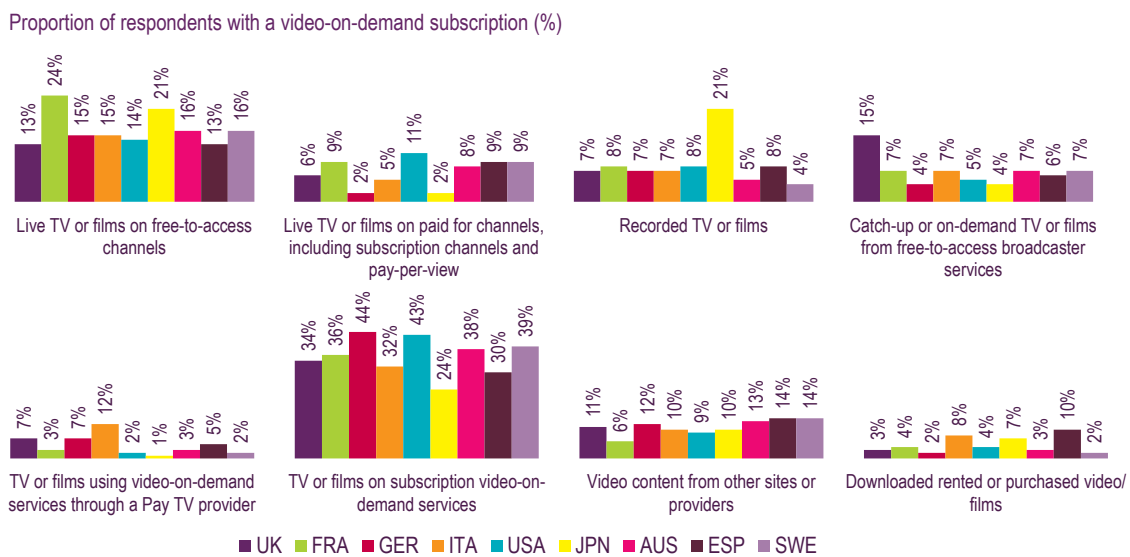
Q.8c Which of the following types of programmes do you or your family watch on <Netflix / Amazon Instant Video / Wuaki / Other subscription service>?

Base: All respondents who use a VOD service, UK=359, FRA=168, GER=253, ITA=253, USA=482, JPN=118, AUS=293, ESP=236, SWE=321

**Among users of SVoD services, more said that they would miss content from those services than live broadcast content**

When asked which type of content they would miss most if they did not have access to it, 34% of UK respondents who have a SVoD service chose it, compared to 13% who chose live free-to-air television. Fifteen per cent in the UK chose catch-up services, more than double any other nation in our survey; perhaps driven by the popularity of the BBC iPlayer. SVoD services were the most popular choice in all countries in the survey.

**Figure 4.5 Types of content that would be missed most 2016**



Source: Ofcom consumer research, October 2016

Q.8b Which type of content would you miss the most if you did not have access to it?



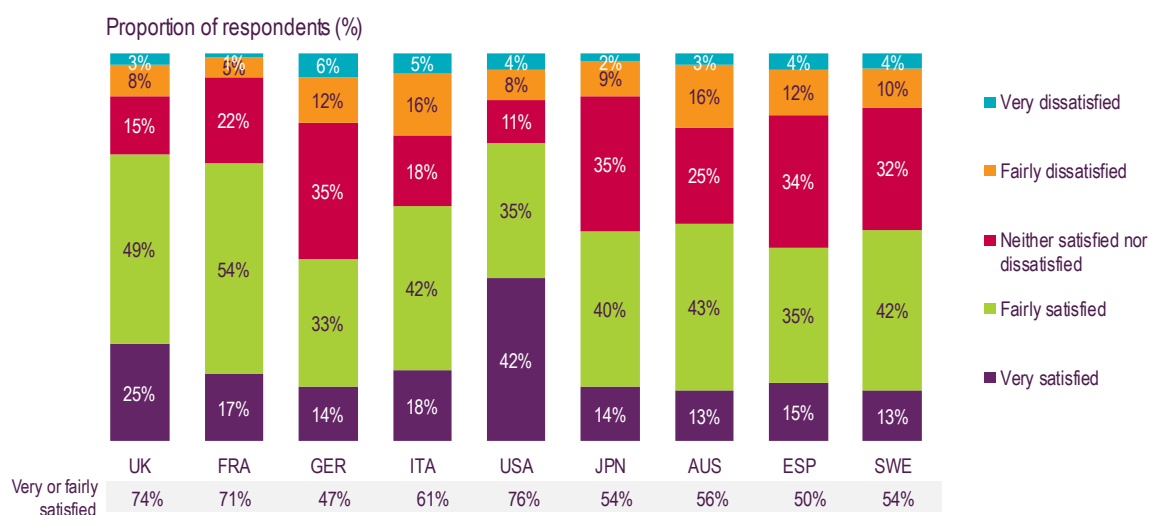
Base: All respondents who use a VOD service, UK=359, FRA=168, GER=253, ITA=253, USA=482, JPN=118, AUS=293, ESP=236, SWE=321

### Almost three-quarters of UK respondents were satisfied with the amount of UK programmes available on their SVoD services

In the UK, US and France over seven in ten respondents with an SVoD service (such as Netflix or Amazon Prime Video) said they were satisfied with the amount of domestically produced content available on their service.

Less than half of the respondents in Germany were satisfied with the content available on their SVoD services that was produced in their country. The US was the only comparator country in which respondents were more likely to be 'very satisfied' with the domestically produced content than dissatisfied or neutral. This is unsurprising and reflects the fact that many of the high-profile original productions by these services are produced in the US, such as *House of Cards* on Netflix and *Transparent* on Amazon Prime Video.

**Figure 4.6 Satisfaction with the amount of own country-produced content on SVoD: 2016**



Source: Ofcom consumer research, October 2016

Q.8d How satisfied are you with the amount of programmes produced in your country that are available on the video-on-demand services you subscribe to?

Base: All respondents who use a VOD service, UK=359, FRA=168, GER=253, ITA=253, USA=482, JPN=118, AUS=293, ESP=236, SWE=321

## 4.2 The TV and audio-visual industry

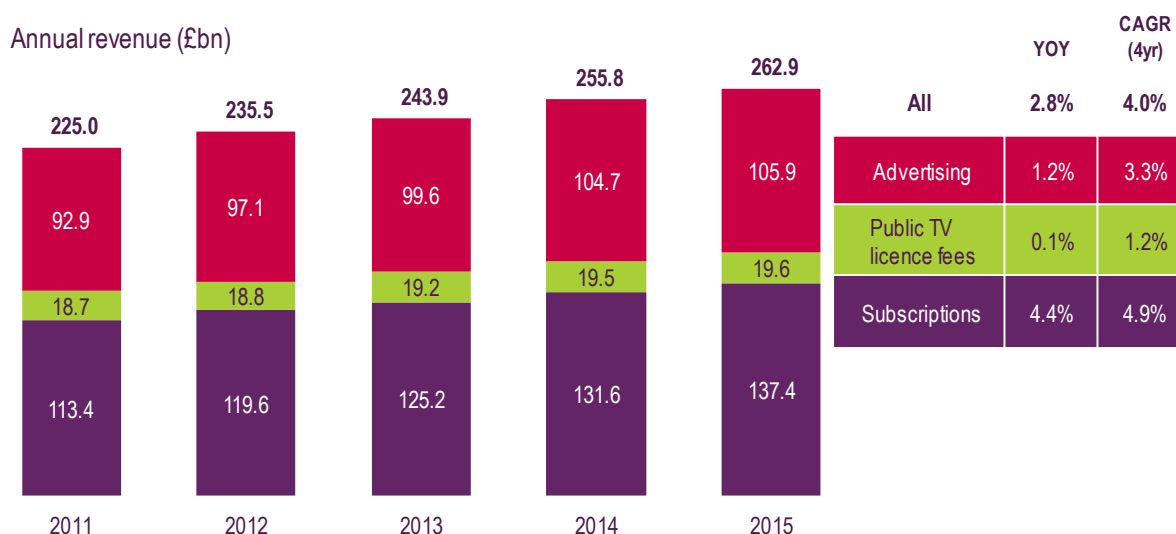
### 4.2.1 Revenues

#### Global TV revenues were £263bn in 2015

Ofcom estimates that global TV revenue<sup>110</sup> in 2015 reached £263bn. Subscription revenues made up just over half of the total included revenue in 2015, at £137bn. Global net advertising revenue (NAR) was £106bn.

Public funding from TV licence fees was £20bn; this has changed little over the past four years.

**Figure 4.7 Global TV industry revenues, by source: 2011 - 2015**



Source: Data derived from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Notes: Ofcom is responsible for all growth calculations displayed. Ofcom uses an exchange rate of \$1.53 to the GBP in line with the IMF average for 2015. All figures expressed in nominal terms.

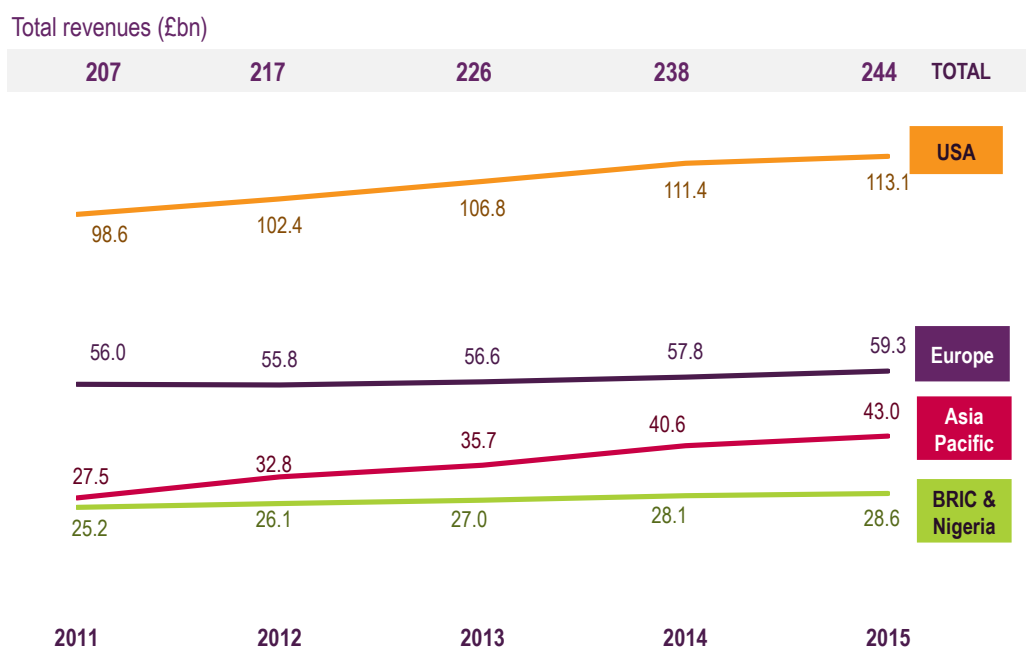
#### European TV revenues reached £59.3bn in 2015

Revenues from subscriptions, net advertising and public funds, across the UK and our 17 comparator countries, totalled £244bn in 2015. The revenue gap widened to over £14bn between the BRIC countries and Nigeria combined, and the Asia/Pacific countries, the two regions in our analysis with the lowest TV revenues.

In the US, the country with the largest television revenues globally, revenues were made up of 99.9% subscription and advertising spend, with virtually no public funding.

<sup>110</sup> Our analysis of global television revenues incorporates three components: net broadcast advertising revenue, public funding including licence fees, and television subscriptions. It excludes revenues generated from OTT services available via the open internet such as Netflix and Amazon Instant Video (see Figure 4.14 for online television revenues).

**Figure 4.8 Total TV industry revenues among comparator countries: 2011 - 2015**



Source: IHS / industry data / Ofcom. Notes: Revenues include advertising, subscriptions and sources of public funding only, and not OTT services. BRIC is Brazil, Russia, India and China. All figures expressed in nominal terms. Europe includes UK, France, Germany, Italy, Spain, Sweden, Netherlands and Poland. Asia Pacific includes Japan, South Korea, Singapore and Australia.

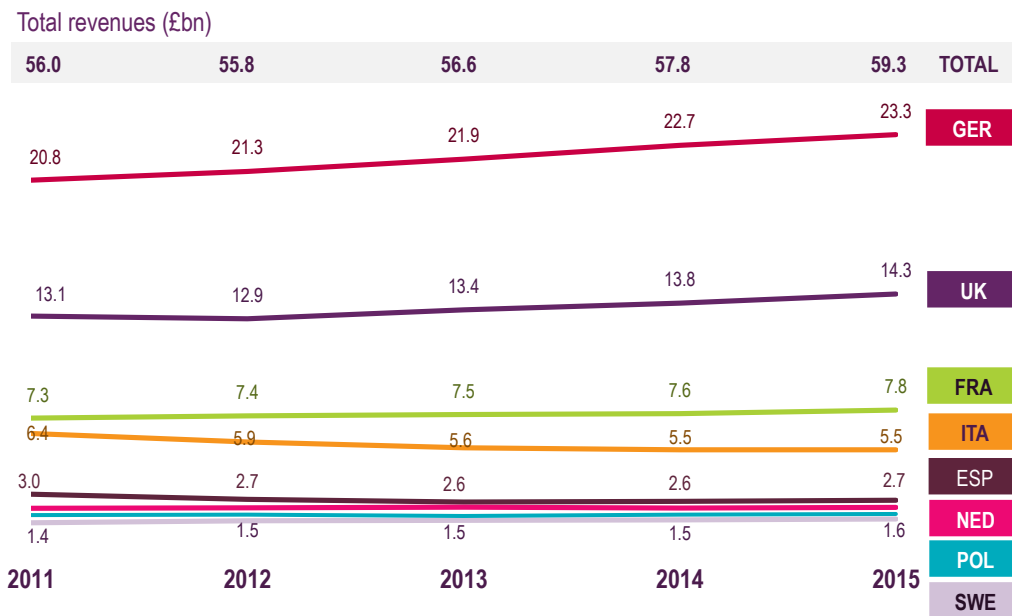
### UK television revenues were £14.3bn in 2015

UK television revenues (from advertising, subscriptions and public funding<sup>111</sup>) totalled £14.3bn in 2015.<sup>112</sup> This is attributable to rising spend, both in advertising and subscriptions, and a small increase in public funding. Germany was Europe's largest TV market in terms of monetary value in 2015, at £23.3bn. Like the UK, Germany benefits from substantial public funding of television services.

<sup>111</sup> In the UK public funding is derived from the TV licence fee which is now paid by all viewers who watch live television or watch or download BBC programmes from the BBC iPlayer, regardless of the device they use.

<sup>112</sup> Revenue figures and other data may differ from those in the UK *Communications Market Report* 2016, as sources differ. In the CMR 2016, revenues are calculated from data supplied by UK broadcasters. In order to make various comparisons across nations, UK data in the ICMR 2016 are compiled and calculated in the same way as for other nations, by IHS Markit.

**Figure 4.9 TV industry revenues among European countries: 2011 - 2015**



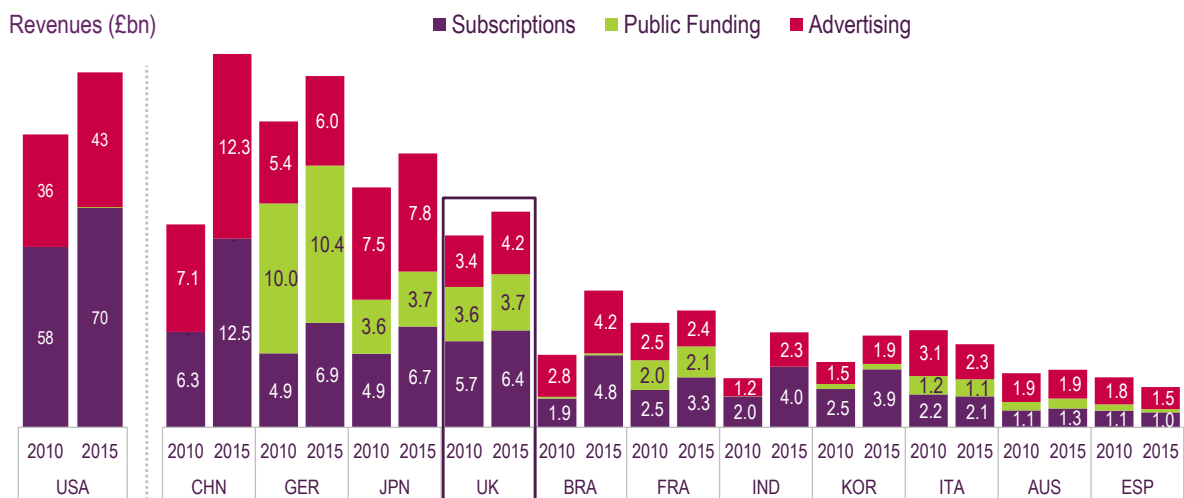
Source: IHS / industry data / Ofcom. Notes: Revenues include advertising, subscriptions and sources of public funding only. All figures expressed in nominal terms.

**Over five years, the UK has increased all three of its major television revenue streams**

The UK and Germany maintained their positions as the largest European TV markets, both experiencing growth in all three of the included revenue sources between 2010 and 2015. In the UK, subscription revenue continued to make up 45% of TV income in 2015.

Among our comparator countries, only Spain experienced a decline in TV revenues between 2010 and 2015, partly because state broadcaster TVE lost the right to show advertising, and due to cuts of 30% in public funding between 2010 and 2013.

**Figure 4.10 TV revenues among selected comparator countries: 2010 and 2015**



Source: IHS / industry data / Ofcom

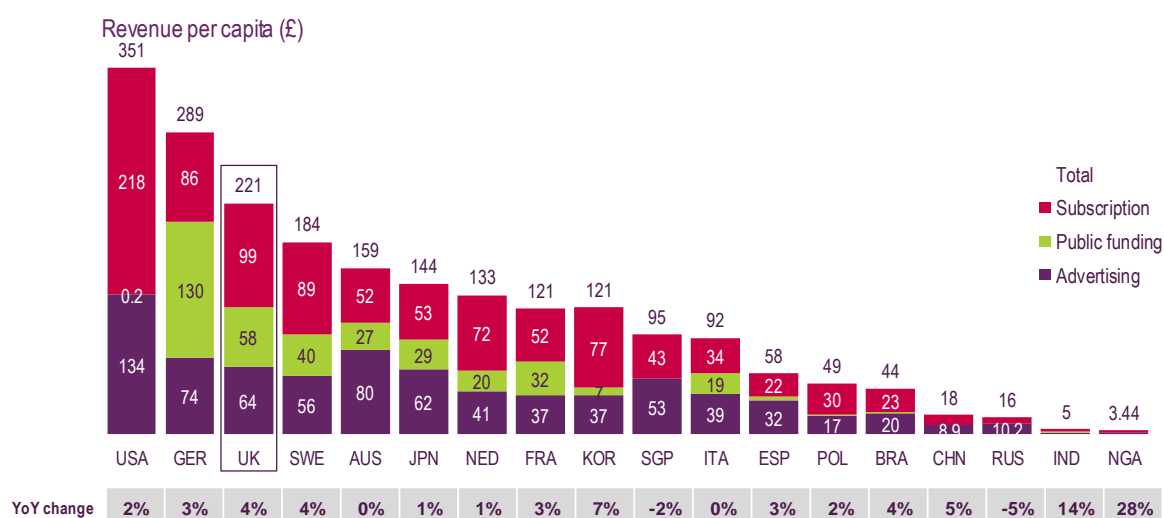
Note: The USA was the largest market by a considerable margin and is accommodated here using a different scale from the other comparator countries. All figures are nominal.

### TV revenue per head in the UK was £221 in 2015

In 2015, TV revenue per head in the UK was £221, the third highest of our comparator countries after Germany (£289) and the US (£351). Breaking this down, the UK reported the second highest subscription revenue per head, at £99 per person per year. The US was the highest at £218. The UK's public funding (via the licence fee) was £58 per person, the second highest of our comparator countries, but still less than half that of Germany (£130).

TV revenues per head for the BRIC countries and Nigeria remained lower than in most other comparator countries in 2015, with the exception of Brazil (£54).

Figure 4.11 TV revenue per capita, by revenue source: 2015



Source: IHS / industry data / Ofcom. Notes: Revenues include advertising, subscriptions and sources of public funding only; figures inside the bars represent industry revenue per capita by source (£GBP). All figures expressed in nominal terms.

### Average pay-TV revenue per user stood at £384 in the UK

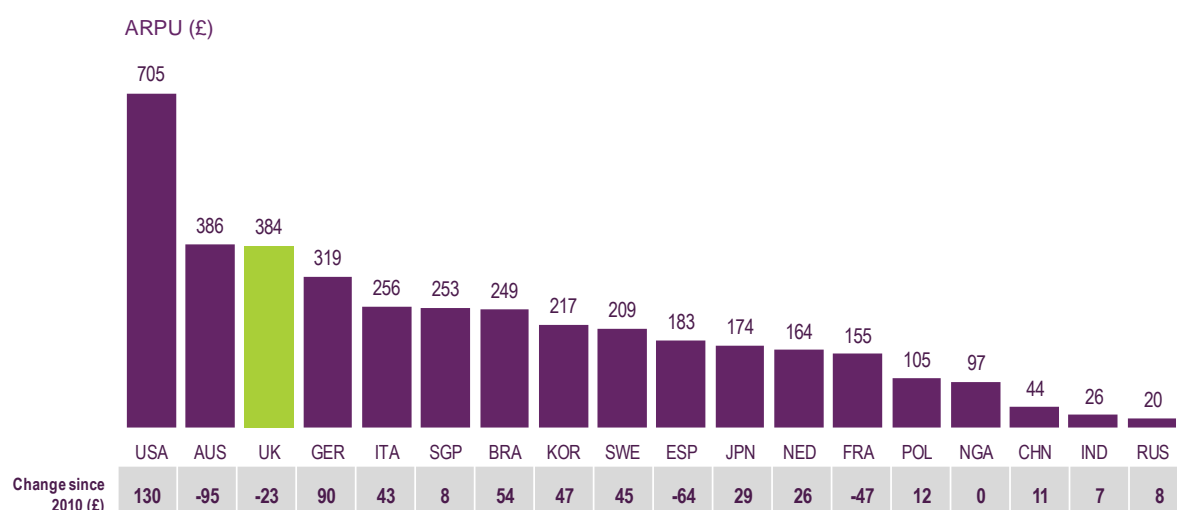
The UK was in third place on pay-TV ARPU among our comparator countries in 2015, following the US and Australia.

Between 2010 and 2015 most of our comparator countries increased their pay-TV ARPU<sup>113</sup>. However, there were decreases in Australia, the UK, France and Spain since 2010. These may be attributable to pricing competition, consumers downgrading their packages and increased take up of IPTV<sup>114</sup> in France and Spain, where IPTV is now available bundled into low-cost triple-play services (see Figure 3.45).

<sup>113</sup> Average revenue per user (ARPU) can provide insights into the relative performance of pay-TV operators by country.

<sup>114</sup> Internet protocol television (IPTV) is the term used to describe the television platform that delivers channels to viewers using internet protocol (IP) technology over a broadband connection.

**Figure 4.12 Pay-TV ARPU by country: 2015**



Source: IHS / industry data / Ofcom. Notes: ARPU is average revenue per pay-TV household, representing the average revenue generated per pay-TV subscriber. All figures expressed in nominal terms.

### UK online TV and video revenue exceeded £1bn in 2015

In addition to the revenues discussed above, online TV and video revenue<sup>115</sup> in the UK contributed £1.35bn, or a further 9%.<sup>116</sup> Rapid growth was also evident in the US, the country with the largest revenue of this type among our comparator countries, where spend in 2015 was £9.3bn, adding a further 8% to that country's television revenues.

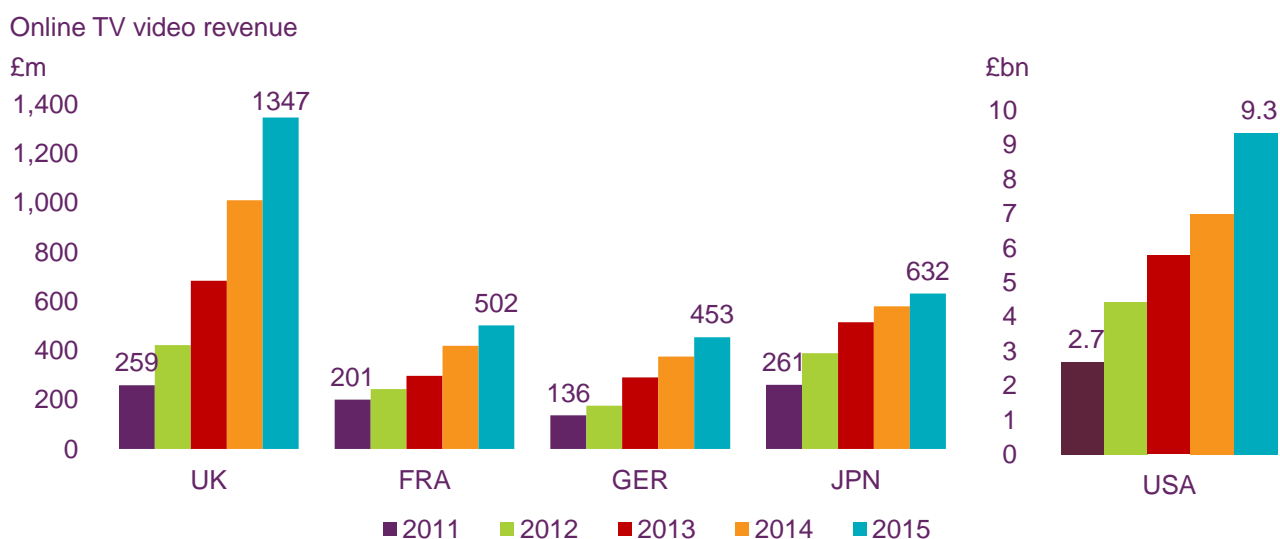
UK revenues in 2015 were greater than those of France (£502m, or an additional 6%) and Germany (£453m, additional 2%) combined. The figure for UK revenue also remained well above that of Japan (£643m, additional 3%). In the UK, growth was driven predominantly by the increased popularity of services such as Netflix and Amazon Prime Video.

On a revenue-per-capita basis, the UK (£20.81) was second only to the US (£29.03) in annual revenues in 2015, reflecting the high take-up of OTT services in the US (Figure 4.2).

<sup>115</sup> Online revenues are in addition to previously discussed revenues from advertising, subscriptions and public funding.

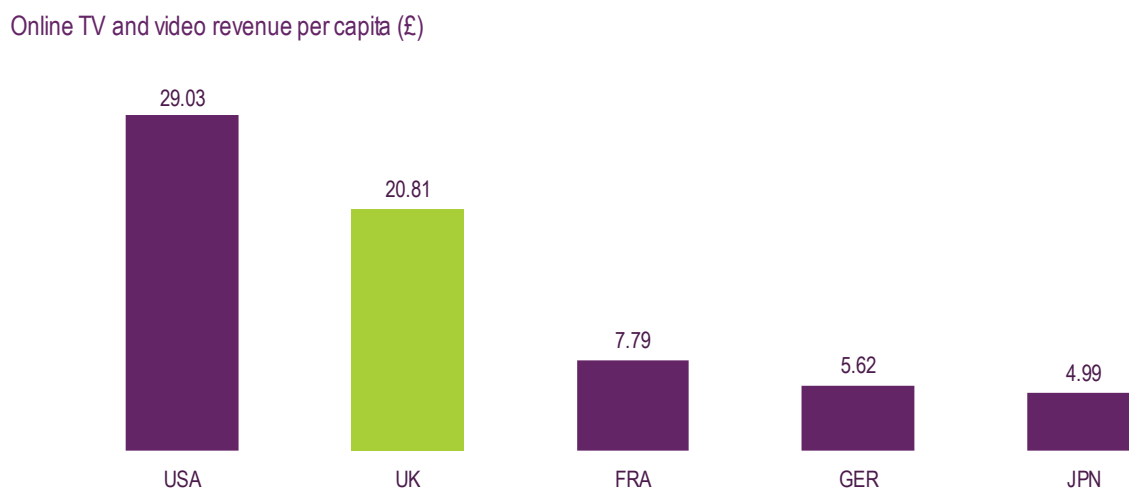
<sup>116</sup> Short and long-form online TV and video revenue is made up of subscription fees and advertising revenue, as well as electronic sell-through retail and on-demand revenue from online services delivering TV and video content. Typically, in the UK it includes services such as catch-up TV, Netflix, Xbox Video, Hulu, Hulu Plus, iTunes and YouTube.

**Figure 4.13 Online TV and video revenue for selected countries: 2011 – 2015**



Source: IHS / industry data / Ofcom. Notes: Different scale used for USA due to larger size. “Online TV and video revenue” refers to advertising revenue and subscription revenue as well as retail and rental on-demand revenue derived from online services delivering TV and video content. Typically, it includes services such as catch-up TV services, Netflix, Xbox Video, Hulu and Hulu Plus, iTunes and YouTube, among others. All figures expressed in nominal terms.

**Figure 4.14 Online TV and video revenue per head, selected countries: 2015**



Source: IHS / industry data / Ofcom. Notes: ‘Online TV and video revenue’ refers to advertising revenue and subscription revenue as well as retail and rental on-demand revenue derived from online services delivering TV and video content. Typically, it includes services such as catch-up TV services, Netflix, Xbox Video, Hulu and Hulu Plus, iTunes and YouTube amongst others. All figures expressed in nominal terms.

### 4.2.2 The licence fee and public funding

Public funding via a licence fee is an important element of TV finance in eight of our comparator countries

At £145.50, the cost of the UK licence fee<sup>117</sup> was the third highest among the comparator countries that had a licence fee, in 2015. The UK television licence fee last rose, by £3.00, in April 2010.

**Figure 4.15 Cost of a TV licence fee: 2015**



Source: IHS / industry data / Ofcom. All figures expressed in nominal terms.

Note: Chart excludes countries where there is no licence fee: the USA, Australia, Spain, Netherlands, Brazil, Russia, India, China, and Nigeria. Singapore abolished TV licence fees in 2011

<sup>117</sup> In the UK, public funding is derived from the TV licence fee, which is now paid by all viewers who watch live television or watch or download BBC programmes from the BBC iPlayer, regardless of the device they use.

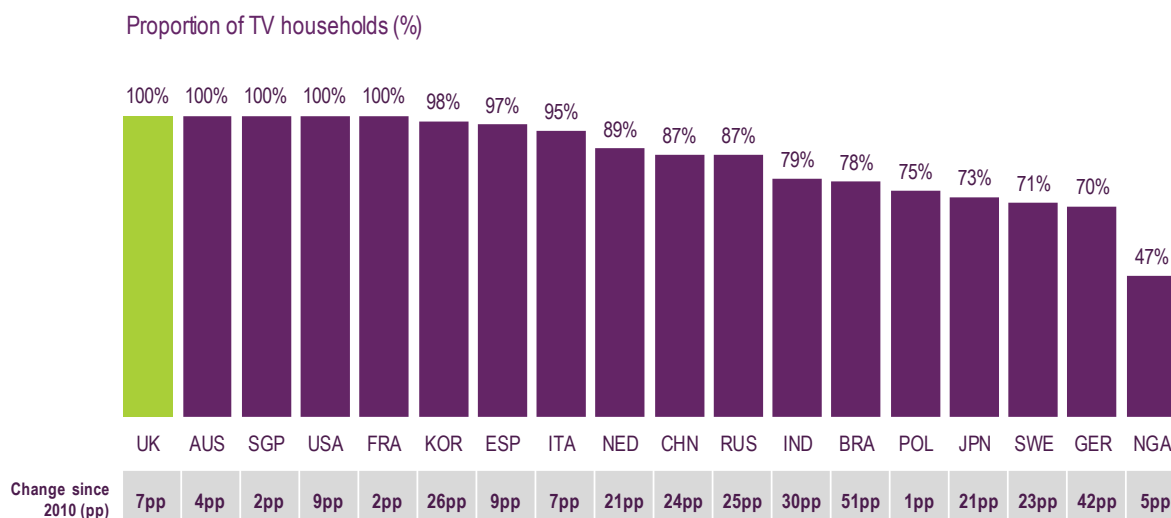


## 4.3 The TV and audio-visual consumer

### 4.3.1 Digital TV take-up

The UK is one of five comparator countries where 100% of those with a TV set receive a digital service, having completed digital switchover in 2012. Between 2010 and 2015 the greatest increases in digital television on main television sets were reported in India (+51pp), Russia (+42pp) and South Korea (+30pp). In Europe, Germany has the lowest DTV take-up, possibly because strong publicly-funded channels remain available over analogue cable.

**Figure 4.16 Take-up of digital television on main sets: 2010 and 2015**



Source: IHS/ industry data/ Ofcom

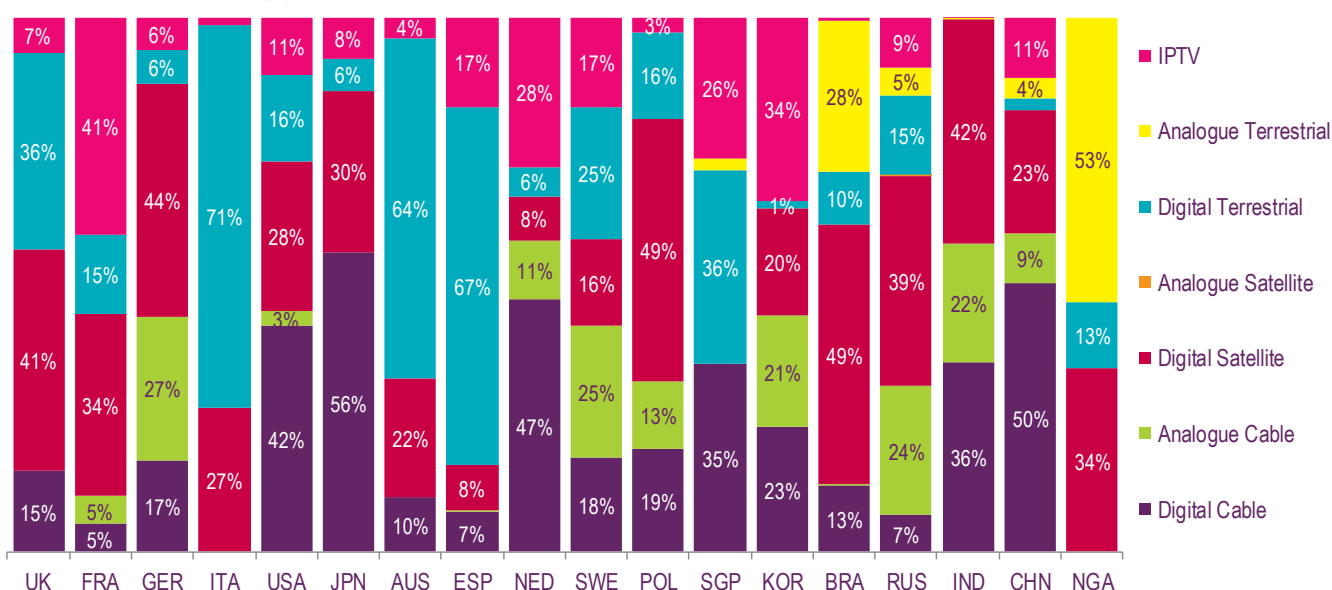
#### Digital satellite is the most popular digital platform on main sets in UK households

At 36%, digital terrestrial TV (DTT) remains strong in the UK, although digital satellite leads the way at 41%. DTT continues to dominate the TV markets in Italy, Spain and Australia. With 56% and 50% share of main sets, digital cable is the most popular platform in Japan and China.

In recent years there has been a surge in take-up of IPTV in France and Spain (see Figure 4.20) as the service is now offered as part of low-cost triple-play bundles. Other notable IPTV markets include South Korea (34% take-up on main sets) and the Netherlands (28%).

**Figure 4.17 TV platform take-up, main set: 2015**

Proportion of TV homes (%)



Source: IHS/industry data/ BARB Establishment Survey/TRP Research/Ofcom. Note: Digital satellite includes free-to-air as well as paid-for services. Data includes main TV sets only and is based on a proportion of TV homes. UK data is sourced from the BARB Establishment Survey/TRP Research, for Q4 2015. Based on main TV set in home (nominated by respondents) and from homes with a BARB working TV set. For TV sets with multiple platforms in the UK, a hierarchy based approach has been applied to determine the platform: DSAT beats DCAB, DCAB beats IPTV, and IPTV beats Freeview. Digital Terrestrial = Freeview, IPTV= BT or TalkTalk or YouView, Other = includes direct access to the internet such as via computer or games console or dongles such as Amazon Firestick and Google Chromecast. This accounts for 1% not shown in the chart above.

### Take-up of digital services continues to grow

The proportion of digital TV households increased between 2014 and 2015 in 13 of our 18 comparator countries. The remaining five countries, of which the UK is one, are now 100% digital. The move to digital platforms, in all comparator countries, is predominantly at the expense of former analogue cable households. There has also been migration from analogue terrestrial households in countries that have yet to complete their digital switchover.

Looking at year-on-year trends for individual digital platforms, the number of UK digital terrestrial homes decreased by 1.8% in 2015, mainly to the benefit of digital satellite (+1.2%). The greatest move to digital occurred in Russia, India and China.

**Figure 4.18 Year-on-year changes in platform take-up, by country: 2014 - 2015**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN	NGA
Digital Terrestrial	-1.8%	-1.2%	0.2%	-0.5%	2.0%	-1.9%	-3.3%	-3.5%	-1.0%	1.0%	1.1%	2.1%	-2.1%	2.3%	-0.1%	0.0%	0.4%	3.5%
Digital Satellite	1.2%	-0.3%	0.2%	-0.2%	-1.1%	0.4%	1.8%	-3.4%	-0.3%	-0.6%	-0.9%	0.0%	0.3%	-2.1%	3.4%	0.4%	-0.9%	-0.4%
Digital Cable	-0.2%	1.3%	1.3%	0.0%	0.5%	1.2%	0.1%	1.4%	-0.3%	0.3%	1.4%	-0.9%	0.8%	0.5%	0.5%	7.1%	3.8%	0.0%
IPTV	0.8%	0.3%	0.3%	0.7%	-0.1%	0.3%	1.4%	5.7%	3.6%	0.6%	0.3%	-0.1%	4.2%	0.2%	1.4%	0.0%	2.8%	0.0%
<b>Total Digital</b>	0.0%	0.0%	2.0%	0.0%	1.2%	0.0%	0.0%	0.1%	1.9%	1.3%	1.9%	1.1%	3.1%	0.8%	5.37%	7.5%	6.1%	3.1%
Analogue Cable	0.0%	0.0%	-2.0%	0.0%	-1.2%	0.0%	0.0%	-0.1%	-1.9%	-1.3%	-1.9%	0.0%	-3.1%	-0.1%	-1.1%	-7.5%	-3.5%	0.0%
Analogue Satellite	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.13%	0.0%	0.0%	0.0%
Analogue Terrestrial	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.1%	0.0%	-0.6%	-4.1%	0.0%	-2.6%	-3.1%
<b>Total Analogue</b>	0.0%	0.0%	-2.0%	0.0%	-1.2%	0.0%	0.0%	-0.1%	-1.9%	-1.3%	-1.9%	-1.1%	-3.1%	-0.8%	-5.37%	-7.5%	-6.1%	-3.1%

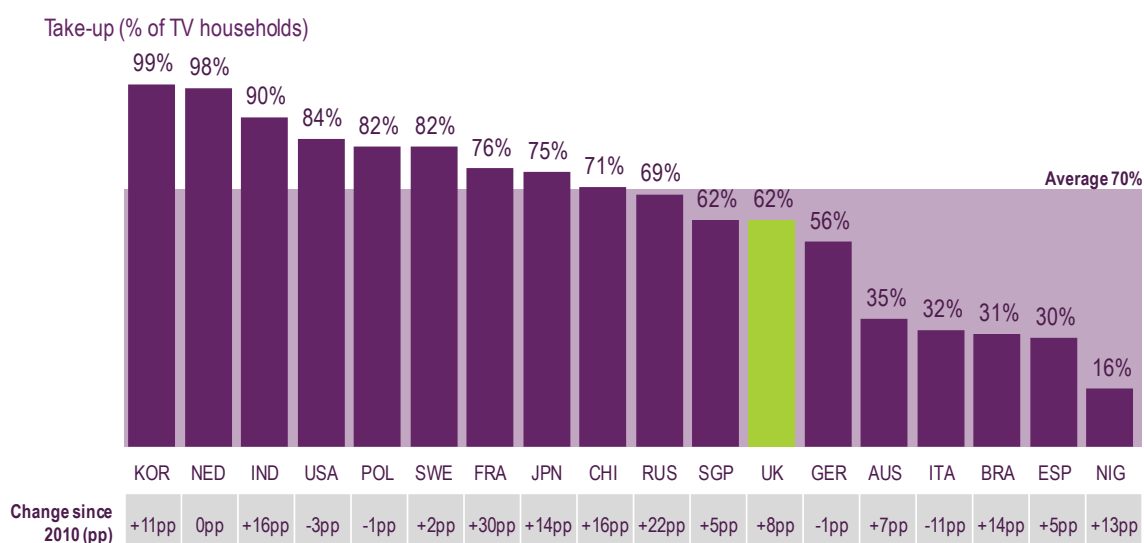
Source: IHS / industry data / Ofcom. Note: Figures represent percentage point increase across all TV homes.

### More than six in ten TV households in the UK used a pay-TV service in 2015

Take-up of pay-TV in the UK in 2015 was 62%, eight percentage points higher than in 2010. Growth in the UK pay-TV market may have been driven in part by the IPTV platform offerings introduced by BT and TalkTalk. France had the largest increase in pay-TV households; a 30pp increase. The attraction of pay-TV in France may be that IPTV is available as part of even the lower-cost triple-play bundles. Italy had the largest fall in the number of pay-TV homes over the period.

Among our non-European comparator countries, the US was the only one in which pay-TV take-up fell; 2015 take-up at 84% was down slightly on 2010 (87%). The high take-up of OTT services in the US (see Figure 4.2) may be a factor in this. Growth continues across the BRIC countries: the average for 2015 was 72%, up from 55% in 2010. In South Korea 99% of TV homes had pay-TV in 2015.

**Figure 4.19 Take-up of pay TV: 2015**



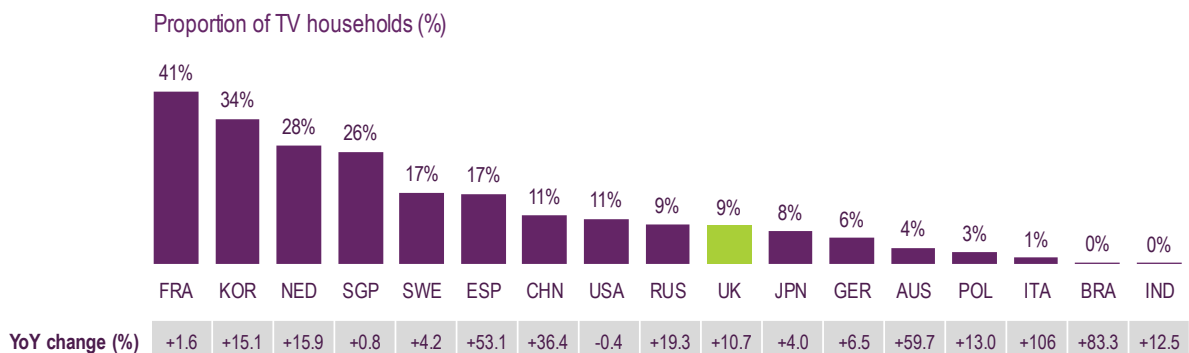
Source: IHS/ industry data/ Ofcom

### 4.3.2 IPTV services and take-up

In 2015, internet protocol television (IPTV)<sup>118</sup> continued to compete with other digital platform technologies, encouraged by the growth of triple-play bundled services in countries with high-bandwidth infrastructure. Indeed, in France and South Korea, IPTV was the most popular TV platform. Of the countries with 10% take-up or more, Spain experienced the strongest year-on-year growth (+53%). In the UK, 9% of homes now take IPTV on their main set, a 10.7% increase on the previous year. Figure 3.34 and Figure 3.37 in *the Broadband Scorecard* and Figure 4.20 below demonstrate the correlation between high availability of broadband services over 10Mbit/s, take-up of broadband services and the popularity of IPTV in some countries.<sup>119</sup> For the purposes of this report, hybrid systems such as BT TV in the UK (i.e. those that provide television services through both an aerial and an IP connection) are considered as IPTV platforms.

Take-up of IPTV on main TV sets was at least 10% in eight of our 18 comparator countries in 2015.

**Figure 4.20 Take-up of IPTV on main television sets: 2015**



Source: IHS/ industry data/ Ofcom. Note: For the purposes of this report, hybrid systems such as BT TV in the UK (i.e. those that provide television services through both an aerial and an IP connection) are considered to be IPTV platforms.

### 4.3.3 Value-added services

#### HDTV<sup>120</sup> is now available and accessed in over half of UK homes

Just over half of UK television homes received an HD service in 2015 (51%), putting the UK in tenth position among our 18 comparator countries. In the UK, almost all of those receiving cable services and almost half of those with satellite services were receiving HD. Satellite HD services were also common in Germany, Poland and Russia.

Cable HD services led the way in Italy, Spain, Netherlands, the US, Japan and China. HD over IPTV is now an established service in France, Sweden, Singapore and South Korea, all

<sup>118</sup> Internet protocol television (IPTV) is the term used to describe delivery of television channels to viewers using internet protocol (IP) technology over a broadband connection.

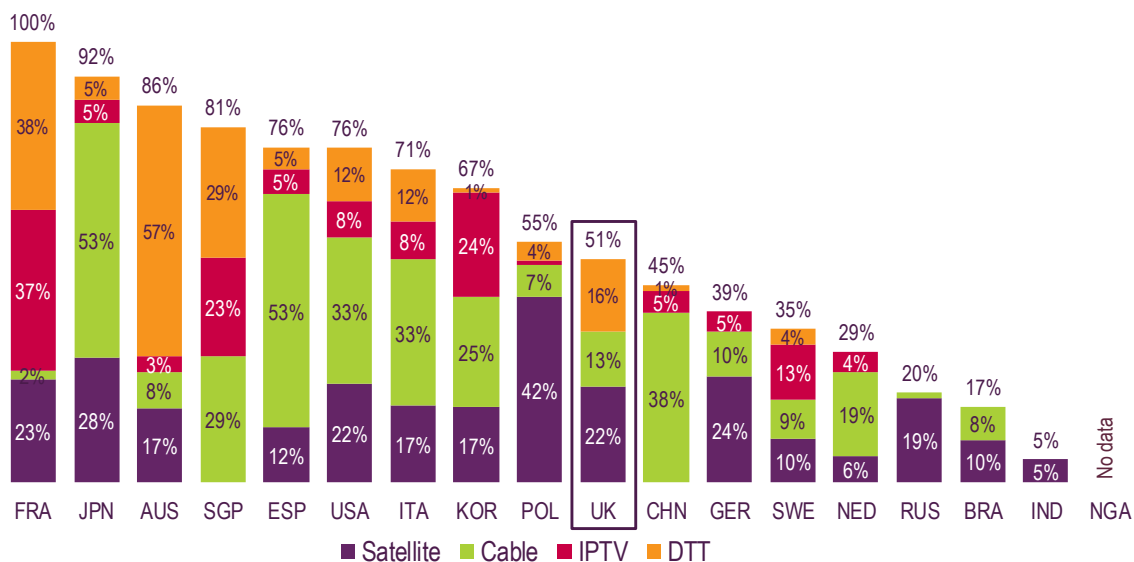
<sup>119</sup> A broadband speed of at least 2Mbit/s is recommended for accessing IPTV services. Higher speeds are preferable for accessing high definition channels using IPTV.

<sup>120</sup> HDTV refers to high-definition television. A technology that provides viewers with better quality, higher resolution pictures than standard definition. Requires both an HD-capable set and an HD signal.

nations with high availability of broadband services with headline speeds of 10Mbit/s or more (see Figure 3.34).

**Figure 4.21 Take-up of HD services, all sets, by platform: 2015**

Proportion of TV Households with HD services (%)



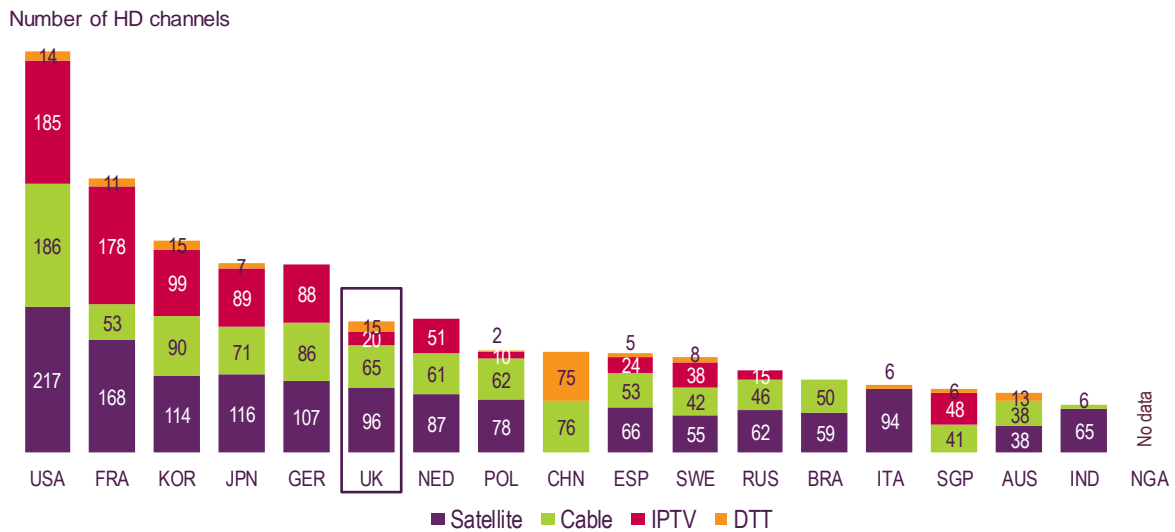
Source: IHS/ industry data/ Ofcom. Note: figures are for HD-enabled homes (those which have a HD capable television set and receive a HD signal).

**Satellite offered the greatest number of HD services in the UK in 2015**

Satellite TV platforms offered the greatest number of HD services in 13 of our 18 comparator countries, including the UK, where 96 HD channels were available via satellite in 2015. France and Singapore were the only countries in which IPTV offered more HD channels than any other platform, and this is reflected in IPTV take-up in both countries. There is little other correlation between HD take-up and the number of HD channels available on each platform. Australia, for example, has only 13 HD channels available via DTT, yet this is the most popular platform for HD in the country. Japan and South Korea have similar numbers of channels available via IPTV, yet take-up is 5% of TV households in Japan and 24% in South Korea (see Figure 4.21 above).

DTT offered the lowest number of HD services in almost all our comparator countries, with none available in Germany, the Netherlands, Russia or Brazil.

**Figure 4.22 Number of HDTV channels: 2015**

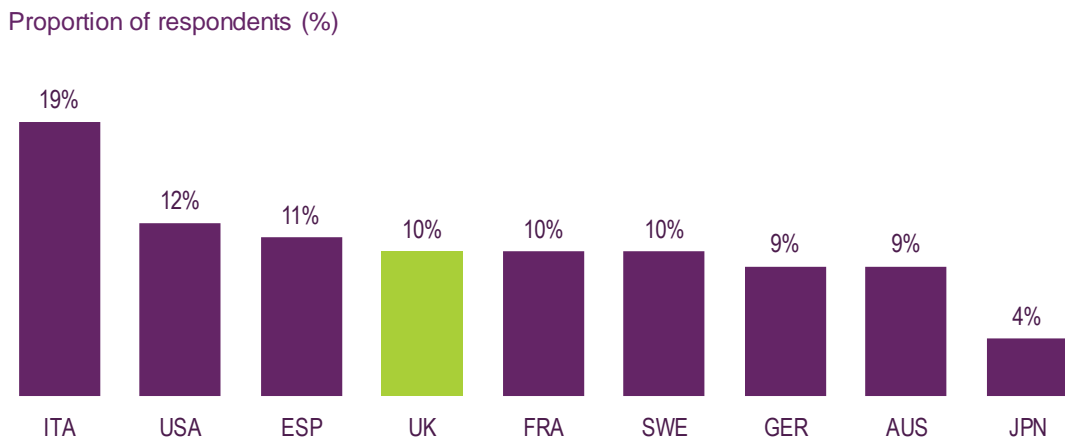


Source: IHS/ industry data/ Ofcom

**One in ten UK households claim to own an ultra-HD TV<sup>121</sup> set**

One in ten respondents in the UK claimed to own an ultra-high-definition television set, along with France and Sweden. This was half the proportion in Italy (19%), but in line with most of the other comparator countries.

**Figure 4.23 Household ownership of ultra-HD TV sets: 2015**



Source: Ofcom consumer research, October 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

Q.3a Which of the following devices do you have in your home, whether or not you use it personally?

<sup>121</sup> Ultra-HD is the next generation of high-definition broadcast, which offers up to four times the definition of HD. At the time of publishing, in the UK, UHD services were available via BT's UHD sports channel, the Sky Q set-top box and some Netflix, Amazon Prime Video and YouTube content.

#### 4.3.4 Broadcast television viewing

##### **The average minutes of broadcast television viewing per person per day in the UK fell by 1.9% in 2015**

The average time spent watching broadcast TV,<sup>122</sup> across our 15 comparator countries, was 3 hours 41 minutes per person per day in 2015, compared to 3 hours 43 minutes in 2014.

The UK experienced a year-on-year decline in viewing broadcast TV (-1.9%), with people watching an average of 3 hours 36 minutes of TV each day. The decline was more pronounced in the Netherlands, Australia, Italy and the US, all as a result of falls in live<sup>123</sup> rather than time-shifted<sup>124</sup> viewing. With the exception of Italy, these markets all experienced a year-on-year increase in time-shifted viewing.

In the UK in 2015, time-shifted viewing contributed 13% to total daily viewing, while in the US it contributed 11%. This growth, however, is not enough to counter-balance the overall decline in live viewing. Factors that influence the decline in live viewing are time-shifted viewing, the increasing take-up of SVoD services,<sup>125</sup> streaming video, and other types of non-broadcast viewing activities on devices like smartphones, e.g. watching short-form video.<sup>126</sup>

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<sup>122</sup> Scheduled TV programming which is available to all viewers simultaneously (such as those listed in electronic programme guides (EPG)). It includes time-shifted viewing of these programmes up to a specified number of days. Appendix B in the *Technical appendix* details what is reported for each comparator country: <https://www.ofcom.org.uk/research-and-data/cmr/cmr16/international>

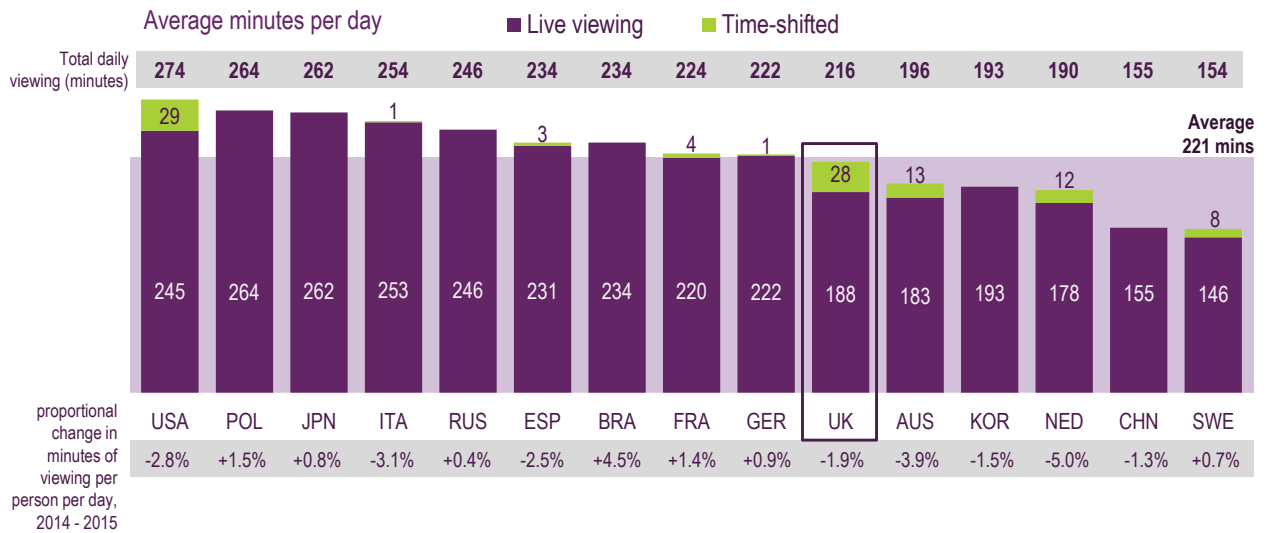
<sup>123</sup> Watching programmes during broadcast at the scheduled time, not only to live events such as football matches.

<sup>124</sup> Includes any playback within a number of days after live broadcast, as well as pausing or rewinding live TV. Not all comparator countries measure or report time-shifted viewing, so please see the methodology section for further information.

<sup>125</sup> A subscription service (usually paid monthly) that offers video-on-demand content (SVoD) usually delivered via the internet. Services may offer live streaming to a selection of channels/content as well as VoD content. For further information, please see Appendix B of the *Technical appendix*: <https://www.ofcom.org.uk/research-and-data/cmr/cmr16/international>

<sup>126</sup> For more information on the UK please see sections 2.1.4 *Behaviour and attitudes of SVoD users* and 2.3.2 *Recent changes in TV viewing* in Ofcom's 2016 *Communications Market Report*: [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0024/26826/cmr\\_uk\\_2016.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0024/26826/cmr_uk_2016.pdf)

**Figure 4.24 Average minutes of broadcast TV viewing per person per day: 2014 – 2015**



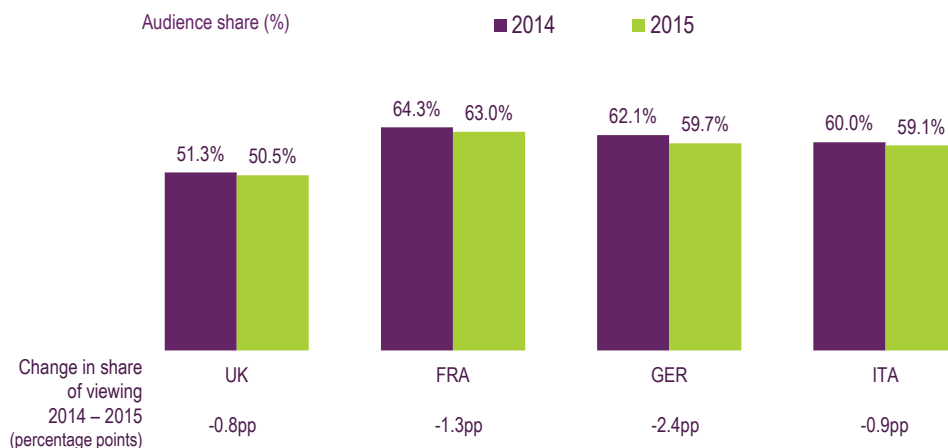
Source: Médiamétrie, Eurodata TV Worldwide – One Television Year in the World 2016. Time-shifted viewing not recorded/measured in the following countries: JPN, POL, KOR, BRA, RUS and CHN. Viewing in France relates to France National. Japan Kanto region, considered to be the main TV market in Japan (national data are not available). Viewing in Australia relates to Australia Regional which is calculated on the regions Queensland, Northern NSW, Southern NSW, Victoria & Tasmania and Regional Western Area. Note: the definition of Australia regional changed in 2014 to include Regional Western Australia.

### 4.3.5 Legacy terrestrial channels viewing

The combined share of the main five PSB channels in the UK remained stable year on year

The legacy terrestrial channels<sup>127</sup> across the UK, France, Germany and Italy continued to account for over half of total TV viewing in 2015. In the UK, the share of viewing to legacy terrestrial channels (BBC One, BBC Two, ITV, Channel 4 and Channel 5) remained generally steady at 50.5%.

**Figure 4.25 Legacy terrestrial channels: 2014 - 2015**



<sup>127</sup> Legacy terrestrial channels are based on Médiamétrie’s definition of channels considered to be ‘historical leaders’ in their respective markets.



Source: Médiamétrie, Eurodata TV Worldwide – One Television Year in the World 2016.

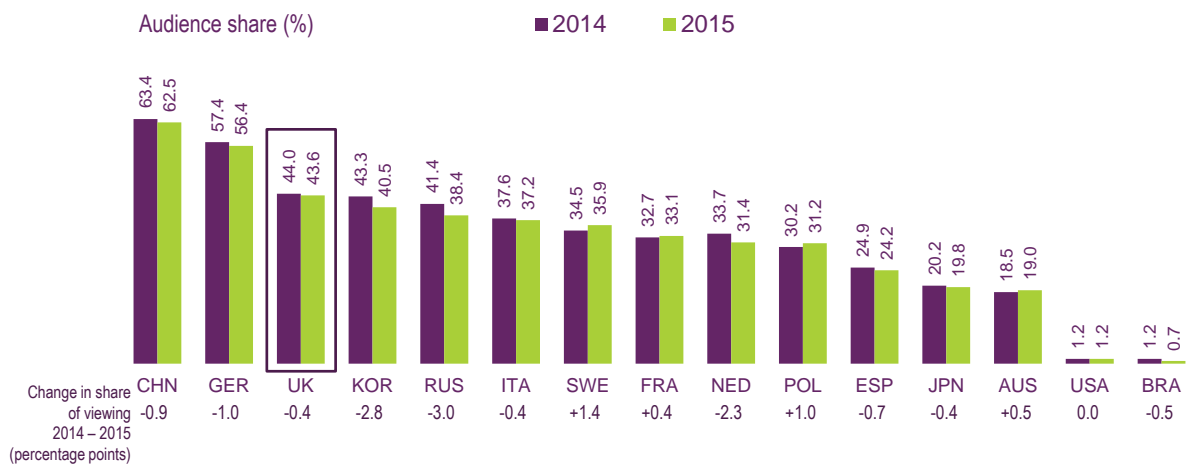
Notes: Legacy terrestrial channels are based on Médiamétrie’s definition of channels considered to be ‘historical leaders’. UK= BBC One, BBC Two, ITV, Channel 4, Channel 5 (inc HD variants, exc +1s)  
 Germany = ARD, ARD 3, ZDF, RTL, Sat1, Pro7  
 France = TF1, France 2, France 3, Canal+, France 5 24/24H, Arte 24/24H, M6  
 Italy = Rai Uno, Rai Due, Rai Tre, Canale 5, Italia 1, Rete 4, La 7

### 4.3.6 Domestic publicly-owned channels viewing

**Audience share of viewing to publicly-owned channels in the UK was stable year on year**

In the UK, the publicly-owned channels from the BBC, Channel 4<sup>128</sup> and S4C showed a combined share of 43.6%, which remained stable year on year. While BBC One marginally increased its share, BBC Two’s share dipped and Channel 4’s was unchanged. These three channels alone accounted for the majority of viewing to all publicly-owned channels in the UK.<sup>129</sup>

**Figure 4.26 Viewing of domestic publicly-owned channels: 2014 - 2015**



Source: Médiamétrie, Eurodata TV Worldwide – One Television Year in the World 2016.

Notes: UK - all channels including HD and +1 feeds and BBC red button channels. GER: includes Fernsehen regional channels. ITA - includes all Rai channels. Mixed ownership (domestic/private) channels included in chart for Russia (Pervy Kanal, Karusel), France (Gulli) and South Korea (Euronews)

<sup>128</sup> BBC One, BBC Two, BBC Three (ceased March 2016), BBC Four, BBC News, BBC Parliament, CBBC, CBeebies and BBC red button services, along with Channel 4, E4, More4, Film4, 4seven, 4Music including HD and +1 variants.

<sup>129</sup> For more information, please see section 2.3.3 *Broadcast TV viewing trends* in Ofcom’s *Communications Market Report 2016*:

[https://www.ofcom.org.uk/data/assets/pdf\\_file/0024/26826/cmr\\_uk\\_2016.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0024/26826/cmr_uk_2016.pdf)

# The International Communications Market 2016

## 5 Radio and audio

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# 5.1 Radio and audio: overview and key market developments

## 5.1.1 Overview

### **The UK's radio industry is the fourth largest among our 18 comparator countries**

The UK's radio industry generated £1.2bn in 2015, making it the fourth largest radio industry across our 18 comparator countries. At £19.30, the UK had the fifth highest total revenue per head, behind the US, Germany, Sweden and Australia. Overall, the worldwide radio industry generated £28.6bn in 2015, with more than three-quarters of worldwide radio revenue coming from advertising.

The BBC, through the licence fee, contributed 57% to overall UK radio industry revenue in 2015; only in Germany and Sweden did public licence fee money contribute a greater proportion of overall radio revenue in 2015.

### **At least nine in ten UK households listen to radio**

Listening to the radio remained popular in 2015, with 90% or more of households listening at least once a week in the UK, Sweden, Poland, Singapore and China. Digital radio has proved to be particularly successful in the UK, with both coverage and set take-up ranking highest among the comparator countries throughout 2016 (at 97% and 33% respectively).

### **Consumers listen to audio content via a range of formats**

Consumers have greater choice than ever before when they listen to audio content – they are looking beyond the radio set to formats both old and new. Streaming services, such as Spotify and Apple Music, podcasts and physical media like vinyl, continue to be used across our comparator countries.

While listening to the radio was the most popular way of listening to audio content in each of the countries surveyed, our research shows that people are embracing new technology as well as sticking with more traditional listening habits. In the UK, more than one in four respondents said they consumed audio through a portable media player (such as a smartphone) or a physical media player (such as a hi-fi or cassette player), while the weekly use of such devices was claimed by at least one in three people in Italy.

**Figure 5.1 Key metrics: 2015**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN	NGA
Total industry revenue (£bn)	1.2	0.9	2.6	0.3	13.9	0.7	0.6	0.3	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0.2	1.5	0.1
Revenue per capita (£)	19.3	14.7	31.7	5.8	43.2	5.4	23.6	7.1	14.4	25.7	2.4	15.6	3.3	1.2	0.9	0.2	1.1	0.3
% income from public licence fees	57	41	79	22	N/A	5	N/A	N/A	30	78	6	N/A	21	N/A	N/A	N/A	N/A	N/A
Reach of radio (% households)	90	82	69	85	76	38	62	71	88	94	95	93	--	84	63	--	98	20
Digital radio coverage (% population)*	97	19	96	75	-	-	65	-	95	-	-	-	-	-	-	-	-	-
Digital radio set take-up (% population)*	33	8	13	17	8	5	18	10	-	11	-	-	-	-	-	-	-	-
Audio streaming use on a smartphone (% smartphone users)*	26	22	22	30	36	24	26	30	-	39	-	-	-	-	-	-	-	-

Sources: Ofcom, PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook), IHS, WorldDAB. Figures for 2015, with the exception of those with an \* which are for 2016.

### 5.1.2 The UK leads the way in digital radio

**At 97% of the UK population, DAB coverage was highest in the UK among our comparator countries in 2016**

DAB coverage in the UK reached 97% of the UK population in 2016, with the BBC continuing work on its national network to increase coverage. A second national commercial network, Sound Digital, launched earlier in 2016, which led to an additional 18 stations going on air nationally, some of these using DAB+ audio encoding.<sup>130</sup>

Germany and the Netherlands have also rolled out DAB coverage to at least 90% of the population, with a 5pp coverage growth in Germany between 2013 and 2016.

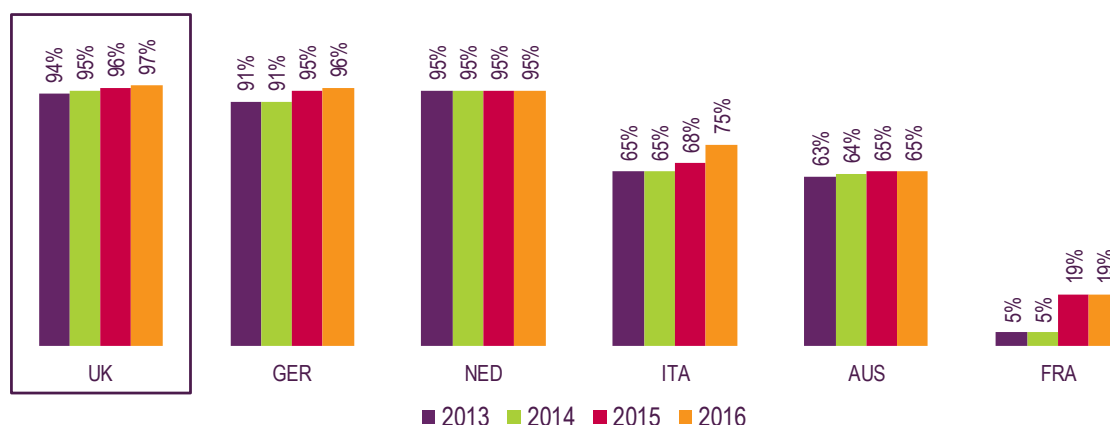
In France, roll-out of digital radio started later than in the UK, with the first regular DAB+ services launching in Paris, Nice and Marseille in June 2014. The regulator, CSA, has produced a timetable to continue the deployment of digital broadcast radio throughout mainland France until 2023.<sup>131</sup> Meanwhile, DAB coverage continues to grow across Europe, with new services coming on air in Slovenia, and networks being extended in Norway, Belgium, Italy and Switzerland.

<sup>130</sup> DAB+ technology encodes sound in a more efficient way than traditional DAB.

<sup>131</sup> <http://en.www.csa.fre05d.systranlinks.net/Espace-juridique/Decisions-du-CSA/Le-CSA-adopte-le-calendrier-qu-il-envisage-de-mettre-en-aeuvre-pour-poursuivre-le-deploiement-de-la-RNT>

**Figure 5.2 Population coverage of DAB/ DAB+/ DMB digital radio: 2013 - 2016**

Proportion of population (%)



Source: WorldDAB, December 2016

Note: Regular DAB+ services were launched in France in June 2014. Before this, trial services had been on air in Lyon and Nantes since 2012 covering about 5% of the population in DAB+ and DMB. In 2014 regular services started in Paris, Marseille and Nice covering about 19% of the population with regular services (DAB+ and DMB), in addition to the trial services in Lyon and Nantes. Please note that Lyon and Nantes are not included in the 19% coverage calculation. From 2014 to 2016, DMB services moved to DAB+. Since summer 2015, all radio services have been DAB+.

### Take-up of digital radio sets is highest in the UK, at 33%, in 2016

Take-up of digital radio sets in the UK was 33% in 2016, the highest figure among the countries surveyed.<sup>132</sup> The next highest levels of take-up were in Italy and Australia, with 17% and 18% of respondents respectively saying they owned a digital set.

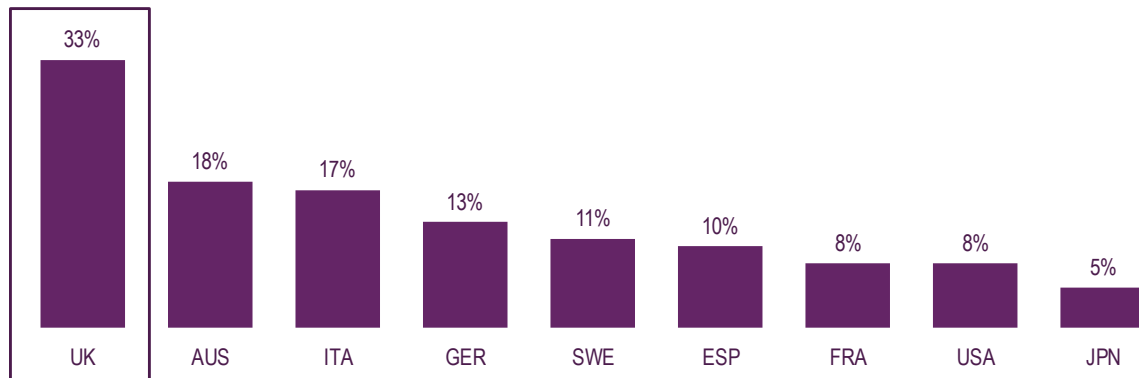
Interestingly, take-up of digital radios was relatively low (13%) in Germany, despite near-universal coverage by the end of 2016. The German-French Radio Commission is actively seeking measures to boost digital radio take-up. At a meeting in June 2016<sup>133</sup> it requested that the German and French Governments ask EU institutions to assist with EU-wide market development of digital radio, by making it mandatory for all new radio receivers sold to be equipped with DAB+.

<sup>132</sup> This figure rises to 45% among regular radio listeners. Both figures are smaller than those reported in the 2016 CMR, as different methodologies were used to collect each figure.

<sup>133</sup> <http://www.worlddab.org/country-information/france>

**Figure 5.3 Take-up of digital radio sets: 2016**

Proportion of respondents (%)



Source: Ofcom consumer research, October 2016

Q. Which of the following devices do you have in your home, whether or not you use it personally?

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

## 5.2 The radio industry

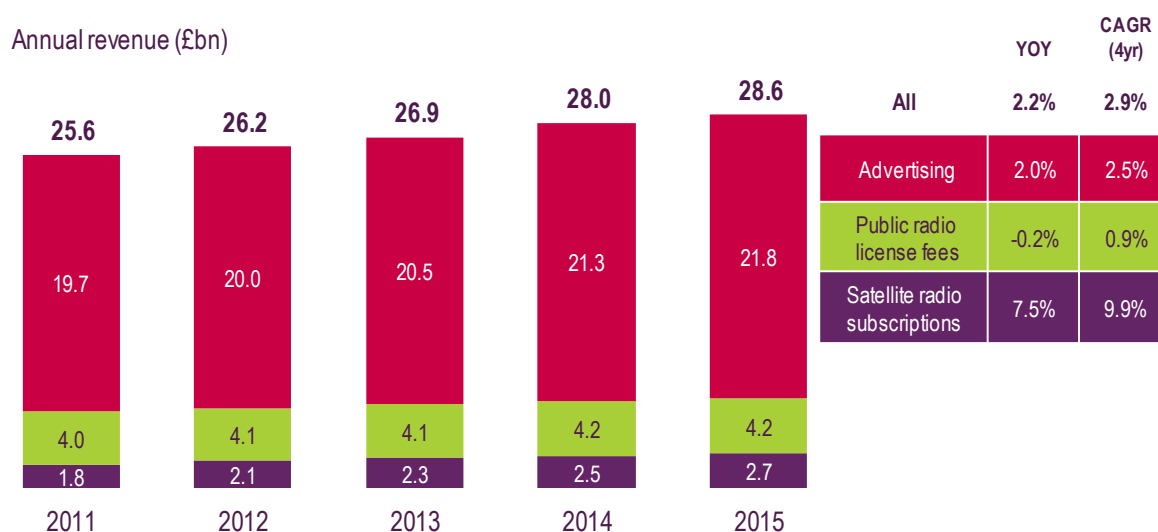
### 5.2.1 Revenue

#### Worldwide radio revenues stood at £28.6bn in 2015

Worldwide radio revenues were £28.6bn in 2015. Advertising revenues have contributed over three-quarters of the total figure each year since 2011, and totalled £21.8bn in 2015.

At £4.2bn, public radio licence fees made up the next greatest proportion of worldwide radio revenue in 2015, followed by satellite radio subscriptions at £2.7bn.

**Figure 5.4 Worldwide radio revenue: 2011 - 2015**



Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. Note that the UK radio industry figure is sourced from broadcaster returns made to Ofcom. All figures expressed in nominal terms.

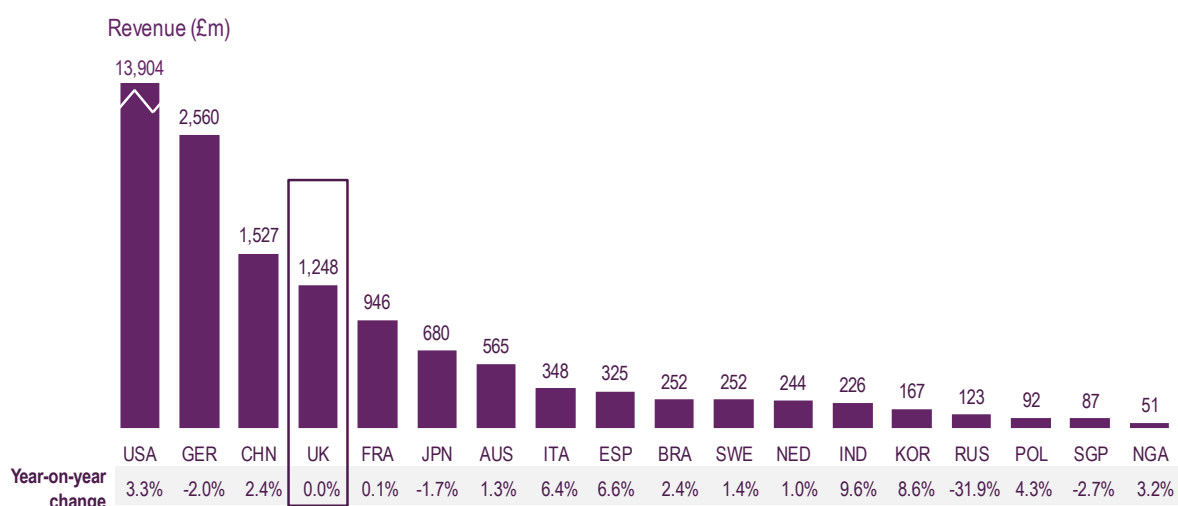
#### The UK, Germany, the US and China were the only comparator countries to generate revenues greater than £1bn in 2015

Among our comparator countries, the US had the largest radio sector by value, standing at £13.9bn in 2015.

Germany had the largest radio sector (by revenue) across European comparator countries, generating revenues of £2.6bn in 2015, while China had the third largest sector of the 18 countries, with revenues of £1.5bn. The UK was the only other comparator country to generate revenues greater than £1bn in 2015, at £1.2bn.



**Figure 5.5 Radio industry revenues: 2015**



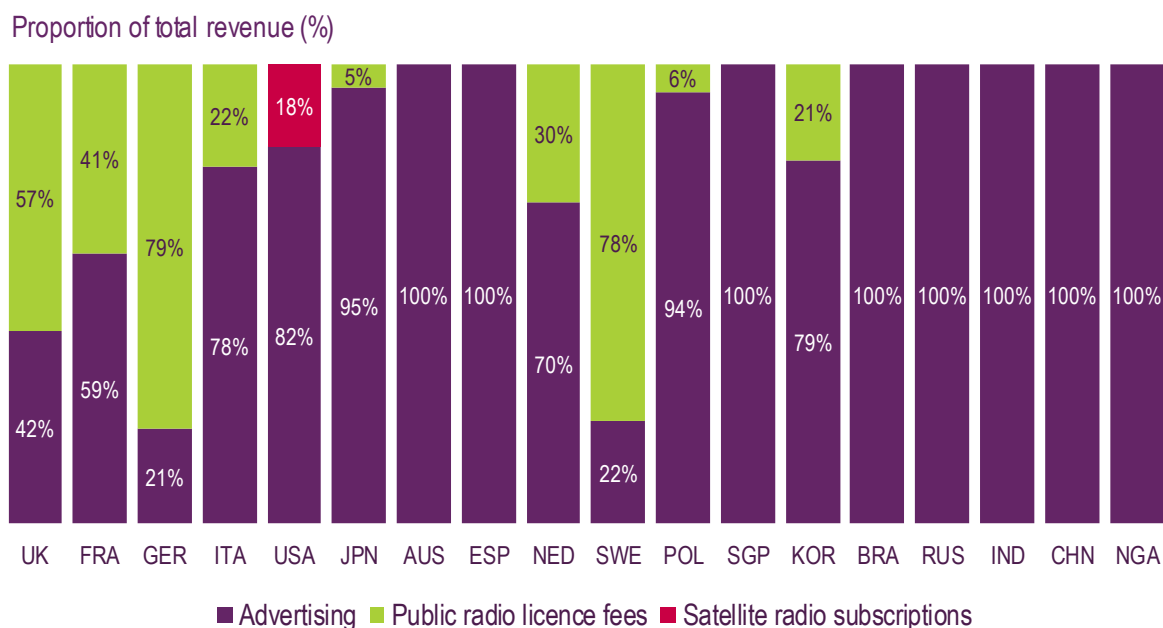
Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. Note that the UK radio industry figure is sourced from broadcaster returns made to Ofcom. All figures expressed in nominal terms.

### Public radio licence fees made up the majority of industry revenue in the UK, Germany and Sweden in 2015

Of the 18 comparator countries, nine of the radio markets are part-funded by public radio licence fees; with the exception of Japan and South Korea, all these countries are within Europe. Public radio licence fees constituted the majority of revenue in three of these countries: Germany, Sweden and the UK.

Germany and Sweden have the highest public funding ratios, with 79% and 78% of revenues coming from public radio licence fees respectively in 2015. Of the markets that are partially public-funded, the licence fee contributes the least in Japan (5%) and Poland (6%).

**Figure 5.6 Proportion of radio revenue, by source: 2015**



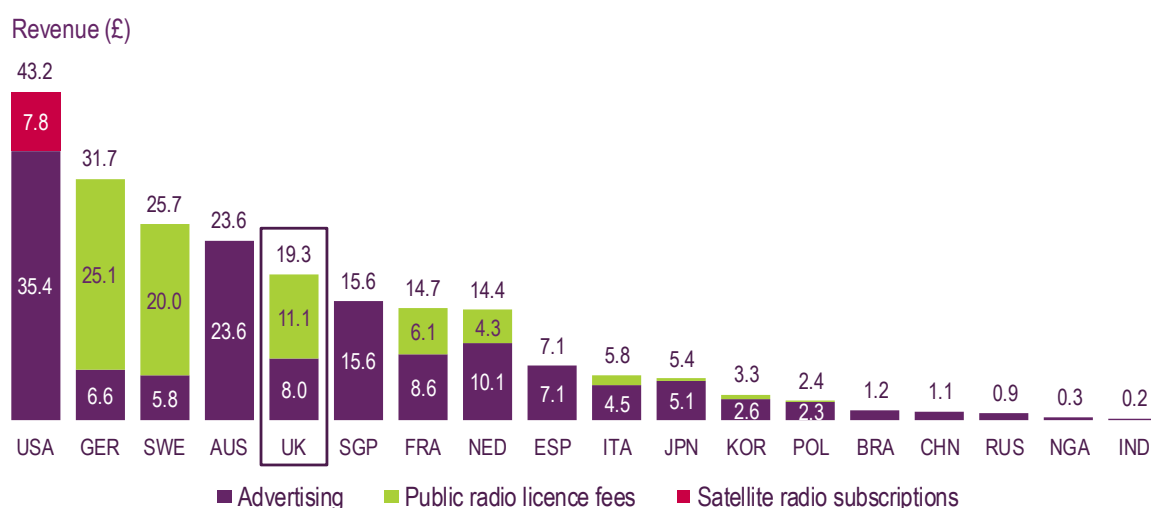
Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. Note that the UK radio industry figure is sourced from broadcaster returns made to Ofcom. All figures expressed in nominal terms.

### The US, Germany and Sweden generated the highest revenue per head of population in 2015

As well as having the largest absolute figure of revenue among comparator countries in 2015, the US generated the highest total revenue per head of population, at £43.2. Germany, Sweden and Australia were the only other countries where revenue per head was above £20 in 2015.

In the UK, revenue per head was £19.3 in 2015; Singapore had the highest figure among Asian comparator countries at £15.6 per person.

**Figure 5.7 Radio industry revenues, per head of population: 2015**



Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [www.pwc.com/outlook](http://www.pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. Note: the UK radio industry figure is sourced from broadcaster returns made to Ofcom. All figures are expressed in nominal terms.

## 5.2.2 Availability of broadcast radio

### The US had the largest number of radio stations broadcasting in 2015

The US has consistently had the greatest number of radio stations on air each year since 2010, with 23,256 broadcasting at the end of 2015.<sup>134</sup> Brazil had the second greatest number of broadcast stations in 2015, with 9,776. By comparison, the latest figures show that the UK had 923 stations broadcasting across AM, FM and DAB, an increase on 859 in the previous year.<sup>135</sup>

Among the eight European comparator countries, Spain had the most radio stations broadcasting in 2015, at 2,316 stations, followed by 1,273 in Italy. There has been a decline in the number of Italian radio stations in recent years, due to the closure of smaller stations and consolidation in the market.

<sup>134</sup> It is understandable that the countries with larger populations and greater geographic sizes tend to have the greatest number of radio stations,

<sup>135</sup> See [Ofcom's Digital Radio Report](#) for more information.

**Figure 5.8 Number of radio stations, by country: 2010 - 2015**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN	NGA
2010	745	794	518	-	21,609	372	-	-	349	120	318	19	151	8,601	638	481	465	96
2011	762	794	518	-	21,889	372	273	-	349	134	323	19	151	9,184	638	486	581	120
2012	772	794	518	-	22,080	372	273	-	349	134	326	19	151	9,479	638	522	726	150
2013	803	814	518	1,300	22,173	372	273	2,258	349	134	332	19	151	9,589	638	618	907	188
2014	859	800	485	1,297	22,492	365	273	2,239	360	130	335	18	161	9,629	653	655	1,506	240
2015	923	839	488	1,273	23,256	337	273	2,316	378	134	316	18	161	9,776	672	657	1,494	283

Source: IHS/Ofcom

## 5.3 The audio consumer

### 5.3.1 Radio set ownership

#### Germany, Italy and Spain had the highest rates of radio set take-up in the home in 2016

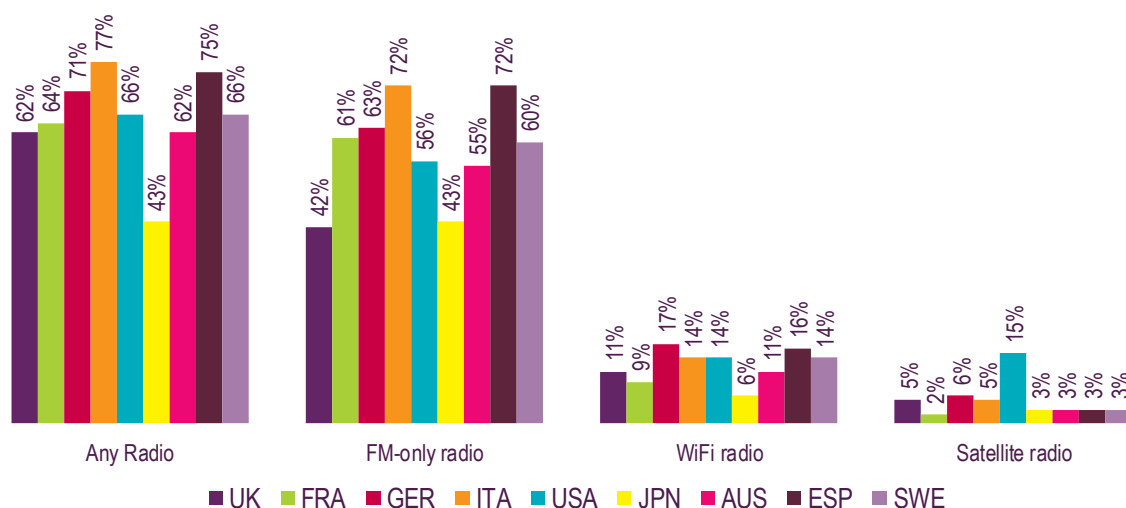
At least seven in ten respondents said they had a radio in the home in Germany, Italy and Spain in 2016. Take-up was lower in the UK, at 62%, and lowest in Japan, at 43%.

FM radios were the most-owned radio sets across each comparator country, with Spain and Italy each reporting the greatest levels of uptake, at 72%. Take-up in the UK was significantly lower at 42%. However, it is worth noting the far greater DAB radio take-up in the UK shown in Figure 5.3, with most DAB radio sets including an FM tuner.

Satellite radio is most popular in the US, with reported take-up of 15% in 2016. The satellite radio industry has seen strong growth in recent years. Sirius XM (the company that provides satellite radio services in the US) saw its subscriber base grow by 2.3 million in 2015 (the strongest growth in eight years) to approximately 29.6 million by the end of the year.<sup>136</sup>

**Figure 5.9 Take-up of types of radio set: 2016**

Proportion of all respondents (%)



Source: Ofcom consumer research October 2016

Q. Which of the following devices do you have in your home, whether or not you use it personally?

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

### 5.3.2 Regular listening to radio and other audio content

#### At least seven in ten respondents listen to audio content at least once a week, in most comparator countries

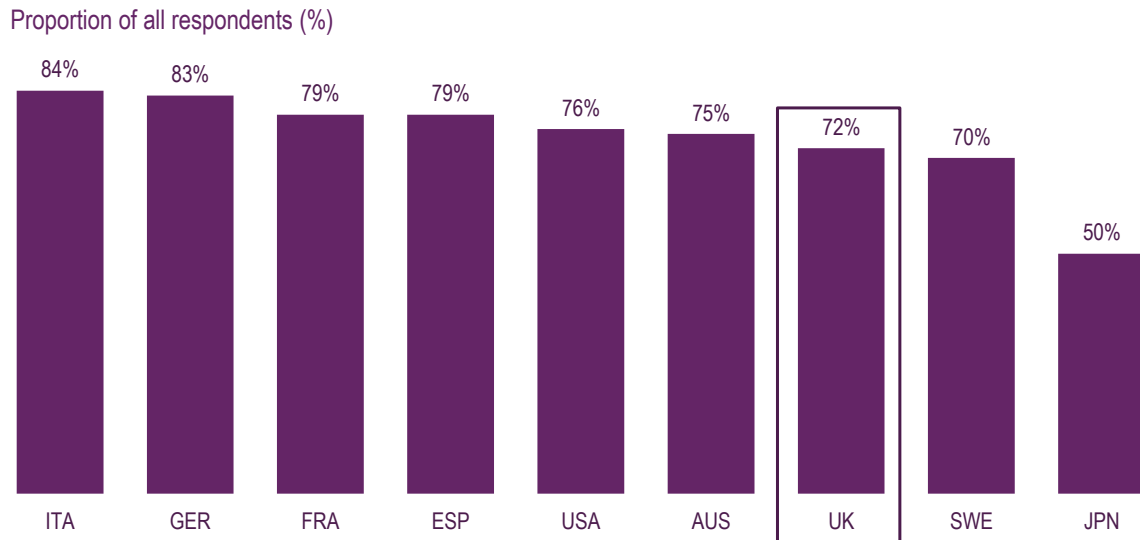
With the exception of Japan (50%), at least seven in ten people claimed to listen to audio content at least once a week in 2016, with 72% claiming to do so in the UK.

<sup>136</sup> Sirius XM, Fourth Quarter and Full-Year 2015 Results, 2 February 2016:

[http://s2.q4cdn.com/835250846/files/doc\\_financials/annual2015/SiriusXM-Reports-Fourth-Quarter-and-Full-Year-2015-Results.pdf](http://s2.q4cdn.com/835250846/files/doc_financials/annual2015/SiriusXM-Reports-Fourth-Quarter-and-Full-Year-2015-Results.pdf)

These figures represent the findings when respondents were asked whether they regularly listened to the radio or listened to music via a portable media player or physical media player. Figure 5.11 shows the splits of these figures, by device.

**Figure 5.10 Listeners to any audio content at least once a week: 2016**



Source: Ofcom consumer research, October 2016

Q.6 Which of the following do you regularly do (at least once a week)?

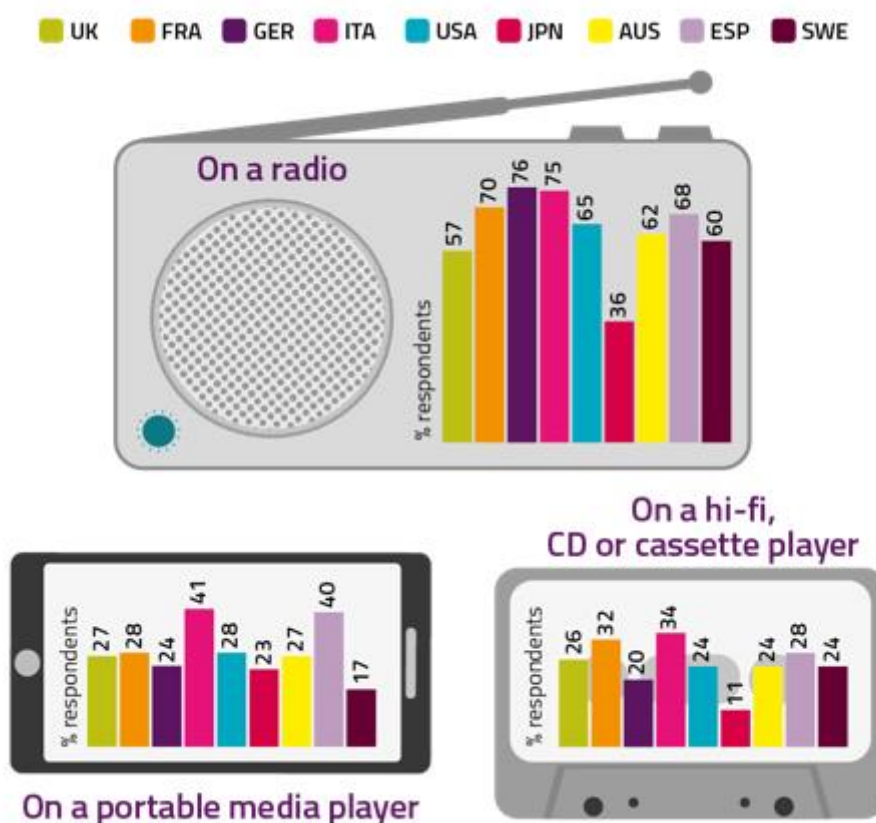
Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

### **Listening to the radio was the most common way to consume audio content in each comparator country in 2016**

Listening to the radio was the most popular form of regular audio consumption across each comparator country, with three-quarters of people claiming to listen at least once a week in Germany and Italy.

Around one in four respondents in the UK listen to music through a physical platform such as a vinyl, CD or cassette player, lower (among comparator countries) than only France and Italy.

**Figure 5.11 Use of devices to consume audio content at least once a week: 2016**



Source: Ofcom consumer research, October 2016

Q. Which of the following do you regularly do (at least once a week)?

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

### The weekly reach of radio is greatest in China (98%) and Poland (95%)

A wider comparison of radio reach in the comparator countries reveals a slightly different picture. In 2015 the majority of households listened to radio in most of our comparator countries; reach was greatest in China at 98%.

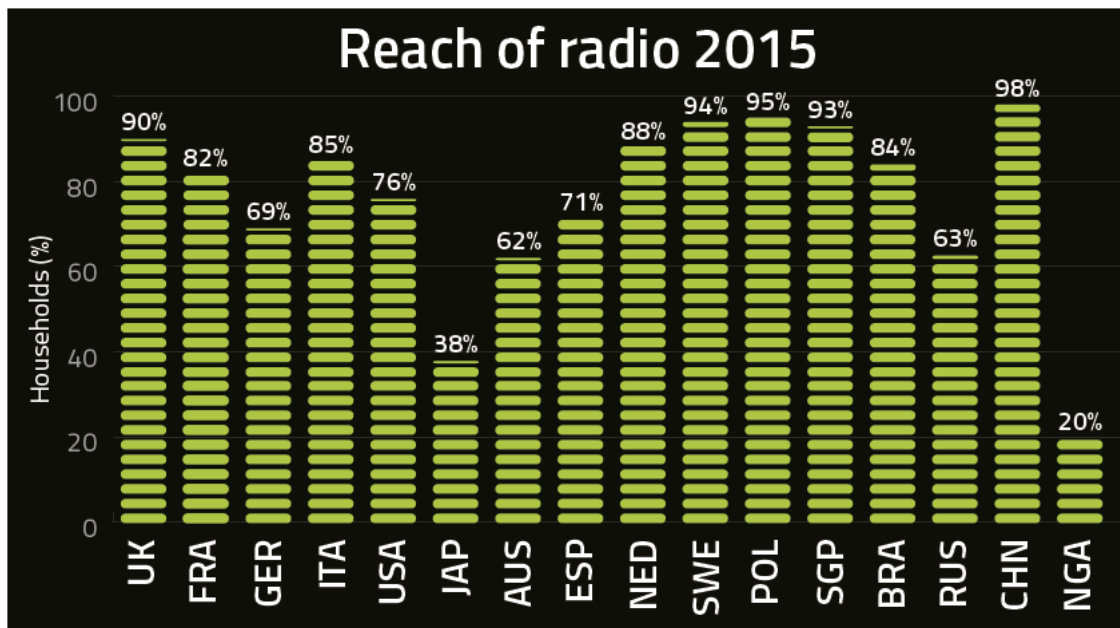
In the UK, nine in ten households regularly listened to radio across any platform in 2015, a figure significantly higher than the 57% of the UK population from Ofcom research reported in Figure 5.11. The weekly reach figures for the UK are provided by RAJAR,<sup>137</sup> and measure listening to radio services across numerous platforms including through digital radio sets, TV services, online and in-car radios. In comparison, our consumer research is likely to have picked up listeners to a traditional radio set only.<sup>138</sup>

Nigeria and Japan had the lowest proportion of radio listeners among comparator countries, and were the only two countries where reach was below 50%.

<sup>137</sup> RAJAR is the Radio Joint Audience Research, the pan-industry body which measures radio listening in the UK.

<sup>138</sup> Our research was designed to compare communications use and attitudes between different countries, not to provide a definitive measure of the consumption of media in any one country.

Figure 5.12 Reach of radio: 2015



Source: IHS

Note: Measurement systems in different countries are likely to use different methodologies, so comparisons between countries should be treated as indicative only. Data for South Korea and India were unavailable.

### Listeners in Poland tune in for the longest time each week

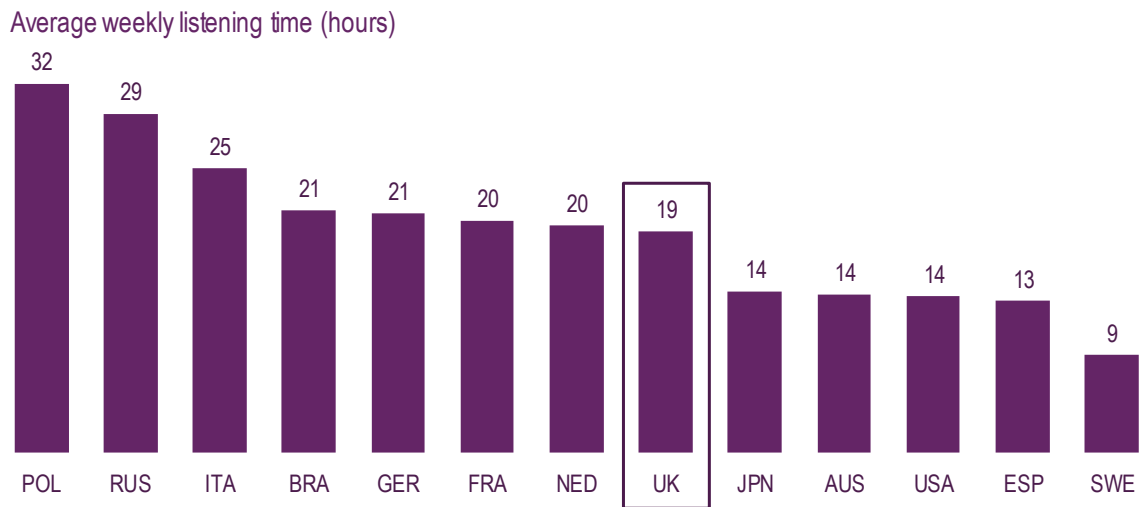
As well as having the highest reach across European comparator countries, listeners in Poland spent the longest amount of time doing so, at an average of 32 hours per week in 2015. In comparison, listeners in the UK spent an average of 19 hours a week listening to radio over the year.<sup>139</sup>

Despite the relatively low reach figures shown in Figure 5.12, people in Russia listened to 29 hours of radio on average in a week. Conversely, listeners in Sweden spent nine hours a week listening to the radio on average, despite 94% of households tuning in at least once a week in 2015.

<sup>139</sup> This is lower than the 21 hours reported for the UK in the CMR, as the entire UK population is used to allow for a comparison across countries, as opposed to adults (15+) used by RAJAR.



**Figure 5.13 Average weekly radio listening hours: 2015**



Source: IHS

Note: Measurement systems in different countries are likely to use different methodologies, so comparisons between countries should be treated as indicative only. Data for Singapore, South Korea, India, China and Nigeria were unavailable.

### 5.3.3 Audio consumption on smartphones

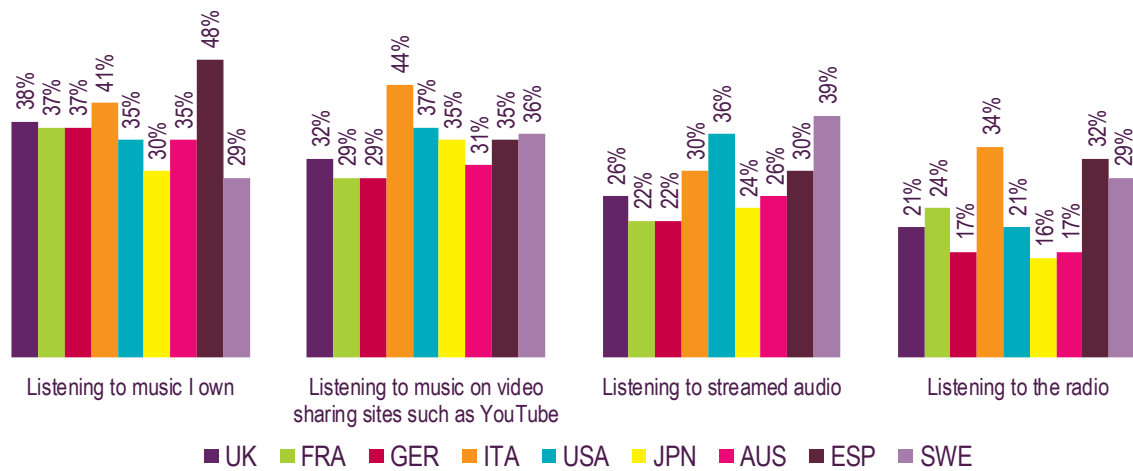
#### Listening to music already owned is the most common way for smartphone users to consume audio content through their device in the UK

The development of smartphone technology has led to increasing options for listening to audio content. The UK is one of five countries where listening to music already owned is the most common way of listening to audio content for smartphone users. This is most likely to be content purchased from an online store, but may also include music imported from CDs and vinyl.

Listening to music videos on video-sharing sites such as YouTube is the next most popular consumption method among UK smartphone users, at 32%. This allows consumers to listen to their favourite tracks for free, often after viewing a small advert, and is a particularly popular listening method for smartphone users in Italy and the US.

**Figure 5.14 Use of a smartphone/ mobile phone to listen to audio content: 2016**

Proportion of respondents who personally use each device (%)



Source: Ofcom consumer research, October 2016

Q.12 Which, if any, of the following audio activities do you use each of your devices for? - mobile phone/ smartphone

Base: All respondents who personally use each device (q4a), UK=799, FRA=825, GER=861, ITA=939, USA=782, JPN=759, AUS=851, ESP=877, SWE=854

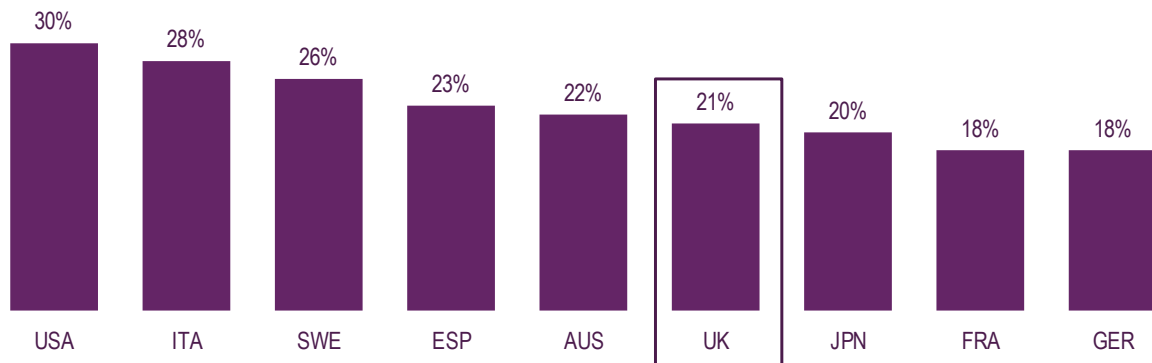
### Using a smartphone to download audio content is most popular among respondents in Italy and the US

At 21%, fewer smartphone users in the UK reported using their device to download audio content – such as music tracks or podcasts – than in Italy, the US or Sweden in 2016.

With nearly one in three respondents using their smartphone to download audio content in the US, this may reflect not only the appeal of popular music there, but also a burgeoning podcast sector. In recent years, shows such as *Serial* and *WTF with Marc Maron* have gained cultural significance, and smartphones are a convenient way to access such content.

**Figure 5.15 Use of a smartphone/ mobile phone to download audio content: 2016**

Proportion of respondents who personally use a mobile phone (%)



Source: Ofcom consumer research, October 2016

Q.12 Which, if any, of the following audio activities do you use each of your devices for? - mobile phone/ smartphone

Base: All respondents who personally use each device (q4a), UK=799, FRA=825, GER=861, ITA=939, USA=782, JPN=759, AUS=851, ESP=877, SWE=854

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# The International Communications Market 2016

## **6 Internet and online content**

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# 6.1 Internet and online content: overview and key market developments

## 6.1.1 Overview

### **Portable devices were more popular than desktops in all the comparator countries**

In the UK, 78% of consumers have access to a laptop and 72% use a smartphone, but only 53% of consumers have desktop computers. Among our comparators, the UK stands relatively high on tablet take-up, at 60%, which is significantly higher than take-up in France, Germany, the US, Japan and Australia. However, the UK is comparatively low on smartphones; take-up is lower than in the majority of countries, with the exception of the US and Japan.

Smartphones stand out as being the device of choice for consumers to use to spend time online, across all the comparator countries. In the US, smartphone users spent 87 hours per month browsing on their smartphones, compared to 34 hours on their laptops or desktops. UK smartphone users spent the second-longest time browsing online, at 66 hours per month.

### **The UK reported the third highest use of smartphones for shopping online**

The wide availability and use of smartphones demonstrates the increased connectivity across the UK and other comparator countries. Consumers in each of our comparator countries use their smartphones for a wide range of activities including banking, streaming, booking cabs and reserving tables at restaurants (Figure 1.1). The UK reported the third highest use of smartphones for browsing or shopping online, behind Italy and the US.

### **Online advertising spend grew for all our comparator countries**

The popularity of smartphones is reflected in substantial year-on-year increases in mobile advertising spend per head, with the UK maintaining its position in second place (£39.63 in 2015) behind the US (£42.02). In 2015, China had the greatest share of all advertising expenditure on the internet; 53% of all its advertising spend was online, overtaking the UK (48%) and Sweden (48%).

### **Google and Facebook were among the most-visited online entities among the majority of comparator countries**

Turning to the most frequently accessed online content, Google sites are the most-visited online entity, among the majority of comparator countries, on laptops and desktops, with the exception of Japan, where Yahoo is the top online entity. Social networking continues to be popular among consumers; in the UK, 73% use social networking sites at least once a week. In Italy and Spain, more than eight in ten consumers access social networks every week. In the UK, the US, Italy and Spain, Facebook is the second most visited online entity accessed on a smartphone or tablet.

**Figure 6.1 Key metrics: 2015 and 2016**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN	NGA
<sup>1</sup> Online Universe (MM) (2016)	41	38	52	25	205	59	16	21	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>2</sup> Desktop take-up (%)	53	58	63	63	61	51	61	69	n/a	56	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>2</sup> Laptop take-up (%)	78	79	75	74	69	61	76	70	n/a	70	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>2</sup> Tablet take-up (%)	60	50	49	63	49	34	56	64	n/a	57	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>2</sup> Smartphone take-up (%)	72	77	78	89	68	72	78	87	n/a	81	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>3</sup> Internet share of total Advertising spend (%)	48	33	29	28	35	23	40	24	42	48	30	18	29	22	31	11	53	n/a
<sup>4</sup> Fixed internet advertising expenditure (£bn)	5.7	3.1	4.2	1.2	25.4	4.4	2.2	0.8	1.1	0.9	0.4	0.2	2.5	0.8	1.0	0.3	13.7	0.02
<sup>4</sup> Fixed internet advertising expenditure per capita (£)	88	48	51	20	79	35	92	17	65	88	12	31	50	4	7	13	10	0.1
<sup>4</sup> Mobile internet advertising expenditure (£m)	2564	433	275	168	13528	938	766	89	10	166	3	23	673	129	130	9	1525	10
<sup>4</sup> Mobile internet advertising expenditure per capita (£)	40	7	3	3	42	7	32	1.93	1	17	0.1	4	13	1	1	0.4	1.1	0.1
<sup>5</sup> B2C e-commerce turnover per capita (£)	1760	730	536	201	1207	590	227	285	688	717	143	n/a	841	n/a	104	n/a	364	n/a
<sup>6</sup> Use mobile phone to browse shopping websites and apps (%)	54	45	28	56	58	45	52	n/a	n/a	47	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>6</sup> Use mobile phone to check bank balance (%)	37	34	25	30	43	16	48	n/a	n/a	58	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<sup>2</sup> Weekly or greater access to social networking (%)	73	70	64	82	76	53	74	85	n/a	74	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

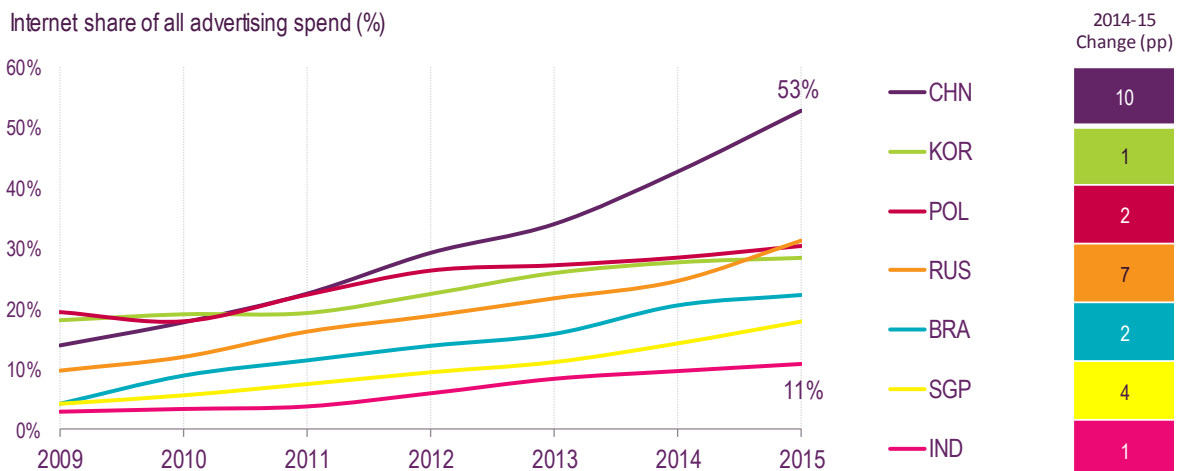
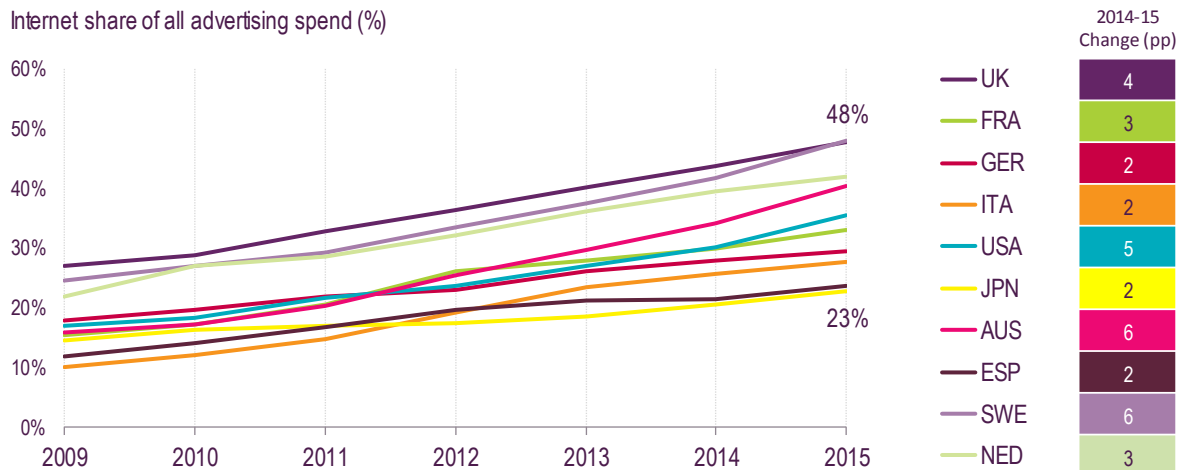
Source: <sup>1</sup>comScore MMX, August 2016, home and work panel, persons 15+; <sup>2</sup>Ofcom consumer research October 2016; <sup>3</sup>2015 Data. Warc data ([www.warc.com](http://www.warc.com)) Please refer to notes on adspend data for further detail and source information. <http://www.warc.com/NotesOnAdspendData> \*UK excludes certain types of adspend which is not monitored in other markets, enabling a like-for-like comparison <sup>4</sup>2015 data. Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [pwc.com/outlook](http://pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Population figures from Ofcom/IHS. Ofcom have used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. <sup>5</sup>2015 data. European B2C e-commerce report 2016, Ecommerce Foundation & Ecommerce Europe. Values converted from Euros to British Sterling (£1=€1.38). Interpretation and manipulation of data are solely Ofcom's responsibility. Population figures from Ofcom/IHS <sup>6</sup>Deloitte Global Mobile Consumer Survey 2016. Some figures in table have been rounded. MM = millions

## 6.1.2 Internet advertising

### The UK continues to have the highest internet share of advertising, at 48%

The UK was on a par with Sweden; only China, at 53%, was higher among our comparator countries, overtaking the UK for the first time.

**Figure 6.2 Internet share of total advertising spend: 2009 - 2015**



Source: Warc data ([www.warc.com](http://www.warc.com))

Please refer to notes on adspend data for further detail and source information.

<http://www.warc.com/NotesOnAdspendData> \*UK excludes certain types of adspend which is not monitored in other markets, thus enabling a like-for-like comparison

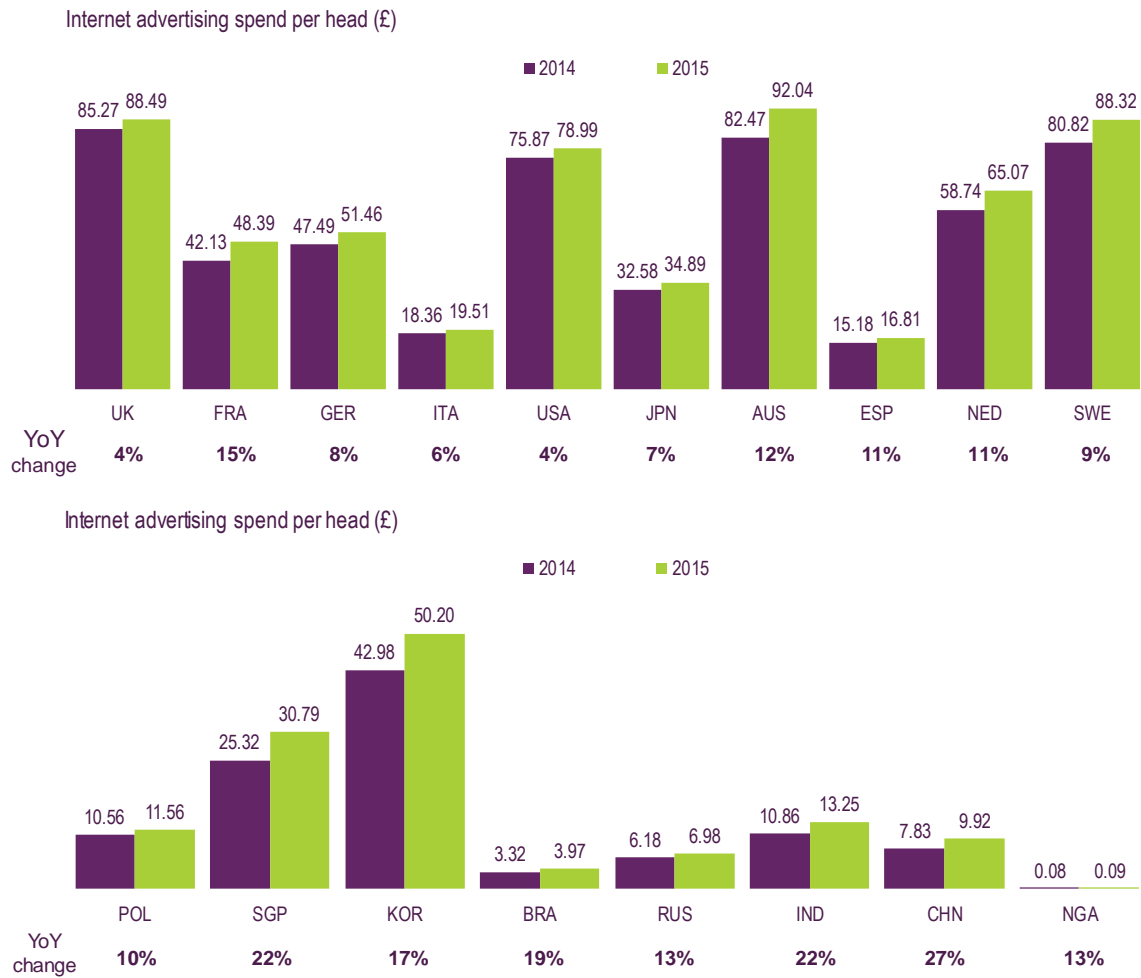
### The UK had the second highest fixed internet advertising expenditure per head in 2015

The UK's spend per head on fixed internet advertising<sup>140</sup> in 2015 was £88.49. Per-capita spend was highest in Australia, at £92.04, overtaking the UK.

<sup>140</sup> Fixed internet advertising refers to adverts viewed on fixed or 'wired' devices, predominantly through web browsers on laptop and desktop computers.



**Figure 6.3 Fixed internet advertising expenditure per head: 2014 - 2015**



Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [pwc.com/outlook](http://pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. Population figures from Ofcom/IHS.

## Search advertising accounted for more than half of total fixed internet advertising spend in the UK in 2015

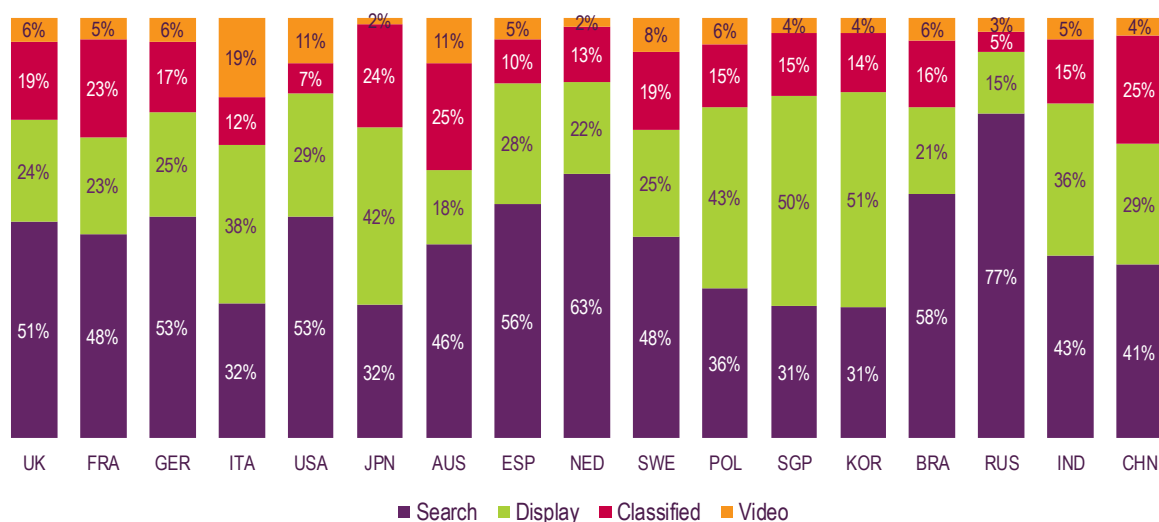
The respective strengths of internet, classified,<sup>141</sup> display, search and video advertising<sup>142</sup> are likely to be the result of a number of country-specific factors including broadband penetration, broadband speeds, and the strength of other media competing for advertising spend.

Over half of our comparator countries spend more on search advertising than any other type. Search accounted for just over half of internet advertising revenue in the UK (51%). Of all the comparator countries, search's share of total fixed internet advertising expenditure was highest in Russia (77%).

Video advertising continued to account for a generally small share of fixed internet advertising expenditure. It had the smallest share in all but two countries: Italy (19%) and the US (11%). Video advertising made up 6% of expenditure in the UK.

**Figure 6.4 Fixed internet advertising expenditure, by category: 2015**

Proportion of internet advertising revenue (%)



Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [pwc.com/outlook](http://pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015.

<sup>141</sup> Online classified advertising is a brief advert, usually in small print, in an online newspaper, magazine or similar publication.

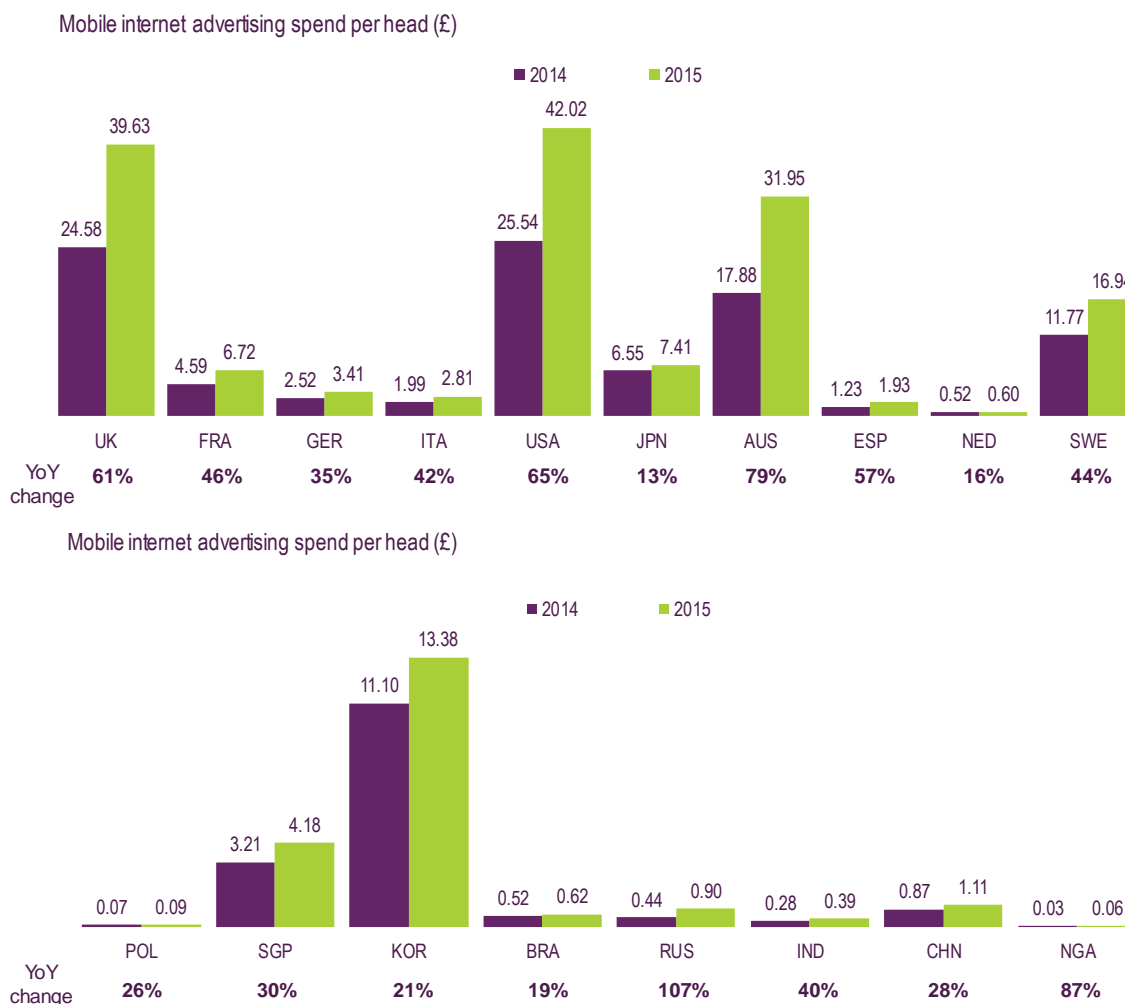
<sup>142</sup> Online video display advertising can take one of two forms. The first is similar to display advertising on websites, but in the form of an audio-visual advert rather than a static image or series of animated images, and like banner advertising, can sit in the page alongside other content. The second is similar to traditional spot television advertising, where adverts are shown either before, after, or midway through an online video, and the advert is embedded within the video player.

### 6.1.3 Mobile internet advertising

#### The UK had the second highest spend per head on mobile internet advertising

Of all our comparator countries, the US had the highest mobile advertising<sup>143</sup> expenditure per head in 2015, at £42.02, followed by the UK at £39.63.

**Figure 6.5 Mobile internet advertising expenditure, per head: 2014 - 2015**



Source: Ofcom analysis based on data from PwC Global entertainment and media outlook 2016-2020 @ [pwc.com/outlook](http://pwc.com/outlook). Interpretation and manipulation of data are solely Ofcom's responsibility. Ofcom has used an exchange rate of \$1.529 to the GBP, representing the IMF average for 2015. Population figures from Ofcom/IHS.

### 6.1.4 E-commerce

#### The UK continued to have the highest per-capita turnover for e-commerce in 2015

The business-to-consumer (B2C) e-commerce market is supported by consumers who increasingly expect to do their shopping online and at any time, via their connected device.

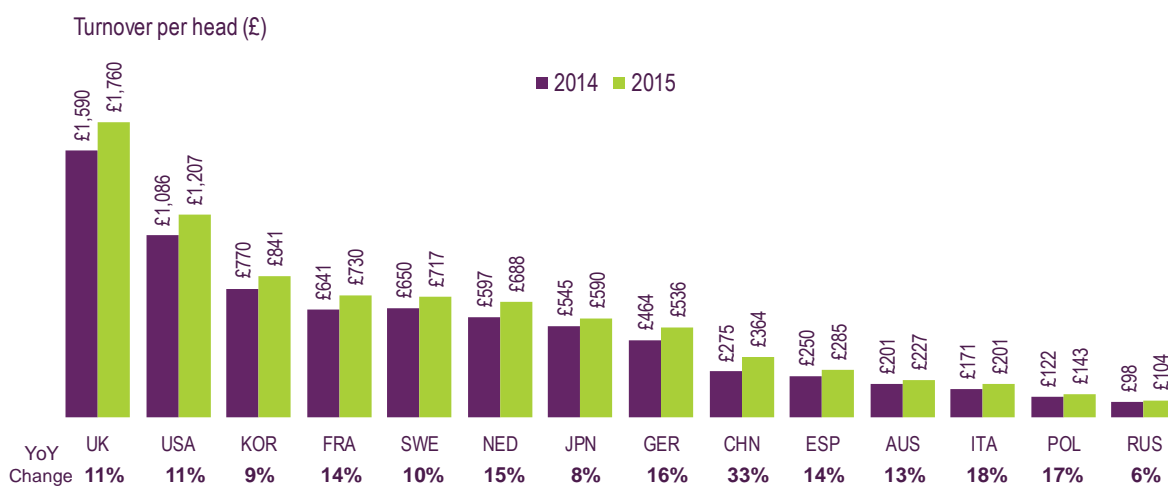
<sup>143</sup> Mobile advertising includes all advertising delivered directly to a mobile device, and includes search and display advertising as well as SMS/MMS advertising formats. Mobile display advertising can also be delivered to the device's browser or to a mobile app.

As in 2014, among our comparator countries, B2C e-commerce turnover, on a per-capita basis, was highest in the UK, at £1760 per person. This is much larger than the next highest markets: the US (£1207 per head), and South Korea (£841 per head).

This high UK figure may be due to a combination of factors, including a traditionally strong history of catalogue shopping, overall satisfaction with postal services and the high availability of debit and credit cards.

E-commerce turnover per head was relatively low in Italy (£201), despite the high proportion of those with a smartphone who claimed to shop online regularly (Figure 6.7).

**Figure 6.6 B2C e-commerce turnover, per head: 2014 - 2015**

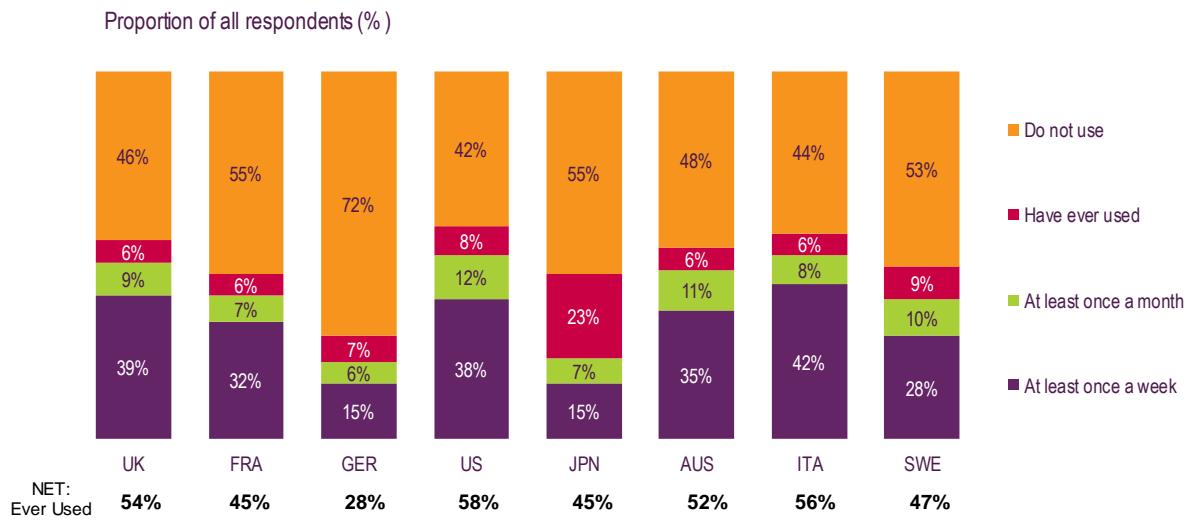


Source: European B2C e-commerce report 2016, Ecommerce Foundation & Ecommerce Europe  
 Notes: Values converted from Euros to British Sterling (£1 = €1.38). Interpretation and manipulation of data are solely Ofcom's responsibility. Population figures from Ofcom/IHS.

#### Four in ten mobile phone users in the UK browse shopping websites and apps every week

At 42%, Italy had the highest proportion of mobile phone users who claimed to use their devices to browse shopping websites or apps at least once a week. The UK reported the second highest use, of our comparator countries (39%), in line with the US. In contrast, both Germany and Japan had the lowest proportion of respondents who said they did this at least once a week. The UK was one of four comparator countries where less than half of mobile phone users said that they did not use their device for browsing shopping websites and apps.

**Figure 6.7 Use of mobile phone to browse shopping websites and apps: 2016**



Source: Deloitte Global Mobile Consumer Survey 2016

Base: All adults 18-75 who have a mobile phone, UK=3712, FRA=1847, GER=1838, ITA=1862, USA=1776, JPN=1431, AUS=1864, SWE=1893

Q50NEW\_2 - Activities use mobile phone for - Browse shopping websites/apps.

Note: Figures have been rounded

## 6.2 Internet and devices

### 6.2.1 Device take-up

#### The UK has comparatively high take-up of tablets and laptops

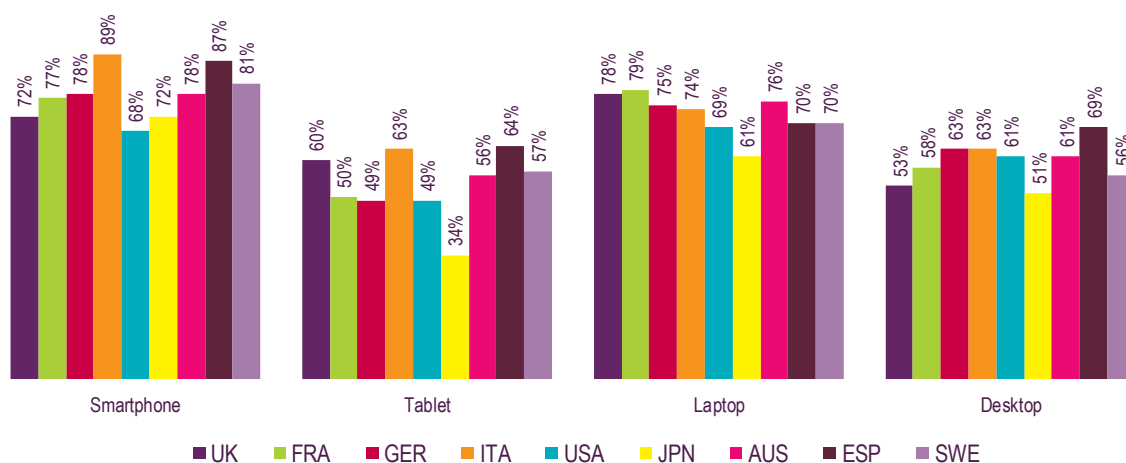
Tablet ownership in the UK was among the highest across our comparator countries, with 60% of respondents saying they had one in their household - higher than all countries apart from Italy, Spain and Sweden.

Laptop ownership for UK consumers was also higher than most comparator countries, at 78%, in line with France (79%) and higher than in the US, Japan, Spain and Sweden. In contrast, desktop take-up in the UK, at 53%, was lower than in six of our other comparator countries.

Although the UK was the second lowest among our comparator countries, nearly three-quarters (72%) of respondents here claim to have a smartphone.

**Figure 6.8 Availability and personal use of devices: 2016**

Proportion (%) of all respondents



Source: Ofcom consumer research, October 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

Q.3a Which of the following devices do you have in your home? (tablet, laptop, desktop)

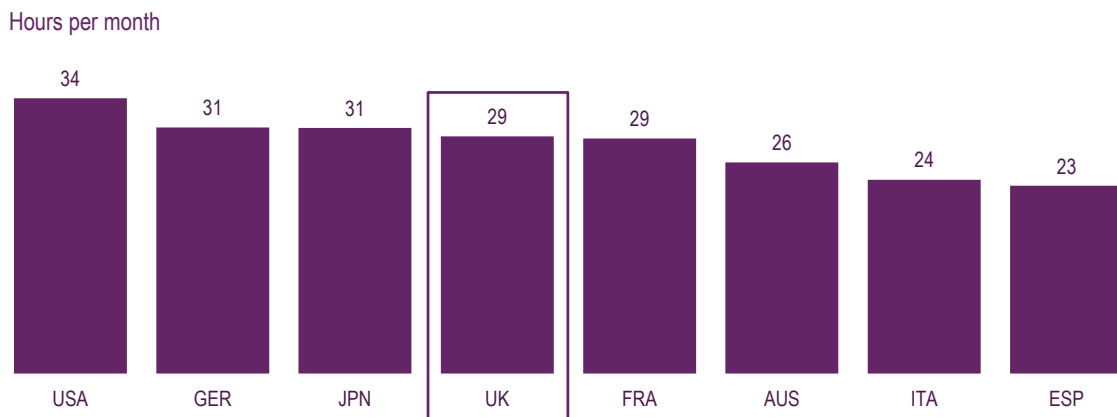
Q.4a Which of the following devices do you personally use either at home or elsewhere? (smartphone)

## 6.2.2 Time spent online

### UK users spend 29 hours per month browsing on their laptops or desktop computers

Internet users in the US spent 34 hours online on a laptop or desktop computer in August 2016. This was the highest among our comparator countries, followed by Germany and Japan (both 31 hours), and the UK and France (both 29 hours).

**Figure 6.9** Average time spent browsing on a laptop or desktop computer: August 2016



Source: comScore MMX, work and home panel, August 2016, persons 15+

### UK smartphone users spend 66 hours per month browsing online

In the UK, smartphone owners spent, on average, 66 hours online on their smartphones in August 2016. Smartphone users in the US spent more time online, at 87 hours. UK users spent more than twice as much time browsing on a smartphone than on their laptop or desktop; this was also the case in the US, Spain and Italy.

**Figure 6.10** Average time spent browsing on a smartphone: August 2016



Source: comScore Mobile Metrix, August 2016, adults 18+, all smartphones, browsing and application combined.

Note: \*Mobile Metrix in the UK, US, Italy and Spain is supplemented by panel data and has not been directly compared with the remaining comparator countries.

## 6.3 Online content

### 6.3.1 Websites and apps

#### **Google-owned sites had the highest reach in all but one of our comparator countries in August 2016, on desktop and laptop computers**

Google's properties<sup>144</sup> (which include services such as Gmail and YouTube, as well as Google search) had the highest reach in all of our comparator countries, with the exception of Japan. Microsoft sites<sup>145</sup> were among the top three in reach across all comparator countries. Amazon sites were among the top ten properties in all comparator countries, while eBay was in the top ten in five of the comparator countries.

As in previous years, domestic media and publishing services such as the BBC in the UK, Gruppo Editoriale Express (Italy) and Vocento (Spain) featured among the top ten properties in their home countries. The BBC is the only public broadcaster to feature in the top ten, although other properties that relate to companies with broadcast TV divisions, such as CBS Interactive and Comcast NBC Universal (both US) also appear.

Only in the UK and Australia did a government property feature within the top ten highest-ranked web properties in August 2016 (WWW.GOV.UK<sup>146</sup> and ABS.GOV.AU<sup>147</sup> respectively).

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<sup>144</sup> comScore Properties represent all Full Domains (i.e. felmont.com), Pages (i.e. sports.felmont.com/tennis), Applications or Online Services, under common ownership or majority ownership for a single legal entity. A Property may also contain digital media content that is not majority-owned but has been legally signed over for reporting purposes by the majority owner.

<sup>145</sup> These sites include MSN (which is likely to be used as a default browser homepage by some users), Bing Search, and websites for Microsoft Office, Outlook and Windows.

<sup>146</sup> Its feature in the top 10 reflects its role as a single point of contact for citizens to access central government services online in the UK.

<sup>147</sup> In August 2016, the Australian Bureau of Statistics held Australia's census. People were able to complete this online, accounting for the reach of the Bureau's website (ABS.GOV.AU).



**Figure 6.11 Top ten properties accessed on a laptop or desktop computer, by country: 2016**

	UK	FRA	GER	ITA	US	JPN	AUS	ESP
1	Google Sites	Google Sites	Google Sites	Google Sites	Google Sites	Yahoo Sites	Google Sites	Google Sites
2	Microsoft Sites	Facebook	Facebook	Facebook	Yahoo Sites	Google Sites	Microsoft Sites	Microsoft Sites
3	Facebook	Microsoft Sites	Microsoft Sites	Microsoft Sites	Microsoft Sites	Microsoft Sites	Facebook	Facebook
4	Amazon Sites	Yahoo Sites	eBay	ItaliaOnline	Facebook	LINE Corporation	Yahoo Sites	Yahoo Sites
5	Yahoo Sites	Webedia Sites	Amazon Sites	Yahoo Sites	Amazon Sites	FC2 inc.	News Corp Australia	Unidad Medios Digitales
6	eBay	Schibsted Media Group	Axel Springer SE	Amazon Sites	AOL, Inc.	Amazon Sites	eBay	Amazon Sites
7	BBC Sites	Solocal Group	Deutsche Telekom	Banzai	Apple Inc.	Rakuten Inc.	Amazon Sites	Prisa
8	WWW.GOV.UK	CCM Benchmark	Hubert Burda Media	eBay	eBay	NTT Group	Telestra Corporation Limited	Vocento
9	Apple Inc.	Amazon Sites	Yahoo Sites	Wikimedia Foundation Sites	CBS Interactive	Facebook	ABS.GOV.AU	Wikimedia Foundation Sites
10	Wikimedia Foundation Sites	Orange Sites	United-Internet Sites	Gruppo Editoriale Espresso	Comcast NBC Universal	CyberAgent	Wikimedia Foundation Sites	Schibsted Media Group

Source: comScore MMX, home and work panel, August 2016 persons 15+

### Google sites and domestic media companies were among the most popular properties on smartphones and tablets in August 2016

There are some differences between online content consumption on laptop and desktop computers, and mobile devices (smartphones and tablets). Media groups and multimedia publishing groups were notably popular on mobile devices. RCS MediaGroup was in the top ten properties in Italy and Spain, while Trinity Mirror Group (UK) and Prisa (Spain) featured among the top ten properties in the markets in which they operate.

On smartphones and tablets, Yahoo and Google sites featured in the top ten properties in all of the comparator countries.

Conversely, some properties were less popular on mobile devices than on laptops or desktops. Amazon was in the top ten most-accessed properties on a laptop or desktop for all comparator countries, but in only two countries for mobile phone access. eBay was among the ten most popular properties on laptops and desktops in five countries, but was in the top ten properties on mobile devices only in the UK.

**Figure 6.12 Top ten properties accessed on smartphones and tablets, by country: 2016**

	UK	ITA	US	ESP
1	Google Sites	Google Sites	Google Sites	Google Sites
2	Facebook	Facebook	Facebook	Facebook
3	BBC Sites	Banzai	Yahoo Sites	RCS MediaGroup
4	Amazon Sites	Gruppo Editoriale Espresso	Amazon Sites	Vocento
5	Trinity Mirror Group	RCS MediaGroup	Comcast NBCUniversal	Prisa
6	Trip Advisor Inc.	Leonardo ADV	CBS Interactive	Grupo Godo
7	Sky Sites	Yahoo Sites	AOL, Inc.	Schibsted Media Group
8	Yahoo Sites	Gruppo Mediaset	Apple Inc.	Grupo Herald
9	Mail Online / Daily Mail	Tripadvisor Inc.	LinkedIn	Yahoo Sites
10	eBay	Italia Online	Weather Company, The	Atresmedia

Source: comScore MoMX, Total mobile, browser and applications, August 2016.

Note: \*Mobile Metrix in the UK, US, Italy and Spain is supplemented by panel data and has not been directly compared with the remaining comparator countries which have a related but different methodology.

### **In August 2016, Pokémon Go was the most downloaded iOS app in the UK**

According to App Annie's data on downloads from the App Store, Niantic's Pokémon GO was the most downloaded iOS app in the UK, as it was in France and Italy. The 2016 Olympic Games were held in August 2016, and in both France and Italy, the Olympic Games apps that were published by the national public service broadcasters (Télévisions Françaises and Rai respectively) were among the top ten iOS apps by downloads, coinciding with the Olympics taking place that same month.

Apple's iTunesU<sup>148</sup> educational app was in the top ten in all of the countries. In several of the comparator countries, August-September marks the end of the summer holiday and the start of a new school or university year.

<sup>148</sup> iTunesU allows tutors and students to access educational resources, and manage and submit lessons and assignments on mobile devices such as tablets.

**Figure 6.13 Top ten iOS apps, by downloads: August 2016**

	UK	FRA	GER	ITA	US	JPN	ESP
1	Pokémon GO [Niantic]	Pokémon GO [Niantic]	iTunesU [Apple]	Pokémon GO [Niantic]	iTunesU [Apple]	White Cat Tennis (白猫テニス) [COLOPL (コロブラ)]	Rio 2016 Olympics (Juegos Olímpicos Río 2016) [RTVE]
2	WhatsApp Messenger [Facebook]	Bitmoji [Snapchat]	Apple iMovie [Apple]	Rai Rio2016 [Rai Net]	Pokémon GO [Niantic]	iTunesU [Apple]	Pokémon GO [Niantic]
3	Flip Diving [Miniclip]	francetv JO – Rio 2016 [France Télévisions]	Pokémon GO [Niantic]	WhatsApp Messenger [Facebook]	Apple iMovie [Apple]	Apple iMovie [Apple]	Apple iMovie [Apple]
4	Snapchat [Snapchat]	Snapchat [Snapchat]	Pages [Apple]	Rio 2016 Olympic Games [Neowiz]	Bitmoji [Snapchat]	Pages [Apple]	iTunesU [Apple]
5	Facebook Messenger [Facebook]	WhatsApp Messenger [Facebook]	Apple Numbers [Apple]	Facebook Messenger [Facebook]	Pages [Apple]	Apple Numbers [Apple]	Prisma [Prisma labs]
6	Facebook [Facebook]	Facebook Messenger [Facebook]	Apple Keynote [Apple]	Prisma [Prisma labs]	Apple Numbers [Apple]	Pokémon GO [Niantic]	Google Maps [Google]
7	Premier League [Premier League]	Facebook [Facebook]	GarageBand [Apple]	Instagram [Facebook]	Apple Keynote [Apple]	SNOW [NAVER]	Apple Numbers [Apple]
8	iTunesU [Apple]	Flip Diving [Miniclip]	WhatsApp Messenger [Facebook]	Flip Diving [Miniclip]	GarageBand [Apple]	Apple Keynote [Apple]	Apple Keynote [Apple]
9	Apple iMovie [Apple]	iTunesU [Apple]	Flip Diving [Miniclip]	Facebook [Facebook]	Snapchat [Snapchat]	GarageBand [Apple]	Pages [Apple]
10	Bitmoji [Snapchat]	Apple iMovie [Apple]	Bitmoji [Snapchat]	iTunesU [Apple]	Facebook Messenger [Facebook]	Yahoo! Japan Weather (Yahoo 天気) [Yahoo Japan]	WhatsApp Messenger [Facebook]

Source: App Annie Intelligence. Note: app publishes are shown in parentheses

### In August 2016, the most downloaded app from Google Play was either PokémonGO or WhatsApp Messenger, in all but one of the reported countries

Messaging apps<sup>149</sup> such as Facebook Messenger, Snapchat and WhatsApp Messenger accounted for at least at least two of the top three downloads in August 2016 from Google Play in four comparator countries, including the UK. Messaging services among the top ten downloads in Japan (but not in the other countries) included Line and SNOW.<sup>150</sup>

The BBC Media Player (allowing the playback of BBC video and audio content on Android devices)<sup>151</sup> was the seventh most popular Google Play app downloaded in the UK in August 2016. Italy was the only other country in which an app published by a public service broadcaster was among the top ten downloads (Rai's Rio 2016 app).

<sup>149</sup> 'Over the top' (OTT) messaging apps use a data connection to allow users to send messages, (text/photos/voice/video) between each other over the internet, rather than the voice call / video call, SMS/MMS services provided by the user's mobile operator.

<sup>150</sup> LINE is a multimedia OTT messaging application published by South Korean online content and portal company Naver Corporation. SNOW, also published by Naver, is a video and picture messaging app which allows users to apply filters and effects to their pictures and videos.

<sup>151</sup> The app provides support for, and management of, playback of content on a range of BBC services including the mobile website, BBC apps, and services such as iPlayer on Android devices.

Figure 6.14 Top Google Play apps, by downloads: August 2016

	UK	FRA	GER	ITA	US	JPN	ESP
1	Pokémon GO [Niantic]	Pokémon GO [Niantic]	WhatsApp Messenger [Facebook]	WhatsApp Messenger [Facebook]	Facebook Messenger [Facebook]	Pokémon GO [Niantic]	WhatsApp Messenger [Facebook]
2	Facebook Messenger [Facebook]	Facebook Messenger [Facebook]	Pokémon GO [Niantic]	Facebook Messenger [Facebook]	Pokémon GO [Niantic]	White Cat Tennis (白猫テニス) [COLOPL (コロブラ)]	Pokémon GO [Niantic]
3	WhatsApp Messenger [Facebook]	Snapchat [Snapchat]	Facebook Messenger [Facebook]	Facebook [Facebook]	Facebook [Facebook]	SNOW [NAVER]	Facebook [Facebook]
4	Facebook [Facebook]	Facebook [Facebook]	Facebook [Facebook]	Pokémon GO [Niantic]	YouTube Music [Google]	LINE (ライン) [LINE (ライン)]	Facebook Messenger [Facebook]
5	Snapchat [Snapchat]	WhatsApp Messenger [Facebook]	Snapchat [Snapchat]	Instagram [Facebook]	Snapchat [Snapchat]	GO Security [Sungy Mobile (广州久邦数码)]	Instagram [Facebook]
6	Instagram [Facebook]	Bitmoji [Snapchat]	Instagram [Facebook]	Rio 2016 Olympic Games [Neowiz]	Instagram [Facebook]	Yahoo! Japan Weather (Yahoo 天気) [Yahoo Japan]	Clean Master (猎豹清理大师) [Cheetah Mobile (猎豹移动)]
7	BBC Media Player [BBC]	Instagram [Facebook]	360 Battery Plus [Qihoo 360 (奇虎360)]	Prisma [Prisma labs]	Rolling Sky [Cheetah Mobile (猎豹移动)]	AbemaTV [CyberAgent (株式会社サイバーエージェント)]	Prisma [Prisma labs]
8	Z Camera: Filter Photo Editor [Sungy Mobile (广州久邦数码)]	Waze [Google]	Farm Heroes Super Saga [Activision Blizzard]	Snapchat [Snapchat]	Pandora Radio [Pandora]	SmartNews [SmartNews]	Rio 2016 Olympic Games [Neowiz]
9	Spotify [Spotify]	Farm Heroes Super Saga [Activision Blizzard]	eBay Kleinanzeigen [eBay]	Slither.io [Lowtech Studios]	Bitmoji [Snapchat]	Instagram [Facebook]	Snapchat [Snapchat]
10	Slither.io [Lowtech Studios]	Skype [Microsoft]	Amazon [Amazon]	Rai Rio2016 [Rai Net]	WhatsApp Messenger [Facebook]	Yahoo! JAPAN [Yahoo Japan]	Wallipop [Wallipop]

Source: App Annie Intelligence. Note: app publishes are shown in parentheses

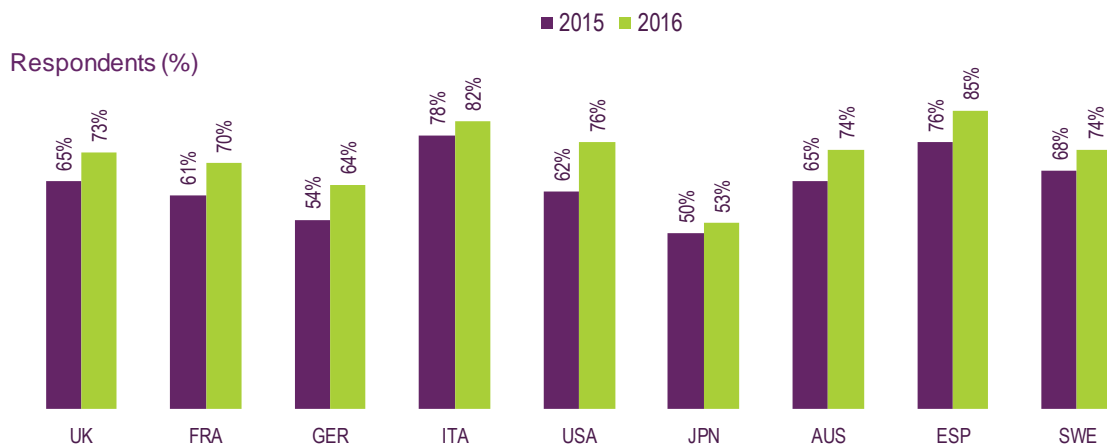
### 6.3.2 Social networking

#### Around three-quarters of UK internet users use social networks at least once a week

The majority of internet users in all of our eight comparator countries said they accessed social networks at least once a week in 2016. This was highest in Italy (82%) and Spain (85%), compared to 73% in the UK. Japan had the least active social networkers compared to the eight comparator countries, with just over half of respondents using social networks at least once a week.

In the majority of the comparator countries, the proportion of weekly social networkers increased between 2015 and 2016. The largest increase was in the US, from 62% to 76%.

**Figure 6.15 Weekly access to social networks: 2015 - 2016**



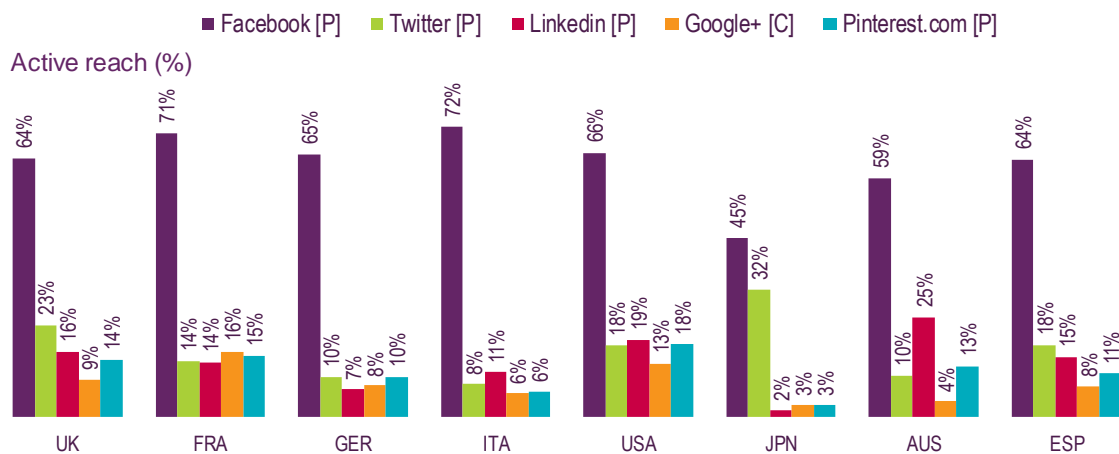
Source: Ofcom consumer research October 2015 and October 2016 Base (2016): All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000 2015 Q.8 How often do you use an internet connection on any of your devices for each of the following activities? 5. Accessing social networking sites (e.g. Facebook, Twitter) <At least once a week> | 2016 Q.9 How often do you use the internet on any of your devices for each of the following activities? 2. Accessing social networking sites <At least once a week>

**Facebook has the highest reach among social networks for all comparator countries**

Among our comparator countries, Facebook’s reach on laptop or desktop computers was highest (in August 2016) in Italy (at 72%) compared to 64% in the UK.

LinkedIn had the second highest reach among the selected social networks in Italy, the US and Australia, while Twitter ranked second in the UK and Spain and Japan.

**Figure 6.16 Active reach of selected social networks on laptop and desktop computers: 2016**



Source: comScore MMX, home and work panel, August 2016, persons 15+

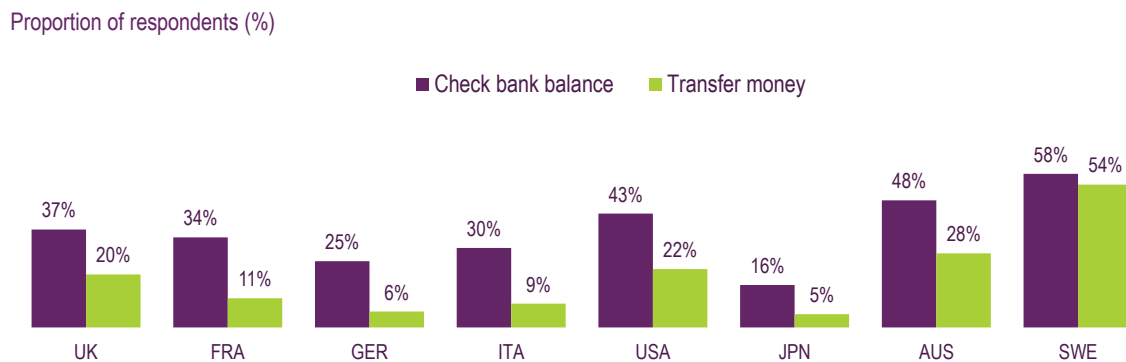
### 6.3.3 Mobile banking

#### More than a third of UK mobile phone users check their bank balance on their device

In the majority of comparator countries, more than a quarter of phone users claimed to check their bank balance using their device. In the UK the figure was 37%, ranking the UK fourth of the eight comparator countries.

An increasing number of apps offer the ability to send money to friends or businesses via a handset. These on-demand services can be delivered through integrated online platforms such as PayPal. In the UK, 20% of phone users transferred money with their device; the fourth highest among the comparator countries.

**Figure 6.17 Use of mobile phone to check bank balance or transfer money: 2016**



Source: Deloitte Global Mobile Consumer Survey 2016

Base: All adults 18-75 who have a phone or smartphone, UK=3712, FRA=1847, GER=1838, ITA=1862, USA=1776, JPN=1431, AUS=1864, SWE=1893

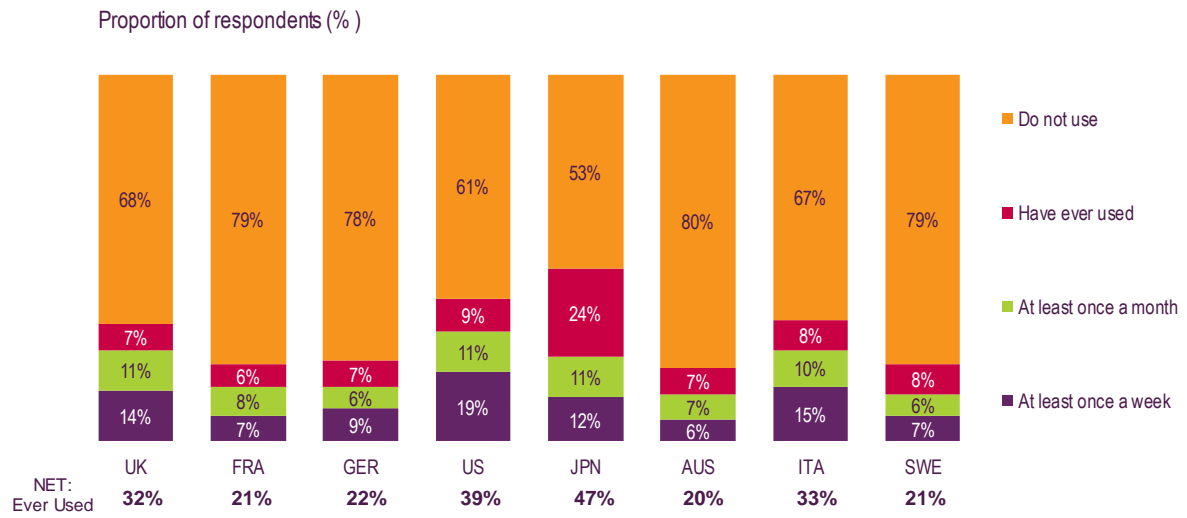
Q50BIS - In the last 3 months, have you used your phone to do any of the below?  
Check bank balances / transfer money to another individual in the same country

### 6.3.4 Mobile payments

#### Three in ten mobile phone users in UK have ever used their mobile to pay for a product online

Across all of the comparator countries, a minority of mobile phone users had made an online payment on their mobile phone. In the UK, around a third (32%) of mobile phone owners claim to have used their device to purchase a product online, in line with Italy. This activity is most popular in Japan, where nearly half (47%) claim to have ever purchased a product online using their mobile device.

**Figure 6.18 Use of mobile phone to pay for a product online: 2016**



Source: Deloitte Global Mobile Consumer Survey 2016

Base: All adults 18-75 who have a phone or smartphone, UK=3712, FRA=1847, GER=1838, ITA=1862, USA=1776, JPN=1431, AUS=1864, SWE=1893

Q50NEW\_3 - Activities use mobile phone for: Pay for a product

Note: Figures have been rounded



# The International Communications Market 2016

**7 Post**



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# 7.1 Post: overview and key market developments

## A note on the data presented in this chapter

Due to the availability of publicly-accessible data, the relevant financial year's figures are generally used in this chapter when referring to 2015. In the few cases where data are not available, market estimates based on long-term trends and local insight have been used. The UK figures are based on those published in our [Annual Monitoring Report](#).

### 7.1.1 Overview

#### Demand for parcels continued to increase in all of our comparator countries

Almost nine in ten people in the UK claimed to have received an item of post in the past week, with 5.9 items on average received, of which 1.8 were parcels. Demand for parcels continued to increase in all of our comparator countries in 2015, except for Japan where it remained broadly stable. Research shows that half of adults in the UK claimed to have received a parcel in the past week, and this was higher (at two-thirds) for weekly online shoppers.

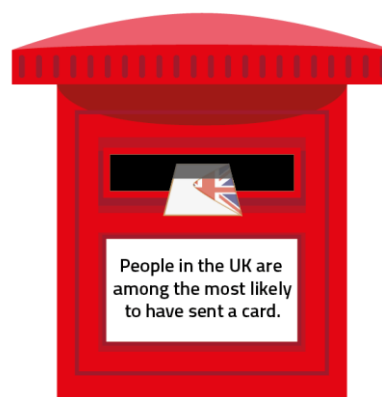
#### People in the UK are among the most reliant on post as a way of communicating

More than half of people in the UK consider themselves to be reliant on post as a way of communicating.

In per-capita terms, the UK had the fifth highest letter mail volume among the comparator countries. Nevertheless, people in the UK are among the most reliant on post as a way of communicating, with more than half considering themselves to be either 'very' or 'fairly' reliant.

#### People in the UK are among the most likely to have sent an invitation/greetings card

Seven in ten adults in the UK have sent an item of post in the past month, on average sending around 3.9 items per month. In particular, people in the UK are among the most likely to have sent an invitation/greetings card in this time period; just under a third of those who had sent an item in the past month said they had sent this type of mail.



**1<sup>ST</sup>**  
The UK is among the cheapest countries in Europe in which to send a medium-sized 1st class letter

#### The UK is among the most expensive countries in which to send a First Class small letter

However, as sending a First Class medium-sized letter in the UK costs the same as sending a small one (64p), this is less expensive than in most other European countries. Similarly, the UK is among the cheapest countries in Europe in which to send a large letter.

## Consumers in most countries engage in high levels of online shopping from overseas retailers

Around six in ten people in the UK say they have made a purchase from an overseas retailer in the past year. One of the main problems encountered when making purchases from abroad is the long delivery time; four in ten people in the UK cite this as a problem. Conversely, among those who do not make purchases from overseas retailers, the main reason is that the items they want are available in their home country, therefore there is no need to purchase them overseas.

## The UK ranks second among our comparator countries for selling something online

More than half the respondents in the UK claimed to have sold something online, the second highest proportion after Germany. However, 28% of those who had sold something online had never sold anything overseas. For those who had sold online to overseas customers, the higher than expected cost of sending items abroad was the single biggest problem encountered in all comparator countries.

**Figure 7.1 Key metrics: 2015**

	UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	KOR	BRA	RUS	IND	CHN
Letter mail volume (billion items)	12	13	16	4	149	18	4	3	3	2	2	1	4	8	3	6	27
Letter mail volume per capita	190	199	195	60	462	142	168	74	184	236	44	112	80	39	20	4	19
Letter mail revenue (£bn)	4.3	6.0	6.3	2.2	31.3	10.4	1.0	0.9	1.8	0.9	0.6	0.1	1.6	1.6	0.4	0.4	1.9
Letter mail revenue per capita (£)	67	94	78	37	97	82	43	20	105	91	15	22	32	8	3	0	1
Parcel volume per capita	31	-	37	5	36	71	-	7	18	10	6	-	36	-	-	-	15
Standard (C5) domestic stamp price (pence)	64	116	105	203	103	76	123	69	159	109	43	29	-	47	58	25	63
Average number of items of post sent per month	3.9	4.9	3.8	3.9	6.3	2.3	3.4	2.6	-	4.4	-	-	-	-	-	-	-
Average number of items received in the last week	5.9	8.0	5.0	4.2	9.8	4.8	4.2	3.2	-	5.2	-	-	-	-	-	-	-
Online shopping from overseas retailers (%)	61	59	53	74	50	34	75	69	-	55	-	-	-	-	-	-	-

Sources: WIK / Ofcom analysis / Ofcom consumer research October 2016

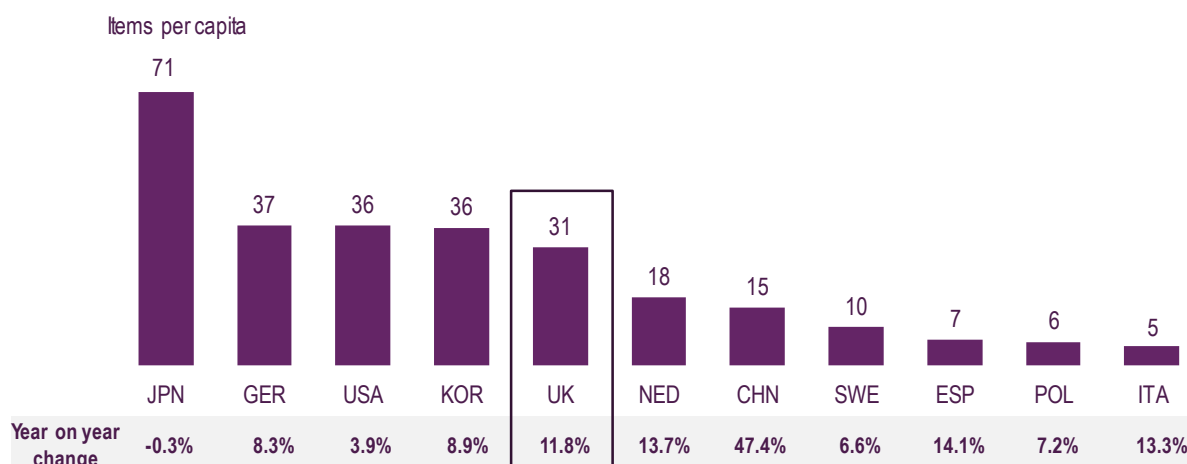
Note: For the purposes of this table the majority of figures have been rounded to the nearest whole number.

## 7.1.2 Parcel volumes continue to grow

### The UK had the fifth highest per-capita parcel volume among the comparator countries in 2015

Japan had the highest parcel<sup>152</sup> volume per head of population, more than double that in the UK (71 and 31 respectively). The high per-capita parcel volumes in Japan are likely to be due to the large number of parcels sent between businesses. The UK ranked fifth among the comparator countries, higher than most other European countries for which we have comparable data (only Germany had a higher number of parcels per person). This likely reflects the UK's position as a leading e-commerce nation. Per-capita parcel volumes increased in all countries except Japan, where it remained broadly stable (down 0.3%) in 2015.

**Figure 7.2 Parcel volume per head of population: 2015**



Source: WIK / Ofcom analysis

### Six in ten online shoppers in the UK say they have received a parcel in the past week

Parcel volume growth, particularly where items are sent from businesses to consumers, has been driven by the continued increase in online shopping.<sup>153</sup> In all of our comparator countries, regular online shoppers (i.e. those who shopped online at least once a week) were more likely to have received a parcel, compared to those who were less active at online shopping. In the UK, 63% of weekly online shoppers claimed to have received a parcel in the past week, similar to most of the other countries. Only in Germany and Spain was this proportion higher, at 72%.

<sup>152</sup> For the UK, 'parcel' is defined as an addressed postal item which can, according to normal operating assumptions, be lifted by a single average person without mechanical aids (weighing no more than 31.5kg) and which is not a Letter or a Large Letter; and includes both domestic and international parcels. More information on the parcels sector in the UK can be found in our [Annual Monitoring Report](#).

Although it has not been possible to obtain robust and comparable data on mail volumes by type for all our comparator countries, information on the size and growth of the parcel market has been included for all the countries for which this information is available. Parcel definition may vary between countries.

<sup>153</sup> More information about online shopping can be found in Section 6.1.4.

**Figure 7.3 Regular online shoppers who had received a parcel in the past week, compared to non-regular online shoppers: 2016**

Proportion of respondents (%)



Source: Ofcom consumer research, October 2016

Base: All weekly online shoppers who have received any items of post in the last week/non-weekly online shoppers who have received any items of post in the last week, UK=530/331, FRA=269/604, GER=436/442, ITA=352/403, USA=441/347, JPN=257/522, AUS=360/432, ESP=279/444, SWE=264/539

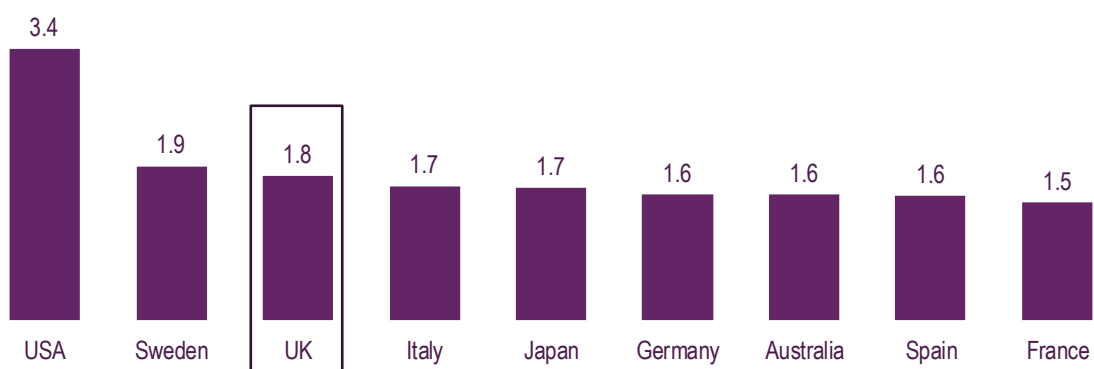
Q.17 Which of these types of items would you say you have personally received through the post in the last week? - NET: Any parcels

**People in the UK reported receiving a similar number of parcels in the past week as those in most other comparator countries**

Among people who had received a parcel in the past week, those in the US reported receiving 3.4 parcels on average, more than in all other comparator countries. The average number of parcels received in the UK was 1.8, broadly similar to all other countries. Although Japan had much higher parcel volumes per head, as shown in Figure 7.2, respondents to our consumer research in Japan reported receiving a similar number of parcels as those in most other comparator countries.<sup>154</sup>

**Figure 7.4 Average number of parcels received in the past week: 2016**

Average number of parcels per respondent



<sup>154</sup> This is in part due to the high number of parcels that are sent between businesses in Japan. Additionally, our consumer research asked respondents to recall how many parcels they had received in the past week, while parcel volume per head is calculated from the total parcel volumes for the year. The two are therefore not fully comparable.

Source: Ofcom consumer research, October 2016

Base: All respondents who have received any items of post in the last week, UK=861, FRA=873, GER=878, ITA=755, USA=788, JPN=779, AUS=792, ESP=723, SWE=803

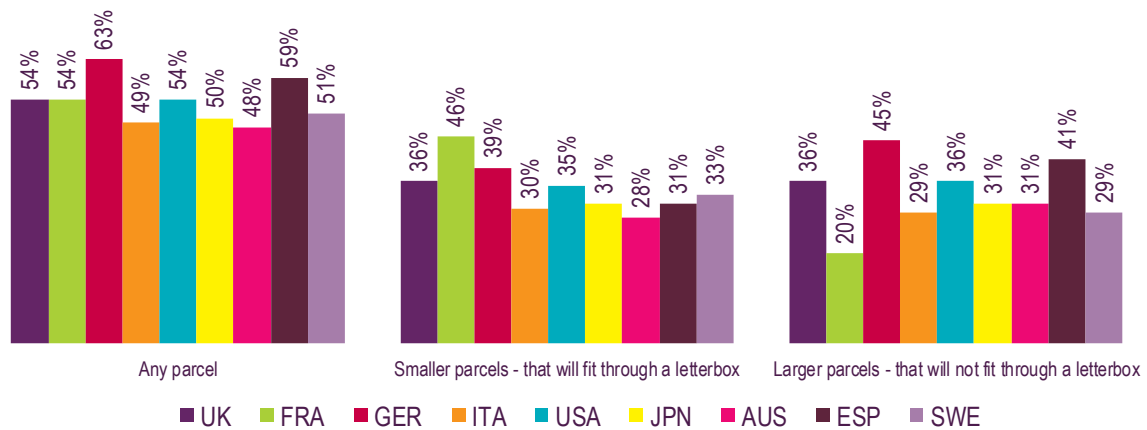
Q.16 Approximately how many of these items you received in the last week were parcels i.e. items that wouldn't easily fit through a standard household letterbox?

### People in the UK are as likely to receive a small parcel as a large one

In most of our comparator countries, more than 50% of respondents who had received an item of post in the past week had received a parcel. In the UK, similar proportions claimed to have received small and large parcels (36%). Those in France, however, were more likely to have received a small parcel in the past week, with almost half (46%) having done so, while only a fifth reported having received a large parcel, lower than in all other countries.

**Figure 7.5 Types of parcel received in the past week: 2016**

Proportion (%) of respondents who have received any post in the last week



Source: Ofcom consumer research, October 2016

Base: All respondents who have received any items of post in the last week,

UK=861, FRA=873, GER=878, ITA=755, USA=788, JPN=779, AUS=792, ESP=723, SWE=803

Q.17 Which of these types of items would you say you have personally received through the post in the last week?

### 7.1.3 Consumers in most countries shop online from overseas retailers

#### About six in ten people in the UK claim to have made online purchases from overseas retailers in the past year

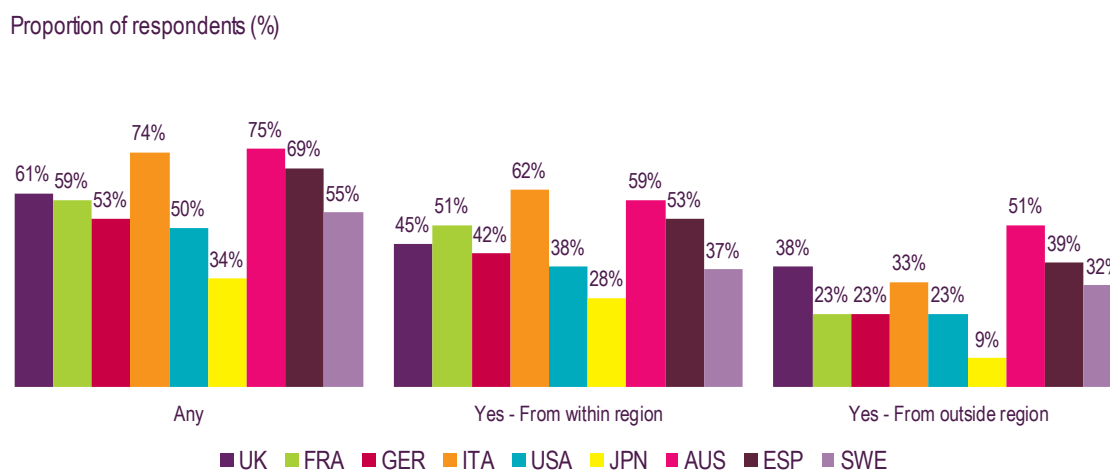
Except for Japan, at least half of people in all comparator countries said they had shopped online from overseas retailers.<sup>155</sup> Respondents in all the countries said they had mostly made purchases from within their own geographical region,<sup>156</sup> although purchasing from outside the region was also substantial.

<sup>155</sup> As this is online research, this figure may be higher than for the population as a whole.

<sup>156</sup> The question was asked differently depending on the country being researched. Respondents in Europe (UK, Spain, Germany, Italy, France and Sweden) were asked if they had knowingly purchased anything online from retailers within the EU and from outside the EU in the past year. Respondents in the US were asked if they had knowingly purchased online from retailers in North America/ outside North America in the past year, respondents in Japan were asked if they had knowingly purchased anything from retailers within Asia/ outside Asia in the past year, and respondents in Australia were asked if they had knowingly purchased online from retailers within Australasia/ outside Australasia in the past year.

In the UK, 61% claimed to have shopped from overseas retailers, with 45% saying they had made online purchases from within the EU, while 38% had bought from retailers outside the region in the past year.

**Figure 7.6 Online shopping from overseas retailers in the past year: 2016**



Source: Ofcom consumer research, October 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

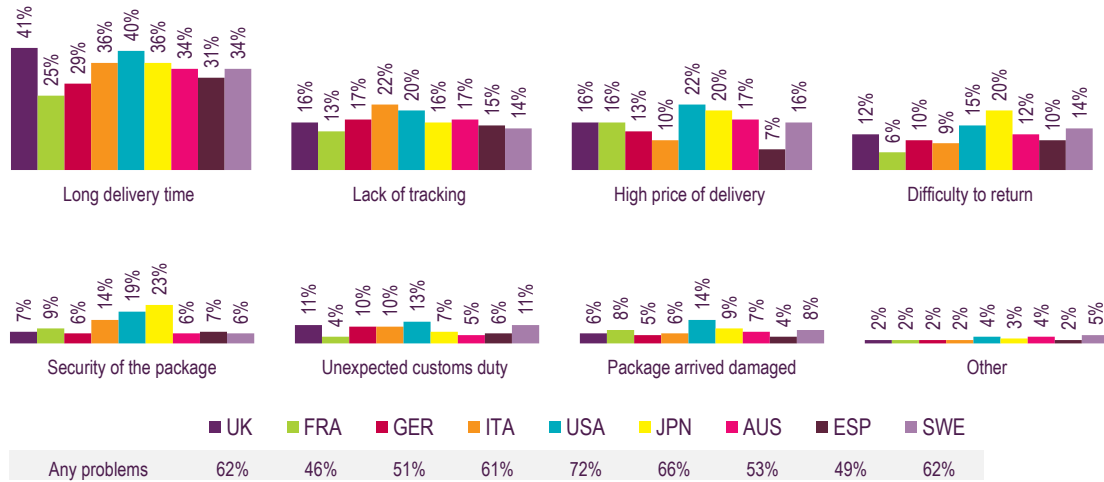
Q.19 Have you knowingly purchased online from overseas in the last year?

### The biggest problem encountered when making overseas purchases is long delivery times

In the UK, 62% of respondents, who had knowingly purchased items online from overseas retailers in the past year, said they had experienced problems with the postal process. Four in ten people in the UK (and in the US) claimed to have had problems with long delivery times, significantly higher than in most of the other countries. Other main problems reported by UK respondents include lack of tracking ability and the high price of delivery.

**Figure 7.7 Problems experienced when making purchases overseas: 2016**

Proportion of respondents who have knowingly purchased items online from overseas retailers in the last year (%)



Source: Ofcom consumer research, October 2016

Base: All respondents who had knowingly purchased items online from overseas retailers in the last year

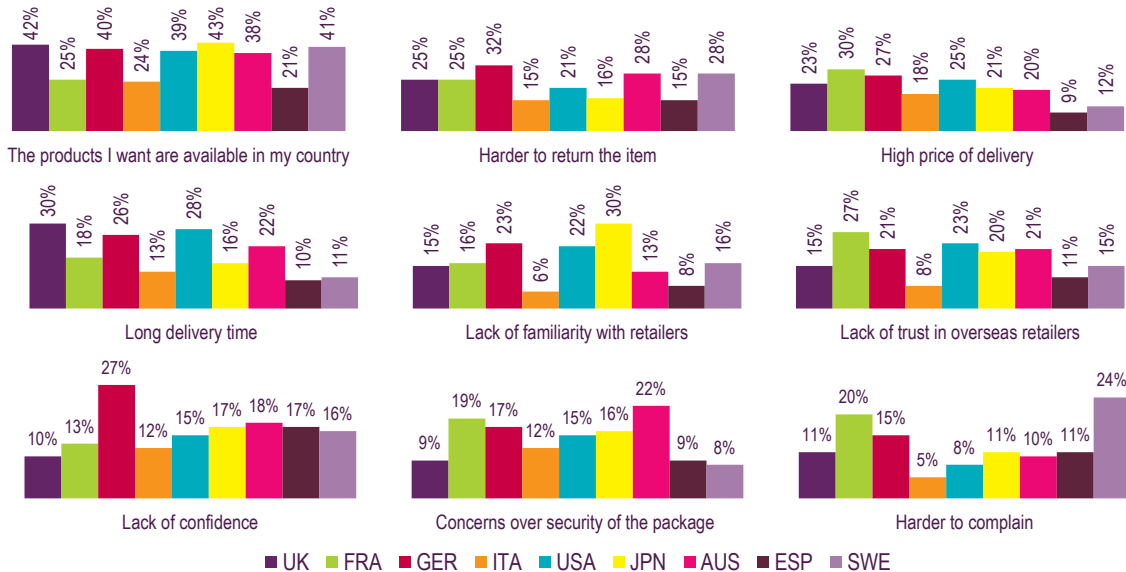
UK=618, FRA=600, GER=540, ITA=772, USA=518, JPN=353, AUS=762, ESP=722, SWE=528  
 Q.20 Did you experience any problems/difficulties with the postal process when buying from overseas?

**Four in ten people in the UK feel that the items they want are available in their country**

The reason most commonly cited by respondents for not shopping overseas was that they felt that the items they wanted were available in their home country (and therefore there was no need to buy them from overseas). Other main reasons cited for not shopping overseas include long delivery times, more complicated return policies and the cost of delivery.

**Figure 7.8 Main reasons for not making purchases from overseas retailers: 2016**

Proportion of respondents who have not knowingly purchased items online from overseas retailers in the last year (%)



Source: Ofcom consumer research, October 2016

Base: All who had not knowingly purchased items online from overseas retailers in the last year  
 UK=316, FRA=349, GER=423, ITA=189, USA=301, JPN=596, AUS=220, ESP=251, SWE=398  
 Q.21 Why have you not bought items from overseas retailers in the last year?

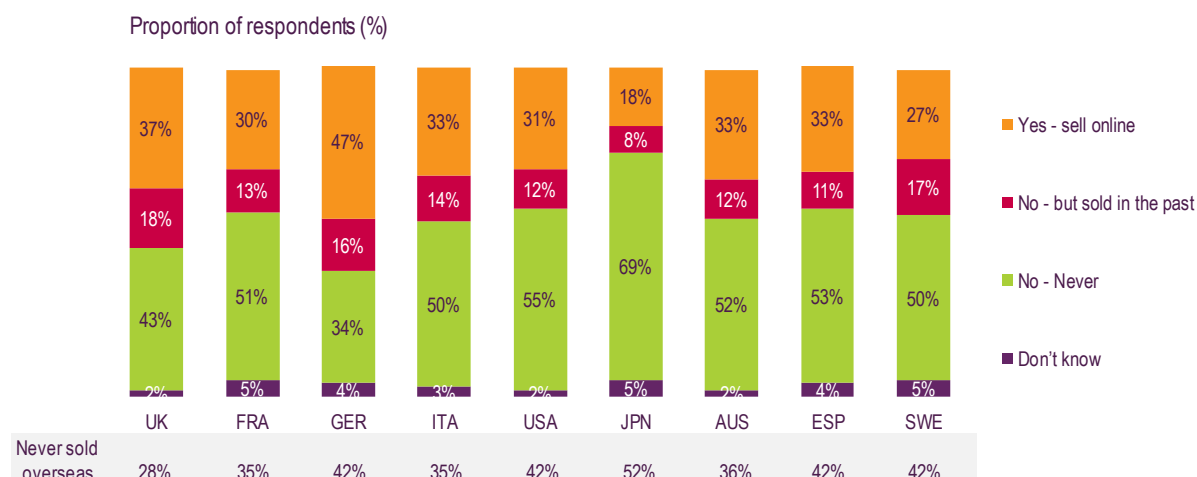


## More than half of respondents in the UK claimed to have sold something online

Over half (55%) of respondents in the UK claimed to have sold at least one item online using websites such as eBay and Gumtree. This was significantly higher than in most other comparator countries. Of these, 37% said that they still sell online, while 18% used to sell in the past but are no longer doing so.

Across all countries, a large portion of those who had sold online said they had never sold anything overseas. Twenty-eight per cent of respondents in the UK claimed to have never done this, significantly lower than in all other comparator countries.

**Figure 7.9 Online selling activity: 2016**



Source: Ofcom consumer research, October 2016

Base: All respondents/ All respondents who have ever sold online UK=1000/554, FRA=1008/441, GER=1010/631, ITA=1032/493, USA=1016/447, JPN=1011/267, AUS=1007/470, ESP=1016/455, SWE=1000/ 424

Q.22 Excluding any activity you may do as part of your main job, do you ever sell anything online? / Q.23 Have you experienced any problems or difficulties with the postal process when sending products overseas?

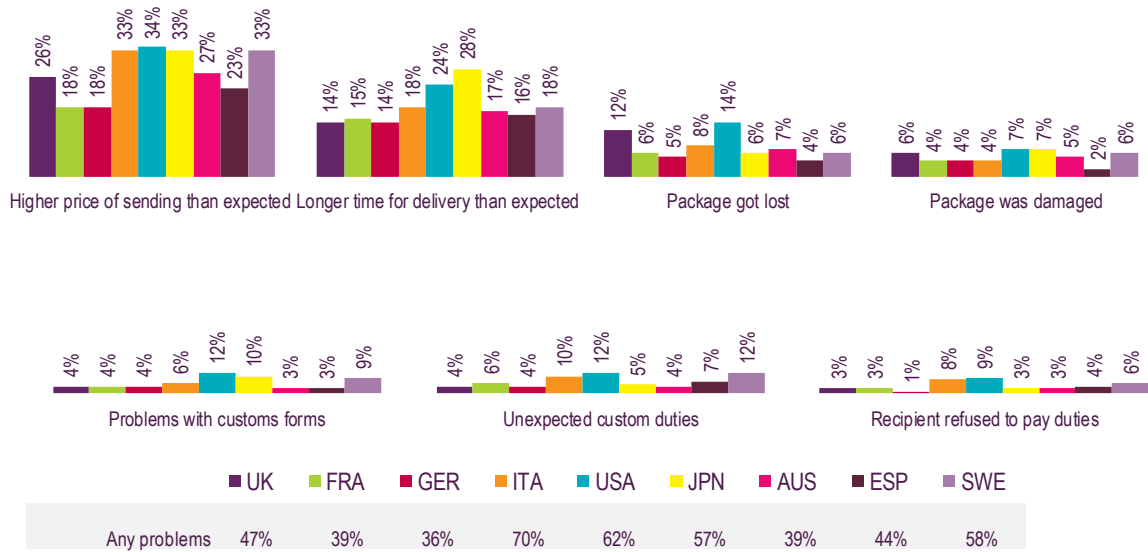
## The biggest problem encountered when sending items overseas is higher-than-expected cost

Of those who had sold something overseas, almost half the respondents in the UK (47%) claimed to have encountered problems. Those in Italy (70%) and the US (62%) were more likely than those in all other countries to have had problems with postal services when sending products overseas.

The biggest problem reported by people in most countries was the higher-than-expected postage cost; cited by 26% of respondents in the UK, followed by a longer-than-expected delivery time, and packages getting lost.

**Figure 7.10 Problems experienced with post when sending items overseas: 2016**

Proportion of respondents who have ever sold overseas (%)



Source: Ofcom consumer research, October 2016

Base: All respondents who have ever sold online (excluding those who have never sent items overseas)

UK=394, FRA=289, GER=369, ITA=317, USA=262, JPN=129, AUS=298, ESP=262, SWE=243

Q.23 Have you experienced any problems with the postal process when sending products overseas?

## 7.2 The postal industry

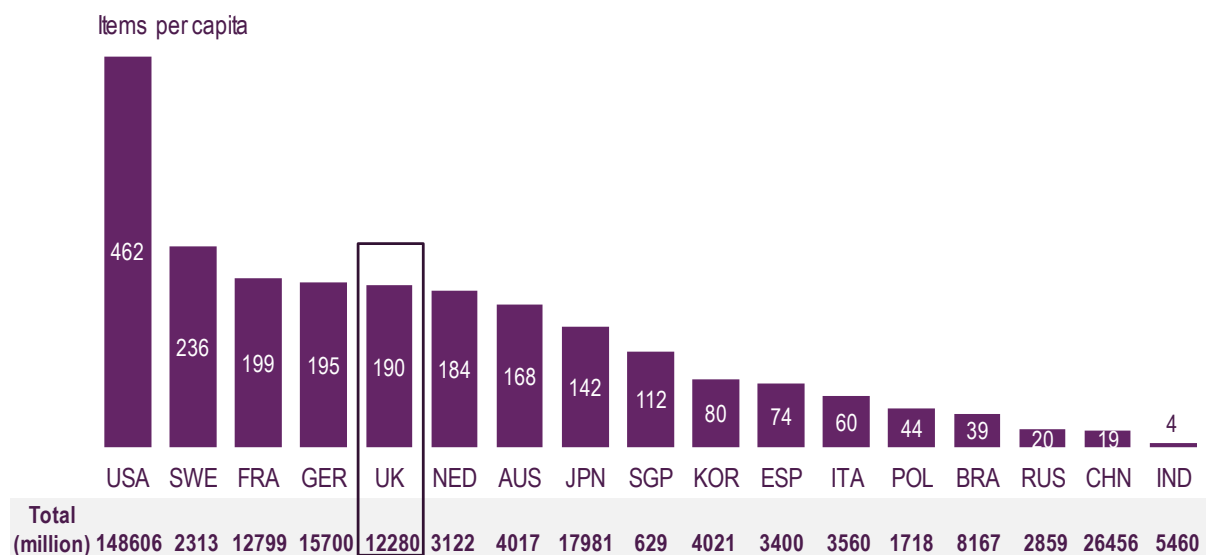
### 7.2.1 Letter mail volume and revenue

In most cases the volume and revenue metrics in this section refer to addressed letters, however, differences between countries mean that in some cases the categories of mail that are included are not an exact match.<sup>157</sup>

#### The UK had the fifth highest per-capita mail volume, of all the comparator countries

Volume per head of population in 2015 was highest in the US; almost double that in Sweden, which had the second highest per-capita letter mail volume. In the UK, 190 letters were received per person in 2015, the fifth highest among the comparator countries. The US also had the highest mail volume in absolute terms, at 149 billion items, 12 times higher than the UK.

**Figure 7.11 Letter mail volume per head of population: 2015**



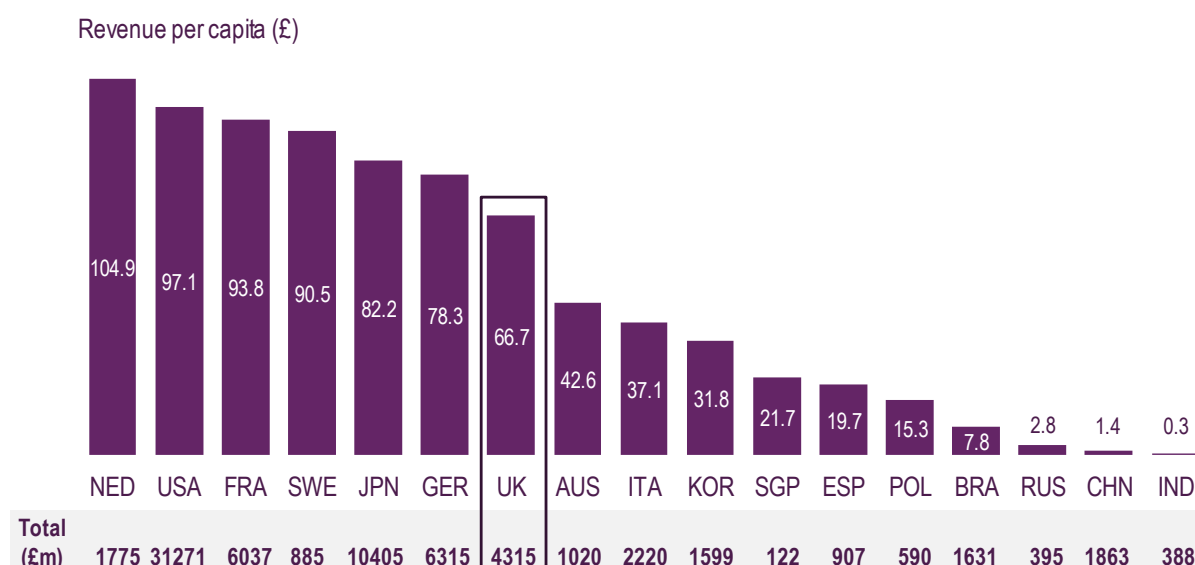
Source: WIK / Ofcom analysis

#### The UK had the seventh highest per-capita mail revenue

While the mail sector in the US is the largest among our comparators in absolute terms for both volume and revenue, the Netherlands had the greatest revenue per head of population in 2015. In the UK, revenue per person was £66.70, the seventh highest among the comparator countries. As with volume, per-capita revenue was lowest in the BRIC countries.

<sup>157</sup> The way that post is defined and volumes and revenues are recorded differs from country to country. In all of our comparators, addressed letter mail delivered within the country is included. In Australia, Brazil and Japan, the volume and revenue figures also include unaddressed advertising mail as this could not be excluded from the reported figures. In South Korea, postal parcels could not be excluded from the reported volume and revenue figures.

**Figure 7.12 Letter mail revenue per head of population: 2015**



Source: WIK / Ofcom analysis

## 7.2.2 Single-piece stamp prices

This section looks at domestic stamp prices across the countries analysed in this report. In each case, we have considered the fastest letter mail product, which most commonly has a next-day (D+1) delivery target; although as Figure 7.13 shows, there is some variance between countries.<sup>158</sup>

**Figure 7.13 Delivery specifications for the fastest letter mail product**

UK	FRA	GER	ITA	USA	JPN	AUS	ESP	NED	SWE	POL	SGP	BRA	RUS	IND	CHN
D+1	D+1	D+1	D+1	D+3	Variable	Variable	D+3	D+1	D+1	D+1	D+1	D+2-5	Variable	Variable	Variable

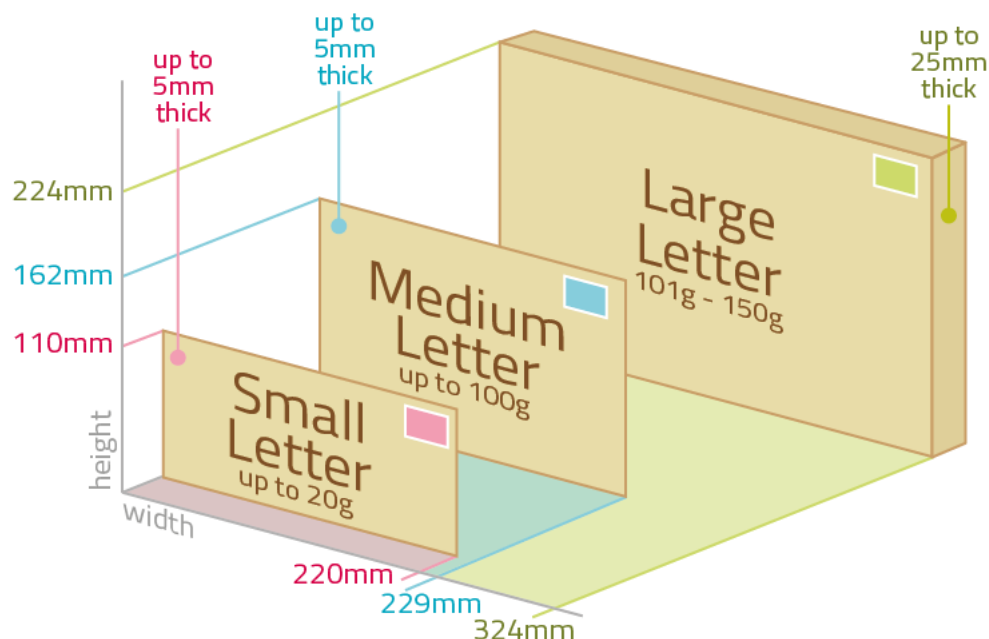
Source: WIK

Note: Delivery targets in Japan, Australia, Brazil, Russia, India and China are dependent on the point of origin and destination.

We have looked at the prices for three mailings with different characteristics, based on typical envelope sizes as shown in Figure 7.14 below.

<sup>158</sup> The products that we have looked at are all single-piece, domestic tariffs, available to all consumers. In line with other currency conversions in this report, prices have been converted into British Sterling using the International Monetary Fund average exchange rates for 2015. The prices of the products are compared as they were published on the operators' websites on 31 October 2016, and have not been adjusted for purchasing power parity. Where we look at previous years' prices, these are the prices on 31 December of each year.

**Figure 7.14 Mailing characteristics**



*Note: small letter is based on a DL envelope, medium letter: a C5 envelope<sup>159</sup> and large letter: a C4 envelope.*

We have also looked at the prices of Second Class products in comparator countries where they are available.

### **The UK is one of the most expensive countries in which to send a small letter**

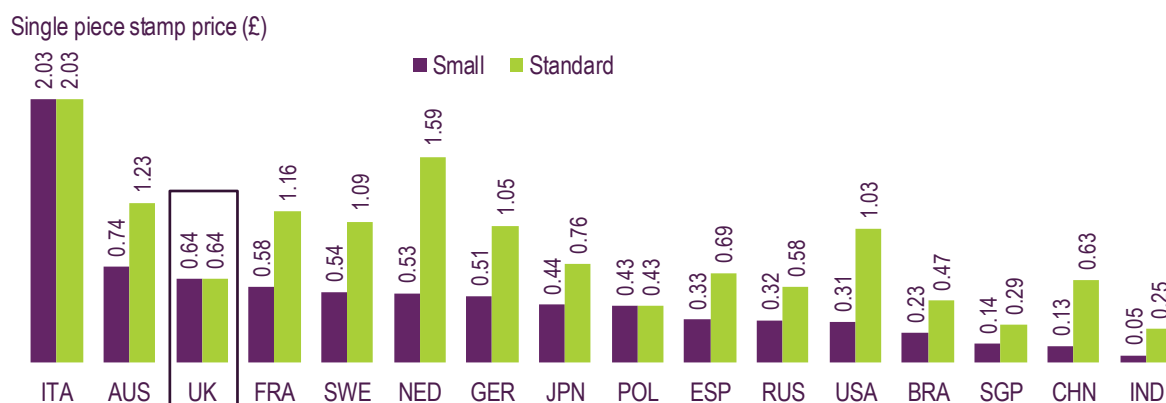
At 64p, the UK is one of the most expensive countries in which to send a First Class small letter, after Italy and Australia. However, sending a medium-sized letter in the UK costs the same as sending a small one, thus making it less expensive than most other developed markets. Italy is the most expensive country for both small and medium sized letters; after a long period of stable letter tariffs, Poste Italiane increased its consumer tariffs substantially in 2015 (to four times the 2014 tariff for the D+1 letter).<sup>160</sup>

The reason the UK is more expensive for a small letter and cheaper for a medium-sized letter is due to the different tariff structures used in each country. Most postal operators in Europe have a lower price for small letters and postcards weighing 20g or less, and a higher price for items weighing more than 20g, or exceeding the dimensions of a DL envelope. In the UK, Royal Mail does not offer a separate price for letters meeting the dimensions of a small letter set out above, so the price is the same whether a small or a medium-sized letter is being sent.

<sup>159</sup> Most greetings cards in the UK are no larger than a C5 envelope

<sup>160</sup> This followed a decision by the Italian regulatory authority AGCOM to amend the universal service regulations for Poste Italiane, allowing it to introduce a new 'ordinary' letter service for consumers and business (equivalent to the Second Class service in the UK).

**Figure 7.15 Published stamp prices for First Class small (DL) and medium (C5) domestic letters: October 2016**



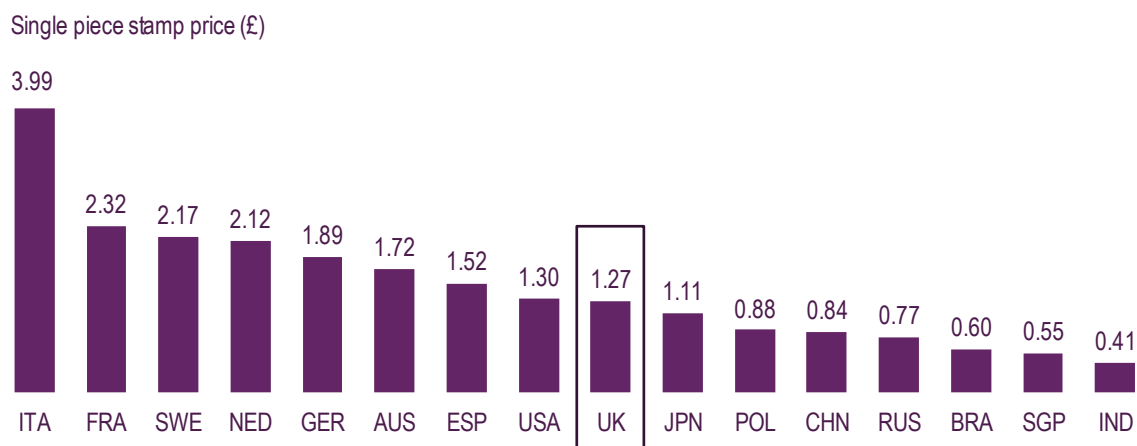
Source: WIK / Ofcom analysis

Note: South Korea is not included as the additional charge for the 'Priority Mail' product is not published.

### The UK is among the cheapest countries in Europe in which to send a large letter

In the UK, the price of a First Class large letter is £1.27, making it the least expensive country among our European comparator countries after Poland, where it costs less than £1. In three of the eight European comparators (France, Sweden and the Netherlands), sending a large letter costs more than £2, while in Italy it costs almost £4 following the introduction of Second Class equivalent services in 2015.

**Figure 7.16 Published stamp prices for First Class large (C4) domestic letters: October 2016**



Source: WIK / Ofcom analysis

Note: South Korea is not included as the additional charge for the 'Priority Mail' product is not published. For Australia, the definition of a large letter differs from other countries (thickness 20mm) as, based on our definition (up to 25mm thickness), the price for a large letter would represent the 'small parcel' price offered by Australia Post.

### It is cheaper to send a medium or large Second Class letter in the UK than in most other European countries

Not all of our comparator countries offer a lower-priced single piece product with a slower delivery standard, in the same way that First and Second Class are available in the UK. This choice is available to consumers in France, Italy, Sweden, Poland, Australia, South Korea and Russia. These are usually D+3 products, with the exception of France and Italy (where it

can take up to four days), as well as Australia and Russia (where delivery times vary depending on the point of origin and destination).

**Figure 7.17 Delivery specifications for the Second Class equivalent letter product**

UK	FRA	ITA	SWE	POL	AUS	KOR	RUS
D+3	D+3-4	D+4	D+3	D+3	Variable	D+3	Variable

Source: WIK

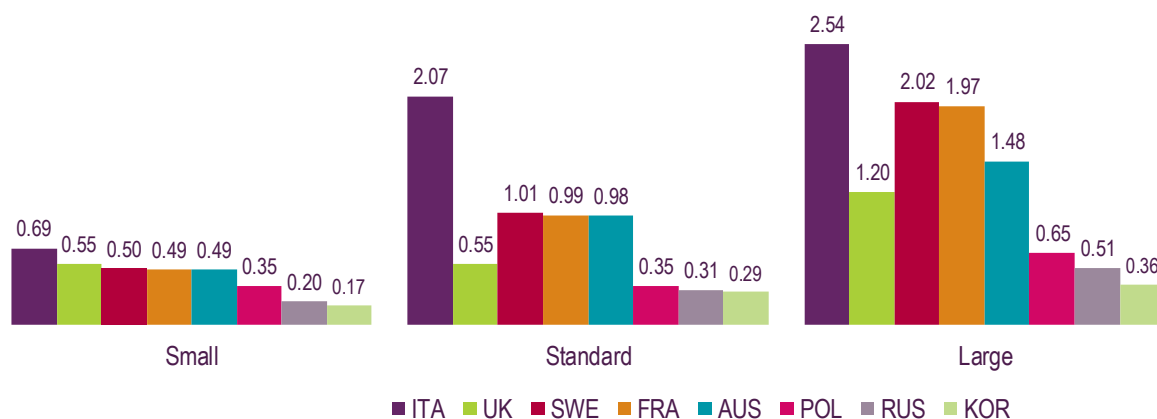
Note: Delivery targets in Russia and Australia are dependent on the point of origin and destination.

South Korea is the cheapest country in which to send a Second Class equivalent letter, regardless of the format. Similarly, Italy is the most expensive country; here, Second Class equivalent services were introduced in 2015 and cost a third more than the former D+1 letter.

Sending Second Class medium-sized and small letters costs the same in the UK (55p). The price of sending a small letter in the UK is slightly higher than in Sweden and France, but less expensive than in Italy. However, it is far cheaper to send a medium or large Second Class letter in the UK than in most other European countries.

**Figure 7.18 Published stamp prices for Second Class small (DL), medium (C5) and large (C4) domestic letters: October 2016**

Single piece stamp price (£)



Source: WIK / Ofcom analysis

Note: For Australia, the definition of a large letter differs from other countries (thickness 20mm) as based on our definition (up to 25mm thickness), the price for a large letter would represent the 'small parcel' price offered by Australia Post.

### 7.2.3 Direct mail

#### Twenty per cent of total letter mail volume in the UK is advertising mail

The proportion of direct advertising mail<sup>161</sup> in total letter volumes was highest in the US, where half of all letters in 2015 were direct mail. In the UK, direct mail accounted for 20% of all letters, around the same level as in France and Italy.

<sup>161</sup> Advertising materials (such as brochures, catalogues, etc.) delivered via post.

**Figure 7.19 Proportion of direct mail in total letter volume: 2015**



Source: WIK / Ofcom analysis

### 7.2.4 Competition in letters

This section looks at the share of volume in the end-to-end letters sector that is accounted for by postal operators other than the provider of the universal postal service (where such competition exists).

#### **In the UK, operators other than Royal Mail account for less than 1% of end-to-end letter volumes**

There are two main forms of competition in the letters sector: access and end-to-end. Access competition is where the operator collects mail from the customer, sorts it and transports it to the universal service provider for delivery. This enables other operators to offer letter postal services to larger business customers without setting up their own delivery networks. Access competition is well established in the UK and is the predominant form of competition, with access mail accounting for almost 58% of total letter volumes in 2015. Access competition also exists in Germany, where it is known as ‘consolidation’ or ‘partial services’.

End-to-end competition is where an operator other than the universal service provider undertakes the entire process of collecting, sorting and delivering mail to the intended recipients. The UK was the only country among our comparators where competitors to the universal service provider had less than 1% share of end-to-end letter volumes. This is because Royal Mail is the only postal operator delivering end-to-end letters on any significant scale since Whistl stopped its end-to-end delivery of letters in 2015 (after its investment partner LDC pulled out of the joint venture).



**Figure 7.20 End-to-end delivered letter shares accounted for by operators other than the universal postal service provider: 2015**



Source: WIK / Ofcom analysis

Note: 2015 shares for Spain are approximate

## 7.3 The postal consumer

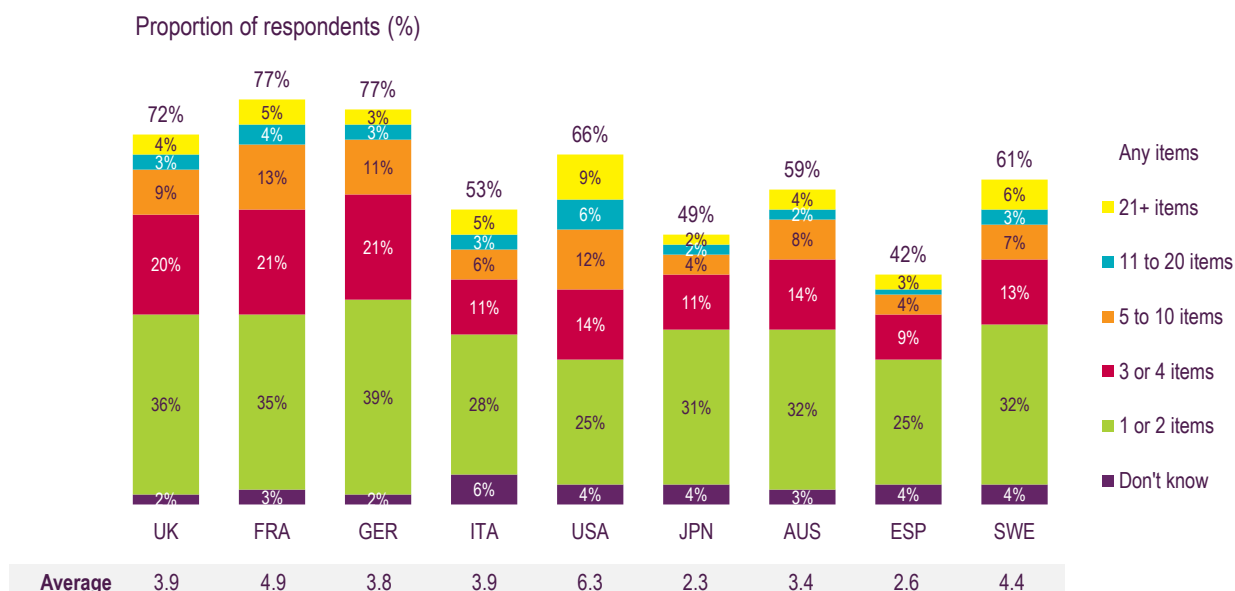
### 7.3.1 Volume and types of items sent

#### Seven in ten people surveyed in the UK have sent an item of post in the past month

Respondents in the UK were among the most likely to have sent an item of post in the past month, with seven in ten people claiming to have done so. Only in France and Germany were people more likely to have sent something by post over the same period.

Among respondents who said that they had sent something, they were most likely to have sent one or two items only in the past month, across all of our comparator countries. The average number of mail items sent in the UK was 3.9 per person, with 16% claiming to have sent five or more items.

**Figure 7.21 Approximate number of items of post sent per month: 2016**



Source: Ofcom consumer research, October 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

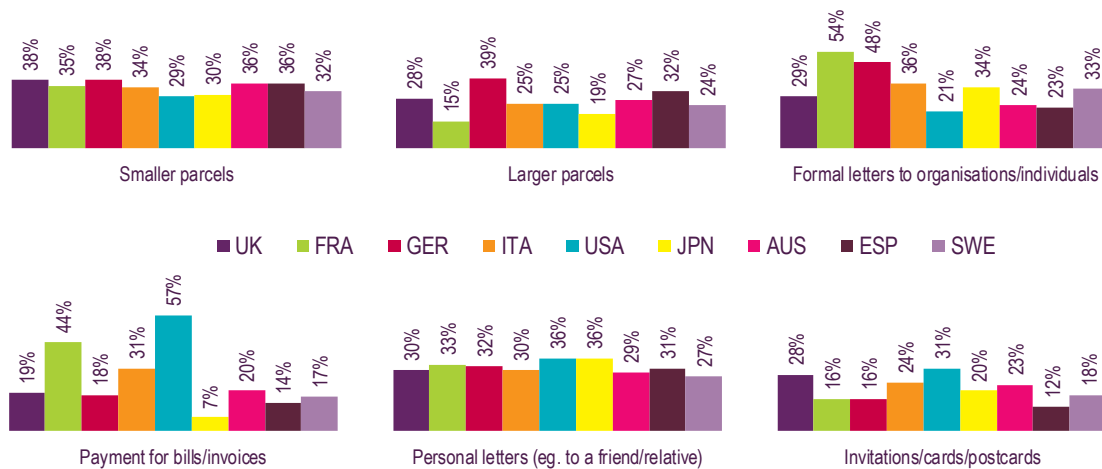
Q.13 Approximately how many items of post - including letters, cards and parcels - have you personally sent in the last month?

#### People in the UK are among the most likely to send invitation cards/ postcards

People in the UK were among the most likely to have sent personal mail (including letters and invitations/greetings cards/postcards), with half of the respondents claiming to have done so. Just under three in ten respondents in the UK said they had sent invitation/greetings cards in the past month. This was significantly higher than all other countries, except for the US (31%) and Italy (24%). More than half of the respondents in the UK also claimed to have sent a parcel (either large or small), similar to most other countries. More information about parcels can be found in section 7.1.2.

**Figure 7.22 Type of items sent in the past month: 2016**

Proportion of respondents who sent any items of post in the past month (%)



Source: Ofcom consumer research, October 2016

Base: All respondents who had sent any items of post in the last month,

UK=715, FRA=771, GER=775, ITA=547, USA=680, JPN=479, AUS=582, ESP=442, SWE=606

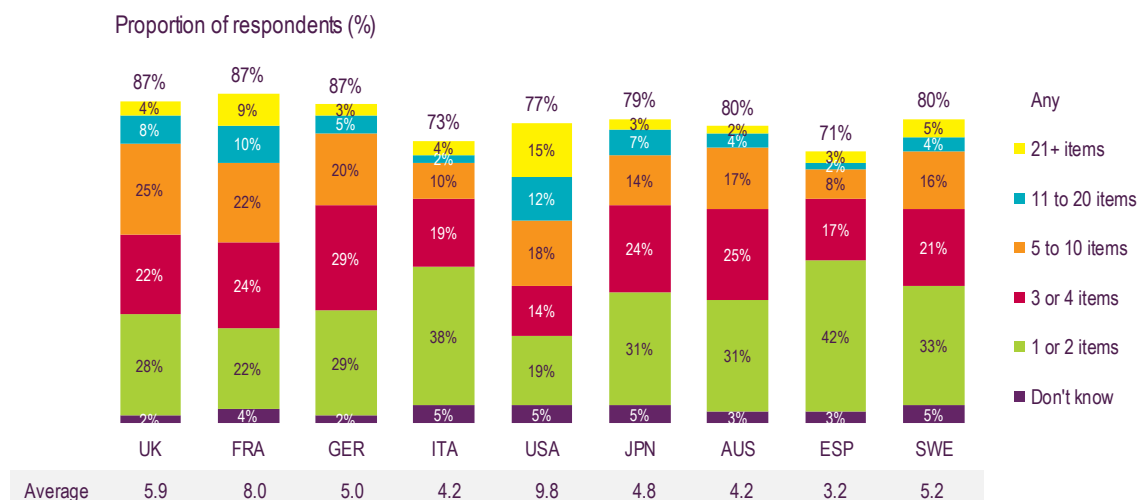
Q.14 Which of these types of mail would you say you have personally sent in the last month by post?

### 7.3.2 Volume and types of post received

**Almost nine in ten people in the UK have received an item of post in the past week**

People in the UK were among the most likely to have received an item of post in the past week, with 87% of respondents saying they had received at least one item. On average people in the UK received 5.9 items a week, higher than in most other countries.

**Figure 7.23 Approximate number of items of post received in the past week: 2016**



Source: Ofcom consumer research, October 2016

Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000

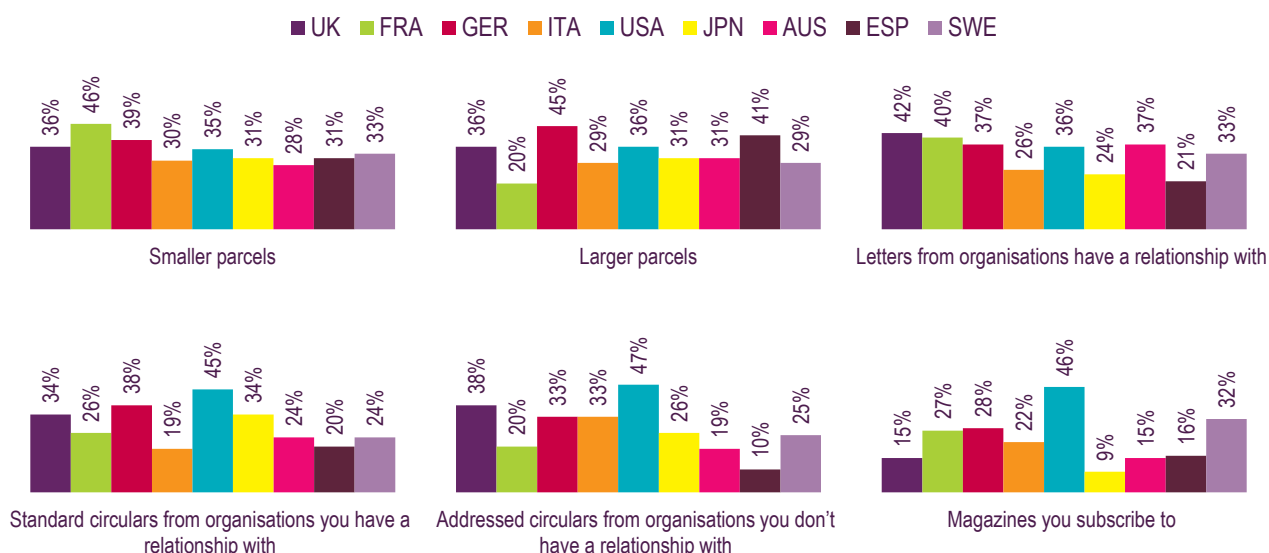
Q.15 Approximately how many items of post - including letters, cards and parcels - have you personally received in the last week?

## People in most countries are more likely to receive bills than any other type of mail

Significantly more respondents in the UK than in other countries claimed to have received circulars in the past week.<sup>162</sup> However, fewer respondents said they subscribed to receive magazines by post compared to other European countries; only in Spain was this proportion broadly similar.

**Figure 7.24 Types of mail received in the past week (1): 2016**

Respondents who have received items of post in the past week (%)



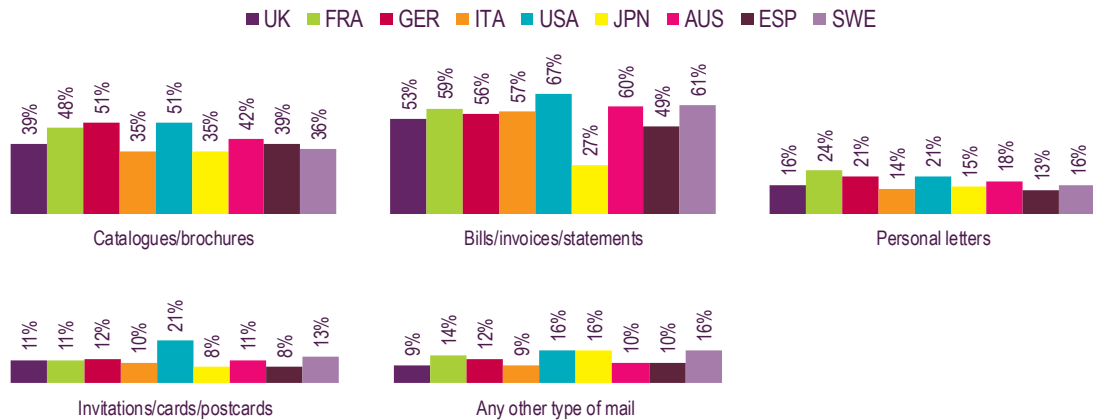
Source: Ofcom consumer research, September - October 2015 Base: All respondents who had received any item of post in the past week, UK=861, FRA=873, GER=878, ITA=755, USA=788, JPN=779, AUS=792, ESP=723, SWE=803 Q. 17 Which of these types of items would you say you have personally received through the post in the last week?

Although people in the UK were among the most likely to send invitation cards/ postcards (Figure 7.21), this type of mail was received by just 11% of those who said that they had received any mail in the past week, a similar proportion as in most other countries. Respondents in the UK were more likely to receive bills/ statements/ invoices than any other type of mail; this was also true in most other countries.

<sup>162</sup> These are 'letters from organisations you have a relationship with/ standard circulars from organisations you have a relationship with/ addressed circulars from organisations you don't have a relationship with'.

**Figure 7.25 Types of mail received in the past week (2): 2016**

Respondents who have received items of post in the past week (%)



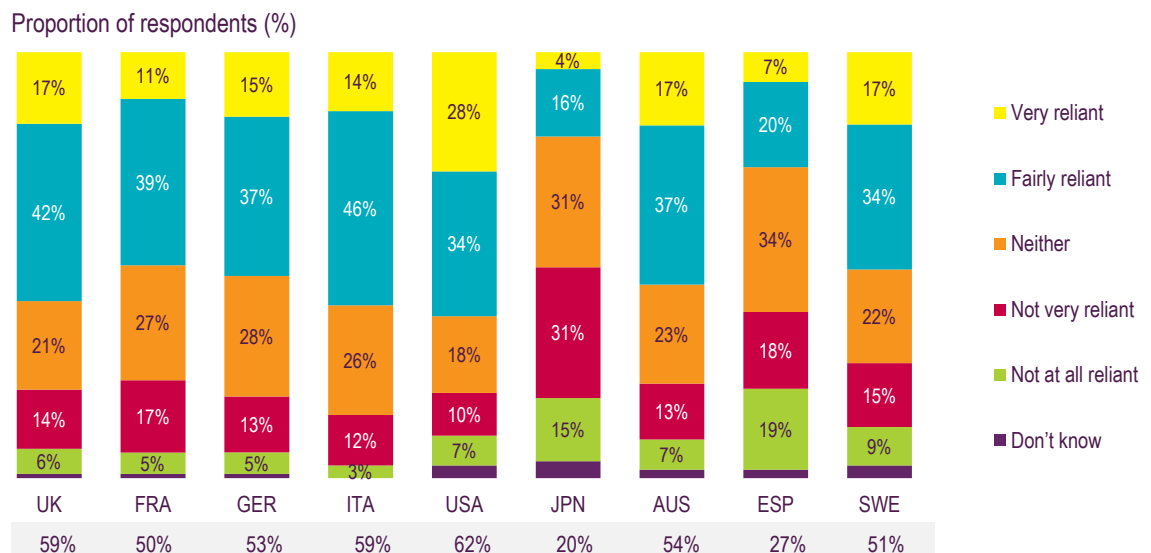
Source: Ofcom consumer research September - October 2015 Base: All respondents who had received any item of post in the past week, UK=861, FRA=873, GER=878, ITA=755, USA=788, JPN=779, AUS=792, ESP=723, SWE=803 Q.17 Which of these types of items would you say you have personally received through the post in the last week?

### 7.3.3 Reliance on post as a way of communicating

**About six in ten people in the UK consider themselves reliant on post as a way of communicating**

People in the US, UK and Italy are the most likely to consider themselves reliant on post as a way of communicating. Conversely, Spain and Japan are the only two countries where less than half of the people said they rely on post.

**Figure 7.26 Reliance on post as a way of communicating: 2016**



Source: Ofcom consumer research, October 2016 Base: All respondents, UK=1000, FRA=1008, GER=1010, ITA=1032, USA=1016, JPN=1011, AUS=1007, ESP=1016, SWE=1000 Q.18 How reliant would you say you are on post as a way of communicating?

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# The International Communications Market 2016

## 8 Glossary & Table of Figures

# Glossary

**2G** Second generation of mobile telephony systems. Uses digital transmission to support voice, low-speed data communications, and short messaging services.

**3G LTE** See LTE

**3G** Third generation of mobile systems. Provides high-speed data transmission and supports multimedia applications such as full-motion video, video-conferencing and internet access, alongside conventional voice services.

**4G** The fourth generation of mobile phone mobile communication technology standards, which provides faster mobile data speeds than the 3G standards that it succeeds.

**Access** Allowing other companies operating in the postal market, or other users of postal services, to use Royal Mail's facilities for the partial provision of a postal service.

**Access network** An electronic communications network which connects end-users to a service provider; running from the end-user's premises to a local access node and supporting the provision of access-based services. It is sometimes referred to as the 'local loop' or 'last mile'.

**Asymmetric digital subscriber line (ADSL)** A digital technology that allows the use of a standard telephone line to provide high-speed data communications. Allows higher speeds in one direction (towards the customer) than the other.

**Amplitude modulation (AM)** Type of modulation produced by varying the strength of a radio signal. This type of modulation is used by broadcasters in three frequency bands: medium frequency (MF, also known as medium wave (MW)); low frequency (LF, also known as long wave (LW)), and high frequency ((HF, also known as short wave (SW)). The term AM is also used to refer to the medium frequency band (see MF, below).

**Average revenue per user (ARPU)** A measurement used to indicate the average monthly revenue earned from a subscriber.

**Analogue terrestrial television (ATT)** The television broadcast standard that all television industries launched with. Most countries in this study have either phased this out now or are planning to phase out in the next ten years.

**Broadcaster's audience research board (BARB)** The pan-industry body that measures television viewing in the UK.

**Broadband** A service or connection generally defined as being 'always on' and providing a bandwidth greater than narrowband.

**Broadcast TV** Scheduled TV programming which is available to all viewers at the same time (such as those that are listed in electronic programme guides (EPG)). It includes time-shifted viewing of these programmes up to a specified number of days.

**Compound annual growth rate (CAGR)** The average annual growth rate over a specified period of time. It is used to indicate the investment yield at the end of a specified period of time. The mathematical formula used to calculate CAGR =  $(\text{present value}/\text{base value})^{(1/\#\text{of years})} - 1$

**Catch-up TV** refers to on demand services that allow consumers to watch content on a non-live basis after the initial broadcast.

**Communications Act** Communications Act 2003, which came into force in July 2003.

**Connected TV** Any television set connected to the internet either directly (such as a smart TV) or via another device such as a set-top box, video game console or other internet-enabled devices.

**Digital audio broadcasting (DAB)** A set of internationally-accepted standards for the technology by which terrestrial digital radio multiplex services are broadcast in the UK.

**DAB+** DAB+ technology encodes sound in a more efficient way than traditional DAB.

**Digital audience** The active audience across laptop/desktop computers and mobile phones.

**Digital switchover (DSO)** The process of switching over the analogue television or radio broadcasting system to digital.

**Direct mail** Addressed advertising mail

**DMB** Digital mobile broadcasting. A variant of the DAB digital radio standard for mobile TV services, and an alternative to DVB-H (see DVB, below).

**Dongle** A physical device, attached to a PC's USB port, which adds hardware capabilities.

**Digital subscriber line (DSL)** A family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high-speed digital lines, capable of supporting advanced services such as fast internet access and video on demand. ADSL, HDSL (high data rate digital subscriber line) and VDSL (very high data rate digital subscriber line) are all variants of xDSL).

**Digital terrestrial television (DTT)** The television technology that carries the Freeview service.

**Digital video recorder (DVR)** (also known as 'personal video recorder' and 'digital television recorder'). A digital TV set-top box including a hard disk drive which allows the user to record, pause and rewind live TV.

**End-to-end** Operators other than Royal Mail that provide a full postal service from collection to delivery

**Electronic programme guide (EPG)** A programme schedule, typically broadcast alongside digital television or radio services, to provide information on the content and scheduling of current and future programmes.

**EU5** The UK, France, Germany, Italy and Spain. Five EU countries between which comparisons are regularly made by various organisations, including Ofcom.

**Fibre-to-the-x (FTTx)** This comprises the many variants of fibre optic access infrastructure, including those which utilise VDSL. These include fibre to the home (FTTH), fibre to the premises (FTTP), fibre to the building (FTTB), fibre to the node (FTTN), and fibre to the cabinet (FTTC).

**Fibre-to-the-building (FTTB)** A form of fibre-optic communication delivery in which an optical fibre is run directly onto the customer's premises.



**Fibre-to-the-cabinet (FTTC)** Access network consisting of optical fibre extending from the access node to the street cabinet. The street cabinet is usually located only a few hundred metres from the subscriber premises. The remaining segment of the access network from the cabinet to the customer is usually a copper pair but could use another technology, such as wireless.

**Fibre-to-the-home (FTTH)** A form of fibre optic communication delivery in which the optical signal reaches the end user's living or office space.

**Fibre-to-the-premises (FTTP)** A form of fibre-optic communication delivery in which an optical fibre is run directly onto the customer's premises.

**Frequency modulation (FM)** Type of modulation produced by varying the frequency of a radio carrier in response to the signal to be transmitted. This is the type of modulation used by broadcasters in part of the VHF (Very High Frequency) band, known as VHF Band 2.

**Free-to-air** Broadcast content that people can watch or listen to without having to pay a subscription.

**High-definition television (HDTV)** High-definition television. A technology that provides viewers with better quality, high-resolution pictures.

**Headline connection speed** The theoretical maximum data speed that can be achieved by a given broadband. A number of factors, such as the quality and length of the physical line from the exchange to the customer, mean that a given customer may not experience this headline speed in practice.

**International roaming** A service offered by mobile operators that allows customers to use their phone abroad. The home operator has agreements with foreign operators that allow customers to make and receive calls, send and pick up text messages, and use some of the other mobile services (such as access to voicemail or topping-up credit on pre-pay phones). The exact services available and the charges for their use vary between operators.

**Internet** A global network of networks, using a common set of standards (e.g. internet protocol), accessed by users with a computer via a service provider.

**Internet protocol (IP)** The packet data protocol used for routing and carrying messages across the internet and similar networks.

**Internet protocol television (IPTV)** The term used for the television platform that delivers channels to viewers using internet protocol (IP) technology over a broadband connection. For the purposes of this report, hybrid systems such as BT TV in the UK (i.e. those that provide television services through both an aerial and an IP connection) are considered IPTV platforms.

**Internet service provider (ISP)** A company that provides access to the internet.

**ITV** All references to ITV should be read as including STV, UTV and Channel Television.

**Large letter** This refers to Royal Mail's definition Large Letter. A Large Letter is any item larger than a Letter and up to 353mm in length, 250mm in width and 25mm in thickness, with a maximum weight of 750g.

**Live viewing** Watching programmes during broadcast at the scheduled time, not only to live events such as football matches. **Long-term evolution (LTE)** Part of the development of 4G mobile systems that started with 2G and 3G networks (also see dual-carrier LTE 4G).

**Machine-to-machine (M2M)** – wired and wireless technologies that allow systems to communicate with each other.

**Multi messaging service (MMS)** The next generation of mobile messaging services, adding photos, pictures and audio to text messages.

**Mobile network operator (MNO)** A provider which owns a cellular mobile network.

**Mobile broadband** Various types of wireless high-speed internet access through a portable modem, telephone or other device.

**Multichannel** In the UK, this refers to the provision or receipt of television services other than the main five channels (BBC One and Two, ITV, Channel 4/S4C and Channel 5). 'Multichannel homes' comprises all those with digital terrestrial TV, satellite TV, cable TV and IPTV.

**MVNO** An organisation which provides mobile telephony services to its customers, but does not have allocation of spectrum or its own wireless network.

**Narrowband** A service or connection providing data speeds up to 128kbit/s, such as via an analogue telephone line, or via ISDN.

**Net neutrality** The principle that all traffic on the internet should be treated equally, regardless of content, site or platform.

**Next-generation access networks (NGA)** New or upgraded access networks that will allow substantial improvements in broadband speeds. This can be based on a number of technologies including cable, fixed wireless and mobile. Most often used to refer to networks using fibre optic technology.

**'Over-the-top' video (OTT)** Refers to audio-visual content delivered on the 'open' internet rather than over a managed IPTV architecture.

**Postal packets** A letter, parcel, packet or other article transmissible by post

**Public service broadcasting (PSB)** (or public service broadcaster). The Communications Act in the UK defines the PSBs as including all BBC channels, ITV (including GMTV, STV and UTV), Channel 4, Channel 5 main channels and S4C.

**Public switched telephone network (PSTN)** The network that manages circuit-switched fixed-line telephone systems.

**Publications** Regularly produced publications such as periodicals and magazines.

**Radio Joint Audience Research (RAJAR)** the pan-industry body which measures radio listening in the UK.

**Registered items** A service of conveying postal packets from one place to another by post which provides for the registration of the packets in connection with their conveyance by post and for the payment of an amount determined by the person providing the service in the event of the theft or loss or damage to the packets

**Service bundling (or multi-play)** A marketing term describing the packaging together of different communications services by organisations that traditionally only offered one or two of those services.

**Service provider** A provider of electronic communications services to third parties, whether over its own network or otherwise.

**Share (radio)** Proportion of total listener hours, expressed as a percentage, attributable to one station within that station's total survey area.

**Share (TV)** The percentage of the total TV viewing audience watching over a given period of time. This can apply to channels, programmes, time periods etc.

**Subscriber identity module (SIM)** A SIM or SIM card is a small flat electronic chip that identifies a mobile customer and the mobile operator. A mobile phone must have a SIM card inserted before it can be used.

**SIM-only** A mobile contract that is sold without a handset.

**Smartphone** A mobile phone that offers more advanced computing ability and connectivity than a contemporary basic 'feature phone'.

**Smart TV** A standalone television set with inbuilt internet functionality.

**Smart watch** A wearable computer that provides features in addition to those to be expected of a watch. Typically they are connected wirelessly to a mobile phone and display incoming messages, call status and provide some degree of control over the phone, including call answering and control of audio playback. Other features can include motion sensors, cameras and GPS.

**Short messaging service (SMS)** Usually used to refer to mobile text messaging (see text message below).

**Social networking site (SNS)** A website that allows users to join communities and interact with friends or to others that share common interests.

**Socio-economic group (SEG)** A social classification, classifying the population into social grades, usually on the basis of the Market Research Society occupational groupings (MRS, 1991). The groups are defined as follows.

- A.** Professionals such as doctors, solicitors or dentists, chartered people like architects; fully qualified people with a large degree of responsibility such as senior civil servants, senior business executives and high ranking grades within the armed forces. Retired people, previously grade A, and their widows.
- B.** People with very senior jobs such as university lecturers, heads of local government departments, middle management in business organisations, bank managers, police inspectors, and upper grades in the armed forces.
- C1.** All others doing non-manual jobs, including nurses, technicians, pharmacists, salesmen, publicans, clerical workers, police sergeants and middle ranks of the armed forces.
- C2.** Skilled manual workers, foremen, manual workers with special qualifications such as lorry drivers, security officers and lower grades of the armed forces.
- D.** Semi-skilled and unskilled manual workers, including labourers and those serving apprenticeships. Machine minders, farm labourers, lab assistants and postmen.
- E.** Those on the lowest levels of subsistence including all those dependent upon the state long-term. Casual workers and those without a regular income.

**Streaming content** Audio or video files sent in compressed form over the internet and consumed by the user as they arrive. Streaming is different to downloading, where content is saved on the user's hard disk before the user accesses it.

**Subscription video on demand (SVoD)** a subscription service (usually paid monthly) that offers video-on-demand content (SVoD) usually delivered via the internet. Services may offer live streaming to a selection of channels/content as well as VoD content.

**Superfast broadband** Sometimes known as next-generation broadband, super-fast broadband delivers actual modem sync speeds of 30Mbit/s or higher

**Superfast product** Fixed-line broadband with headline speeds of more than or equal to 30Mbit/s

**Tablet** A mobile computer which is included within a single panel with a touchscreen.

**Telecommunications, or 'telecoms'** Conveyance over distance of speech, music and other sounds, visual images or signals by electric, magnetic or electro-magnetic means.

**Text message** A short text-only communication sent between mobile devices.

**Time-shifted viewing** Refers to broadcast programmes viewed within a specified number of days after live broadcast, including viewing on the same day as live. Time-shifted includes viewing through recording devices (such as a DVR) as well as to catch-up TV services (where applicable to the country). Viewing to devices such as PCs and laptops, tablets and smart phones where attached to the TV set are included where possible. In the UK, all of these forms of viewing up to seven days after broadcast are included in the industry standard data.

**UK online measurement (UKOM)** A media industry measurement of UK consumers' online activity, specified by UKOM Ltd and delivered by comScore.

**Ultra HD (UHD)** the next generation of high definition broadcast which offers up to four times the definition of HD

**Unaddressed mail** Also known as door-to-door and door drops, unaddressed mail is advertising mail with no specified recipient, usually distributed to all households within a targeted geographical area

**Unbundled** A local exchange that has been subject to local loop unbundling (LLU).

**Universal service obligation (USO)** A minimum set of services of specified quality which should be available to all users at an affordable price

**Unique audience** The number of different people visiting a website or using an application.

**Usage caps** Monthly limits on the amount of data which broadband users can download, imposed by some ISPs.

**VDSL (very high speed DSL)** A high-speed variant of DSL technology, which provides a higher connection speed than ADSL over shorter copper lines and uses fibre-to-the-cabinet (FTTC) networks which reduce the length of the access copper line by connecting to fibre at the cabinet.

**Video on demand (VoD)** A service or technology that enables TV viewers to watch programmes or films whenever they choose to, not restricted by a linear schedule (also see SVoD).

**Voice over internet protocol (VoIP)** A technology that allows users to send calls using internet protocol, using either the public internet or private IP networks.

**WiMAX** A wireless MAN (metropolitan area network) technology, based on the 802.16 standard. Available for both fixed and mobile data applications.

**Wireless LAN or Wi-Fi (wireless fidelity)** Short-range wireless technologies using any type of 802.11 standard such as 802.11b or 802.11a. These technologies allow an over-the-air connection between a wireless client and a base station, or between two wireless clients.

**Wholesale line rental (WLR)** A regulatory instrument requiring the operator of local access lines to make this service available to competing providers at a wholesale price.

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