The International Communications Market 2015

1 The UK in context

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1.1 The UK communications industry in context

1.1.1 Introduction

This chapter of the report provides a broad overview that places the UK communications sector in a global context.

- **The UK communications industry in context** (Section 1.1): We compare the size of the UK communications sector to that of other countries, and look at relevant top-line revenues across our comparator countries.

- **The UK consumer in context** (Section 1.2): We compare take-up and use of different services and devices at a broad level across our comparator countries.

- **Pricing of communications services** (Section 1.3): In this section we compare communications service prices in six of our comparator countries and look at how consumers in different countries choose to purchase communications services. We also examine consumer research on bundling of communications services among our comparator countries.

- **Changing viewing habits** (Section 1.4) In the light of the development of the range of audio-visual services available, we explore claimed changes in viewing habits in our comparator countries.

- **Smartphone societies** (Section 1.5): We compare 4G connections, in terms of coverage, take-up and consumer satisfaction, in our comparator countries. We also draw on consumer research and selected third-party sources to compare and contrast how some of our comparator countries are embracing smartphone technology, both inside and outside the home.

- **News consumption: the international context** (Section 1.6): We examine the consumption of digital news, and present findings from Ofcom's consumer research, looking at which platform people say they use as their main source for different types of news.

- **Media literacy** (Section 1.7): In this section we examine some of the issues arising from internet users' access to, awareness of and concerns about today's evolving media environment.

- **International regulatory context and models** (Section 1.8): We highlight recent international developments in communications regulation, to provide regulatory context to some of the topics in the report.

1.1.2 Putting the UK communications industry into context

In this section we discuss the revenue and expenditure associated with the communications sectors, in the UK and globally. Given the complexity and scale of the 'communications industries', there are many potential definitions of the 'communications sector'. It could, for example, include consumer electronics, network equipment, music, the film industry, online, software, games, newspapers, magazine and books, in addition to telecoms and broadcasting.

We focus primarily on the telecoms, television, radio and postal industries, to reflect Ofcom's regulatory remit.

The key findings include:

- **The communications sector's total global revenues in 2014 were £1,190bn, growing by 1.5% year on year (incorporating the telecoms, television, postal and radio sectors).** Global television industries had the largest increase in revenue in 2014, up by £12bn (5%), to £244bn. Telecommunications revenues, although the largest by a considerable margin, registered slow growth of 0.5% to reach £846bn.

- **UK communications sector revenues were the fifth highest of our comparator countries and the second highest in Europe.** In 2014, as in recent years, the three largest communications markets by revenue were in the US (£316bn), China (£135bn) and Japan (£110bn). Outside the top three, total UK revenue of £48bn was second only to Germany (£55bn).

- **The UK generated £748 per head across our communications industries in 2014, the highest of the EU5**. This figure was £244 lower than the US, which once again had the highest revenue per head of our comparator countries at £992 per person.

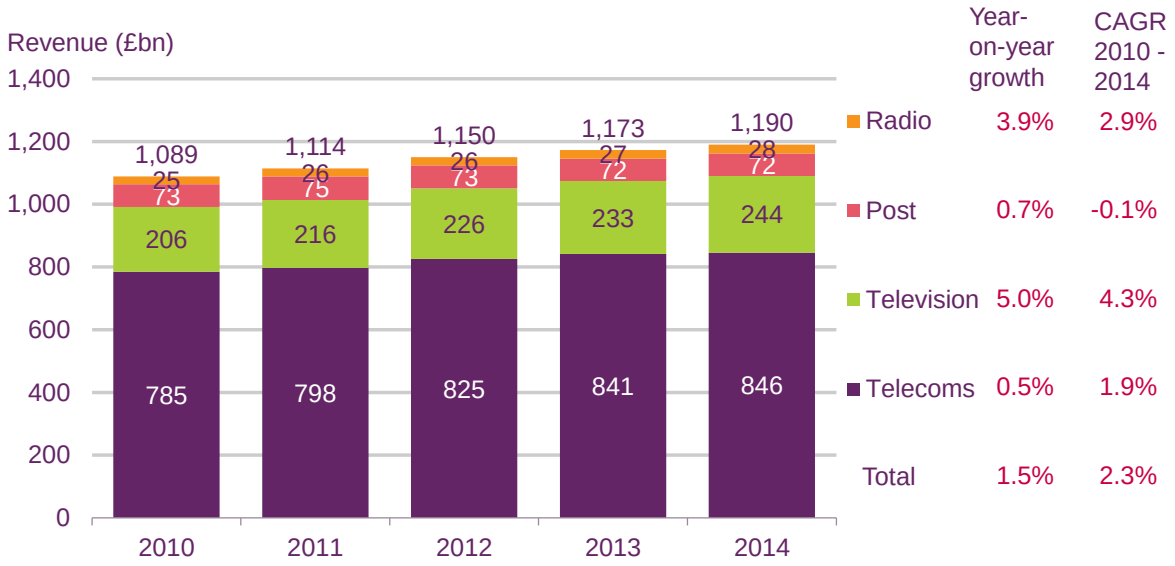
- **Global advertising expenditure grew to £283bn in 2014** driven by growth in internet and television adverting revenues. Over the five year period 2010 to 2014 expenditure on internet advertising grew at a compound annual rate of 17.9%, to stand at £80bn in 2014. Television advertising revenue growth in 2014 was 5.3% and it remains the largest advertising medium by revenue, at £99bn in 2014.

1.1.3 Communications sector revenues

The communications sector (as defined in this report) generated £1,190bn in revenue in 2014, an increase of 1.5% in the year to 2014

Globally, communications services generated £1,190bn in revenues in 2014 (Figure 1.1). Revenues increased by an average of 2.3% per year between 2010 and 2014, the main drivers of this growth being the broadcast television sector and telecommunications sectors. Between 2010 and 2014, telecoms revenue grew by an average of 1.9% per year, generating £846bn worldwide in 2014. Television revenues grew fastest during this period, up by an average of 4.3% p.a. to £244bn, and revenue growth in 2014 was above the five-year average at 5.0%, representing an increase of £12bn (compared to 2013). Radio revenues increased by 3.9% in 2014 to £28bn.Total postal revenues in the countries we measured were relatively stable (up by 0.7% year on year) at £72bn.

Figure 1.1 Global communications revenues



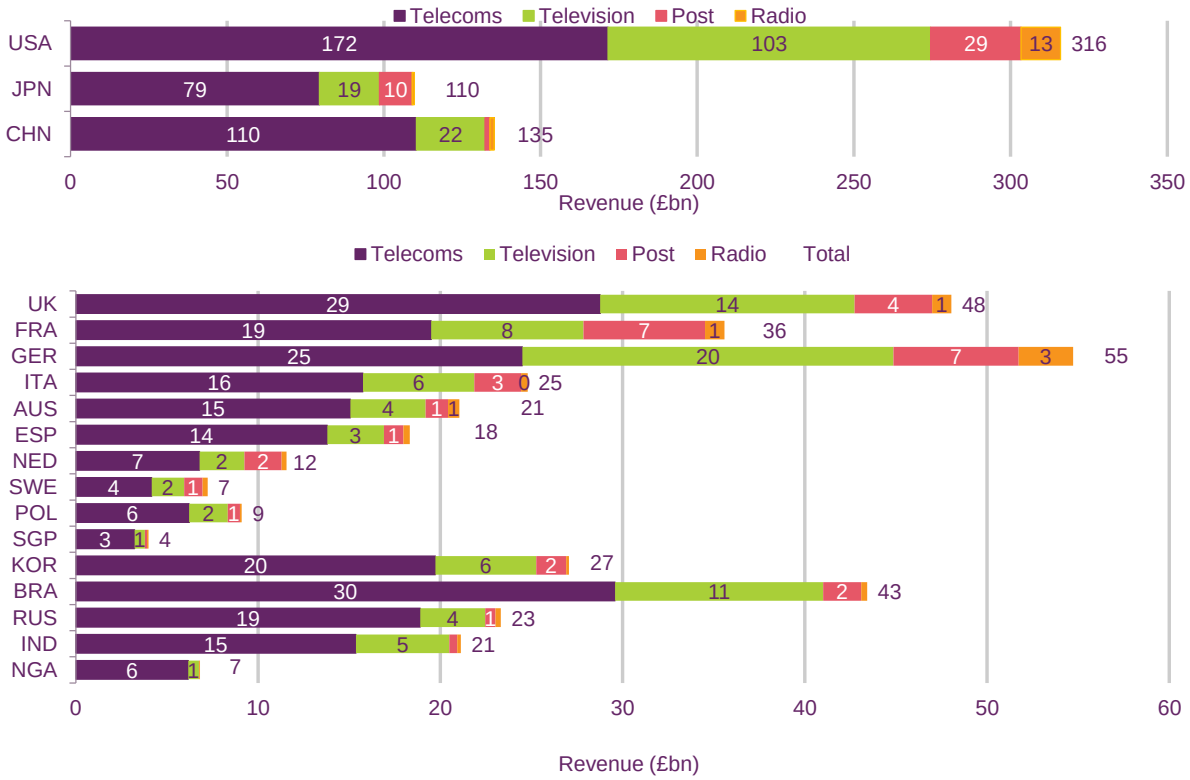
Source: Data derived from various sources: PwC Global Entertainment and Media Outlook 2015-2019 @ www.pwc.com/outlook for television and radio revenues (both include advertising, licence fees and subscription services only), Wik Consult / Ofcom estimates for postal revenues which refers to letter mail only. IHS / industry data / Ofcom 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.

UK telecoms revenues are the second highest in Europe and the fifth highest among all our comparator countries

In 2014, as in recent years, the three largest communications markets by revenue were in the US (£316bn), China (£135bn) and Japan (£110bn). At £172bn, the revenues of the US telecoms industry alone were greater than the combined industries' revenues in any other country (Figure 1.2). The US also commanded the largest revenue among our comparator countries in the other sectors we consider in this report - television (£103bn), post (£29bn) and radio (£13bn).

In the tier below the top three, total revenue across the four industry sectors in the UK was £48bn in 2014. This was second only to Germany (£55bn) and was ahead of Brazil (£43bn). UK television revenues, at £14bn, were second only to Germany at £20bn (both of these countries have a television licensing system that supports public service broadcasting). UK telecoms revenues were the largest among our European comparator counties, generating £29bn in 2014. This made the UK's telecoms sector the second largest outside the US, Japan and China, after Brazil's (which generated £30bn during the year).

Figure 1.2 Communications sector revenues, by country: 2014

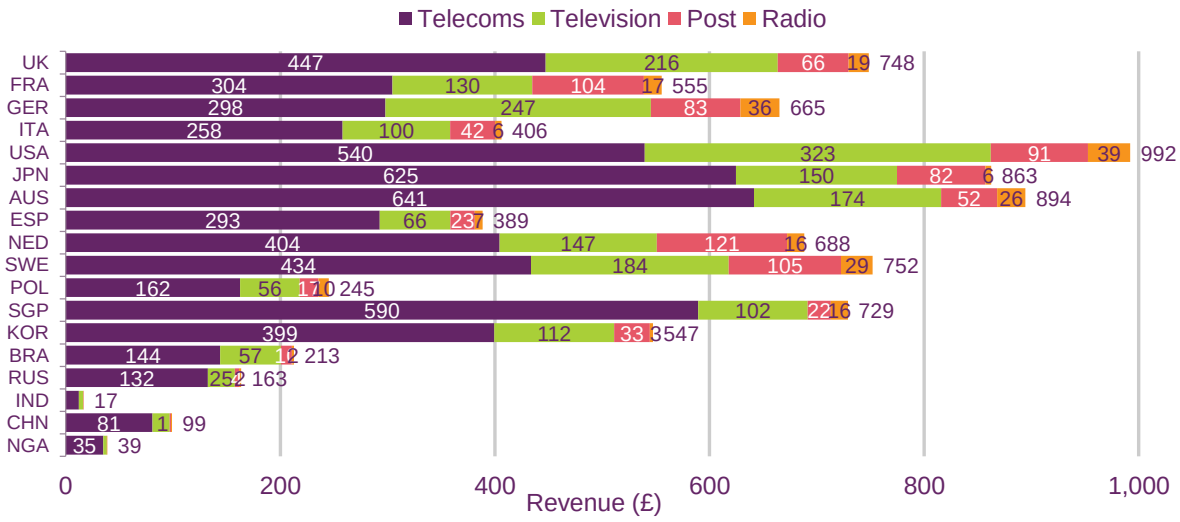


Source: Data derived from various sources: PwC Global Entertainment and Media Outlook 2015-2019 @ www.pwc.com/outlook for radio revenues (include advertising, licence fees and satellite subscription services only), Wik Consult / Ofcom estimates for postal revenues (letters only), IHS / industry data / 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 2014

The UK generated £748 in communications service revenues per person in 2014, the highest average spend across the EU5 (Figure 1.3). This figure was £244 (25%) lower than the US, which continued to have the highest revenues per head of our comparator countries at £992 per person. Although telecoms revenue was the highest of the four sectors in the US, it was television revenue which differentiated this market from the others. Television revenue per head was almost 50% higher than the UK, and 30% higher than Germany which had the second highest television revenue per head, at £247. Australia (£894) and Japan (£863) had the second and third highest overall revenue per head, both driven primarily by higher telecoms revenue.

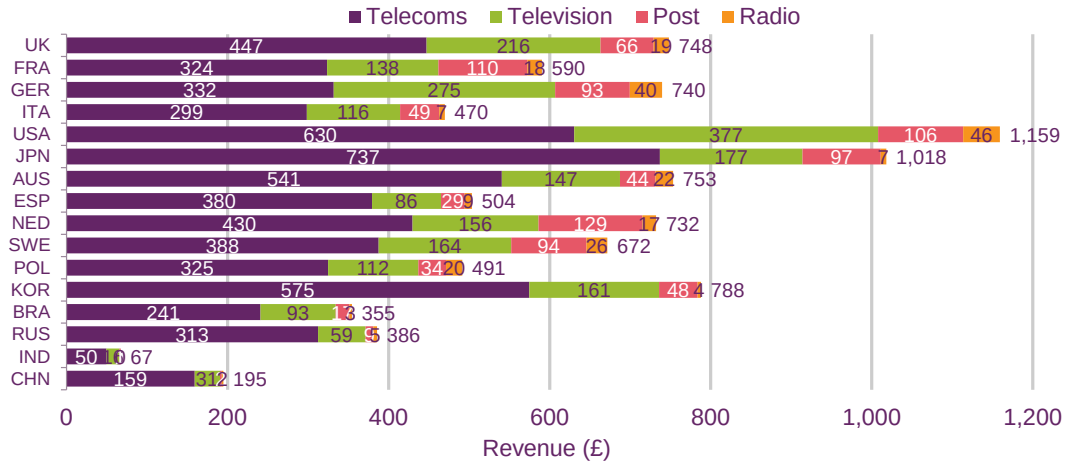
Figure 1.3 Communications sector revenue per head: 2014



Source: Data derived from various sources: PwC Global Entertainment and Media Outlook 2015-2019 @ 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 1.4 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, the revenue per head in the US increases to £1,159, and Japan (£1,018) and South Korea (£788) overtake Australia as the countries with the second and third highest revenues per head countries respectively, reflecting the higher general cost of goods and services in Australia. The UK revenue per capita remains the fifth highest of our comparator countries.

Figure 1.4 Communications revenues per head, adjusted for comparative price levels: 2014



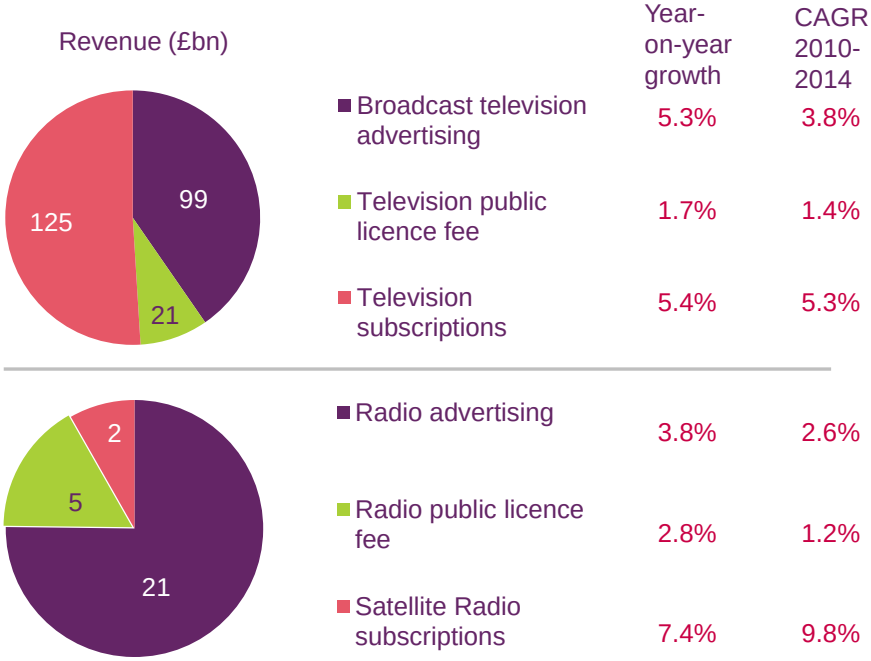
Source: Data derived from various sources: Ofcom analysis based on data from PwC's Global Entertainment and Media Outlook 2015-2019 @ www.pwc.com/outlook for radio revenues (include advertising, licence fees and satellite subscription services only), Wik Consult / Ofcom estimates for postal revenues (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.No PPP data was available for Nigeria.

Subscription revenues continue to grow in the global television industry

Figure 1.5 shows the proportions of global television and radio revenues that came from advertising, public licence fees and subscriptions in 2014. Of the £244bn that the television industry generated in 2014, subscription revenues contributed the largest, and fastest-growing, proportion of total revenue, at £125bn. Year-on-year growth was 5.4%, in line with the compound annual growth rate (CAGR) of 5.3% p.a. across the five year period. Broadcast television advertising revenues grew at a rate of 5.3% year on year, ahead of the five-year CAGR of 3.8%. Public funding remained relatively flat at £21bn.

In the radio industry, satellite subscription has seen the fastest growth, both year on year and across the period 2010 to 2014, albeit from the smallest base. Among our comparator countries, subscription services are currently available in the US, from satellite radio broadcaster Sirius XM Radio. Subscription remains the smallest of our measured revenue streams for the radio industry, at just over £2bn, half as much as public funding (just under £5bn) and just over a tenth of the size of advertising revenue, which stood at £21bn in 2014.

Figure 1.5 Sources of global revenue for radio and television industries: 2014



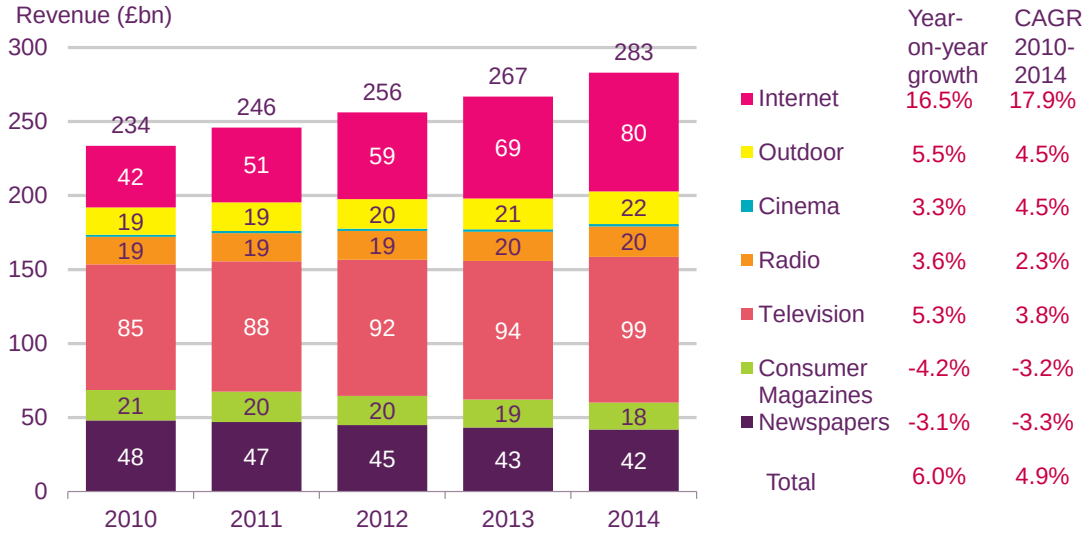
Source: All data derived from PwC Global Entertainment and Media Outlook: 2015-2019 at www.pwc.com/outlook. Notes: Ofcom is responsible for all growth calculations displayed. All figures are nominal.

Global advertising expenditure grew by 6% to £283bn in 2014

In 2014 global advertising expenditure grew by 6% (£16bn) to reach £283bn, driven by growth in internet and television adverting revenues. Over the five-year period 2010 to 2014 expenditure on internet advertising grew fastest among the media depicted in Figure 1.6, at a compound annual rate of 17.9%, to stand at £80bn in 2014. Outdoor and cinema advertising both experienced growth rates above 4% per annum over the five-year period with television falling just short, at 3.8%. Television advertising revenue growth in 2014 was considerably higher than the five-year average, reaching 5.3%, and it remains the largest advertising medium by revenue, with a total of £99bn for the year. Newspaper and consumer magazine advertising revenue (excluding their online advertising revenues, which are included here in the internet total) continued to experience a steady decline.

In 2014, internet advertising contributed 28% of all advertising expenditure by the media shown in Figure 1.6, up from 18% in 2010. Combined newspaper and consumer magazines' share dropped from 29% to 21%. All other media shares remained constant, with television the largest at 35%.

Figure 1.6 Global advertising expenditure, by medium: 2014



Source: Data derived from PwC Global Entertainment and Media Outlook: 2015-2019 @ www.pwc.com/outlook. Notes: Ofcom is responsible for all growth calculations displayed. All figures are nominal.

1.2 The UK consumer in context

1.2.1 Introduction

In this section we examine take-up and use of communication devices and services. We focus primarily on the UK, but also on the other countries where we carried out consumer research in September-October 2015 (France, Germany, Italy, the US, Japan, Australia, Spain and Sweden). The key findings are:

- **The UK had the highest per-capita fixed voice take-up among our comparator countries at the end of 2014.** During the year, the number of UK fixed voice connections per 100 people increased by one, to 61. This represented both the highest penetration among our comparator countries and the largest increase during the year.

- **The UK had the fifth highest number of fixed broadband connections per 100 people at the end of 2014.** UK fixed broadband lines increased by seven connections per 100 people in the five years to 2014 to reach 37 lines, behind Japan (at 39 connections), France (40 connections), the Netherlands (41 connections) and South Korea (39 connections).

- **The UK had the highest proportion of fixed broadband lines with a headline speed of 30Mbit/s or higher, among the EU5 countries in 2014.** At the end of 2014, 35% of UK fixed broadband connections had headline speeds of 30Mbit/s or higher. This was a greater proportion than the other EU5 comparator countries, but a lesser proportion than some smaller EU countries: the proportion in the Netherlands was 46% and in Sweden it was 42%.

- **Growth in smartphone ownership continued in 2015.** Of our comparator countries Spain reported the highest take-up at 83%, an increase of 6pp on 2014. The UK was slightly below the average at 67%, an increase of 4pp on the previous year.

- **Overall, watching television remains the most popular communications activity undertaken on a weekly basis in each comparator country.** However, respondents to our online surveys in Italy, Spain and Sweden were just as likely to say they used a mobile phone every week as to say they watched television every week.

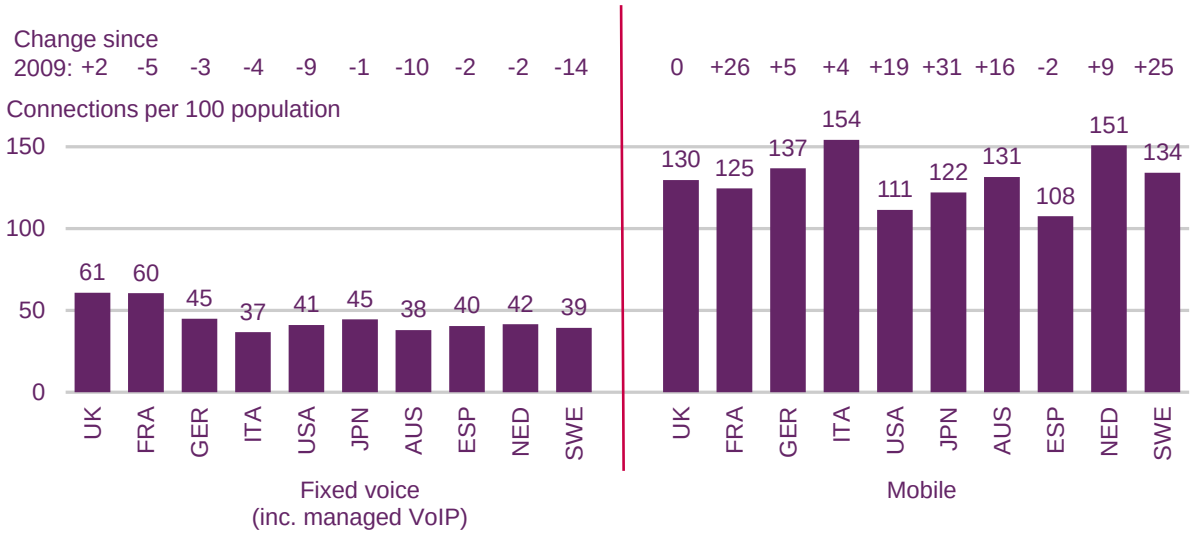
1.2.2 Take-up and use of communications services, devices and media activities

Fixed voice connections per 100 people continue to fall across most comparator countries, but remain stable in the UK

Of our comparator countries, only the UK experienced an increase in the number of fixed lines per 100 people (including PSTN lines and managed VoIP connections) in the five years to 2014, up two connection per 100 people to 61 (Figure 1.7). This increase may be partly due to strong demand for ADSL and fibre-to-the-cabinet (FTTC) broadband services, both of which require a fixed exchange line in the UK. This increase places the UK as having the highest number of fixed voice connections per 100 population out of all our comparator countries.

Outside the UK, the fall in per-capita fixed-line take-up is partly due to the growing use of mobile phones in most countries, alongside increasing use of text-based forms of communication, such as email, mobile messaging and instant messaging services, including those provided by social networking sites. In contrast to fixed, mobile take-up increased in all comparator countries between 2009 and 2014. Spain was the exception, down two connections per 100 people over the period. The number of mobile connections per 100 people in the UK remained mostly stable in the five years to 2014.

Figure 1.7 Fixed voice and mobile connections per 100 population: 2014

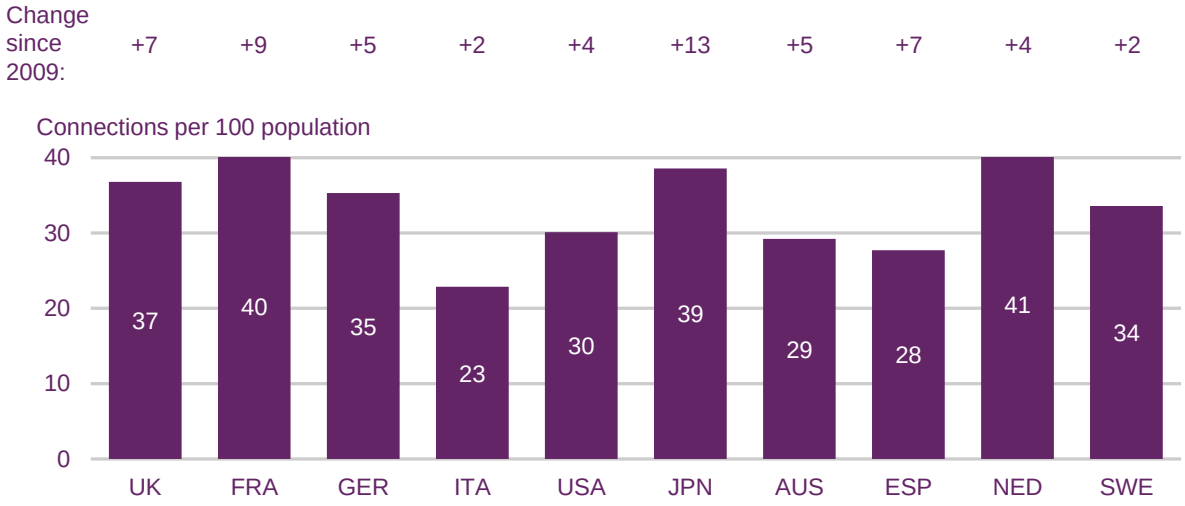


Source: IHS / industry data / Ofcom

Japan had the greatest increase in the number of fixed broadband connections per 100 people over the last five years

Across the ten comparator countries shown in Figure 1.8 below, the Netherlands had the highest fixed broadband take-up at the end of 2014, at 41 connections per 100 people, followed by France at 40 connections per 100 people. Japan, which had the largest increase in fixed broadband connection per 100 people in the five years to 2014, was third with 39 connections per 100 people, followed by the UK with 37. Among the seven European countries included in the analysis, Italy had the lowest fixed broadband take-up (23 connections per 100 population) in 2014, and the lowest rate of growth in the preceding five-year period along with Sweden (both up by two connections). Spain followed with 28 connections per 100 people.

Figure 1.8 Fixed broadband connections per 100 population: 2014



Source: IHS / industry data / Ofcom.
Note: Broadband connections include some SME business connections

The UK has the highest proportion of fixed broadband connections with headline speeds of 30Mbit/s or higher, among the EU5 countries

In 2009, less than 1% of UK residential broadband connections had a headline speed of 30Mbit/s or more, but by 2014 35% fell into this category (Figure 1.9). Included in these were connections with a headline speed ≥100Mbit/s, which accounted for 5% of all residential connections[6].

The UK had the highest proportion of connections with a headline speed of 30Mbit/s or higher of the EU5 at the end of 2014, although it ranked eighth among the 18 comparator countries included in the analysis. South Korea, Singapore and Japan (where FTTP services are widely available) had the three highest proportions overall, with 89%, 83% and 81% of their respective fixed broadband bases having headline speeds ≥30Mbit/s. In all comparator countries except Nigeria, the proportion of fixed broadband connections with a headline speed of 'up to' 30Mbit/s or higher increased in the five years to 2014.

[6] Some SME connections that use residential packages may be included in the residential connections figure as it is difficult to differentiate between true residential connections and SMEs using residential packages.

Figure 1.9 Fixed broadband connections, by headline speed: 2009 and 2014

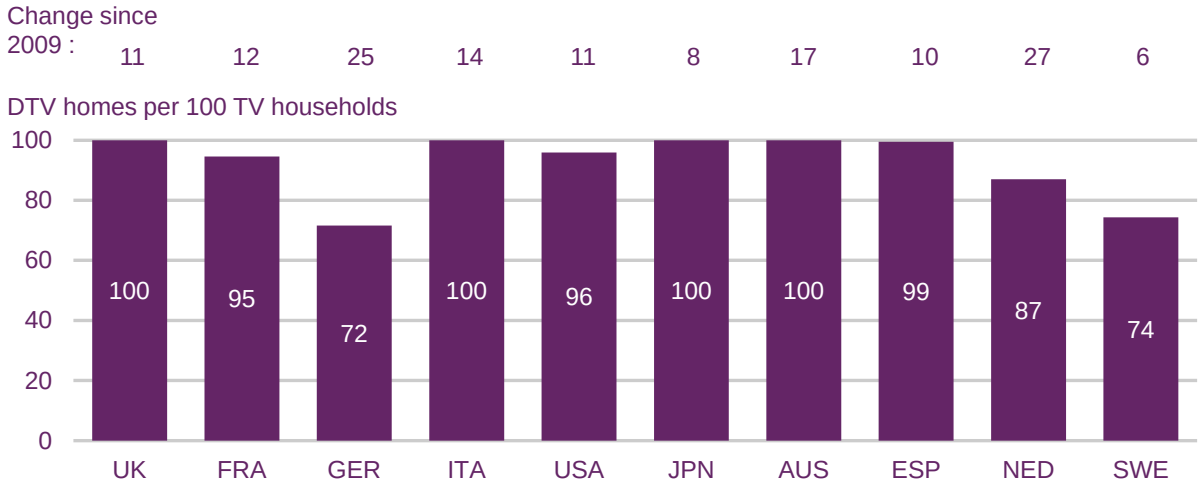
Source: IHS/ Ofcom/ operator data

Digital television take-up in Germany is catching up with other countries

Digital take-up remains relatively low in Germany and Sweden compared to other European comparator countries, as a result of the continuing availability of analogue cable services in both countries. Over the last five years Germany has seen the greater change of the two. The proportion of television homes that were digital television homes in Germany in 2014 stood at 72%, 25 percentage points higher than in 2009 and two percentage points below Sweden in 2014.

The UK reached 100% digital TV homes per 100 TV households in October 2012 when the last analogue signals were switched off.

Figure 1.10 DTV homes per 100 TV households: 2014



Source: IHS / industry data / Ofcom

Ownership of smartphones continues to grow in most comparator countries

As part of our consumer research we asked respondents about their ownership and personal use of a range of communication and media devices.[7]

Growth in smartphone ownership continued in 2015. Of our comparator countries, Spain reported the highest take-up at 83%, an increase of 6pp on 2014. UK smartphone take-up stood at 67%, an increase of 4pp on the previous year. Two countries reported the same levels of take-up as last year; 77% of respondents in Japan and 69% in Australia claimed to use a smartphone. The US had the lowest take-up of smartphones (57%).

Reported ownership of tablets continues to increase in all the comparator countries. According to our survey results, 54% of the UK online population claim to have a tablet computer in their home. Take-up of tablets was highest in Spain (65%) and Italy (63%) and lowest in Japan, where 31% of the online population claimed to have a tablet in their home.

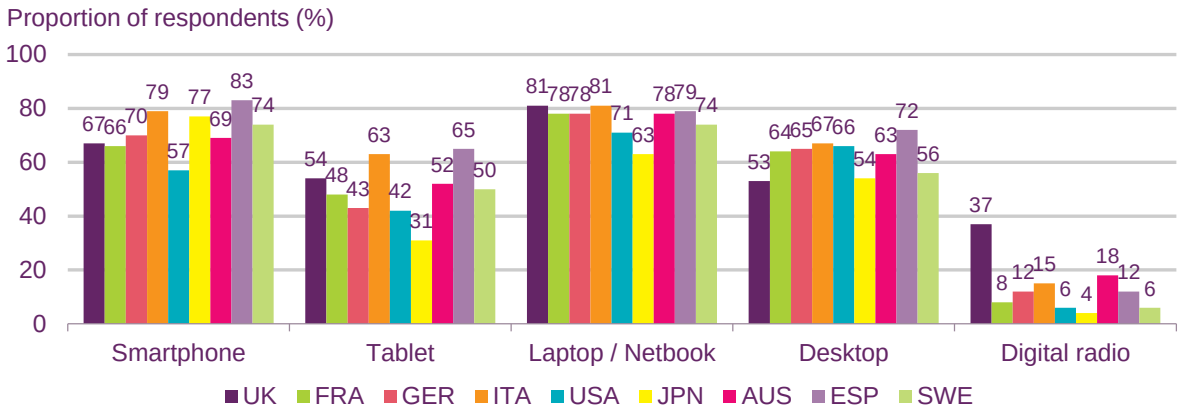
Laptops remain the most popular communication/media device in the home in all countries, with the exception of Japan, where reported laptop ownership was 63%. Smartphones were the most popular device in Japan (with 77% take-up). In all the other countries we surveyed, at least 70% of respondents claimed to have a laptop in their home; the highest take-up was

[7] The research was carried out online in September-October 2015, which means that results are derived from a different sample, time period and questions from other Ofcom consumer research. Direct comparisons cannot therefore be made between the various surveys.

in the UK and Italy, both at 81%. After Japan, the US had the second lowest take-up of laptops (71%) among the countries surveyed.

People in the UK reported the highest take-up of digital radio sets by a considerable margin; almost four in ten (37%) respondents claimed to have a digital radio in their home.[8] Take-up in Australia was the next highest (18%). Among the reasons for high take-up in the UK may be the support that UK broadcasters have shown for the technology; in September 2015 there were 25 UK-wide DAB radio stations broadcasting in the UK (including 11 from the BBC) and 214 local commercial stations, 74 of which were not available on analogue radio. DAB coverage is also highest in the UK, reaching 96% of households.[9]

Figure 1.11 Ownership and personal use of devices



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004 Q3a. Which of the following devices do you have in your home? (tablet, laptop, desktop computer, digital radio, DVR, HDTV, smart TV, 3D TV) Q.4a Which of the following devices do you personally use? (smartphone)

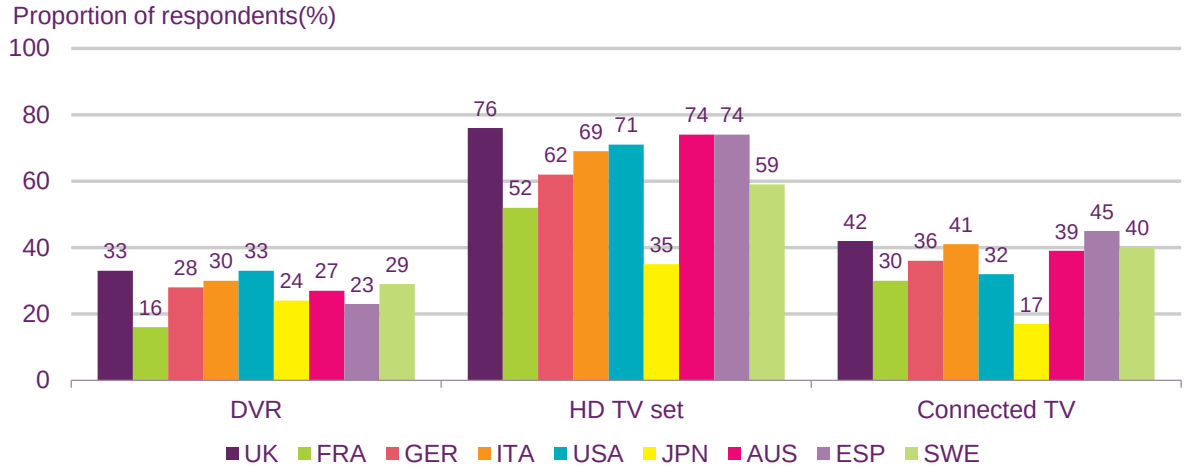
[8] Our results show lower take-up of DAB radio sets than reported by the UK's radio listening measurement body, RAJAR, which reported that 53.7% of the UK population had a DAB radio in their home in Q3 2015. This is due to methodological differences; our research was designed to compare communications use and attitudes between different countries and not provide a definitive measure of take-up in any one country.

[9] http://stakeholders.ofcom.org.uk/market-data-research/other/radio-research/digital-radio-reports/digital-radio-2015/

Claimed ownership of audio-visual technologies in the UK is among the highest of our comparator countries

Claimed take-up of DVRs in the UK and the US was 33%, the highest among our comparator countries.[10] The UK also reported the highest ownership of HD-capable television sets (76%).[11] At 42%, claimed ownership of connected TVs in the UK was the second highest of our comparator countries, after Spain (45%).[12]

Figure 1.12 Claimed ownership of audio-visual devices (DVR, HDTV and connected TV)



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.3a Which of the following devices do you have in your home? (DVR, HD-capable TV, connected TV)

A greater proportion of UK respondents view catch-up services than in any other comparator country

Figure 1.13 illustrates claimed viewing of a variety of online television and film services within the week prior to the survey response. In our survey 66% of respondents in the UK claimed to have viewed an online television or film service during this time. This was the highest of all our comparator countries.

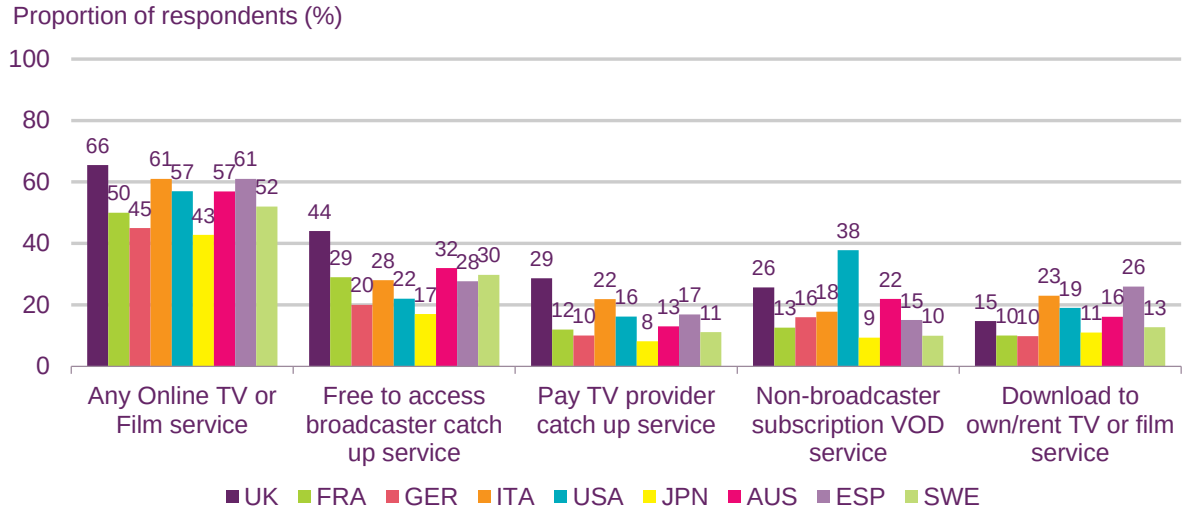
The UK figure was driven primarily by catch-up services provided by both free-to-air broadcasters (44%) and pay-TV providers (29%). At 38%, the US reported the highest

[10] This figure is lower than published data from Ofcom's Technology Tracker in the CMR 2015 which covered Q1 2015. Ofcom's Technology Tracker measures DVR take-up by a series of questions relating to ownership of specific branded set-top boxes. A shorter, non-branded, question is used in the ICMR research for the purposes of international comparison.
[11] Claimed ownership of an HD-ready television set should not be interpreted as having the means of viewing HDTV, which requires an HDTV set, the ability to receive an HD signal via an inbuilt tuner or set-top box, and access to HD transmissions, whether via subscription or free to air. For details on HD platforms and take-up please see the *TV and Audio-Visual* chapter.
[12] This figure is lower than published data from Ofcom's *Communications Market Report* (CMR) *2015.* CMR 2015 figures related to Q1 2015 and were based on known penetration of set-top boxes and smart TV sales (media consultancy 3 Reasons). ICMR 2015 used surveys that measured claims of ownership of connected TVs (smart TV sets and TVs connected to the internet via another device, e.g. set-top box, video games console), for the purposes of international comparison.

proportion claiming to have watched non-broadcaster subscription video-on-demand ("SVoD") services (such as Netflix and Amazon Prime Video) within the last week. This figure was considerably higher than in the UK (26%) which ranked second of our comparator countries.

Downloading to own or rent was considerably more popular in Italy and Spain than in any other countries in our research; 23% and 26% of respondents respectively claimed to have done this in the past week.

Figure 1.13 Online television and film services used in the past week



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.21 When did you last use the following online services to watch TV programmes or films? Answer: Within the last week

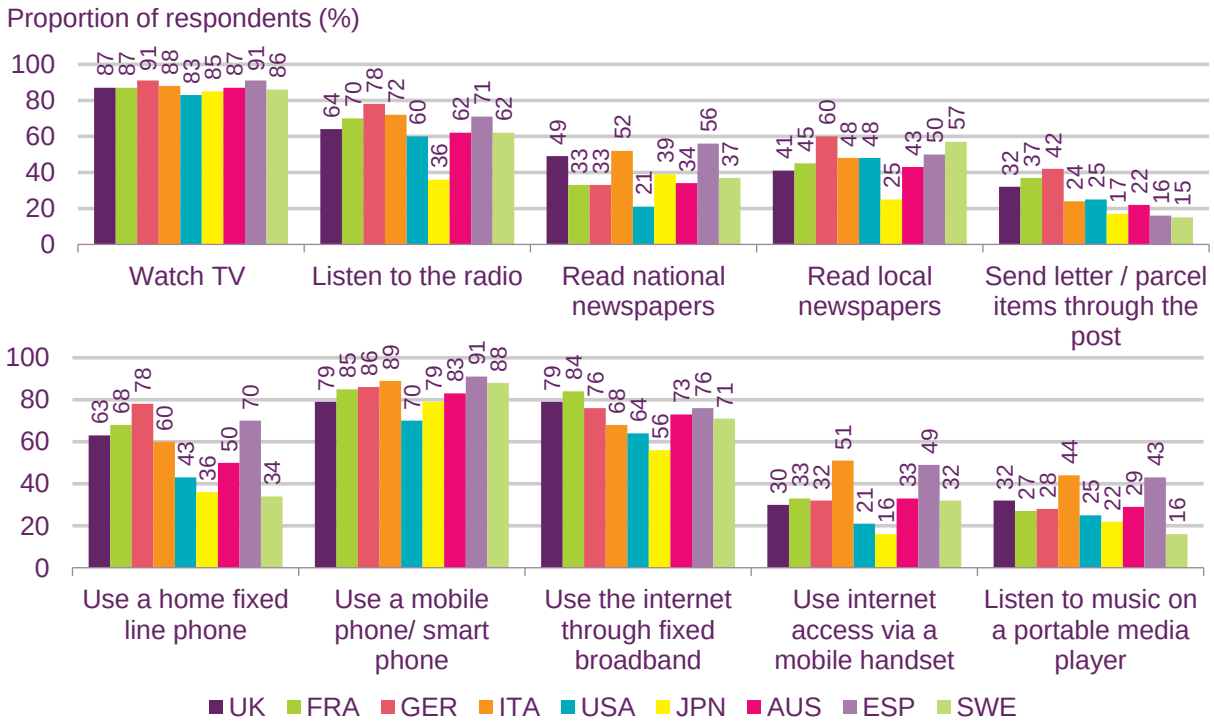
Watching television remains the most popular, regularly-undertaken communications activity in the majority of comparator countries

Figure 1.14 sets out the proportion of the online population regularly engaging (i.e. weekly) in a selection of media and communications activities. Watching television remains the most popular activity overall.

However, in Italy, Spain and Sweden, respondents were just as likely to say they used a mobile phone at least once a week as to say they watched television at least once a week.

Using a mobile handset to access the internet was also significantly higher in Italy (51%) and Spain (49%) than in our other comparator countries. The UK recorded the third-lowest weekly internet access via a mobile handset, at 30%, and the second highest-use of the internet via fixed broadband at 79%, behind France (84%).

Figure 1.14 Regular use of selected communications services / media



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.6 Which of the following do you regularly do (at least once a week)?

1.3 Pricing of communications services

1.3.1 Introduction

In this section we provide high-level comparisons of UK communications service prices with those in five other comparator countries (France, Germany, Italy, Spain and the US) and look at how consumers in different countries purchase communications services. More information on service pricing can be found in Chapter 2 of this report. A detailed description of the methodology used to compile the analysis can also be found in Appendix C.

Overall, UK communications service prices compare favourably to those in the other comparator countries. In 2015 the UK ranked second in the overall pricing rank (combining 'weighted average' stand-alone and bundled as well as 'lowest available' prices), behind France. This was a fall of one place since 2014; although the average of the UK's rankings, across all households and metrics, was unchanged since last year. France's overall average of rankings improved, resulting in it overtaking the UK, to reach first place overall.

1.3.2 Stand-alone service pricing

The UK had the cheapest 'lowest available' mobile phone and fixed broadband prices but the most expensive 'lowest available' fixed voice prices

The analysis presented in Chapter 2 of this report compares stand-alone and bundled service prices for fixed and mobile telecoms and pay-TV services, using five representative baskets of services. These baskets are designed to reflect the usage habits of five 'typical' household profiles[13]. Figure 1.15 looks at the total 'lowest available' stand-alone price that fulfils these households' service requirements, calculated using a pricing model containing the residential tariffs offered by the largest providers in each country in July 2015. This model is provided by pricing consultancy Teligen.

To make comparison easier, we have created an index for each service, where the price in the UK is 100. As such, a value of less than 100 means that the 'lowest available' price is lower than that in the UK, while a value over 100 means that 'lowest available' price is more expensive than in the UK. However, it is important to note that there are a number of limitations to our analysis of stand-alone communications service prices, including:

- take-up of bundled services is high in most countries (see Figure 1.16 below), so stand-alone prices are not directly relevant to many consumers;
- providers increasingly offer only bundled services and have withdrawn stand-alone services, so in many countries the analysis is based on only a few available stand-alone prices;
- our analysis is based on prices offered by the largest providers, so it may exclude smaller operators that are seeking to gain market share by offering low prices.

Figure 1.15 shows that the UK had the cheapest 'lowest available' stand-alone mobile phone and fixed broadband prices among the six countries in 2015. The 'lowest available' stand-alone mobile prices in the UK were 14% lower than in the next cheapest country (France), while the US had the highest prices, partly because mobile users in the US have to pay for

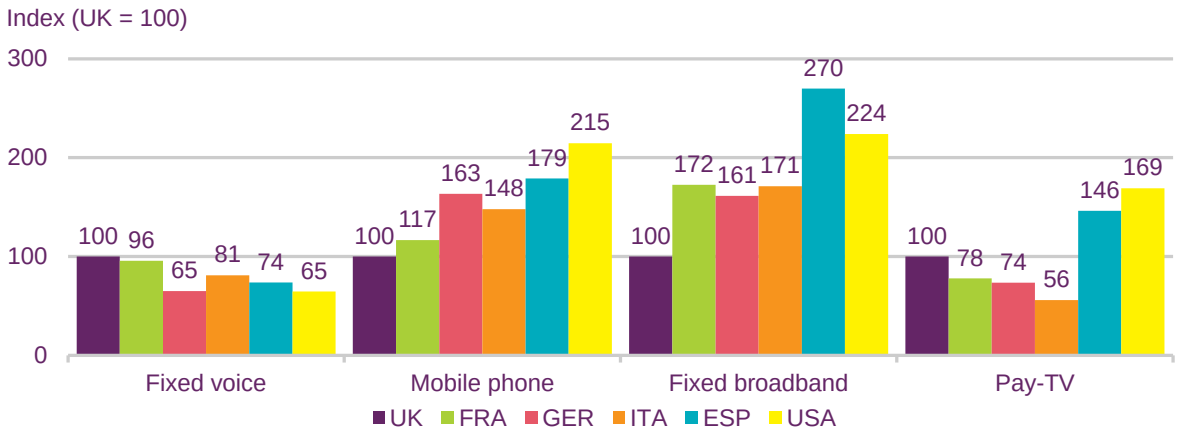
[13] These five households consist of the "Basic needs", "Late adopters", "Mobile power user", "Connected family" and "Sophisticated couple" households. For further definitions please see Figure 10.4 in Annex C.

incoming as well as outgoing calls. Similarly, fixed broadband prices in the UK were 38% lower than in Germany, the next cheapest country, while Spain had the most expensive 'lowest available' stand-alone fixed broadband prices, more than twice those in the UK.

In contrast, the UK had the highest 'lowest available' stand-alone fixed voice prices among the six countries included in our analysis in 2015, 5% higher than in France (the country with the second highest prices). However, it should be noted that the UK figure refers only to BT's services, as BT was the only provider, out of those included in the Teligen pricing model, to offer stand-alone fixed voice tariffs on its website in July 2015.[14] The cheapest 'lowest available' fixed voice prices in 2015 were found in Germany and the US, both of which were almost a third cheaper than in the UK.

Our analysis found that, excluding the TV licence fee, the UK had the third highest 'lowest available' price for pay-TV services, after the US and Spain (Italy had the cheapest 'lowest available' pay-TV services). It should be noted that, it is difficult to compare pay-TV service prices due to differences (between countries and within each country) in the volume and quality of content included in subscriptions.

Figure 1.15 Comparison of 'lowest available' stand-alone pricing



Source: Ofcom, using data supplied by Teligen
Note: Pay-TV excludes the TV licence fee.

1.3.3 Bundled services pricing

In the UK, 83% of respondents buy more than one communications service from the same provider

Ofcom consumer research asked people in nine countries whether they bought more than one service from the same provider as part of a bundle (Figure 1.16). The benefits of bundling communications services include the convenience of receiving a single bill for multiple services, as well as the fact that bundle prices are typically lower than those available when purchasing the same services on a stand-alone basis. It should be noted that, as this research was conducted online, it is possible that the results will not reflect purchasing habits among the wider population of each country.

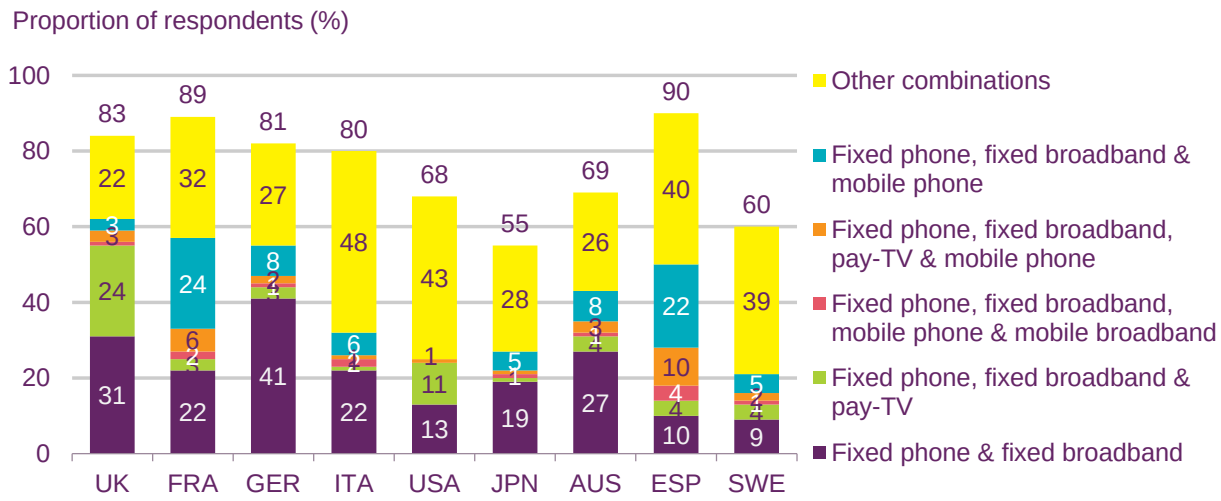
Over half of all consumers in each of the comparator countries purchased more than one communications service from the same provider. Among the EU5 countries, at least eight in ten respondents said they purchased two or more communications services as part of a bundle. This proportion was highest in Spain, at 90%, closely followed by France (89%). In

[14] The Teligen model only includes tariffs that are offered on the respective providers' websites.

the UK, 83% of respondents bought two or more communications services as part of a bundle. Japan had the lowest proportion of respondents who bought bundled communications services, at 55%, followed by Sweden (60%).

In the UK, the most frequently-cited bundle was a dual-play combination of fixed voice and fixed broadband services, which 31% of respondents said that they purchased. This was the second highest proportion for this bundle type, after Germany at 41%. The second most popular combination in the UK was that of fixed phone, fixed broadband and pay-TV (at 24%), significantly higher than in any of the other countries.

Figure 1.16 Proportion of consumers buying more than one communications service from the same provider



Source: Ofcom consumer research September - October 2015
Base: All respondents with more than one service, UK=952, FRA=932, GER=945, ITA=935, USA=829, JPN=831, AUS=907, ESP=928, SWE=924
Q.5 Do you receive a package or bundle of two or more of these services from the same supplier?

We now take a closer look at 'lowest available' prices (including bundles) for two of the five household types that are included in the analysis in the international price benchmarking section of this report (Chapter 2). We have chosen to include these two households as they allow us to compare pricing for households with comparatively high and low use of communications services:

- **The 'connected family' household**, comprising two parents and two teenage children, each with their own mobile handset but with different mobile usage profiles, (the adults using more voice and the children more SMS messages and data). The household is a heavy user of the fixed-line phone and the internet, and subscribes to an entry-level HD pay-TV service with a DVR.

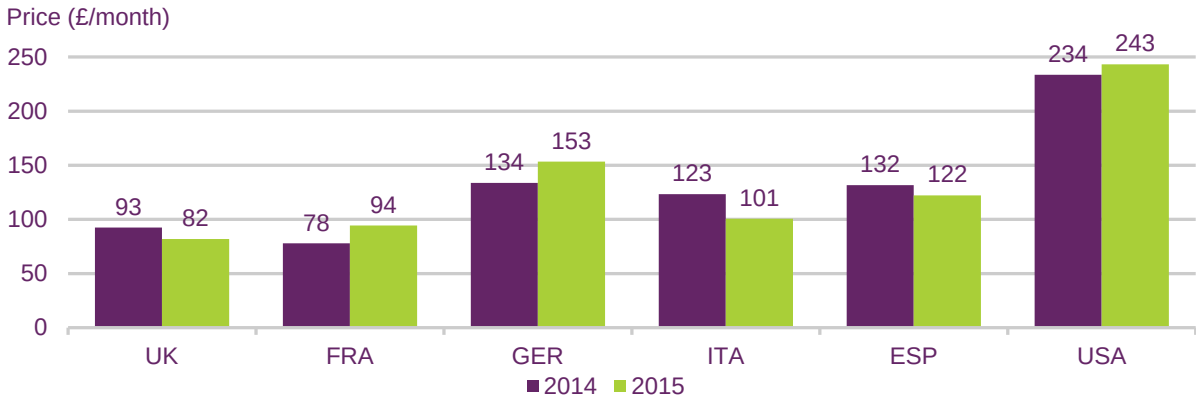
- **The 'basic needs' household**, consisting of a retired low-income couple who have a fixed line and each of whom has a mobile phone which they use to make 50 minutes of calls per month, but do not send any SMS messages or use mobile data services. They watch free-to-air multichannel digital television, which is available in all of our comparator countries.

The UK had the cheapest 'lowest available' pricing for the 'connected family' household in 2015

In July 2015 the UK had the cheapest 'lowest available' price for the 'connected family' household, at £82 per month, £11 per month (11%) down compared to 2014. Italy and Spain

also experienced a decrease in the 'lowest available' prices for the 'connected family' household, down 18% (to £101) and 7% (to £122) respectively. France experienced the largest increase in the 'connected family' household's 'lowest available' price in 2015, up by 21% to £94, while the US had the most expensive 'lowest available' price for the household in 2015, at £243 per month (an increase of 4%).

Figure 1.17 'Lowest available' (including bundles) pricing for the 'connected family' household



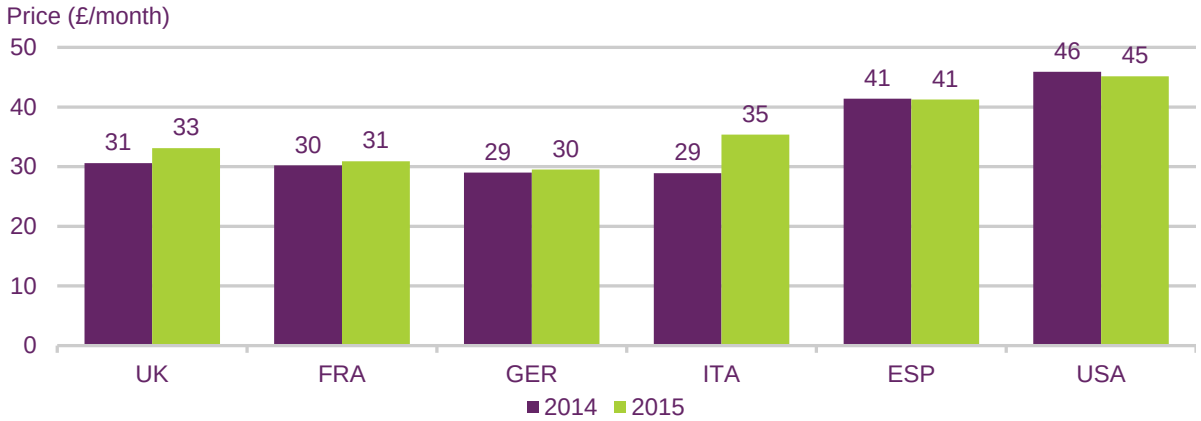
Source: Ofcom, using data supplied by Teligen
Note: Excludes the TV licence fee

The 'lowest available' price for the 'basic needs' household in the UK increased by 8% in 2015

There was less variation in the 'lowest available' prices for the 'basic needs' household between the comparator countries, largely because it requires fewer services and has lower fixed and mobile voice use than the 'connected family' household. The UK had the third-cheapest 'lowest available' price for the 'basic needs' household in July 2015, at £33 per month; a £3 per month (8%) increase compared to 2014. Germany had the cheapest 'lowest available' price for the 'basic needs' household in 2015, at £30. In contrast, Spain and the US had the highest prices (at £41 and £45 respectively), but they were also the only two of our comparator countries where prices did not increase in 2015. Italy experienced the largest increase in the 'lowest available' prices for the 'basic needs' household in 2015, up by 22%.

It should be noted that low levels of service use (such as those required by the 'basic needs' household usage profile) are likely to be more prevalent among lower-income households that may qualify to receive social tariffs such as *BT Basic* in the UK, which are not included in this analysis.

Figure 1.18 'Lowest available' (including bundles) pricing for the 'basic needs' household



Source: Ofcom, using data supplied by Teligen
Note: Excludes the TV licence fee

1.3.4 Summary of international pricing

The UK had the lowest 'weighted average' stand-alone prices for three of the five households in 2015

As well as looking at the 'lowest available' pricing in our six comparator countries, the international price benchmarking chapter of this report (Chapter 2) looks at 'weighted average' stand-alone prices (that is, the sum of the weighted averages of the 'lowest available' stand-alone prices offered by the providers of each service, weighted by their market shares) and 'weighted average' bundled prices (the weighted average of providers' 'lowest available' bundle prices, including stand-alone services where the bundle does not include all of the services required by a household, weighted by their fixed broadband market shares). Further analysis can be found in Chapter 2 of this report which includes analysis of the five household baskets.

The UK communications service prices compare well across all three of these metrics. The UK had the lowest 'weighted average' stand-alone prices for three of the five household baskets, the lowest 'weighted average' bundled price for one household, and the 'lowest available' prices for two households in 2015 (Figure 1.19). France had the lowest 'weighted average' bundled service prices in all the households except the 'connected family household', where the UK had lower prices (weighted average bundle prices are not included for the 'mobile power user' household, because this household only uses mobile voice and data services, which are seldom provided as a bundle, and because the average is calculated using providers' fixed broadband market shares, which are not relevant to it).

Notably, all three metrics showed that the UK had the lowest prices for the 'connected family' household. More generally, the UK was one of the two cheapest countries in terms of all metrics for all of the household usage profiles included in the analysis, apart from the 'lowest available' prices for the 'basic needs' and 'sophisticated couple' households (the lowest and highest usage household profiles respectively) and the 'weighted average' bundled service prices for the 'sophisticated couple' household.

Figure 1.19 Comparison of international pricing: 2015

	'Basic needs' household			'Late adopters' household			'Mobile power user' household		'Connected family' household			'Sophisticated couple' household		
Price (£ per month)	Average stand-alone	Average bundled	Lowest available	Average stand-alone	Average bundled	Lowest available	Average stand-alone	Lowest available	Average stand-alone	Average bundled	Lowest available	Average stand-alone	Average bundled	Lowest available
UK	41	39	33	58	43	36	103	87	146	97	82	188	159	154
FRA	45	35	31	74	40	37	102	74	169	102	94	182	130	114
GER	46	44	30	81	54	42	155	110	234	168	153	229	176	161
ITA	49	48	35	86	57	50	111	101	226	112	101	215	153	149
ESP	50	57	41	104	64	57	155	133	274	154	122	261	206	200
US	82	84	45	126	112	99	188	160	303	279	243	288	328	248

Source: Ofcom, using data supplied by Teligen
Note: Green circle indicates the lowest pricing across all six countries included in this analysis

The UK ranked second in price across the five household types used in our analysis, even though its average rank across all of the baskets and metrics was unchanged

Figure 1.20 below shows an overall pricing rank for our comparator countries, which combines their 'weighted average' stand-alone and bundled as well as 'lowest available' (including bundles) pricing rankings, across all five of the household usage profiles shown in Figure 1.19. The UK ranked second among our comparator countries in terms of prices in 2015, a drop of one place compared to 2014. The UK's average ranking across all households and metrics was unchanged during the year, however, France's average ranking improved during the year, mainly as a result of better comparative performance in its 'weighted average' bundle prices, causing it to overtake the UK to reach first place. The US ranked bottom in both 2014 and 2015.

Figure 1.20 Average overall rank based on 'weighted average' stand-alone and bundled and 'lowest available' prices across all five households (Lower is better)

Rank	Country	Average rank 2014	Average rank 2015
1	FRA	2.0	1.5
2	UK	1.8	1.8
3	ITA	2.9	3.3
4	GER	3.9	4.1
5	ESP	4.5	4.4
6	USA	5.9	6.0

Source: Ofcom, using data supplied by Teligen

1.4 Changing viewing habits

1.4.1 Introduction

Developments in the range of audio-visual services available, together with growth in ownership and use of connected devices, mean that many people now have access to audio-visual content across a range of screens.

In this section we draw on consumer research and other sources to explore changes in audio-visual viewing habits. The key findings include:

- **Spain (45%) and the UK (42%) had the highest levels of ownership of connected TVs** (either smart TV sets, or sets connected to the internet via another device, such as a set-top box, video games console or other internet-enabled device).

- **Catch-up TV was most popular among UK consumers with connected TVs;** in the UK, catch-up TV was the type of internet-delivered content most likely to be watched on a connected TV, with 70% of those accessing the internet via a connected TV citing it. This is higher than all other comparator countries.

- **UK tablet owners who access the internet on a tablet are more likely than those in any other comparator country to watch catch-up TV on a tablet;** 40% of UK respondents in our research claimed to do this, compared to 33% for Sweden (the second highest). Tablet owners in the US are more likely than tablet owners in other comparator countries to view video-on-demand/ streamed films on a tablet (39%).

- **Nearly two-thirds (66%) of people in the UK had used an online service to watch TV or films in the last week** (increasing to 81% in the past month); the highest proportion across all of the countries surveyed.

- **Around four in ten (44%) UK respondents had used a catch-up service from a free-to-air broadcaster within the past week,** the greatest proportion of any country surveyed.

- **The growth in use of video-on-demand (VoD) services corresponds with a claimed decrease in viewing traditional TV as well as in watching DVDs and Blu-ray.** The decrease in DVD/Blu-ray viewing is particularly striking; between 28% and 42% of respondents who view TV in the countries surveyed said they were watching these less than in the previous year. This figure stood at 32% in the UK.

Smart TV: definition

'Smart TV' refers to a stand-alone television set with inbuilt internet functionality. Users can either connect a broadband router directly into the TV or to connect wirelessly. Smart TVs are produced by consumer electronics manufacturers including Samsung, Sony, Panasonic and LG. The definition does not include television sets connected to the internet via an external device such as a set-top box, a games console or a laptop/PC.

Connected TV: definition

The term 'connected TV' covers 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 games console or other internet-enabled devices. The set-top box might be provided with platforms such as Sky On Demand, Virgin TiVo, BT TV or TalkTalk. Games consoles include Microsoft's Xbox One, Sony's Playstation 4 and the Nintendo Wii. Other internet-enabled devices include Google's Chromecast and Amazon's Fire devices.

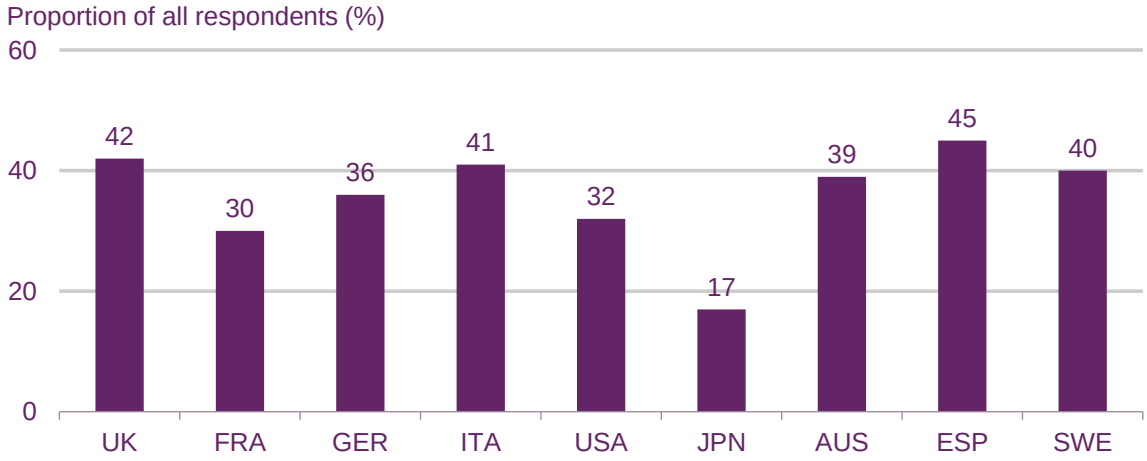
Consumers in Spain and the UK more likely to have a TV set connected to the internet

As Figure 1.21 shows, consumers in Spain (45%) and the UK (42%) had the highest levels of ownership of connected TV sets. Those in Spain are heavier-than-average VoD users which may explain their high ownership of connected TV sets.

The remaining European countries in Ofcom's consumer research recorded take-up of around 40% of households, with the exception of Germany (36%) and France (30%).

Consumers in the US recorded a 32% household figure for ownership of a TV connecting to the internet, while penetration in Japan was at 17%.

Figure 1.21 Household ownership of connected TV sets



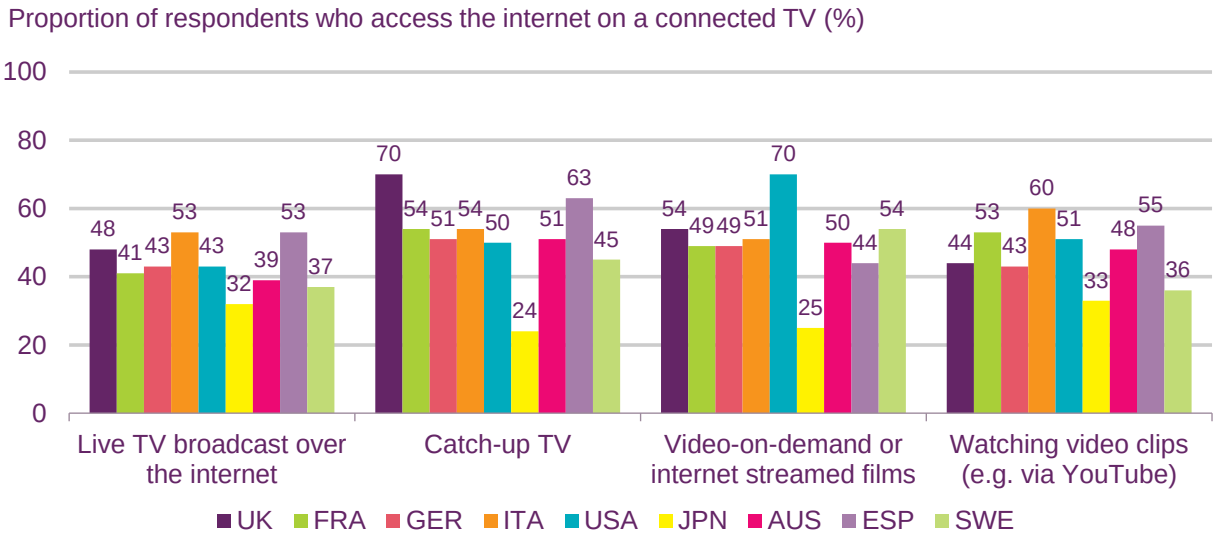
Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.3a Which of the following devices do you have in your home?

Catch-up TV most popular among UK consumers with connected TVs

Figure 1.22 shows the types of content watched by respondents who access the internet on a connected TV. In the UK, catch-up TV was the type of internet-delivered content most likely to be watched on a connected TV, with over two-thirds (70%) of those accessing the internet via a connected TV citing it. This is higher than for all other comparator countries.

In the US, video-on-demand/ streamed films were the most popular type of content viewed on a connected TV (70%), driven by the popularity of SVoD services such as Netflix. The UK and Sweden followed, with 54% of those accessing the internet via a connected TV in each of these countries watching video on demand/ streaming.

Figure 1.22 Types of audio-visual content watched on a connected TV set



Source: Ofcom consumer research September – October 2015
Base: All respondents who access the internet on a connected TV, UK=235, FRA=122, GER=176, ITA=185, USA=195, JAP=98, AUS=191, ESP=194, SWE=213. *Caution: bases under 100.*
Q.9c What sorts of video content do you watch on each of your devices over the internet?

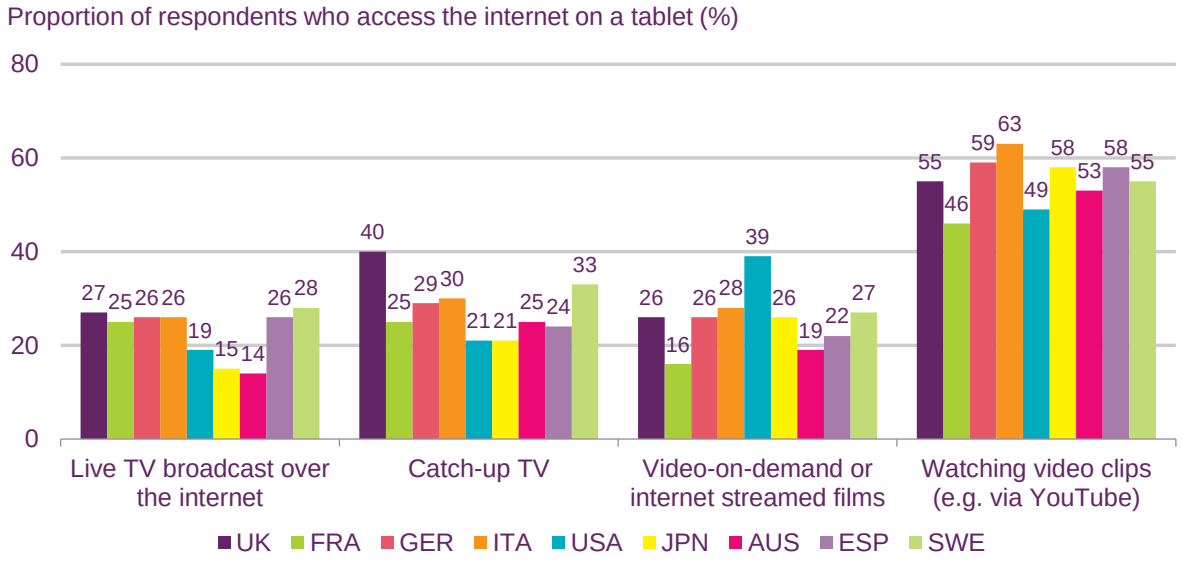
UK consumers are using their tablets to watch catch-up TV

Figure 1.23 shows the types of audio-visual (AV) content watched by tablet owners who access the internet on a tablet, across the comparator countries in Ofcom's research. In all countries, the predominant type of AV content watched on a tablet was video clips (e.g. via YouTube), with over 45% of those who accessed the internet via a tablet in each country watching this type of content on their device.

The UK had the highest level of use of tablets for the purposes of viewing catch-up TV (40%), likely driven by the popularity of free catch-up services from the public service broadcasters (PSBs) such as BBC iPlayer, ITV Hub and All 4, which offer consumers a large amount of originated content. The US had the highest level (39%) of use of a tablet for SVoD and online film streaming, 13 percentage points higher than for tablet owners in the UK (26%).

Among the European countries in our research, there was little variation in the incidence of watching live TV broadcast over the internet via a tablet (at around 26%). This was lower in the US (19%), Japan (15%) and Australia (14%).

Figure 1.23 Types of audio-visual content watched on a tablet



Source: Ofcom consumer research September – October 2015
Base: All tablet owners who access the internet on a tablet, UK=398, FRA=335, GER=318, ITA=460, USA=319, JAP=234, AUS=370, ESP=435, SWE=343
Q.9c What sorts of video content do you watch on each of your devices over the internet?

Figure 1.24 summarises the proportion of all respondents in each country who claim to watch different types of video content on connected TVs and on tablets.

Figure 1.24 Types of AV content watched on connected TVs and tablets

	Live TV broadcast over the internet	Catch-up TV	Video-on-demand or internet streamed films	Watching video clips (e.g. via YouTube)	Live TV broadcast over the internet	Catch-up TV	Video-on-demand or internet streamed films	Watching video clips (e.g. via YouTube)
	On a connected TV (Proportion of all respondents - %)				On a tablet (Proportion of all respondents - %)			
UK	11	16	12	10	11	16	10	22
FRA	5	7	6	6	8	8	5	15
GER	7	9	8	7	8	9	8	18
ITA	10	10	9	11	12	14	13	29
USA	8	9	13	9	6	6	12	15
JPN	3	2	2	3	3	5	6	13
AUS	7	10	10	9	5	9	7	20
ESP	10	12	8	11	11	11	10	25
SWE	8	9	11	8	10	11	9	19

Source: Ofcom consumer research September – October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.9c What sorts of video content do you watch on each of your devices over the internet?

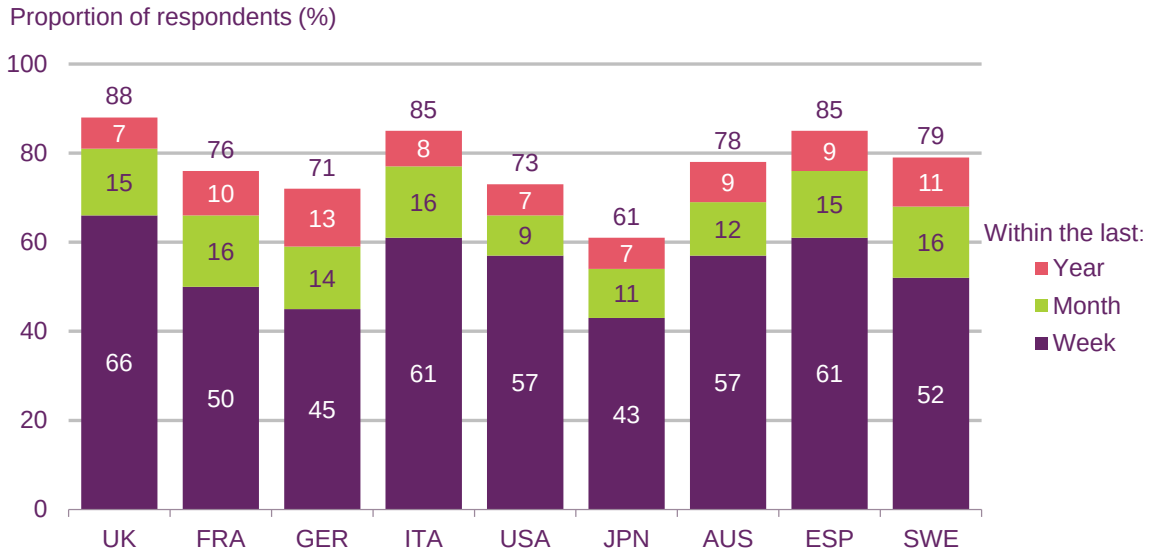
1.4.2 Use of the internet to view TV or films online

Two-thirds of internet users in the UK watch TV or films online on a weekly basis

Figure 1.25 shows the recent use of online services to access audio-visual content, across our surveyed countries. More internet users in the UK (88%) had used at least one such service in the past 12 months than in any other country included in our research.

The UK also led the way in the number of respondents who had used any online TV service within the past week, at 66%, with Italy, Spain, the US and Australia following closely behind.

Figure 1.25 Use of any online services to watch TV or films



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.21 When did you last use the following online services to watch TV programmes or films?

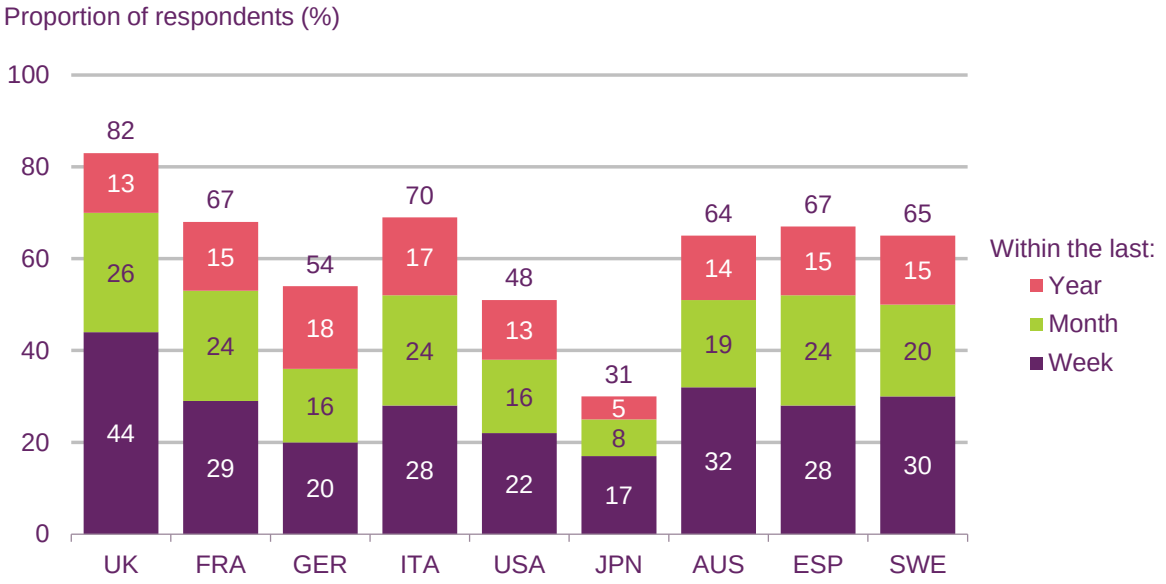
Catch-up services provided by free-to-air broadcasters are the most commonly-used services for accessing TV programmes or films online

Catch-up services provided by free-to-air broadcasters (such as BBC iPlayer in the UK and RAI Replay in Italy) are the most commonly-used services to access TV programmes or films online, across all of the surveyed countries apart from the US.

Eighty-two per cent of respondents in the UK had used a catch-up service from a free-to-air broadcaster within the past year, the highest proportion of any country surveyed. At 31%, Japan saw the lowest penetration of such services in the past year, followed by the US at 48%.

The proportion of respondents who had used such services within the past week was also highest in the UK, at 44%.

Figure 1.26 Use of free-to-air broadcaster catch-up TV services



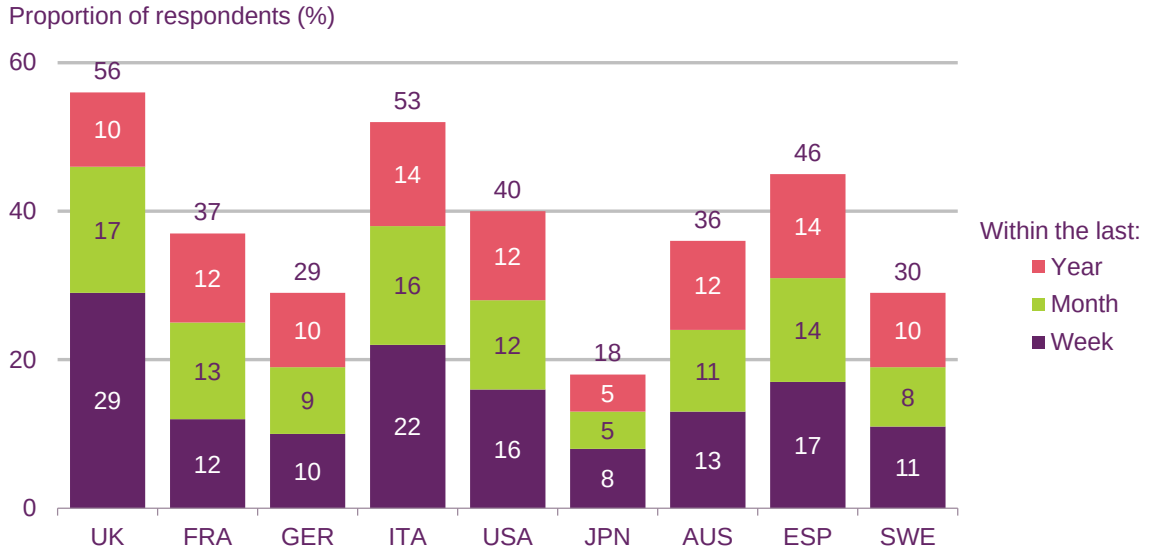
Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.21 When did you last use the following online services to watch TV programmes or films?

Catch-up and on-demand services from pay-TV providers are most popular in the UK, Italy and Spain

Pay-TV providers (such as Sky across Europe and HBO in the US) provide various ways to access their content at the time of a viewer's choosing.

At 56% and 53% respectively, the UK and Italy saw the highest proportion of respondents using such a service in the year prior to being asked, followed by Spain at 46%. Just as with catch-up services from the free-to-air broadcasters, Japan saw the smallest claimed usage figures among the countries surveyed at 18% in the year prior to being asked.

Figure 1.27 Use of catch-up or on-demand services through a pay-TV provider



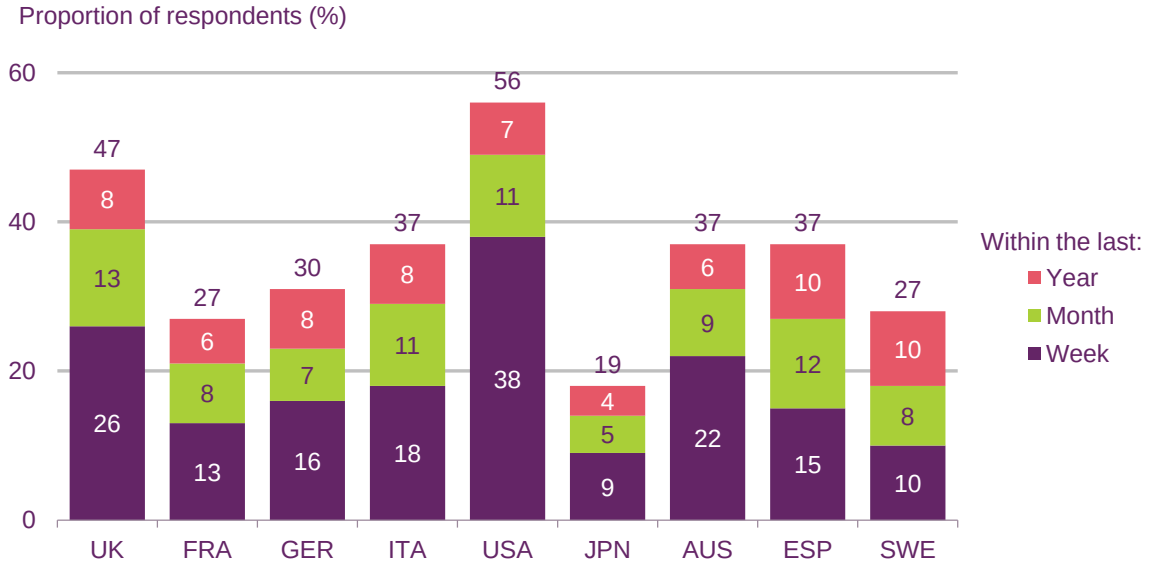
Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.21 When did you last use the following online services to watch TV programmes or films?

Over half of respondents in the US have accessed content via a SVoD service in the past year

In the past year, more people had accessed TV or films online via a SVoD service in the US (56%) than had done so using a free-to-air catch up service (48%), the only country in our research where this was the case. After the US, where use of online SVoD was greatest, the UK had the next-highest proportion of respondents using an online SVoD service in the past year, at 47%.

It is worth noting that the 37% of consumers who had accessed SVoD content in the past 12 months in Italy and in Spain had done so mostly without Netflix, which launched in both countries during the research fieldwork period. Both countries already had popular SVoD services such as Italy's TIMvision and Spain's Wuaki.tv.

Figure 1.28 Use of non-broadcaster SVoD services



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.21 When did you last use the following online services to watch TV programmes or films?

The US leads the way in the number of SVoD subscriptions

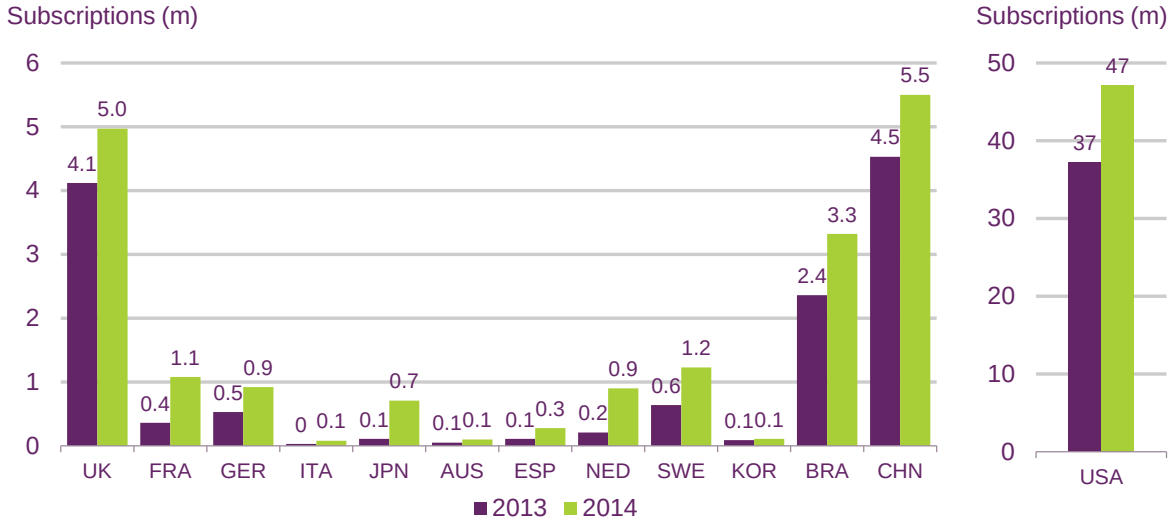
The US continues to lead the way in SVoD take-up in absolute terms, with an estimated 47 million subscriptions by the end of 2014, representing a 10 million increase year-on-year.

There were nearly 5 million SVoD subscriptions in the UK by the end of 2014,[15] while subscription numbers in Sweden almost doubled between 2013 and 2014, to 1.2 million – the second largest number of subscriptions among the European comparator countries.

It is worth noting that the subscription numbers listed below appear low when compared with the claimed usage shown in Figure 1.28. Reasons for this could include strong growth in take-up through 2015, the fact our respondents are all internet users and that multiple users often have profiles within individual SVoD accounts.

[15] Further analysis of SVoD subscriber numbers in the UK can be found on page 54 of the 2015 CMR; http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr15/CMR_UK_2015.pdf

Figure 1.29 SVoD subscription numbers, by country: 2013 and 2014



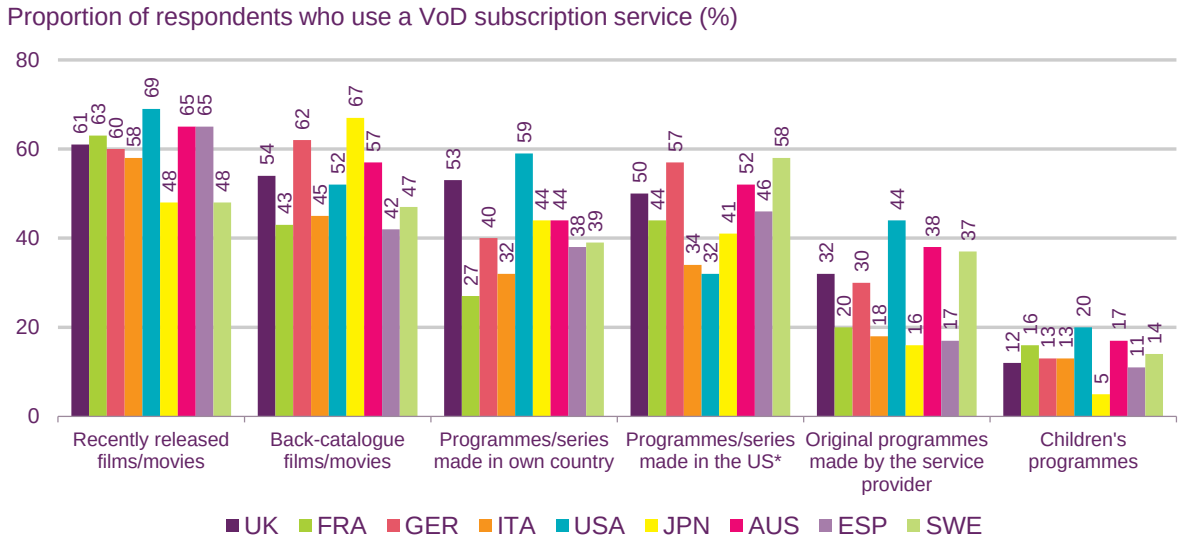
Source: IHS/ industry data/ Ofcom. Note: Poland and Russia are not charted here as their respective subscriber numbers were less than 0.1m in both years. No data were available for Singapore, India or Nigeria.

Recently released films/ movies are the content watched most by SVoD users

Although there has been a large investment in original content by SVoD providers in the past few years (such as Netflix's *Narcos* and Amazon's *Transparent*) consumers are more likely to cite the wide range of new and back-catalogue film services as their most-watched content from their SVoD provider.

SVoD subscribers in the US are more likely than subscribers in any other country in our research to watch programmes made by the provider (44%), which is unsurprising, as the majority of this original content is made in the US.

Figure 1.30 Types of content accessed via SVoD services



Source: Ofcom consumer research September – October 2015
Base: All respondents who use a VoD subscription service, UK=483, FRA=272, GER=320, ITA=371, USA=580, JPN=198, AUS=371, ESP=371, SWE=287
*Q.22c Which of the following types of programmes do you or your family watch on Netflix / Amazon Prime / Wuaki / Other subscription service? *US – made in other countries*

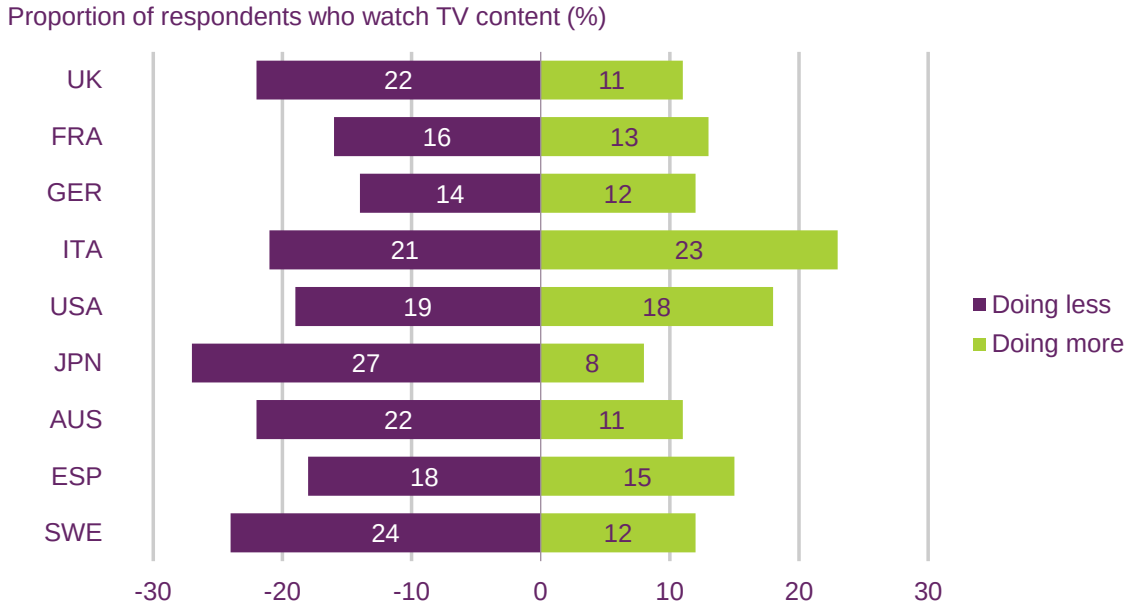
In most of the surveyed countries, consumers claimed to watch less traditional TV (i.e. at the time of broadcast) than at the same point last year

Figure 1.31 illustrates the claimed changes in traditional TV viewing, across all surveyed countries, compared to a year ago. In eight of the nine countries, more people than a year ago claimed to be watching less television at the time of broadcast.[16]

The change in behaviour was particularly stark in the UK (22% doing less compared to 11% doing more), and in Japan (27% vs. 8%), Australia (22% vs. 11%) and Sweden (24% vs. 12%).

[16] Analysis of actual TV viewing minutes across the comparator countries can be found in Chapter 3 of the web version, available at http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr15/international.

Figure 1.31 Claimed changes in watching TV programmes at the time of broadcast



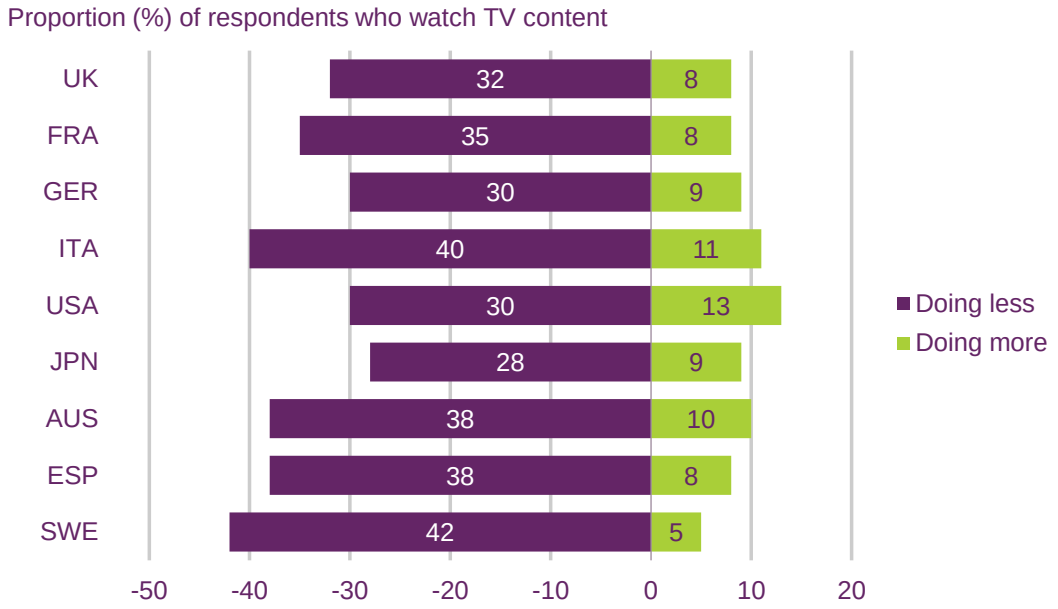
Source: Ofcom consumer research September – October 2015
Base: All respondents who watch TV content, UK=970, FRA=960, GER=965, ITA=967, USA=960, JPN=905, AUS=962, ESP=986, SWE=962
Q.22b For each of the following activities, please say if you are doing this more, the same amount or less compared to a year ago?

DVD and Blu-ray consumption declines steeply

Looking at the activities that TV viewers are doing more or less of, compared to last year, the most striking is the claimed change in watching DVDs and Blu-ray. This is probably likely driven by the increased take-up and use of on-demand services, outlined above. The proportion of respondents in each surveyed country claiming to do less of this varied from 28% in Japan to 42% in Sweden, while the US had the highest proportion of people claiming to be doing this more (13%).

At 42%, Sweden had the highest proportion of TV viewers watching fewer DVDs and Blu-rays in 2015 than in 2014, with 32% of respondents in the UK claiming the same behavioural shift.

Figure 1.32 Claimed changes in watching DVDs/Blu-ray



Source: Ofcom consumer research September – October 2015
Base: All respondents who watch TV content, UK=970, FRA=960, GER=965, ITA=967, USA=960, JPN=905, AUS=962, ESP=986, SWE=962
Q.22b For each of the following activities, please say if you are doing this more, the same amount or less compared to a year ago?

1.5 Smartphone societies

1.5.1 Introduction

Global smartphone sales now comfortably pass one billion handsets per year. They have become an integral part of life for large swathes of the world's population, particularly in more developed societies.

In many of our comparator countries mobile data network availability is almost universal, there are now more mobile connections than there are people, and the number of fixed lines is dropping. The technologies used to deliver mobile data have also improved, with 4G mobile networks available in all of our comparator countries.

In this section we compare 4G mobile connections in terms of coverage, take-up and consumer satisfaction in our comparator countries, using industry data as well as consumer research carried out in September-October 2015 to do so. This section also explores the take-up of smartphones and how this most convenient device is changing the way societies communicate, entertain and inform themselves.

We draw on consumer research from Ofcom and the Deloitte Global Mobile Consumer Survey in order to see how smartphones are influencing lives - from first thing in the morning to the end of the day. We also take a look at smartphone etiquette in different cultures, how we are integrating the device with personal finance, and the popularity of apps round the world.

A smartphone is a mobile phone with advanced features. In general it has WiFi and mobile connectivity, web-browsing capabilities, a high-resolution colour touchscreen display and runs on an operating system capable of supporting a variety of applications. Most smartphones run on one of the following operating systems: Android, iOS, Windows Phone or Blackberry OS

The key findings include:

- **4G mobile population coverage (from at least one operator) increased in most comparator countries in 2014,** with China seeing the largest year-on-year increase, rising from 1% to 73%. The UK had 84% 4G mobile population coverage at year-end 2014 a year on year increase of 21pp.

- **The UK had the highest proportion of total mobile connections that were 4G of the EU5 in 2014, at 28%.** Among all our comparator countries, South Korea had the highest proportion of mobile connections that were 4G, at 63% of connections, followed by the US (40%), and Australia and Singapore (each 39%).

- **According to our consumer research, the most likely reasons given by respondents for choosing a 4G service were download and streaming speeds.** In the UK 35% of people either with, or likely to purchase, a 4G service chose it because of quicker download speeds.

- **Respondents with 4G services in the UK had the highest satisfaction with price paid for the mobile services among our comparator countries, at 81%.** In the other comparator countries, between 61% and 76% of 4G users were satisfied with price paid, with Sweden the exception at 46%.

- **UK smartphone owners are the most likely in the EU5 to use their smartphone to pay a bill; 29% claim to have done so**. They are also the most likely in the EU5 to have transferred money on their smartphones, with 31% claiming to have done so.

- **Fourteen per cent of UK smartphone owners claim to have ever used their smartphone to make an in-store payment.** In Italy the figure was 23% (the highest reported use in the EU5), and in Australia, the highest of all our comparator countries, it was 33%.

- **Almost a third (30%) of UK smartphone owners claim to be using their devices at work on a regular basis.**[17] In France and Italy the figure was even higher, at 38% and 33% respectively.

1.5.2 4G availability and take-up

The 4G mobile communications standard

4G stands for 4th generation, and relates to the fourth-generation mobile communications standard. It allows internet access at higher speeds than previous standards. Most modern smartphones are able to use 4G services as well as being compatible with the previous standards (2G and 3G).

The first commercial 4G service was launched in the UK in October 2012 by EE, after it secured a licence modification that allowed 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) being awarded licences. Vodafone and Telefonica launched their 4G services in August 2013, with Three following in December 2013.

4G mobile coverage increased in most comparator countries in 2014

The availability of mobile 4G services tended to be higher in more developed countries with high proportions of the population living in urban areas, such as South Korea, Singapore, the Netherlands and Sweden, at the end of 2014. The higher the proportion of the population located in urban areas of a country, the easier it is to deploy mobile services, as less infrastructure and investment is needed.

4G population coverage growth in Europe and Australia exceeded that in the majority of the other comparator countries, despite these countries' later roll-out of 4G networks. The UK had the fourth-highest gain between 2013 and 2014 (up 21pp to 84%). According to IHS, the UK ranked ninth of our 18 comparator countries and second among the EU5 countries for 4G population coverage at the end of the year (Figure 1.33).

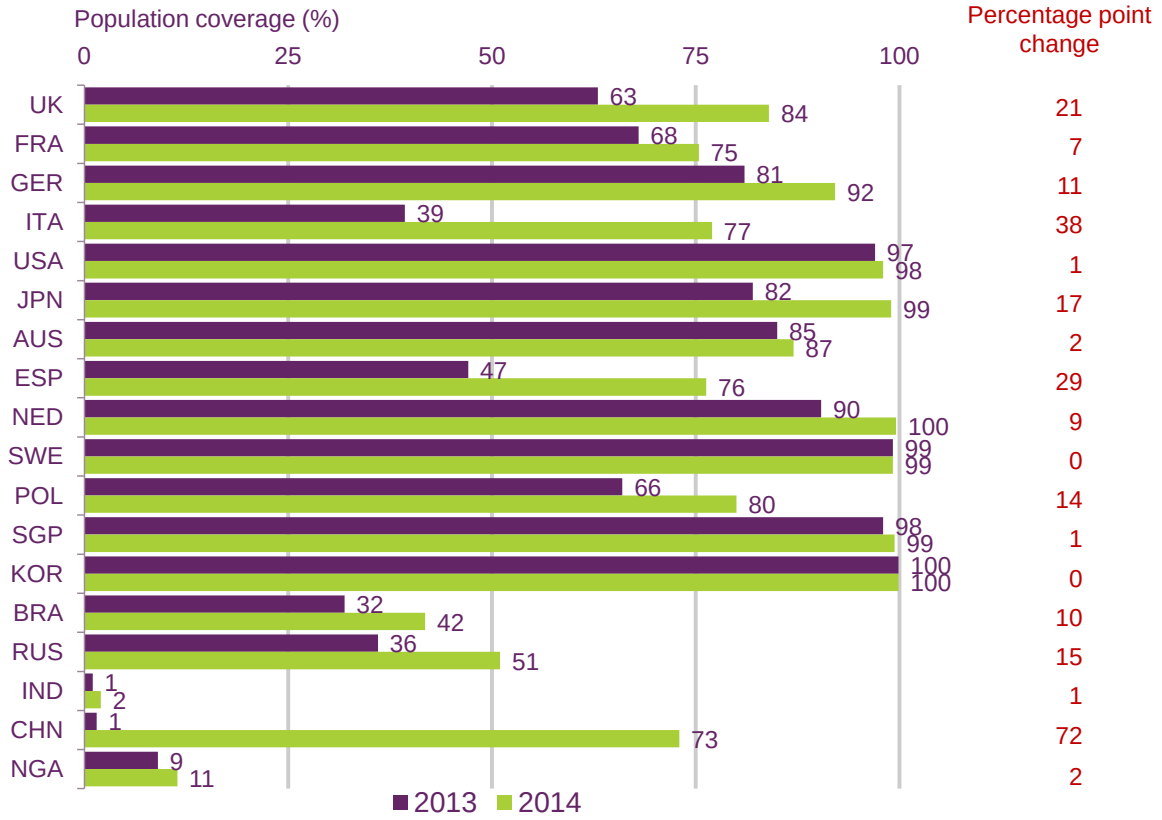
South Korea had 100% 4G coverage on the basis of population by the end of 2012, in part as a result of early 4G roll-out and a relatively high degree of population concentration in urban areas. In 2013 Singapore was reported as having 98% coverage, increasing to 99% in the year to 2014.

The lowest 4G coverage at the end of 2014 was in India, Nigeria and Brazil. This is to be expected, in part due to late commercial deployment of 4G, lower levels of economic prosperity and more rural populations. As shown in Figure 1.33, 4G coverage increased significantly in the majority of our comparator countries in 2014, with the largest change being in China (a 72pp increase to 73% population coverage). This change was due to

[17] i.e. "Very often" or "often"

aggressive 4G network expansion in 2014, with over 700,000 base stations added across China.

Figure 1.33 4G population coverage (%) by country: 2013-2014



Source: IHS

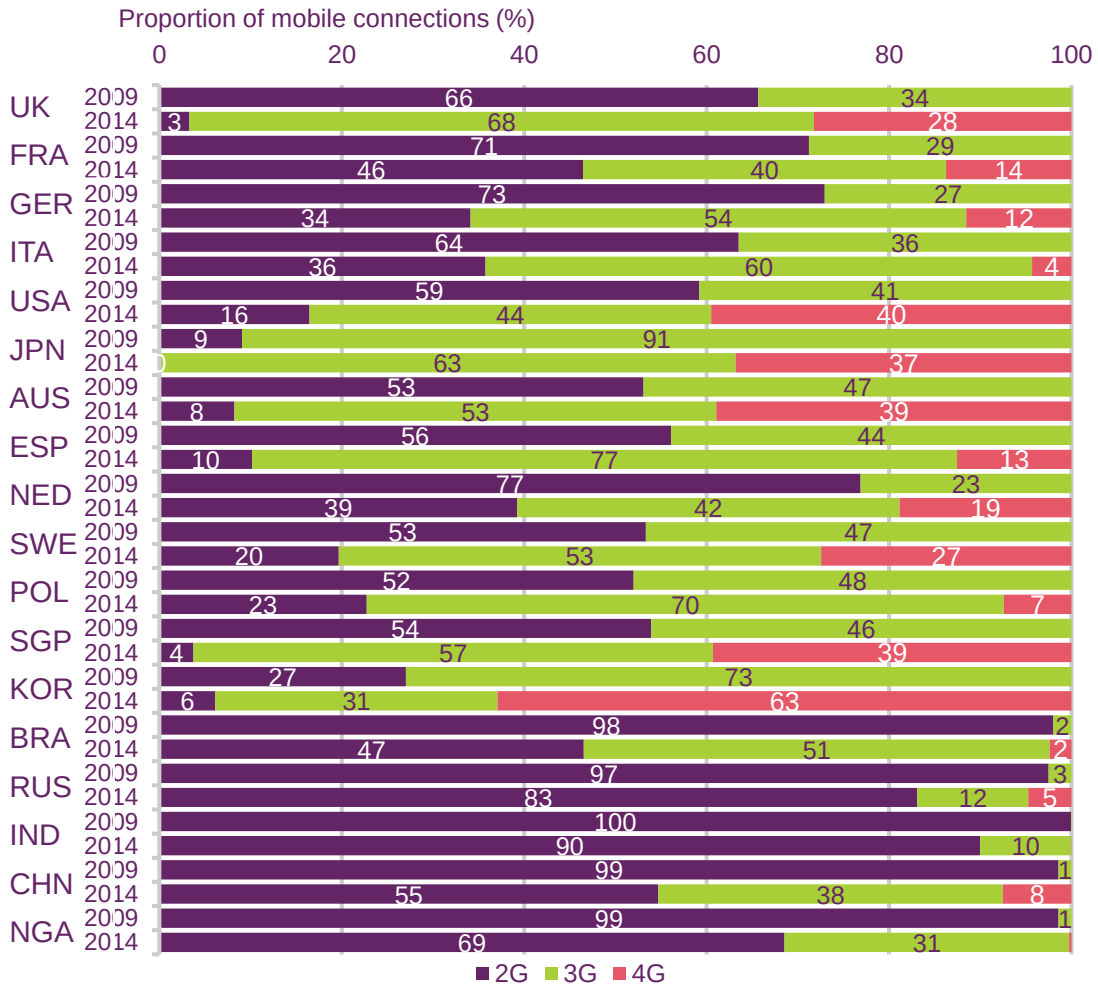
Among the EU5 countries, the UK had the highest proportion of mobile connections that were 4G at the end of 2014

All our comparator countries experienced an increase in the proportion of mobile connections that were 4G in the five years to 2014.

Take-up of 4G was highest in more technologically developed countries such as South Korea and the US, where services are more established (having launched in 2010/11). Among all our comparator countries, South Korea had the highest proportion of mobile connections that were 4G, with 63% of connections, mainly due to heavy government and operator investment in 4G infrastructure, and the relatively early commercial launch of services in 2011. The US also had a higher proportion of 4G connections than most comparator countries, at 40%. Among the EU5 countries, the UK had the highest proportion of mobile connections that were 4G at the end of 2014 (28%), twice as many as France, which was the second highest (at 14%).

Over half of the mobile connections in Russia, India, China and Nigeria were 2G at the end of 2014, and 4G take-up was low among these countries (highest in China, at 8% of mobile connections).

Figure 1.34 Mobile connections, by technology: 2009 and 2014



Source: IHS/Ofcom/operator data
Notes: Notes: 1) 2G – Second-generation digital cellular networks which superseded initial analogue services. Most use the Global Standard for Mobile (GSM) standard, but second generation cellular networks also include TDMA, early CDMA networks that do not meet the standard required to be considered 3G, and PCS in Japan. 2G networks focus on the delivery of voice, but later versions offer packet data through for example GPRS. We consider the evolution of GSM to Edge capability to be a second generation network technology. 2) 3G - A wireless mobile technology which must allow for data transfer speeds up to 2Mbps. W-CDMA, CDMA 2000 1xEV-DO and any of the HSPA family (including HSPA, HSDPA and HSUPA) are considered 3G. IHS does not consider CDMA 2000 1x networks as 3G since the maximum data transfer speed is 144Kbps. Later revisions of the EDGE technology do fulfil this specification, but most EDGE networks are not considered 3G since most EDGE deployments are earlier revisions. 3) 4G - The fourth generation network technology deployed by cellular operators. We limit our definition to those networks using one of the LTE (Long Term Evolution) standards such as FDD-LTE (frequency division duplexing LTE) or TD-LTE (time division LTE) , We do not include HSPA+ networks -- which we consider to be a 3G technology.

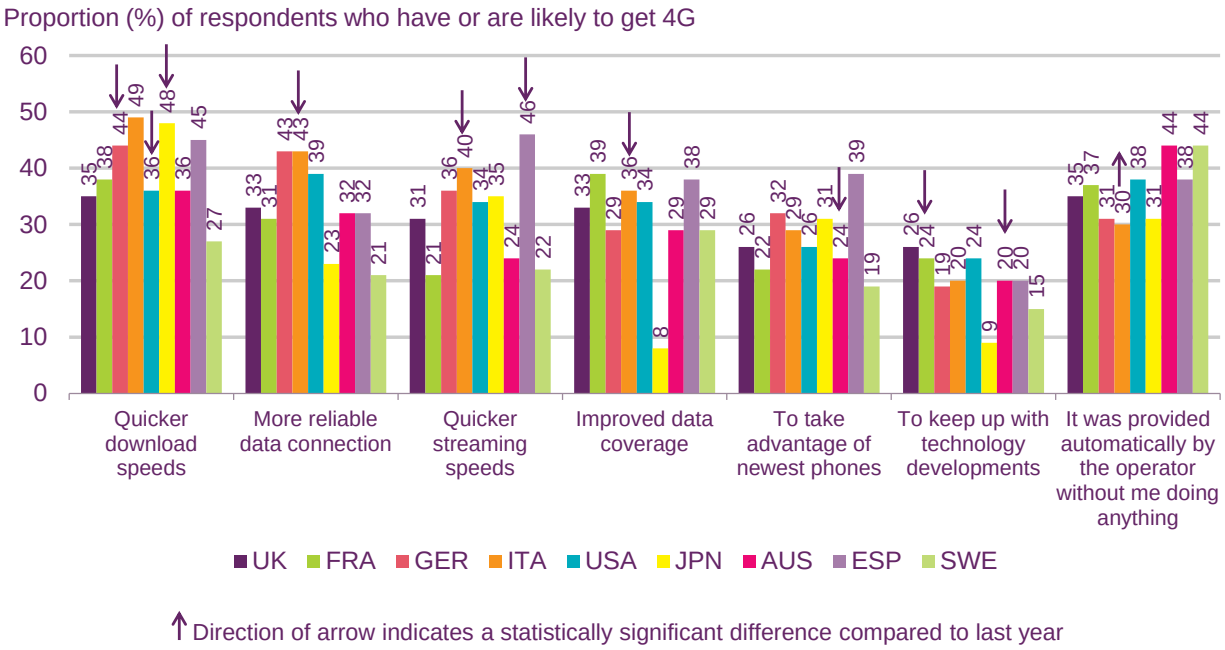
1.5.3 Reasons for choosing 4G, and satisfaction with the service

In the majority of countries the comparatively fast download speeds of 4G are the main draw for consumers

"Quicker download speeds" was the most commonly selected reason for choosing 4G among respondents who either had, or were likely to get, a 4G service (Figure 1.35). Sweden and Australia were the exceptions, where the most popular reason for choosing 4G was that the operator automatically provided the service to them (at 44% of respondents in

both countries). In the UK, a similar proportion of respondents chose 4G for its quicker download speeds as they did because it was automatically provided to them by the operator (both at 35%), with 33% choosing the reasons: “more reliable data connection” and “improved data coverage”. Respondents in the UK were just as likely to choose 4G to take advantage of the latest handsets as they were to keep up with technology developments (both 26%).

Figure 1.35 Reasons for choosing 4G



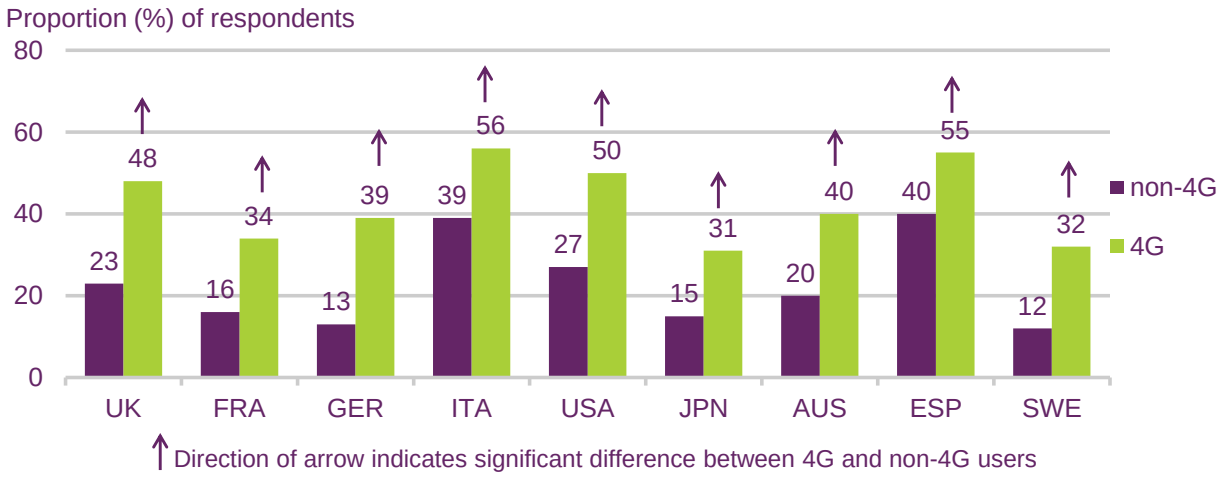
Source: Ofcom consumer research September - October 2015
Base: All respondents who have or are likely to get 4G/LTE contract, UK=455, FRA=442, GER=298, ITA=551, USA=532, JPN=326, AUS=513, ESP=563, SWE=520
Q.23 You said that you have/ are likely to get a 4G service [in the next 12 months]. Which of the following are reasons why you got/ are likely to get a 4G contract?]
Note: Sweden cannot be tested for significance against last year as 2015 was the first year the country has been included in the consumer research

Respondents with 4G services are more likely than those without 4G to stream or download video on their mobile phone

In all of our comparator countries, 4G users were significantly more likely than non-4G users to use a mobile phone to stream/download video[18] (Figure 1.36). In the UK, 48% of 4G users claimed to download or stream video content at least once a week compared to 23% of non-4G users. It is likely that this is related to the higher streaming and download speeds that are available with 4G technology.

[18] It should be noted, however, that early adopters of 4G are more likely to be heavy users of mobile data services.

Figure 1.36 Proportion of respondents video streaming/ downloading on a mobile phone at least weekly, 4G and non-4G users



Source: Ofcom consumer research September - October 2015
Base: All respondents who don't use 4G/ do use 4G on their phone, UK=631/284, FRA=607/274, GER=742/189, ITA=671/274, USA=427/357, JPN=595/235, AUS=482/342, ESP=615/308, SWE=527/391.
Q.22 Which of the following statements best describes your awareness and use of 4G? Q.27 How often, if at all, do you use your main mobile phone to do each of the following? <At least weekly>

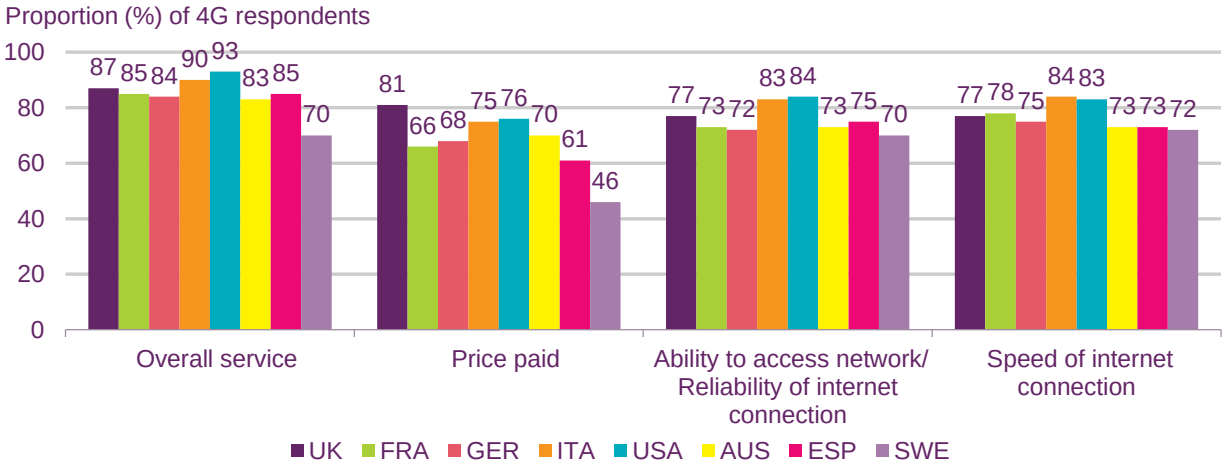
Respondents with 4G services in the UK had the highest satisfaction with price paid for the mobile services among our comparator countries, at 81%

In the majority of our comparator countries, over eight in ten 4G users were satisfied with the overall 4G mobile phone service, only Sweden had lower satisfaction levels (at 70%). In the UK, 87% of respondents said they were satisfied with the overall service, the third-highest satisfaction level among our comparator countries. Respondents in Italy and the US had higher overall satisfaction levels, at 90% and 93% respectively.

The UK had the highest satisfaction with the price paid among our comparator countries (at 81%). In the other comparator countries, over 60% of 4G users were satisfied with price paid, with Sweden the exception at 46%.

There was less variation in satisfaction with the reliability and speed of internet connection among our comparator countries, with around seven in ten respondents in most of the comparator countries saying they were satisfied. Only Italy and the US had higher satisfaction levels (over eight in ten respondents in both).

Figure 1.37 Satisfaction with 4G mobile phone services



Source: Ofcom consumer research September - October 2015
Base: All respondents on a 4G network, UK=114, FRA=162, GER=95, ITA=165, USA=131, AUS=184, ESP=185, SWE=192. *Caution: bases under 100.*
Note: Japan was excluded as the base was too low (77), Japan's results were: overall services - 79%, price paid – 32%, ability to access network/ reliability of internet connection – 68%, speed of internet connection – 64%. These should be taken as indicative only.
Q.25 To what extent are you satisfied or dissatisfied with the following aspects of your mobile phone service?

1.5.4 Smartphone take-up

Background

To understand smartphone take-up and use it is important to look at the context of each nation in order to understand the different landscapes in terms of availability of both mobile data technology and alternative technologies. There are now 87 mobile *data* connections per 100 people in the UK, the highest of the EU5 countries.

The mobile data network is most commonly accessed using a smartphone. Mobile-enabled tablets, USB modems and enabled laptops can access the network, but in each of our comparator countries, 77% of connections or more were via handsets.

4G is the latest and fastest mobile data transfer technology available on a large scale. In all of our comparator countries it is available to 75% of the population or more. The proportion of total consumers with a 4G mobile connection varies widely between comparator countries; from 4% in Italy to 40% in the US.

With higher numbers of data connections, almost universal 4G availability, and high take-up of 4G services, the US and Japan consume the most mobile data per head of our comparator countries; more than double that of any of the other nations.

Italy, Australia and Spain have fewer than 30 fixed broadband connections per 100 people and 40 or fewer fixed voice connections per 100 people, possibly increasing the importance of smartphones among these countries' populations.

Figure 1.38 Contextual data in our comparator countries

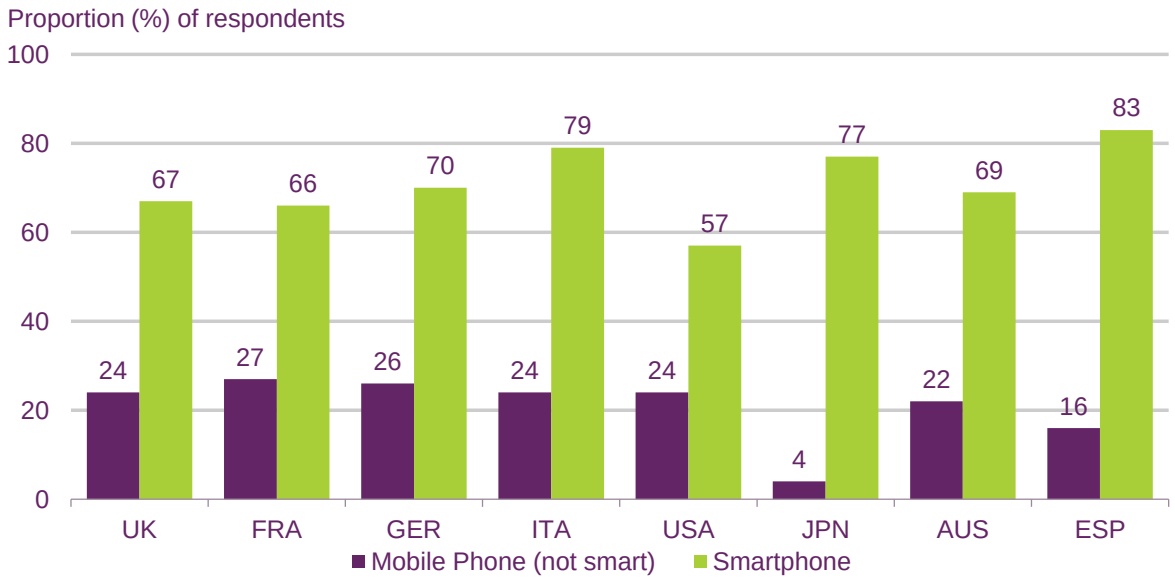
	UK	FRA	GER	ITA	USA	JPN	AUS	ESP
Mobile data connections per 100 population	87	67	64	71	104	124	114	77
Proportion of mobile data connections via handsets (%)	91	90	84	85	92	90	77	95
4G Availability (% population coverage of at least one operator)	84	75	92	77	98	99	87	76
4G as % of all mobile connections	28	14	12	4	40	37	39	13
Average mobile data volumes per person (Mbyte)	362	397	398	684	1771	1495	481	370
Fixed broadband connections per 100 population	37	40	35	23	30	39	29	28
Fixed voice connections per 100 population (incl managed VoIP)	61	60	45	37	41	45	38	40

Source: IHS

In our online survey, 67% of UK respondents claimed to use a smartphone. This was in line with France, Germany and Australia. Spain and Italy had the highest smartphone take-up, at 83% and 79% of respondents respectively, and the US reported the lowest take-up of our comparator countries, at 57%.

Japan reported only 4% take-up of non-smart mobile phones; this country has a relatively long history of feature phones that incorporate many of the attributes of a smartphone. Apart from Japan, Spain seems to be upgrading most quickly to smartphones as, along with its high smartphone take-up, it was the only other nation to report less than 20% take-up of non-smart mobile phones.

Figure 1.39 Mobile and smartphone take-up



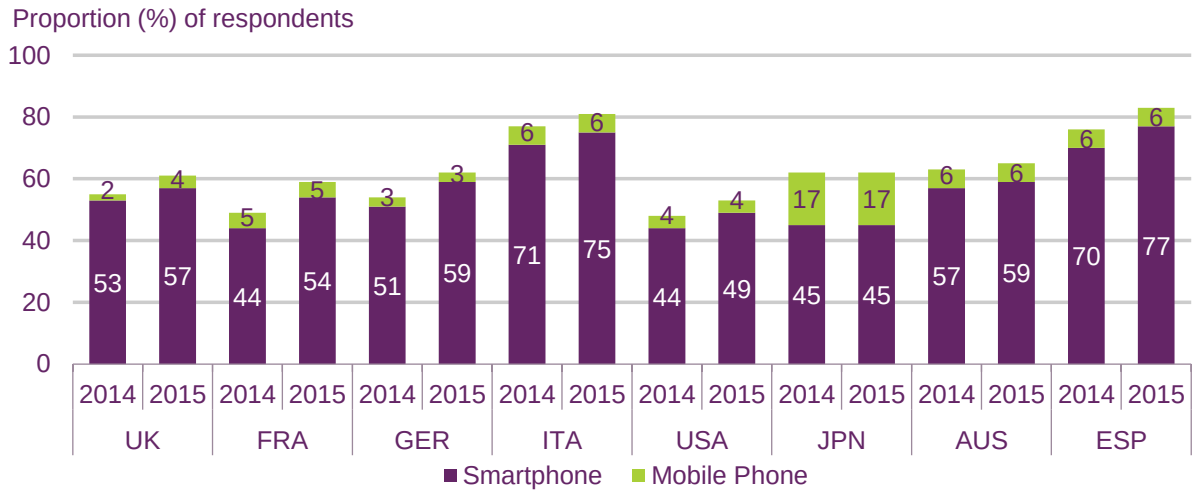
Source: Ofcom consumer research September – October 2015
Q.4a Which of the following devices do you personally use?
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002

1.5.5 Everyday smartphone use

Ofcom research conducted in October 2015 found that smartphones were the most commonly used portable device for accessing the internet. Spain (77%) and Italy (75%) led among our comparator countries, having the largest proportion of respondents claiming to use a smartphone to access the internet. The UK figure stood at 57% in 2015.

Figure 1.40 below includes mobiles and smartphones in order to indicate how many people are using any handset to access the internet. Use of smartphones to access the internet increased in all comparator countries with the exception of Japan, which returned identical results year on year and showed the greatest use of 'non-smart' phones. This may be because many handsets in Japan are classified as 'feature phones'. These are handsets which incorporate more functionality than a 'non-smart' phone but do not fulfil all the criteria we use to define a smartphone.

Figure 1.40 Use of smartphones and mobile phones to access the internet



Source: Ofcom consumer research October 2014 & September – October 2015
Base 2014: All respondents, UK=1011, FRA=1027, GER=1006, ITA=1006, USA=1000, JPN=1003, AUS=1000, ESP=1002.
Base 2015: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002
Q.7a Which of the following devices do you use to access the internet?

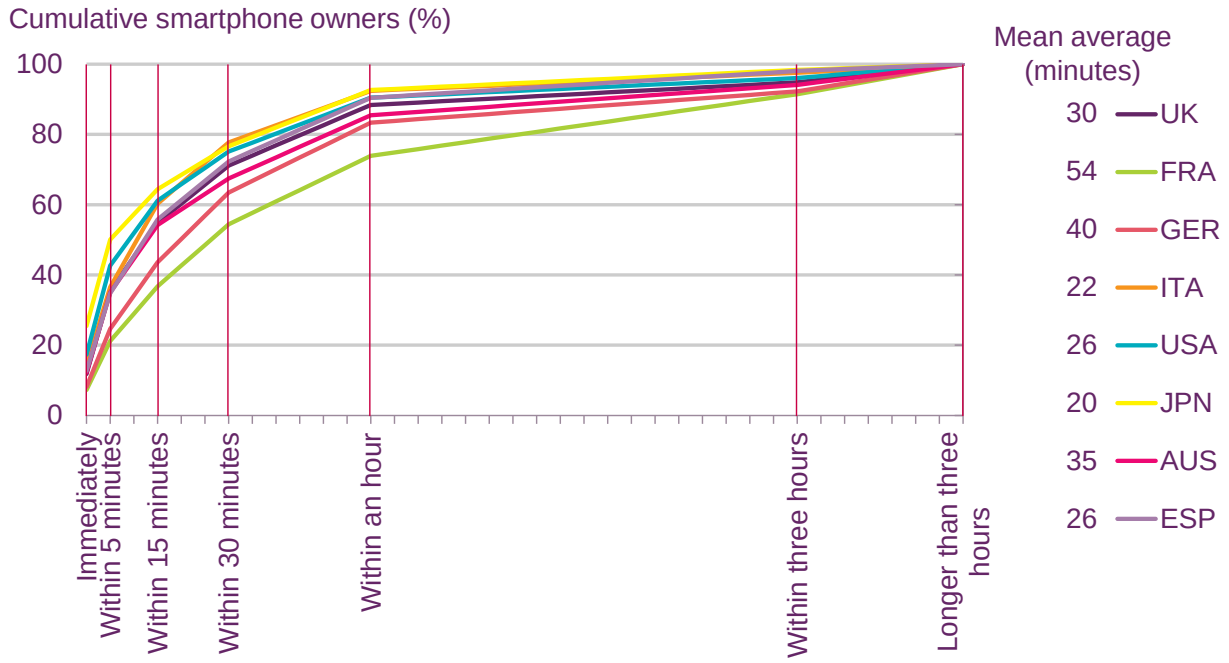
More than half (55%) of UK smartphone owners check their smartphones within 15 minutes of waking up

Figure 1.41 shows the cumulative proportion of respondents who claim to check their smartphones within a certain period after waking up. In Japan, for example, 25% of respondents claimed to check their smartphone immediately and 93% within an hour of waking up, with an average time of 20 minutes.

Smartphone owners in Japan and Italy are typically the quickest to check at the start of the day (averaging 20 and 22 minutes respectively). The comparator country with respondents that were 'slowest' at checking their phones in the morning was France, averaging 54 minutes, with only 21% of respondents checking it within 5 minutes of waking. In the UK, 35% of respondents checked their phone within 5 minutes of waking up, and over half (55%) within 15 minutes, with an average time of 30 minutes.

The curve flattens across all nations over the course of the morning. Across all comparator countries, over 90% of respondents have checked their phone within three hours of waking.

Figure 1.41 Checking smartphone at the start of the day



Source: Deloitte Global Mobile Consumer Survey 2015
Q- Typically how long is the interval between you waking up and looking at your phone for the first time (not including turning off your phone's alarm clock)?
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755
Note: Respondents who answered "don't know" have been excluded from this analysis

In the UK text messaging is the service that the highest proportion of people look at first in the morning

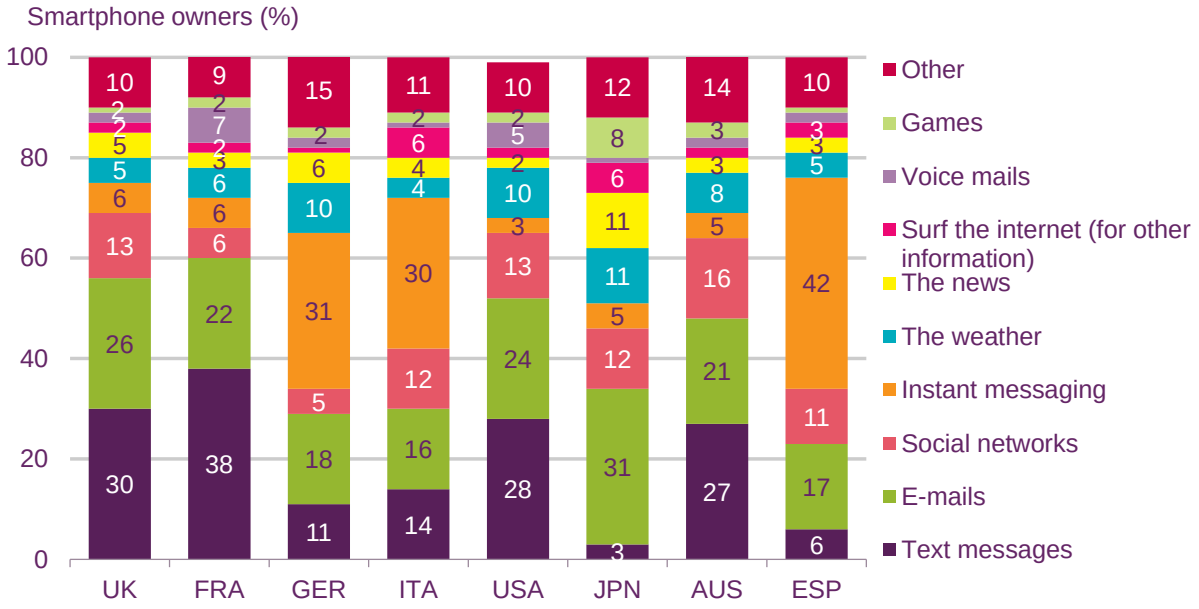
The application that respondents check first after waking varies considerably by country. In the UK, France, the US and Australia, text messages were the most popular choice, selected by between 27% (Australia) and 38% (France) of respondents. In Japan and Spain the proportion of respondents who chose text messaging was 3% and 6% respectively.

Thirty per cent of UK respondents looked at text messaging first, followed by email (26%) and social networks (13%). Email was the only service chosen by a substantial proportion of respondents in all nations, lowest in Italy at 16%. It was the first choice in Japan, and the second most popular choice in every other nation - possibly because it is a long-established communications service.

In Spain 42% of respondents chose instant messaging, the highest proportion of any service across the comparator countries. This may be due to the high penetration of smartphones, allowing greater access to low-cost and free messaging services in a country which has consistently reported below-average use of text messaging in the past. Desk research indicates that mobile operators in Spain promote offers based on inclusive minutes and data. Unlike the UK, inclusive SMS messages are rarely mentioned in promotional material. Instant messaging was also popular in Germany (31%) and Italy (30%) but was cited by no more than 6% in any of the remaining comparator countries.

A combination of text messaging, email, social networks and instant messaging accounted for between 65% and 76% of respondents' choices in all countries except Japan, where the combined total was 51%.

Figure 1.42 First application accessed in the morning

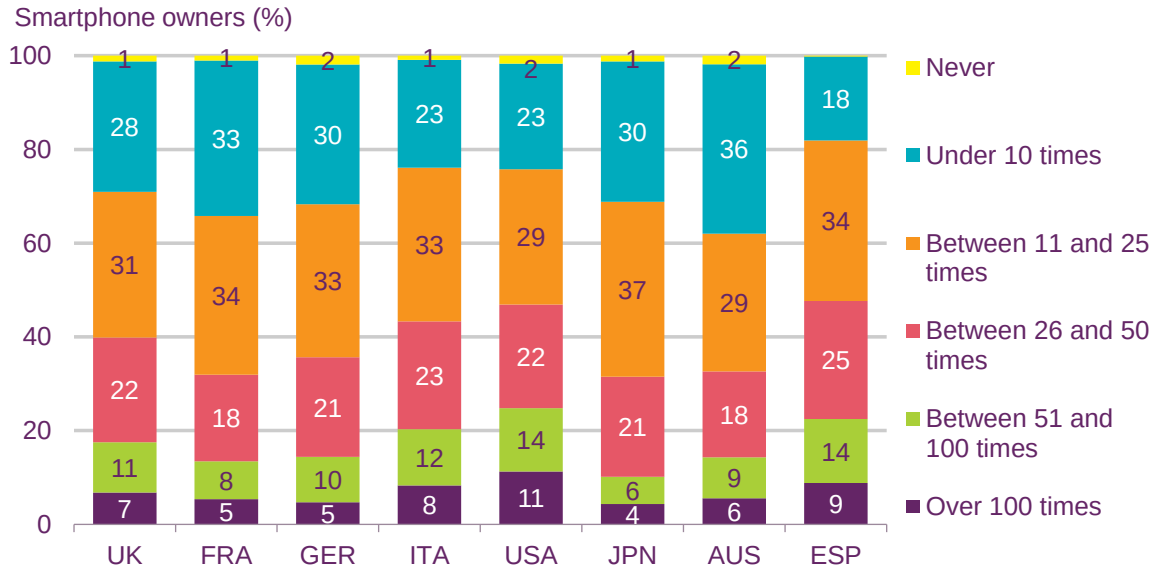


Source: Deloitte Global Mobile Consumer Survey 2015
Q- Typically what is the first thing you access on your phone every day?
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755
Note: Respondents who answered "don't know" have been excluded from this analysis

Twenty-eight per cent of UK smartphone owners check their phone less than ten times a day, while 7% check it more than 100 times

Seven per cent of UK smartphone owners claimed to check their smartphone over 100 times a day, the fourth highest of our eight comparator nations. Despite being one of the quicker nations to engage with their smartphone in the morning (Figure 1.41), respondents in Japan eased off over the course of the day, with only 10% of respondents checking their phones more than 50 times. Respondents in the US and Spain reported the greatest levels of engagement, with 25% and 22% checking more than 50 times a day respectively. The US had the highest proportion (11%) of users claiming to check their smartphones more than 100 times a day.

Figure 1.43 Frequency of checking smartphone



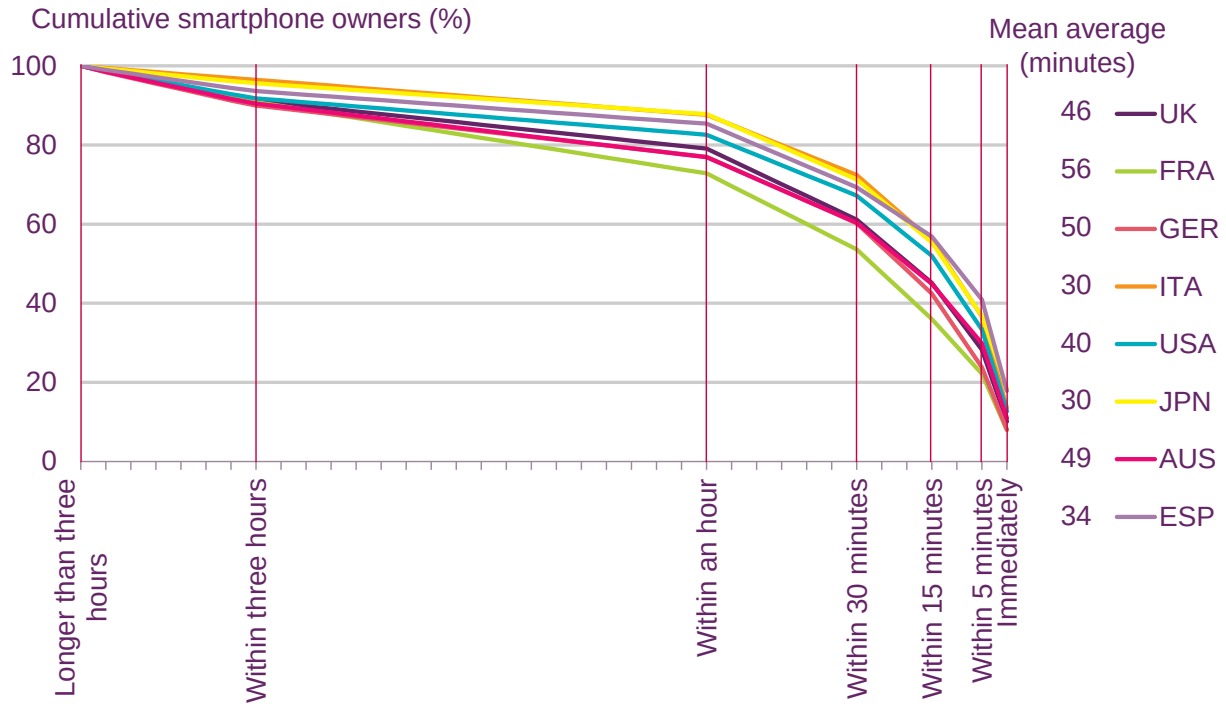
Source: Deloitte Global Mobile Consumer Survey 2015
Q- How many times would you estimate you look at your phone in a day?
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755
Note: Respondents who answered "don't know" have been excluded from this analysis

Respondents in the UK stopped checking their phone an average of 46 minutes before preparing to sleep

Figure 1.44 demonstrates the period of time between interacting with a smartphone and preparing to sleep. We saw in Figure 1.41 that on average, respondents in France were the last to check their smartphones in the morning; they were also the first to put them away at night. Only 36% of respondents in France stopped checking their smartphones within the 15 minute period before preparing to sleep (with an average time of 56 minutes overall), compared to 45% in the UK (average of 46 minutes) and 55% in Japan (average of 30 minutes).

In Italy and Japan 37% of respondents checked their smartphones within 5 minutes before preparing to sleep; second only to Spain (41%). In the UK this figure was 28%.

Figure 1.44 Checking smartphones at the end of the day



Source: Deloitte Global Mobile Consumer Survey 2015
Q- At the end of the day, typically how long is the interval between you looking at your phone for the last time and preparing to sleep (not including setting the phone's alarm clock)?
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755
Note: Respondents who answered "don't know" have been excluded from this analysis

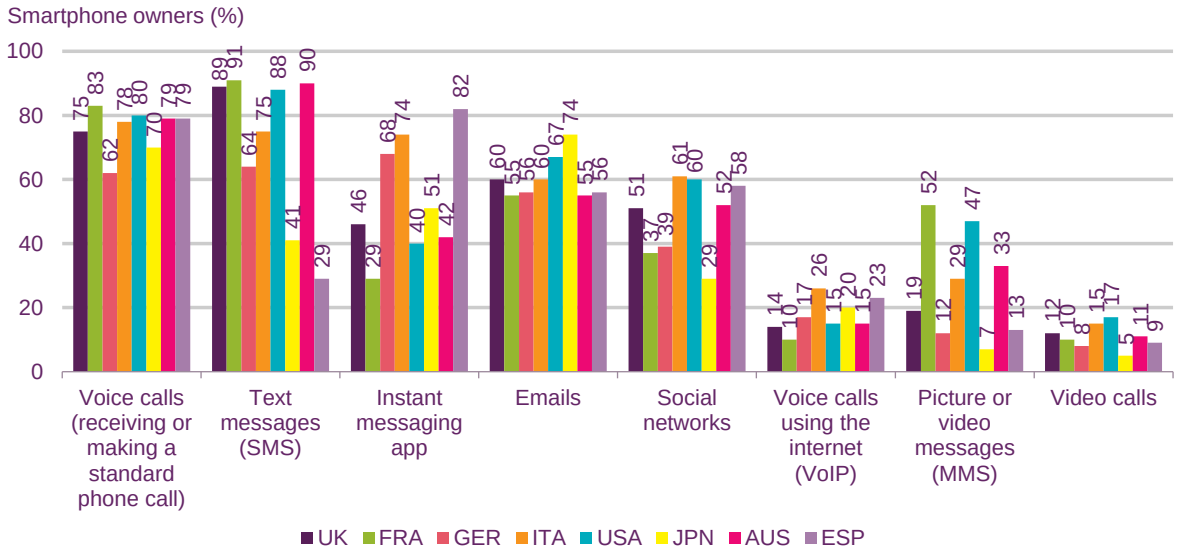
1.5.6 Smartphone activities

In the UK text messaging is the most popular text-based communication service

Despite a growing number of alternative services, text messaging remains popular in the UK, France, the US and Australia. Around 90% of smartphone owners in these countries claimed to have used it in the seven days prior to the survey, a higher proportion than for voice calls across the same countries. At 29%, Spain had the lowest use. Conversely, instant messaging was most popular in Spain, with 82% of smartphone owners claiming to have used it in the seven days prior to the survey. Japan, which also reported low levels of SMS text messaging (41%), reported the highest level of emailing on smartphones; 74% of respondents had used this communication method in the seven days before the survey. Interestingly, MMS messaging was most popular in France, the US and Australia (52%, 47% and 33% respectively), the same three nations which reported the lowest use of instant messaging apps.

In Germany and Spain instant messaging was more popular than voice calling, as was emailing in Japan. Voice calling was the second most popular selection across all the comparator countries except Italy (where it was first), and Germany, where it was third, after text messaging and instant messaging.

Figure 1.45 Regular smartphone communication methods



Source: Deloitte Global Mobile Consumer Survey 2015
Q- In the last seven days, in which, if any, of the following ways did you use your phone to communicate with others?
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755

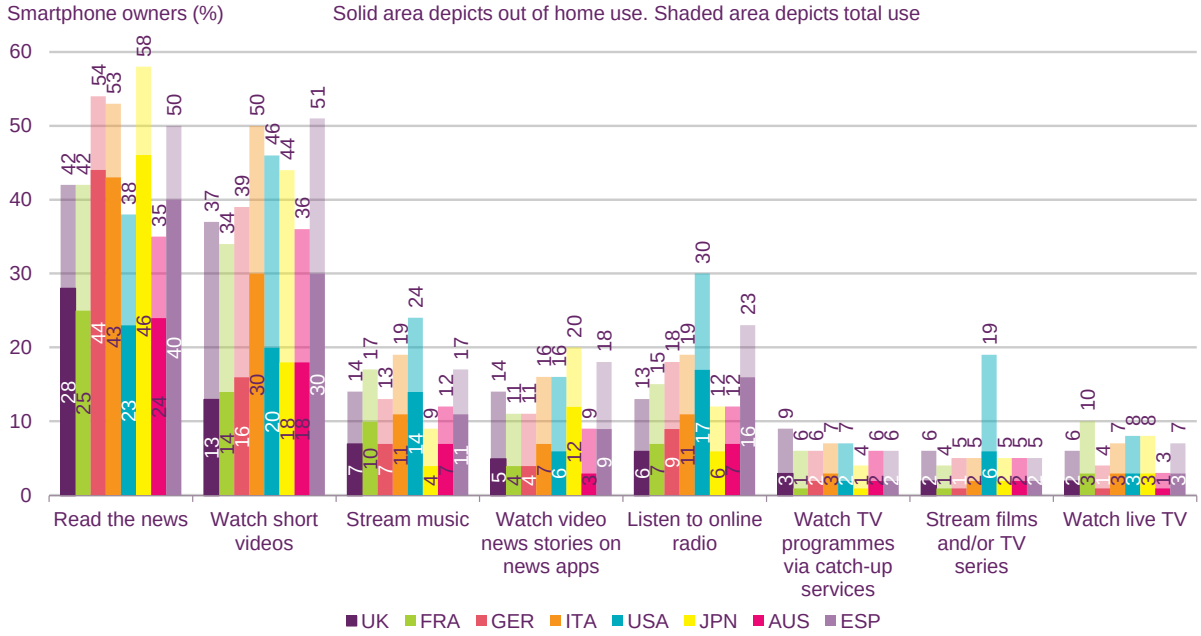
Figure 1.46 shows a range of smartphone content and media-based activities undertaken in general, and specifically outside the home ordered by their popularity in the UK. The only activity for which UK respondents had higher take-up than other comparator countries was using catch-up television services, possibly a result of the popularity of the free catch-up services offered by public service broadcasters.

Reading the news was the most popular activity among UK respondents, with 42% claiming to do this. Watching short videos was also popular: half of all respondents in Italy and Spain claimed to do this, the same proportion as for reading the news. The US reported significantly higher levels of take-up for streaming music, listening to online radio and streaming films and TV series. Online radio and audio streaming in the US may be driven in part by Pandora, a long established internet radio / streaming service which has 79 million active users[19]. As we see elsewhere in the report, take-up of subscription video-on-demand services is highest in the US[20].

With regard to activities undertaken outside the home, reading the news remained the most popular, followed by listening activities rather than watching activities. There is an inverse correlation between data requirements and participation outside the home, possibly driven by the quality and availability of data coverage and concerns around mobile data costs.

[19] http://services.corporate-ir.net/SEC.Enhanced/SecCapsule.aspx?c=227956&fid=10233283
Active users number includes those in Canada and Australia, as well as the US
[20] See Chapter 3 of the complete web version, available at: http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr15/international

Figure 1.46 News and entertainment, use in general and outside the home



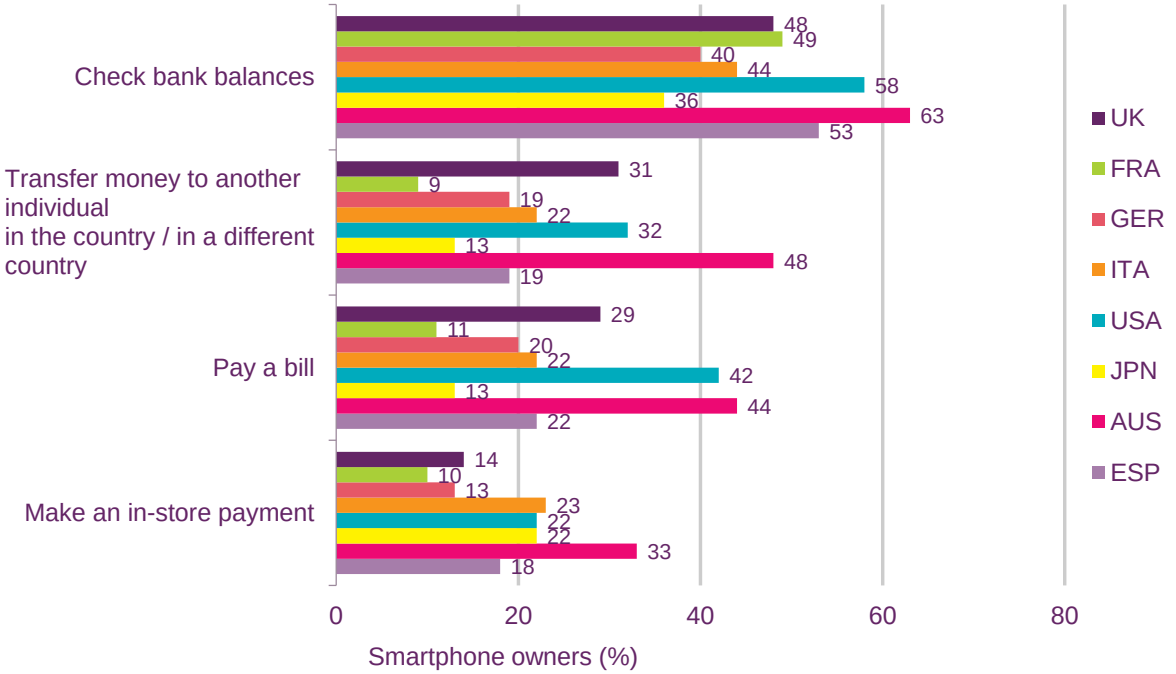
Source: Deloitte Global Mobile Consumer Survey 2015
Q- For which, if any, of the following do you typically use your phone for?
Q- And for which, if any, of the following do you typically use your phone for while out and about?
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755

UK smartphone owners are the most likely in the EU5 to use their smartphone to pay a bill

UK smartphone owners were the most likely of those in the EU5 countries to use their smartphone to pay a bill: 29% claimed to have done so. They were also the most likely in the EU5 to have transferred money on their smartphones (at 31%). This figure was highest in Australia, where 44% had used their smartphone to pay a bill and 48% had used it to transfer money.

In the UK 14% of smartphone owners claimed to have ever used their smartphone to make an in-store payment. Australian smartphone owners were more than twice as likely to have done this; 33% claimed to have done so at least once. Italy had the highest reported incidence of the EU5 countries, at 23%.

Figure 1.47 Smartphone use and financial activities



Source: Deloitte Global Mobile Consumer Survey 2015
Q- How frequently, if at all, do you use your phone to do at least one of these things? Chart shows net of 'ever'
Base: All adults who own a smartphone, UK=3039, FRA=1407, GER=1491, ITA=1589, USA=1458, JPN=952, AUS=1582, ESP=1755

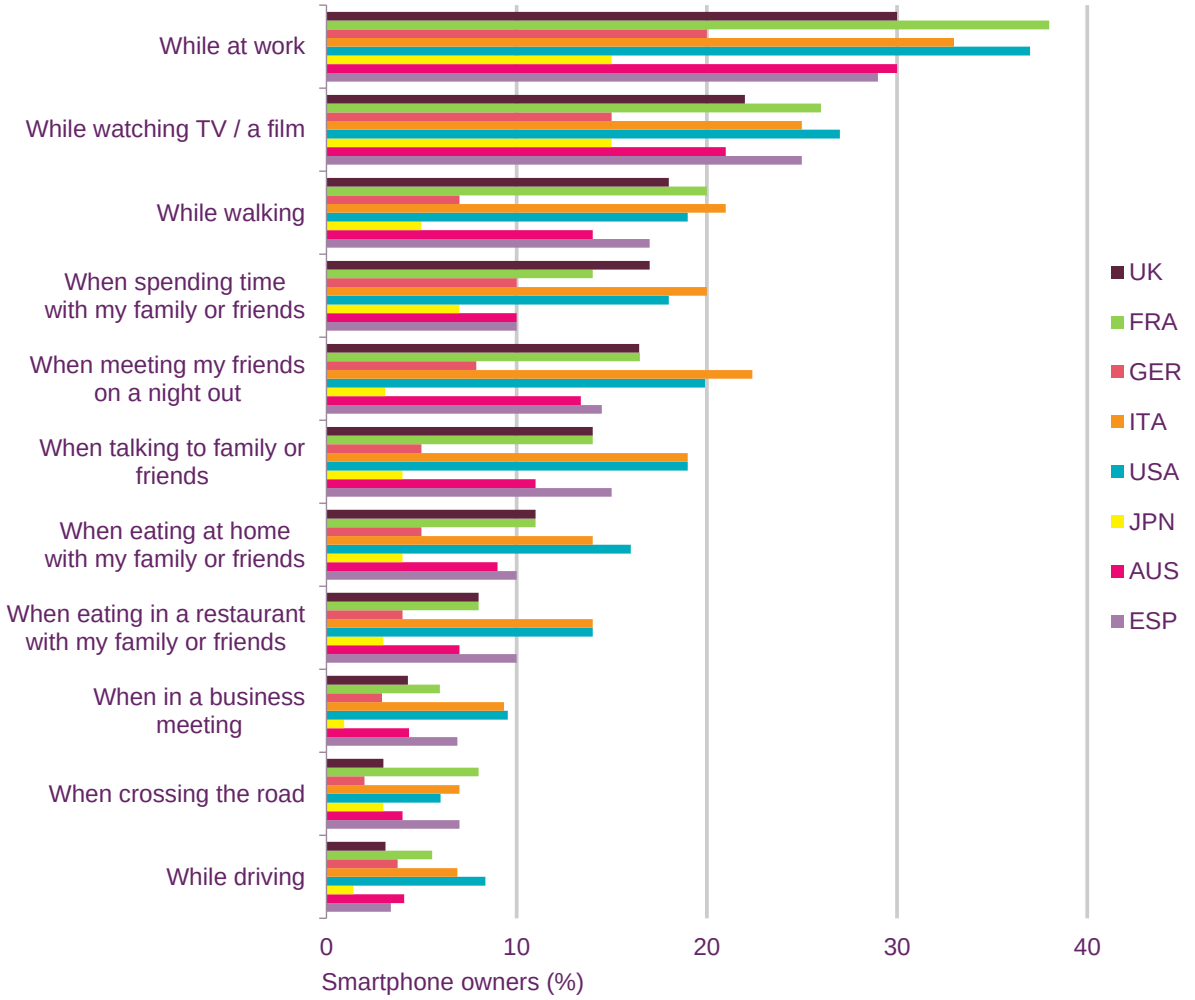
Almost a third (30%) of UK respondents use their smartphones at work on a regular basis

Figure 1.48 illustrates smartphone users' behaviours in a variety of situations, showing the proportion of smartphone owners who claimed to use their smartphone 'very often' or 'almost always' in a specific situation.

Almost a third (30%) of UK respondents claimed to use their smartphones at work on a regular basis. In France and the US this figure was even higher, at 38% and 37% respectively.

In social situations with friends or family, a clear pattern emerges. In each of these situations respondents in the US and Italy were the most likely to claim that they used their smartphones 'very often' or 'almost always'. Respondents in Japan were the least likely to do so.

Figure 1.48 Using a smartphone (very often/almost always) while doing other activities

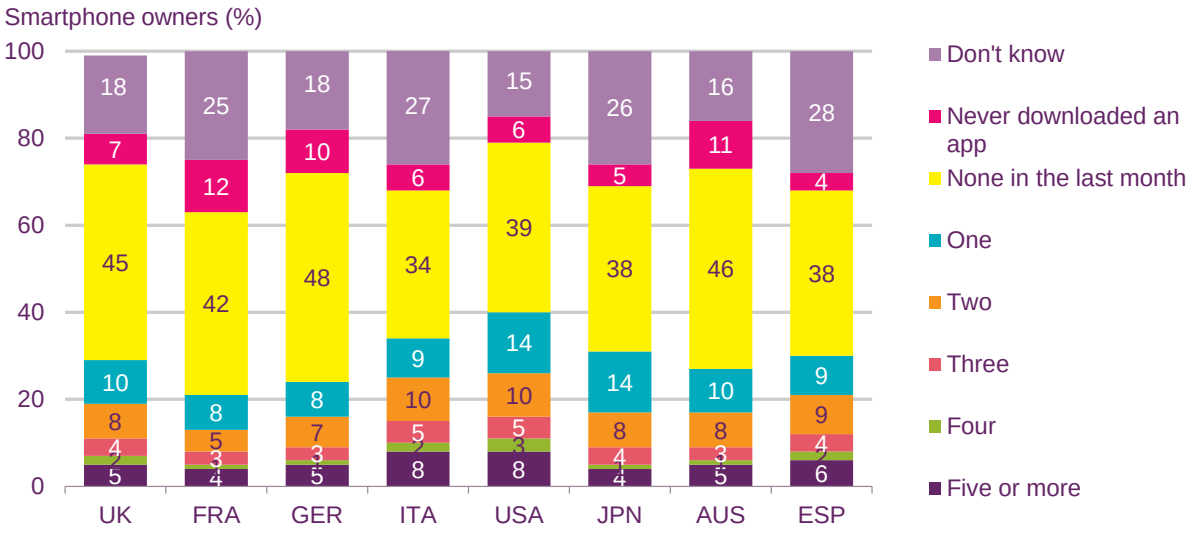


Source: Deloitte Global Mobile Consumer Survey 2015
Q- How often, if at all, do you use your mobile phone while doing the following?
Chart shows answers 'almost always' and 'very often'
Base: All adults who have a smartphone

Twenty-nine per cent of UK smartphone owners download at least one app per month

In all of our comparator countries at least 20% of respondents said they downloaded one or more apps in a typical month. In the US this figure was 40%. Across the UK, Italy, Japan and Spain around three in ten downloaded at least one app in a typical month, falling to just over one in five in Germany and France. Italy and the US reported the greatest proportion of heavy users, with 8% claiming to download five or more apps in a typical month. In France, Australia and Germany about one in ten respondents claimed to have never downloaded an app.

Figure 1.49 Number of apps downloaded per month



Source: Deloitte Global Mobile Consumer Survey 2015
Q- How many apps do you download on your phone in a typical month?
Base: All adults who have a smartphone

Social networking and instant messaging apps are top downloads for both Google Play and iPhone users

The social networking app Facebook appeared in the top five apps downloaded on Google Play, in all countries except Japan. The same was true of Facebook's messaging app, Messenger. WhatsApp was in the top five most commonly-downloaded apps in all the EU5 countries. Antivirus security apps were popular in Germany, Italy and the US, and the Google Photo app featured in five of the eight comparator nations, including the UK.

Gaming apps were very popular in Japan: four of the five most commonly-downloaded apps downloaded from Google Play were gaming apps.

Figure 1.50 Most commonly downloaded apps on Google Play, by country

	1	2	3	4	5
UK	Facebook	Heroes of the Alpha Arena	WhatsApp Messenger	Messenger	Google Photos
FRA	Facebook	Messenger	Snapchat	Google Photos	WhatsApp Messenger
GER	WhatsApp Messenger	Facebook	360 Security	Messenger	Heroes X Mortals: Kriegsarena
ITA	WhatsApp Messenger	Facebook	Messenger	360 Security	COOKING MAMA
USA	Messenger	Google Photos	Facebook	360 Security	Pandora Radio
JPN	RPG Iruna Senki online [1]	Collect the real battleship empire[2]	Battered hero – battle game[3]	Yahoo! Browser [4]	Clash of Kings
AUS	Facebook	Messenger	Google Photos	Golden Lion Slots	Instagram
ESP	WhatsApp Messenger	Facebook	Messenger	Google Photos	64 Games

Source: App Annie Top App Charts Aug 31, 2015.
Translation Notes: 1. イルーナ戦記オンライン2. 戦艦帝国-200艘の実在戦艦を集めろ3. 連打英雄—指1本で楽しめる爽快バトルゲーム4. Yahoo!ブラウザ

The popularity of social networking and instant messaging apps was mirrored among iPhone users. In all the comparator countries except Japan, the top five most commonly-downloaded apps included at least one social networking or instant messaging app, and in most cases both.

At least one gaming app featured in the top five most popular apps in all eight countries. A greater enthusiasm for gaming apps on iPhone might be inferred from the popularity of apps such as *Happy Wheels* and *The Walking Dead: Road to Survival*. However, as data on the most commonly downloaded apps are collated on a daily basis, the popularity of certain gaming apps may be attributable to daily trends.

Figure 1.51 Most commonly downloaded apps on iPhone, by country

	1	2	3	4	5
UK	Happy Wheels	WhatsApp Messenger	The Walking Dead: Road to Survival	Messenger	Facebook
FRA	The Walking Dead: Road to Survival	Happy Wheels	WhatsApp Messenger	Messenger	iMusic Pro
GER	Happy Wheels	WhatsApp Messenger	The Walking Dead: Road to Survival	iMusic Pro	Messenger
ITA	Happy Wheels	WhatsApp Messenger	Messenger	Layout from Instagram	Jusapp – Prank Calls
USA	Happy Wheels	The Walking Dead: Road to Survival	Messenger	Facebook	Instagram
JPN	Happy Wheels	Pokemon Shuffle Mobile	Pirates of war[1]	SUUMO	LINE
AUS	Happy Wheels	Messenger	Layout from Instagram	Facebook	Instagram
ESP	WhatsApp Messenger	Layout from Instagram	Messenger	Instagram	Facebook

Source: App Annie Top App Charts Aug 31, 2015.
Translation notes: 1. 戦の海賊

1.6 News consumption – the international context

1.6.1 Introduction

This section examines the consumption of news. First, we look at digital news consumption, and present a summary of the key findings from the Reuters Institute *Digital News Report*, published in June 2015. Second, we present findings from Ofcom's new research across a number of countries, and look at which platforms people say they use as their main source of different types of news, and the devices they use for accessing online news. The key findings include:

- **When asked how they get to their online news, people in the UK and Denmark are more likely to go straight to an online news brand,** while those in Italy, Japan and Spain are most likely to use search as their means of finding news content. Social media is used as a gateway to news by at least a third of online news users in Italy, the US, Spain and Denmark.

- **Around a third of respondents in the UK (33%) and Japan (36%) only use one source for online news;** in both these countries few people use four or more sources (8% and 12% respectively).

- **In the UK, social media was a source of news for 36% of respondents in 2015, up from 23% in 2014.** In Germany (25%) and Japan (21%) levels remain lower. Respondents in Australia are the most likely to use social media for news (51%).

- **Across most of the European countries in our research, around eight in ten online respondents say they use the internet to read news online**. This is lower in the UK (73%), the US (68%) and Australia (69%). In Italy 87% say they use the internet to read news, the highest of all our comparator countries.

- **In the UK, TV is the main source of international news for 43% of respondents, and the internet for 30%, and there is a similar pattern in France and Germany.** Respondents in Italy are more likely to nominate the internet (42%) than TV (36%), as is also the case in Japan (43% and 29% respectively).

1.6.2 Digital news consumption – a comparative study

This section provides a summary of the key findings from the Reuters Institute *Digital News Report*, published in June 2015.[21] Ofcom, along with a variety of partners, provided support for this project. The research provides comparisons between the UK, the US, France, Germany, Spain, Italy, Ireland, Denmark, Finland, urban Brazil, Japan, and Australia. To maintain consistency with Ofcom's data, this summary does not include data relating to urban Brazil or Finland.

The report shows how news is perceived quite differently across countries, and how consumption habits differ in terms of how news is accessed, particularly in relation to social media.

[21] Available at: http://www.digitalnewsreport.org/

The survey was completed by an online panel of 2149 UK news users for YouGov in January/February 2015. Online surveys were also conducted in the other countries, with samples ranging from 1501 (Ireland) to 2295 (the US). In this section, we refer to these people as 'online users of news', which means they have online access and said they had used any form of (offline or online) news in the previous month.[22]

Online users of news in Australia and Germany are most likely to be interested in international news

Figure 1.52 sets out the relative levels of interest that online users of news have in various types of news, in the countries under comparison. Respondents were asked to choose their five most important types of news.

Levels of interest in politics are lower in the UK (41%) than in many other European countries (50% in Germany and 46% in France, Spain, Italy and Denmark). In the US, 47% of online news users say they are interested in politics, compared to 32% in Ireland. Those in Australia are the least likely to show interest in politics, with 28% nominating it.

Respondents in the UK are more likely than those in most other countries to be interested in news about their country, with 72% nominating this, compared to a lower proportion of respondents in most other countries: 55% in Japan, 57% in the US and 59% in Ireland. Respondents in the US are the most likely to be interested in local news about their town or city, with just over half (52%) nominating this. Around four in ten people in most other countries indicate interest in local news, although this is lower in Spain (34%), France (33%) and Japan (22%).

In terms of international news, online news users in Australia are the most interested, with 75% nominating this, and 70% of those in Germany. Levels of interest are much lower in other countries including the UK (51%), Italy (49%), the US (46%) and Japan (46%).

Finally, entertainment and celebrity news is particularly popular in Japan (29%), but also in Ireland (21%), Australia (20%), Italy and the UK (both at 16%).

[22] For further methodological details please see http://www.digitalnewsreport.org/survey/2015/survey-methodology-2015/.

Figure 1.52 Levels of interest in types of news

	UK	FRA	GER	ITA	US	JPN	AUS	IRE	ESP	DEN
News about the country	72%	65%	67%	56%	57%	55%	62%	59%	63%	64%
International news	51%	59%	70%	49%	46%	46%	75%	64%	53%	66%
Local news about my town or city	44%	33%	41%	44%	52%	22%	41%	42%	34%	38%
News about my region	37%	40%	54%	35%	28%	26%	29%	29%	41%	25%
Business and financial news	20%	14%	12%	15%	19%	25%	28%	27%	15%	26%
News about the economy	37%	32%	29%	30%	41%	45%	35%	42%	40%	34%
Entertainment and celebrity news	16%	9%	13%	16%	13%	29%	20%	21%	7%	9%
Fun/weird news	14%	12%	12%	19%	17%	18%	15%	18%	16%	18%
Health news	27%	27%	22%	33%	28%	31%	26%	30%	32%	25%
Education news	12%	14%	12%	14%	15%	11%	11%	13%	25%	12%
Arts and culture news	11%	15%	8%	26%	10%	18%	11%	13%	21%	15%
Sports news	30%	21%	28%	30%	21%	32%	29%	33%	30%	28%
News about the country's politics	41%	46%	50%	46%	47%	47%	28%	32%	46%	46%
Science and technology news	24%	23%	25%	35%	28%	26%	28%	27%	31%	33%

Source: Reuters Institute / YouGov research Jan/Feb 2015
Q2: Which of the following types of news is most important to you? Choose up to five.
Base: total sample in each country: UK 2149; Germany 1969; Spain 2026; Italy 2006; France 1991; Ireland 1501; Denmark 2019; Japan 2017; Australia 2042

When asked how they get to their online news, respondents in the UK and Denmark are the most likely to go directly to a news brand

The ways in which people get their online news is becoming increasingly complex and multi-faceted. There are a variety of means, ranging from going direct to a news brand to going through search engines, social media, email and online alerts and notifications.

Respondents in the UK and Denmark are most likely to nominate going direct to a news brand (52% and 54% respectively), while those in Japan (15%), Italy (20%) and Germany (26%) are the least likely to do this.

People in Italy (66%), Japan (54%), and Spain (54%) are the most likely to use search as their means of finding their news content, compared to 29% in Denmark and 32% in the UK.

Social media is most likely to be used to find news stories by respondents in Australia (41%), Denmark (38%) and the US (35%), and email is particularly likely in the same countries – the US (25%), Denmark (24%) and Australia (20%). Levels of using email for news are particularly low in the UK (10%) and Ireland (9%).

Figure 1.53 Starting points for online news consumption, by country

	UK	FRA	GER	ITA	US	JPN	AUS	IRE	ESP	DEN
Direct to news brand	52%	27%	26%	20%	36%	15%	33%	44%	36%	54%
Search	32%	40%	45%	66%	40%	54%	49%	46%	54%	29%
Social media	28%	21%	20%	33%	35%	14%	41%	36%	35%	38%
Email	10%	21%	15%	17%	25%	15%	20%	9%	14%	24%
Mobile notifications/ alerts	10%	14%	9%	7%	13%	7%	9%	9%	8%	9%

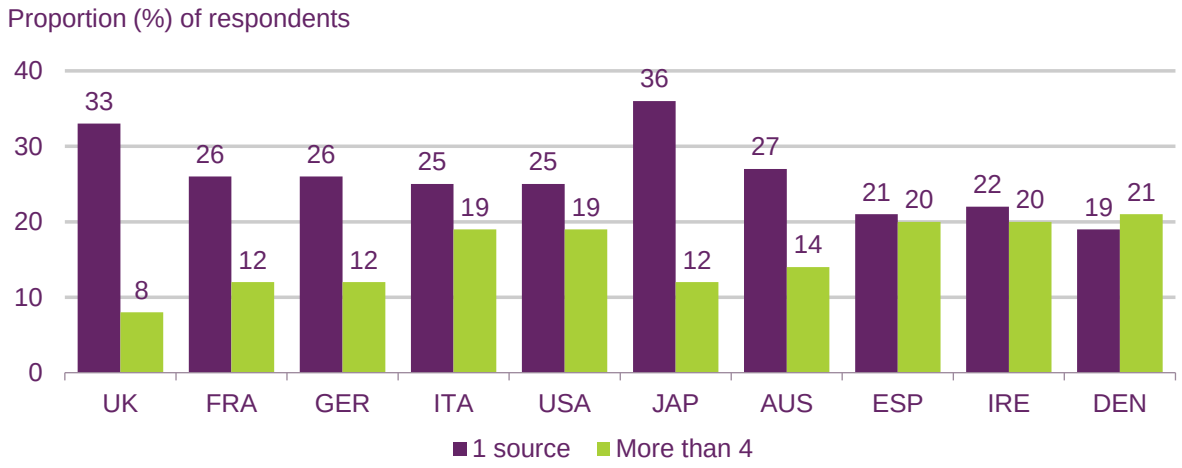
Source: Reuters Institute / YouGov research Jan/Feb 2015
Source: Reuters Institute / YouGov research Jan/Feb 2015
Q10: Thinking about how you got news online in the last week, which were the ways in which you came across news stories? Please select all that apply
Base: total sample in each country: UK 2149; Germany 1969; Spain 2026; Italy 2006; France 1991; Ireland 1501; Denmark 2019; Japan 2017; Australia 2042

Around a third of respondents in the UK and Japan use only one online news source

Given the array of news available online, it is useful to measure how many sources respondents use. As Figure 1.54 shows, the picture is quite varied. In Japan, respondents are most likely to use only one online news source (36%), and in the UK a third (33%) of online news users use only one source. In both these countries few respondents use four or more sources (12% and 8%).

Conversely, in Denmark, people are more likely to use four or more sources (21%) than just one source (19%).

Figure 1.54 Number of online sources, by country

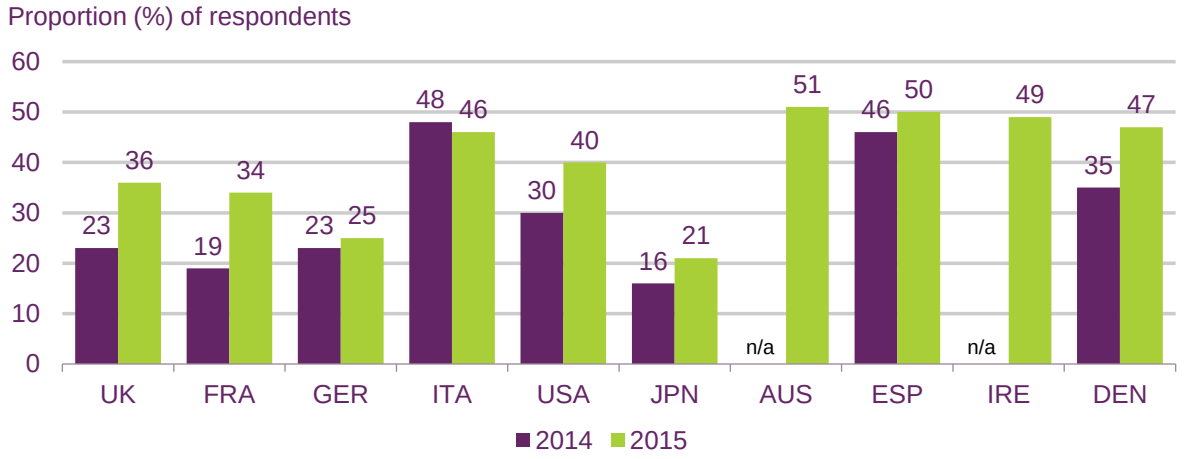


Source: Reuters Institute / YouGov research Jan/Feb 2015
Q5b: Which, if any, of the following have you used to access news in the last week? Please select all that apply
Base: total sample in each country: UK 2149; Germany 1969; Spain 2026; Italy 2006; France 1991; Ireland 1501; Denmark 2019; Japan 2017; Australia 2042

Social media as a source of news has increased considerably since 2014

Social media as a source of news has increased over the past year in a number of countries, and particularly in the UK and France. In the UK, 23% of online news users said they used social media for news in 2014, rising to 36% in 2015. In France, 19% in 2014 and 34% in 2015 said they used social media for news. Levels of use of social media in Germany (25%) and Japan (21%) remain lower.

Figure 1.55 Social media as a source of news, by country



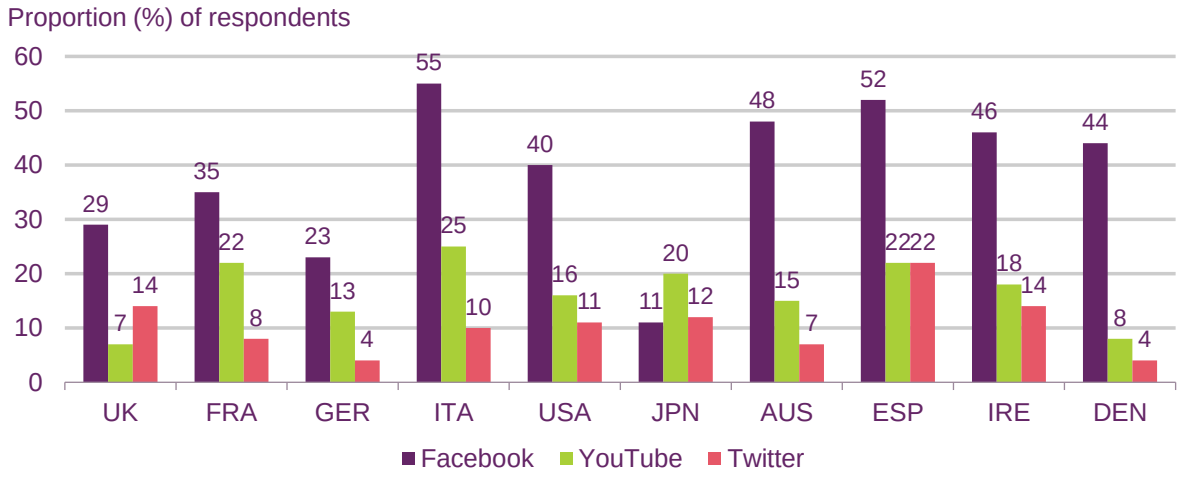
Source: Reuters Institute / YouGov research Jan/Feb 2015
Q3: Which, if any, of the following have you used in the last week as a source of news? Please select all that apply
Base: total sample in each country: UK 2149; Germany 1969; Spain 2026; Italy 2006; France 1991; Ireland 1501; Denmark 2019; Japan 2017; Australia 2042

Across the comparator countries there is considerable variation in the popularity of different types of social media as news sources

Facebook is more popular in Italy (55%) than in any other nation. YouTube was more popular in Italy (25%), France and Spain (both 22%) and Japan (20%), but least popular in the UK as a news source (7%).

Twitter is most likely to be used as a news source by news users in Spain (22%), the UK and Ireland (both 14%), and least likely in Germany and Denmark (4%).

Figure 1.56 Top three social networks used as a source of news, by country



Source: Reuters Institute / YouGov research Jan/Feb 2015
Q12b: Which, if any, of the following have you used for reading, watching, sharing or discussing news in the last week?
Base: total sample in each country: UK 2149; Germany 1969; Spain 2026; Italy 2006; France 1991; Ireland 1501; Denmark 2019; Japan 2017; Australia 2042

1.6.3 Main sources for news

The following analysis uses data from Ofcom's research. While the Reuters Institute findings above relate mainly to online use of news, the Ofcom survey examines respondents' views about the range of possible platforms for news. Participants were asked what they used as their main source for different types of news: national, international, regional and local, sports, and celebrity news. The news sources comprised TV, the internet, radio, newspapers and magazines and "getting news from other people". Participants were also asked which online device they used to access news.

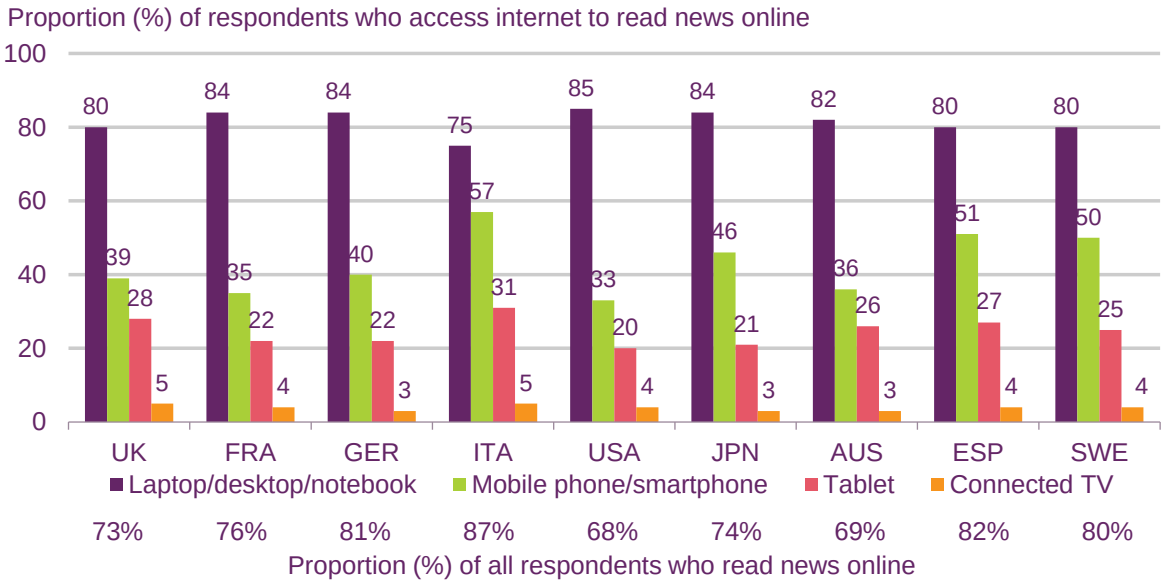
The survey was done online, with around 1,000 respondents in each country. Countries covered were the UK, France, Germany, Italy, the US, Japan, Australia, Spain and Sweden. As the research was carried out online, the sample differs from other Ofcom research and direct comparisons cannot be made. The research methodology is discussed in detail in Appendix A.

Four in ten online news users in the UK use a smartphone for their news

Across most of the European countries in the comparative sample, around eight in ten online respondents say they read the news online. This is lower in the UK (73%), the US (68%) and Australia (69%).

Respondents were asked about the devices they used to access news online. The laptop/ desktop/ notebook remains the most popular device, although the smartphone is also popular, particularly in Italy (57%), Spain (51%) and Sweden (50%). The tablet is relatively popular in Italy (31%), the UK (28%), Spain (27%) and Australia (26%).

Figure 1.57 Devices used for reading news online, by country



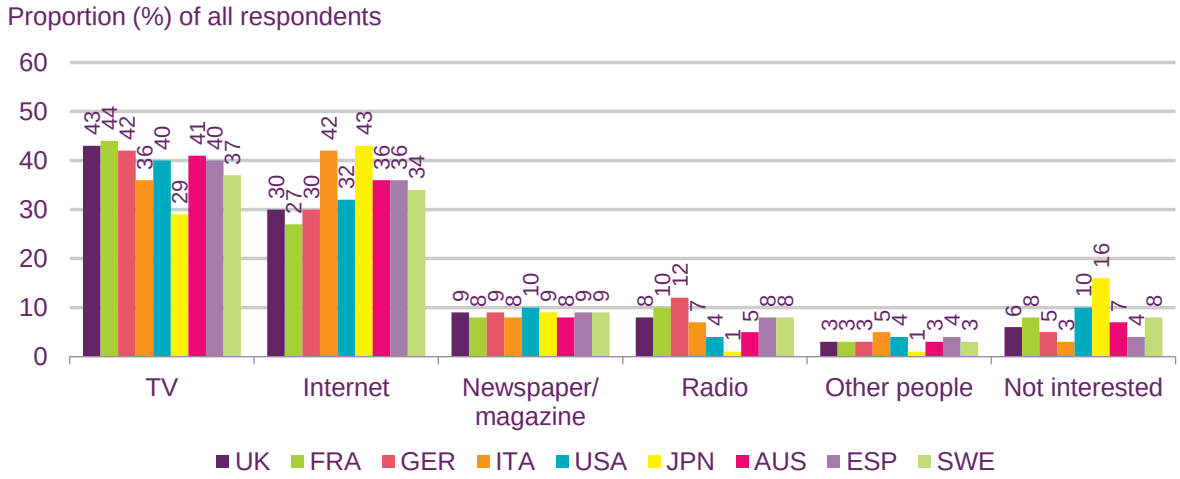
Source: Ofcom consumer research September - October 2015
Base: All respondents who read news online, UK= 734, FRA= 759, GER=812, ITA= 868, USA= 686, JPN= 743, AUS= 686, ESP= 819 SWE= 804
Q.9a Which, if any, of the following internet activities do you use each of your devices for: reading news online?

TV and the internet are the main sources for international news

Looking at news by type, and focusing first on international news, TV or the internet are the main sources, across all countries, with other media far less likely to be nominated.

In the UK, TV is the main source of international news for 43% of respondents, and the internet for 30%. There is a similar pattern in France and Germany. Respondents in Italy are more likely to nominate the internet (42%) than TV (36%), as is also the case in Japan (43% vs. 29%).

Figure 1.58 Main sources of international news



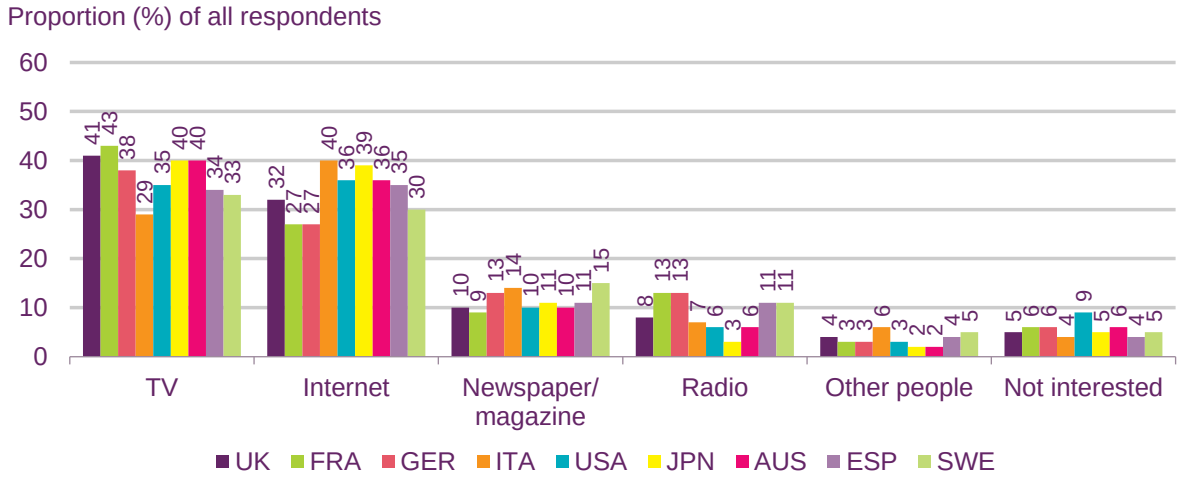
Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.11 Which, if any, is your main source for the following information? International News

One in three UK respondents nominate the internet as their main source of national news

As with international news, TV and the internet are the main two sources of national news for all comparator countries. In the UK, 41% of respondents nominate TV, and 32% nominate the internet, with 10% saying newspapers and 8% choosing radio.

In countries where television is the most popular medium, the difference between platforms is most pronounced in France, where 43% selected television compared to 27% choosing the internet. Where the reverse applied, the greatest difference was in Italy, where 40% chose the internet compared to 29% who chose television.

Figure 1.59 Main sources of national news



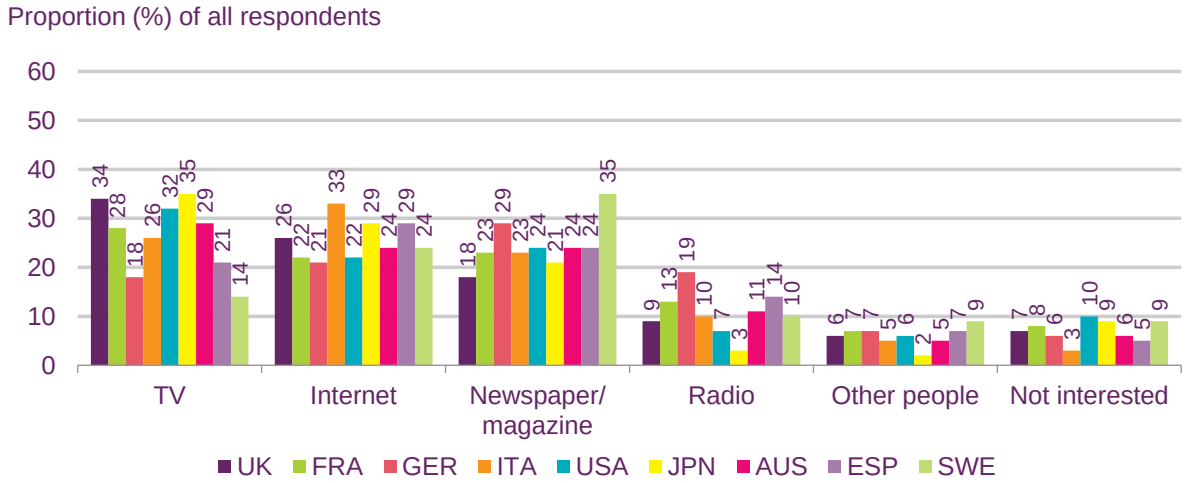
Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.11 Which, if any, is your main source for the following information? National news

TV is the most popular main source of local/regional news in the UK, followed by the internet, and then newspapers

Newspapers continue to be more popular as a main source of regional and local news than as a source of other news. In the UK, 18% nominated newspapers or magazines as their main source for local news, rising to 29% in Germany and 35% in Sweden.

One in five (19%) respondents in Germany nominated radio as their main local/regional news source, and 14% in Spain.

Figure 1.60 Main sources of regional / local news



Source: Ofcom consumer research September – October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.11 Which, if any, is your main source for the following information? Regional / local news

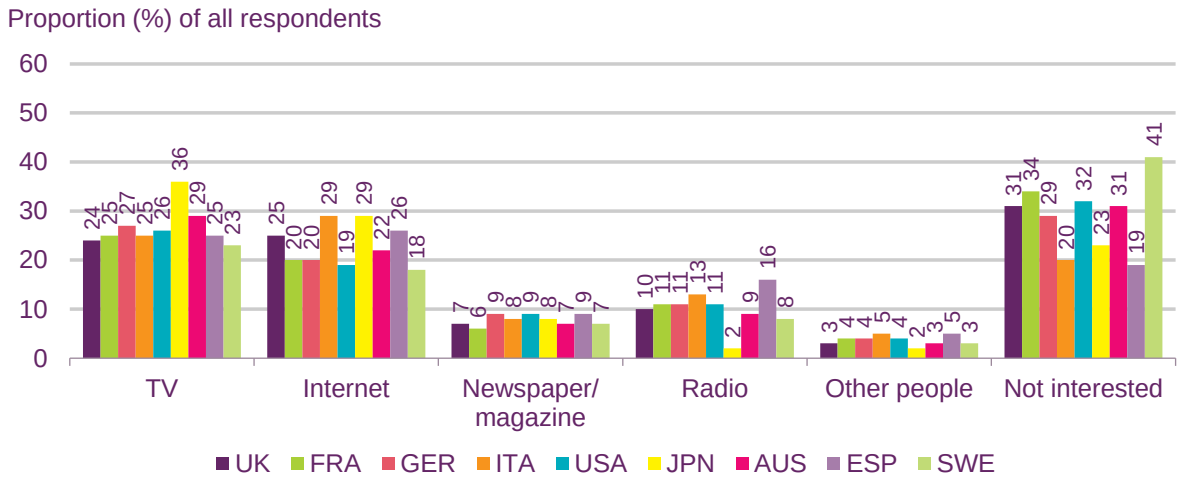
TV and the internet are used equally for sports news in many countries

Respondents were asked about their main source of sports news. Across the countries, TV and internet are the main sources, with radio more popular than newspapers in most countries. In the UK, people are as likely to nominate the internet as TV (25% and 24%).

One in six people in Spain (16%) say their main source of sports news is the radio, and 13% say this in Italy, compared to 2% in Japan.

Around a third of people in the UK, France, Germany, the US and Australia say they are not interested in sports news, although people in Spain (19%) Italy (20%) and Japan (23%) are much less likely to say this. People in Sweden are the least likely to be interested, at 41%.

Figure 1.61 Main sources of sports news



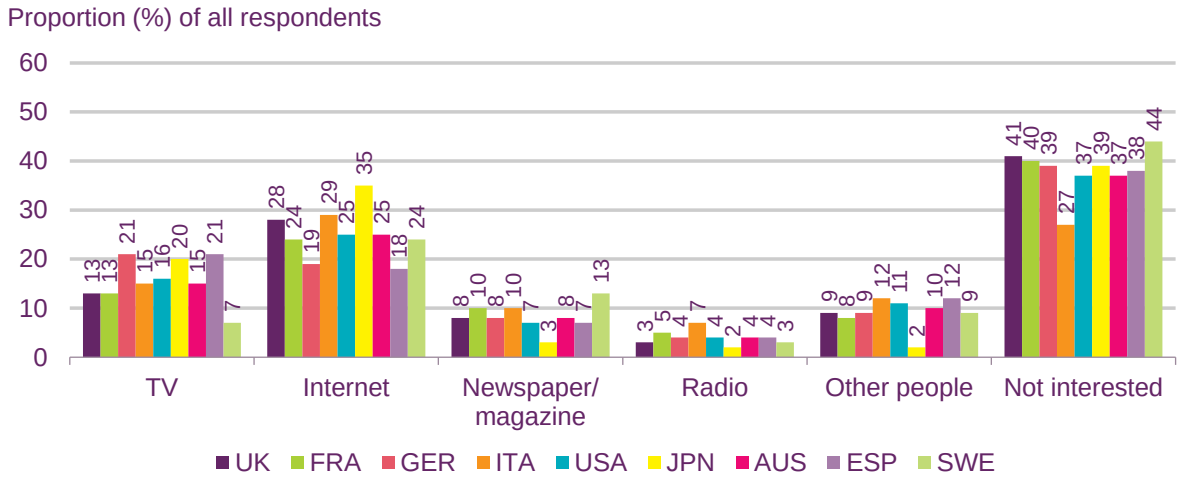
Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.11 Which, if any, is your main source for the following information? Sports news

The internet is the most popular main source for celebrity news and gossip

As in 2014, the internet is the most-cited main source for celebrity news and gossip. For example, in the UK 13% of respondents cite TV, compared with 28% for the internet. In Germany the balance is more even, with 21% nominating TV and 19% the internet. In Japan, 20% use TV and 35% the internet. And in Sweden, only 7% use TV as their main source for this type of news, compared to 24% using the internet. Interestingly, "other people" are used by about one in ten respondents – more commonly in Italy and Spain (both 12%) than in Japan (2%).

Many respondents say they are not interested in this form of news – around four in ten across the countries – although this is less likely in Italy, where only a quarter (27%) say they are not interested.

Figure 1.62 Main sources of celebrity news/gossip



Source: Ofcom consumer research September - October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004
Q.11 Which, if any, is your main source for the following information? Celebrity news / gossip

1.7 Media literacy – the international context

1.7.1 Introduction

As more people do more online, it is increasingly important that they have media literacy skills. This means, in the context of this section, that they understand the trustworthiness of the types of information that they access, and are aware of how such information is provided to them; that they have due confidence in the systems and services they are using and are neither overly confident nor too scared to use them; that they think actively about their personal data and how it might be being used by third parties; and so on.

This section sets out some key findings in this area, and for the first time is able to compare results across the various countries in our sample. First, it shows the extent to which people use any online device to access government services, and which devices are used for such access; it is important that such sites are trusted and used widely. It then looks at the use of search engines, and examines how much awareness people say they have about the accuracy of the websites that are provided in results pages. Finally, it provides a comparison of the relative extent of concern that people have about their personal information, and their propensity to provide such information.

- **Respondents in Italy, Spain and Australia are the most likely to say they access either local or national government services online.** The laptop/PC is the most favoured device for accessing such websites.

- **Search engines are used most regularly by respondents in Italy (92%), and least regularly by those in the US (73%).** Four in five (82%) people in the UK say they use a search engine at least weekly. Around six in ten respondents in most countries say that, of the websites returned by a search engine, some are likely to be accurate and some are not: a media-literate response. Around a quarter of people in the UK, Germany and the US think that if a search engine has listed a website then it will have accurate information, rising to 35% in Italy and Spain.

- **People in Sweden are the least likely to be happy to provide personal information to companies**, while people in the US are more likely than in other countries to agree strongly that they are happy to provide such information (13%).

- **Levels of concern about providing personal data are relatively high,** with half or more respondents in each country agreeing that they are worried about unwarranted use of their personal data, with the exception of Sweden, where levels of concern are lower (42%).

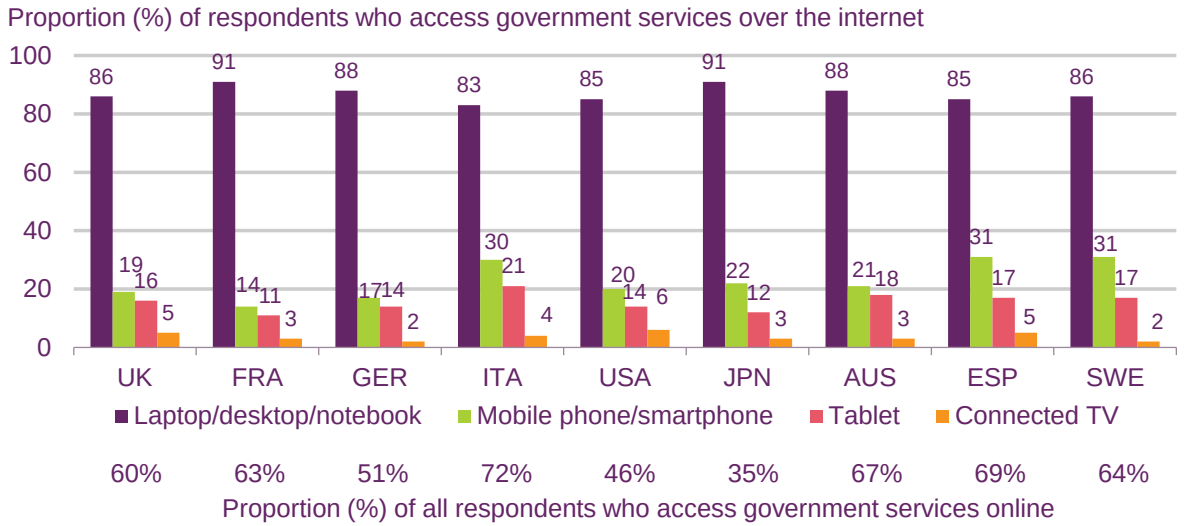
1.7.2 Online access, awareness and concerns

Respondents in Italy, Spain and Australia are the most likely to say they access government services online

The use of online government services is a key component of most countries' online digital strategy, and around six in ten respondents say they access government services, either local or national, in this way. Respondents in Italy (72%), Spain (69%) and Australia (67%) are the most likely to do this, while those in Japan (35%) and the US (46%) are the least likely. Six in ten respondents in the UK (60%) say they access government services online.

The laptop/PC is the most likely means of accessing such websites in each comparator country, although the mobile is cited by about three in ten users in Spain, Sweden and Italy. A tablet is used by one in five respondents in Italy (21%), compared to 16% in the UK, but only by 11% in France.

Figure 1.63 Devices used to access government services, by country



Source: Ofcom consumer research September - October 2015
Base: All respondents who access government services online, UK= 608, FRA= 631, GER=516, ITA= 719, USA= 467, JPN= 352, AUS= 667, ESP= 691, SWE= 638
Q.9a Which, if any, of the following internet activities do you use each of your devices for: accessing government services e.g. local and/or national websites?

Search engines are used most often by respondents in Italy, and least often by those in the US

Search engines are an integral part of the online experience, providing links to the information and services that comprise people's repertoire of online use. Across the countries examined, around four in five online users said they used a search engine at least once a week. People in Italy were the most likely to say they did this (92%), followed by those in Japan and Spain (both 87%). Four in five (82%) in the UK use a search engine at least weekly. Only in the US does this decrease to 73% of people using it once a week or more. Between 2% and 3% of respondents in most countries say they do not use search engines, rising to 5% in the US and 6% in Japan.

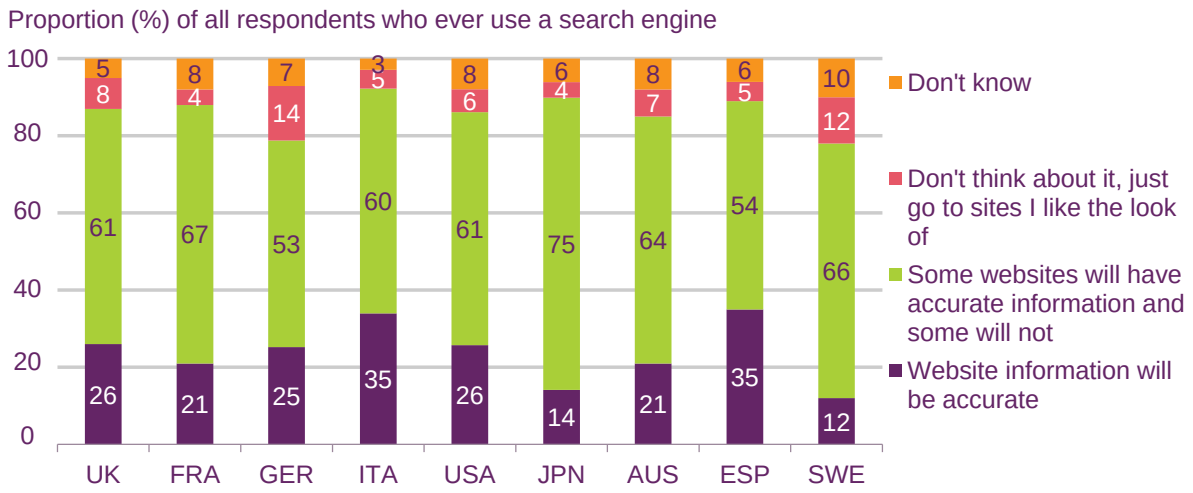
It is useful to examine to what extent people trust the results that appear in search engine results pages, to gauge the extent to which they are understand the provenance of the websites they use, and are aware that some will be accurate and reliable while others will not.

As Figure 1.64shows, respondents in Japan (75%) are most likely to respond with a media-literate response; that of the websites returned by a search engine, some will be accurate and some will not. Across the sample of countries, respondents in Germany (53%) and Spain (54%) are the least likely to give this response, while for most countries including the UK (61%), about six in ten say this is the case.

Respondents in Germany are more likely than those in other countries to say instead that they do not think about assessing the websites they are using, but simply go to the sites they like the look of. Respondents in Spain and Italy are more likely to think that the websites will

have accurate information if they have been returned by a search engine (35%). Around a quarter of those in the UK, Germany and the US gave this response.

Figure 1.64 Perceptions of the accuracy of search engine results pages



Source: Ofcom consumer research September - October 2015
Base: All respondents who ever use a search engine, UK=983, FRA=976, GER=995, ITA=991, USA=963, JPN=948, AUS=975, ESP=985, SWE=982
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 pages?

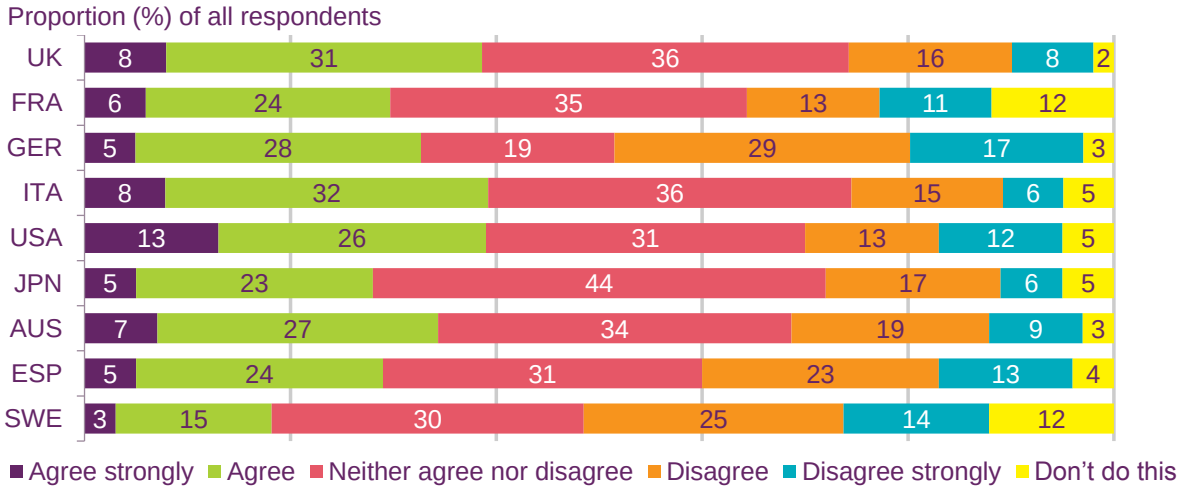
Concerns about security of personal information are highest in Spain and lowest in Sweden

We asked respondents two questions about their attitudes to online security, to see what concerns they had about their personal data, and the extent to which they were happy for the data to be used if they got an adequate 'return' for it.

As the two figures below show, while around 30% - 40% of respondents say they are happy to provide personal information to companies, as long as they get what they want, they are more likely to be worried about the unwarranted use of their personal data.

Online users in the US are more likely than in other countries to agree strongly with the statement: "I am happy to provide personal information online to companies as long as I get what I want" (13%). Those in Sweden are the least likely (3%). Overall, levels of agreement with this statement are lowest in Sweden, Japan, France and Spain. People in Germany and Sweden are more likely to actively disagree with the statement, while those in Italy and France are more likely to be uncertain, and people in France and Sweden are the most likely not to provide this type of information at all (12% for both). Respondents in the UK (39%) are equally likely to agree with the statement as those in the US (39%) and Italy (40%).

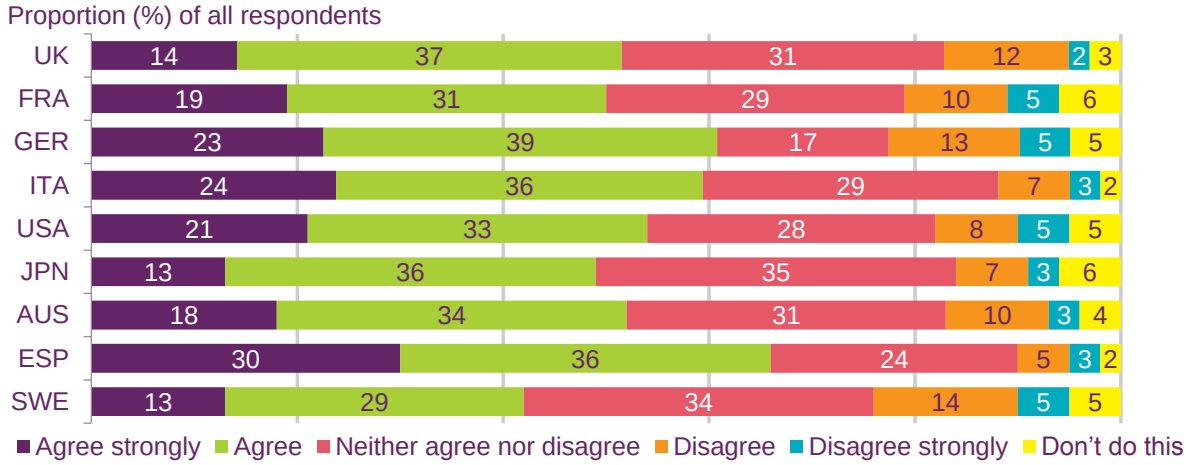
Figure 1.65 Attitudes towards providing online personal information to companies



Source: Ofcom consumer research September – October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004.
Q.31 How much do you agree or disagree with the statement "I am happy to provide personal information online to companies as long as I get what I want"?

When asked whether they agreed with the statement: "I worry that people other than those I have chosen to, could access my personal photos, information etc. online", around 50% - 60% respondents in most countries agreed (51% in the UK). People in Spain were most likely to 'agree strongly' (at 30%), compared with 13% in Japan and Sweden, and 14% in the UK. People in Sweden were least likely to agree at all (42%). While people in Sweden are the least concerned about others accessing their data (Figure 1.66), they are also the least likely to be happy to provide personal data. This is possibly due to their sharing less information online, and therefore having fewer concerns about its misuse.

Figure 1.66 Concern about others accessing personal information



Source: Ofcom consumer research September – October 2015
Base: All respondents, UK=1006, FRA=1003, GER=1007, ITA=1003, USA=1009, JPN=1006, AUS=1000, ESP=1002, SWE=1004. Q.31 How much do you agree or disagree with the statement "I worry that people other than those I have chosen to, could access my personal photos, information etc. online"?

1.8 International regulatory context and models

1.8.1 Introduction

This section provides regulatory context to the analysis of the international communications market elsewhere in the report. It does not aim to be a comprehensive examination of regulatory frameworks across the comparator countries, but rather focuses on recent developments in:

- the European Commission's Digital Single Market Strategy;
- the EU electronic communications and content frameworks, and latest reviews;
- EU regulatory developments and activities in the postal sector;
- international mobile roaming and net neutrality;
- next-generation access and broadband roll-out;
- audio-visual standards and the online protection of minors; and
- EU and international radio spectrum policy developments.

1.8.2 Key developments in the European regulatory and legislative framework

The Digital Single Market strategy

The European Commission (EC) published a Digital Single Market (DSM) strategy[23] in May 2015, setting out its 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. The DSM is built on three pillars:

- Access: allow better access for consumers and business to digital goods and services across Europe;
- Environment: create the right conditions and a level playing field for digital networks and innovative services to flourish;
- Economy and society: maximise the growth potential of the digital economy[24].

In pursuit of this strategy, the EC has launched a number of legislative and non-legislative initiatives. The following are of particular relevance:

- Review of the *Regulatory Framework for Electronic Communications* (see below).
- Review of the *Audio-Visual Media Services Directive* (see below).
- Consultation: *Regulatory environment for platforms, online intermediaries, data and cloud computing and the collaborative economy*[25]. The EC is conducting an in-depth

[23] http://ec.europa.eu/priorities/digital-single-market/
[24] http://ec.europa.eu/digital-agenda/economy-society-digital-single-market
[25] https://ec.europa.eu/eusurvey/runner/Platforms/

analysis of the impact and transparency of search results, platforms' use of the information they collect, relations between platforms and suppliers, constraints on the ability of individuals and business to move from one platform to another, and how to tackle illegal online content, ahead of considering any further action in 2016.

- Legislative proposals for a reform of the copyright regime: Following its consultation on the review of the EU copyright rules[26], the EC is expected to issue legislative proposals in relation to online copyright by the end of 2015, in which it is expected to propose ways of improving consumers' access to content when travelling in the EU outside their Member State (portability), and allowing for greater cross-border online access to content.

- Consultation: *Geo-blocking and other geographically-based restrictions when shopping and accessing information in the EU*[27]. The EC is seeking views on whether geo-blocking by online vendors (to restrict the availability of services to users in other countries) is a barrier to the internal market; and what the EU response should be.

- Consultation on cross-border parcel delivery[28]: the EC is concerned about high prices, and a lack of transparency and interoperability, between players involved in cross-border online commerce. In its recent consultation, it gathered views on how to facilitate cross-border e-commerce, especially for small and medium enterprises, including a more efficient and affordable parcel delivery. The EC is preparing measures to improve price transparency and enhance regulatory oversight of parcel delivery.

The EU regulatory framework for electronic communications

The EU regulatory framework[29] sets the regulatory principles for telecoms network and service regulation, including a suite of remedies that regulators can impose on operators with significant market power, as well as spectrum authorisation and use. It defines the permitted scope of universal service obligations (USO) and includes sector-specific measures on consumer protection. It comprises five Directives, and applies to all electronic communications networks and services, retail and wholesale, as well as associated facilities and services. It aims to ensure effective competition and consumer protection, and constitutes the basis for a consistent regulatory environment across the communications markets of all 28 Member States.

The framework was revised in 2009 to ensure that it continued to serve the best interests of consumers and industry, and to reflect some of the major developments of the sector, such as growth in VoIP and take-up of television services via broadband.

Since then, the EC has continued to monitor the timely and correct implementation of EU rules and Member States' progress towards achieving the targets set out in the Digital

[26] http://ec.europa.eu/internal_market/consultations/2013/copyright-rules/docs/contributions/consultation-report_en.pdf
[27] https://ec.europa.eu/eusurvey/runner/geoblocksurvey2015/
[28] http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=8169
[29] http://europa.eu/legislation_summaries/information_society/legislative_framework/l24216a_en.htm

Agenda. It has done so via its annual Digital Agenda Scoreboard[30] (DAS), the Digital Economy and Society Index[31] (DESI), and Implementation Reports[32].

In September 2015 the EC launched its third *Review of the regulatory framework for electronic communications* (Framework Review) that seeks to assess the current framework and to amend it where necessary. The EC expects to issue legislative proposals in 2016, following responses to a public consultation[33] in late 2015 (Section 1.8.4).

In October 2015 the European Council and the European Parliament formally adopted the *Connected Continent Regulation*[34], which should enter into force in April 2016. It introduces new net neutrality rules and sets out a timeline to abolish retail roaming surcharges, described in Section 1.8.3 below.

The EU content regulatory framework

In Europe, the *Audio-visual Media Services Directive* (AVMSD)[35] 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).

The EC considers that it is now time to reflect on the fitness of the rules and update them if necessary. In May 2015, it announced that it would review the AVMSD as part of its DSM strategy and then launched a consultation during the summer of 2015[36]. The EC is inviting comments on future policy options, including extending the Directive to more internet-delivered services or online services from outside the EU, changing rules on commercial communications and harmonising rules on protecting minors. A legislative proposal is planned for mid-2016. More details on the review, Ofcom's position and wider content issues can be found in Section 1.8.5.

In the meantime, and in part feeding into the AVMSD review process, national regulators in Europe continue to work on implementation at national level, and to co-operate in a number of bodies. One of them is the European Regulators Group for Audio-visual Media Services (ERGA)[37] , a group of EU audio-visual regulators, set up to advise the EC on the application of the AVMSD. In 2015 it conducted work on regulatory independence, material jurisdiction (i.e. the scope of the AVMSD), territorial jurisdiction and the protection of minors.

National regulators in Europe also cooperate on a wider basis through the European Platform of Regulatory Authorities (EPRA),[38] an independent group of regulators that meets twice a year to share best practice.

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[30] http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard
[31] http://ec.europa.eu/digital-agenda/en/desi
[32] https://ec.europa.eu/digital-agenda/en/news/implementation-eu-regulatory-framework-electronic-communications-2015
[33] https://ec.europa.eu/digital-agenda/en/news/public-consultation-evaluation-and-review-regulatory-framework-electronic-communications
[34] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2015:310:FULL&from=EN
[35] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:095:0001:0024:EN:PDF
[36] https://ec.europa.eu/digital-agenda/en/news/public-consultation-directive-201013eu-audiovisual-media-services-avmsd-media-framework-21st
[37] http://ec.europa.eu/digital-agenda/en/audiovisual-regulators
[38] http://www.epra.org/

EU regulatory developments and activities in the postal sector

Established in 2010, the European Regulators' Group for Post (ERGP)[39] is tasked with creating a body of regulatory knowledge and advice for use by national regulators or by the EC[40]. It has specific tasks aimed at advising and assisting the EC in consolidating and developing the internal market for postal services through consultation with interested stakeholders.

A number of reports are due to be published by the ERGP by end 2015 on issues ranging from the implementation of universal service in the postal sector to quality of service levels in complaint handling and consumer protection as well as legal regimes applicable to European, domestic and cross-border e-commerce parcels.

A joint ERGP/BEREC (Body of European Regulators for Electronic Communications)[41] working group has been set up to identify potential lessons to be learned from the experience of the telecommunications sector for improving regulatory oversight and price transparency for intra-EU cross-border parcels, an issue where the EC wishes to bring forward proposals in 2016 as part of its DSM initiative.

The Committee of European Postal Regulators (CERP)[42] brings together representatives of the regulatory authorities in 64 states, including EU Member States, 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)[43] issues.

1.8.3 Helping communications markets work for consumers

International mobile roaming

The European regulatory framework for international mobile roaming was set out in the 2012 EU Roaming Regulation[44]. This was superseded by measures agreed as part of the negotiations on the Connected Continent Regulation, which will enter into force in April 2016.

The new rules abolish retail roaming surcharges by 15 June 2017, subject to the EC having taken legislative steps to address any wholesale issues by that date. Operators can implement fair-use policies to prevent the abuse of regulated roaming services, and can 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.

As a preliminary step, there will be a substantial reduction in retail roaming surcharges applicable from 30 April 2016, when the current maximum retail surcharges will be reduced to the level of the current wholesale caps.

Existing consumer protection provisions continue, or are adapted to the revised framework: operators will have to provide roaming customers with certain information relating to international roaming charges (unless they have deliberately chosen to opt out of receiving

[39] http://ec.europa.eu/internal_market/ergp/documentation/index_en.htm
[40] 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/en.htm
[41] http://berec.europa.eu/eng/about_berec/what_is_berec/
[42] http://www.cept.org/cerp/
[43] http://www.upu.int
[44] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:172:0010:0035:EN:PDF

such information) at key times - for example at each entry into a new EU Member State and when any fair use limit has been used up.

The EC will prepare proposals relating to the wholesale market by summer 2016. BEREC is assisting the EC with some of the data and analysis it needs to perform this task. BEREC will also help the EC to develop guidelines on fair use to accompany the abolition of retail roaming surcharges.

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, but particularly in Europe and the US, where new rules have been the subject of extensive discussion during 2015.

In six countries, the principle of net neutrality has been enshrined in law:

- the 2010 Chilean net neutrality law was followed in 2012 by a provision in a Peruvian law on broadband promotion, which requires ISPs[45] (Internet Service Providers) to respect network neutrality;
- in 2013, legislation was adopted in the Netherlands and Slovenia which prohibited the differentiation of data traffic and sought to prevent operators from charging consumers separately for the use of certain services and applications while using an internet access service;
- in Brazil, the 2014 *Civil Rights Framework for the Internet*[46] included net neutrality rules; and
- Israel extended its 2011 net neutrality requirements for mobile broadband services to encompass fixed-line services.

In addition to legal requirements, guidelines and rules have been adopted by regulators in Canada[47] and Norway[48] in 2009, and Singapore[49] and South Korea in 2011. Net neutrality is also being considered in India[50], where the regulator has issued a consultation on over-the-top services (OTTs) and net neutrality.

In May 2015, the Federal Communications Commission (FCC) in the US adopted the *Open Internet Order*[51] which introduced three 'bright line' rules to protect net neutrality, which apply to both fixed and mobile networks. These rules prohibit blocking, throttling, and prioritisation of internet traffic in return for payment on the basis of content; and also include transparency requirements.

In Europe, the *Connected Continent Regulation* introduces rules on net neutrality that will apply from 30 April 2016. These require ISPs (fixed and mobile) to treat all traffic equally and to establish a right for all end-users to access and distribute lawful content, applications and

[45] Internet service provider (ISP): a company that provides access to the internet.
[46] https://www.publicknowledge.org/documents/marco-civil-english-version
[47] http://www.crtc.gc.ca/eng/archive/2009/2009-657.htm
[48] http://www.npt.no/Content/109604/Guidelines%20for%20network%20neutrality.pdf
[49] http://www.ida.gov.sg/~/media/Files/PCDG/Consultations/20101111_Neteutrality/NetNeutralityExplanatoryMemo.pdf
[50] http://trai.gov.in/WriteReaddata/ConsultationPaper/Document/OTT-CP-27032015.pdf
[51] https://www.fcc.gov/openinternet

services of their choice. ISPs may use reasonable traffic management measures, but blocking and throttling will be allowed only in a limited number of circumstances, such as preserving network security and managing network congestion. The Regulation requires BEREC to issue guidelines by August 2016 concerning the implementation of the rules by NRAs.

1.8.4 Promoting effective and sustainable competition

Next-generation access (NGA)[52] and broadband roll-out

In Europe, Asia and the US, there is broad consensus among all parties (the EC, national and regional governments, regulatory agencies and communication providers (CPs) that the roll-out of NGA networks is a desirable goal. However, there are differences in opinion on how it should be managed, and the speed with which it needs to be undertaken. There are also differences in regulatory approaches.

Communications providers around the world are looking to upgrade networks to make use of more efficient technologies, including fibre, and are migrating from traditional transmission standards to standards used to route data via IP[53] (internet protocol). Many CPs in Europe, the US and Asia have migrated their backbone to NGNs[54] (next generation core networks) by overlaying and upgrading their legacy backbone PSTN[55] (public switched telecommunications networks) with a single IP-based network. In Europe, the incumbents in Austria and Slovakia have already completed the migration to an all-IP network, while the incumbents in more than ten other EU Member States have announced plans to migrate. Developments in regions such as Latin America, Africa and the Arab States have been slower but are following a similar trend.

In Australia, Brazil, Luxembourg, New Zealand, Singapore and South Africa, governments have created new state-owned operators in order to participate directly in the construction of broadband networks, while in the Czech Republic, the incumbent is undergoing a voluntary structural separation.

[52] 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.
[53] Internet Protocol (IP): The packet data protocol used for routing and carrying messages across the internet and similar networks.
[54] 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.
[55] Public switched telephone network (PSTN): The network that manages circuit-switched fixed-line telephone systems.

- In 2010, the Australian Parliament took fixed infrastructure into state control in the form of a wholesale national broadband network (NBNCo).The original strategy of the government was to favour FTTP[56] (fibre-to-the-premises) deployment. However, in December 2013, NBNCo submitted a strategic review to the government, recommending an alternative multi-technology approach whereby the NBN would be delivered using a range of technologies including FTTC[57] (fibre-to-the-cabinet), FTTdp (fibre-to-the-distribution point) and hybrid coaxial cable alongside FTTP.

- New Zealand and Singapore have both imposed structural separation in which the state has commissioned and funded a single FTTH[58] (fibre-to-the-home) network. In New Zealand, a number of measures have been introduced by the government to support the deployment of FTTH to 75% of premises through a series of commercial contracts. This will initially offer active wholesale access, with passive access to be introduced by 2020.

- Singapore aimed to be one of the first countries to deliver a metropolitan fibre network to the home, with speeds of up to 1GB by the end of 2012. It met its initial coverage target of 95% in June 2012 and achieved nationwide fibre coverage by mid-2013. The NGNBN (Next-Generation National Broadband Network) is accessible to retail service providers on an open access basis at prices regulated by IDA, the national regulator.

- The Japanese and South Korean governments have developed national strategies for the provision of high speed broadband, involving nationwide NGA roll-out. These involve a mixture of incentives for operators, including some public support such as seed funding and soft loans. They have also encouraged infrastructure-based competition, which has been particularly successful in South Korea, where there are now three competing providers of broadband internet with nationwide NGA networks.

In Europe, approaches vary to the relative application of passive or active remedies. In France, for example, no active FTTH remedies have been imposed (although there are active VDSL[59] (Very high bit rate digital subscriber line) remedies), as the French regulator pursues a policy of infrastructure competition. This has required geographic variations in remedies, to take account of the different points in the access network at which NGA investment becomes commercially viable for CPs which are not first movers. Geographic variations have also been proposed in Spain and Portugal, while other countries have applied nationwide remedies.

As broadband technologies deployed by incumbents evolve from ADSL[60] (asymmetric digital subscriber line) to FTTx[61], some NRAs have concluded that passive access to passive

[56] 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.
[57] 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.
[58] 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.
[59] 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).
[60] 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.

optical networks (PONs) is not technologically feasible, and have therefore opted for VULA (virtual unbundled local access) or bitstream remedies. 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.

The incumbent's choice of NGA roll-out, and the range of remedies used by NRAs, are dependent on network topography characteristics such as the quality of the duct (very extensive in Portugal, much more limited in the UK), the length of the local loops (relatively short in Italy and dense urban areas in France, longer in the UK and non-urban parts of France), and the existence of street cabinets (e.g. a lot of premises in the UK are linked directly to the local exchange without any street cabinets).

European targets and regulatory framework

In the EU, universal broadband connectivity forms a core part of the EC's Digital Agenda targets - by 2020, every EU citizen should have access to 30 Mbit/s, and 50% should have access to 100 Mbit/s.

The need to incentivise and accelerate next-generation broadband roll-out is a prominent theme of the EC's DSM Strategy and the Framework Review. The EC is consulting on how to accelerate fibre roll-out and ensure universal high-speed broadband coverage. The key issues that the Framework review seeks to address are:

- What type of access should NRAs make available to CPs when they seek access to the incumbent's wholesale network? Should access to the incumbent's passive network infrastructure (ducts, cabinets) be more explicitly stated as a regulatory objective, leading to greater innovation and (end-to-end) competition?

- Alternatively, should symmetric regulation (mandating access to the duct of any CP, not just those designated as having significant market power (SMP) have a more explicit place in the *ex-ante* framework?

- Should fibre to the (customer) premises (FTTP) be incentivised over intermediate, less costly technologies such as fibre to the cabinet (FTTC) as a means of future-proofing investment?

In addition, the EC has adopted a Directive on reducing the costs to deploy high-speed broadband networks[62]. This aims to stimulate the roll-out of NGA, and sets new rights and obligations directly applicable to telecom operators and other utilities (such as electricity, gas, water and transport services). The EC recognises that civil engineering costs account for up to 80% of the cost of installing broadband networks, and the Directive includes provisions to help decrease this significant upfront expense (faced by all network operators) through a co-investment framework.

Regulatory certainty and consistency are crucial in order to foster a competitive environment for long-term investment in NGNs. NRAs should have a broad range of tools which can be applied in a flexible manner and which are appropriate to national circumstances. To encourage a consistent regulatory approach across Europe, in 2013 BEREC adopted a

[61] 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)
[62] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2014_155_R_0001&rid=4

series of broadband 'common positions', which capture best practice. BEREC will report on the implementation of these in 2016.

In the UK, Ofcom is conducting a strategic review of the digital communications sector[63], looking at various options for network competition models, and in particular how regulatory intervention can optimise the balance between the service-based and infrastructure models of competition.

1.8.5 Providing appropriate assurances to audiences on standards

Convergence and the future of content regulation

The convergence of audio-visual services and platforms challenges regulation because content is subject to different regulatory regimes, or to none at all, and the consumer may not be aware of this. Questions arise about the best way to protect consumers, both from potentially harmful content, and in terms of their data security; and how to regulate material originating from outside national jurisdictions. Producers and distributors of content, meanwhile, have focused on issues such as ensuring non-discriminatory access to infrastructure, technical standards, and new forms of advertising and content funding.

Ofcom published its response to the EC's AVMSD Review in October 2015[64]. This takes the view that the current approach and scope of the Directive should be broadly retained, with the country-of-origin principle as its cornerstone. Some clarification and improved consistency, as well as refinements in the operation of the Directive, would nevertheless be welcome, and the protection afforded to children in on-demand services should be the same as protection in place for broadcast services (potentially reflecting the strength of the access control provided).

France, Germany and Belgium would like to see an expanded scope for the AVMSD, while others (e.g. the UK and Finland) believe the current scope is appropriate. Overall, there is a clear appetite to improve the way the country-of-origin framework operates.

In 2015 ERGA carried out a programme of work focused on the evolution of the European regulatory framework in a converged media age. It is aiming to publish reports on the scope of the AVMSD (i.e. the types of services and service providers it covers), independence and the protection of minors in the near future.

Outside Europe, there are signs that several other countries, including the US, Singapore, the Russian Federation, South Korea and Canada, are turning their attention towards convergence and its impact on regulation. As in Europe, discussions focus on how far the scope of content regulation can, or should be extended to the internet, and how such regulation might be enforced. These discussions focus primarily on ensuring the protection of minors online, and whether and how public interest content might be secured on online platforms.

Content protection and controls in an online environment

[63] http://stakeholders.ofcom.org.uk/telecoms/policy/digital-comms-review/
[64] http://stakeholders.ofcom.org.uk/binaries/international/responses/AVMS_Directive_Consultation_Response_Ofcom_UK_October_2015.pdf

Child online protection[65] (and the wider protection of audiences online) has in recent years moved up the international political agenda. As 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-regulatory and media literacy initiatives[66].

These initiatives continued in 2015, alongside several legislative changes that indicate a trend towards self-regulatory approaches in regulatory frameworks. Since 2014, collaboration has continued 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. It covers areas such as violence, language and discrimination, and applies different national ratings according to the location of the user. It is intended for non-commercial content, and can be used both by creators and consumers of content. It will help parents make decisions about what they and their children watch online, and is at an advanced stage of development, following several national pilots.

In July 2015, new legislation on the protection of minors from harmful audio-visual content came into force in Norway. It sets out a range of detailed requirements for age rating, mandatory labelling and restrictions based on the relevant classifications. It applies across media, in a platform-neutral approach to regulation, replacing the previous media-specific legislation.

In January 2015, the Luxemburg government implemented a new law on the protection of minors in AVMS, including a classification system ('signalétique').

In the UK, the country's four largest fixed-line ISPs have introduced network-level filtering services, with one ISP switching to 'default on'. Since the announcement of the scheme, Ofcom has published two reports on the protection of children online. The first,[67] published on 15 January 2014, looked at how parents protect their children online. The second,[68] published on 22 July 2014, set out the measures adopted by the UK's four largest fixed line ISPs to introduce family-friendly network-level filtering for new customers. A third[69] report was published on 12 January 2015, which again looked at how parents protect their children online (*using data from Ofcom 2014 research on Children and Parents: Media Use and Attitudes*). We are due to publish our 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. In addition, Ofcom continues to publish 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[70].

In Germany, providers of content that is potentially harmful to minors are subject to protection obligations under the German regulations, which they can meet by providing parental controls. KJM, the co-regulator for the protection of minors, has approved two such filters covering content deemed unsuitable for viewers aged under 18.

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65 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 broadcast-like services online and not all video and content services online.

66 Ofcom defines media literacy as: "the ability to access, understand and create communications in a variety of contexts".

67 http://stakeholders.ofcom.org.uk/binaries/internet/internet-safety-measures.pdf

68 http://stakeholders.ofcom.org.uk/binaries/internet/internet_safety_measures_2.pdf

69 http://stakeholders.ofcom.org.uk/binaries/internet/third_internet_safety_report.pdf

70 http://stakeholders.ofcom.org.uk/binaries/research/tv-research/protecting-audience-online/Protecting_audiences_report.pdf

In 2015, discussions continued between the Länder (the sixteen federal states in Germany) to deal specifically with the protection of minors on private blogs with user-generated content, including standardising the age classification procedure for games and films on the internet. New legislation is expected by July 2016.

In Spain, the regulator CNMC has adopted new criteria for rating audio-visual content, with seven categories of potentially harmful content, including violence, sex, and drugs. The criteria for classification and age rating were modified and new age ratings adopted.

In Italy, in 2012, the regulator, AGCOM, adopted interpretive guidelines[71] on the application of a co-regulatory code on parental controls, clarifying the application of the film rating system and the access control mechanisms for linear and non-linear[72] services offered by pay-TV channels. Providers of on-demand services subject to the AVMSD must now ensure that technical measures are in place to ensure that access to content is provided only to adults (via the use of a code). A self-regulatory body, the Committee for Media and Minors, oversees compliance in this area, with AGCOM as a statutory back-stop.

France adopted an age classification system for VoD content in December 2010, with associated scheduling restrictions and signing. In 2012, the broadcasting regulator, CSA, strengthened the rules, outlining additional locking requirements for access to programmes prohibited to under-18s.

Ireland has created a dedicated government department for child welfare and protection and all legislation regarding children is under review.

Singapore has focused its efforts on media literacy and has required fixed and mobile ISPs to offer optional internet filters since 2012. In 2014 the regulator, Media Development Authority, began work to improve awareness of filters, making a number of recommendations to be implemented by ISPs by the end of 2016. A new law (Protection Against Harassment Act) has also explicitly criminalised anti-social online behaviour, such as harassment, stalking and cyber-bullying.

Media pluralism

In 2015 media pluralism continued to rise up the agenda in Europe. A debate had been sparked on media pluralism and freedom, including the role of NRAs, by a report from a high level group (HLG)[73] of experts for the EC. The EC consulted on the HLG's recommendations, and separately, on proposals to introduce a requirement for the independence of audio-visual regulatory bodies.

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 recommendations, and as an attempt to gather further data, nine EU countries conducted pilot studies in 2014, using the Media Pluralism Monitor 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 EC expects full results by the end of 2015.

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[71] http://www.agcom.it/documentazione/documento?p_p_auth=fLw7zRht&p_p_id=101_INSTANCE_kidx9GUnIodu&p_p_lifecycle=0&p_p_col_id=column-1&p_p_col_count=1&_101_INSTANCE_kidx9GUnIodu_struts_action=%2Fasset_publisher%2Fview_content&_101_INSTANCE_kidx9GUnIodu_assetEntryId=915757&_101_INSTANCE_kidx9GUnIodu_type=document

[72] Non-linear: content that is delivered 'on demand' as opposed to linear, traditionally broadcast content.

[73] http://ec.europa.eu/digital-agenda/en/high-level-group-media-freedom-and-pluralism

In France, the CSA has issued 15 proposals[74] which it considers important to implement in future elections, in order to find a better balance between freedom of communication and political pluralism in audio-visual media.

In the UK the government asked Ofcom to consider further the development of indicators to measure plurality. Ofcom consulted on a proposed framework in 2015[75] and published the results of that work in November 2015[76].

Australia is considering relaxing its media ownership rules before by the end of 2015; a significant deregulatory move. This change is likely to end the 'two out of three' rule (which restricts media companies from controlling more than two out of three platforms in any market across newspapers, television and radio) and the 'reach rule' (which prevents the creation of national television networks by banning networks from broadcasting to more than 75% of the population).

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 on time, announcing that it would combine it with its 2014 review. Among the proposals under consideration is whether to count a broadcaster as having an ownership interest in any station in which that owner sells 15% or more of its advertising time, whether to retain the current ban on mergers between the four major TV networks and whether to maintain the prohibition on the cross-ownership of newspapers and television stations. This review is scheduled to conclude in 2016.

Concerns around non-EU broadcasts

In 2015, heightened concerns have arisen about media freedom and threats to a pluralistic media landscape in Europe and at its borders, in part as a result of the ongoing conflict in Ukraine.

A number of EU Member States have been frustrated at their inability to react to Russian-language 'propaganda' receivable in their territories; while outside the European regulatory framework, the Ukrainian authorities have blocked all satellite content originating in Russia.

The OSCE's Representative for the Freedom of the Media has condemned such blocking, urging concerned states to find a solution in increasing access to different media sources and respecting freedom of expression[77]. It is likely that the debates between those favouring a more restrictive approach in the name of national security, and those hoping to focus on alternative methods of counteracting inaccurate information and hate speech within the existing framework, will continue in 2016.

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[74] http://www.csa.fr/Espace-Presse/Communiques-de-presse/Propositions-du-Conseil-superieur-de-l-audiovisuel-relatives-au-principe-de-pluralisme-politique-dans-les-medias-audiovisuels-en-periode-electorale

[75] http://stakeholders.ofcom.org.uk/binaries/consultations/media-plurality-framework/summary/Media_plurality_measurement_framework.pdf

[76] http://stakeholders.ofcom.org.uk/binaries/consultations/media-plurality-framework/statement/Measurement_framework_for_media_plurality_Statement.pdf?utm_source=updates&utm_medium=email&utm_campaign=Measurement-framework-for-media-plurality&utm_term=media%2C%20plurality%2C%20broadcasting%2C%20UK%2C%20DCMS

[77] Communique OSCE Representative on Freedom of the Media on blocking television channels http://www.osce.org/fom/116888

1.8.6 Radio spectrum: Promoting the efficient use of public assets

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

Three key international structures co-ordinate spectrum at the European and international levels:

- the European Union, supported by the Radio Spectrum Committee (RSC)[78] and the Radio Spectrum Policy Group (RSPG)[79];
- the European Conference of Postal and Telecommunications Administrations (CEPT/ECC)[80] which has a broader membership than the EU, with 48 Member States; and
- the International Telecommunications Union (ITU)[81] which defines the global framework for spectrum use in the Radio Regulations. This is a UN treaty, revised approximately every four years at the World Radiocommunication Conference[82] (WRC).

Radio Spectrum Committee (RSC)

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

As part of its remit, the EC drafts mandates to the CEPT on which Member States comment and vote. These mandates set minimum technical requirements, in order to ensure harmonised conditions for the viable and efficient use of radio spectrum. They specify the task to be undertaken and the timeframe in which it should be achieved.

Radio Spectrum Policy Group (RSPG)

The RSPG[83] is a high-level advisory group of national spectrum regulatory bodies, which assists the EC in its development of radio spectrum policy.

In June 2015 the RSPG welcomed the EC's DSM strategy for a coordinated release of the 700MHz band in the EU. CEPT has been working on determining harmonised technical conditions for the use of this band for international mobile telecommunications, and Member States have been undertaking the re-planning of digital TV spectrum for some time. CEPT is expected to report in 2016, followed by a technical harmonisation Decision from the RSC.

[78] http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/eu_policy/rsc/index_en.htm
[79] http://rspg.groups.eu.int/
[80] http://www.cept.org/ecc
[81] http://www.itu.int/ITU-R/
[82] http://www.itu.int/ITU-R/index.asp?category=conferences&rlink=wrc&lang=en
[83] http://rspg-spectrum.eu/

France and Germany have already started the process of awarding the 700MHz band. In the UK, Ofcom decided to release the band for mobile data in November 2014, and is now in the process of implementing the decision. We will publish a consultation setting out our proposed implementation plan, including proposed timescales for change of use of the band, in spring 2016. Ofcom is also consulting on plans to make the 960-1164MHz band available, on a shared basis, to the programme-making and special events (PMSE) sector. The proposal forms part of Ofcom's plans to mitigate the loss of spectrum availability for PMSE as a result of the planned release of the 700MHz band.

The RSPG launched a consultation[84] in October 2015 on its draft report on efficient awarding and use of spectrum in harmonised bands for electronic communication services (ECS), which identifies best practice in spectrum award design across Member States. A report is expected to be adopted in February 2016.

The RSPG has also adopted a report on spectrum issues related to wireless backhaul. This is concerned with 4G and 5G mobile networks and aspects of their development, such as the densification of base stations and small cells.

Finally, the RSPG is expected to start a new work programme (covering activities until 2018) in February 2016. New spectrum issues to be addressed include 5G, the DSM strategy and the Framework Review, as well as the internet of things (IoT)[85].

Radio Spectrum Policy Programme

The Radio Spectrum Policy Programme (RSPP)[86] is a key piece of EU spectrum legislation, formally adopted in March 2012. This was the result of negotiations between the EC, the European Council of Ministers and the European Parliament, and it sets out some fundamental spectrum policy objectives across all 28 EU Member States.

It calls for action to meet the objectives of EU policies; for example, contributing to the functioning of the internal market for wireless technologies and services. A number of these RSPP actions have contributed to the goal set out in the EC's Digital Agenda programme of high speed broadband for all by 2020[87]. Delivery of wireless broadband will form an important part of that programme.

Specific actions in the RSPP, to be completed by 2015 by the EC and the Member States, include:

- ensuring that at least 1200 MHz of harmonised spectrum is identified for wireless data traffic by mid-2013 at the latest, defining the details for the EU's radio spectrum inventory to allow for an analysis of the efficiency of spectrum use, particularly in the 400MHz to 6GHz range;
- the wider adoption of spectrum trading throughout the EU;
- spectrum access opportunities for wireless innovation, through the use of spectrum sharing;

[84] http://rspg-spectrum.eu/2015/10/38th-rspg-meeting-15-october-2015/
[85] IoT (internet of things) refers to the interconnection [wirelessly] of uniquely identifiable embedded computing-like devices within the existing internet infrastructure.
[86] https://ec.europa.eu/digital-agenda/en/radio-spectrum-policy-program-roadmap-wireless-europe
[87] All Europeans to have access to basic broadband by 2013 and at speeds of 30Mbit/s or above by 2020; also by 2020, half of all European households to subscribe to broadband connections of 100Mbit/s

- the use of wireless innovations so that Europe can contribute to a low-carbon society; and

- finding appropriate spectrum for wireless microphones and cameras (PMSE).

The current RSPP deals with the period 2011-2015; RSPG has reviewed it and is considering the following issues as part of a revision of the RSPP:

- the increasing role of spectrum sharing;

- flexible approaches to addressing future harmonisation needs for all spectrum sectors, including for WBB;

- encouraging 5G; and

- streamlining the Radio Spectrum Inventory.

World Radiocommunication Conference (WRC) 2015

Ofcom represents the UK at WRCs under a Direction from Government. For WRC-15 we have engaged in the European preparatory process leading to the establishment of European common positions (ECPs) on many of the agenda items. We have also engaged in the preparations of other regional groups outside Europe, and in discussions with other administrations around the world.

Ofcom confirms positions taken on WRC agenda items with the UK Government, to ensure consistency with Government policy, and publicly consults on them[88]. Following consultation, we set out our positions for WRC-15 in a public Statement[89].

These included:

- supporting the availability of the bands 694-790MHz, 1427-1518MHz and 3.4-3.8GHz for mobile broadband;

- opposing any proposal to make the 470-694MHz band available for mobile broadband in Europe, noting the importance of this band for the provision of digital terrestrial television in the UK and a number of other European countries;

- opposing the identification of dedicated harmonised spectrum for public protection and disaster relief (PPDR); instead, the UK favours a flexible solution that would enable national PPDR agencies (such as the emergency services) to choose the most appropriate solution to meet national needs;

- confirming that we will continue to support the retention of the leap second which is occasionally inserted into co-ordinated universal time (UTC) to maintain the link between astronomical and atomic time;

- proposing a 'no change' position on the use of frequency bands allocated to the fixed satellite service for the control of unmanned aircraft, noting the needs of the authorities responsible for aviation safety and policy;

[88] http://stakeholders.ofcom.org.uk/consultations/wrc15/
[89] http://stakeholders.ofcom.org.uk/binaries/consultations/wrc15/statement/UK_Positions_for_WRC-15.pdf

- supporting the global use of the 19.7-20.2GHz and 29.5-30.0GHz bands by earth stations on mobile platforms (ESOMPs), which are satellite terminals designed to use spectrum allocated to the fixed satellite service while in motion; and

- confirming our continued support for a future agenda item (at WRC-19) on the availability of spectrum above 6GHz for mobile broadband. Such spectrum is likely to be particularly useful for 5G mobile services.

At the time of this document going to press, WRC-15 was in its final week. WRCs are complex negotiations and national positions can shift rapidly as the negotiations develop and compromises are agreed. We anticipate that a wide range of spectrum harmonisation decisions will have been taken by the time the conference concludes, and Ofcom will publish a report on the outcome of WRC-15 in early 2016.