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Communications Market Report

Published 2 August 2018

This report provides commentary on key market developments in the UK communications sector. It is a supplement to the [interactive report](#), which contains data and analysis on broadcast television and radio, fixed and mobile telephony, internet take-up and consumption, and post.

About this document

We publish this report to support Ofcom's regulatory goal to research markets constantly and to remain at the forefront of technological understanding. It also fulfils the requirements on Ofcom under Section 358 of the Communications Act 2003 to publish an annual factual and statistical report. It also addresses the requirement to undertake and make public our consumer research, as set out in Sections 14 and 15 of the Communications Act.

Much of the data included in this report is available for anyone to access, use and share on the open data pages of Ofcom's website: www.ofcom.org.uk/opendata

A variety of data sources were used in compiling this report: Ofcom's technology tracker survey, its residential consumer postal tracking survey, its business postal tracking survey and its media tracking survey, a range of ad-hoc research, the data Ofcom collects using statutory powers from industry, and third-party data sources. Please see the separate annex for [an overview of Ofcom's research methodologies](#).

Communications Market Report

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This year's Communications Market Report highlights continuing changes in how consumers use communications services.

Introduction

Our data shows how the increasing take-up of faster fixed and mobile data services is extending people's choice over how, where and when they communicate with others, watch or listen to content services, seek information, shop and participate in the digital world.

This has raised consumers' expectations for connectivity. In an 'always on' society, people expect to be connected everywhere through a plethora of devices. Most recognise that the benefits of being online outweigh the disadvantages, although increasingly, many acknowledge that ubiquitous internet access is disrupting the quality of human relationships. Since the advent of the iPhone and the launch of the BBC iPlayer in 2007, there has been a steady increase in the penetration of connected devices across the UK population, with smartphones owned by four of every five UK consumers and smart TVs in almost half of all households. This, coupled with growing access to superfast broadband and 4G availability, has laid the foundation for the growth of online and on-demand services.

Demand for data continues to grow rapidly for UK consumers, with 190GB consumed by an average fixed residential broadband line and 1.9GB via an average mobile subscription per month, last year. In 2017, the number of ADSL fixed broadband connections was overtaken by the number of next-generation access (NGA) fibre and cable broadband

connections, and the number of call minutes originating on mobile phones declined for the first time. After a decade of the smartphone, UK consumers are now incredibly reliant on this device for most of their online activity; almost half of them claim they would miss it more than of any other device.

Enhanced connectivity and the proliferation of connected devices has also transformed the way we consume media, further fragmenting audiences for TV broadcasters. Subscription services now account for 18 minutes of our daily viewing, YouTube 29 minutes, and all non-TV viewing a total of 89 minutes of our time every day. Nevertheless, despite more choice across more platforms, broadcasters continue to account for the majority of our viewing. This increased fragmentation has affected viewing patterns in various ways, depending on the TV genre. Shows with mass appeal, those with 8 million+ audiences, are now increasingly difficult to generate, particularly in the soaps and entertainment TV genres, but high-end drama and major sport events continue to deliver mass viewing for linear TV.

Like the television sector, radio is being disrupted by the growth of digital platforms, connected devices and on-demand and streaming services. But radio is resilient; nine in ten adults in the UK listen to the radio for an average of nearly 21 hours a week, and 75% of all audio listening is via live radio.

The postal sector has also been affected by digitisation and the growth of internet services. As communications move online, the letters market

has fallen (volumes were 5% lower in 2017 than in 2016). But this decline has been offset by growth in the parcels market as people do more

online shopping; 12% more parcels were sent in 2017 than in the previous year.

Market overview



- Telecoms, TV, radio and post services revenue totalled £54.7bn in 2017, 2% lower than 2016.
- 5.2% of households' spend was on communications services (£124.62 per month); 70% of this was on telecoms services.

Always on: the connected consumer



- People claimed to spend a total of one day a week online (24 hours), more than twice as much as in 2007.
- Seven in ten commuters use their smartphone on their journey.
- The most popular smartphone activities for commuters are sending and receiving messages (43%) and using social media (32%).
- Young adults are more likely to multi-task on their smartphones while they commute: 27% of 18-34s engage in at least five online activities while commuting; but only 9% of over-35s do so.
- Most adults acknowledged the value of being connected, with three-quarters agreeing that being online helps them maintain personal relationships. But they also acknowledge its drawbacks, such as interrupting face-to-face communications with others.

A decade of change in the communications sector

- Since the launch of the BBC iPlayer and the iPhone in 2007:
 - Smartphones have become the most popular internet-connected device (78% of UK adults use one)
 - Ownership of tablets (58% of UK households) and games consoles (44% of UK adults) has plateaued in the last three years
 - Smart TVs were in 42% of households in 2017, up from 5% in 2012
 - One in five households (20%) has wearable tech (smart watches, fitness trackers)
- The benefits of the last ten years of connectivity have not been distributed equally. Lower-income households and over-54s are less likely to have smartphones, laptops and tablets, but are as likely to have a TV.
- Mobile phones and TVs are the only communications devices with near-universal reach in the UK (96% and 95% of households).

2012



2018



TV



- At £13.6bn, total broadcaster revenue was down by 4% in 2017, driven by declining advertising revenue and proportion of the licence fee attributed to TV.
- Broadcasters spent £7.5bn on content in 2017, due to higher spend on sports rights and production.
- Nine in ten people watched TV every week in 2017, for an average of 3 hours 23 minutes a day. This is nine minutes less than in 2016 and down across all age groups under the age of 65. Those aged 55+ accounted for more than half of all viewing in the UK.
- Programmes attracting audiences greater than 8 million have halved in the past three years.

Radio



- More than half (50.9%) of all radio listening is now digital, mainly due to growth in listening through DAB.
- Radio revenue was up to £1.3bn, the highest level in the last five years.
- 13% of UK households used a smart speaker in 2018; three-quarters of these were Amazon devices.
- Podcast listening is growing: one in four people have done this at least once in the past year.

Internet



- Nine in ten people had access to the internet in the home in 2018.
- The majority (62%) of time spent on the internet was on mobile devices, and mobile advertising made up 45% of online advertising in 2017.
- BBC website visitor numbers overtook those of Amazon in the UK in 2018. The BBC had the third-highest number of users after Google and Facebook.

Landlines and
mobiles

- The number of ADSL (copper) fixed broadband connections was overtaken by fibre connections in 2017.
- Telecoms revenue fell by 1% to £35.6bn in 2017, with retail landline and data revenues unchanged during the year and retail mobile revenues declining.
- Data use continued to increase - UK consumers used an average of 190 GB per fixed broadband line in June 2017 (up from 132 GB in June 2016) and 1.9 GB per active mobile subscription in 2017 (up from 1.3 GB).

Post



- Revenues for addressed letters fell by 6% to £4.1bn in 2017, although this was offset by a 5% rise in parcels revenues to £9.3bn.
- Six in ten people have used next-day delivery for online purchases, but only three in ten have used same-day delivery in 2018.
- The decline in direct mail advertising spend slowed to 2% in 2017, to £1.8bn, or 8% of the advertising market.

1 Market in context

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This introductory chapter of the Communications Market Report 2018 provides an overview of all the sectors Ofcom regulates.

1.1 Overview

It starts by looking at communications sector revenues (telecoms, TV, radio and post), monthly household spend on communications services over the past five years, and take-up of communications services and devices.

Following this, two pieces of market research, conducted for this report, examine consumer behaviour and perceptions of connectivity, and the rise of connected devices and platforms. *Always on: the connected consumer* found that people claim to spend, on average, 24 hours each week online. This is almost double the amount of time in 2007 (12 hours). The convenience of using the internet on a smartphone, and the availability of 4G, were key drivers of this: 62% of all adult online minutes were spent on the smartphone in 2018. The smartphone is particularly important for commuters; 42%

see the internet as essential for them to complete personal tasks during the journey, while 35% use it in a work capacity. But although respondents agreed on the benefits of the internet, they also recognised the negative impact it can have on relationships.

The second piece of research, *A decade of change in the communications sector*, outlines the impact of better connectivity, new services and new devices on the communications landscape. Mobile phones (96% take-up) and digital TVs (95%) are now ubiquitous in UK households, and the launch of the BBC iPlayer and the iPhone in 2007 can be seen as watershed moments in the emergence of on-demand media consumption, as consumers use high-speed fixed and mobile networks to connect to an array of services inside and outside the home.

1.2 Key market developments

1.2.1 UK communications market revenue

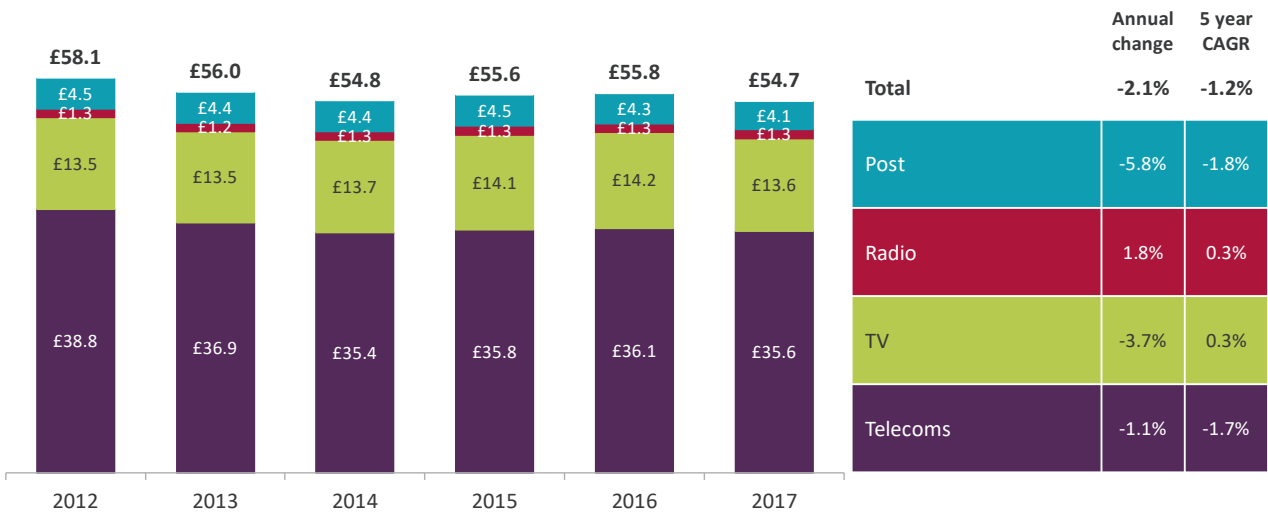
Total UK communications revenue declined to £54.7bn in 2017, the lowest level in the last five years

Total UK communications revenues generated by telecoms, TV, radio and postal services declined in 2017, by £1.1bn (-2.1%) in real terms (i.e. adjusted for inflation) to £54.7bn. This was due primarily to a decline in TV revenue

and in part to falls in total telecoms¹ and post revenue. There was a slight rise in the revenue generated by the radio broadcasting industry, up by 1.8% in real terms to £1.3bn in 2017, driven by growth in commercial revenue.

Figure 1.1: Communications industry revenue: telecoms, TV, radio and post (£bn)

£ billion



Source: Ofcom/ operators.

Notes: Figures are adjusted for CPI (2017). TV revenue excludes subscription revenues from online on-demand and streaming services such as Netflix and Amazon Prime. Figures include licence fee allocation for radio and TV; prices). Post includes addressed letter mail. Changes in the way that revenue data is collected for the commercial radio sector means that data prior to 2014 are not comparable to data for 2014 and 2015. Telecoms revenues exclude those generated by corporate data services.

¹ Comprising revenues from retail fixed and mobile voice and data services, and wholesale services.

1.2.2 Household spend on communications services

Average monthly spend on communications services decreased for the first time since 2013

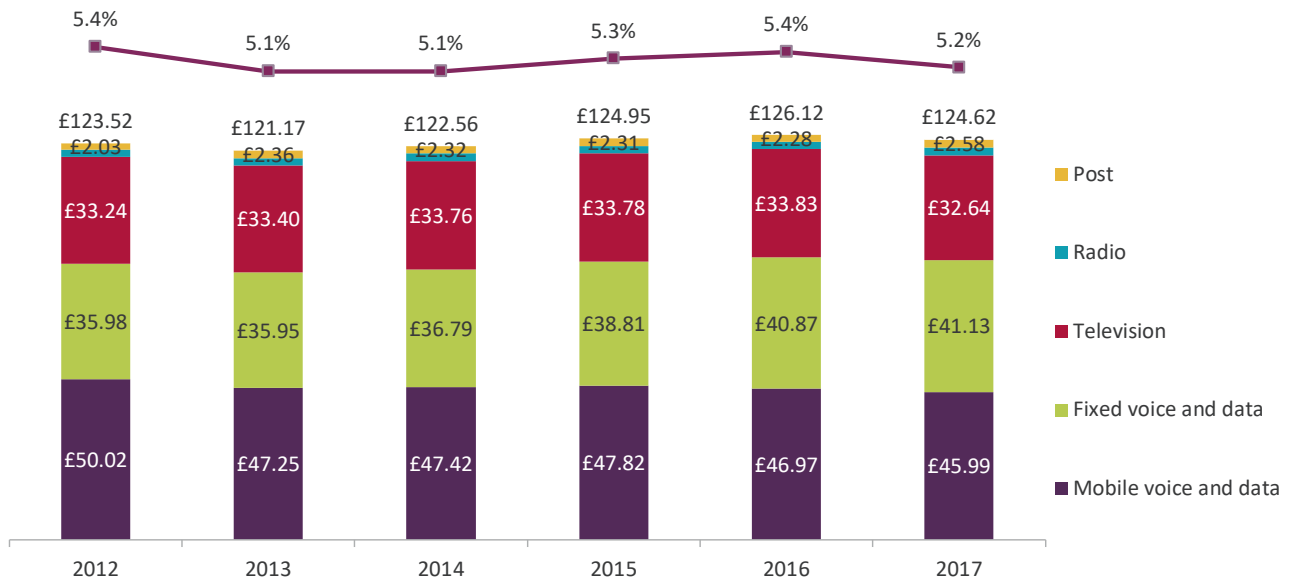
Average monthly spend on communications services fell by 1.2% from £126.18 in 2016 to £124.62 in 2017, an annual decrease of £18.72 in real terms.

Average monthly household spend on mobile voice and data services has decreased by 8% (£4.02) since 2012, to £45.99 per month in 2017. In contrast, average monthly spend on fixed voice and internet services

increased by 14.3% over the same period to £41.13. This is largely because consumers have migrated to superfast broadband services, which tend to be more expensive than standard broadband services. But spend on mobile voice and data fell by 98p (2.1%), despite the increasing use of 4G networks and the rapid growth in data use, up by 48% between June 2016 and June 2017.

Between 2016 and 2017, household spend on television decreased by an average of £1.19 (4%) per month, reaching a five-year low of £32.64. However, this excludes spend on online streaming services such as Netflix and Amazon Prime Video, whose revenues increased significantly to £895m in the UK in 2017 and are now in around 40% of households.

Figure 1.2: Average household spend on communications services



Source: Ofcom / operators / ONS

Notes: Adjusted for CPI (2017 prices); historic telecoms figures have been re-stated, so are not comparable to those published in previous reports. Television and Radio includes spend on licence fee. Television excludes spend on subscriptions, download-to-own and pay-per-view through online on-demand and streaming services. Post spend data is provided by ONS.

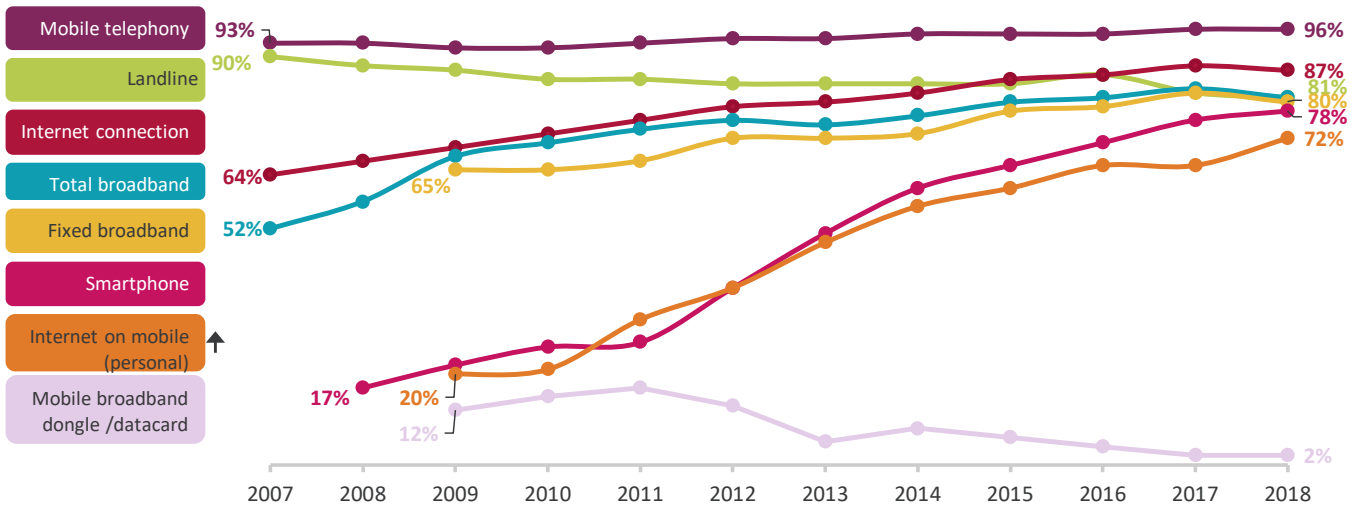
1.2.3 Take-up of communications services

More than seven in ten now use their mobile to access the internet

While take-up of fixed broadband has plateaued at 80%, accessing the internet on a mobile phone continues to grow, from 66% in 2017 to 72% in 2018. Almost eight in

ten UK adults (78%) personally use a smartphone, only two percentage points lower than fixed broadband (80%) and 3pp below landline penetration.

Figure 1.3: Take-up of communications services



Source: Ofcom Technology Tracker. Data from Quarter 1 of each year 2007-2014, then Half 1 2015-2018.

Base: All adults aged 16+ (2018 n=3730).

QC1: Is there a landline phone in your home that can be used to make and receive calls? QE2: Do you or does anyone in your household have access to the internet/ world wide web at home (via any device, e.g. PC, laptop, mobile phone etc.)? / QE12 (QE9): Which of these methods does your household use to connect to the internet at home? QD4 (QD24B): Do you personally use a smartphone?

Note: Use of internet on mobile is personal take-up measure, whereas the other data relate to household take-up. For the smartphone figure, between 2008-2010 the question was 'do you use a 3G handset'. In 2011, this was changed to 'do you use a smartphone'.

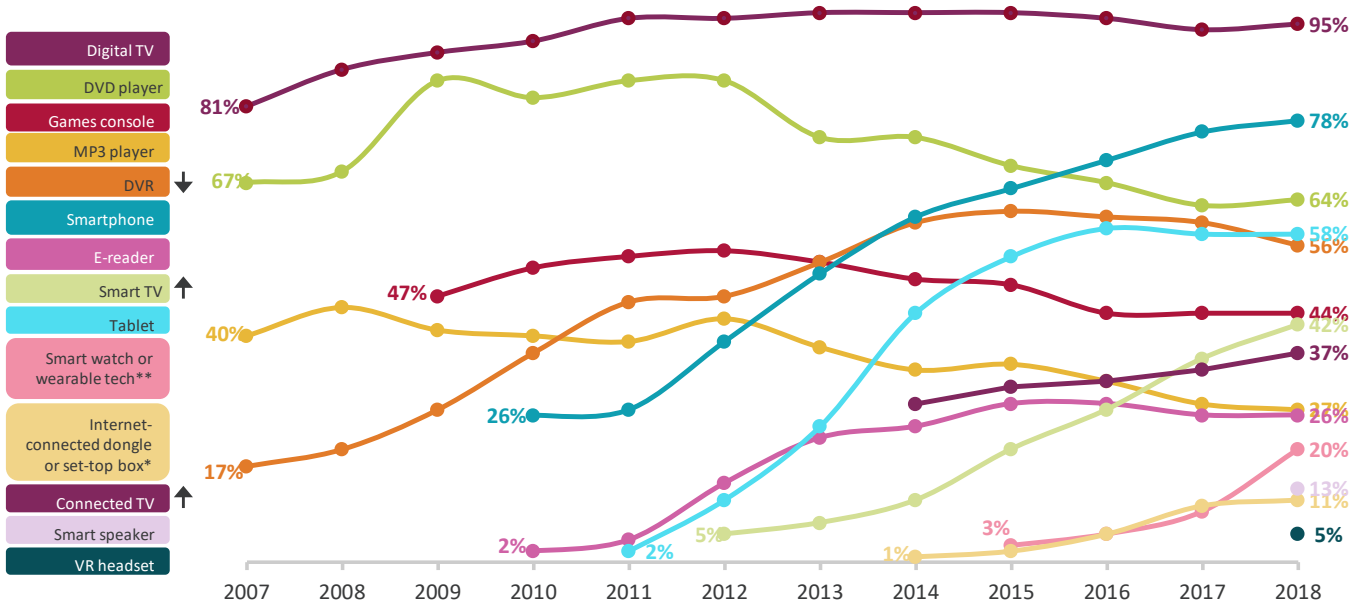
Smart TV penetration continues to surge, but remains behind game consoles and DVD players

Take-up of smart TVs, i.e. televisions which can connect directly to the internet, has increased from 5% in 2012 to 42% of households in 2018. Consumers increasingly prefer more portable devices: ownership of laptops overtook desktop PCs in 2011 while

tablets did so 2014. The DVR was the only device which declined in 2018 (perhaps as consumers use smart TVs to access on-demand programmes as an alternative to recording them) but remains in 56% of UK households.

Smart speakers and VR headsets were included in our study for the first time in 2018, but are still niche products, present in 13% and 5% of households respectively. Further detail on smart speakers is provided in *Section 3: Radio and audio*.

Figure 1.4: Household take-up of digital communications/ AV devices: 2007-2018



Source: Ofcom Technology Tracker. Data from Quarter 1 of each year 2007-2014, then Half 1 2015-2018.

Base: All adults aged 16+ (2018 n=3730).

Note: The question wording for DVD player and DVR was changed in Q1 2009, so data are not directly comparable with previous years.

*Internet-connected dongle or set-top box includes NOW TV set-top box, Roku, Google Chrome, Amazon Fire TV stick, Amazon Fire TV, Apple TV

**Smart watch question wording amended in H1 2018 to add 'or wearable tech such as fitness trackers' so data are not directly comparable with previous years

1.2.4 Purchasing communications services in a bundle

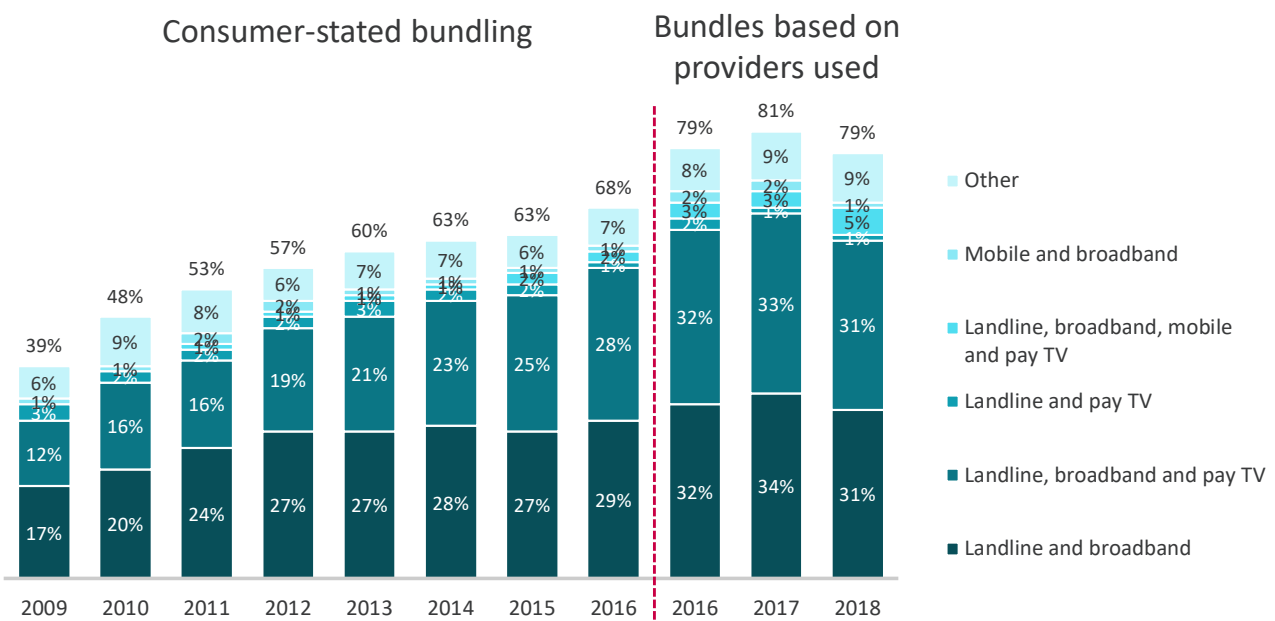
Eight in ten households buy services in a bundle

Just under eight in ten households (79%) reported purchasing at least two of their communications services as a

bundle from the same supplier in H1 2018, in line with the last two years (81% and 79%).² Dual-play packages of landline

and broadband, and triple-play packages of landline, broadband and TV were the most popular, both at 31% of households.

Figure 1.5: Take-up of bundled services



Source: Ofcom Technology Tracker, data as at Q1 2009-2014; H1 2015-2018 QG1. Do you receive more than one of these services as part of an overall deal or package from the same supplier? / Q. Do you receive a discount or special deal for subscribing to this package of services? (latter question used for consumer-stated bundling figures)
 Significance testing: Arrows indicate any significant differences at the 95% confidence level between UK 2017 and UK 2018.
Base: All adults 16+ (Q1 2009, 6090) (Q1 2010, 9013) (Q1 2011, 3474) (Q1 2012, 3772) (Q1 2013, 3750) (Q1 2014, 3740) (H1 2015, 3756) (H1 2016, 3737) (H1 2017, 3743) (H1 2018, 3730), base excludes those who do not know the provider for one or more services.

² Ofcom has recently revised its bundle take-up figures; in previous years we reported data from a question asking consumers 'Do you receive more than one of these services as part of an overall deal or package from the same provider?' Since 2017 we report bundling data based on whether the same provider was stated for two or more services, and we have revised the 2016 figures for comparison with 2017. As a result, the revised 2016 figures are not comparable to data from previous years.

1.3 Always on: The connected consumer

People say they now spend the equivalent of a day online each week

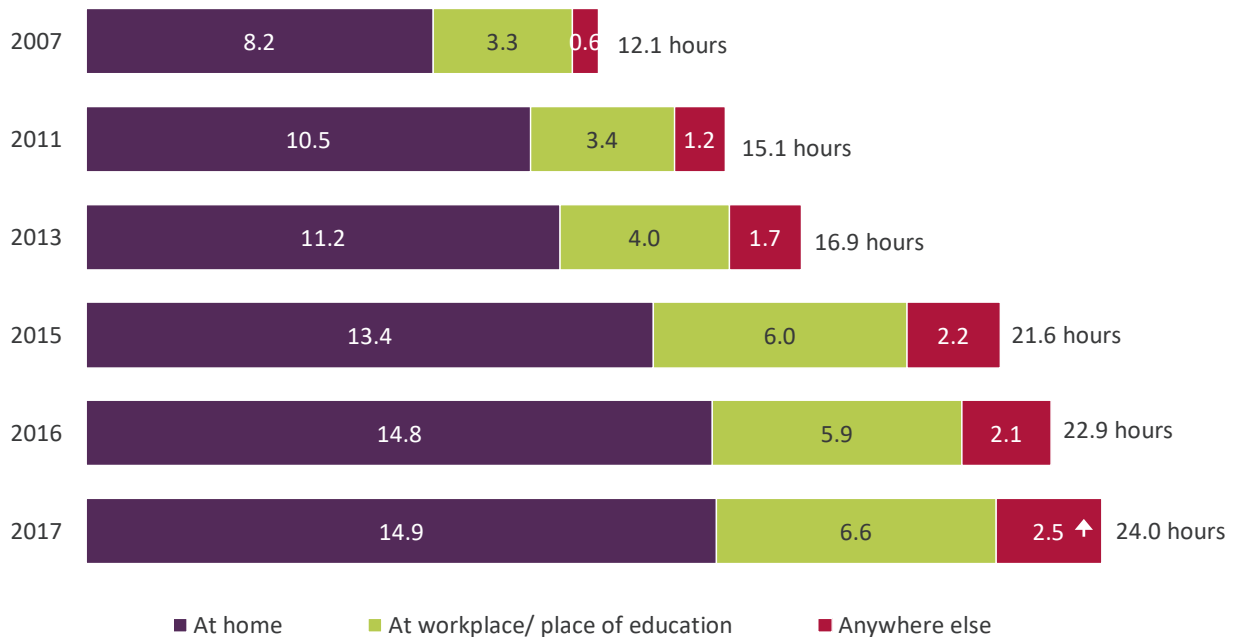
Research by TouchPoints in 2017 found that 64% of adults in Great Britain agreed that the internet was an essential part of their life, up from 54% in 2012. Among under-35s, more than 80% agreed, but the steepest increase was among over-65s, with 36% considering the internet to be essential, up from 22% five years previously.

As the internet becomes more important to people, they spend more time online.

Ofcom research asked people how many hours they spend online in a typical week. This could include activities such as accessing a social media site or app, looking at a website, watching a TV programme or video clip, among many other things. The findings show that the 88% of adults who ever use the internet spend an average of 24 hours each week online, almost double the time spent in 2007 (12 hours 6 minutes). Overall, a third (33%) of adults

said they spend up to ten hours online each week, and 54% said up to 20 hours. Almost a fifth of adults (19%) said they spend more than 40 hours each week online, up from just 5% of adults in 2007.

Figure 1.6: Claimed time spent going online each week, by location



Source: [Ofcom Adult Media Literacy Tracker 2017](#)

IN5A-C. How many hours in a typical week would you say you spend online at home /at your workplace or place of education/ anywhere else? (unprompted responses, single coded)

Base: All adults aged 16+ who go online (1553 in 2016, 1570 in 2017).

Arrows show significant changes (95% level) between 2016 and 2017.

The amount of time people spend online, away from home or work, has more than quadrupled since 2007

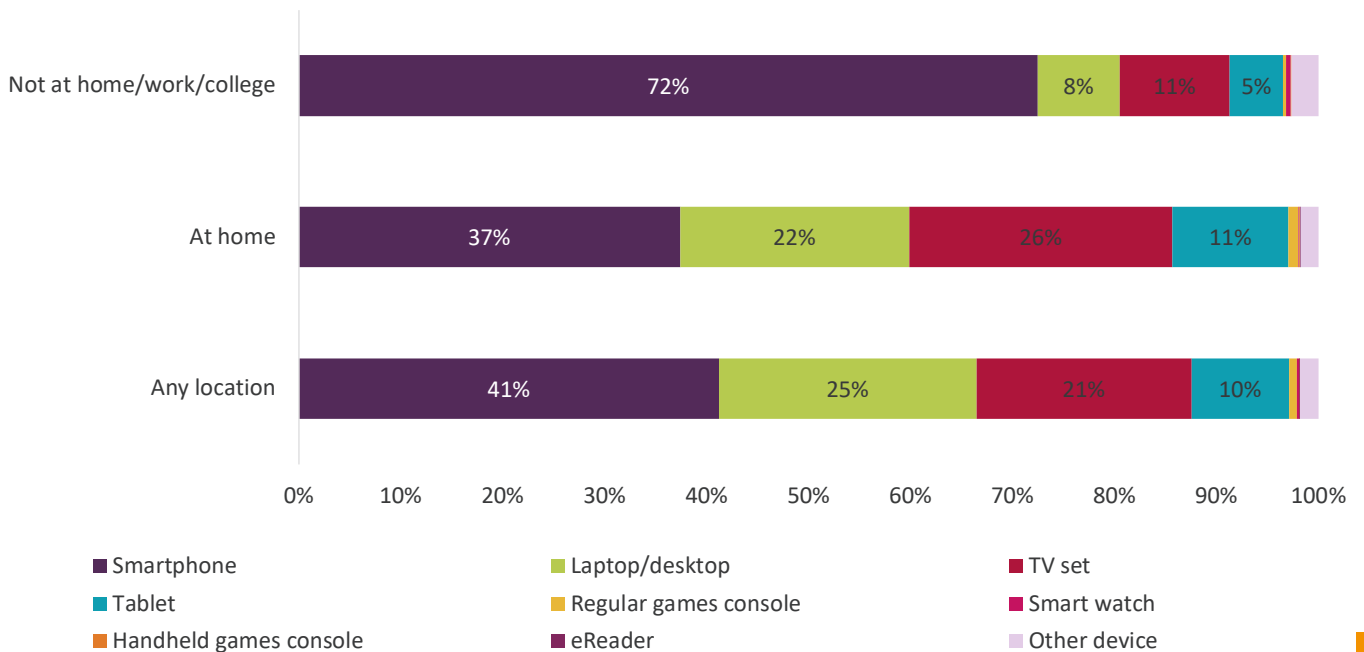
Figure 1.6 shows that we spend more time online at home than in any other location. This is because on average we spend 69% of our time at home, including 55% of our waking hours.³ However, it also shows that there has been a significant increase since 2016 in the amount of time spent online in a location other than home or work; this more than quadrupled between 2007 and 2017, to an average of two and a half hours a week.

The TouchPoints data allow us to compare how connected devices are used differently according to location. Given its portability and penetration, the smartphone is the preferred device, regardless of where people are accessing the internet, even at home (37% of the time spent online at home is on a smartphone). TouchPoints also shows that 40% of adults first look at their phone (apart from checking the alarm/clock) within five minutes

of waking up, increasing to 65% of under-35s. Even before going to sleep, 37% of adults check their phones five minutes before lights-out, again increasing to 60% of under-35s.

Use of the smartphone to go online when not at home or work is even more pronounced, accounting for 72% of time spent online.

Figure 1.7: Proportion of time spent online, by device and location



Source: TouchPoints 2017

³ TouchPoints 2017

The convenience of using the internet through a smartphone, and the availability of high-speed mobile networks, are key enablers of out-of-home internet use. Use of a smartphone increased from 27% of all adults in 2011 to 78% in 2018,⁴ while the proportion of mobile connections with access to 4G services rose from 3% in 2013 to 63% in

2017.⁵ We know from our [mobile research](#),⁶ which looks at information on data service availability, that while at home, for 76% of the time Android users with access to 4G mobile technologies were using apps, they were connected to wi-fi. In contrast, while away from home, almost 65% of app usage time on Android smartphones was through a

mobile network. And among those with access to 4G, the majority of smartphone use was through a 4G network rather than a 3G network (78% vs. 22%). However, 34% of adults said they look for free wi-fi when they're out and about, increasing to 45% of under-35s.⁷

Seven in ten commuters use a smartphone on their journey

Smartphones can be used for a multitude of different activities:⁸

- Forty per cent of adults say they like the convenience of using their phone to carry out routine tasks such as banking while they're on the move, increasing to 66% of those aged 15-34.
- Some smartphones now have payment capabilities: services such as Apple Pay use near-field communication (NFC) chips embedded into a device to pay for goods and services; the user holds it near a card reader, as with a contactless debit card. In 2017, 17% of

smartphone owners had ever used their device this way, increasing to 24% of 25-34s.

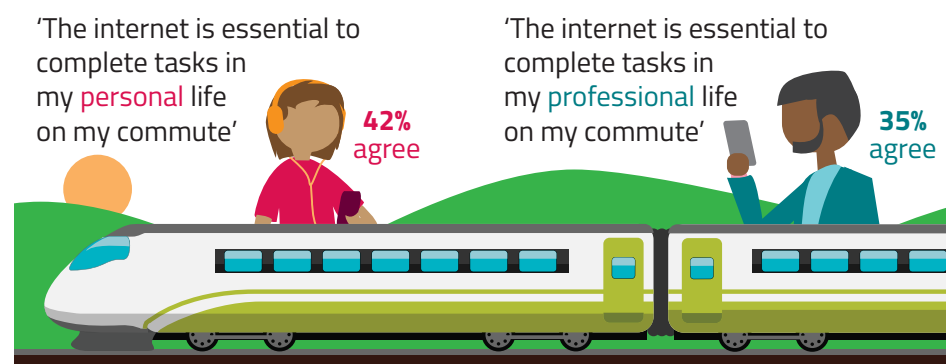
- Forty-one per cent of adults say they like the convenience of being able to shop online using their phone, increasing to 70% of under-35s.
- Smartphones are also used as navigation tools; 52% of adults say they often use their phones to help with directions, increasing to 79% of under-35s.

To understand more about people's behaviour and attitudes to going online when out and about, we

commissioned an online survey. We asked commuters⁹ which device they used when they travelled to work or their place of education. Overall, eight in ten (81%) said they used any device while commuting; the most popular was the smartphone (71%), followed by laptops (18%) and tablets (12%).

More than two-fifths (42%) of commuters agreed with the statement: 'the internet is essential for my commute to complete tasks in my personal life' and 35% agreed that 'the internet is essential for my commute to complete tasks in my professional life'.

Figure 1.8: Perceived importance of the internet while commuting



Source: 'Always on', CMR research 2018

⁴ [Ofcom Technology Tracker](#) Q1 2011, Q1 2013 and H1 2018

⁵ For further details, see Section 4: Telecoms and networks

⁶ [Ofcom Consumer Mobile Experience Report 2018](#)

⁷ [TouchPoints](#) 2017

⁸ [TouchPoints](#) 2017

⁹ Excluding those who drive themselves.

Most commuters use their smartphone for multiple online activities

The most popular online activity for commuters was sending and receiving text messages/ instant messages, with 43% saying they did this. A third (32%) said they accessed social networking sites and 27% said they did general web browsing. Overall, a third

(34%) of commuters said they did either one or two online activities while commuting, 22% did between three and five, 21% did between five and ten and 5% did 11 or more activities. The 18-34s were much more likely than the other age groups to do more activities: 27% did

5-10 vs. 19% of 35-54s and 9% of over-54s, and 9% did 11 or more activities compared to 1% for 35-54s and over-54s.¹⁰ The 18-34 age group are also more likely than the other age groups to do multiple activities.

Figure 1.9: Non-broadcast services used by adults and teens for watching TV programmes and films

Online / on-demand activity while commuting	% of commuters (aged 18+)	% of commuters (aged 18-34)
Send/receive text messages/ instant messages	43%	53%
Access social networking sites	32%	44%
General web browsing	27%	34%
Send/receive emails	25%	32%
Online shopping	24%	30%
Read news online	23%	34%
Listen to downloaded music	22%	29%
Online banking	21%	30%
Listen to online, streamed music	18%	27%
Use online maps or transport app	14%	25%
Play online games	14%	21%
Listen to the radio	10%	9%
Do work on laptop	8%	11%
Voice or video calls over the internet	6%	9%
Listen to podcasts	5%	8%
Watch streamed TV programmes, full-length films or short video clips	5%	10%
Watch downloaded TV programmes, full-length films or short video clips	5%	8%
Listen to audiobooks	4%	5%

Source: 'Always on', CMR research 2018

Of those who said they access social networking sites while commuting, nearly half (46%) said they do so more than they did two years ago, a similar proportion (51%) said they sent and received emails more,

and 38% said they sent and received more text messages/ instant messages. Of those who did online shopping while commuting, 39% did it more than two years ago, and more than half (56%) did online

banking more often. Eighty-four per cent of all adults agreed with the statement: 'online shopping and online banking have made my life easier'.

¹⁰ Caution: low base size: 18-34 (144), 35-54 (94), 55+ (50).

Figure 1.10: Attitudes towards to online shopping and banking



Source: 'Always on', CMR research 2018

Fifty-eight per cent of commuters who listen to online streamed music on their commute said they did this more often than two

years ago, and 38% listened to downloaded music more often. Lastly, 36% of those who did general web browsing claimed to do this more often.

Being online enables people to stay connected with friends and family

Although TouchPoints shows that the main reason people use the internet is for entertainment, 11 our research found that a large proportion of adults see the benefit of the internet in terms of maintaining personal relationships; three-quarters (74%) agree that 'being online helps keep me close to/in touch with friends and family'. Interestingly, the proportion of internet users

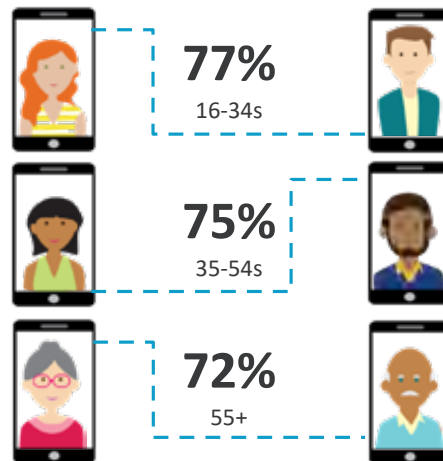
who agreed with this statement did not vary by age group, indicating that the internet is now important for people of all ages to keep in touch with loved ones (77% of 16-34s, 75% of 35-54s and 72% of over-54s).

Another benefit of increased connectivity is the ability to work more flexibly: 35% of people use their commute to complete tasks related to their work and 4.1% agreed that

'being online has enabled me to work at times and places that suit me'. However, 15% agreed that 'being online makes me feel like I'm always at work'. When asked how they would feel if they couldn't access the internet when they wanted to, 9% chose 'I am worried about not being able to keep up with work' and 3% chose 'I am worried about not being able to be in touch with colleagues'.

Figure 1.11: Perceived importance of the internet for maintaining relationships

"Being online helps keep me close to / in touch with friends and family"



Source: Touchpoints 2017.

Note: Proportion of respondents in each age group.

¹¹ 64% of weekly internet users (TouchPoints 2017)

Although being online can help maintain personal relationships, it can also interrupt face-to-face communications

As we saw above, while many adults think that being online helps maintain personal relationships, the majority also agree that the use of internet-connected devices can interrupt face-to-face communications. To explore this further, we asked adults about the acceptability of device use in various scenarios. The most unacceptable of all was talking on a phone while having a meal with others, with 81% of people saying this was unacceptable, followed by listening to music/watching video/

playing games loudly while using public transport (76%).

Although TouchPoints research indicates that 70% of adults say they use another device at the same time as watching TV, our research shows that four in ten (41%) think it unacceptable to use a phone while watching TV with others, although this drops to 21% among 18-34s. TouchPoints also suggests that using another screen at the same time as watching TV can benefit communications with people not in the room: 54% engage in this to keep

up to date on social media.

The 55+ age group were more likely to find most of the scenarios unacceptable; for example, 83% thought it was unacceptable to check notifications on a phone during meals with others (vs. 46% of 18-34s), nine in ten (90%) said the same about talking on the phone during meals with others (vs. 72% of 19-34s) and 62% said this about using the phone while watching TV with others (vs. 21% of 18-34s).

However, many people admit that they use smartphones in ways that, in principle, they think are unacceptable

Looking at the most unacceptable scenario, talking on the phone during meals with others, half of all adults had been with others who had done this, while 17% had done it themselves, and this increases to 26% of 18-34s. The majority of respondents had also used

a phone while watching TV with others (53%) and used a phone while walking along the street (63%). In addition, 46% had talked on the phone while using public transport, 36% had checked notifications on a phone during meals with others, and 36% had used

a phone to record videos or take photos at a live event.

Only for 'listening to music/watching video/playing games loudly while using public transport' had less than half (45%) of respondents either been with someone who had done this or done it themselves.

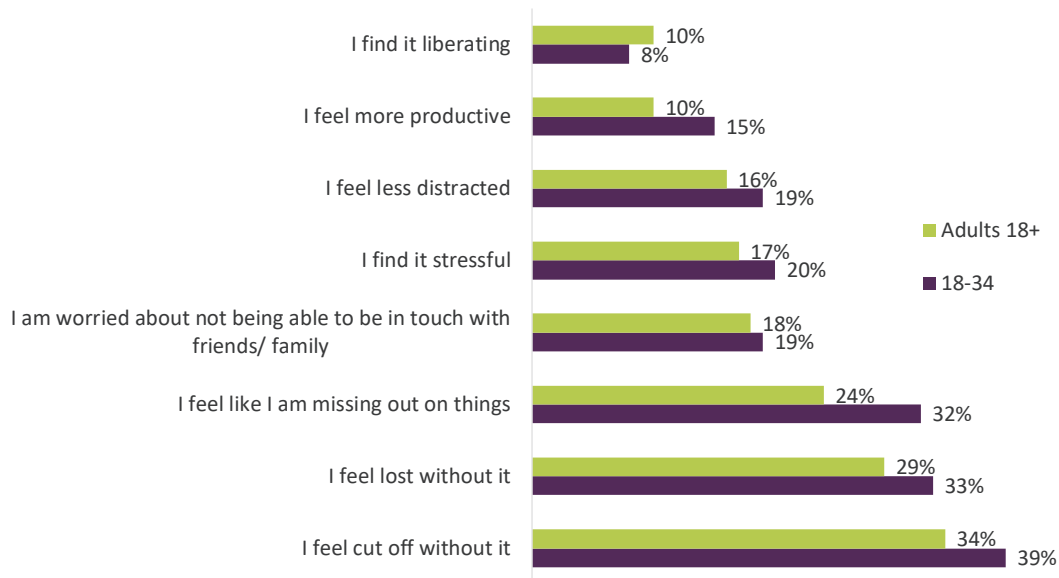
Half of all adults rely on the internet to avoid boredom

As we found from TouchPoints, two-thirds (64%) of adults say the internet is an essential part of their life. There is also a degree of reliance on it: half (50%) of adults agreed that 'if I could not access the internet my life would be boring' increasing to 60% of heavy internet users. Four in ten adults (43%) admit 'I spend too much time online', increasing

to 51% of heavy internet users. When asked how they would feel if they wanted to access the internet but were unable to, 34% said 'I [would] feel cut off without it', 29% 'I [would] feel lost without it' and 17% said they would find it stressful, increasing to 20% of 18-34s. A smaller percentage were more comfortable with the idea of being without internet

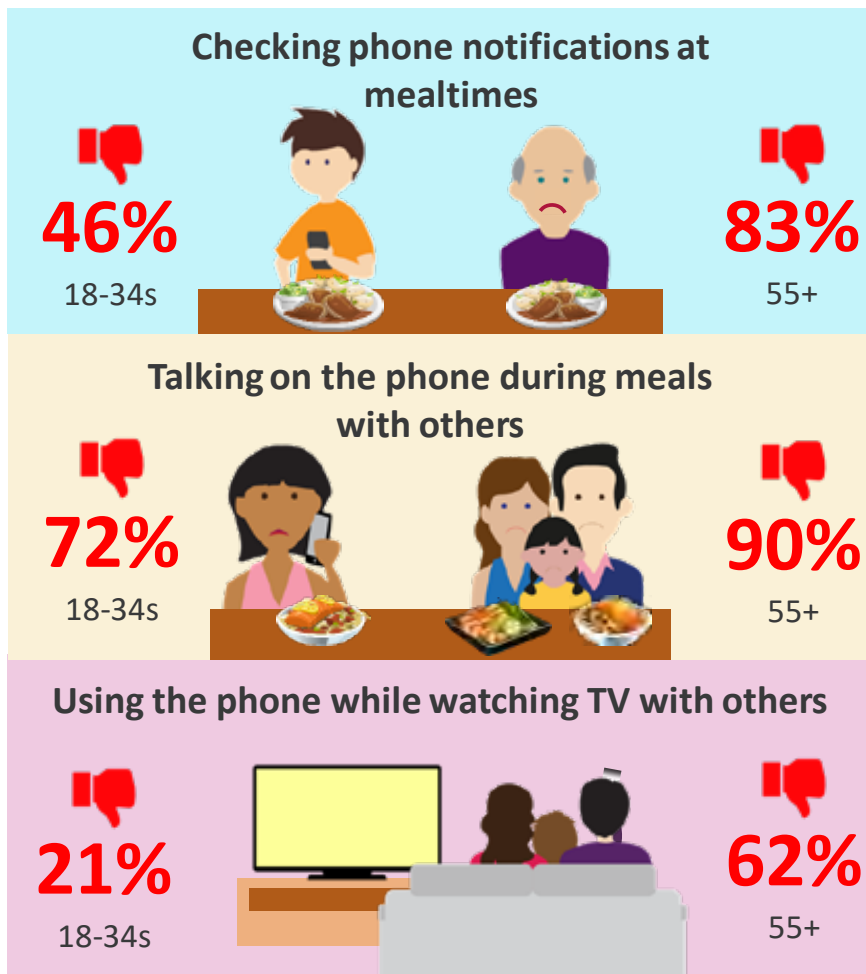
access and acknowledged the benefits of not being connected: 16% said 'I feel less distracted', 10% 'I feel more productive' and 10% said they even found it liberating. These benefits were often felt more strongly among the youngest age groups: 19% of 18-34s felt less distracted and 15% felt more productive when they couldn't access the internet.

Figure 1.12: Reaction to being unable to connect to the internet



Source: 'Always on', CMR research 2018

Figure 1.13: Acceptability of smartphone use in social situations



Source: 'Always on', CMR research 2018

1.4 A decade of change in the communications sector

Smartphones and connected TVs have transformed the consumer landscape

Looking back over the last ten years, two product launches in 2007 can be seen to have triggered seismic shifts in the ways in which people use communications networks and consume media services.

In June 2007, the launch of the first Apple iPhone heralded the beginning of the age of the smartphone. By the start of 2018, 78% of UK adults personally used one¹² and 46% of people said their phone would be the device they would most miss. In 2018, a large majority (62%) of people's time online was spent on their smartphone.¹³ The rise of the smartphone, combined with the take-up of 3G and then 4G networks, led to UK mobile users consuming an average of 1.9GB a month of mobile data by June 2017 (up from 1.3GB a year earlier and 0.11GB in March 2011¹⁴).

Although Channel 4 launched its video-on-demand service, 4OD (to become All4) in November 2006, it was the launch of the BBC's iPlayer in July 2007 that kick-started the take-up of broadcast TV streaming and catch-up services. As these platforms developed, multiplied and matured, the connected television also became mainstream. Now, more than half of TV households have a TV set connected to the internet. Live broadcast TV viewing has declined – steeply, among young people – and people watch an average of 88 minutes of non-broadcast content on their TV each day. Public service broadcasters (PSBs) compete for viewers on the television set with subscription video-on-demand services like Netflix and Amazon Prime Video, which are now in a third of UK households, as well as with other online platforms

such as YouTube. Around half of UK households have a superfast broadband connection, and average broadband speeds have increased from 3.6Mbit/s in October 2008 to 46.2Mbit/s in November 2017¹⁵. But watching online video is the main driver of massive increases in fixed-line data use; the average residential broadband connection now uses 190GB of data (up from 132GB in 2016 and 17GB in March 2011¹⁶).

Through Ofcom's [Technology Tracker](#), we have access to more than a decade of data that measures how UK consumers' take-up of communications services has changed. In this section we look at how new and improved connectivity, and new devices and services, have transformed people's use of communications services.

Innovation has been driven by a virtuous circle of better connectivity, new devices and new services

Change in the communications sector has been driven by a range of technological innovations in the last decade:

- **Improved connectivity**, including the emergence of superfast broadband in the home as well as improved mobile phone online access through 3G and 4G networks.
- **Enhanced devices**, including greater smartphone processing power, bigger TV screens and the emergence of smart TVs, as well as a plethora of new connected devices such as e-readers, tablets, VR headsets and smart watches.
- **The emergence and proliferation of new services:** Apple, Google, Facebook and Amazon have emerged as the largest global organisations; online services such as Uber and Airbnb have exploited the growing expectation of convenience; and online video services such as Netflix and Amazon Prime Video are changing the TV landscape.

¹² [Ofcom Technology Tracker](#), H1 2018





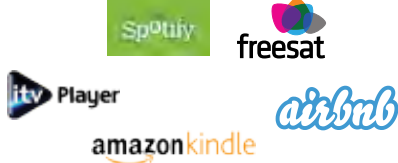























¹³ See Section 5: *Internet and online content* (data from comScore).

¹⁴ [Ofcom Connected Nations and Infrastructure Reports](#)

¹⁵ [Ofcom broadband speeds research](#)

¹⁶ [Ofcom Connected Nations and Infrastructure Reports](#)

Figure 1.14: UK communications services milestones: 2007-2018

Notable events	Year	Products or services launched
 <p>First Apple iPhone released</p>	2007	
<p>First commercially available Android smartphone</p>  <p>Up to 50 Mbit/s broadband services launched</p> 	2008	
<p>First person to amass one million followers on Twitter (Ashton Kutcher)</p>  <p>First YouTube channel to reach one million subscribers ('Fred')</p> 	2009	
<p>National launch of fibre-to-the-cabinet broadband</p>  <p>iPad goes on sale in the UK</p> 	2010	
<p>4G mobile service launched in the UK by EE</p> 	2011	
<p>Completion of digital switchover</p> 	2012	
<p>Netflix begins streaming content in 4K (House of Cards and Breaking Bad)</p> 	2013	
<p>Apple's iWatch makes its debut</p> 	2014	
<p>Samsung virtual reality headsets go on sale</p> 	2015	
<p>Friends Reunited, pioneer of social networking, closes</p> 	2016	
<p>Sonos One (with Amazon Alexa built in) is released</p> 	2017	
<p>Share of digital radio listening exceeds 50%</p>  <p>78% of adults have a smartphone</p> 	2018	

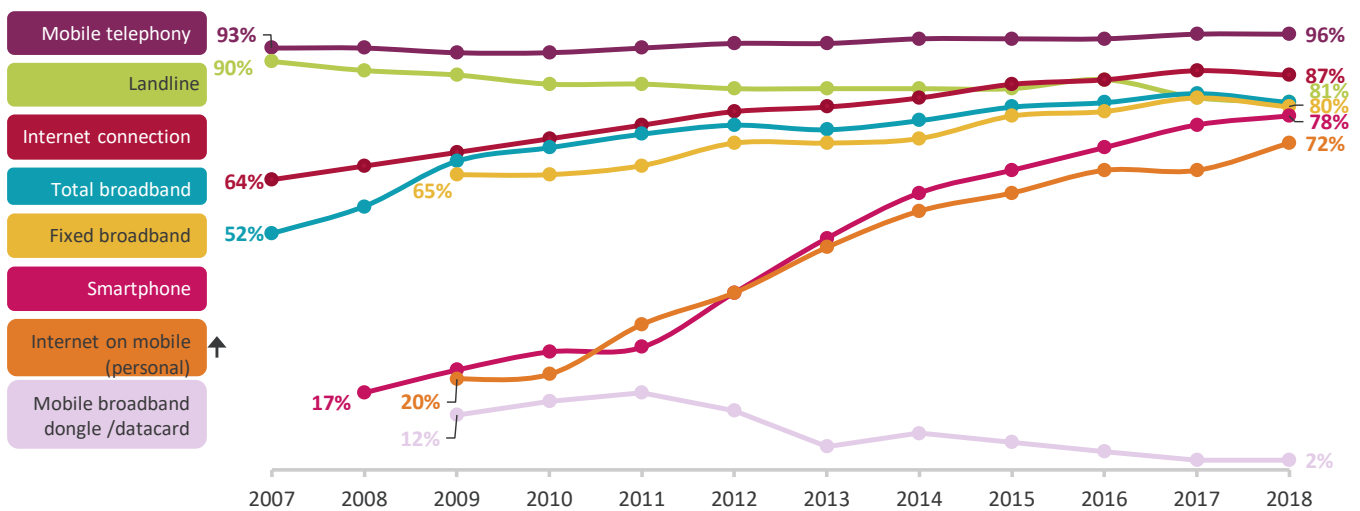
The quality of connectivity has improved, and people now spend more time online

More people are now connected to the internet: the amount of UK households with an internet connection has increased from 64% in 2007 to 87% in 2018, and mobile access has increased from 20% in 2008 to 72% in 2018. And the quality of these connections has also

improved over the past ten years. Data from November 2017¹⁷ show that 58% of residential fixed broadband lines were superfast products, and data from mobile network operators show that 63% of mobile connections now have access to 4G services.¹⁸

A consequence of better connections is more time online. As we saw in the earlier section (figure 1.6), people claim to spend around 24 hours each week online, the majority of it using mobile devices.

Figure 1.15: Household take-up of telecoms communications services



Source: Ofcom Technology Tracker. Data from Quarter 1 of each year 2007-2014, then Half 1 2015-2018.

Base: All adults aged 16+ (2018 n=3730).

QC1: Is there a landline phone in your home that can be used to make and receive calls? QE2: Do you or does anyone in your household have access to the internet/ world wide web at home (via any device, e.g. PC, laptop, mobile phone etc.)? / QE12 (QE9): Which of these methods does your household use to connect to the internet at home?

Note: Use of internet on mobile is a personal take-up measure, whereas the other data relate to household take-up. For the smartphone figure, between 2008-2010 the question was 'do you use a 3G handset?'. In 2011, this was changed to 'do you use a smartphone?'

¹⁷ [Ofcom Broadband speeds research](#)

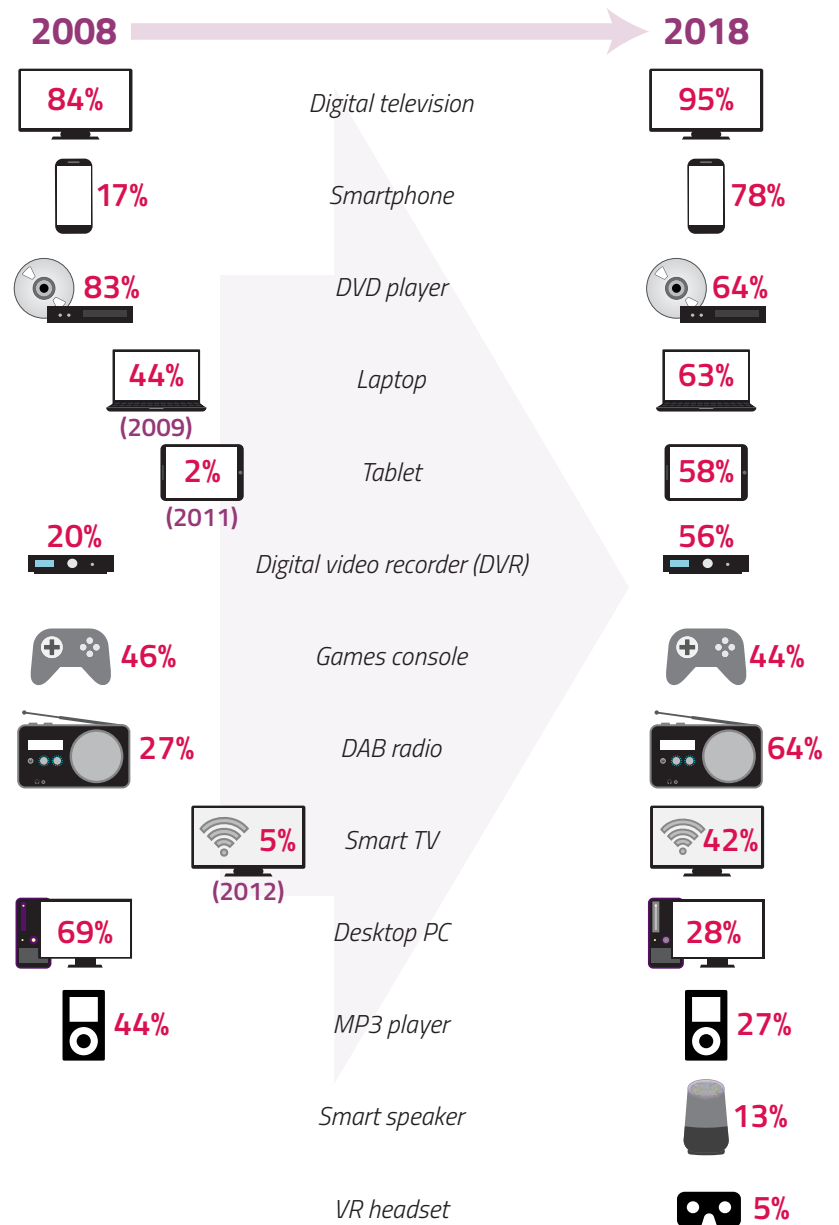
¹⁸ For further details, see Section 4: *Telecoms and networks*

Smart devices keep people constantly connected, both in and out of the home

The devices we use to go online have also developed over the past ten years, both in terms of enhancements such as features and processing power, and in the range of devices available. Smartphones first came onto the mainstream market in 2007 (the Apple iPhone) and 2008 (the first Android¹⁹ handset) and now 78% of UK adults personally use one. Tablet computers (e.g. the iPad) followed, and 58% of households now have at least one. We started measuring the take-up of smart TVs²⁰ in our Technology Tracker in 2012 when just 5% of households had one. This has risen to 42% of households in H1 2018. We have also recently started measuring smart speakers (13% of households in 2018) and VR headsets (5% of households in 2018).

Alongside increased take-up of these newer technologies, however, there has been a decline in ownership of other devices. For example, although around two-thirds (64%) of households still have a DVD player, this is down from its peak of 88% in 2009 as people increasingly take advantage of on-demand content. Similarly, smartphones offer consumers access to online music, and this has affected ownership of mp3 players: only 27% of households now have one, down from 44% in 2008.

Figure 1.16: Change in device take-up



Source: Ofcom Technology Tracker. Data from Quarter 1 of each year 2007-2014, then Half 1 2015-2018.

Base: All adults aged 16+ (2018 n=3730). Note: The Question wording for DVD Player and DVR was changed in Q1 2009 so data is not directly comparable with previous years. *Internet-connected dongle or set-top box includes NOW TV set-top box, Roku, Google Chrome, Amazon Fire TV stick, Amazon Fire TV, Apple TV

**Smart watch question wording amended in H1 2018 to add 'or wearable tech such as fitness trackers' so data is not directly comparable with previous years.

¹⁹ Android is a mobile operating system developed by Google.

²⁰ A smart TV is a stand-alone television set with inbuilt internet functionality.

Digital television and radio, and 'over-the-top' services have exponentially expanded consumers' choice of content

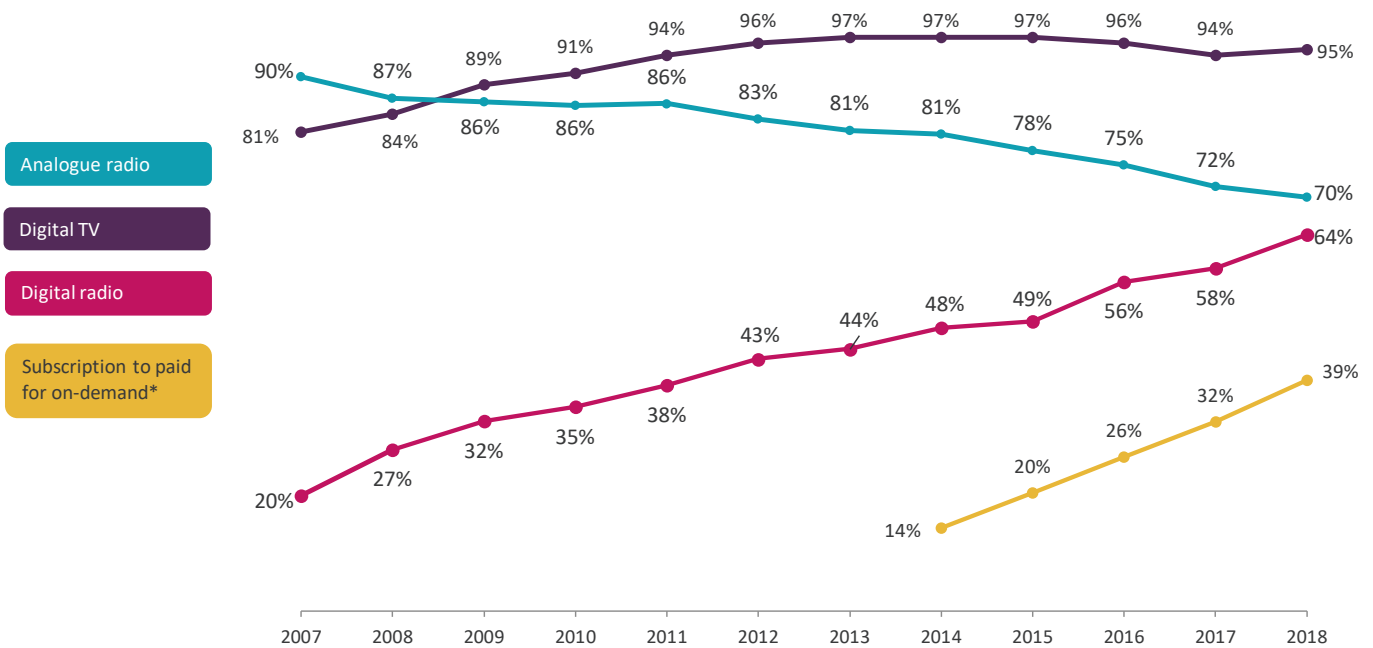
Changes in availability and take-up of communications services have led to changes in the availability and take-up of television and radio services. Digital TV switchover began in 2007 and was completed in 2012, and we can see the impact of this on the take-up of digital television sets; household ownership grew from 81% in 2007 to 95% in 2018. After the launch of Netflix in 2012, followed by

Amazon Prime Video in 2014, subscriptions to on-demand video services increased from 14% of households in 2014 to 39% in 2018.²¹

The radio industry has also experienced changes over this period, with more people listening through a digital platform rather than analogue. Although more people still listen through FM or AM (70%), the gap has narrowed considerably

over the period: 64% of people now listen digitally. And in Q1 2018, for the first time, the majority of listening hours were via digital platforms, including DAB and via the internet. This is partly due to the increase in availability of services on digital platforms, particularly on DAB, but also due to new devices (such as smart speakers) making it easier for people to listen to radio and audio.²²

Figure 1.17: Take-up of key broadcasting services: 2007-2018



Sources:

- Digital TV: Technology Tracker, Base: All adults (Q1 2007, 2311) (Q1 2008, 5812) (Q1 2009, 6090) (Q1 2010, 9013) (Q1 2011, 3474) (Q1 2012, 3772) (Q1 2013, 3750) (Q1 2014, 3740) (H1 2015, 3756) (H1 2016 3737) (H1 2017, 3743) (H1 2018, 3730). NOTE: 2015 changed to Half 1, rather than Quarter 1, due to dropping to two surveys a year
- Subscription to paid-for on-demand: BARB Establishment Survey, Q1 of each year. * Paid-for on-demand includes Amazon Prime, Netflix, Now TV, except subscriptions to paid-for on-demand
- Analogue / Digital radio: RAJAR, Q1 of each year

²¹ Ofcom Technology Tracker

²² See Section 3: Radio and audio for more detail on smart speakers

In time past

As is the nature of tracking surveys, the questions respondents are asked each year evolve over time, as services come and go and behaviours change, rendering certain questions no longer relevant. But although they are no longer in the survey, it is sometimes useful to look back at questions in bygone versions of Ofcom's Technology

Tracker, as a reminder of what used to be popular.

In 2007,²³ we asked about a range of devices that were removed in later surveys. For example, 71% of UK adults had a video recorder in the household, and in 2008, this was up to 72%. We stopped asking about video recorders in 2009, when take-up of DVD players shot up to 85%, superseding the use of video recorders.

Another old favourite was the teletext TV. Eight in ten (79%) households claimed to have one in 2007, but Teletext closed in mid-December 2009. In 2007, we also asked about mini-disc players (19%) and PDAs (personal digital assistants) (7%). We never asked about PDAs again, maybe because the rise of the smartphone meant they never really took off (the iPhone was launched in the UK in 2007).

But progress is not at the same pace for all consumers; a digital gap is evident between certain demographics

The evolution of technology can vary across consumer groups; some devices and platforms are adopted across the board and others are favoured by specific demographics. For example, although 78% of adults now personally use a smartphone, among 16-24s this increases to 95%. In contrast, only 51% of those aged 55 and older have one, though there has been a steep growth in ownership

in recent years among this age group. There are also significant differences by socio-economic group, with 89% of ABs owning a smartphone compared to 63% of DEs.

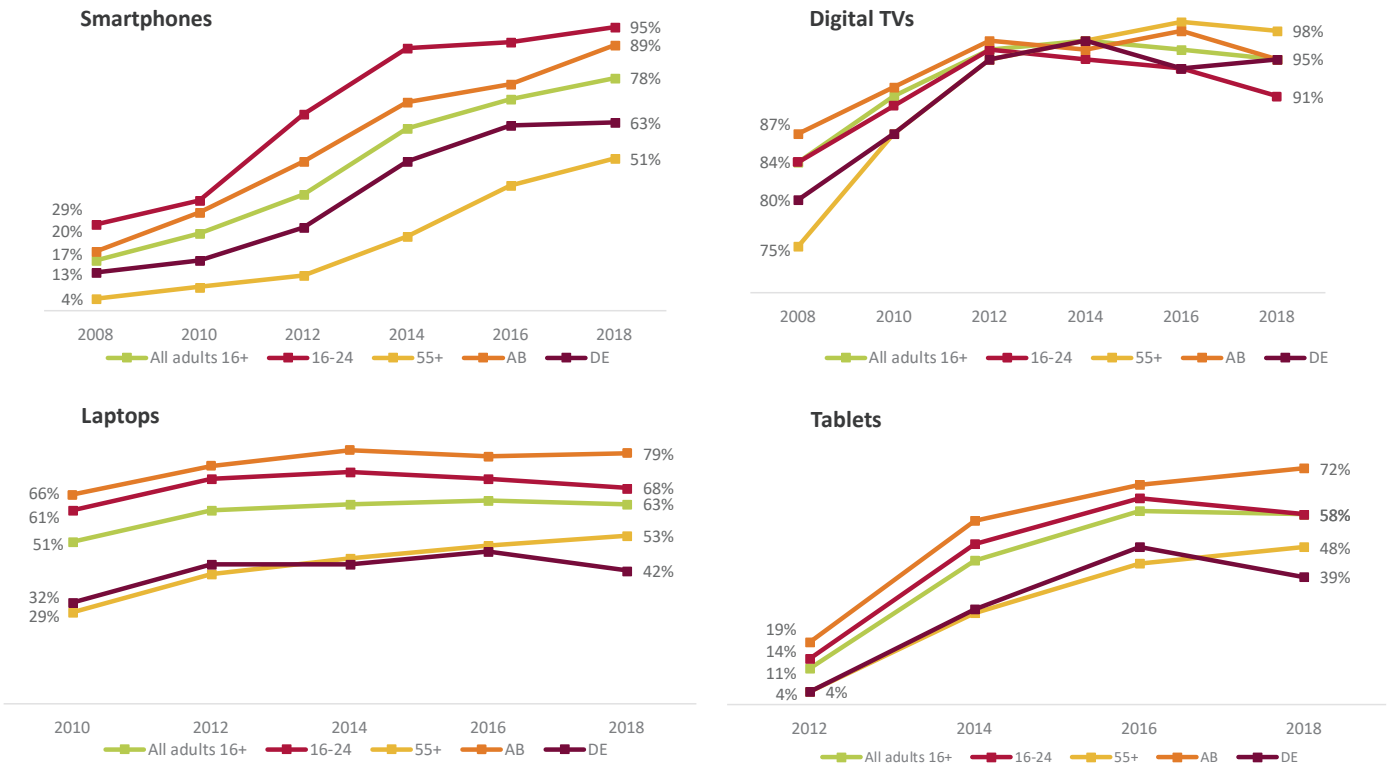
Fifty-eight per cent of households now have a tablet device, up from just 2% in 2011. AB households have seen the greatest increase in ownership over this period, up from 3% in 2011 to 72% in 2018. But in DE

households, just 1% had one in 2011, and in 2018 take-up is still less than two-fifths (39%).

There is much more consistency in ownership of digital TV sets, particularly since the completion of digital switchover in 2012. In 2008, 75% of over-54s had a digital TV set, lower than the average (84%), increasing to 98% in 2018, higher than average (95%).

²³ In 2007, the Technology Tracker was known as the Residential Tracking Survey. In 2008, we changed agency and questionnaire, and renamed the survey as the Technology Tracker.

Figure 1.18: Take-up of communications devices and services, by demographic



Source: Ofcom Technology Tracker

Base: All adults (Q1 2007, 2311) (Q1 2008, 5812) (Q1 2009, 6090) (Q1 2010, 9013) (Q1 2011, 3474) (Q1 2012, 3772) (Q1 2013, 3750) (Q1 2014, 3740) (H1 2015, 3756) (H1 2016 3737) (H1 2017, 3743) (H1 2018, 3730). NOTE: 2015 changed to Half 1, rather than Quarter 1, due to dropping to two surveys a year

Summary

We have seen some significant changes in the use of communications services and devices over the past decade, particularly in recent years. In 2012, 21% of adults said they never used the internet, increasing to 49% of those aged 55 and over. Now, just 12% of all

adults say they never go online, increasing to 29% of those aged 55+. ²⁴ Connected device take-up has increased in the past decade, especially for portable devices such as smartphones and tablets, which bring the convenience of being able to go online anytime, anywhere.

As more people become more technically-able, Ofcom will continue to track emerging technologies and devices, such as voice-activated speakers and other ‘smart’ technology; the digital gap between age groups may narrow still further.

²⁴ Ofcom Adult Media Literacy Tracker

2 TV

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The television sector is being transformed as the take-up of superfast broadband and connected televisions change the ways in which people watch programmes.

2.1 Sector overview

As we reported in our [Media Nations](#)²⁵ publication in July, the television sector is being transformed as the take-up of superfast broadband and connected televisions change the ways in which people watch programmes.

More than half of TV households have a television connected to the internet. A third of people watch programmes on BBC iPlayer, and subscription streaming and on-demand services such as Netflix and Amazon Prime Video are in around 40% of households. Young adults (16-24s) watch an average of an hour of YouTube a day, and our [research into children's media literacy](#) found that YouTube and Netflix had higher brand recognition than BBC or ITV among 12-15 year-olds.

Still, people watch an average of 3 hours 23 minutes of broadcast television a day (based on the industry measurement of live viewing or watching programmes within seven days of broadcast). But viewing has been falling since 2010, and there was a steeper decline in 2017 with daily viewing time down by nine minutes a day on average.

The fall in broadcast viewing is steepest among children and young adults. Children's viewing fell by 15% in 2017 to an average of 1 hour 24 minutes, and 16-24s' viewing fell by 12% to an average of 1 hour 40 minutes. Over-54s make up 28% of the population of the UK but accounted for 51% of television viewing in 2017.

These changes in viewing behaviour present major challenges to broadcasters. Television advertising revenues fell by 7% in real terms in 2017, and while this may be largely due to macro-economic factors, the risks of structural decline appear to be growing as viewing figures fall and online video advertising grows. There was also a decline in pay-TV revenues in 2017, after many years of growth, indicating a challenging market for pay-TV operators such as Sky and Virgin Media, which face competition from subscription on-demand services like Netflix and Amazon Prime.

The [interactive Communications Market Report](#) provides in-depth data which track changes in the television sector, including how viewing varies by age, and how revenues from, and spend on television programming has changed in recent years.

In the section below, we take a deeper look at the broad umbrella of entertainment programming (dramas, soaps, format shows and sport). These are at the heart of television's mass-market appeal, and while the public service broadcasters still attract very large audiences compared to online and pay-TV services, it is increasingly hard to get the large audiences of yesteryear. We use thresholds of 5 million and 8 million viewers to track how viewing habits have changed over time.

²⁵ Ofcom Media Nations 2018

Figure 2.1: UK TV industry: key metrics

UK television industry	2012	2013	2014	2015	2016	2017
Total broadcast TV industry revenue (£bn)	13.5	13.5	13.7	14.1	14.2	13.6
Proportion of revenue which is BBC income allocated to TV	21%	20%	21%	19%	18%	18%
Proportion of revenue generated by advertising	28%	29%	29%	30%	30%	28%
Proportion of revenue generated by subscriptions	44%	46%	45%	45%	46%	47%
Total online TV industry revenue (£bn)	0.4	0.7	1.0	1.4	1.8	2.3
Broadcaster share of total display advertising spend	31%	31%	31%	30%	30%	29%
PSB first-run UK originated spend on main five PSB channels (£bn)	2.8	2.6	2.7	2.7	2.8	2.6
Spend on network content by UK broadcasters (£bn)	6.0	6.1	6.6	6.8	7.5	7.5
TV homes (% of all households)	96%	95%	93%	95%	96%	95%
Minutes spent watching TV per day (per person aged 4+)	241	232	220	216	212	203
Share of the main five PSB channels in all homes	52	51	51	51	51	51

Source: Ofcom/broadcasters/Ampere Analysis/Advertising Association/WARC/BARB.

Note: Financial figures are expressed in real terms (adjusted for 2017 CPI prices). BBC income allocated to TV includes the proportion of the licence fee that goes to S4C. Broadcaster share as a proportion of total display advertising spend excludes direct mail and classified ads and is based on the Advertising Association/WARC Expenditure Report. The AA/WARC data are net of discounts, and include agency commission, but exclude production costs. Spend on originations includes spend on nations' and regions' programming (not Welsh or Gaelic language programmes but some Irish-language). TV viewing based on BARB analysis of viewing to scheduled TV programmes on TV sets up to seven days after first broadcast. Multichannel take-up/TV homes are from BARB's Establishment survey. Data for 2011 and 2012 refer to multichannel take-up. After digital switchover (DSO) in October 2012, all homes were required to have digital TV. From 2013, data refer to the proportion of UK homes that had a working TV set, as defined in BARB's Establishment Survey. Data refer to Q4 of each year. BARB changed the methodology for defining a 'TV-set home' in Q4 2015 and data comparisons with previous years should be made with caution.

Entertainment in the broadest sense, including drama, soaps, sports and traditional 'shiny floor' programmes, delivers

the biggest audiences for broadcast TV and is central to broadcast television's mass-market appeal. Retaining mass

audiences in entertainment programming is essential for the public service broadcasters and for other broadcasters.

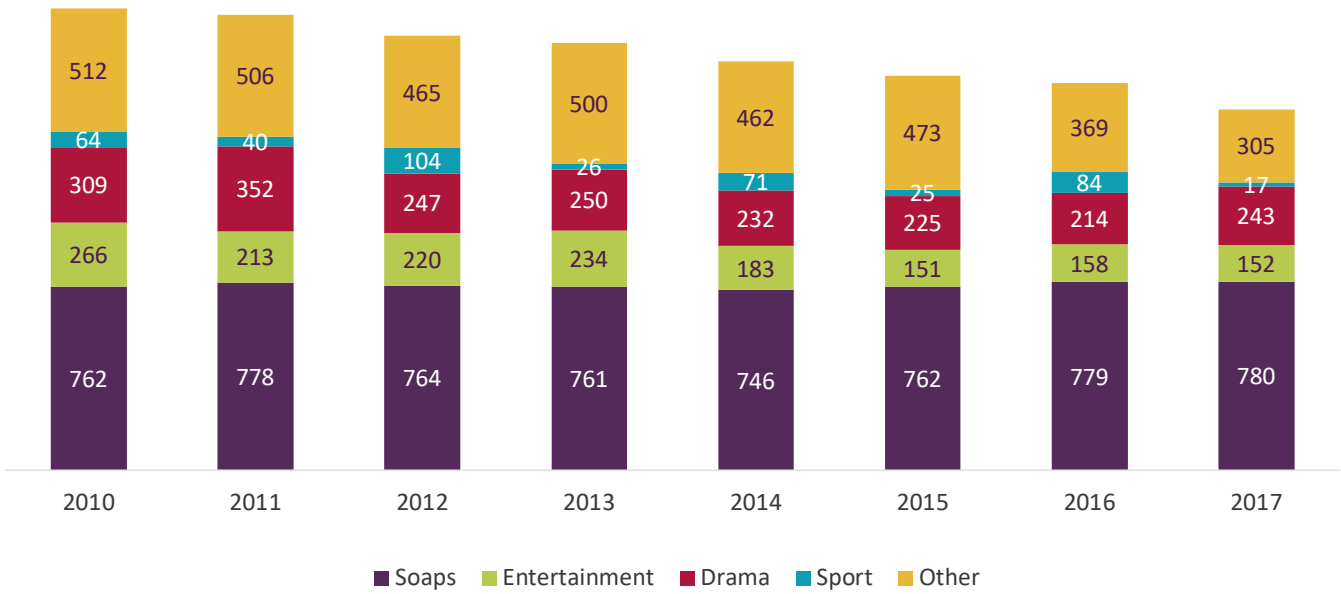
2.2 The decline of big-audience shows

The days of programmes routinely attracting audiences of 10 million and over are all but gone, due to the rise of multi-channels on digital TV platforms in the 1990s. The

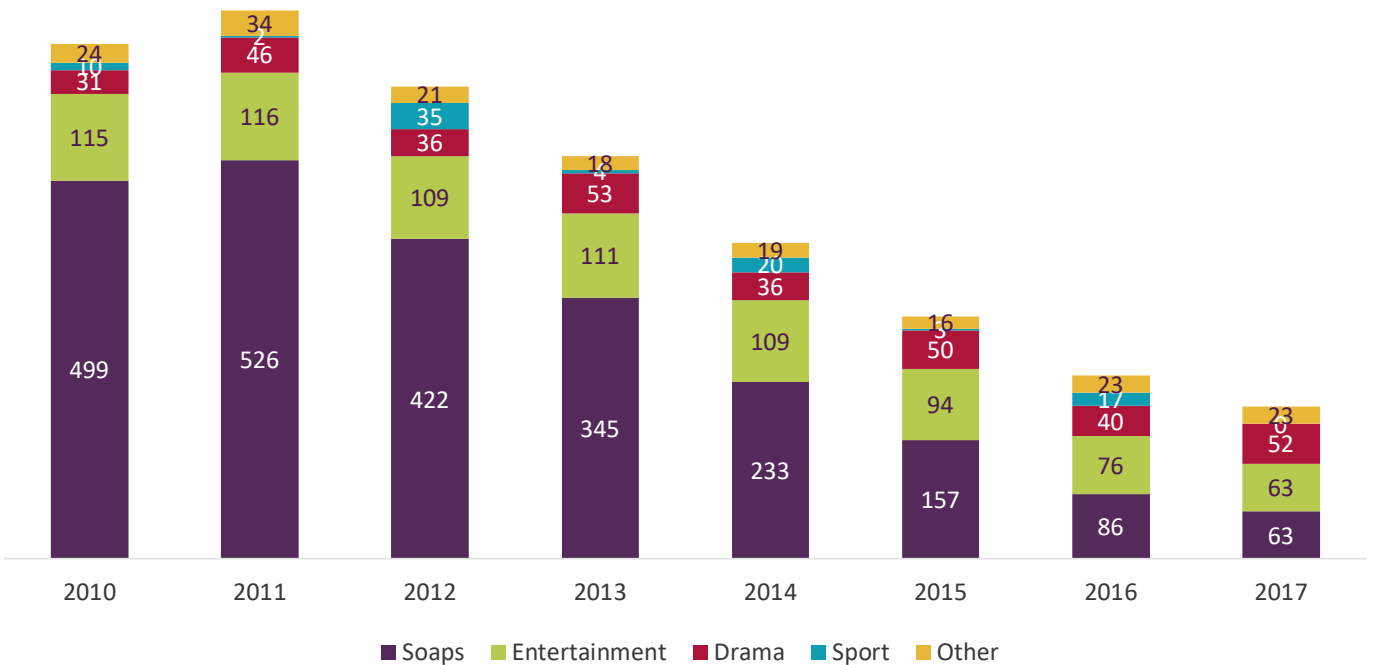
programmes that now reach smaller, but still significant audiences of 5 million+ or 8 million+ illustrate the varying fortunes of entertainment on TV over the last few years.

Figure 2.2: Average audiences for programmes, by genre

Programme with 5m+ by genre



Programme with 8m+ by genre



Source: BARB average audiences for programmes in selected genres

Drama is capable of attracting 8 million+ but many smaller shows have dropped below 5 million.

The number of programme episodes drawing 8 million+ viewers, although small, has gradually increased since 2010 (for example *Call the Midwife*, *Broadchurch*), yet the number reaching 5million+ is in decline. This suggests that only the very biggest drama titles are reaching big audiences, while soap-like dramas (like *Holby City*) are losing audiences.

Soaps still pull in 5 million+, but not 8 million+. The number of soap episodes

drawing more than 8 million viewers has been in sharp decline over the last five years, suggesting that audiences are compacting down to a core of regular viewers.

Sports is cyclical and large audiences are still there for the big events. Transmissions attracting large audiences concentrate around even years; the Olympics, the (football) World Cup and the Euros are the main draws. London 2012 formed the bedrock of a stand-out year for sport, with support from the Euros, Britain's first Tour de France win and Andy Murray's first grand slam title.

Entertainment format shows as a whole are in general decline.

The category includes programmes such as *Britain's Got Talent*, *The X Factor* and *Strictly Come Dancing*, and although they have experienced differing fortunes, there is an overall reduction in the number of programmes in both the 5 million+ and 8 million+ categories.

Each of these types of content sheds a different light on the continuing strengths and vulnerabilities of broadcaster-derived TV.

2.3 Drama: serials against series

Declines in viewing of long-running 'soap-like' drama series such as *Holby City* and *Casualty* affect the number of shows appearing in the 5 million+ audience range. In fact, audiences of *Holby City* and *Casualty* declined by 17% between 2010 and 2017, with under-45s down by between 37% and 45% and only the 65+ age group showing any growth (1%). This is a microcosm of the overall decline in TV viewing; older viewers are slowing the bigger picture of falling viewing levels.

However, the emphasis on high-quality drama has intensified. The broadcast TV programmes that attracted episode audiences of 8 million+ in 2017 are shown in Figure 2.2.

Figure 2.3: Titles from broadcast TV that attracted episode audiences of 8 million+ in 2017

Drama title	No of episodes with audience >8m
Call the Midwife	9
Broadchurch	8
Silent Witness	7
Death in Paradise	7
Liar	5
Doctor Foster	5
Sherlock	3
Line of Duty	3
The Moorside	2
Three Girls	2
Vera	1

Source: BARB consolidated viewing of individual transmissions

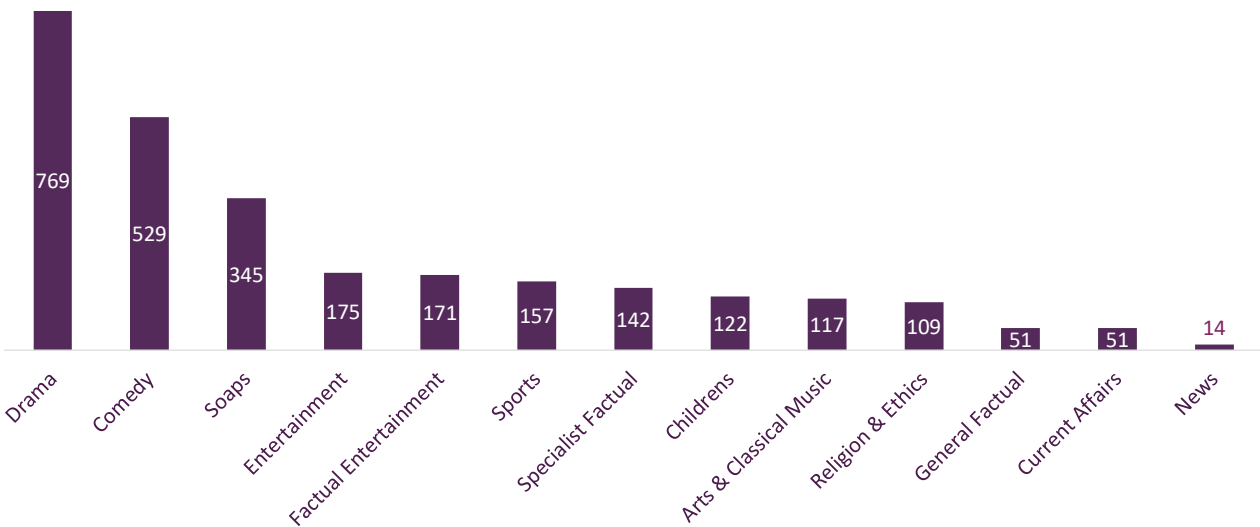
Drama programming has a track record of attracting audiences and justifying the high levels of investment that are required to produce it. This is true both for broadcasters and online subscription services such as Netflix and Amazon Prime Video, but the global nature of the online providers has led to changes in funding models in recent years.

The public service broadcasters (PSBs), primarily through the main PSB channels, continue to invest heavily in original UK drama, at £307m in 2017, a

£16m decrease in real terms since 2012 (when Netflix launched in the UK). But this represents only the direct cost to broadcasters; the total cost of producing drama is significantly higher, with the gap made up by tax breaks, co-production partner funding and other factors. Output has been broadly stable from 2012 to 2017 (399 hours vs. 417) with the vast majority (93%) of this content broadcast during peak hours in 2017.

What sets drama apart from any other content genre is the high cost per hour of production. Across the PSB channels, the cost per hour on new UK drama was £769k in 2017, compared to £175k for entertainment and £142k for specialist factual content. Production costs for drama series commissioned by US-based online services are often much higher. Netflix is reported to have spent £97m on the first two series of *The Crown*, which works out at around £5m for each hour.²⁶

Figure 2.4: Cost per hour of first-run UK-originated content on the PSB channels (£000s)



Source: Ofcom/broadcasters.

Note: Chart does not include educational content or feature films, as less than 100 hours of first-run UK-originated content in these genres were broadcast across the PSB channels in 2017

²⁶ As discussed by the creative team behind *The Crown* at a [2018 BAFTA event](#) (from 18 minutes in).

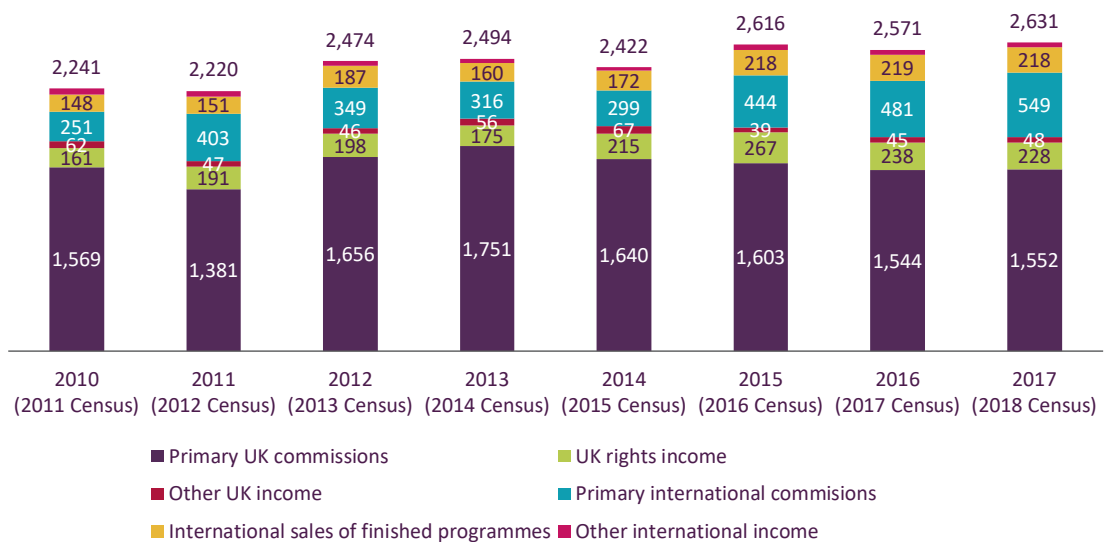
It is possible that since Netflix and Amazon have been investing heavily in drama, audiences have come to expect higher production values. While global players like Netflix and Amazon have access to increasing content budgets, UK services have faced challenges in recent years – such as the freezing of the BBC licence fee between 2010 and 2017 and a declining advertising market affecting commercial broadcasters through 2017. However, the increasing

number of co-production deals being entered into by UK PSBs are strongly mitigating these rising costs and tighter budgets; the PSBs do not have to meet the entire cost of programme making, instead trading off part-ownership of the associated rights.

In this climate, broadcasters and the wider UK production sector have been able to leverage the global nature of TV drama – especially that produced in the UK – to access new revenue streams and

so continue to produce high-quality drama. Across the BBC, Channel 4 and Channel 5, third-party funding for first-run UK-originated content has nearly doubled in real terms since Netflix launched in the UK: from £186m in 2012 to £338m in 2017.²⁷ In addition, figures from Pact show strong growth in international TV revenue in recent years for the UK production sector, reaching £802m in 2017, up from £500m in 2014.

Figure 2.5: Producer TV-related revenues: UK and international (£m)



Source: Pact UK Television Production Census 2018, Oliver & Ohlbaum analysis. Figures are in 2017 terms.

Definitions: 'UK rights income' – UK secondary sales, merchandising, formats, home entertainment etc.; 'Other UK income' – pre-production and other TV-related revenue; 'Other international income' – international rights (excluding finished programme sales), pre-production and other TV-related revenue.

Drama plays a key part in this; it allows producers to take third-party funding in exchange for international rights. The success of UK dramas abroad in recent years – from global BBC hits like Doctor Who to recent Channel 4/Netflix co-production The End of the F***ing World – means that drama is likely to be responsible for much of this additional investment.

Figure 2.6: UK drama, PSB main channels: 2017

Average minutes per week	54
Average audience age	57
Genre cost per hour of new UK drama	£769,000
No of episodes with 5 million+ viewers (2017 vs. 2012)	-2%

Source: BARB. Average minutes includes non-viewers to genre/content, average age is based on total audience minute by minute, no of episodes from consolidated viewing of individual transmissions. Genre cost from PSB returns.

²⁷ Figures from ITV were unavailable over this period.

2.4 Soaps: a resilient, but declining source of strength for PSBs

One genre in which PSBs are (so far) not experiencing any significant competition from international players is soaps. Soaps remain a staple of the PSB schedule, making up 9% of peak network output across the main five PSB channels in both 2016 and 2017. However, the overall decline in TV consumption is reflected in the fact that the number of episodes attracting an 8 million+ audience has gone down from 526 in 2011 to just 63 in 2017.

Soaps are very attractive for broadcasters as they deliver regular audiences every week of the year at a considerably lower cost than drama series. Although the PSBs spent £307m on new UK drama in 2017, compared to £248m on networked first-run UK-originated soaps, the 2017 cost

per hour for soaps was £345k – less than half the £769k of UK drama, with far more hours of new UK soaps (720) than drama (399) broadcast across the UK in 2017.

Crucially, soaps play a huge role in delivering the PSB purposes – particularly reflecting UK cultural identity and representing diversity and alternate viewpoints – through challenging, widely available content. They cover the intricacies of life in the UK in a way that dramas which are often aimed at the international market do not, a theme explored by ITV chairman Sir Peter Bazalgette recently.²⁸

Soaps, in common with long running dramas like *Casualty*, are favoured by an older audience which is drawn in particular towards

locally-themed content. This demonstrates the challenge of trying to retain the core older audience, while appealing to younger viewers by using contemporary plots.

The UK focus on soaps, and their lack of appeal as a 'box set' or library content, means that third-party funding is unlikely to be available for them in the long term due to their limited ability to scale. They are also predominantly produced in-house by the PSBs (with the exception of Channel 4's *Hollyoaks*) although with [the BBC's 'compete and compare' strategy](#) and the recent opening up of *Holby City*, additional investment may be available to the genre in the future.

Figure 2.7: Soaps (*Coronation Street*, *EastEnders*, *Emmerdale*) 2017

Average minutes per week	49
Average audience age	54
Genre cost per hour of new UK drama	£345,000
No of episodes with 5 million+ viewers (2017 vs. 2012)	+2%

Source: BARB. Average minutes includes non-viewers to genre/content, average age is based on total audience minute by minute, no of episodes from consolidated viewing of individual transmissions. Genre cost (UK soaps) from PSB returns.

²⁸ [Public Service Broadcasting in a digital age](#), 29 November 2017, Voice of the Listener and Viewer Autumn Conference.

2.5 Sport: cyclical event scheduling and reducing spend levels

Major sporting events drive the highest audiences of free-to-air television (for example, England's matches in the FIFA World Cup 2018 drew audiences of over 20 million), but other than for listed sporting events, the public service broadcasters have for the most part been priced out of high-profile live sport, to the advantage of pay-TV providers. Football has been one of the key drivers of subscriptions for Sky's satellite service since the early '90s, and for BT TV which launched in 2013.

The cyclical nature of sport causes significant fluctuation in overall audience numbers (see Figure 2.3 above, which shows that the number of sports programmes with more than 8 million viewers is higher in 'even' years such as 2014 and 2016, when there are football World Cup tournaments or European football championships and summer Olympics). There has also been an impact from the loss of sports rights from terrestrial TV, notably live Champions' League football moving from ITV to BT Sport for the 2015/2016 season, and F1 rights moving from BBC/Sky to C4/Sky in 2016. However, the effect of this on large audience transmissions has been relatively small, as those sports tend to average less than 5 million audiences.

For PSBs, sport helps reflect the UK's cultural identity by bringing audiences together for shared experiences,

whether the BBC's coverage of the Wimbledon tennis final or the Olympic Games. The commercial PSBs can use sport to generate additional revenue to invest in other programmes; for example, ITV's coverage of England football matches and Channel 4 acquiring Formula One rights in 2016. Sport is particularly attractive to advertisers as it allows them to target a specific demographic at mass scale at a single point in time. These demographics often include large numbers of men aged 16-34, who are particularly valuable for brands as they are increasingly difficult to target via other genres.

For pay-TV services, sport has driven subscriptions, but at an increasing cost in recent years. In 2017, the commercial multichannels – primarily Sky and BT – spent £3.27bn on their sports channels, making up 43% of all network content spend in the UK. This figure has nearly doubled in real terms since 2012 (£1.64bn) when it made up 27% of the total.

However, we may have reached peak sport spend across the UK by traditional broadcasters. Sky and BT spent £4.55bn on the latest football Premier League rights for 2019-2022, down from £5.14bn for the 2016-2019 seasons. Meanwhile, BT paid slightly more for its coverage of the Champions League and the Europa League for 2018-2021, at £1.18bn compared to £0.9bn for the previous three years. This was probably a premium paid for exclusivity (ITV maintained a highlights package during the first three years) and a lesser commitment to broadcasting some matches for free through BT Sports Showcase.

Although 5 million+ audiences have declined in the last five years, sports events are still an attractive offering for TV companies, particularly for their ability to deliver the young male demographic. As prices of sports rights in the UK deflate, it may be that on-demand and streaming services pick up the slack in sports investment.

Figure 2.8: Sport - PSB main channels: 2017

Average minutes per week	51
Average audience age	56
Genre cost per hour of new UK drama	£157,000
No of episodes with 5 million+ viewers (2017 vs. 2012)	-35%

Source: BARB. Average minutes includes non-viewers to genre/content, average age is based on total audience minute by minute, no of episodes from consolidated viewing of individual transmissions. Genre cost from PSB returns.

Online streaming services have until recently only dabbled in sports rights, due to high prices and national limitations.²⁹ However, Amazon has been building scale in the UK, culminating in the purchase of Premier League rights for 20

matches across two sets of fixtures in December each year from 2019 to 2021. This will complement Amazon’s growing presence in tennis, the rights to which they acquired from Sky in 2017.³⁰ Eleven Sports is another online entrant to

the UK sports market, having recently gained UK rights to La Liga (a popular football league with UK audiences) and Serie A. The company announced plans to launch an online streaming platform in August 2018.³¹

2.6 Entertainment format shows: a few titles fighting the decline

Entertainment³² is one of the most popular genres on UK television, with PSB channels leading in delivering large audiences through this format. Entertainment content made up 15% of the peak-time network schedule on the main five PSB channels in 2017, with only specialist factual content making up a greater proportion, at 18%.

Spend on first-run UK-originated entertainment content on the PSB channels rose 4% in real terms to £411m in 2017; factual was the only genre with higher spend (£566m). In 2017, it cost on average £175k to make an hour of new UK entertainment content across the PSB channels, and this has been on the rise since 2011.

Big live-audience entertainment formats, and their ability to generate large broadcast audiences, are the backbone of this category. However, the category is propped up by a handful of very popular

programmes such as Strictly Come Dancing, Britain’s Got Talent, I’m a Celebrity...Get Me Out of Here, Ant & Dec’s Saturday Night Takeaway, The Voice and The X Factor. This means that a decline in one of these programmes can skew audience figures for the entire category. The recent decline in viewing of The X Factor was largely driven by steep falls in viewing by younger audiences. With the exception of Strictly Come Dancing, I’m A Celebrity and Ant & Dec’s Saturday Night Takeaway, the entertainment category has experienced steady decline in mass audiences in the last five years.

Even if 8 million+ total audiences are usually out of reach, the strong performance of Love Island on ITV2 shows that the right format can build high levels of viewing from young audiences. The first series launched in 2015 with an average audience of 615k, of which 294k viewers were aged 16-34 (including ITV2 +1). Series 2 delivered an increased average audience of 1.470m, including 831k viewers aged 16-34; for series 3 the average audience increased another 70% to 2.492m, including 1.439m viewers aged 16-34. At the time of writing, series 4 (in 2018) seems to be performing even better.

Figure 2.9: Entertainment - PSB main channels: 2017

Average minutes per week	140
Average audience age	55
Genre cost per hour of new UK drama	£175,000
No of episodes with 5 million+ viewers (2017 vs. 2012)	-31%

Source: BARB. Average minutes includes non-viewers to genre/content, average age is based on total audience minute by minute, no of episodes from consolidated viewing of individual transmissions. Genre cost from PSB returns.

²⁹ Individual deals need to be struck separately in each country.

³⁰ The Guardian, [Amazon outbids Sky to win exclusive ATP tennis rights](#), 1 August 2017

³¹ [Eleven Sports partners with IMG and secures Serie A rights in the UK and Ireland](#), 13 July 2018

³² Entertainment, in this instance, includes chat shows, variety shows, talent contests and game shows as well as contemporary music output.

3 Radio and audio

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Like the television sector, radio is being disrupted by the growth of digital platforms, connected devices and on-demand and streaming services.

3.1 Sector overview

However, radio continues to be resilient. Nine in ten adults in the UK listen to radio every week for an average of nearly 21 hours a week, and 75% of all audio listening is to live radio.

In Q1 2018, for the first time, more than half of radio listening was via digital platforms. Most of this was on DAB (37% of all radio listening), with the remainder over the internet (9%) and via digital TV (5%). DAB coverage is now at 90% of the UK, and almost two-thirds of households have a DAB set.

Digital radio has enabled many more commercial stations to broadcast nationally, and the share of listening to national commercial stations has increased from 13.0% in Q1 2016 to 17.5% in Q1 2018. As a result of this, radio advertising revenues increased by 1% in real terms in 2017, compared to a 7.5% decline in television advertising revenues.

A detailed overview of market developments in radio is available in the [Media Nations](#) report, published in July 2018, while the [interactive Communications Market Report](#) provides in-depth data on listening trends (including how they vary by demographic), revenues and DAB availability.

In the following sections of this chapter we focus on two emerging changes in how audio content is being packaged and accessed, firstly looking at the growth and impact of smart speakers and then at the rising popularity of podcasts.

Both challenge the conventions of radio listening by offering on-demand alternatives to the habitual behaviour that has long been characteristic of radio listening, whereby people tune into the same two or three stations at the same times across the week. Radio stations now have to compete with a whole range of other content providers. But they also have new opportunities to grow and develop audience reach and engagement, targeting national or even international audiences with new or re-packaged output that enables people to listen to programmes, or presenters, in a different way.

Figure 3.1: UK radio industry: key metrics

	2012	2013	2014	2015	2016	2017
Weekly reach of radio (% of population)	90.3%	90.3%	89.3%	89.3%	89.3%	90.2%
Average weekly hours per listener	21.9	21.5	21.3	21.0	21.2	20.8
BBC share of listening (%)	55.7%	54.9%	54.4%	54.1%	52.8%	51.9%
Total industry revenue (£m)*	1294	1235	1291	1290	1290	1313
Commercial revenue (£m)*	511	484	529	536	552	557
BBC expenditure (£m)	771	740	750	742	726	744
Community radio revenue (£m)	11.6	11.4	11.9	12.0	11.9	11.9
Radio share of advertising spend (%)	3.3%	3.1%	3.1%	3.0%	3.0%	3.1%
DAB digital radio take-up (adults) (%)	44.3%	47.9%	49.0%	55.7%	57.9%	63.7%
Digital radio listening share (%)	34.3%	36.6%	39.6%	44.1%	47.2%	50.9%

Source: RAJAR (Q1 of the following year). Ofcom calculations based on figures in BBC Annual Report and Accounts 2016-17 (www.bbc.co.uk/annualreport), AA/WARC Expenditure Report, broadcasters. Revenue figures are adjusted for CPI (2017 prices). *Commercial and total revenue figures for 2012-2013 are not wholly comparable to 2014-2017 due to an amendment in the data collection methodology.

3.2 Smart speakers and voice assistants

Smart speakers

A smart speaker connects to the internet and is controlled by the user's voice. An integrated artificial intelligence (AI) voice assistant replies to commands and questions from the user through the smart speaker.

Each command must be prefaced by a sonic key or 'wake word', which varies depending on the voice

assistant platform used by the device. The Amazon range and the Apple HomePod react to the names of their voice assistant platforms, Alexa and Siri respectively, while the Google Home with Google Assistant responds to the wake words 'OK Google'. Other technology companies, including Sony, LG and Panasonic, incorporate Google's AI assistant into their smart speakers.

The functionality of a smart speaker can be extended using software similar to smartphone apps. These are sometimes called 'skills' (especially on Amazon devices) or 'tasks'. They can be developed by the voice assistant platform itself, the device manufacturer or third parties, and can be added to the device and customised to the user's preferences.

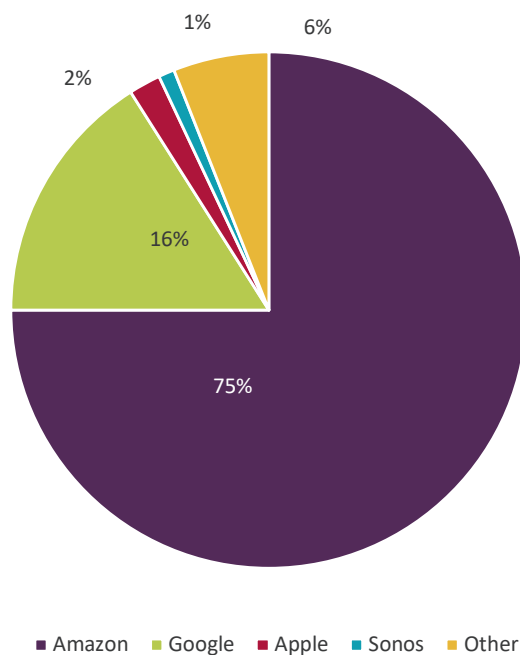
Smart speakers and the voice assistant platforms which underpin them are becoming a more common way of accessing audio services. Increases in the processing power and speed of internet connections, along with advances in artificial intelligence, have enabled the development of services which allow people to interact with their devices with natural speech.³³ One of the earliest large-scale deployments of these platforms was Apple's Siri, which has been integrated into its smartphones

since 2011. In addition to smartphones and tablets, voice control is being built into certain models of smart TVs, and even cars. This includes the ability to control features such as the car's infotainment system, or to make and receive calls.

The first dedicated smart speaker was Amazon's Echo, which launched in the UK in 2016, following its introduction in the US in 2014. Others have followed, including Google's Home with Google Assistant (launched in April 2017)

and Apple's HomePod with Siri (February 2018). Other equipment manufacturers such as Sony, LG, Panasonic and Sonos have launched smart speakers which use one or more of the voice assistant platforms on the market. These include Microsoft's Cortana and Samsung's Bixby, as well as those from Amazon, Apple and Google. Although the Amazon range, comprising the Echo, Echo Dot and Echo Show, remains the most prevalent, with 75% UK market share, this is down from 88% in Q3 2017.³⁴

Figure 3.2: Smart speakers, by brand, UK market share and speech radio



Source: YouGov Smart Speaker Report, Q1 2018

³³ While speech recognition has been available for several decades, vocabulary and links to external services have generally been limited, as the previous system relied mainly on local processing, with primitive functionality, and applied to a narrow range of devices controllable by voice. The current generation of voice assistants use an internet connection to access a cloud-based AI platform, allowing natural speech to be understood, and where appropriate, providing a spoken content-relevant response.

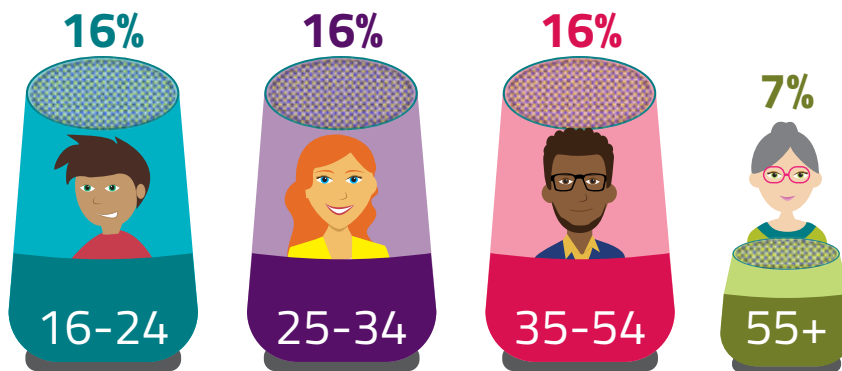
³⁴ [YouGov Smart Speaker Report](#), Q1 2018

Take-up of smart speakers is comparable among all age groups between 16 and 54

While take-up of smart speakers across the population as a whole remains relatively low at 13%,³⁵ it is comparable by age group. In the first half of

2018, 16% of 16-24s, 25-34s, and 35-54s in the UK owned a smart speaker, although this figure more than halved, to 7%, for those aged 55 and above.

Figure 3.3: Take-up of smart speakers, by age



Source: Ofcom Technology Tracker, H1 2018

QB1. SHOWCARD Which of the following do you, or does anyone in your household, have in your home at the moment? (MULTI CODE) Smart speakers which can respond to voice commands (e.g. Amazon Echo, Google Home, Apple HomePod)

Base: 16-24: n=516, 25-34 n=584, 35-54: n= 1172, 55+ n=1457

US research indicates that people have privacy concerns about smart speakers

Smart speakers were released in the US in 2014, two years before their introduction in the UK. [Research published by America's National Public Radio](#)

(NPR) earlier this year found that many people who are looking to buy a smart speaker are concerned about the device 'always listening', with just

over a third (36%) claiming that it bothers them, and 34% concerned specifically about government surveillance.³⁶

One in ten radio listeners now listen to radio via a smart speaker

Smart speakers present opportunities for the radio industry in terms of listening and revenue. One in ten radio listeners already listen to radio on a smart speaker, with 7% of radio listeners listening to radio in this way at least weekly.³⁷

Live radio accounts for just over half (54%) of audio listening on smart speakers, but music streaming services are not far behind, at 45% of audio time.³⁸

Smart speakers are used for a wide variety of functions: 92% claim to have used their

speaker for news/weather information and 88% have used it to get an answer to general questions. Around four in ten (41%) smart speaker owners have also used their speaker to enable 'smart home' technology or devices such as lighting.³⁹

³⁵ Ofcom Technology Tracker H1 2018

³⁶ NPR Smart Audio Report

³⁷ Ofcom Technology Tracker H1 2018

³⁸ RAJAR MIDAS Spring 2018

³⁹ OC&C (2018) The Talking Shop

Broadcasters are transforming existing services and launching new services on smart speakers

By the end of Q1 2018, 69 radio stations owned by Bauer, including KISS, Magic and Absolute Radio, along with local city stations, had their own 'skill' on Amazon's smart speakers. In addition to playing the station, these skills respond to user questions about which song is playing and what show is on.

Other UK radio broadcasters, including Global, have also released skills for their radio stations, including LBC and Heart. Beyond commercial broadcasters, Radioplayer has developed a skill for Amazon's platform, which provides access to several hundred UK-based radio stations from multiple broadcasters.

In December 2017, the BBC launched its first full voice app for voice-controlled smart speakers, enabling

users to access the BBC's full range of live radio stations - including all local, national and international radio - as well as the BBC's full range of podcasts.⁴⁰ The BBC is investing in research and development for content specific to smart speakers: in February 2018 it piloted The Inspection Chamber, an interactive science-fiction comedy in which listeners were encouraged to interact with the narrative, using their voice.⁴¹

Smart speakers: new opportunities for advertisers and e-commerce

Radio services streamed via smart speakers may carry advertising spots and sponsorship messages that are identical to those broadcast on other platforms such as DAB and FM. However, the delivery of audio over IP provides the opportunity to use online techniques for monetisation, including personalised and addressable advertising which is dynamically inserted into the audio stream.

In addition to advertisements placed around and within speech and music content, the functionality of smart speakers may allow for the development of new forms of audio advertising, prompted

by voice-based search. Most radio and audio adverts are currently display advertising, and are used mainly for branding purposes.⁴² However, the question-response functionality of a smart speaker mimics the environment for search advertising, a market that has previously not been available to the radio industry.

Beyond their use to access audio content, and for applications such as search, some smart speaker owners are using their devices to make purchases from online retailers. Examples of retailers in the UK with a presence on smart speaker platforms include Amazon, Tesco (available via

Google Assistant) and Ocado (via Alexa). As the take-up of smart speakers grows, it may also further increase the shift in retail expenditure to online platforms, by shortening the time between the point of decision and the point of transaction. By providing the ability to order a product by voice command, users do not have to log into a website or open an app to complete a purchase. With 45% of smart speaker owners having made at least one purchase via their devices, OC&C forecasts that voice-enabled e-commerce will account for £3.5bn, or 3%, of online spend in the UK by 2022, up from £0.2bn in 2017.⁴³

⁴⁰ BBC, [BBC launches its first full voice service for smart speakers](#), 8 December 2017

⁴¹ BBC, [The Inspection Chamber](#)

⁴² For a discussion of display and search advertising see Section 5: *Internet and online content*.

⁴³ OC&C (2018) [The Talking Shop: The Rise of Voice Commerce](#)

3.3 Podcasts

What is a podcast?

While there is no single established definition, in general terms, podcasts are episodic pieces of music or speech-focused content that can be downloaded or streamed on demand.

One feature of the podcasting sector is the wide range of organisations and individuals active in the space. While some podcasts are created from radio output by established broadcasters, many others, including TV companies, newspapers and 'digital native' organisations are investing in the format.

Although the term 'podcast' was used at least as early as 2004 to describe this type of audio content, podcasts have gained in prominence only recently, as more people listen to them, and through high-profile podcasts such as *Serial* (first released in 2014).

Podcasts are booming in the UK and broadening the audio landscape

In the last few years, podcast consumption has surged in the UK, with a growing number of providers of audio content. The BBC is a major producer of podcasts globally; last year downloads of BBC podcasts hit 240 million, with *The Archers*, *Kermode* and *Mayo's Film Review* and *Woman's Hour* among the most popular.⁴⁴

Podcasts are used for different purposes by content creators. For established radio broadcasters, they are

an opportunity to repurpose and remonetise existing output to increase digital revenue (through advertising or subscription⁴⁵) and to reach audiences outside their traditional geographic coverage areas. Podcasts are also used to attract younger audiences who listen to less live radio than their older counterparts.

[Ofcom's research from 2017](#) showed that UK listeners access podcasts from a range of sources. Among the most

commonly used were the BBC website or app, YouTube and iTunes; other sources included streaming services such as Spotify and newspapers' websites or apps.⁴⁶ With the ambition of making navigation and access easier for audiences, the BBC released its [Sounds app](#) in June 2018, bringing together its broadcast radio, catch-up radio and podcast content into a single place.

⁴⁴BBC, [BBC launches its first full voice service for smart speakers](#), 8 December 2017

⁴⁵For example, publishers including the New York Times, Monocle and the Financial Times do not restrict access to their podcasts to subscribers.

⁴⁶[Communications Market Report 2017](#)

Podcast listening is on the rise

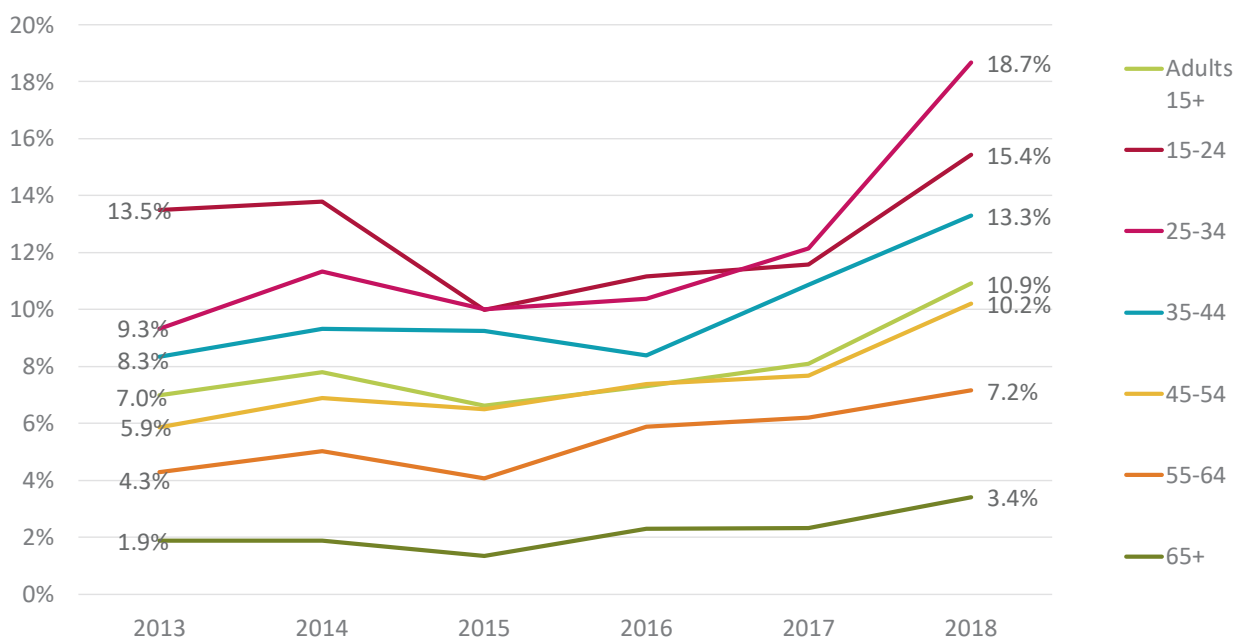
Given the range of podcast creators and their business models, the number of ways in which listeners can access podcasts, and the lack of agreement on a universal definition, there is currently no established audience measurement system in the UK. Data about podcast consumption in the UK tends to be based on surveys or diary studies, including from RAJAR and TouchPoints, while some distribution platforms, including iTunes, provide some proprietary information on downloads and listening.

The position contrasts with that in the US and Sweden, where dedicated systems for measuring the audiences of individual podcasts have already been developed.⁴⁷

According to RAJAR, the number of UK adults who listen to a podcast each week increased from 3.2 million (7% of adults) in 2013 to 5.9 million in 2018 (11% of adults). This increase is across all age groups, but the steepest growth in the past year was among 15-34 year-olds. Podcast hosting platform ACast identified similar

growth, with 23% of the UK online population (16+) having listened to a podcast in the previous month (November 2017), and 44% of podcast listeners listening twice or more a week. Notably, more than a fifth of those surveyed said they had started listening to podcasts in the last six months, indicating that the reach of podcasts has accelerated.⁴⁸ According to ACast’s research, the most listened-to podcast genre in the previous three months was comedy, followed by music, TV, and film.

Figure 3.4: Weekly podcast listeners, by age: 2013-2018



Source: RAJAR, Q1 of each year

⁴⁷ In Sweden, the Poddindex measurement launched in February 2018 and is backed by the Swedish Association of Advertisers, ACast and three major radio broadcasters – Sveriges Radio, Bauer and MTG. In the US, the Internet Advertising Bureau (IAB) published the second version of its podcast measurement guidelines in December 2017. Also in the US, market firms such as Podtrac produce monthly rankings at the podcast and publisher level.

⁴⁸ ACast Audio Intelligence Report and factsheet

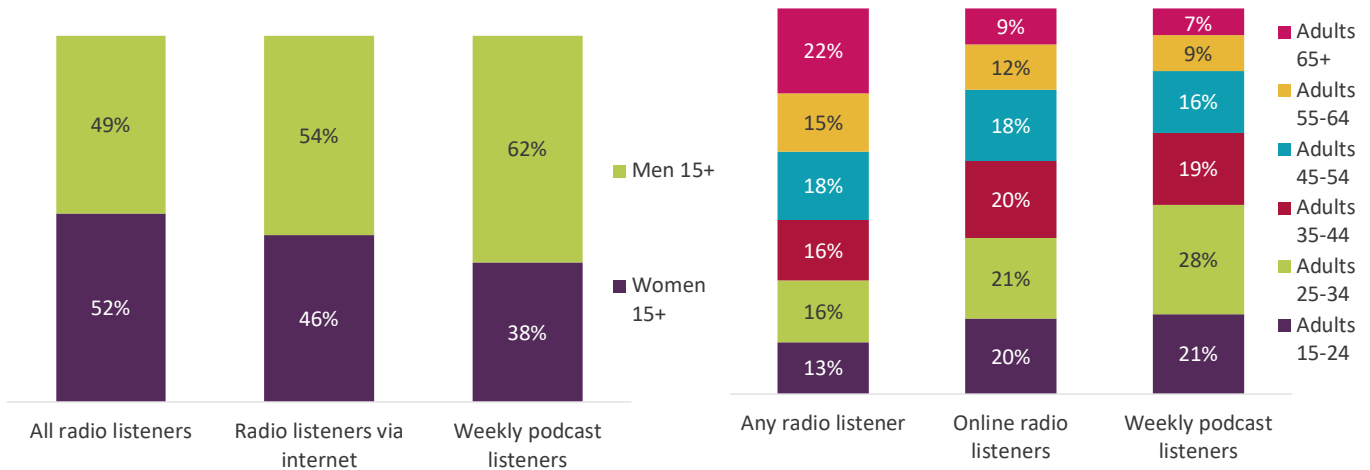
Although podcast listeners also listen to radio, they are younger than radio listeners and more likely to be male

In Q1 2018, RAJAR showed that the majority of weekly podcast listeners (96%) also listened to the radio each week. In contrast, 88% of those who didn't listen to podcasts were weekly radio listeners.

Despite the high overlap in consumption of radio and podcasts, the profile of a podcast listener was different to that of a radio listener, even for those who listen online. Less than a third (29%) of weekly radio listeners were under 35, increasing

to 41% of those who listen online. However, 49% of weekly podcast listeners were aged 15-34. Podcast listeners were also more likely to be male (62%) than any-radio listeners (49%) and online radio listeners (54%).

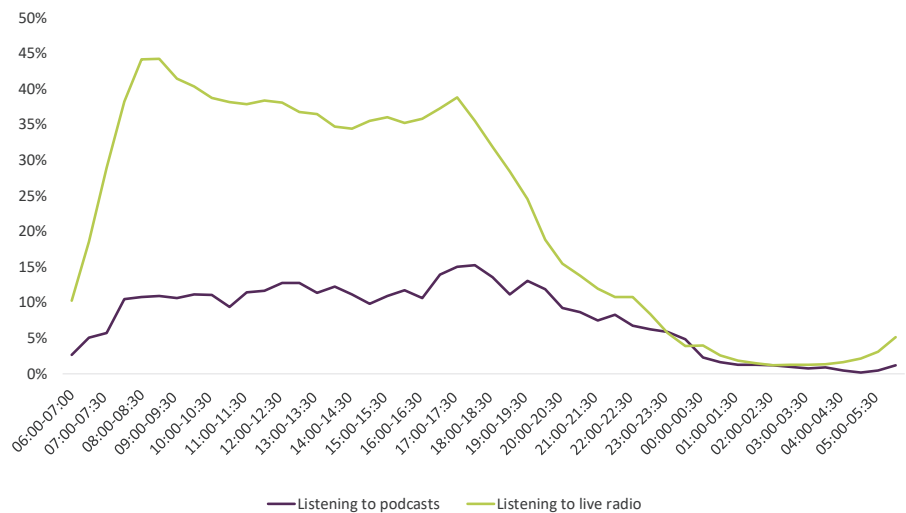
Figure 3.5: Weekly podcast vs. radio listener profiles, by age and gender: 2018



Source: RAJAR, Q1 2018

Patterns of podcast listening vary throughout the day, while the traditional pattern of listening to radio during the week is an initial peak of listening at breakfast time and then another uplift in late afternoon. Although not at the same scale, podcast listening is relatively steady across the day, peaking at a similar time as the afternoon drive-time peak for radio.

Figure 3.6: Listening across the day, podcasts vs. live radio: Mon-Fri



Source: TouchPoints 2017

Base: Weekly radio listeners; weekly podcast listeners

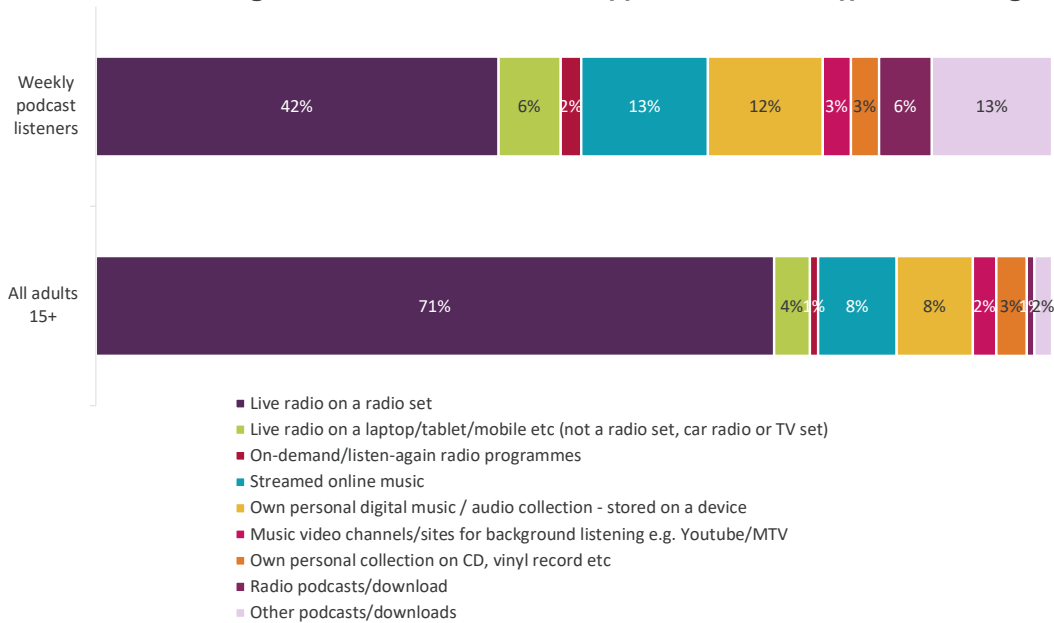
But radio may lose out on audio time to podcast listening

Although the figures are still relatively low for podcast listening (3% of all listening time), analysis of TouchPoints data suggests that even though podcast listeners also listen to the radio, the proportion of time spent listening to live radio suffers more than any other audio type. For all adults, three-quarters (75%) of time spent

listening to any audio across a week is to live radio; for weekly podcast listeners this falls to 48%, as 18% of their listening is to podcasts. The majority of this podcast-listening is to 'other podcasts' (13% of all listening among those who listen to podcasts), rather than 'radio podcasts' (6% of all listening).

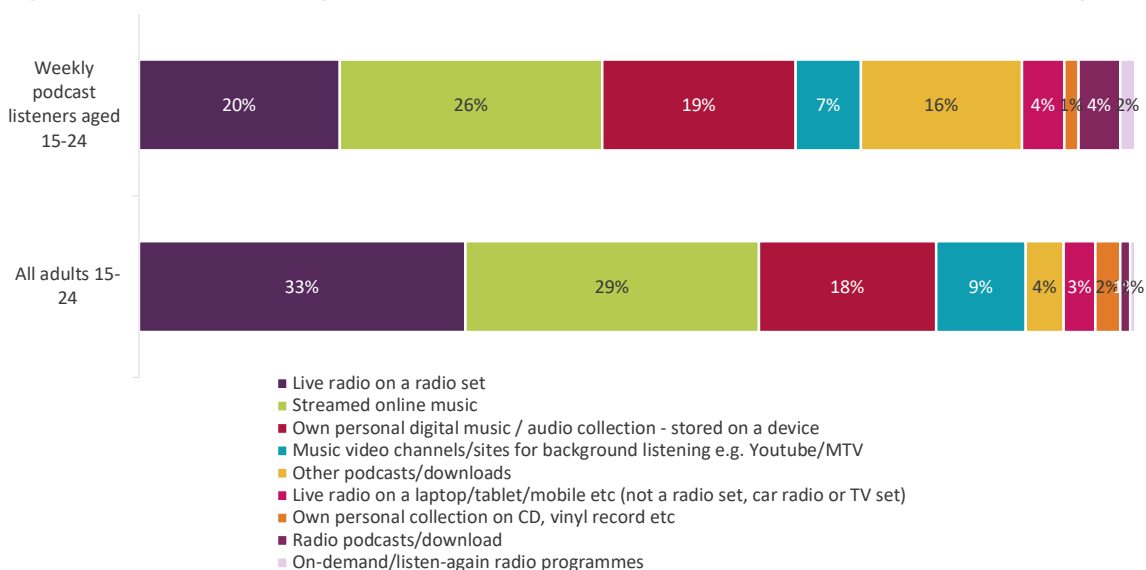
Among young people, the loss in the share of ear to radio is even more stark. Among 15-24s, 36% of audio time across the week is listening to live radio. However, among those who listen to podcasts each week, the proportion of audio time that is to live radio drops to just 25%.

Figure 3.7: Share of listening to audio: adults 15+ vs. weekly podcast listeners types of listening activities



Source: TouchPoints 2017

Figure 3.8: Share of listening to audio: adults 15+ vs. weekly podcast listeners types of listening activities



Source: TouchPoints 2017

The radio industry is beginning to embrace podcasting...

Certain types of live radio output are easily transposed to the podcast medium. Popular segments of daily live shows can be edited and packaged as weekly podcasts, which can be regarded as a form of 'catch-up' service. Podcast versions of BBC Radio 4 programmes such as Desert Island Discs and Friday Night Comedy regularly feature in

the iTunes podcast chart. In March 2018, the BBC appointed its first Commissioning Editor for Podcasts, responsible for "building upon the BBC's established podcasts... as well as leading on new and innovative series which are made purely to be podcasts and aren't broadcast on [BBC] radio stations".⁴⁹

There are also examples of podcasts being used as the basis for a radio show; for example, the New York Times' daily podcast has been used as the basis of a daily radio programme for American Public Media since April 2018.

...as is the TV industry

Radio has traditionally been viewed as a springboard for television, with many series, such as Room 101 and Little Britain, starting out on radio before making the transition to TV. While podcast adaptations are not a new phenomenon, there is increasing interest from studio executives who see podcasts as a source of new material for TV shows.

For example, broadcasters in the US have commissioned TV programmes based on the crime podcast Serial and the Dirty John podcast.

Both podcasts and TV programmes focus on narrative, conform to the episodic format and are crafted in such a way as to encourage the listener/viewer to keep coming back

for more. And adapting an existing podcast may be seen as a way to reduce risk, with the podcast acting as a pilot (albeit an imperfect one, given the differences between AV and audio content) to gauge the potential popularity of a show before commissioning it for TV production.

⁴⁹ [BBC appoints first Commissioning Editor for podcasts](#), 27 March 2018

Podcasts are also being used as an extension of established programmes

In addition to unofficial podcasts produced and distributed by fans of TV shows, podcasts are also being produced by broadcasters and production companies as an extension to television shows. These form part of the broadcaster's strategy for marketing their programmes.

At the time of writing, the top podcast, according to the UK iTunes podcast chart, was Love Island: The Morning After, a

podcast commissioned by ITV to accompany the popular ITV2 reality series. The first episode of the fourth series gained a 49.5% share of all 16-34 viewing at the time, beating all other channels in that slot.⁵⁰ The daily podcast and app gives subscribers and viewers a forum for daily conversation, sends them notifications about the show and provides programme sponsors with additional opportunities to reach their target demographic.

In the US, Boston PBS station WGBH has launched companion podcasts to complement its programming, with podcasts that provide background to programmes including UK-made Grantchester, Sherlock, Downton Abbey and Call the Midwife.

Despite strong year-on-year growth, podcast advertising revenues remain a fraction of those of commercial radio

Despite the growth in the numbers of people listening to podcasts, advertising revenues specific to podcasts remain small compared to radio advertising. PwC forecasts⁵¹ that global podcast advertising revenues will grow from £347m in 2017 (of which 60% was generated in the US) to £509m in 2018 (47% year-on-year growth in nominal terms). This is equivalent to only 2% of total global radio advertising.

Over the same period, UK advertising revenues from podcasts are expected to rise from £7m to £11m (representing 67% year-on-year growth in nominal terms), compared to £4m in 2016. In the UK podcast advertising revenue was equivalent to just over 1% of total UK radio advertising in 2017.

⁵⁰ BARB, network

⁵¹ [PwC Global Entertainment & Media Outlook 2018-2022](#). Podcasts advertising includes all revenue generated from advertising carried within podcasts, whether directly embedded in the audio file or dynamically inserted. Revenue from advertising not contained in the podcast itself (e.g. banner ads surrounding a web player) is not included. Advertising revenue is assigned to the country in which the revenue accrues (generally the country where it is produced), regardless of where the listening occurs.

4 Telecoms and networks

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4.1 Sector Overview

Figure 4.1: UK telecoms market: key statistics

	2012	2013	2014	2015	2016	2017
Total operator-reported revenue (£bn)	38.8	36.9	35.4	35.8	36.1	35.6
Operator-reported retail revenue (£bn)	30.4	29.5	29.2	29.7	30.5	30.3
Operator-reported wholesale revenue (£bn)	8.4	7.3	6.2	6.1	5.6	5.4
Average monthly household telecoms spend (£)	86.00	83.21	84.21	86.63	87.84	87.13
Retail fixed voice and data revenues (£bn)	13.4	13.2	13.4	14.0	14.7	14.7
Fixed lines (millions)	33.3	33.4	33.5	33.7	33.6	33.1
Fixed broadband connections (millions)	21.8	22.8	23.7	24.7	25.4	26.0
Superfast broadband connections (≥30Mbit/s, millions)	3.1	5.3	7.1	9.2	10.8	12.8
Average actual residential fixed broadband download speed (Mbit/s)	12.0	17.8	22.8	28.9	36.2	46.2
Fixed voice call minutes (billions)	103	93	82	74	65	54
Retail mobile voice & data revenues (£bn)	17.0	16.3	15.7	15.7	15.8	15.6
Active mobile subscribers (millions)	88.1	88.4	89.9	92.0	91.5	92.0
4G subscribers (millions)	-	2.7	23.6	39.5	52.4	58.4
M2M subscribers (millions)	5.0	5.7	6.3	6.7	7.6	7.9
Average monthly mobile data per active connection (GB)	0.2	0.4	0.5	0.9	1.3	1.9
Average monthly outbound mobile call minutes per subscription	142	143	147	151	159	157
Average monthly outbound mobile messages (SMS&MMS) per subscription	162	139	117	106	96	82

Source: Ofcom / operators / Ofcom Connected Nations reports

Notes: All revenue data are CPI adjusted (2017, prices); household spend data include VAT and are CPI adjusted; total industry revenues exclude those generated by corporate data services; connection/subscriber figures are at year-end; the fixed voice minutes shown here are likely to be understated as they do not fully capture the use of VoIP services; fixed and superfast broadband line figures include business connections; average actual residential fixed broadband download speeds are at November of each year; average monthly data per residential fixed broadband line is as of June of each year; active mobile subscribers include machine-to-machine (M2M) subscriptions; average monthly mobile data per active subscription is as of June of each year.

In 2017, two watersheds occurred in the UK telecoms market. The number of ADSL fixed broadband connections was overtaken by the number of next-generation access (NGA) fibre and cable broadband connections during the year, and, for the first time, the number of call minutes originating on mobile phones declined.

These milestones were both reached because of the ways in which UK consumers have embraced online services. People are upgrading from standard broadband to superfast cable and fibre services to ensure that they continue to receive a good user experience, as their use of high-bandwidth online activities such as over-the-top (OTT) video streaming services, and the number of connected devices within the home, increase. The decline in the use of mobile voice services is because, with widespread smartphone take-up, mobile users are increasingly communicating using internet-based messaging services rather than traditional mobile voice and messaging.

Increasing demands on data networks are fuelling the requirement for faster, more reliable connectivity. Our [Home Broadband Performance research](#)⁵² shows that 54% of UK home broadband connections had an 8-10pm peak-time average actual download speed of 30Mbit/s or higher in November 2017, up from 41% in November 2016, and data provided to Ofcom by the UK mobile operators show that almost two-thirds (63%) of mobile subscriptions were 4G-enabled by the end of 2017, up from 57% in 2016.

With faster data network connectivity, use of data networks has also increased. Both average monthly data use per residential fixed broadband connection, and average monthly data use per mobile SIM, increased by more than 40% in the year to June 2017, to 190GB and 1.9GB

respectively.⁵³ While data use has rocketed, total outgoing monthly calls per person fell by 7% to 257 minutes in 2017 (as outgoing fixed and mobile call volumes per person fell by 18% and 2% respectively) and the decline in SMS/MMS continued, with total monthly messages per person falling by 16% to 98 messages during the year.

This shifting usage pattern contributed to a 1% real-terms fall in total operator-reported telecoms revenues in 2017, to £35.6bn, which came following two years of revenue growth. Average monthly household spend on telecoms services also fell during the year, down by 1% in real terms to £87.13, equivalent to 3.5% of total household spend.

The number of landlines fell by 1% to 33.1 million as a result of businesses switching to mobile and VoIP-based voice services (which our data does not fully capture), although the fall in business lines was partly offset by a 1% increase in the number of residential landlines. This can be attributed to growing fixed broadband take-up; most households in the UK need a landline to be able to access fixed broadband services.

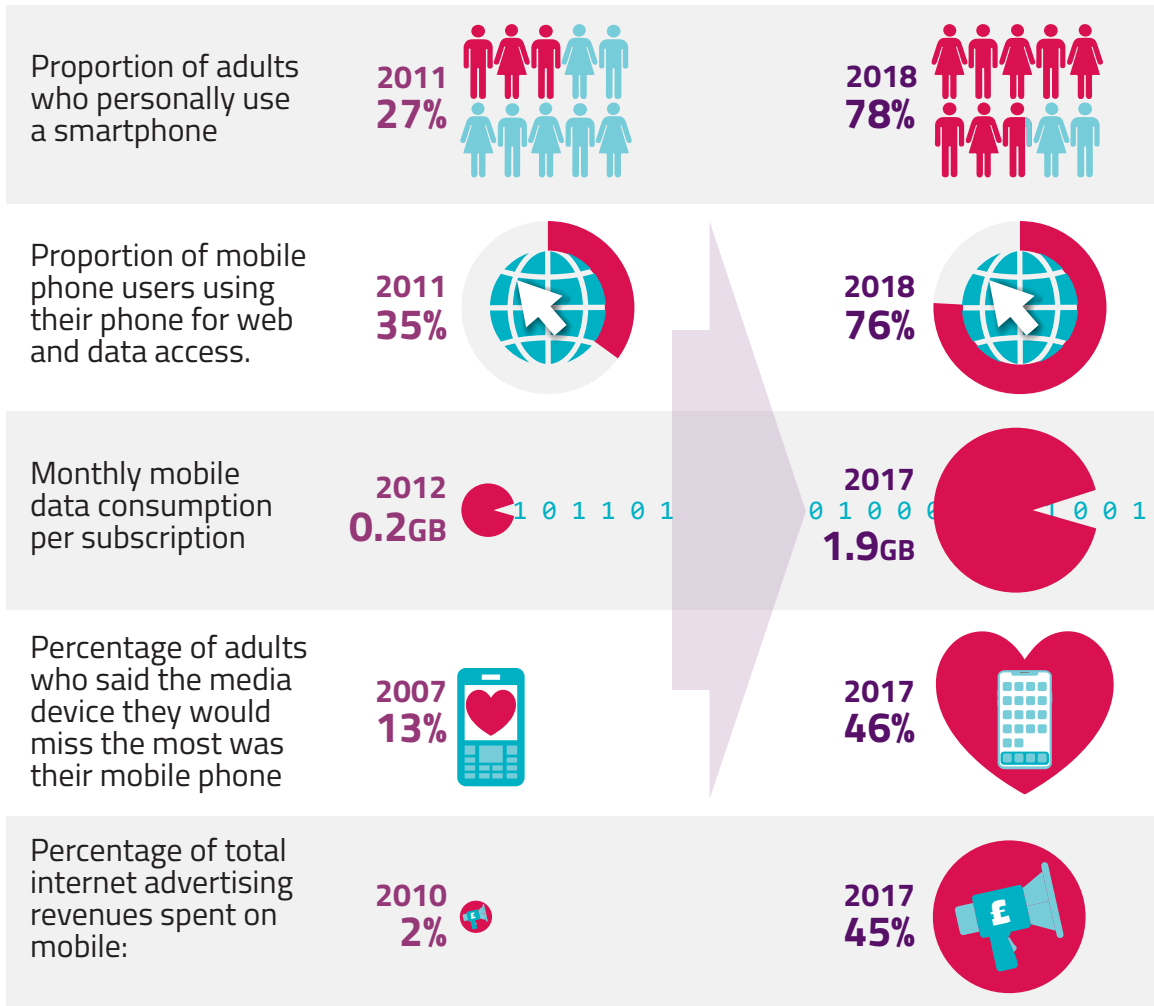
The number of mobile subscriptions continued to increase during the year, up by 1% to 92.0 million, driven mainly by growing machine-to-machine (M2M) use. Average mobile revenue per subscription decreased in real terms, down by 1% to £14.13, as pre-pay consumers, who typically have lower use, continued to migrate onto pay-monthly services.

⁵² Ofcom, Home Broadband Performance Report 2018

⁵³ Ofcom, Connected Nations 2017

4.2 A decade of the smartphone

Figure 4.2: A decade of the smartphone



Source: Ofcom Technology Tracker H1 2018, Ofcom Connected Nations report 2017, Ofcom Adult Media Literacy Tracker 2017, 2016, 2015 and 2014. A3. Which one of these things you use would you miss the most if it was taken away? (prompted responses, single coded). Base: All adults aged 16+ (1890 in 2014, 1841 in 2016, 1846 in 2016, 1875 in 2017), IAB / PwC Digital Adspend Study

The first Apple iPhone launched in 2007

In November 2007 the original iPhone (the iPhone 2G) launched in the UK. Although a few handsets with 'smart' functionality were already available at this time, this was the first phone with what is now considered to be the classic smartphone format: the traditional mobile keypad

had been replaced by a large touchscreen, and user input was via a virtual keyboard. It was the first popular mobile phone to be able to access full websites, rather than pared-down text-based versions.

Few devices can claim to have changed consumer behaviour as radically as the smartphone. In this section of the report we consider how the ways in which consumers buy and use mobile services, and communications services in general, have been transformed over the last decade.

A shifting focus from voice and traditional messaging towards data and OTT

Smartphones have revolutionised the way in which consumers use their mobiles. In 2007, the main forms of communication using mobile phones were voice calls and SMS messaging, before the widespread take-up of smartphones resulted in a growing proportion of consumers having access to additional forms of communication when out and about, such as email and instant messaging (IM). The explosion in smartphone take-up since 2007

(Ofcom research shows that 78% of UK adults had a smartphone at the beginning of 2018)⁵⁴ has resulted in a seismic shift in internet usage patterns, as more UK consumers have adopted mobile data services.

The main casualty of growing smartphone take-up has been traditional messaging (i.e. SMS and MMS), as users switch to more feature-rich internet-based messaging services, such as WhatsApp and Facebook Messenger, and the

messaging services offered on other social networking sites. By 2017, average outgoing messages (including SMS and MMS) per mobile phone subscription had fallen to 82 per month, having peaked in 2012 at 162 per month. And while average outgoing mobile call volumes per subscription have risen since 2007, reaching 157 minutes per month in 2017, this was two minutes per month less than in 2016.

Many consider mobile data services to be more important than voice

Falling call volumes are symptomatic of a fundamental change in people's behaviour; web-based forms of communication are now the primary way in which many consumers use their mobile phones.

This is reflected in [Ofcom's Consumer Mobile Experience research](#),⁵⁵ which shows that 92% of Android users who downloaded the Ofcom-branded research app thought it was 'extremely' or 'very' important that they could access and browse the internet on their mobile every

day. This compared to 75% who said it was 'extremely' or 'very' important that they could make voice calls every day, with only 65% of 18–24s considering making a voice call 'extremely' or 'very' important. This suggests a stronger preference among younger people for using non-traditional communication services (e.g. messaging applications) rather than traditional telephone calls.

Ofcom research reported in the 2007 Communications Market Report⁵⁶ (CMR) shows that the proportion of mobile users who said they used their phone to

access the internet was 13% in June 2007, while the proportions who used email, downloaded and viewed video clips, or used instant messaging (IM) services were even lower. Moreover, for each of these activities, less than half of mobile users were aware that it was possible to undertake them on a mobile handset. Our research in 2018 found that that 67% of mobile users used their mobile phone for general browsing/surfing the internet and 76% used it for web and data access, up from 28% and 35% respectively in 2011.⁵⁷

Mobile apps have revolutionised the use of online services

The Apple App Store launched in July 2008, and although it was not the first app distribution platform, it was the first to gain mass-market traction. The Android Store (later renamed the Google Play Store) followed later that year, and together the two services triggered a revolution in mobile phone and web use

by allowing smartphone users to add extra functionality to their phones, including services offered by third-party providers.

Apps are the main way in which many consumers access online services, and they are key to the strategies of major internet platforms such as Google, Facebook and Amazon. Apps

have also fuelled growth in a variety of online activities, such as streaming music services and podcasts, and have contributed to the growing importance of mobile in the advertising space: [IAB/PwC Digital Adspend](#) data show that mobile accounted for 45% of total internet advertising in 2017,⁵⁸ up from 2% in 2010.

⁵⁵ [Ofcom The Consumer Mobile Experience 2018](#)

⁵⁶ [Ofcom The Communications Market 2007](#), figure 155, page 59

⁵⁷ [Ofcom, Technology Tracker](#), H1 2018

⁵⁸ [Ofcom, Communications Market Report 2017](#)

The desire to be constantly connected has accelerated the rate at which mobile technologies are adopted...

As consumers have embraced mobile data services, their need to be constantly connected to faster, more reliable mobile data networks has resulted in an acceleration in the rate at which new mobile data network

technologies have gained traction. From the UK launch of 4G in 2012, it took just over four years for more than half of all UK mobile subscriptions to be 4G-enabled.⁵⁹ This was significantly faster than the

increase in take-up following the 2003 launch of 3G mobile services, which reached less than 20% of connections a similar period after launch.

...and average data use has increased accordingly

Growing numbers of smartphone users, faster mobile networks, the launch of new bandwidth-hungry services such as video streaming, and larger pay-monthly⁶⁰ data allowances have all contributed to rapid growth in subscribers' average mobile data use. According to information provided to Ofcom

by the major mobile providers, this increased from 0.2GB per month in June 2012 to 1.9GB per month in June 2017 (an eight-fold increase).⁶¹

However, data consumption over mobile networks represents only a minority of total data use on mobile

phones, and figures from our 2018 [Consumer Mobile Experience report](#)⁶² show that for 75% of the time that our Android-user panellists with access to 4G were using apps on their smartphone, they were connected to wi-fi.

Smartphones have transformed the mobile handset market

The iPhone also revolutionised the mobile handset market. Before the iPhone's launch, Nokia had been the largest player in the handset market, with a global market share of sales of more than 40% in Q4 2007.⁶³ But by 2008 the iPhone 2G's successor, the iPhone 3G, was the global top-selling handset, and in the following years Nokia's market

share declined as its handsets, most of which ran Nokia's Symbian operating system (and later Microsoft's Windows Mobile), proved less attractive to consumers than iOS and Android-based smartphones.⁶⁴

In 2013, Nokia announced that it was exiting the handset market, and its mobile and devices division was acquired by Microsoft, which in turn left the

mobile device market in 2016. Similarly, RIM, manufacturer of the BlackBerry, the business user's handset of choice since the early noughties, left the handset business in 2016 as smartphones gained market share. GfK data show that smartphones accounted for 89% of all mobile handset sales in Q4 2017.⁶⁵

⁵⁹ Based on the number of SIMs that could access 4G networks rather than those using 4G services

⁶⁰ A pay-monthly mobile service is one for which the user typically agrees to purchase an allowance of mobile services for a set amount each month. Any use outside this allowance is billed at the end of each month

⁶¹ [Ofcom, Connected Nations 2017](#)

⁶² [Ofcom, The Consumer Mobile Experience 2018](#)

⁶³ [Gartner, press release, 2008](#)

⁶⁴ The UK's first Android smartphone, the T-Mobile G1, launched in late 2008

⁶⁵ GfK Retail and Technology UK Ltd, Contract Handset Acquisitions

The first truly converged communications device

The smartphone can lay claim to be the first truly mass-market communications device, combining the functionality of several standalone electronic devices, including personal digital assistants, digital cameras, mp3 players and satnav systems.

Ofcom's [media literacy](#) research shows that the media device which respondents said they would miss most in 2007 was

the TV, cited by 52% of those questioned.⁶⁶ This compared to 13% for the mobile phone. However, growing smartphone take-up contributed to the mobile phone becoming the most-missed media device in 2015, a status that it has retained since then, and by 2017, 46% of internet users said their smartphone was the device they would miss most, with 28%

saying it was the TV and 10% the desktop/ laptop computer.

As smartphone take-up increased, demand for many standalone devices has fallen: for example, Ofcom research shows that the proportion of adults who personally used a MP3 player fell from 32% in 2008 to 17% in 2018.⁶⁷

More expensive devices have changed the way in which people buy mobile services

The transition from feature phone to smartphone has resulted in an increase in the price of mobile phones: as handsets have become more sophisticated, with added functionality and more powerful chipsets, their cost has increased. In 2007 a top-end mobile phone cost around £500 on a SIM-free basis, whereas by 2018, handsets were available that cost up to £1,000, and sometimes more. As mobile phone prices have

increased, it has become more difficult for many consumers to purchase them outright, and this has contributed to a shift away from pre-pay services,⁶⁸ which had been the most popular way for consumers to buy mobile services since the late 1990s.

Pre-pay had been used by the mobile providers to gain scale in the fast-growing market of the late 1990s/early noughties, but as the mobile market reached maturity and subscriber growth slowed they

sought to migrate pre-pay customers onto pay-monthly services. This was because traditional pre-pay customers tend to have a lower average spend⁶⁹ and are more likely to churn as they are not subject to minimum contract periods. The shift to pay-monthly therefore benefits providers as it makes their customers more loyal, and the inclusive allowances offered by most pay-monthly tariffs encourage higher use.

Consumers have migrated away from pre-pay onto pay-monthly services

Mobile providers incentivised their customers to move onto pay-monthly tariffs by removing pre-pay handset subsidies (so consumers had to pay a higher upfront cost for their device) and by increasing pre-pay service prices relative to those of pay-monthly services. This had some success, and by Q4 2007 the proportion of mobile

subscriptions that were pre-pay had fallen from a peak of more than 70% in 2001 to 64%. The increasing average handset prices, as take-up of smartphones grew, accelerated the shift towards pay-monthly services. Pay-monthly tariffs enable consumers to spread the cost of their handset across their service's minimum

contract period; including M2M, the number of pay-monthly mobile subscriptions overtook the number of pre-pay subscriptions in 2011. By the end of 2017, pre-pay accounted for just 30% of all mobile subscriptions, less than half the proportion at its peak.

⁶⁶ [Ofcom Adult Media Literacy Tracker](#)

⁶⁷ [Ofcom Technology Tracker](#) Q1 2008 and H1 2018

⁶⁸ A pre-pay mobile service is one for which credit (whether a monetary balance or a bundle of use) must be purchased in advance of service use. This credit is then used up as services are consumed and the user is unable to access any services if they do not have any credit.

⁶⁹ Excluding M2M connections and VAT, data provided to Ofcom by mobile providers show that the average retail revenue per subscription was £5 per month for pre-pay users in 2017 vs. £21 for post-pay users. Table 4, p15.

While pay-monthly minimum contractual periods have got longer...

The increasing cost of devices has also accelerated the shift towards longer minimum contractual periods for pay-monthly mobile services. Mobile providers introduced longer contracts in an effort to reduce churn, but this move also benefited consumers, as it typically meant that they paid a lower monthly fee for their service.

Until 2006, most pay-monthly services had a minimum contract term of 12 months but, as is shown by the GfK data, by Q4 2007 three-quarters (75%) of new pay-monthly mobile contract sales had a minimum contract period of 18 months, with almost all other sales having a minimum term of 12 months (11%) or one month (13%). By Q4 2017, the

proportion of new pay-monthly contract sales with a minimum term of 18 months had fallen to less than 1%, and the most common contract length was 24 months; these accounted for 47% of sales (up from 1% in Q4 2007 but down from a peak of 72% in Q4 2012).

...and many consumers are switching to SIM-only

The decline in the proportion of new pay-monthly sales with a 24-month minimum term since 2012 is largely due to a recent increase in sales of contracts with a minimum contract period of one or 12 months; these made up almost half (48%)⁷⁰ of new contract sales in Q4 2017. Almost all pay-monthly mobile services with a minimum contract period of 12 months or less in Q4 2017 were SIM-only (SIMO) services, whereby the user receives a SIM card from their provider which they use in

a separately-purchased handset or one which they already own, perhaps acquired with a previous pay-monthly mobile service.

As shown in our 2018 [Pricing Trends for Communications Services report](#),⁷¹ acquiring a mobile handset with a pay-monthly contract can be more expensive than buying a standalone handset and using it with a SIMO service, so some consumers buy their mobile outright and use it with a SIMO service to reduce their spend. As innovations in smartphone

functionality have slowed, consumers have become more willing to keep their handsets for longer, and by switching to SIMO at the end of their minimum term, instead of upgrading to the latest handset immediately, they can significantly reduce their mobile spend. In August 2017, Dixons Carphone Chief Executive, Seb James, said his customers were, on average, holding on to their phones for four to five months longer than they had done previously.⁷²

⁷⁰ Pay-monthly services with minimum contractual period of one month made up 8% of sales, and those with a minimum period of 12 months 40% sales.

⁷¹ [Ofcom, Pricing trends for communications services, 2018](#)

⁷² Reuters, [Dixons Carphone shares plunge 30 percent after handset sales falter](#), 24 August 2017

Pay-monthly tariffs have changed to reflect shifting usage trends

Widespread mobile data use has resulted in significant shifts in pay-monthly mobile tariffing, which we discussed in the 2018 [Pricing trends for communications services report](#).⁷³ One key trend has been the shift towards tariffs that include 'unlimited' calls and SMS, and which are tiered according to the inclusive data allowance. Tariff data provided by Teligen show that 61% of pay-monthly mobile tariffs included unlimited voice minutes

in July 2017 (up from 10% in July 2013) and 83% included unlimited SMS messages (up from 37% in 2013).

Regression analysis of pay-monthly mobile prices and various aspects of each service, carried out by Simplify Digital for its Price Competitiveness Index (PCI), shows that between 2015 and 2017, the most important aspect in determining the price of a pay-monthly mobile service (other than the choice of handset) was

the amount of inclusive data; call and SMS allowances had a negligible influence on the monthly price. Separately, Simplify Digital analysis (also included in Ofcom's pricing report) indicates a shift towards pay-monthly tariffs with larger data allowances. The proportion of tariffs offering 11GB or more of data per month almost doubled (from 17% to 33%) between 2016 and 2018.

Our smartphone obsession is not without drawbacks...

UK consumers' preoccupation with their mobile phones is not without its drawbacks, and many people feel that our dependence on smartphones has become intrusive.

The extent to which use of mobile phones is increasing (largely due to growing smartphone use) is highlighted by the TouchPoints research, which shows that the average

mobile phone user spent 2 hours 49 minutes per day using their mobile phone in 2017, a 24% increase since 2015. Use was highest among those aged 15-24 who spent, on average, more than four hours a day using a mobile phone in 2017.

Analysis of data collected by [Ofcom's Consumer Mobile Experience research](#)⁷⁴ shows that, on average, Android users

taking part in the research had a total of 81 screen-on or app sessions per day during the Q4 2017 measurement period. If panellists slept for eight hours a day, this suggests that they checked or used their smartphone on average every 12 minutes while they were awake.

Six in ten feel they cannot live without their mobile phone

The TouchPoints research shows that 62% of people say they could not live without their mobile phone (rising to 78% among 25-34s), 55% never turned their mobile phone off (also highest among 25-34s, at 71%) and half (50%) felt they needed to have their mobile phone with them at all times.

Ofcom's 2018 'Always on' research, reported in Section 1 of this report, asked respondents what they thought about the acceptability of using devices in various social situations. Sixty-four per cent said it was unacceptable to check a mobile phone during meals with others, 81% found it unacceptable to

talk on a mobile in this situation, 41% said this about using a mobile while watching TV with others, 23% thought it was unacceptable to use a mobile while walking in the street and 27% said this about using a mobile to record videos or take photos at a live event.

⁷³ Ofcom, [Pricing trends for communications services, 2018](#)

⁷⁴ Ofcom, [The Consumer Mobile Experience, 2018](#)

Moving to a 5G future

Although the UK's smartphone obsession has its downsides, it seems unlikely that consumers' appetite for connectivity outside the home will diminish. The UK's first 5G trials are

already under way, and with the commercial deployment of 5G services expected in 2019 or 2020, mobile data network connection speeds are expected to increase significantly,

making a new generation of mobile services a reality and generating further demand for on-the-go data connectivity.

4.3 Building a full-fibre future: ISPs commit to deliver ultrafast fibre optic broadband to millions of UK premises

End-to-end fibre is the next phase of fixed infrastructure investment

Full-fibre broadband services have the potential to bring immense benefit to the UK economy, offering superior data connectivity to homes and businesses.

Full fibre can deliver bandwidths of over 1Gbit/s and provide connectivity that is less likely to slow down during busy periods and is up to five times more

reliable than lines provided using copper-based technologies. The enhanced connectivity offered by 'full-fibre' fibre-to-the-premises (FTTP) has the capability to drive take-up of smart applications in many industries – artificial intelligence, smart city and digital healthcare solutions all require reliable high-speed connectivity.

The increased capacity in mobile networks, as 5G is deployed, together with more reliable fixed-line data connectivity, is likely to increase the availability of converged fixed-mobile communications services, whereby users' devices switch seamlessly between fixed and mobile networks according to network availability/performance.

The UK still lags behind other countries in terms of full-fibre availability

According to the European Commission's Digital Economy and Society Index (DESI) 2018,⁷⁵ the UK is one of the European leaders in terms of the availability of next-generation access (NGA) cable and fibre infrastructure, ranking 7th out of the EU28 in 2017, with 94% of households having access to these services. However, it

only ranked 24th in terms of the proportion of households with access to full fibre or DOCSIS3.0 broadband offering speeds of 100Mbit/s or more, at 51%. [Ofcom's Connected Nations Spring 2018 update](#) shows that although the availability of full-fibre broadband services is growing in the UK, it is still low; just 4% of premises had access

to full-fibre services in January 2018.⁷⁶ This is significantly lower than in many other countries: for example, the EU's DESI work shows that in Portugal and Spain, about 90% and 70% of homes respectively have access to full-fibre services.⁷⁷

⁷⁵ Digital Economy and Society Index 2018, [United Kingdom Country Report](#)

⁷⁶ [Ofcom, Connected Nations Update 2018](#)

⁷⁷ Digital Economy and Society Index 2018, [Connectivity: Broadband market developments in the EU](#)

The challenges of full-fibre deployment have resulted in collaboration between providers

Full-fibre deployment is expensive and challenging, as the scale of the engineering work involved is significant. However, there has been a lot of interest in full-fibre providers in the financial markets in recent months, suggesting that investors increasingly see full-fibre deployments as a source of secure long-term returns. Infracapital made an offer for Gigaclear in March 2018,

valuing it at around £270m, and CityFibre agreed a £538m takeover by a Goldman Sachs-backed consortium in April 2018.

Collaborations between providers, and infrastructure sharing, are solutions that ISPs are increasingly exploring to reduce costs (and risk). Examples include the agreements between CityFibre, TalkTalk and (initially) Sky for full-fibre

deployment in York; Vodafone and CityFibre planning full-fibre roll-out in various locations across the UK; and a joint venture between TalkTalk and Infracapital that was announced in February 2018. Similarly, it has been reported that Virgin Media and TalkTalk are discussing passive infrastructure sharing, whereby each provider would be able to lay fibre in the other's underground ducts.⁷⁸

ISPs' deployments would stimulate competition in the ultrafast broadband market

In 2017/18 several fixed operators announced plans to increase their investment in ultrafast full-fibre networks, potentially bringing full-fibre

services to six million UK premises by 2020.⁷⁹ Build and connection costs play a key role in investment decisions: Openreach expects the cost

of building full fibre in towns and cities over the next three years to be around £300-£400 per premises passed.⁸⁰

Ofcom is encouraging investment in full fibre

There is a greater incentive for telecoms providers to invest in their own full-fibre infrastructure if this is financially more attractive than buying wholesale services. Ofcom has published a package of measures aimed at reducing the cost of full-fibre deployment and increasing investment in full-fibre broadband.

Under these new rules, BT has a duty to make its telegraph poles and underground tunnels open to rival providers, making it quicker and easier for providers to build their own full-fibre networks. Additionally, Openreach will have to repair faulty infrastructure and provide a 'digital map' of its duct and poles network, so that other providers can plan where to lay full-fibre networks.

⁷⁸ The Telegraph, [Virgin and TalkTalk discuss deal over broadband sharing](#), 13 May 2018

⁷⁹ Ofcom, 2018, [New Ofcom rules to boost full-fibre broadband](#)

⁸⁰ [Openreach press release, 2018](#)

Figure 4.3: Summary of major current and planned full-fibre deployments

	Current/planned full-fibre network deployments
CityFibre/ Vodafone	CityFibre and Vodafone intend to make full fibre available to one million premises across 12 cities by 2021. The areas covered include Milton Keynes, Peterborough, Aberdeen, Edinburgh, Stirling, Huddersfield and Coventry, with an option to extend this to a further four million premises in other tier-2 cities by 2025. The initial build is expected to cost up to £500m over 20 years, and the first services are expected to go live in Milton Keynes towards the end of 2018.
Openreach	Openreach has the UK's largest full-fibre network, offering services to around 600k premises nationally, often in rural areas. It recently raised the full-fibre roll-out target under its 'Fibre First' programme to three million premises in up to 40 UK towns, cities and boroughs by 2020 (including new sites and publicly-funded projects). The first phase of the roll-out (in Birmingham, Bristol, Cardiff, Edinburgh, Leeds, Liverpool, London and Manchester) started in February 2018.
TalkTalk/ Infracapital	TalkTalk/Infracapital has announced a £1.5bn plan to deploy full-fibre networks to three million premises in mid-sized towns and cities. The roll-out is expected to start in 2019.
Virgin Media	Virgin Media has committed to make full fibre available to two million premises by the end of 2019 as part of its Project Lightning programme.
Hyperoptic	Hyperoptic focuses on deploying full fibre to large residential and office buildings in urban areas. It has already covered 400k premises and aims for 500k by 2019 and five million by 2025. In July 2017 it secured an additional £100m in funding to accelerate the build of its full-fibre network.
KCOM	KCOM's £85m full-fibre deployment in the Hull East and East Yorkshire expansion area is entering its final phase, with more than 160k premises already able to receive full fibre and over 200k premises due to be covered by 2019.
Gigaclear	Gigaclear's full-fibre network covers 65k rural homes and businesses across 20 UK counties, and the company plans to make full fibre available to 500k premises by 2023. Gigaclear is supported by its 80% shareholder Infracapital and by Railpen (the Railways Pension Fund).
CityFibre/ TalkTalk	Under the joint venture between CityFibre and TalkTalk, around 15k homes and businesses in York have access to full-fibre services. The network includes infrastructure originally built to serve the city council. Sky was a partner in the venture until TalkTalk bought out its stake in 2016. TalkTalk is currently building out full fibre to a further 40k premises in York, to be completed by the end of 2019.

Full-fibre coverage by local authorities

The Ofcom website provides a Power BI data visualisation with an [interactive map of full-fibre coverage](#) in each of UK's local authorities.

The underlying data are also available as [open data](#).



5 Internet and online

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Around nine in ten of people in the UK access the internet,⁸¹ and those who are connected spend almost one day a week online. Changes in the ways in which people communicate with each other and consume media are almost all driven by growth in internet use.

5.1 Sector overview

In our [Connected Nations](#) publication we reported that data downloaded from the internet over fixed networks increased by 71% between June 2016 and June 2017, and by 48% on mobile networks. Our [Media Nations](#) report highlighted that 16–34 year-olds watched an average of 2 hours 39 minutes of non-broadcast content a day, including 59 minutes of YouTube, on PCs, phones and tablets.

In the telecoms section of this report we highlight how smartphones (owned by 78% of UK adults) are driving a shift away from SMS (which have almost halved since their peak in 2012) and voice calls (which fell for the first time in 2017) to internet-based communications such as WhatsApp and Facebook Messenger.

Almost a quarter of adults (23%) listened to online music services such as Spotify in 2017, and the radio and audio section of this report highlights how podcasts and smart speakers are changing how people listen to audio services. The internet is also transforming the postal sector – people receive fewer letters as communications move online, but receive more parcels due to the steep growth in internet shopping.

The growth and transformational impact of the internet is therefore a key theme in all the chapters of this report. In this chapter we look at three broad areas.

- Section 5.2 looks at **online consumption**, highlighting that 62% of time spent online is now on a smartphone. Women spend more time than men on smartphones, and for the first time in 2018, women spent more time online than men, across all age groups under 55. We also report stark differences in internet use by socio-economic group, with those in lower-income C2DE households four times less likely to be internet users than those in ABC1 households.
- Section 5.3 looks at reach and use of different types of **online content and services**. Not surprisingly, the US-based internet giants account for a very large amount of use. Google and Facebook properties both reach more than 90% of UK internet users every month. The BBC now has the third highest online reach, having overtaken Amazon. We also highlight how social networking is shifting, with use of Facebook increasing among older internet users while younger users embrace Snapchat and Instagram.
- Section 5.4 focuses on **online advertising** which grew by 11.3% in real terms in 2017 to £11.6bn and accounts for the majority of UK advertising spend (52%). This growth has been driven by mobile, which was up by 34% in 2017 and made up 45% of digital advertising spend.

Figure 5.1: UK internet and online content market: key statistics

UK internet and online content market	2010	2011	2012	2013	2014	2015	2016	2017	2018
¹ Internet take-up (%)	73	76	79	80	82	85	86	88	87
¹ Smartphone take-up (%)	n/a	27	39	51	61	66	71	76	78
¹ Tablet take-up (%)	n/a	2	11	24	44	54	59	58	58
¹ Laptop take-up (%)	51	55	61	62	63	65	64	64	63
¹ Consideration that the smartphone is the most important device for internet access (%)				15	23	33	36	42	48
² Total digital audience (million)	n/a	n/a	n/a	n/a	48.0	47.5	50.3	50.4	48.0
³ Digital advertising expenditure (£bn)	4.8	5.4	6.0	6.4	7.5	8.6	10.1	11.6	n/a
³ Mobile advertising expenditure (£m)	94	219	554	1,021	1,631	2,509	3,786	5,201	n/a

Source: ¹Ofcom consumer research, ²comScore MMX® Multi-Platform, data for March 2014, March 2015, March 2016, March 2017 and March 2018, UK; ³IAB/PwC Digital Adspend Study

Note: Caution is advised in comparing values before and after February 2011 because of a change in comScore methodology. Revenue and expenditure figures are adjusted for CPI (2017 prices).

comScore

To inform our analysis of people's use of online content and services in the UK, we have drawn on data collected by comScore, a UKOM-endorsed media measurement and analytics company. Please see the [Methodology and Glossary annex](#) for further information on comScore.

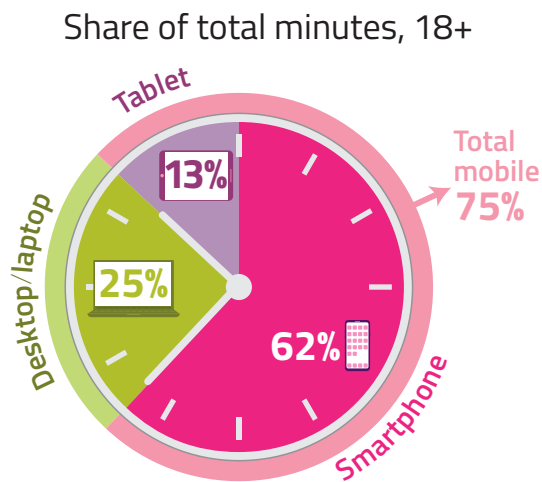
UK adults spent most of their time online on the smartphone

5.2 Online consumption

UK adults spent most of their time online on the smartphone in March 2018. Of the total minutes spent online by the entire UK digital

population, 62% was through the smartphone, followed by the desktop and tablet.⁸²

Figure 5.2: Total time spent online by device in the UK



Source: comScore MMX Multi-Platform, March 2018, UKOM Digital Market Overview - Person: 18+

Figure 5.3: Average time online on a smartphone per day, by age and gender: March 2018

hours: minutes per visitor



Source: comScore Mobile Metrix®, March 2018, UK, Persons: 18+

Notes: Includes Android and iOS smartphones

⁸² comScore, MMX Multi-Platform, March 2018, UK, Persons: 18+

Nearly half (48%) of UK internet users in 2018 stated that smartphones were their most important device for accessing the internet.

This was higher for younger adults, with more than seven in ten 16-34 year-olds (72%) regarding their smartphones as their most important device

for accessing the internet. In contrast, only 17% of over-54s perceived the smartphone as the most important device.⁸³

Women spent more time online than men in 2018

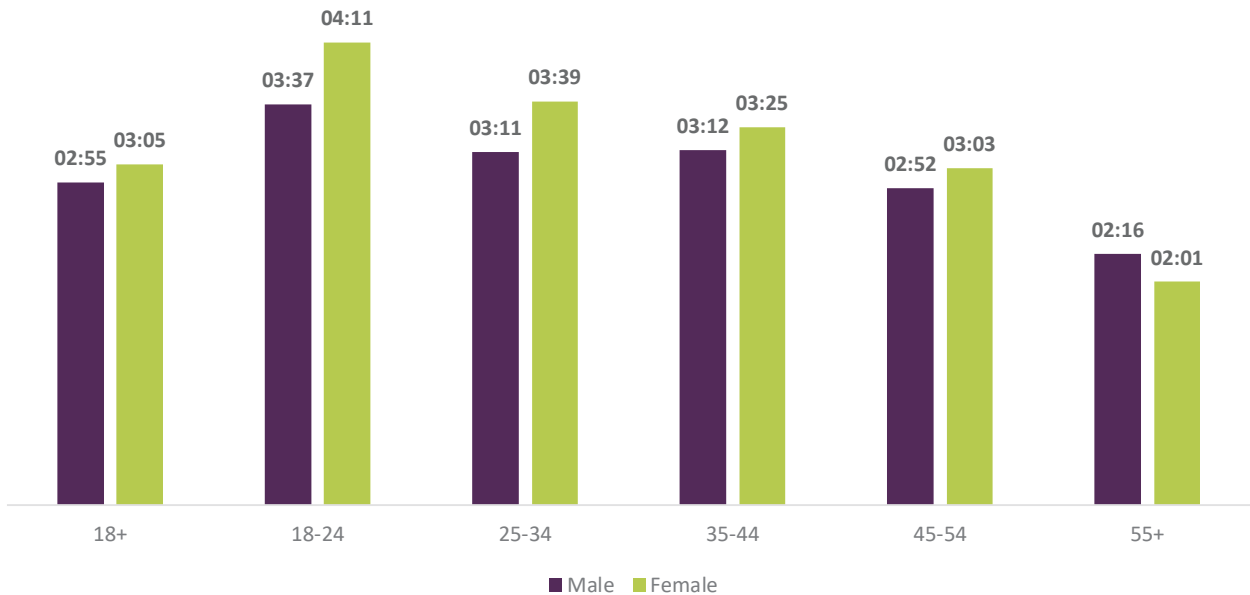
In 2018, UK adults spent on average 3 hours per day online. This was the first year when women spent more time online

than men across all age groups under 55. This was particularly evident for women aged 18-34, who spent on average half

an hour longer online than men in the same age group.

Figure 5.4: Average time online (desktop and mobile) per day, by age and gender: March 2018

hours: minutes per visitor



Source: comScore MMX, Multi-Platform, March 2018, UK, Persons: 18+

⁸³ Ofcom Technology Tracker H1 2018

People in lower-income households are less likely to use the internet

Despite its growing reach, internet use is not universal across the UK. Older and low-income individuals are more likely to be non-users of the internet in 2018.

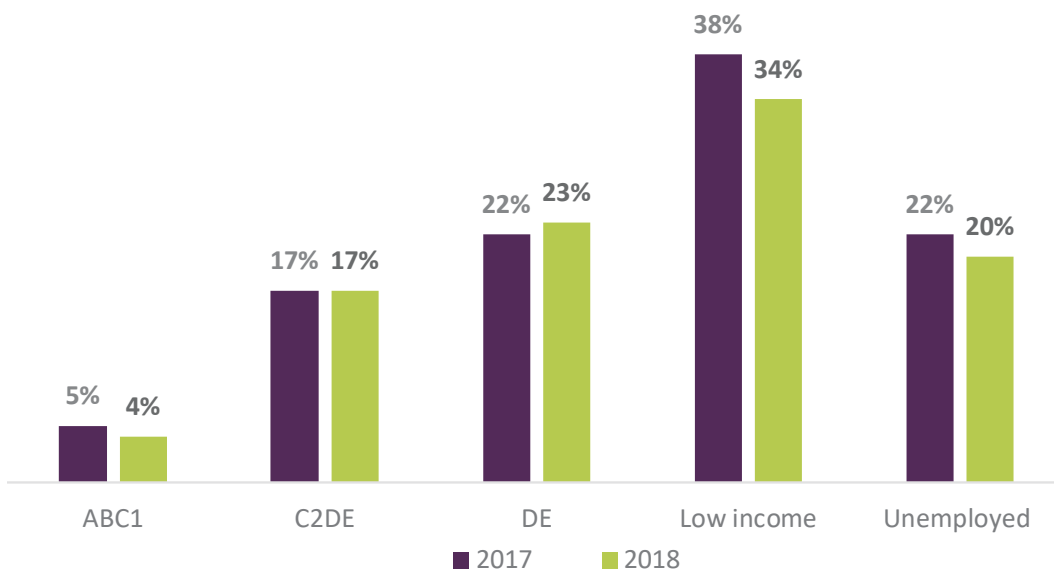
Across all UK adults, two in ten unemployed people do not have access to the internet. However, this is five percentage points less than in 2016, when 25% of unemployed people were non-users of the internet.⁸⁴

Among those aged 65+, two in five (36%) were non-users of the internet, compared to 2% of 16-24s and 3% of 25-34s.⁸⁵ Ofcom's [Adults' Media Literacy Tracker](#) showed that non-users of the internet aged under 65 were more likely than those aged 65+ to say their main reason for not going online was because 'the equipment needed to go online was too expensive/not worth the money' (19% vs. 5%).

Non-use remained higher among adults in C2DE households (17%) than those in ABC1 households (4%).⁸⁶ Adults

aged 16-64 in DE households who used the internet spent less time online (23 hours) than those in non-DE households (27.1 hours) per week. Individuals in DE households were also less likely than those in non-DE households to say they were confident 'overall as an internet user' (84% vs. 92%). DE households were also less likely to have access to and to use most internet-connected devices including smartphones, computers, tablets, DVRs, smart TVs, streaming media players and wearable technology.⁸⁷

Figure 5.5: Internet non-users as a share of UK adults



Source: Ofcom Technology Tracker, H1 2018 Base: ABC1 (1958), C2DE, (1762) DE (1008), Low-income (297), unemployed (1743), H1 2017 Base: ABC1 (1935), C2DE, (1805) DE (994), Low-income (289), unemployed (1766) QE2/3: Do you or anyone in your household have access to the internet at home? / Do you ever go online anywhere other than in your home?

Note: Low-income' is based on respondents with household income under £10,400.

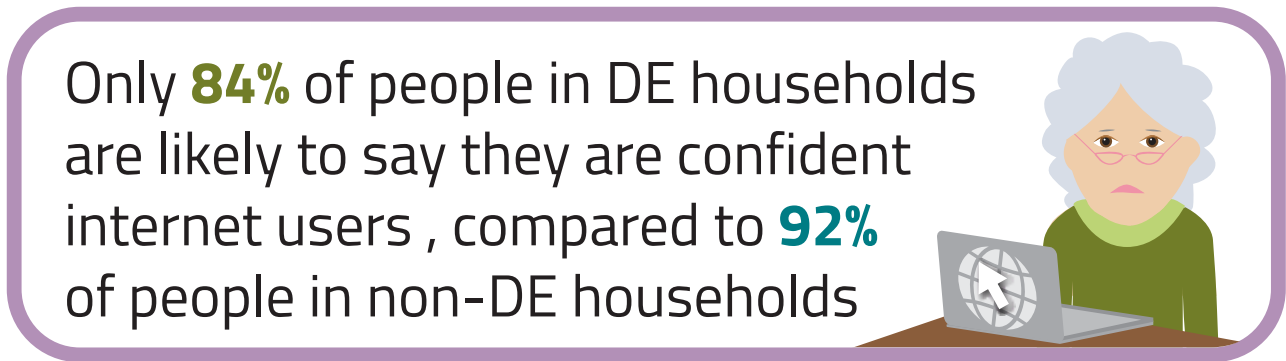
⁸⁴ [Ofcom Technology Tracker H1 2018](#)

⁸⁵ [Ofcom Technology Tracker H1 2018](#)

⁸⁶ [Ofcom Technology Tracker H1 2018](#)

⁸⁷ [Ofcom Adults' media use and attitudes 2017](#)

Figure 5.6: Confidence using the internet



Source: Ofcom Adults' media use and attitudes 2017

Adults in DE households were also more likely to only use devices other than a computer to go online (33% vs. 20% UK average). They were more likely (16%) to only use a smartphone to go online, compared to

adults overall (8%), and adults in AB households (2%). Due to their reliance on a smartphone, and perhaps also because they are less likely to have a fixed broadband connection, 16-64s in DE households

were more likely than those in non-DE households to say they use up their smartphone data allowance 'very often/ in most months' (20% vs. 11%).⁸⁸

Figure 5.7: Use of devices to go online in DE households



Source: Ofcom Adults Media Literacy Tracker 2017

⁸⁸ Ofcom Adults Media Literacy Tracker 2017

BBC sites overtook Amazon and had the third highest reach in March 2018

5.3 Online content and services

Google sites were visited by 41.9 million adults aged 18+ in the UK in March 2018, making Google the most-visited property. Within the Google portfolio, YouTube was the most popular platform (40m), followed by Google Search (37m), Google Maps (25m) and Gmail (23m). Facebook (including Instagram, WhatsApp

and the main Facebook site) was the second most-visited property, closely behind Google with 40.2 million visitors, reaching 95% of the total UK online audience in 2018. BBC sites had 39.5 million visitors in 2018, reaching 5.3 million more UK adults than in 2016 and overtaking Amazon and Microsoft to take third place.

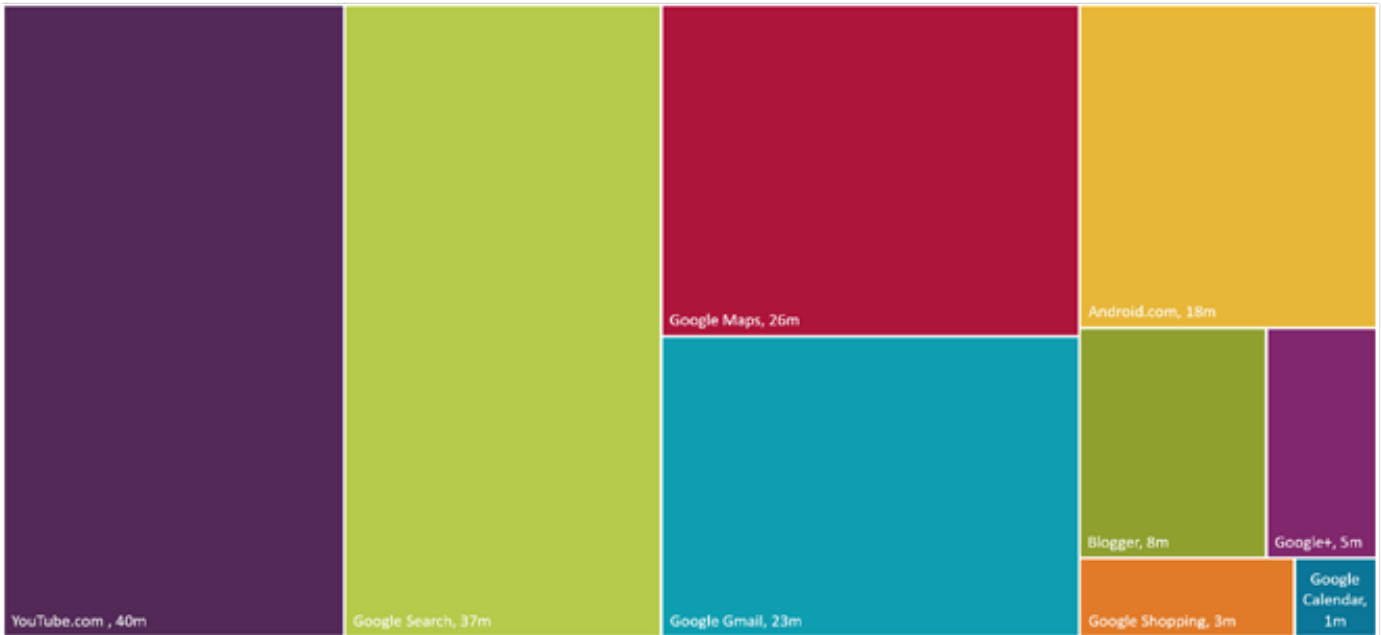
Figure 5.8: Top ten properties accessed on mobile/desktop devices in the UK, ranked by reach: March 2016-March 2018

Average time spent per person per month ■ <100 mins ■ 100-300 mins ■ >300 mins

Rank	2016		2017		2018	
	Property	Reach	Property	Reach	Property	Reach
1	Google Sites	98%	Google Sites	98%	Google Sites	99%
2	Facebook	87%	Facebook	91%	Facebook	95%
3	Amazon Sites	82%	Microsoft Sites	87%	BBC Sites	93%
4	Microsoft Sites	82%	BBC Sites	87%	Amazon Sites	89%
5	BBC Sites	81%	Amazon Sites	85%	Microsoft Sites	87%
6	Yahoo Sites	72%	Trinity Mirror Group	73%	Oath	81%
7	eBay	69%	eBay	71%	Sky Sites	73%
8	Sky Sites	65%	Mail Online/Daily Mail	70%	Trinity Mirror Group	71%
9	Trinity Mirror Group	64%	Yahoo Sites	69%	News UK Sites	71%
10	Mail Online/Daily Mail	63%	Sky Sites	67%	eBay	69%

Source: comScore MMX Multi-Platform, March 2016-2018, UK top ten properties [P], Persons: 18+

Figure 5.9: Most-visited platforms within the Google Sites property, by unique audience: March 2018



Source: comScore MMX Multi-Platform, March 2018, UK, Persons: 18+

Note: All sites listed are recorded under Google Sites [P]. Please note, data only shown for sites which have recorded more than a million unique audiences

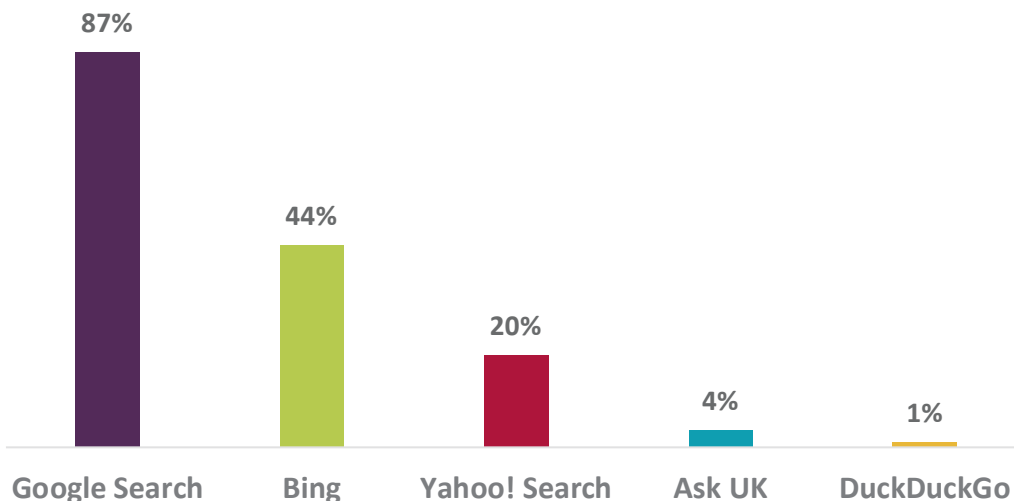
Search: Google continued to be the most popular search site in the UK

Google Search, the most popular search site, was visited by 37 million unique UK internet users in March 2018, followed by Bing with 19 million. Twenty million users used Google

Search on desktops, while 25 million searched using Google on their mobile device. The other selected search sites were predominantly used on desktops; Bing had 16 million

visitors on desktops, but only 6 million on mobile devices. Bing’s high share on the desktop may be driven by its link to the default search function on Windows 10 devices.

Figure 5.10: Search sites’ audience reach on mobile and desktop, age 18+: March 2018



Source: comScore MMX Multi-Platform, March 2018, UK, Persons: 18+

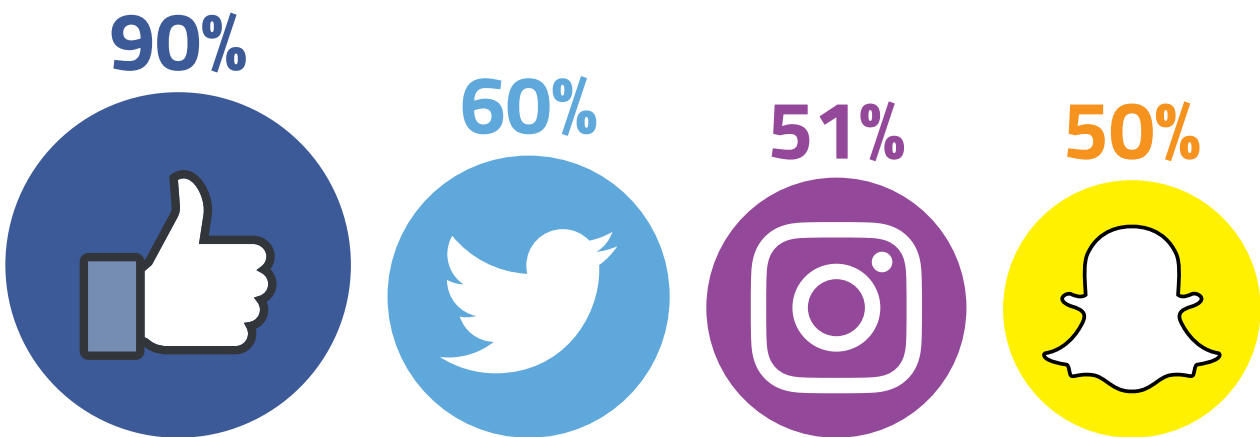
Social media: three-quarters of UK internet users have a social media profile

More than three-quarters of UK internet users (77%) had a profile or account on a social media or messaging site or app in 2018, unchanged since

2016. Facebook was still the most-visited social media platform, reaching 4.1 million internet users aged 13+, or 90% of the UK internet audience.

A Facebook visitor spent on average 27 minutes per day on Facebook sites and apps in 2018, down 8% since 2017.⁸⁹

Figure 5.11: UK Social media reach, by platform, age 13+: March 2018



Source: comScore MMX, Multi-Platform, March 2018, UK media: [P] Facebook, [P] Twitter, [M] Instagram.com, [P] Snapchat, Inc., Persons: 13+

However, Facebook has begun to see a downward trend in the number of under-35s accessing the platform. The number of 18-24s fell by 4% in the year to March 2018;⁹⁰ in contrast, visitors among the over-54s grew by 24% (2.2 million people)

in the same period. Snapchat and Facebook-owned Instagram are increasingly seeing more online audiences accessing their platforms, with 22.7 million adults visiting Snapchat in March 2018, just behind Instagram at 23.1 million. However, Snapchat

had much larger year-on-year growth than Instagram (122% vs. 22%).⁹¹ Much of this growth has been driven by the increased penetration of 25+ adults; in October 2017, for the first time, more 25-34s than 18-24s accessed Snapchat in the UK.⁹²

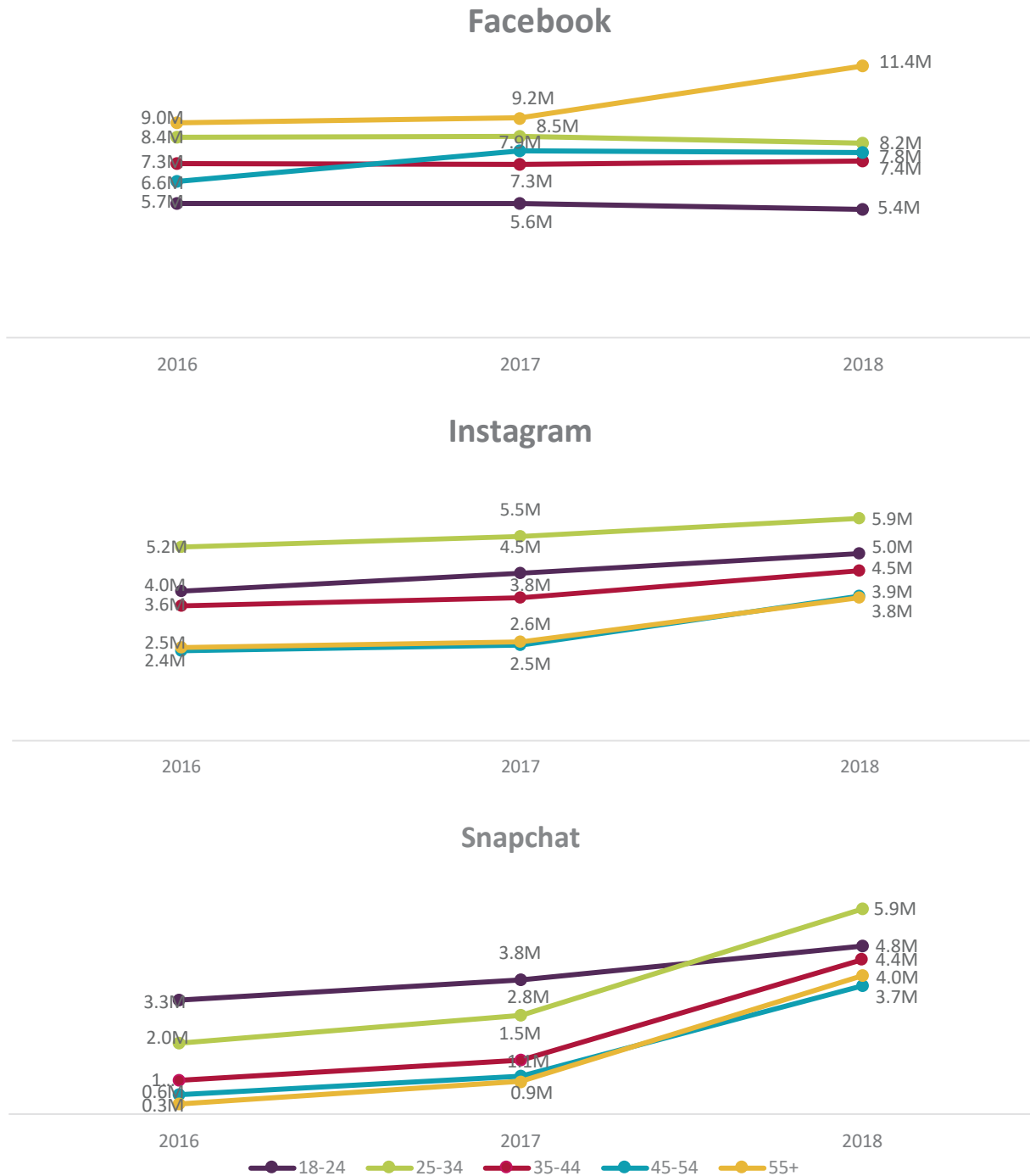
⁸⁹ comScore MMX Multi-Platform, March 2016-2018, UK, media: [P] Facebook, [M] Instagram.com, [P] Snapchat, Inc., Persons: 13+

⁹⁰ This was largely due to the decrease in the entire 18-24 year-old online universe; Facebook's reach for this demographic was actually higher in March 2018.

⁹¹ comScore, MMX Multi-Platform, March 2016-2018, UK, media: [P] Facebook, [M] Instagram.com, [P] Snapchat, Inc., Persons: 18+

⁹² comScore, MMX Multi-Platform, March 2016-2018, UK, media: [P] Facebook, [M] Instagram.com, [P] Snapchat, Inc., Persons: 18+

Figure 5.12: Number of visitors, by social media platform and age: March 2016-March 2018



Source: comScore MMX Multi-Platform, March 2016-2018, UK, media: [P] Facebook, [M] Instagram.com, [P] Snapchat, Inc.
 Base: Total audience

The average Snapchat user spends 8 minutes per day on the platform compared to Instagram’s 5 minutes.⁹³

Although both Snapchat and Instagram reach around half of the internet audience per month, a higher proportion of

people use Instagram every day than use Snapchat.

⁹³ comScore, MMX Multi-Platform, March 2016-2018, UK, media: [P] Facebook, Twitter [P], [M] Instagram.com, [P] Snapchat, Inc., Persons: 13+

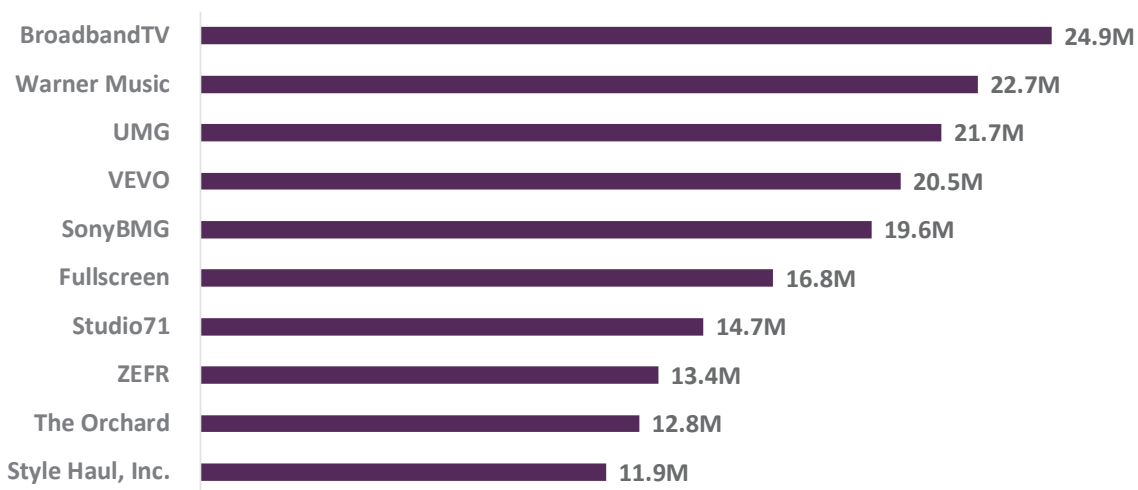
Video: YouTube outperforms in the ad-funded online video category

YouTube began as a platform for user-generated content, but today, many of the most popular YouTube partners are backed by major networks which comprise a range of media brands or independent content creators. For example, BroadbandTV, a multichannel network owned by German TV network RTL Television, provides services for a broad spectrum of clients, including NBA and Sony.

A large proportion of video consumption on YouTube is of music videos. Data from the International Federation of the Phonographic Industry (IFPI) reports that 40% of music streaming in the UK in 2017 was on YouTube, higher than the total of paid subscriptions to audio streaming services like Spotify and Apple Music. In June 2018 for the first time, the official UK music charts started

including streaming music videos.⁹⁴ In March 2018, four of the top-reaching five YouTube channel groups (Warner Music, UMG, VEVO and SonyBMG) were backed by major music labels which produced professional music videos.

Figure 5.13: Top ten YouTube partners, by reach: March 2018



Source: comScore Video Metrix® Multi-Platform, March 2018, UK, YouTube Partners report, desktop and mobile, Persons: 18+
Note: Certain comScore products (e.g. Video Metrix® Multi-Platform) in certain markets have rankings that are dependent on publishers' use of census-based measurement tags. Public sourcing of these rankings should note that properties not tagging may be excluded from the ranking and/or that some entities may only have certain assets (e.g. website but not app) tagged, which will have an impact on the total reported metrics of those entities.

Finance: two-thirds of internet users now use online banking and pay their bills online

A majority (67%) of UK internet users carried out internet banking in 2018, an increase of 3pp year on year. The 25-34s were more likely than average to undertake banking activities online (78% vs. 67% for internet users).⁹⁵

This also varied by socio-economic group, with 76% of ABC1 internet users going online to carry out online banking compared to 58% of C2DE internet users.⁹⁶ PayPal was the most visited financial website in March 2018, reaching 54% of the adult online population.⁹⁷

⁹⁴ BBC News, [UK singles chart to include music videos for the first time](#), 25 June 2018

⁹⁵ Ofcom [Technology Tracker H1 2018](#)

⁹⁶ Ofcom [Technology Tracker H1 2018](#)

⁹⁷ comScore, MMX Multi-Platform, March 2018, UK, Persons: 18+

E-commerce: almost three-quarters of the UK online audience shopped online in 2018

In 2018, 72% of UK internet users shopped online, up by 3pp since 2017.⁹⁸ The top two retail sites, Amazon and eBay, reached 89% and 69% of the UK online audience respectively.⁹⁹ More than half (52%) of all internet users claimed to do more of their

shopping online 'these days'. This is up across all socio-economic groups, but rises to 62% for AB internet users compared to 40% for DE internet users.¹⁰⁰

Three-quarters of those who made purchases online (77%) said they made any of the

'appropriate' checks we asked about before entering their debit or credit card details. The most commonly cited (at 65%) was checking for signs that the site looks secure, e.g. the padlock symbol.¹⁰¹

5.4 Online advertising

The majority of advertising spend in the UK is now generated online

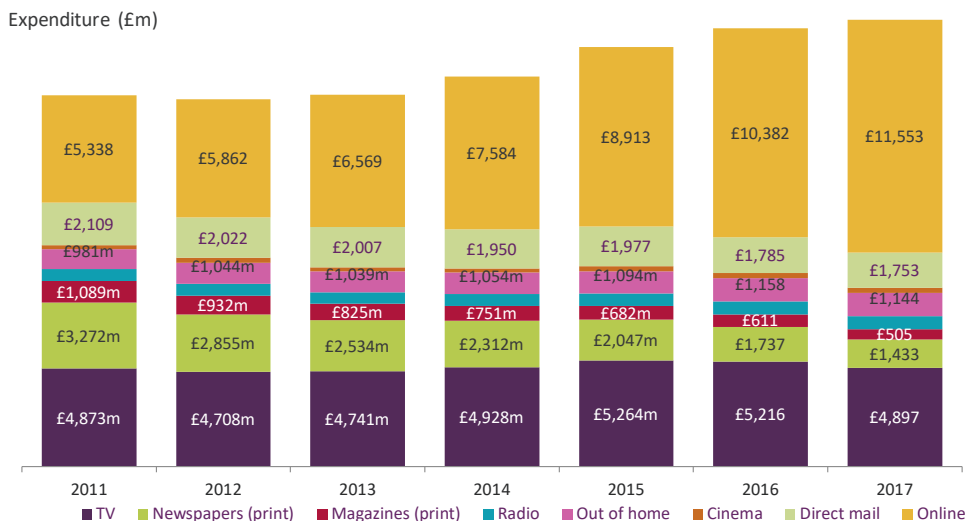
While online has surged in the last ten years, traditional media has remained relatively flat in terms of advertising spend. In 2017, internet advertising accounted for 52% of total UK ad spend (£11.6bn). The 11.3% real-terms growth in 2017 was the fifth consecutive year of double-digit growth for the online medium, which has increased by 13.9% on

average every year since 2012.

Although there may be a degree of substitution between traditional and online media, some of the growth in online advertising expenditure comes from new advertisers, which have never spent money on advertising before (a high proportion of these are small businesses). Consequently, a large part of the increase in

online advertising is incremental to the market and may not reflect movement across media. The next largest medium in the UK was TV at £4.9bn, less than half the ad spend generated by online – this represents a big shift since 2010, when television generated more ad revenue than online.

Figure 5.14: UK advertising spend: 2017 (£m)



Source: AA/WARC, Expenditure report, April 2018.

Note: Figures represent spend, not revenue, and may differ from advertising figures in the report. Online advertising revenue has been removed from TV, newspapers, magazines, and radio to remove any double counting between online and the aforementioned categories. Figures have been adjusted for CPI (2017 prices).

⁹⁸ Ofcom Technology Tracker H1 2018

⁹⁹ comScore, MMX Multi-Platform, March 2018, UK, Persons: 18+

¹⁰⁰ TouchPoints 2017

¹⁰¹ Ofcom Media Literacy Tracker

Advertising is the main source of funding for online content, although subscription services are growing

Monetisation of online services and platforms falls broadly into three categories:

- 1) **Advertising:** services like Google Search, Facebook and BuzzFeed are available to users for free but monetised through advertising. Online advertising comprises three main formats: display (video, banners, native); search; and classifieds and directories.
- 2) **Subscription:** services like Netflix, Amazon Prime Video and the Financial Times are available to users for a weekly/monthly/yearly subscription fee. This usually excludes exposure to advertising for users, although some services employ a hybrid model, mixing subscription with advertising in a tiered system (e.g. CBS All Access). Online subscription revenue is available in the TV section of the interactive report so will not be explored in detail in this chapter.
- 3) **Transaction/donation:** services like iTunes, the Guardian and numerous games apps are available to users for a one-off fee, either on an obligatory (transaction) or voluntary (donation) basis. Some services like Amazon Prime offer a mix of subscription and transaction services (with users subscribing to the Prime content library, but having the ability to buy or rent other films and shows not available on the service through Amazon Channels).

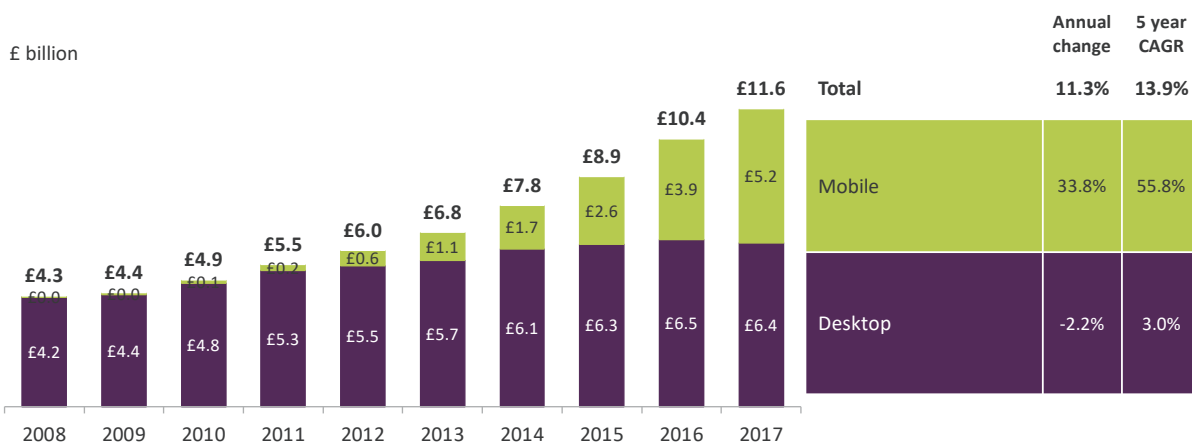
There has also been a rise in auxiliary fees for data and other online content services, which make up an increasing proportion of technology companies' revenue, but is not explored here. This section focuses on the dynamics of the online advertising market.

Mobile accounted for almost half all digital ad spend in 2017

Almost half (45%) of online advertising is now generated via the mobile, which drove all the growth in 2017. Non-mobile

online advertising declined by 2.2% in 2017, the first fall since the measurement of online advertising began.

Figure 5.15: Online advertising spend (£bn)



Source: IAB/PwC Digital Adspend 2017. Figures adjusted for CPI (2017 prices).

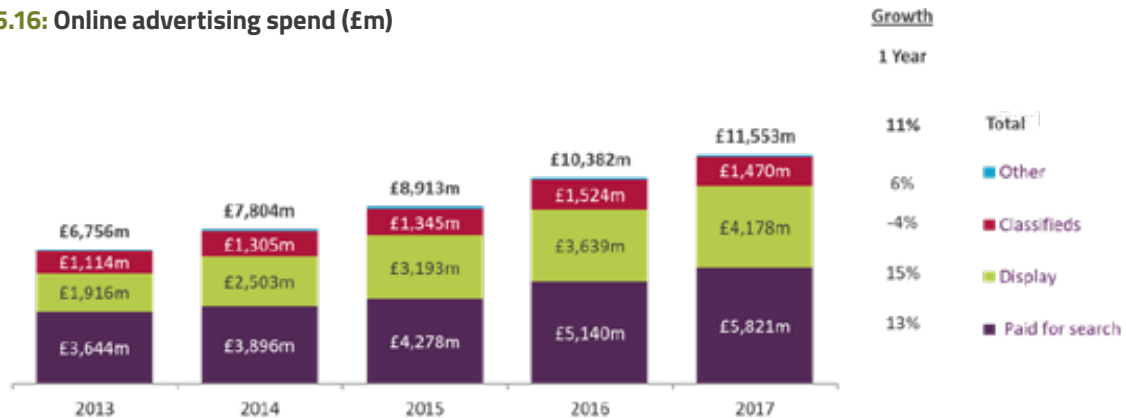
Paid-for search continued to be the largest online advertising format in 2017

Paid-for search advertising was the largest online advertising format and accounted for 50% of digital ad spend in 2017, followed by display advertising at 36% and classifieds at

13%. However, growth in display advertising (15%) outpaced that of search (13%) in 2017, largely driven by the boom in smartphone video. Smartphone video amounted

to £1.2bn in 2017, up 64% in real terms and overtook native advertising¹⁰² to become the largest mobile display format.

Figure 5.16: Online advertising spend (£m)



Source: IAB/PwC Digital Adspend 2017. Figures adjusted for CPI (2017 prices).

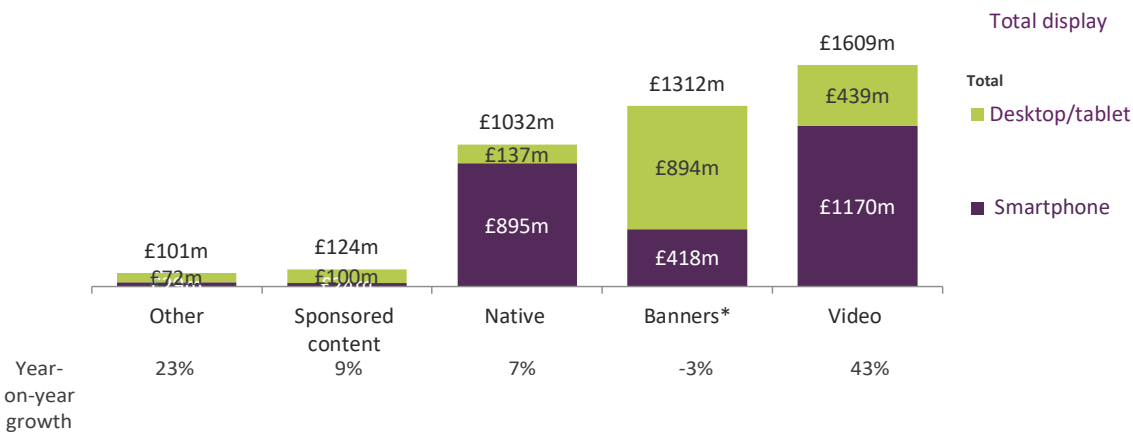
Video overtook banners to become the largest display ad format

Unlike search, which is a homogenous advertising category, display comprises a plethora of formats including banners, interstitials, audio, video, and native advertising.

Historically, the majority of display advertising spend was generated by banners. However, in the last five years, with the advent of native and video advertising and the growth of

mobile advertising, desktop banners - whose efficacy and engagement has been questioned - began to plateau.

Figure 5.17: Online display advertising spend, by format (£m)



Source: IAB/PwC Digital Adspend 2017. *Smartphone banners includes standard banners, rich media banners, interstitials and MPUs.

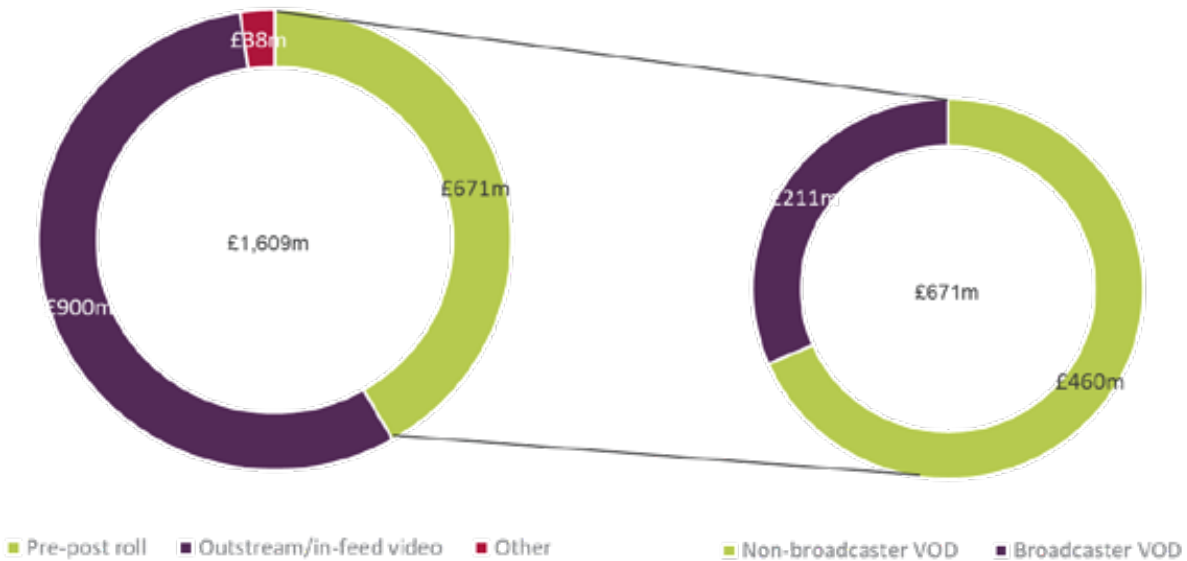
¹⁰² Native advertising is paid advertising that is cohesive with the page content, assimilates into the design, and is consistent with the platform behaviour, according to the IAB.

In 2017, for the first time, video overtook banners to become the largest display advertising format. This was driven mainly by growth in outstream/ in-feed video, a video ad format

that auto-plays in a large video format when a user navigates to it within a text content, often an article. Outstream accounted for 56% of all video advertising in 2017. Pre-post

roll video, which is the most similar to TV advertisements, amounted to £671m in 2017, of which 31% was from broadcasters' on-demand players such as ITV Hub and All4.

Figure 5.18: Online video advertising spend: 2017 (£m)



Source: IAB/PwC Digital Adspend 2017

The lion’s share of display advertising was traded programmatically in 2017

Programmatic advertising, or the algorithmic trading of ads powered by data, continued to increase its share of display advertising in 2017 to reach 80%. Most of this (63%) was through

private marketplaces, where advertisers and publishers maintain transparency and control over whom they trade with, and decide the general terms of advertising deals

before trading. Smartphone video was most programmatic at 95%, followed by smartphone display (87%), desktop video (68%) and desktop display (57%).

6 Post

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Like the media and telecoms sectors, the postal sector has been affected by digitisation and the growth of internet services.

6.1 Sector overview

As communications move online, the letters market has fallen (volumes were 5% lower in 2017 than in 2018). But this has been offset by growth in the parcels market as people do more online shopping, with 12% more parcels sent in 2017 than in 2016.

Data published in the [interactive report](#) show trends in the letters and parcels markets over the last five years. While revenue from parcels has increased, it has increased much more slowly than volumes. This reflects competition in the parcels market: Royal Mail faces competition from a number of end-to-end postal operators including Hermes, DPD and Yodel.

The interactive report also shows differences in how different age groups use postal services. Younger people are more likely to receive parcels – 25-44s report an average of 2.2 parcels received in a week, more than twice as many as those received by over-75s, while older people are more likely to receive formal letters and personal letters.

We will publish further updated data on the UK postal market later in 2018 in our [Annual Monitoring Update on the Postal Market](#). This will include data relating to Royal Mail's efficiency and quality of service.

In Sections 6.2 and 6.3 below we provide some detail on volumes and revenues in the letters and parcels markets. We then look at two key drivers of change in the postal market: consumers' online shopping and their demands for fast delivery (Section 6.4); and the changing role of direct mail as an advertising channel (Section 6.5).

Figure 6.1: UK postal industry: key metrics

UK postal services industry	2013	2014	2015	2016	2017
Addressed letter volumes (bn items)	12.9	12.7	12.4	11.8	11.2
Addressed letter revenues (£bn)	4.4	4.4	4.5	4.3	4.1
Parcel volumes (bn items)				2.1	2.3
Parcel revenues (£bn)				8.8	9.3
Direct mail advertising expenditure as share of total advertising expenditure (%)	10.9%	10.1%	9.5%	8.2%	7.9%

Source: Ofcom, operator returns, AA/WARC Expenditure report. Figures adjusted by Ofcom for CPI at 2017 prices.

Addressed letters volumes declined by 5% in 2017

Addressed letters volumes (which include letters and large letters) declined by 5% to 11.2 billion items in 2017, reflecting the continuing structural declines in transactional mail (such as bills and statements) and advertising mail. This decline was within Royal Mail's medium-term guidance of an annual structural decline of between 4% and 6%. The decline in 2017 would have been greater but for the general election, which generated millions of additional items such as material from candidates and polling cards.

The proportion of letters carried by downstream access providers¹⁰³ increased by two percentage points to 62% of addressed letters, as overall access volumes fell by 1%, compared to an 11% decline in Royal Mail end-to-end addressed letters volumes. The number of letters delivered by operators other than

Royal Mail in 2017 fell to 7 million items (less than 0.1% of total letters volumes).

Having come into force in May 2018, the impact of the General Data Protection Regulation (GDPR)¹⁰⁴ on letters volumes is not yet clear. One impact may be a reduction in advertising mail volumes (a downside risk for 2018-19 noted by Royal Mail),¹⁰⁵ although the development of what has been described as 'partially addressed' items (addressed to a premises but not to a named individual) may mitigate some of this.¹⁰⁶ In the run-up to GDPR coming into force, some firms contacted their customers by letter to inform them of the new regulation (thereby generating volume) and some firms have suggested that concerns about online privacy and data protection may make advertising mail more attractive for some advertisers.

6.2 Letters volumes and revenues

¹⁰³ Where a postal operator other than Royal Mail collects mail from a customer, and hands it over to Royal Mail to complete the delivery.

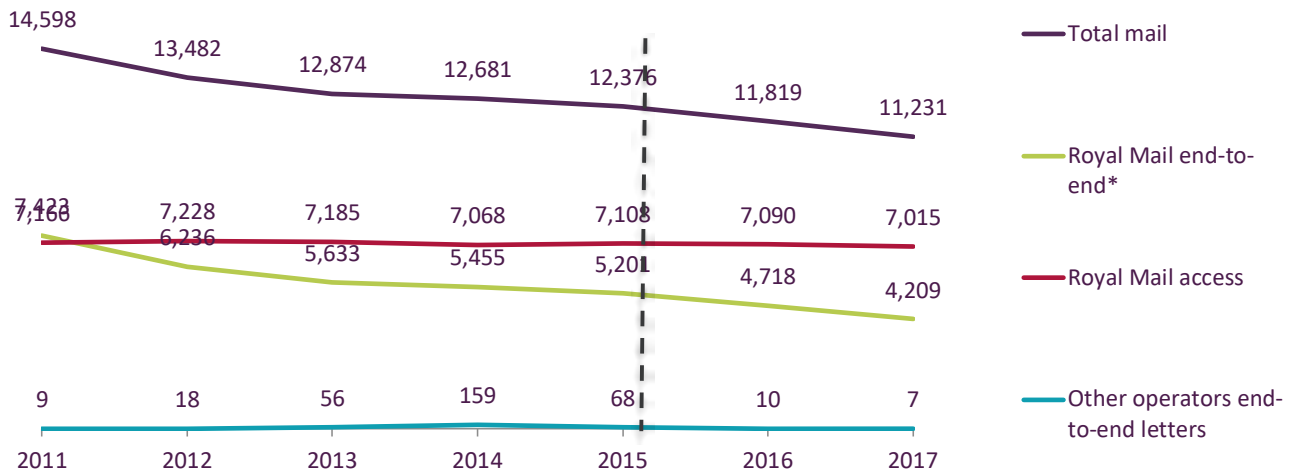
¹⁰⁴ The GDPR came into force across the EU on 25 May 2018 and applies to personal data i.e. data relating to an identifiable individual. It imposed requirements on people who collect, store and process this data. New requirements relating to collection, storage and processing of personal data may mean that advertisers are required or choose to change the way they use direct advertising channels, including direct mail.

¹⁰⁵ Royal Mail results presentation 2017-18

¹⁰⁶ E.g. see [Howard Hunt website: Partially addressed mail](#)

Figure 6.2: Addressed letters volumes

Volume (million items)



Source: Operator returns, Ofcom estimates. NB: Due to change in methodology from 2016 data, it is not possible to make direct comparisons between pre- and post-2016 data.

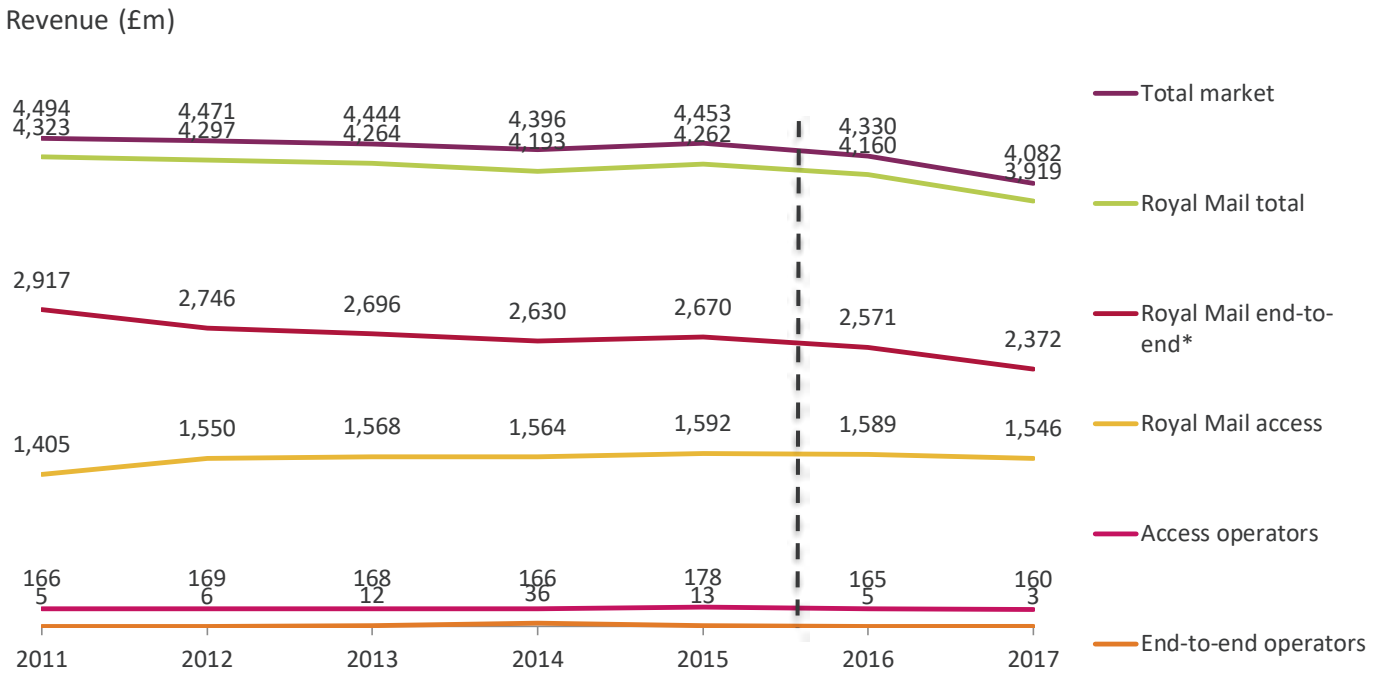
Letters revenues fell by 6% in real terms between 2016 and 2017

Overall letters revenues fell by 6% in real terms to £4,082m in 2017, driven by an 8% real-terms decline in Royal Mail end-to-end letters revenues. Royal Mail access revenues fell by 3% to £1,546m.

Reported revenues retained by access operators fell by 3% to £160m in 2017. This figure reflects the revenues retained by access operators for the delivery of mail, once payments to other operators (mainly Royal Mail) are taken into account. We note that access operators may bundle postal services

with a range of value-added services such as mailroom management, mail collection, magazine distribution and printing. Revenue from these other services is not reported in the above figures but forms an important part of the revenue mix for some access operators.

Figure 6.3: Addressed letters revenues



Source: Royal Mail Regulatory Financial Statements, operator returns to Ofcom, Ofcom estimates. Adjusted for CPI at 2017 prices. Royal Mail calendar year revenue figures are derived from Ofcom calculations based on financial year figures in Royal Mail's Regulatory Statements and unaudited submissions to Ofcom, and are therefore not directly comparable with Royal Mail's published accounts. Royal Mail figures relate to the 'reported business'. *Royal Mail end-to-end is an Ofcom calculation and refers to Royal Mail total letters revenues, excepting access. Royal Mail access revenues are as per its Regulatory Financial Statements and include a small number of parcels. The effect of this is that Royal Mail's access revenues are slightly overstated and its end-to-end revenues are slightly understated. Access revenues from access operators include a proportion of revenues from access parcels. Due to changes in methodology from 2016 data it is not possible to make direct comparisons between pre- and post-2016 data.

6.3 Parcels volumes and revenues

Increases in parcels volumes in the UK have encouraged further investment

Parcels volumes grew by 12% between 2016 and 2017 to 2,342 million items, reflecting the continuing growth in e-commerce in the UK. The largest increase was in reported international inbound volumes, which grew by 23% to 262 million items.

Between 2016 and 2017, internet sales as a proportion of total retail sales grew by 1.6pp to 16.3%.¹⁰⁷ Although the relationship between online retail activity and parcels is not absolute,¹⁰⁸ the growth in e-commerce and the take-up of subscription delivery services

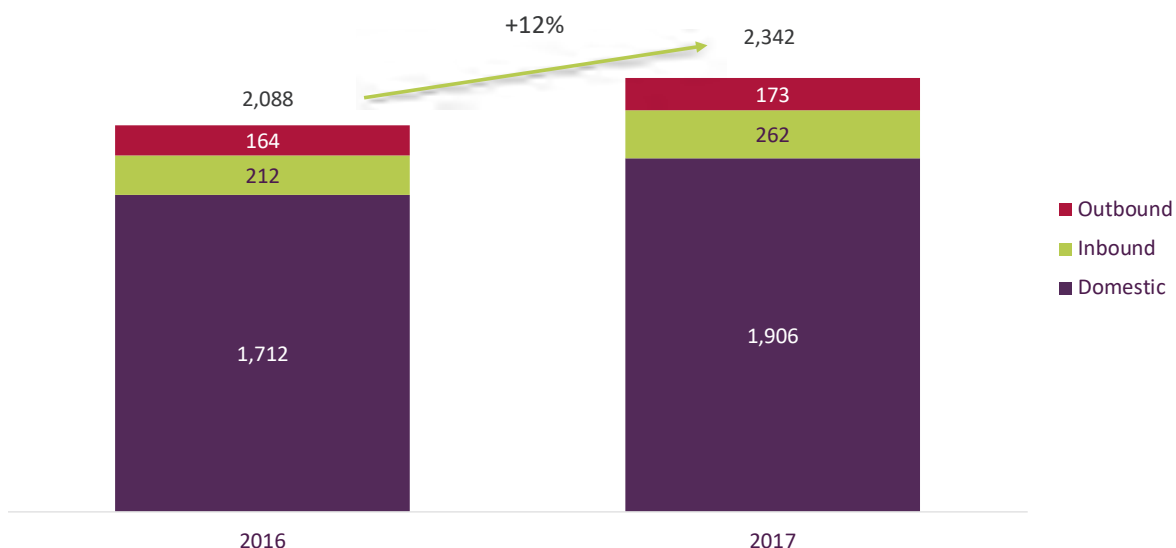
(such as Amazon Prime)¹⁰⁹ may have encouraged consumers to make more purchases online, especially if these services make it easier and cheaper to make multiple small purchases.

In response to growth in the market, parcels operators in the UK have continued to invest in new equipment and facilities. Royal Mail has announced its intention to build a new mail centre in Inverness, to better deal with increases in parcels volumes.¹¹⁰

Other operators are also investing in new facilities to better handle increased

parcel volumes. In early 2018, UPS was granted planning permission for a new facility to expand its parcels operations at East Midlands Airport.¹¹¹ At around the same time, DPD announced that it would build a fifth UK parcel hub in Leicestershire to cater for increased parcels volumes.¹¹² Hermes's purpose-built automated parcel distribution hub in Rugby, which opened in 2017, is reported to have increased the company's overall parcel processing capacity by 45%.¹¹³

Figure 6.4: Parcels volumes (items in millions)



Source: operator returns / Ofcom estimates

¹⁰⁷ ONS, [Internet sales as a percentage of total retail sales \(ratio\) \(%\)](#)

¹⁰⁸ As not all e-commerce transactions generate a parcel (such as those using click and collect) and some may generate more than one (for example, a multi-part order)

¹⁰⁹ In 2017, one in four people who had done non-food shopping online in the past three months were subscribers to at least one delivery subscription service such as Amazon Prime. Source: [Royal Mail 2017 Delivery Matters UK](#)

¹¹⁰ [Royal Mail Group press release, 2018](#)

¹¹¹ Leicester Mercury, [UPS gets green light for £114m East Midlands Airport parcel depot](#), 1 March 2018

¹¹² Post and Parcel Technology International, [DPD UK to build second superhub in Hinckley](#), 7 March 2018

¹¹³ Post and Parcel Technology International, [Hermes opens largest sorting center in the UK](#), 18 August 2017

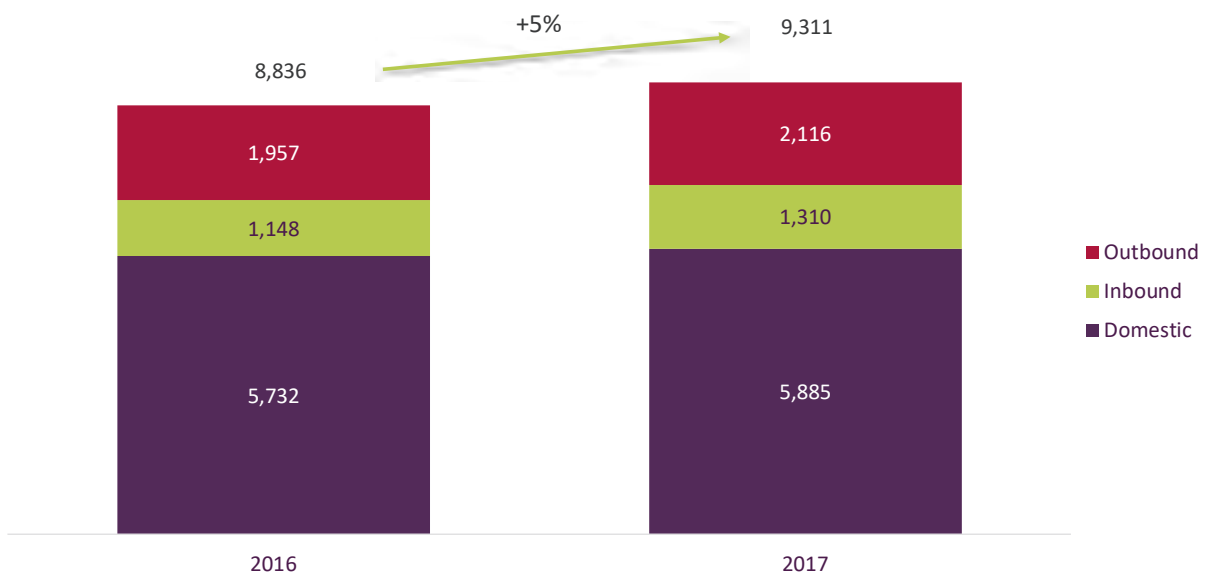
Parcels volumes outpaced revenue growth in 2017, reflecting the presence of multiple end-to-end operators in the UK market

Total reported parcels revenues grew by 5% in real terms to reach £9,311 million in 2017. This slower growth compared to volumes may be a manifestation of the competition between

multiple end-to-end operators, but may also reflect a trend, in some cases, to smaller parcel sizes (if, for example, e-commerce transactions are split into multiple packages for

faster delivery). Last year, several operators, including Royal Mail and Hermes, reduced prices on some single-piece products.

Figure 6.5: Parcels revenues (£m)



Source: Operator returns / Ofcom estimates. Adjusted for CPI at 2017 prices.

6.4 E-commerce and innovation in delivery markets

More people are buying clothes, accessories, and health and beauty products online than five years ago

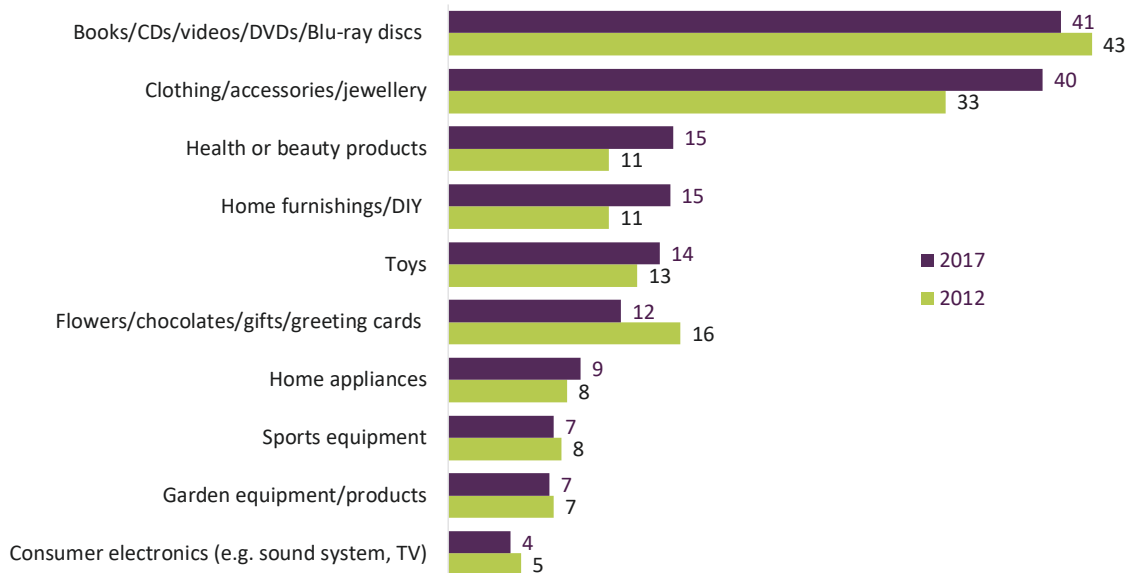
Online sales of media items such as books, music, and DVD/ videos are well-established in the UK,¹¹⁴ and despite shifts towards digital formats and streaming (in particular for music and videos), in 2017 four in ten people had bought a book/ CD/ DVD/ Blu-ray disc online within the previous six months, consistent with the number of people who did this in 2012. In contrast, the number of people who had bought clothing/ accessories or jewellery online in the previous six months increased by seven percentage points to 40%.

In order to encourage consumers to buy clothes online, some retailers offer free returns services. In response to this, consumers often purchase multiple versions of a garment to try at home and then return those they do not want, either via a retail store, a click-and-collect outlet or via a parcel operator. The ability to return items bought online without incurring a charge is important to consumers: 41% of online shoppers say that they would only buy items online if they were able to return them free of charge.¹¹⁵ In response, parcel

operators have developed specific products for retail returns for their e-commerce customers, including tracking and pick-up from a post office/ parcel shop or the customer's premises. Returns products have been identified as a source of growth for some operators, including Royal Mail.¹¹⁶

Figure 6.6: Online purchases within the previous six months: 2012 and 2017

GB adults (%)



Source: Source: TouchPoints

Base: GB adults 15+

SH15b: Which of these items have you purchased online in the past 6 months?

¹¹⁴ For example, Amazon launched in the UK in 1998 selling books

¹¹⁵ TouchPoints 2017, question SH17 'Strongly agree' and 'agree'.

¹¹⁶ [Royal Mail 2017-18 results presentation](#)

Most people have used next-day delivery for an online purchase – but despite high levels of awareness, relatively few have used same-day delivery

Almost six in ten people have ever used next-day delivery for an online purchase. This is included as the default free-delivery option by some retailers (especially as part of a delivery subscription service). Parcels operators are seeking to extend the window for acceptance of parcels for delivery, meaning that consumers can order goods online later in the day than previously, and still get next-day delivery.

Although same-day services have been available in the UK for several years, use of next-day delivery remains significantly more common than same-day (58% compared to 28%). Use of even faster services,

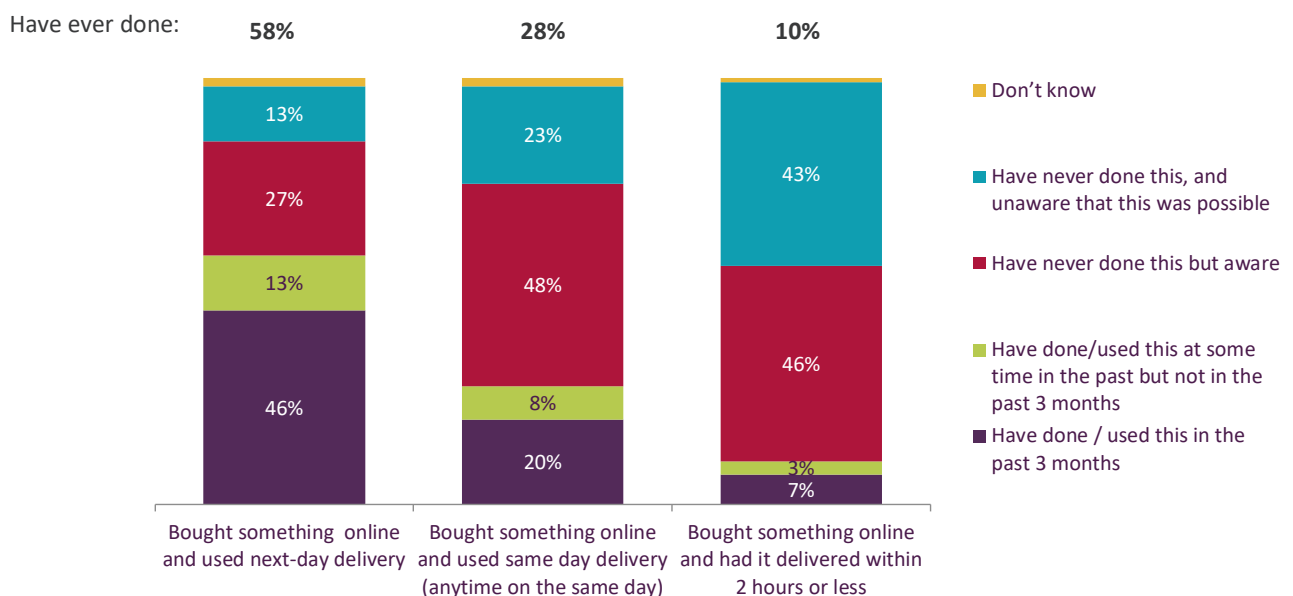
offering delivery of purchases within two hours, is even less common; only 10% of people say they have used this type of service. This probably reflects the more limited geographic coverage and choice of retailers or products offered by same-day services, as well as the price premium for same-day or faster delivery. Apex Insight estimates that same-day accounted for around 1% of total business-to-consumer delivery volumes in 2017; the value of the business-to-consumer non-food same-day delivery market more than doubled between 2016 and 2017, from £52m to £111m.¹¹⁷

Although some UK parcels operators such as Royal Mail,

DHL and Geopost (owner of DPD) have same-day delivery operations (e-Courier and Stuart respectively), the structure of same-day delivery operations can vary significantly between postal networks. Parcel delivery assets (e.g. vans and sorting equipment) and workforce (including those involved in last-mile delivery) are often kept separate from those used for same-day and on-demand delivery.¹¹⁸ Some retailers, including Amazon and Argos, have developed their own same-day delivery networks. Argos is an example of a retailer which uses its network of stores around the UK as delivery hubs from which it can deliver to 90% of homes within 4 hours.¹¹⁹

Figure 6.7: Use and awareness of delivery options

Proportion of adults



Source: Ofcom research, fieldwork May 2018 Base: All UK Adults, n=1100. Q.8 Thinking about some postal, delivery and e-commerce services, which of the following have you ever done? May not sum to 100% due to rounding

¹¹⁷ Apex Insight (2017) UK Same Day Delivery (non-food) Market Insight Report 2017
¹¹⁸ See, for example, Richard N Williams (2018) Just in time in Postal and Parcel Technology International, March 2018.
¹¹⁹ Sainsbury's, Full Year Unaudited Results 2017-18

Retailers and operators are offering increasingly flexible options for the tracking and pick-up of online purchases

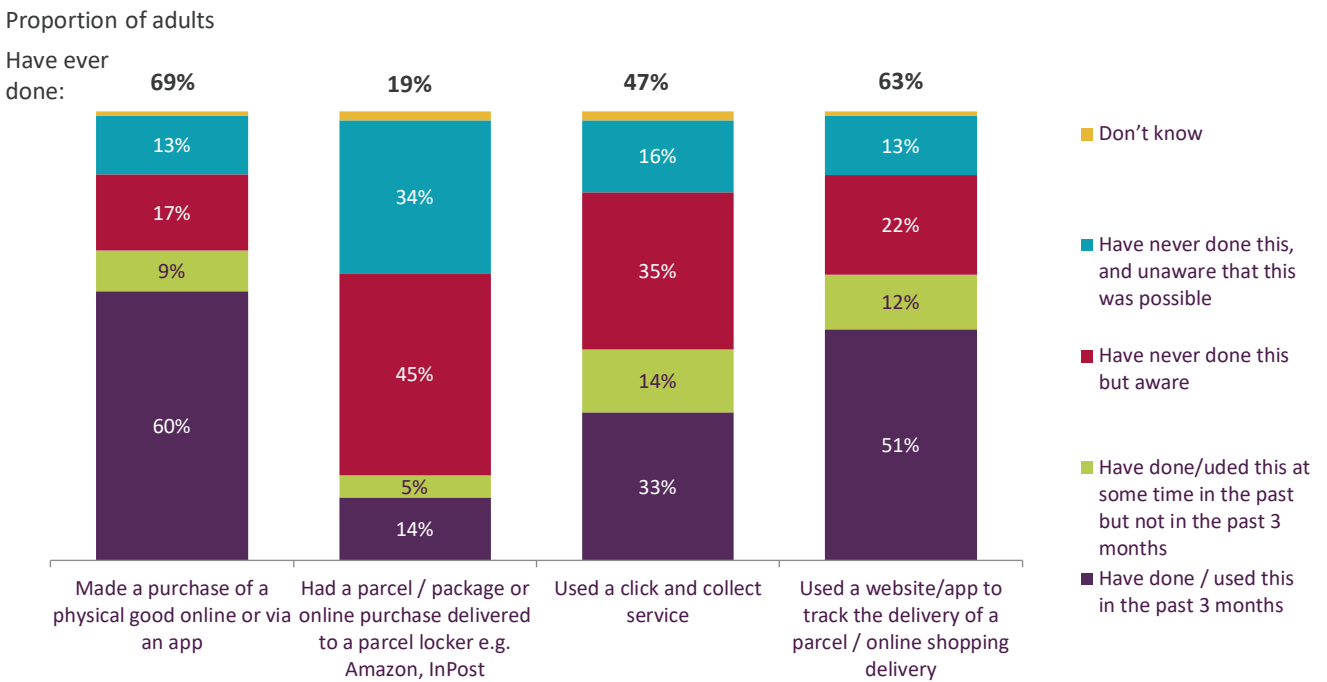
Using a website or app to track the delivery of a parcel or online shopping delivery is relatively common, with 63% of people having done this (51% in the past three months).

Just under half (47%) of people have used a click-and-collect service,¹²⁰ with a third having done this in the previous three

months. Some retailers offer click-and-collect only for goods they have sold themselves, while others, such as Asda, offer click-and-collect (and returns) for third-party retailers as well. Asda launched its first 'parcel tower' automated machine for pick-up and returns in January 2018, following a roll-out to around 100 Walmart stores

in the US.¹²¹ From the retailer perspective, although rolling out click-and-collect may require investment in in-store storage hubs, changes to store logistics networks and space for storage of goods,¹²² it also helps drive footfall to its physical stores, which may result in ad-hoc purchases when people come to collect their parcel.¹²³

Figure 6.8: Use and awareness of innovative options for delivery



Source: Ofcom research, fieldwork May 2018 Base: All UK Adults, n=1 100. Q.8 Thinking about some postal, delivery and e-commerce services, which of the following have you ever done? May not sum to 100% due to rounding.

¹²⁰ A service allowing consumers to make a purchase online but pick it up from a physical store.

¹²¹ Post and Parcel, [Asda installs automated parcel tower in Manchester store](#), 5 January 2018

¹²² For example in 2017 [Argos opened two new distribution centres in Birmingham and Reading](#) to serve its click-and-collect, next-day and same-day delivery operations

¹²³ See, for example, International Council of Shopping Centers, [Click-and-Collect Seamlessly Merges Physical, Digital Consumer Channels](#), for examples of this effect in the US.

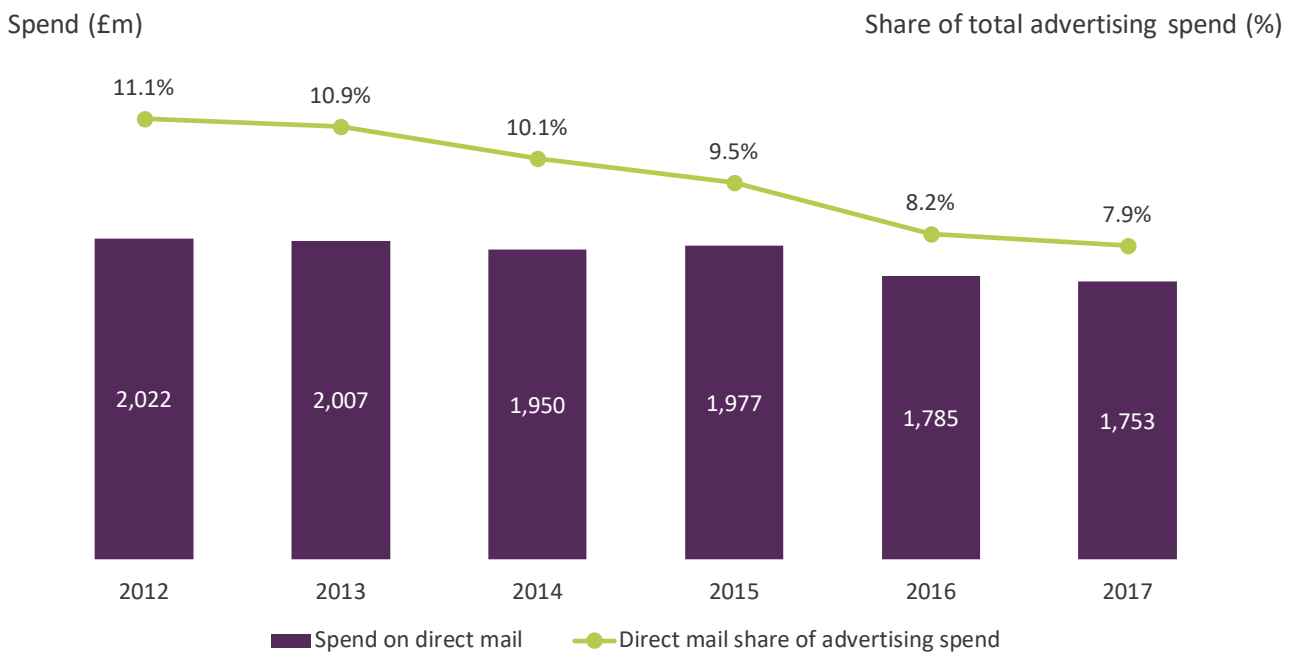
6.5 Direct mail

UK direct mail expenditure showed signs of stabilisation in 2017 following a large decline in 2016

Expenditure on direct marketing fell by 2% in real terms to £1,753m in 2017. This decline (which was an increase in nominal terms¹²⁴) contrasts with a 10% real-terms decline between 2015 and 2016. Direct mail's share of expenditure was stable at 7.9% of total advertising expenditure, down 0.3 percentage points on the previous year.

According to data from WARC/Nielsen, the mail order sector accounted for just under a quarter (23%) of direct mail expenditure in 2017, followed by expenditure by government, social and political organisations, both with 18% total expenditure.¹²⁵

Figure 6.9: Direct mail expenditure in real terms and as a proportion of total UK advertising spend



Source: AA/WARC Expenditure report. Figures are in real terms, adjusted by Ofcom for CPI at 2017 prices.

¹²⁴ Royal Mail reported a 1% nominal increase in its marketing mail revenues (which include redirections, Address Management Unit and addressed /unaddressed advertising mail) to £1,101m in 2017-18.

¹²⁵ Nielsen/WARC

Six in ten people have received an advert for restaurants or takeaways though their letterbox in the previous four weeks; almost half have received charity advertising material

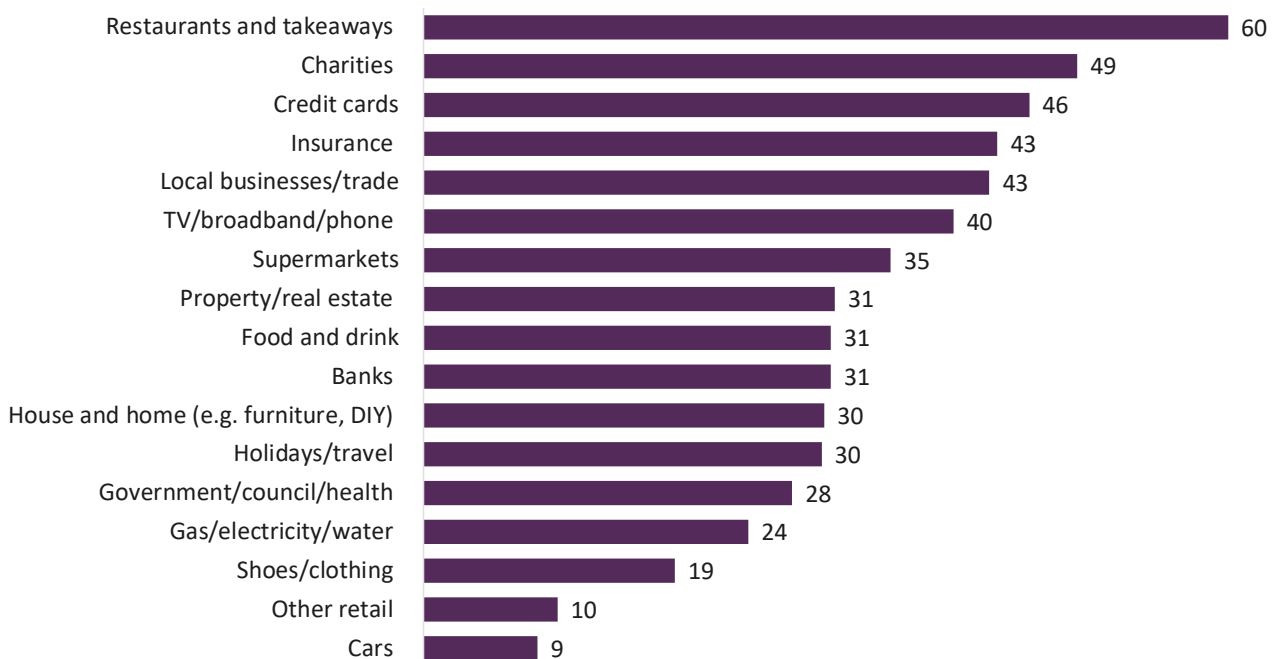
Restaurants and takeaways are the type of business most likely to advertise via items dropped through the letterbox (both addressed and unaddressed); 60% of adults said they had received one of these in the previous four weeks. These advertisements are likely to be unaddressed and targeted at particular geographic areas, rather than at particular socio-economic or age groups.

Almost half (49%) of adults had received either addressed or unaddressed mail items in the previous four weeks advertising charities. This was highest among the 65+ age group (66%), and lowest among the 15-24 age group (32%). A similar pattern is seen for insurance and holidays; 61% and 49% respectively of over-64s had received these adverts. In contrast, only 37%

of over-64s said they had received an item advertising credit cards, compared to 54% of those aged 35-44.

Figure 6.10: Companies advertised in items delivered through letterbox in past 4 weeks

Proportion of adults (%)



Source: TouchPoints 2017

Base: GB adults 15+

AM6: Which types of companies have you seen advertised in items you've had delivered through your letterbox in the past four weeks? (This includes unaddressed mail and inserts you might have received in bills, etc.).

Interactions with and innovations in direct mail

The UK has never had industry-wide standards for the measurement of direct mail, unlike other advertising media such as TV, radio, print and online. However, in January 2018, JICMAIL, the new joint industry committee for the measurement of direct mail in the UK, published its first figures. They showed that the average reach (the number of people in a household who interact with a piece of mail) of a piece of addressed mail in the UK is 1.2, and each piece of mail is interacted with an average of 4.2 times over the next 28 days.

Consumers interact with mail they receive from companies in a variety of ways, reflecting both the type of mail and the organisation behind the mailing. In 2017, the most common actions consumers made after receiving a bill or statement was to go online (35%) or to call someone on the phone (34%). This may reflect people paying bills, or potentially querying a statement.

Thirty-five per cent of adults in Great Britain said they had used a voucher or coupon sent to them in a piece of mail (other than a statement/bill) from an organisation with which they already had a relationship, while 28% of people said this type of mail had resulted in them going online. Just over a quarter (27%) of adults said that they had bought or ordered something as a result of getting mail from an organisation with which they were already familiar.

People are in general less likely to take any of the actions in figure 6.11 if they receive mail from an organisation they have not used or are unaware of, although 9% of adults say they have gone online following the receipt of such mail.

There have been recent innovations designed to increase engagement with direct mail, including links to other forms of advertising, especially on digital channels. Since 2017, consumers across the US have been able to sign up to the US Postal Service's Informed Delivery scheme, under which pictures of letters, including advertising mail, are

emailed to the consumer in advance of delivery. Other ways in which direct mail can be linked to online channels to increase effectiveness include programmatic direct mail. This targets consumers who have registered with a retailer via a website or app; the registration triggers the sending of direct mail such as a brochure or discount coupon. Other innovations include the use of QR codes or NFC tags in mailshots to provide an easy way for recipients to engage with digital content designed to supplement the mailshot, including augmented reality (AR) or virtual reality (VR) experiences which are triggered by the recipient pointing their smartphone at the mailshot. In this case the mailshot can include cardboard VR headsets for use with the recipient's phone.

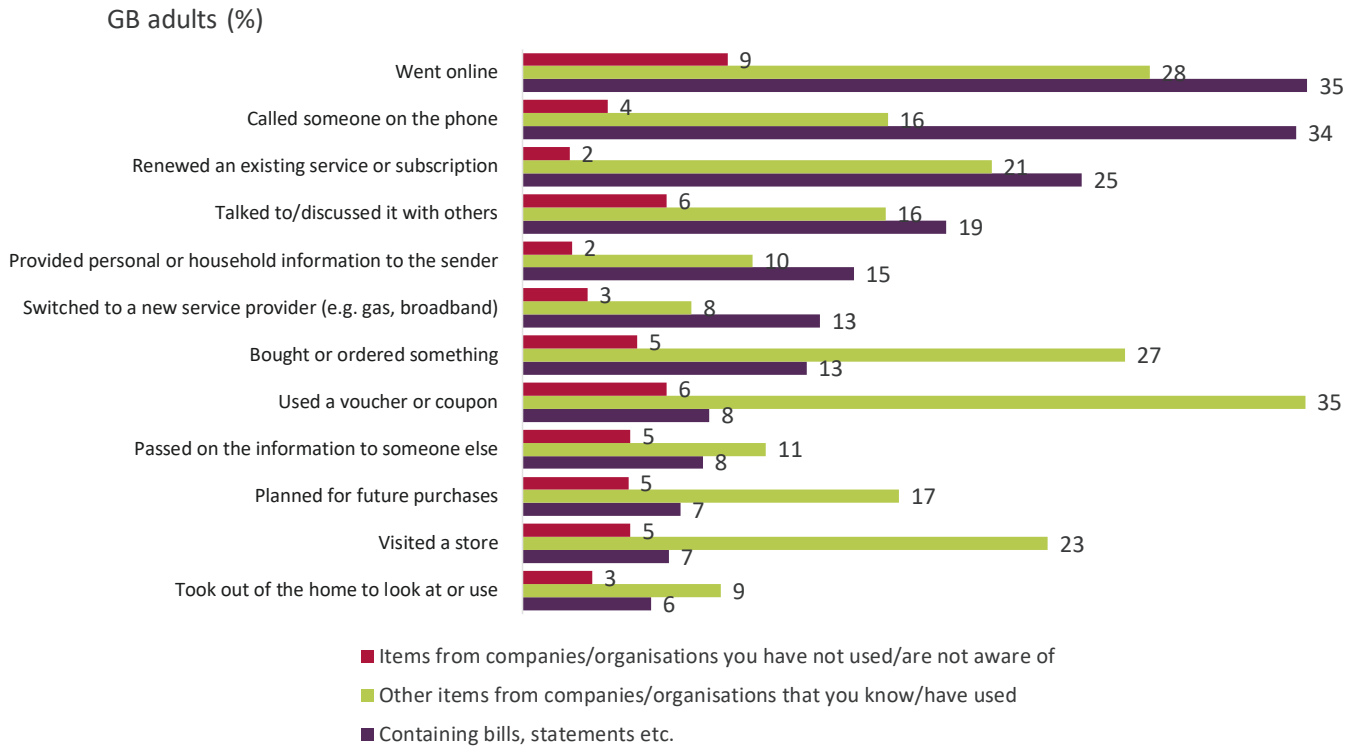
¹²⁶ Including representation from the DMA, IPA, ISBA, Royal Mail and Whistl.

¹²⁷ JICMAIL identifies nine interaction action categories for mail such as being opened, read, put aside, or thrown out.

¹²⁸ [JICMAIL](#)

¹²⁹ A QR code is a two-dimensional barcode than can be read by a camera equipped device with appropriate software which can trigger actions such as opening a webpage or app or downloading content. Near field communications (NFC) tags embedded in mail can be read by mobile handsets equipped with an NFC reader.

Figure 6.11: Actions taken following receipt of addressed mail from companies / organisations



Source: TouchPoints 2017

Base: All GB adults 15+

AM3: Which, if any, of the following have you done in response to the following types of mail / post you have received during the past 12 months?