



The Communications Market 2015

Telecoms and networks

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4.1 Key market developments in telecoms and networks

4.1.1 Industry metrics and summary

Figure 4.1 UK telecoms industry: key statistics

	2009	2010	2011	2012	2013	2014
Total operator-reported revenue (£bn)	41.3	40.4	39.9	39.4	38.1	37.4
Operator-reported retail revenue (£bn) (excluding CDS)	27.9	27.8	28.0	28.5	28.4	28.5
Operator-reported wholesale revenue (£bn)	10.6	9.9	9.2	8.2	7.0	6.2
Average monthly household telecoms spend (£, 2014 prices)	87.20	86.50	84.63	84.00	81.40	81.30
Fixed access and call revenue (£bn)	9.6	9.3	9.0	8.8	8.7	8.5
Fixed internet revenue (£bn)	3.2	3.3	3.5	3.8	4.2	4.8
Fixed lines (millions)	33.5	33.4	33.3	33.2	33.3	33.2
Fixed broadband connections (millions)	18.4	19.6	20.7	21.8	22.8	23.7
Broadband connections with headline speed \geq 30Mbit/s (millions)	0.0	0.2	1.0	3.1	5.3	7.1
Fixed voice call minutes (billions)	128	123	111	103	92	80
Mobile retail revenues (£bn)	15.0	15.1	15.4	15.9	15.6	15.3
Mobile voice call minutes (billions)	127	131	131	132	135	137
SMS & MMS messages sent (billions)	106	129	150	151	129	110
Mobile data volumes (PB)	-	-	-	-	283	533
Active mobile subscriptions (millions) (including M2M)	80.6	81.5	82.2	83.2	82.7	83.7

Source: Ofcom / operators

Note: CDS refers to corporate data services; connection figures are at year-end.

Operator-reported telecoms revenues continued to fall in 2014

Total UK telecoms revenue continued to decline in 2014, falling by £0.8bn (2.0%) to £37.4bn (Figure 4.1). This was mainly due to an 11.5% (£0.8bn) decrease in wholesale revenue (due to cuts in call termination rates) during the year, although fixed access and call revenues and mobile retail revenues also fell over the same period, down by £0.2bn (2.5%) and £0.3bn (2.1%) respectively. Revenue from corporate data services also continued to fall in 2014, by 1.0%, to £2.6bn. Fixed internet increased in 2014, up by £0.6bn (15.0%). Average monthly household spend on telecoms services fell by 11 pence (0.1%) to £81.30 in real terms in 2014.

Fixed voice call minutes continued to decline in 2014, falling by 12 billion minutes (12.6%) to 80 billion minutes, while mobile voice call minutes increased by 3 billion minutes (2.0%) to 137 billion minutes over the same period. The total number of outgoing SMS and MMS messages fell again significantly in 2014, down by 20 billion messages (15.3%) to 110 billion messages.

The total number of fixed lines decreased by 0.1 million (0.2%) to 33.2 million in 2014, while the total number of mobile subscriptions (including M2M connections) increased by 1.6 million (1.8%) to 89.9 million subscribers during the year. The total number of residential and

SME fixed broadband connections increased by 0.9 million (4.0%) to 23.7 million in 2014, while the number of superfast broadband connections (i.e. connections providing at least 30Mbit/s) rose by 1.8 million (34.5%) to 7.1 million during the year.

These data are discussed in greater detail in the second and third sections of this chapter: *The Telecoms Industry* and *The Telecoms User*, which look at the telecoms sector from an industry and from a consumer perspective. First we consider four key developments in the telecoms market. These are:

- **Consumer take-up and use of 4G services.** Here we look at the increased take-up of 4G services, demographic splits of users with a 4G service, and the changing usage profiles of 4G users.
- **Consumers' use of voice over IP services.** Here we look at consumers' take-up and use of voice over IP (VoIP) services, including how often VoIP is used, what type of calls it is used for, the devices used to make VoIP calls and what VoIP users consider the main advantages and disadvantages of using the service.
- **Take-up and use of fixed and mobile broadband services.** Here we consider why so few UK homes use a mobile broadband service as their sole broadband connection when technological advances suggest that mobile broadband services are a viable alternative to fixed broadband services.
- **Shifting fixed voice tariff structures and landline-only households.** This key market development story looks at recent trends in fixed voice tariffing, and profiles the households who purchase landline services without a fixed broadband connection and who are likely to be paying more as a result of these changes.

4.1.2 4G growth accelerates

The number of UK 4G subscribers passed 23.6 million in Q4 2014

During 2014, total 4G mobile subscriber numbers increased from 2.7 million to 23.6 million (Figure 4.2) taking the proportion of total mobile subscriptions (including M2M) that were 4G to 28% in Q4 2014. The period with the largest absolute growth of subscriptions was Q1 2014, when an additional 10.2 million consumers upgraded to a 4G package. The large increase in 4G subscribers in Q1 2014 was mainly due to Three UK releasing 4G in March 2014 so that all packages, including existing 3G packages, became 4G-capable for no extra cost. The rapid overall growth of 4G subscribers is likely to be due to the increasing number of packages that include 4G services, and because all of the main operators (EE, Vodafone, Telefonica and Three) now include 4G connectivity as part of all their contract packages. It is also likely to be because consumers' pre-4G contracts ended, and they upgraded to 4G packages. In addition, more providers, including giffgaff and Tesco Mobile, are now offering 4G services, and the price differential between 3G and 4G services is narrowing, which may be leading to increased take-up by more price-sensitive consumers.

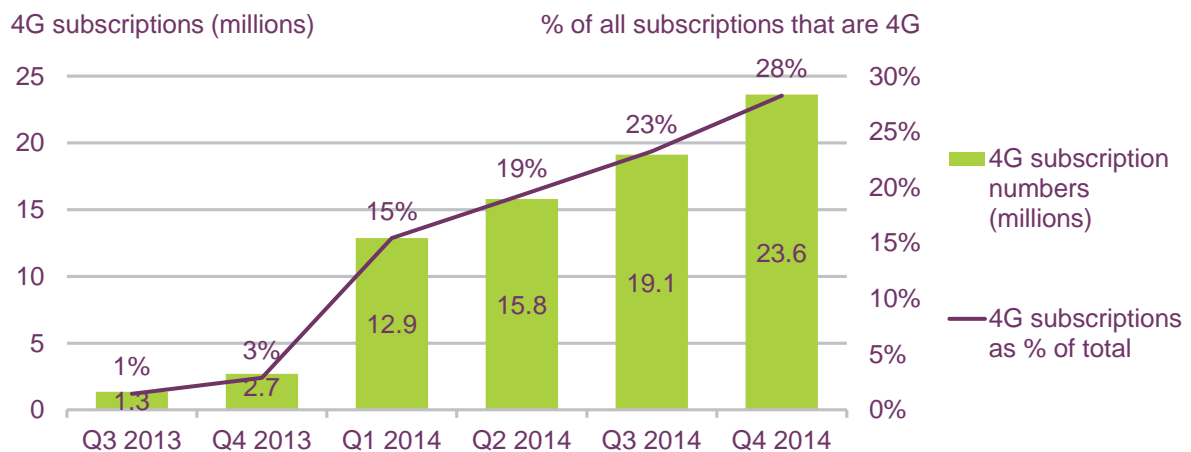
It is important to note that 4G subscription numbers are measured by the number of business and residential consumers on a 4G package, including those who do not have a 4G-capable phone, and including consumers in areas that do not currently have 4G coverage. This means that the number of 4G subscribers is likely to be greater than those who actually make use of a 4G network.

4th Generation (4G) mobile communications standard

4G stands for 4th generation, and relates to the 4th generation mobile communications standard, which allows internet access at higher speeds than previous standards. Most premium smartphones can use 4G services while still being compatible with the previous standards, 2G and 3G.

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

Figure 4.2 Total 4G subscription numbers



Source: Operator data

Note: Includes all consumers whose tariff allows them to access 4G mobile services, even those without a 4G-enabled device or in areas where their provider has no 4G coverage.

Outdoor 4G premises coverage exceeded 50% for all operators in March 2015

Figure 4.3 shows the 4G premises coverage by operators in the UK in June 2014 and March 2015. EE had the highest coverage in both periods, at 68% and 81% respectively. Three, the last UK MNO to launch 4G services, had the lowest 4G premises coverage in Q1 2015, at 53% (coverage data was not available for Three in June 2014).

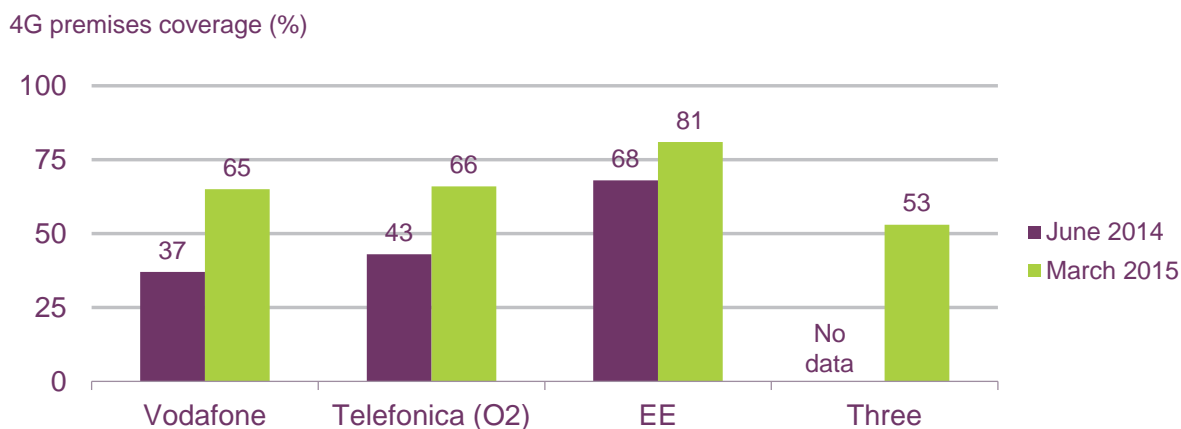
Both Vodafone and O2 increased their coverage by more than 20 percentage points, to 65% and 66% respectively, between June 2014 and March 2015. The UK's four MNOs have all targeted 98% 4G population coverage by the end of 2015. This has encouraged coverage expansion schemes, including installations of 'small cell' and large mobile masts around the country, which has led to rapidly increasing levels of coverage in the past year.

In May 2015, 89.5% of UK premises were in the 4G coverage area of at least one operator⁷¹. This is due to the fact that the operators do not all cover the same geographic

⁷¹ Ofcom, based on operator data collected for the Infrastructure Report 2015

areas, although there is an overlap in the more populated areas (12.1% of UK premises were covered by all four operators, in terms of outdoor coverage).

Figure 4.3 4G outdoor premises coverage, by network



Source: Ofcom mobile broadband performance reports, November 2014 [<http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/mbb-nov14.pdf>] & April 2015 [http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/april15/Ofcom_MBB_Performance_Report_April_2015.pdf]

Note: 4G coverage data were not available for Three in June 2014.

Adults in the ABC1 socio-economic group are more likely than those in the C2DE group to use 4G services

Overall, 30% of adults had a 4G mobile phone package in Q1 2015. Take-up of 4G mobile services varied by nine percentage points across socio-economic groups, with 34% of ABC1 and 25% of C2DE respondents using a 4G package. Male respondents had a 31% take-up of 4G services, while female take-up was 28%.

As can be seen in Figure 4.4, 4G take-up varies by age group. Only 11% of respondents aged 55+ claimed to have a 4G package, compared to 45% of respondents in the 16-24 age group. Forty-two per cent of respondents in the 25-44 age group had a 4G package, 14 percentage points higher than the 28% recorded among those aged 45-54.

Figure 4.4 4G take-up overall, by age, gender and socio-economic group

% of respondents



Source: Ofcom Technology Tracker. Data from wave 1, 2015

Base: UK adults 16+, ABC1 (1948) C2DE (1807) male (1832) female (1924) 16-24 (514), 25-44 (1247), 44-54 (1447) and 55+ (1447)

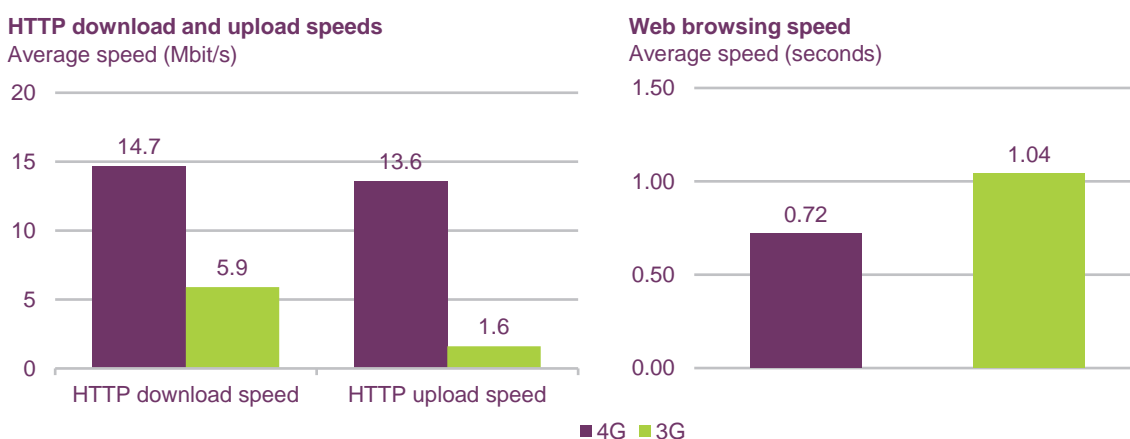
QD6 (QD41) Do you have a 4G service? This is a relatively new service that enables faster mobile internet access.

Average 4G web browsing speeds were around 30% faster than 3G in Q4 2014

Ofcom’s research into the performance of the retail 3G and 4G networks of the UK’s four national mobile network operators,⁷² conducted between October and December 2014, shows that the average 4G HTTP download speed (the rate at which data can be transferred from the internet to a user’s device) was 14.7Mbit/s, almost 2.5 times that over 3G (5.9Mbit/s), while the average 4G upload speed was 13.6Mbit/s in Q4 2014, more than eight times that of 3G (1.6Mbit/s).

The average web browsing speed (the time that it takes to load a standard web page) was 0.72 seconds in Q4 2014, noticeably faster than 3G’s 1.04 seconds (Figure 4.5).

Figure 4.5 Average 4G and 3G HTTP download, upload and web browsing speeds overall: Q4 2014



Source: Ofcom mobile broadband measurement fieldwork October to December 2014

Note: Speeds are the average (mean) of all 4G tests and all 3G tests.

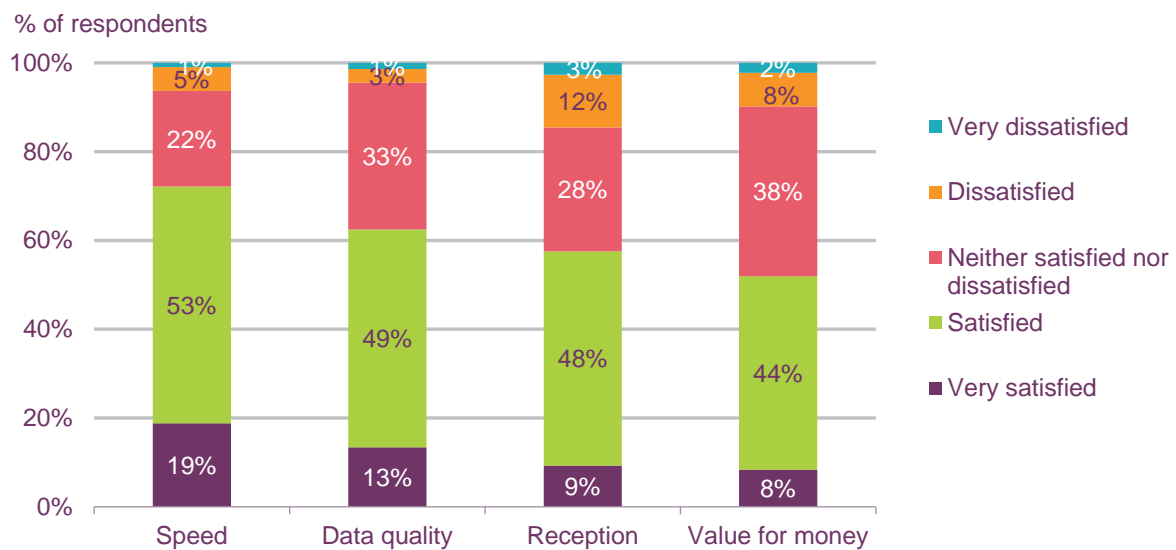
⁷² http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/april15/Ofcom_MBB_Performance_Report_April_2015.pdf

The highest satisfaction levels reported by respondents upgrading from 3G related to speed, with 72% reporting satisfaction

The majority (72%) of respondents who upgraded to a 4G package were very satisfied or satisfied with the speed of their 4G service when compared to 3G; speed on 4G is the factor with the highest satisfaction levels when compared to 3G. Data quality (e.g. video) had the second highest level of satisfaction, with 62% of respondents stating that they were either 'very satisfied' or 'satisfied'; and had the lowest level of dissatisfaction at 4%.

Value for money scored lowest, in terms of the proportion of respondents either satisfied or very satisfied, at 52%, followed by reception, at 57%. Fifteen per cent of respondents were either dissatisfied or very dissatisfied with their reception on 4G. There is a higher level of 3G than 4G coverage in the UK, as 3G technology has been available for much longer, so lower levels of satisfaction with 4G reception are not surprising.

Figure 4.6 Satisfaction levels with 4G compared to 3G, by category



Source: YouGov, 4G Tariffs 22-28 May 2015

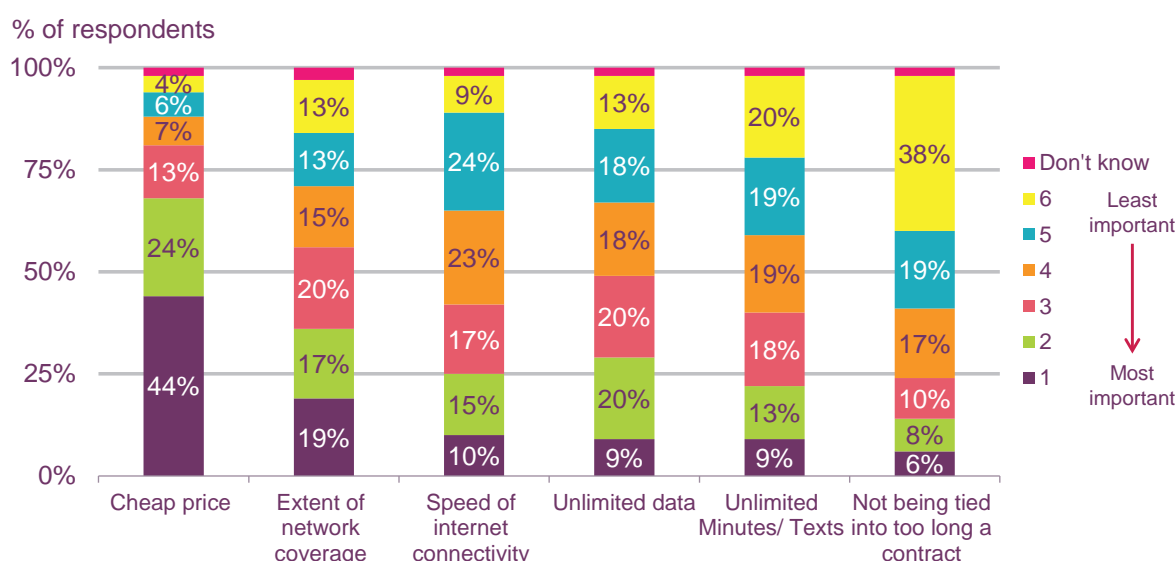
Base: Online UK adults 16+ who have upgraded from 3G to 4G (574)

q33_1. How satisfied are you with your upgrade to 4G (compared with 3G), in terms of internet speed, quality of reception/coverage, data quality and value for money?

Forty-four per cent of respondents said that price was the most important factor when choosing a 4G plan

Figure 4.7 shows the rankings that respondents gave to six factors when choosing a 4G contract. The factors were scored 1 to 6, with 1 being the most important and 6 the least. Price was the most important factor overall, being ranked 1 by 44% of respondents. In comparison, contract length was seen as least important, ranked 1 by only 6% of respondents and ranked 5 or 6 by 57%. Unlimited minutes/texts, unlimited data and speed of internet connectivity were similar in rankings, ranked at 1 by 9%, 9% and 10% of respondents respectively. Network coverage was ranked higher; 19% of respondents stated that this was their most important factor.

Figure 4.7 Importance of factors when deciding to take up a 4G plan



Source: YouGov, 4G tariffs 22-28 May 2015

Base: Online UK adults 16+ who do not currently have 4G (388)

Q40. Which of these would be most important when deciding which 4G plan to take up? Please put in rank order of 1-6 where 1 = most important and 6 = least important.

4.1.3 Consumers' use of voice over IP services

Almost a quarter of internet users are regular VoIP users

Traditional voice calls are carried over the PSTN network, a circuit switched network that allocates a dedicated circuit to each call. Internet protocol (IP) data networks, such as the internet, operate in a different way, splitting data into packets which are then sent individually across the network.

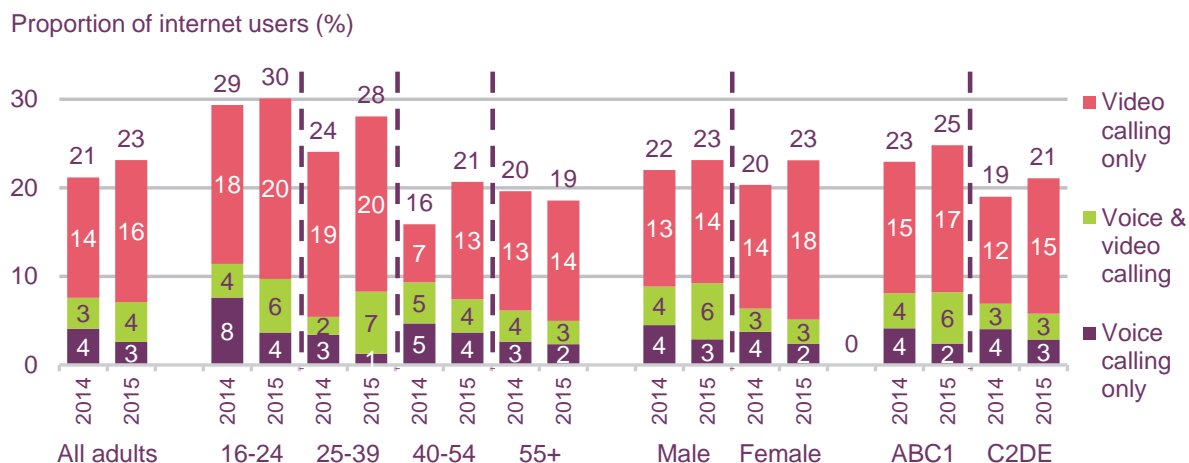
Voice over internet protocol (VoIP) technology allows voice and video calls to be delivered over IP networks, rather than the PSTN network. As VoIP calls are routed over the open internet, VoIP providers are isolated from costs relating to running the IP network over which calls are transmitted (these are incurred by the network operator and passed to the end users as part of their access charges).

Figure 4.8 shows results from a YouGov survey regarding the proportion of internet users who regularly use VoIP services (such as Skype, WhatsApp and Apple Facetime). It should be noted that these figures will be understated as they exclude those who make VoIP voice calls solely on mobile handsets. YouGov's survey shows that almost a quarter (23%) of internet users were regular users of VoIP services in March 2015, in line with May 2014. VoIP use was highest among the younger age groups in 2015, with 30% of 16-24 year olds and 28% of 25-39 year olds claiming that they were regular VoIP users compared to 21% of those aged 40-54 and 19% of those aged 55+. Respondents in the ABC1 socio-economic group were more likely than those in the C2DE demographic to be regular users of VoIP (25% vs. 21%)⁷³.

⁷³ More analysis of consumers' use of VoIP services for communicating with different groups of people can be found in section 1.7 *Communication with friends and family*. Figures in that section include those who make VoIP voice calls solely on mobile handsets and are therefore higher than those reported in this section.

The use of VoIP to make video calls was more prevalent than its use to make voice calls (although voice-only use will be understated here as it excludes VoIP users who make voice calls only on mobile handsets). Overall, 69% of regular VoIP users said that they only used it to make video calls, while 11% said that they only used it to make voice calls (19% said that they did both).

Figure 4.8 Proportion of internet users regularly using VoIP services: 2014-2015



Source: YouGov VoIP 24-31 March 2015 and YouGov VoIP 1-6 May 2014

Base: Online UK adults 16+ 2015 (n = 2110) and 2014 (n = 1048)

q1. Which of these, if any, do you use on a regular basis as a method of communication, for either business or personal use?

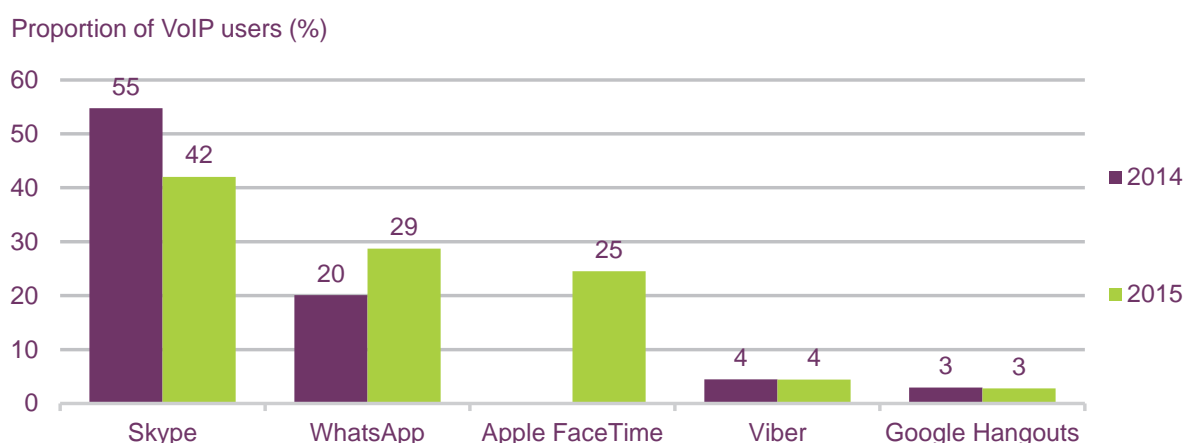
Note: Excludes those who only use VoIP to make voice calls on mobile handsets.

Consumer research shows that Skype remains the most frequently used VoIP service

The research conducted by YouGov suggests that while Skype remained the provider most frequently used to make VoIP calls in 2015, there was a significant decline in the proportion of VoIP users who said that they used Skype services between 2014 and 2015, down by 13 percentage points to 42% (Figure 4.9). The increasing use of VoIP on mobile handsets was reflected in a nine percentage point increase (to 29%) in the proportion of VoIP users using WhatsApp between 2014 and 2015, while 25% of VoIP users said that they used Apple Facetime to make VoIP calls on an Apple device, such as an iPhone or iPad.⁷⁴ Use of Viber and Google Hangouts were comparatively low in 2015 (at 4% and 3% of VoIP users respectively), and both were unchanged since 2014.

⁷⁴ No comparable Facetime data are available for 2014.

Figure 4.9 Use of VoIP providers: 2014-2015



Source: YouGov VoIP 24-31 March 2015 and YouGov VoIP 1-6 May 2014

Base: Online UK current VoIP users 16+ 2015 (n = 1325), 2014 (n = 834)

Q5. And which of these, if any, do you currently use for making phone calls, video calls, instant messaging and/or faxing?

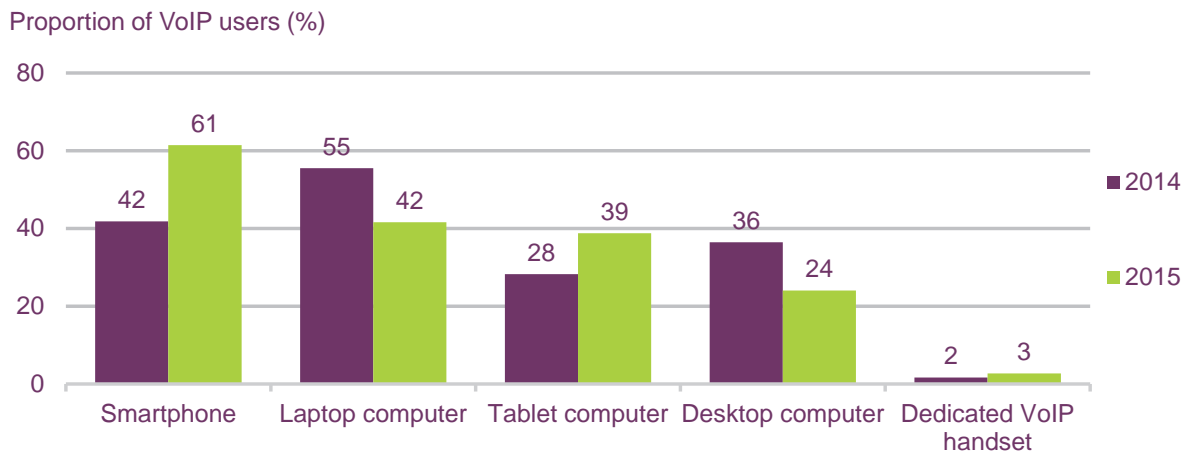
Smartphones are now the devices most frequently used to make VoIP calls

YouGov's research found there had been changes in the devices used to make VoIP calls between 2014 and 2015 (Figure 4.10). Fewer VoIP users used laptop and desktop computers to make VoIP calls (down by 14 percentage points to 42%, and by 12 percentage points to 24% respectively) while there were significant increases in the proportions using VoIP on smartphones (61%) and tablet computers (39%).

Increasing use of smartphones and tablets to make VoIP calls is likely to be related to increasing take-up of these devices, which both increased significantly over this period (see Link to IWBC) and in 2015, 61% of VoIP users said that they used a smartphone to make VoIP calls, the highest proportion for any device and a 20 percentage point increase compared to 2014. YouGov's research shows that smartphones were the devices most frequently used to make VoIP calls across both the ABC1 and C2DE socio-economic profiles in 2015, and among all age groups except the over-55s, who were more likely to choose tablets and laptops.

Across all adults, the proportion of VoIP users using a tablet to make VoIP calls increased by 11 percentage points to 39% between 2014 and 2015, while the proportion using a dedicated VoIP handset remained low (3%).

Figure 4.10 Devices used to make VoIP calls: 2014-2015



Source: YouGov VoIP 24-31 March 2015 and YouGov VoIP 1-6 May 2014

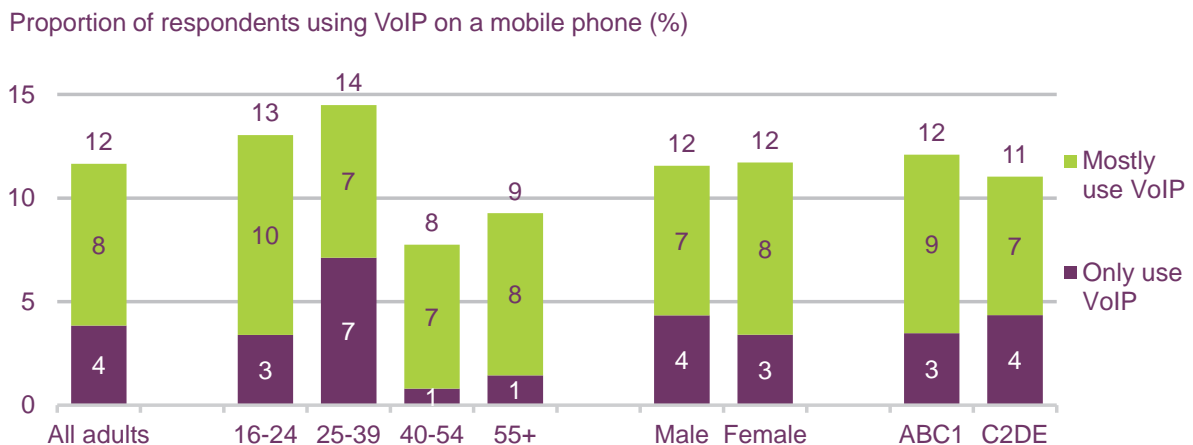
Base: Online UK VoIP users 16+ 2015 (n = 1008), 2014 (n = 398)

q6. On which of the following devices do you use VoIP services, whether for making phone calls, video calls, instant messaging and/or faxing?

Most people using VoIP on a smartphone are using it to complement traditional calls

Figure 4.11 shows the proportion of respondents who use VoIP on a mobile phone and who said they used VoIP on their mobile as a substitute for traditional voice calls, either all or most of the time. Overall, 12% of those who use VoIP on a mobile said that they ‘mostly’ or ‘only’ used VoIP when making calls on their mobile in 2015; the largest variations in these proportions related to age. Use of VoIP on mobiles was highest among younger consumers; 13% of those aged 16-24 and 14% aged 25-39 claimed to use it always or most of the time, compared to 8% of those aged 40-54 and 9% of those aged 55+.

Figure 4.11 Use of voice services on mobile phones: 2015



Source: YouGov VoIP 24-31 March 2015

Base: Online UK adults who use VoIP on their smartphone 16+ (617), 16-24 (118), 25-39 (181), 40-54 (175), 55+ (143), male (258), female (359), ABC1 (343) and C2DE (274)

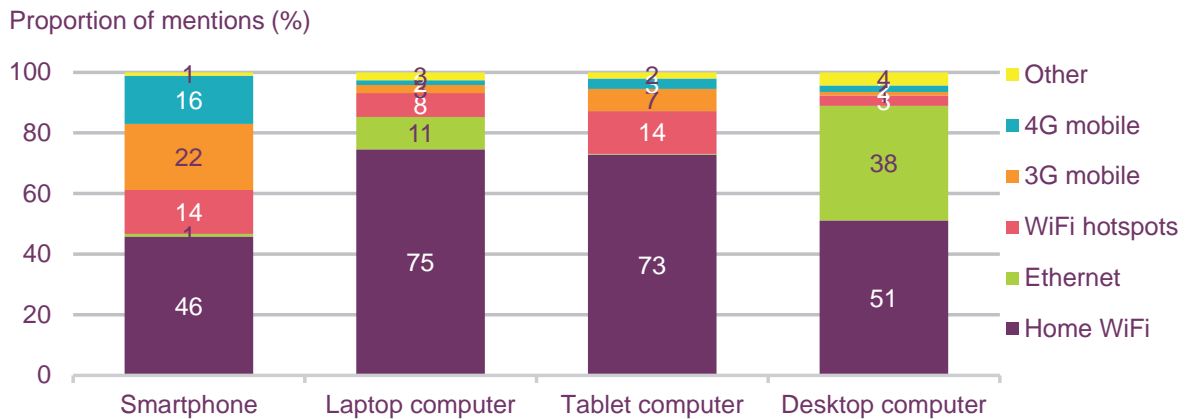
Q7. You’ve stated that you use VoIP on your smartphone and/or feature phone. Thinking specifically about voice calls (i.e. not using video), which of the following best describes your use?

Home WiFi is most frequently used to access VoIP services, across all devices

The high levels of VoIP use in the home (‘at home’ accounted over half of the locations where VoIP users said that they used VoIP services) are reflected in Figure 4.12 below,

which shows that in 2015 home WiFi was the network most frequently used to access VoIP services, across all of the devices shown. Ethernet had the highest proportion of mentions for desktop PCs (38%), while the use of public WiFi hotspots was highest among those using VoIP on smartphones (14%), tablet computers (14%) and laptops (8%). Use of either 3G or 4G mobile networks to access VoIP was highest on smartphones, at 38%.

Figure 4.12 Network used to connect to VoIP services, by device type: 2015



Source: YouGov VoIP 24-31 March 2015

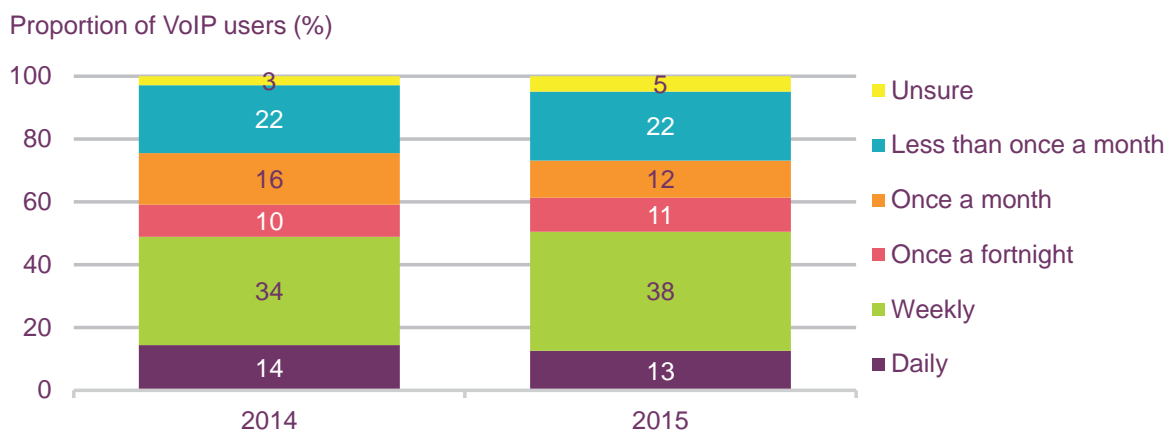
Base: Online UK adults who use VoIP 16+ (1008)

Q8. And how do you connect to VoIP from the device/s you use?

The majority of VoIP users make or receive VoIP calls at least once a week

YouGov also asked VoIP users how frequently they used VoIP to make calls. In 2015, 13% of users said that they used VoIP on a daily basis, while over half (51%) said that they used it at least once a week (Figure 4.13). Both of these proportions were similar to those recorded in 2014.

Figure 4.13 Frequency of VoIP use: 2014-2015



Source: YouGov VoIP 24-31 March 2015 and YouGov VoIP 1-6 May 2014

Base: Online UK adults who use VoIP 16+ 2015 (1008) and 2014 (398)

Q15. Which of the following best describes how frequently you use VoIP services?

Price is seen as the biggest advantage of VoIP calling

YouGov's research asked VoIP users what they considered to be the main advantages of using VoIP over traditional voice telephony (Figure 4.14). Nearly half (44%) of the advantages mentioned were price-related (either 'it costs less than using my landline/mobile' or 'it costs less for long calls'), followed by the ability to make video calls (22%) and to call wherever there was a web connection (12%). Conversely, the main disadvantages of using VoIP were seen as being the inability to make calls if the internet connection was down (28%) or in a power cut (13%), that call quality was not as good as traditional voice calls (20%) and that VoIP calls do not always connect (19%).

Figure 4.14 Advantages of VoIP

Proportion of mentions (%)



Source: YouGov VoIP 24-31 March 2015

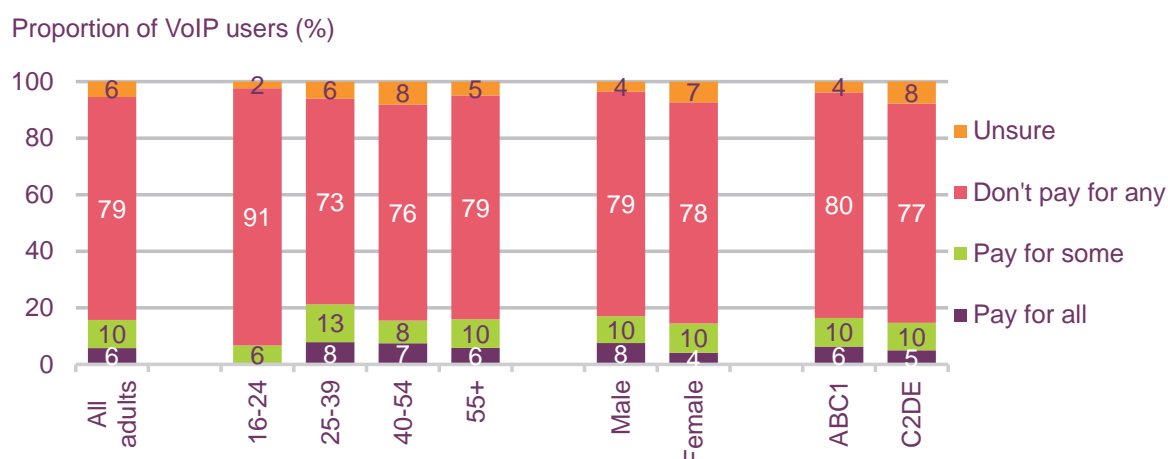
Base: Online UK adults who use VoIP 16+ 2015 (1008)

Q22. Which of these, if any, do you feel are advantages of using VoIP over traditional methods of calling?

The majority of VoIP users only use free services

Given that the availability of cheap or free calls is one of VoIP's main advantages, it is unsurprising that the majority of VoIP users (79%) said that they do not pay for any of the VoIP services that they use (Figure 4.15). The largest variations in the proportion of VoIP users who said that they paid for any VoIP services were by age, ranging from 7% among those aged 16-24 to 21% among 25-39 year-olds. Men and women were as likely as each other to pay for VoIP services, with 17% of men claiming to do so and 14% of women.

Figure 4.15 Paying for VoIP services: 2015



Source: YouGov VoIP 24-31 March 2015
 Base: Online UK adults who use VoIP 16+ 2015 (1008)
 Q17. Do you pay for any of the VoIP service/s you use?

4.1.4 Take-up and use of fixed and mobile broadband services

New fixed and mobile data networks have resulted in the availability of faster data services

The deployment of new technologies has resulted in significant increases in the performance of UK fixed and mobile data networks over the last decade.

As shown in Figure 4.16, in 2004 the fastest available residential fixed broadband service offered by a major ISP was a cable service with an advertised downstream speed of ‘up to’ 4Mbit/s, while in 2014 it was an FTTP service (with limited availability) offering ‘up to’ 330Mbit/s. Data provided to Ofcom by Openreach, Virgin Media and Kcom show that ultra-fast cable services (offering ‘up to’ 152Mbit/s) and/or superfast fibre services (offering headline speeds of ‘up to’ 76Mbit/s or higher) were available to 90% of UK premises in May 2015.⁷⁵

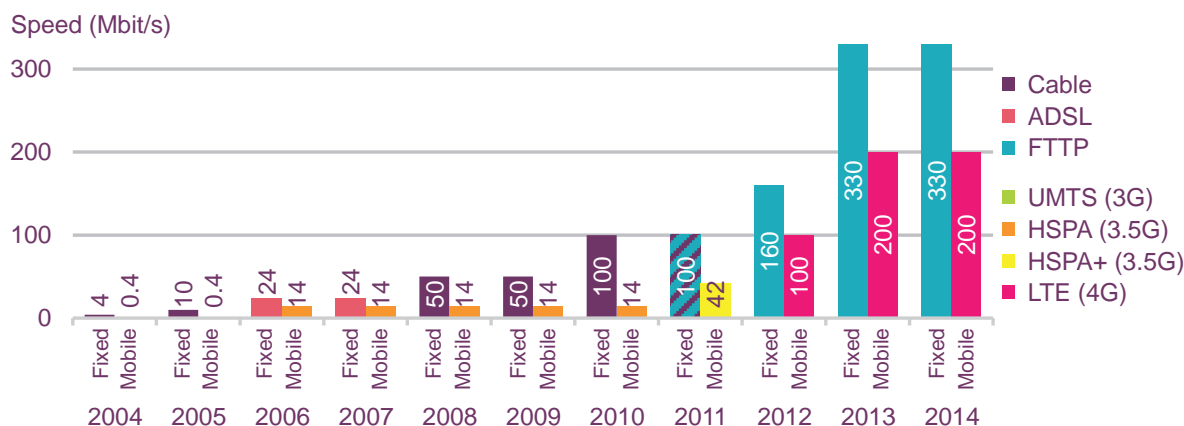
Similarly, over the same period the fastest speeds available over mobile networks (for which we use the theoretical maximum speeds of the technologies deployed, as these are seldom advertised using speed) increased from 0.4Mbit/s (over UMTS 3G) in 2004 to 200Mbit/s (over dual-carrier LTE 4G) in 2014.

Looking at the headline and theoretical speeds of fixed and mobile broadband technologies now available in the UK, consumers may consider them to be substitutes for each other. However, despite headline download speeds available on mobile devices now closing the gap on those available on fixed broadband connections, there remains little evidence of UK households giving up their fixed broadband services and instead solely using mobile broadband services.

⁷⁵ Ofcom analysis of Virgin Media cable broadband availability data and Openreach and Kcom fibre broadband availability data shows that 90% of UK premises could receive cable and/or fibre broadband services by June 2014, and 83% could receive superfast broadband services (i.e. broadband with an actual speed of 30Mbit/s or higher). More information on the availability of these services can be found in the 2015 *Nations and Regions Communications Market Reports*.

In this key market development story we consider why the take-up and use of dedicated data-only mobile broadband has remained low (as shown in Figure 4.60, just 6% of UK households used mobile broadband in Q1 2015) and, accordingly, why so few households are mobile-broadband-only, i.e. using mobile broadband services as a substitute for fixed broadband. Mobile broadband is defined as access to a mobile data network via a USB stick or dongle, or built in connectivity in a laptop/netbook/tablet with a SIM, tethering (via mobile phone internet connection on laptop/tablet), and MiFi mobile broadband wireless router (via 3G or 4G mobile network, can be shared between devices).

Figure 4.16 Development of UK maximum available headline fixed broadband and theoretical mobile data speeds: 2004-2014



Source Ofcom

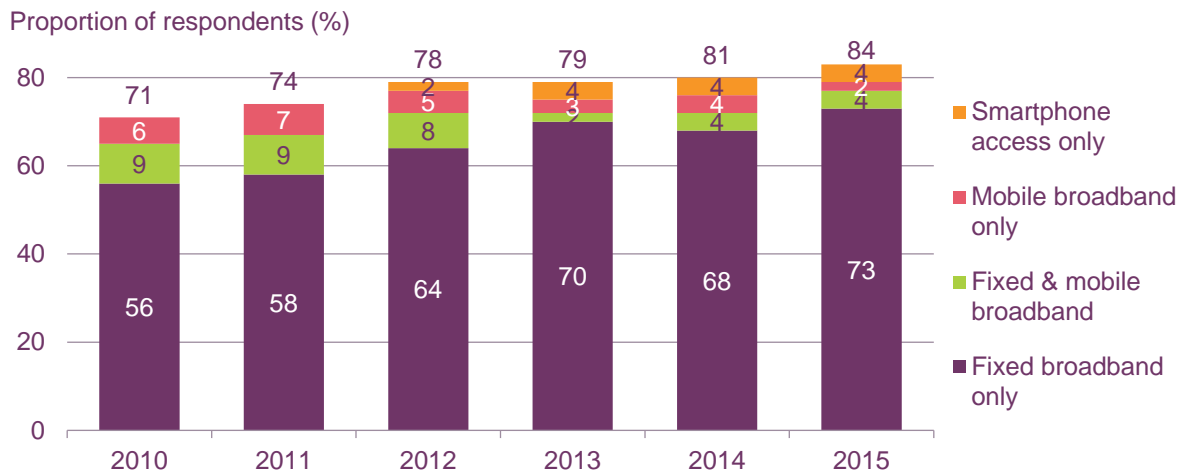
Note: Mobile figures are the theoretical maximums offered by the deployed technologies.

Just 2% of UK homes use a dedicated data-only mobile broadband service as their sole broadband connection

As shown in Figure 4.17 below, Ofcom research into cross-ownership of fixed and mobile data services shows that while 84% of UK homes used a fixed broadband or mobile data connection (either a dedicated mobile broadband connection or the data connection on a smartphone) to access the internet in Q1 2015, just 2% of UK homes depended solely on mobile broadband. This was lower than the proportion that only used smartphones to access the internet (4%).

In fact, overall take-up of dedicated mobile broadband services is low, with Ofcom research indicating that only around 6% of UK homes used a dedicated mobile data connection (such as a dongle, or a data SIM that may be device-specific) in Q1 2015, down from a peak of 17% in 2011 (see Figure 4.60 for more details). This decline is likely to be related to the growing take-up of smartphones (which more than doubled, from 27% to 66% of adults between Q1 2011 and Q1 2015), as some users of dedicated mobile broadband services bought smartphones and found that they no longer required a separate dedicated mobile broadband data connection.

Figure 4.17 Cross-ownership of fixed and mobile broadband: 2010-2015

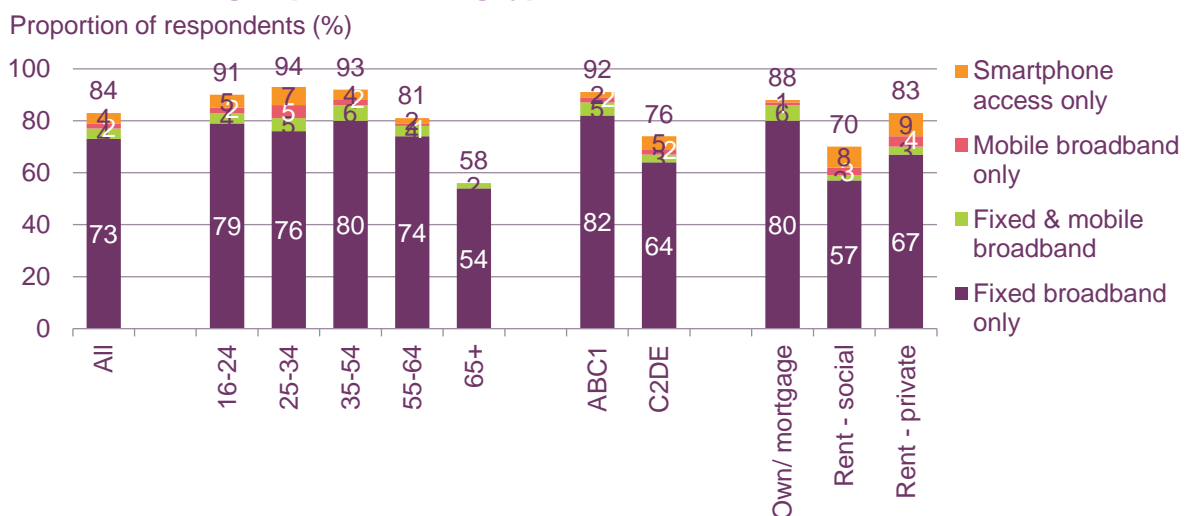


Source: Ofcom Technology Tracker. Data from Q1 of each year 2009-2013, then wave 1 2014-2015
 Note: Mobile broadband excludes data use on a smartphone handset; smartphone access-only data are not available prior to 2012
 Base: All adults aged 16+ (6090 in 2009, 9013 in 2010, 3474 in 2011, 3772 in 2012, 3750 in 2013, 3740 in 2014, 3756 in 2015)

Younger consumers and those living in rented accommodation are more likely to solely use mobile broadband

Ofcom research conducted in Q1 2015 suggests that there was some variation by demographic in the proportion of respondents who said that their household solely used dedicated mobile broadband in Q1 2015 (Figure 4.18). Consumers aged 25-34 were more likely than average to say that they solely used dedicated mobile broadband (5% vs. 2% of all adults). Conversely, those aged 65+ were less likely than average to do this (less than 1% of respondents in this age group) as were those who owned their own home, either outright or with a mortgage (1%). The profile of dedicated mobile-broadband only households was similar to that of households who solely used smartphones to access the internet.

Figure 4.18 Cross-ownership of fixed and mobile broadband services, by age, socio-economic group and housing type



Source: Ofcom Technology Tracker. Data from wave 1 2015
 Note: Mobile broadband excludes data use on a smartphone handset
 Base: All adults aged 16+ (3756), aged 16-24 (514), aged 25-34 (606), aged 35-54 (1189), aged 55-64 (586), aged 65+ (861), ABC1 (1948), C2DE (1807), Own/ mortgage home (2224), Rent home – social (869), Rent home – private (505).

Actual download speeds on 4G are now approaching those of fixed broadband connections

Ofcom data showing average actual speeds provided over fixed and mobile broadband services in H2 2014 (Figure 4.19) suggest that 4G data services may be a potential alternative to fixed broadband.

These are significantly lower than the headline/theoretical maximum speeds shown in Figure 4.16, as fixed broadband headline speeds give an indication of the speeds available to some consumers, and the theoretical maximum mobile speeds are based on laboratory conditions. Average actual speeds reflect network capacity issues and constraints from factors such as network reception (in the case of mobile services) and wiring quality and distance from the exchange/cabinet for ADSL/VDSL-based fixed broadband services.

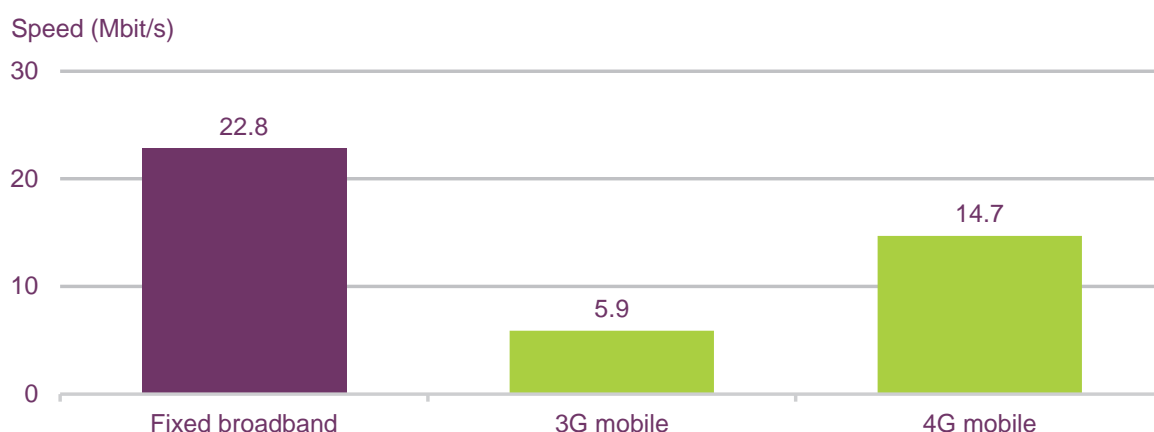
Ofcom's fixed-line broadband performance work⁷⁶ shows that in the three years to H2 2014 average actual residential fixed broadband speeds trebled, from 7.6Mbit/s to 22.8Mbit/s, largely as a result of cable network upgrades and the growing availability and take-up of superfast fibre services. Similarly, Ofcom research into average actual mobile broadband speeds⁷⁷ (conducted in urban areas of the UK) shows that 3G download speeds averaged 5.9Mbit/s in H2 2014, while average 4G speeds were more than twice as fast as those over 3G, at 14.7Mbit/s.

The average actual speeds of fixed broadband and 4G are broadly similar, so some consumers may see 4G as a potential alternative. But even though mobile average download speeds (using 4G) are now closer to average fixed broad speeds, a mobile broadband connection may not always perform as well as a fixed broadband connection, even when they have the same connection speed, as other factors (including latency and connection stability) affect the user experience of undertaking online tasks such as streaming video content.

⁷⁶ <http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/?a=0>

⁷⁷ <http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/mobile-bb-april-15/>

Figure 4.19 Average actual fixed and mobile data speeds: H2 2014



Source Ofcom: *UK fixed-line broadband performance, November 2014* (<http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/broadband-speeds-november2014/>) and *Measuring mobile broadband performance in the UK* (<http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/mobile-bb-april-15/>)

Mobile-only broadband users watch less video content online than fixed-only broadband users

Figure 4.20 below shows the proportion of fixed-only and mobile-only broadband users (excluding those who depend solely on a smartphone for internet access) who use the internet to undertake a number of online activities.

These data are taken from Ofcom consumer research undertaken in Q1 2015; the figures for mobile-only broadband users should be treated as indicative only due to the small sample size. The figures suggest that although there were no statistically significant differences between fixed-only and mobile-only broadband users in levels of use of many of the services shown in the chart, there was notably lower use of some services among mobile-only broadband users.

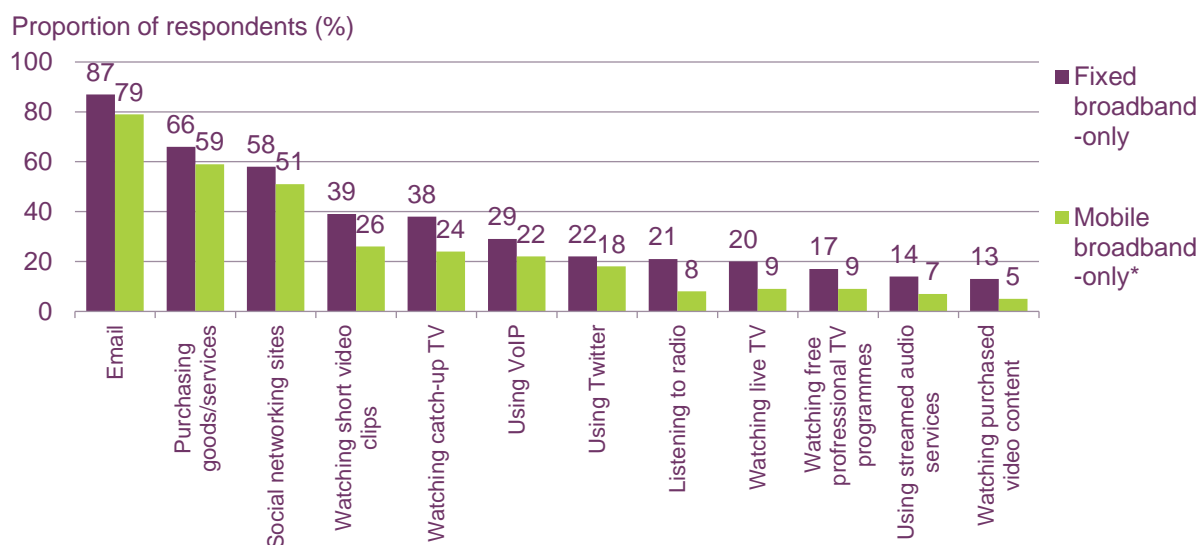
These services were: watching online video content (short video clips, live TV, catch-up TV, free professional TV programmes and purchased video content); use was also lower for streamed radio services. Video streaming needs a stable connection, and Netflix recommends a connection speed of 3Mbit/s for SD quality video, 5Mbit/s for HD and 25Mbit/s for UHD quality.⁷⁸ This means that streaming (or downloading) video content consumes large volumes of data (approximately 0.7GB per hour for SD content, up to 3GB per hour for HD and 7GB per hour for UHD content),⁷⁹ so most of the services that had lower use over mobile broadband connections were those that use more data.

However, while the use of some services appears to be lower among mobile-only broadband users, it is not possible to say whether those mobile broadband users who do not undertake these online activities do not wish to (and have subsequently found that a dedicated mobile broadband service better suits their needs), or whether their choice of a mobile broadband service has influenced their usage habits.

⁷⁸ <https://help.netflix.com/en/node/306>

⁷⁹ <https://help.netflix.com/en/node/87>

Figure 4.20 Use of online activities among fixed-only and mobile-only broadband users



Source: Ofcom Technology Tracker, wave 1 2015

Base: All adults who only use fixed broadband (2519), all adults who only use mobile broadband (75)

Note: *Caution: base between 50 and 100 therefore results are indicative only
QE20 (QE5A) Which, if any, of these do you use the internet for?

There are few 4G mobile broadband services with large inclusive data allowances

Figure 4.21 shows the lowest available prices for residential 3G and 4G dedicated data-only mobile broadband services, standard fixed broadband services, and superfast broadband services that include at least 10GB of data use per month.

This shows that both 3G and 4G dedicated data-only mobile broadband services offering the requisite volume of data were cheaper than the equivalent standard and superfast fixed broadband services (for which we include the cost of line rental where this is required) in July 2015. However, 10GB per month is not sufficient for most households. Ofcom's *Infrastructure Report 2014* found that the average data use over a fixed broadband connection was 58GB per month in 2014; the amount of data downloaded (rather than uploaded) was 53GB per month, equivalent to 35 feature films. For next-generation access connections, average monthly data use was even higher, at 91GB over fibre connections and 66GB over cable.⁸⁰

As of June 2015, Three and EE were the only UK mobile network operators to offer 4G mobile broadband services with over 10GB of data per month.⁸¹ Three offered 15GB of inclusive data for £19.99 per month (plus an upfront charge of £34.99 for the USB modem) and EE offered either 15GB of data per month for £20, 25GB for £30 per month or 50GB per month for £50. Conversely, all of the lowest-priced fixed broadband services shown below included 'unlimited' data, meaning that the amount of data consumed would not be an issue for their users (no 4G mobile data services offered 'unlimited' data in June 2015). More expensive mobile data pricing is related to the high cost of adding capacity to mobile

⁸⁰ <http://stakeholders.ofcom.org.uk/market-data-research/market-data/infrastructure/infrastructure-2014/?a=0>

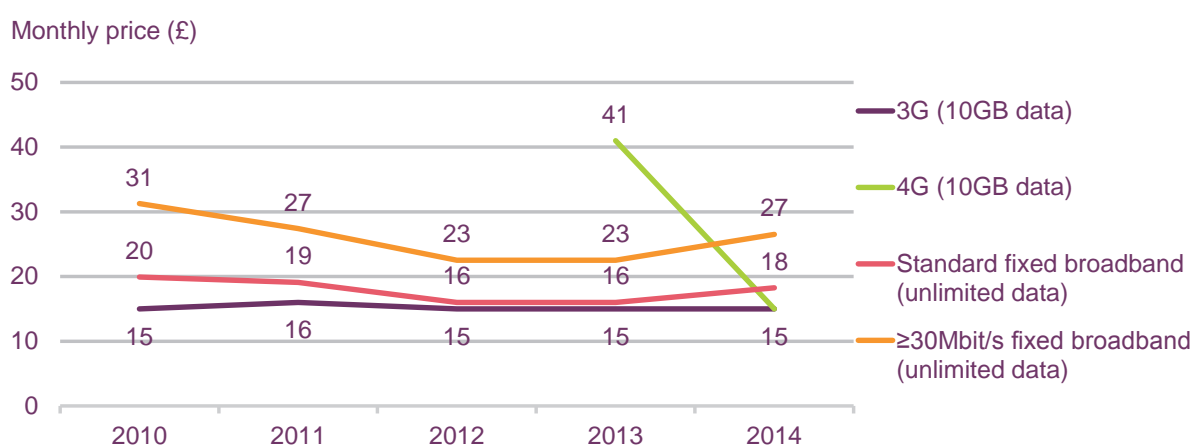
⁸¹ In June 2015 BT, which is not a mobile network operator, announced the launch of new 4G mobile broadband tariffs, including one offering 20GB of data for £20 per month.

networks, and none of the national UK mobile providers is actively pursuing the premises market, instead focusing on mobility.

There are therefore a number of reasons why fixed-to-mobile substitution is not occurring to the same extent for data services as it has in voice. First, while mobile data services are beginning to close the gap on fixed broadband services in terms of download speed, there remain technological limitations inherent in current mobile data networks (in particular, capacity issues) that mean that they are not a feasible alternative to fixed broadband in practice.

Second, current mobile data tariffing means that it is not financially viable to consume the volumes of data that have become commonplace on fixed broadband connections over a dedicated mobile broadband connection, as the cost would be prohibitive for most households. And finally, the ascendance of the smartphone means that dedicated mobile broadband take-up is low, and it is likely to remain so while consumers continue to embrace these devices.

Figure 4.21 Lowest available residential fixed and mobile pricing: 2010-2014



Source: Ofcom / Teligen, data from July of each year

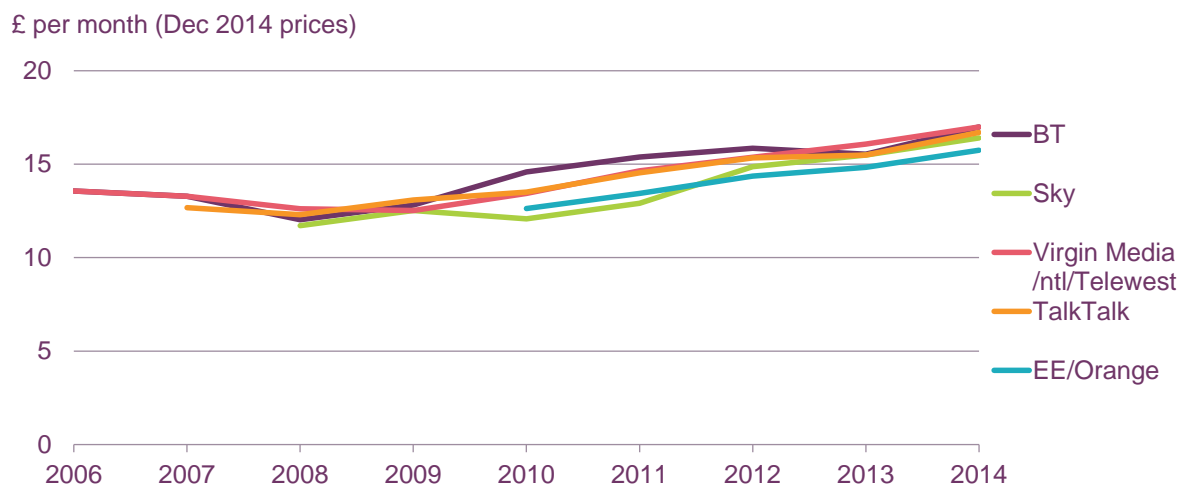
Note: Fixed broadband includes line rental where this is required; the price of a 4G service in 2013 related to an 8GB service with an additional 2GB data bolt-on.

4.1.5 Shifting fixed voice tariff structures and landline-only households

Residential line rental prices have increased over the last five years

A number of line rental increases were announced by the UK's largest residential landline providers in the second half of 2014, with most of these being higher than the increase in the Consumer Prices Index (CPI), indicating that prices are increasing in real terms. For example, BT, the UK's largest landline provider, increased the price of its basic residential line rental service by 6.3%, from £15.99 a month to £16.99, and most of the other major residential landline providers (Sky, Virgin Media, TalkTalk and EE) introduced similar increases. As is shown in Figure 4.22, across the major landline providers, the basic fixed line rental fee has risen by an average of over 25% in real terms since 2010.

Figure 4.22 Residential line rental prices: 2006-2014⁸²



Source: Ofcom / Pure Pricing UK broadband pricing briefings

Note: Prices as at December of each year; adjusted for CPI; excludes line rental saver pre-payment tariffs.

Falling call volumes have led fixed telecoms providers to reconsider their tariff structures

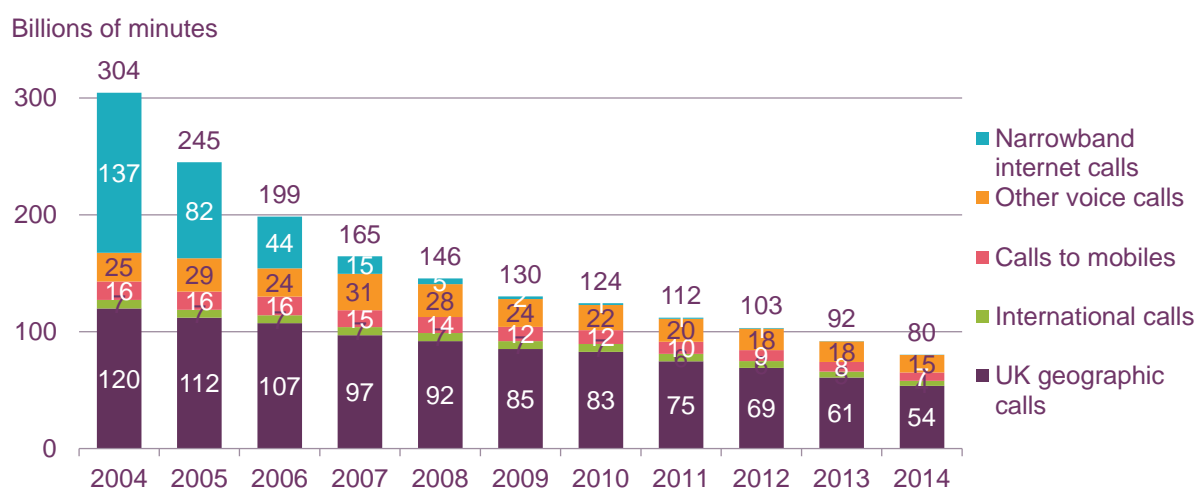
A key reason for basic line rental service price increases is likely to be falling landline call volumes. Fixed-originated call volumes have fallen significantly over the last decade as a result of a number of factors: the increasing use of mobiles, the growing use of data services (first as narrowband dial-up internet users upgraded to broadband services, and then with growing take-up of fixed and mobile data services, which increased use of text-based communications such as email and instant messaging) and the increasing use of traditional mobile messaging over this period (although SMS volumes are now declining).

Ofcom analysis (Figure 4.23) shows that outgoing landline call volumes fell by an average of 12.5% a year between 2004 and 2014, including narrowband internet call volumes, and by 7.1% a year when these are excluded. While the migration of dial-up users onto broadband services has resulted in an increase in fixed internet revenues, it has exerted further downward pressure on landline call revenues, as a significant proportion of dial-up narrowband internet use was charged on a per-minute basis, whereas data use over a broadband connection tends not to generate any additional revenue for the provider.

Operators recover the costs related to providing fixed-line telephony from a combination of a line rental charge and from charging for calls, but falling call volumes and an increase in the bundling of calls with line rental packages has resulted in a significant erosion of call revenues, causing landline providers to reconsider their tariff structures.

⁸² While this chart shows the line rental fee, not all of the providers included in the chart offer stand-alone landline services.

Figure 4.23 Fixed-line call volumes, by type of call



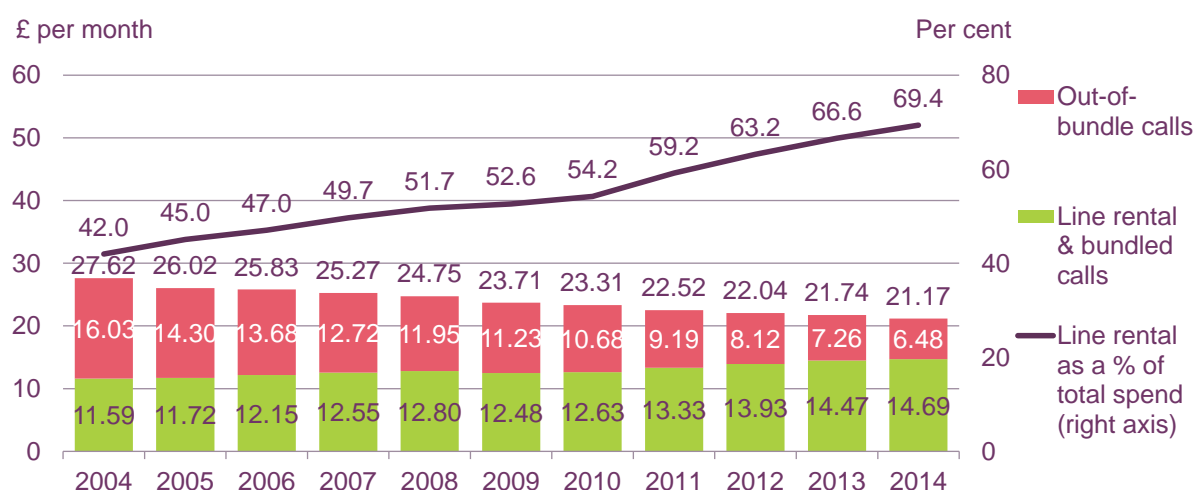
Source: Ofcom/operator data

The rate at which line rental prices have been increasing has accelerated since 2010

Falling call volumes have resulted in operators ‘rebalancing’ their landline tariffs in order to recover the costs related to running a fixed telephony network and, in particular, they have elected to do this by raising line rental prices. The effect of this tariff rebalancing can be seen below in Figure 4.24, which shows that while average out-of-bundle call revenue per fixed line fell by 60% to £6.48 per month between 2004 and 2014, average line rental and bundled call revenue per line increased by 27% to £14.69 per month over the same period, partly reflecting the shift towards the post-pay mobile approach to tariffing, whereby the access fee includes a large bundle of inclusive calls.

While average spend on line rental and bundled calls has increased, this has not fully offset the decline in out-of-bundle call revenue, and average monthly revenue per fixed line fell by 23% to £21.17 (in nominal terms) over the period in question. In turn, this has meant that average monthly revenue per fixed line has declined (although providers have been able to supplement their revenues by offering fixed broadband services), so line rental and inclusive calls have become the major part of the bill, accounting for almost 69% of the average monthly bill in 2014 (up from 42% in 2004). It is notable that the rate at which rebalancing is taking place has increased since 2010, reflecting the trend in line rental prices shown in Figure 4.22.

Figure 4.24 Average monthly retail revenue per fixed line



Source: Ofcom/operator data

Note: Excludes VAT.

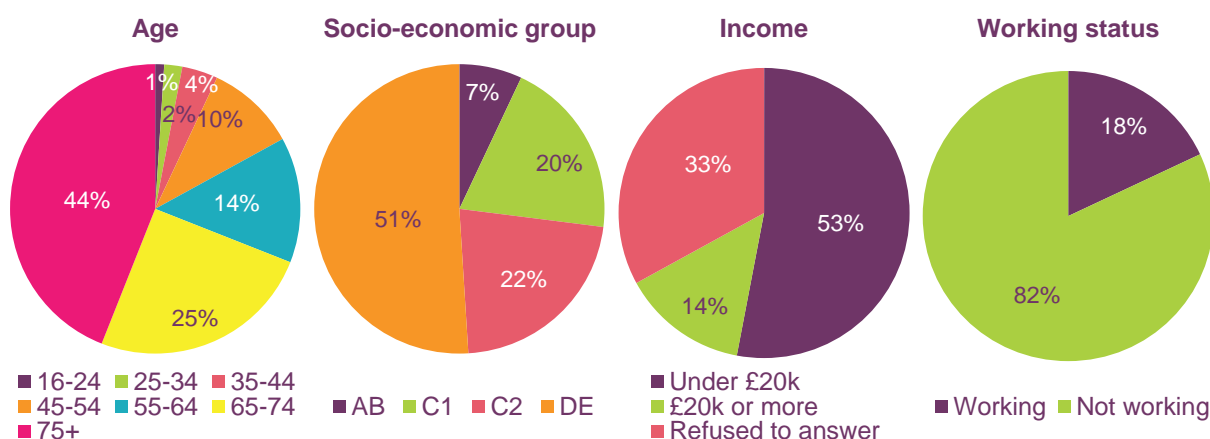
Operators seem to be less focused on acquiring new stand-alone voice customers

Falling fixed voice revenues per line have made landline-only fixed voice customers (i.e. those that purchase fixed voice services on a stand-alone basis) less attractive to providers, and many operators appear to be prioritising winning new dual-play bundle customers over stand-alone voice customers, for example, by offering low-priced fixed broadband and/or TV services rather than low fixed voice line rental. Indeed, TalkTalk and Virgin Media have stopped offering stand-alone fixed voice services to new customers, and require new landline customers to take fixed broadband and/or TV services as well.

As is shown in Figure 4.25 below, Ofcom research conducted by Kantar suggests that around 10% of adults in the UK were paying for a landline phone but did not have a fixed broadband connection in Q4 2014 (equating to around 2.7 million UK homes).⁸³ Landline-only use was most prevalent among older consumers (44% of landline-only users were aged 75+) and among DE households (over half of landline-only homes fell into this category). It is these consumers who are most likely to have been adversely affected by tariff restructuring and increasing line rental prices, particularly those who make low call volumes or who make large volumes of out-of-bundle calls (possibly due to being on an unsuitable tariff).

⁸³ Separate Ofcom research suggests that 70% of UK homes with a landline purchased it as part of a bundle, in conjunction with other communications services, in Q1 2015.

Figure 4.25 Split of fixed-only homes, by demographic



Source: Kantar Media Omnibus.

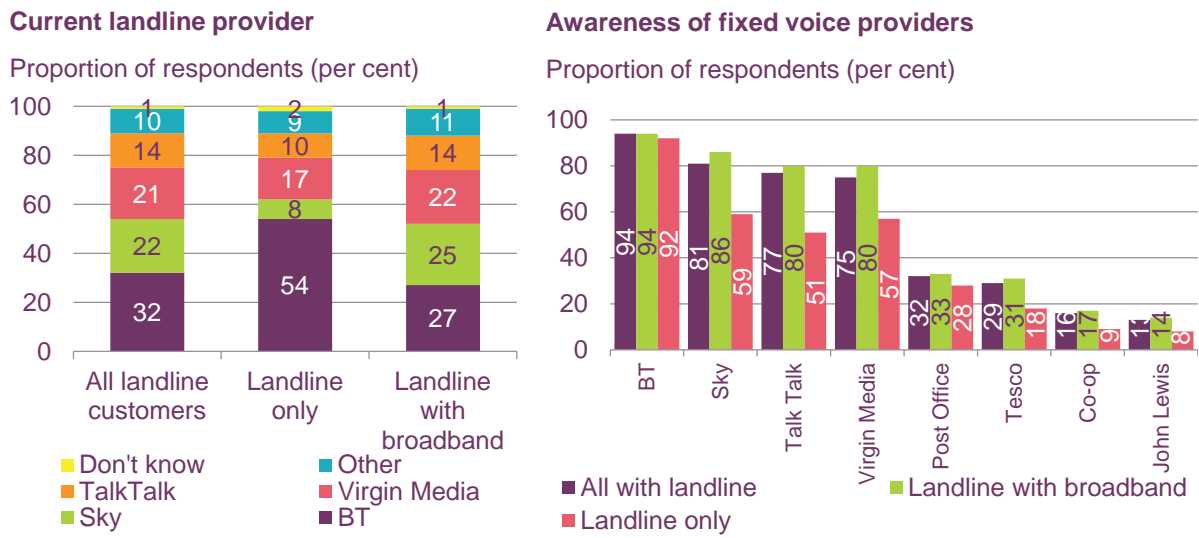
Base: All landline-only customers with sole/joint responsibility for paying the bill (241)

Landline-only customers are less likely to have switched or be aware of alternative providers

Not only is competition for landline-only customers less fierce than for those taking bundled services, but the research also suggests that most of those purchasing stand-alone voice services have never switched provider, and have comparatively low awareness of alternative telecoms providers. As shown in Figure 4.26 below, over half of landline-only users were BT customers in Q4 2014, twice the proportion of landline users with a fixed broadband connection. Similarly, the awareness of residential fixed telecoms providers other than BT was lower among landline-only customers, suggesting that they are less engaged with the market.

This lack of engagement with the market could mean that many landline-only consumers are not getting the best deal available. In particular, they may not take up services offered by providers which are cheaper than BT, or BT's *Home Phone Saver* package. This service is available only to fixed voice customers who do not have a fixed broadband service, offering line rental, anytime landline calls and various calling features for £20.99 a month, just £4 per month more than BT's standard line rental fee. The use of this service is likely to be beneficial to a significant proportion of landline-only users, although take-up is likely to be limited without the engagement of consumers and continued efforts by BT to promote it.

Figure 4.26 Awareness and use of alternative providers: landline-only customers



Source: Kantar Media Omnibus.

Base: All landline customers (with sole/ joint responsibility for paying the bill) (1095); Landline only (241); Landline with fixed broadband (826)

Q5A. Which provider do you use for your landline service? Q11. Before today, which of the following companies were you aware it is possible to get a landline service from?

4.2 The telecoms industry

4.2.1 Introduction

In this section of the report, we examine recent trends in the telecommunications market from the perspective of industry revenues, subscribers and volumes. This section is divided into four sections:

- Market overview: top-level findings from the UK telecoms industry
- Fixed voice: covers the fixed-line telephony market
- Fixed data: covers the fixed broadband market
- Mobile voice and data: covers mobile voice telephony, mobile messaging, mobile data, mobile broadband and machine-to-machine communications.
- Business markets: covers mobile and fixed voice and broadband business services.

The key findings in this section of the report are:

- **Total telecoms revenues fell by 2.0% to £37.4bn in 2014.** This was a £0.8bn fall compared to 2013 and a £3.9bn (9.5%) decline compared to 2009, largely the result of falling wholesale service revenues. The decline in telecoms revenues was partially offset by a £0.8bn increase in fixed internet revenues in 2014.
- **Fixed-originated voice call volumes fell by 12.6% to 80 billion minutes in 2014.** However, total fixed voice revenues declined by just 2.6% during the year, indicating that average fixed voice call prices increased during the year.
- **Fixed internet revenue growth has accelerated as a result of increased fibre take-up.** Non-corporate internet revenues totalled £4.9bn in 2014, a £0.8bn (18.5%) increase compared to 2013, driven by the continued migration of UK consumers onto superfast services.
- **By May 2015, 90% of UK premises could receive next-generation access broadband services and 83% could receive superfast broadband,** while in rural areas availability was lower, at 67% and 37% respectively.
- **Almost one in three fixed broadband lines are now ‘superfast’.** The 7.1 million fixed broadband lines providing speeds of 30Mbit/s or higher in the UK today account for 30% of all fixed broadband lines, compared to 0.2% (41k) in 2009.
- **In the six years to November 2014 average actual fixed broadband speeds have increased at an average annual rate of 36% per year.** The average actual fixed broadband download speed in the UK was 22.8Mbit/s in November 2014, up from 3.6Mbit/s in November 2008.
- **The total number of mobile data connections⁸⁴ increased by 13.6%.** The total number of UK mobile data connections (including internet on a mobile handset,

⁸⁴ Including internet on a mobile handset, dedicated mobile broadband and M2M connections.

dedicated mobile broadband and M2M⁸⁵ connections) increased by 7.5 million connections to 62.6 million in the year to December 2014.

- **SMS use fell for the second consecutive year.** The total volume of outgoing SMS and MMS messages fell by 20 billion messages (15.3%) to 110 billion messages in 2014, due to increasing smartphone take-up and use of internet-based communications methods.

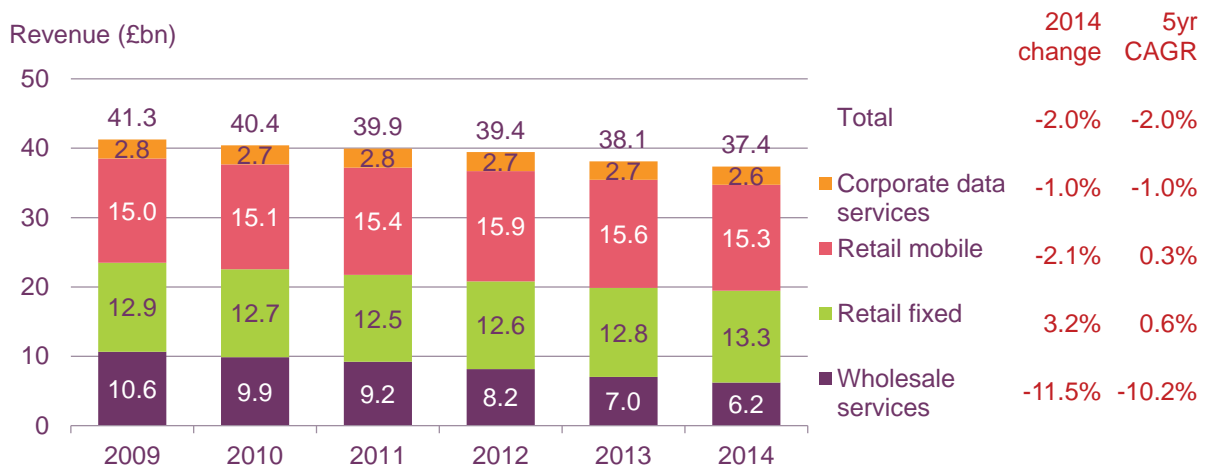
4.2.2 Market overview

Total telecoms revenues fell by 2.0% to £37.4bn in 2014

In total, UK telecoms services generated £37.4bn in revenues in 2014, a £0.8bn (2.0%) fall compared to 2013 and £3.9bn (9.5%) less than in 2009 (Figure 4.27). The largest decline in 2014 was a £0.8bn (11.5%) fall in wholesale revenues, which was largely due to falling mobile call termination revenue, although retail mobile revenues also fell during the year, down by £0.3bn (2.1%) to £15.3bn, mainly as a result of falling mobile data prices and declining use of SMS. Revenue from corporate data services also fell by 1.0% to £2.6bn in 2014.

The driver of the increase in retail fixed telecoms revenues was a £0.8bn increase in fixed internet revenues (as a result of increasing superfast broadband take-up) in 2014, which was partially offset by a £0.2bn fall in fixed voice revenues.

Figure 4.27 Summary of UK telecoms revenues



Source: Ofcom / operators, with the exception of corporate data services, which sourced from IDC.
 Notes: 'Corporate data services' comprises web hosting, Ethernet, IP VPN, digital leased line, corporate VoIP and frame relay/ATM services; wholesale mobile comprises wholesale mobile voice, messaging and data services, mobile voice and SMS termination revenue and wholesale inbound roaming revenue (i.e. - revenue from overseas operators when their subscribers use UK networks).

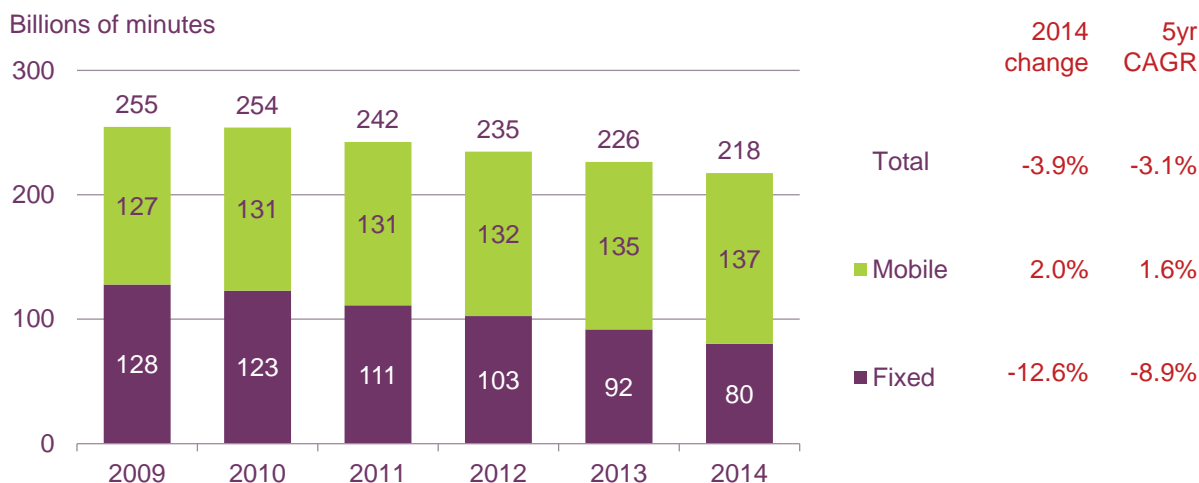
Total voice call volumes fell by 3.9% to 218 billion minutes in 2014

The substitution of voice calls for text-based forms of communication (such as email and instant messaging) continued in 2014, resulting in a decline in total fixed and mobile originated voice call volumes (Figure 4.28). Fixed-originated voice calls fell by 12.6% to 80 billion minutes during the year, an increased rate compared to the 10.6% fall in 2013, while

⁸⁵ Machine-to-machine, a connection, often wireless, in which human input is not necessarily required.

the 2.0% increase in mobile-originated call volumes in 2014 (to 137 billion minutes) was in line with the growth rate recorded in 2013. Overall, voice call volumes fell by 3.9% to 218 billion minutes in 2014, a higher rate of decline than the 3.1% average annual decline recorded between 2009 and 2014, while the proportion of total voice calls that were mobile-originated increased from 59.5% to 63.1% during the year.

Figure 4.28 Outgoing fixed and mobile voice call volumes

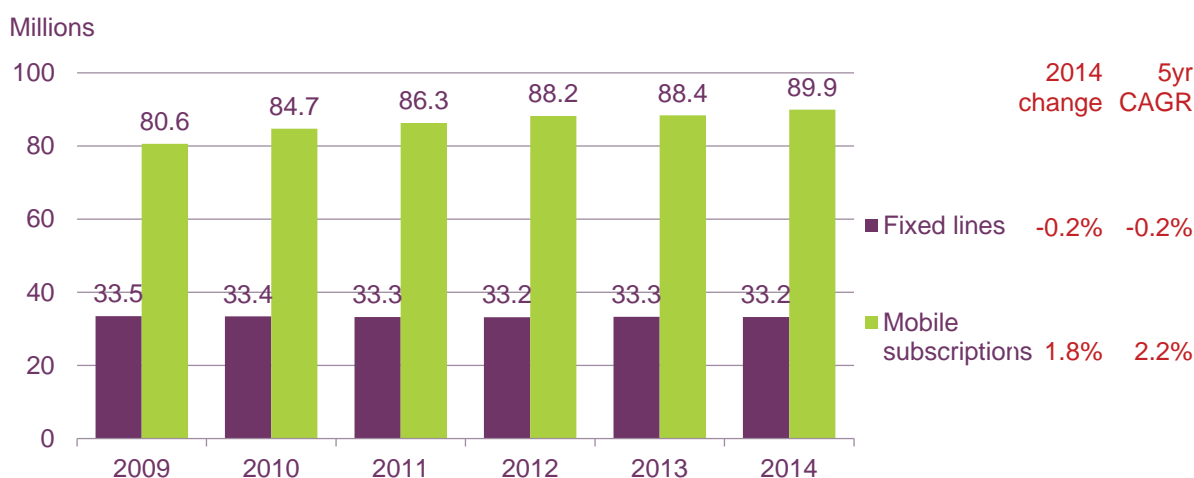


Source: Ofcom / operators

There were almost 90 million UK mobile subscriptions at the end of 2014

At the end of 2014 there were 89.9 million UK mobile subscriptions, including handset subscriptions, dedicated mobile broadband data connections and machine-to-machine (M2M) connections (Figure 4.29). This was an increase of 1.6 million connections (1.8%) compared to the previous year, mainly due to an 0.7 million increase in the number of mobile voice connections and a 0.6 million increase in the number of M2M connections (see section 4.2.5 for more details). Despite rapidly declining fixed voice call volumes, there has been relatively little change in the number of UK fixed lines (including PSTN lines and ISDN channels) over the past few years, and at the end of 2014 there were 33.2 million such lines, a small (0.2%) decline since the end of 2013.

Figure 4.29 Fixed lines and mobile subscriptions

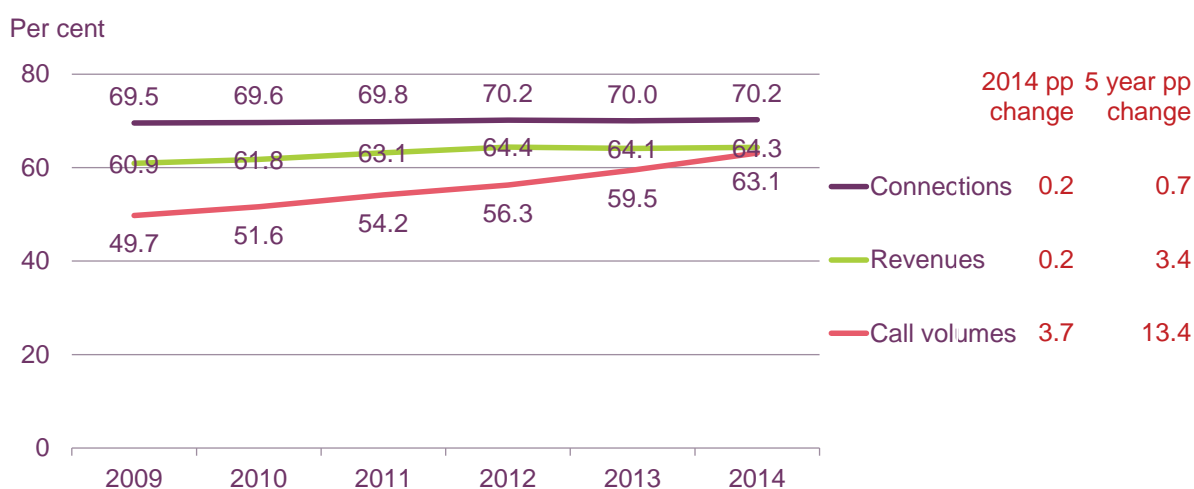


Source: Ofcom / operators

Landlines make up less than three in ten UK voice telephony connections

The importance of mobile telephony to the UK telecoms market has grown since its launch in the mid-1980s, with mobile services becoming mass-market in the UK in the late 1990s with the launch of pre-pay tariffs. By the end of 2014, mobile connections accounted for 70.2% of UK voice telephony connections, an increase of 0.2 percentage points compared to 2013 (Figure 4.30). While the proportion of traditional voice calls that were mobile-originated increased by 3.7 percentage points (to 63.1%) in 2014, the increase in mobile's share of voice revenues was much smaller (up just 0.2 percentage points to 64.3%). This was largely due to increasing average fixed voice call charges, as shown in Figure 4.62 later in this report.

Figure 4.30 Mobile share of voice connections, revenues and volumes



Source: Ofcom/operator data

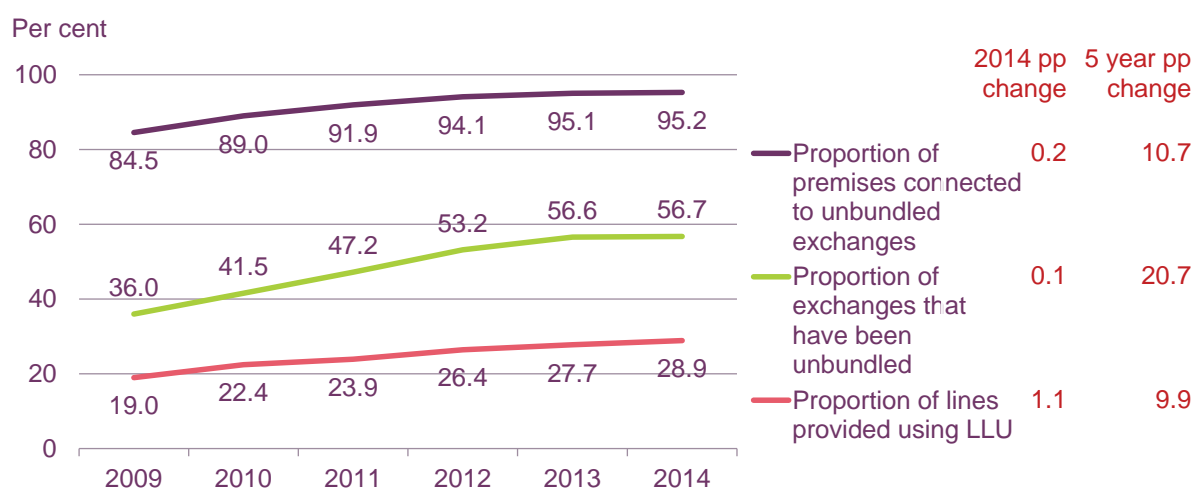
Note: Mobile voice revenues will be overstated as they include revenues from bundled messaging and data services.

More than 95% of UK homes are able to receive LLU-based fixed telecoms services

Local loop unbundling (LLU) allows an alternative provider to install its own equipment in BT's local telephone exchanges and then provide services over the copper telephone lines (aka local loops). LLU enables alternative providers to benefit from economies of scale which are not available when reselling wholesale services, and to differentiate their services from those offered by their competitors. Furthermore, consumers who live in areas where LLU is available have a greater choice of fixed telecoms provider and, typically, have access to low-cost fixed telecoms services, in particular bundles including TV and fixed broadband.

The rate of LLU deployment is slowing in the UK, and the proportion of premises that were connected to an LLU-enabled local exchange increased by just 0.2 percentage points (to 95.2%) in 2014 (Figure 4.31). Similarly, the proportion of BT local exchanges that had been unbundled increased by just 0.1 percentage points to 56.7% during the year, while continued growth in take-up of LLU-based services increased the proportion of unbundled lines, up by 1.1 percentage points to 28.9%.

Figure 4.31 Unbundled BT local exchanges and connected premises

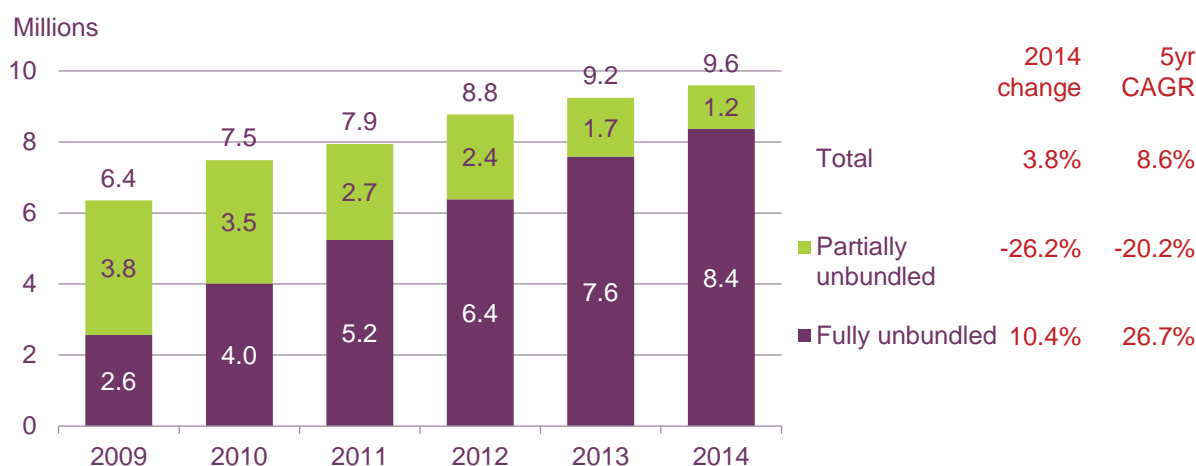


Source: Ofcom / BT

There were 9.6 million LLU-enabled fixed lines in the UK at the end of 2014

The total number of unbundled lines increased by 0.4 million (3.8%) to 9.6 million during 2014 (Figure 4.32). There are two types of LLU: partial LLU (whereby the incumbent operator continues to provide fixed voice services to the end-user and the LLU operator only provides fixed broadband over the line) and full LLU, where the LLU operator provides both services. Initially, LLU providers in the UK initially concentrated on offering partial LLU, but this changed in the mid-noughties, in particular when Sky and TalkTalk started to provide low-cost bundled dual-play services using full-LLU. As a result, the proportion of LLU lines that are partial LLU has been declining since 2006 (when 80% of LLU connections were partial-LLU), and by the end of 2014 had fallen to 13%.

Figure 4.32 Unbundled fixed lines



Source: BT

4.2.3 Fixed voice services

The rate of decline in fixed voice revenues accelerated in 2014

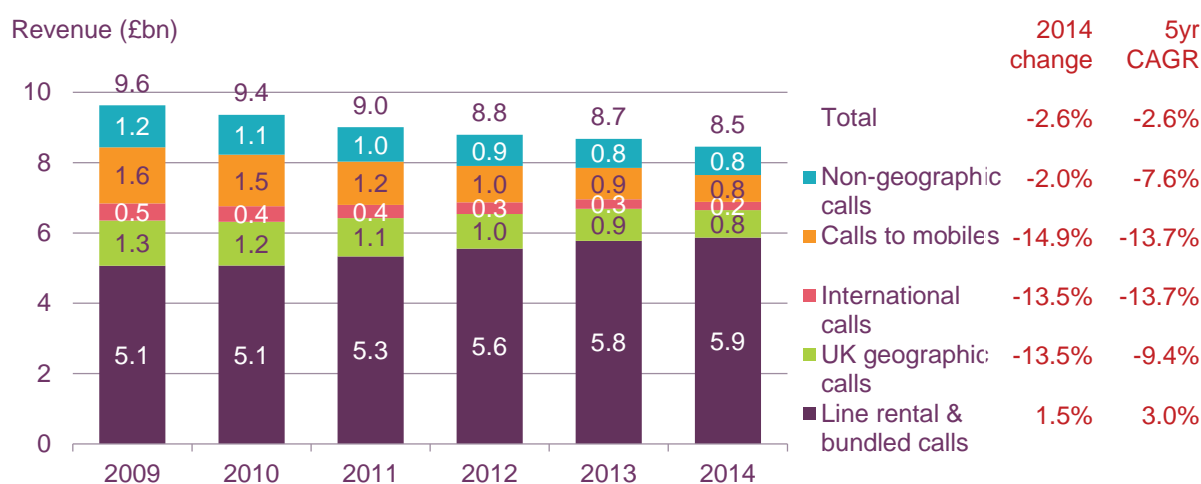
Total fixed voice call revenues continued to decline in 2014, falling by £0.2bn (2.6%) to £8.5bn during the year (Figure 4.33). This represented an increase in the rate of decline

compared to the 1.4% fall in 2013, and was in line with the average annual fall in the five years to 2014.

Following the trend of recent years, the proportion of total fixed voice revenues that were generated by line rental and bundled call services continued to increase in 2014, up by 2.8 percentage points to 69.4% (in 2009, this proportion was just 52.6%). There are three key reasons for this increase: falling fixed call volumes (see Figure 4.35), increasing line rental charges (see section 4.1.5 for more information on fixed tariff rebalancing) and growing take-up of call 'add-ons' which offer 'free' or discounted calls for an additional monthly fee.

Out-of-bundle call revenues fell by 10.7% to £2.6bn during the year, with the largest proportional decline being a 14.9% fall in revenues from calls to mobiles (which was partly due to declining mobile call termination rates which has had a downward effect on the price of these calls).

Figure 4.33 Retail fixed voice revenues

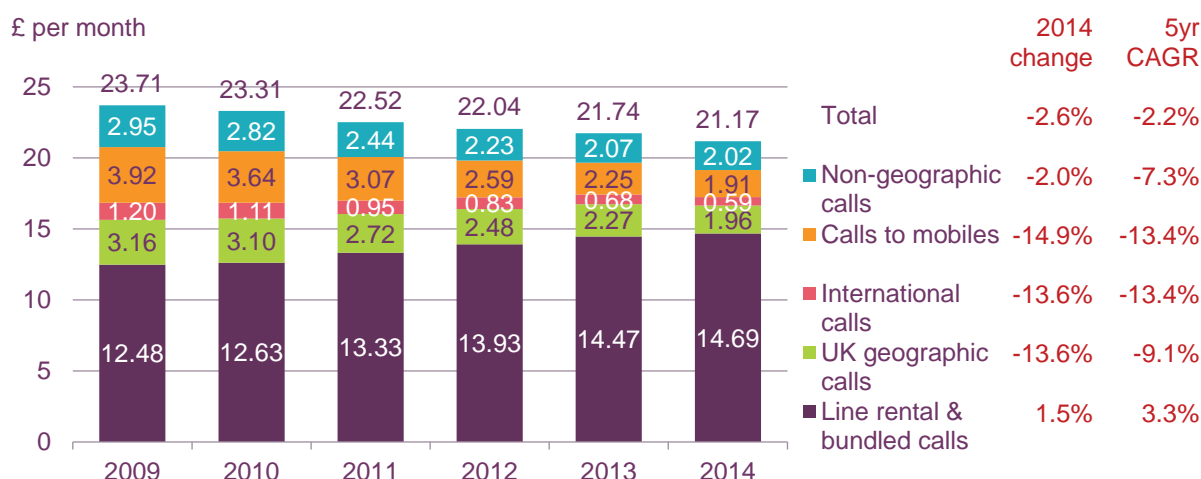


Source: Ofcom / operators

Average revenue per fixed voice connection fell by 2.6% to £21.17 per month in 2014

The trends observed in overall fixed voice service revenues were also evident in the average revenue per fixed line in 2014, which fell by 56 pence per month (2.6%) to £21.17 during the year (Figure 4.34). Again, the main reason for this decline was falling fixed voice call volumes (as shown in Figure 4.36), although there was also a small (0.2%) fall in the total number of fixed lines (see Figure 4.37). The decline in average revenue per line was lower than the 12.6% fall in average fixed voice call volumes per line in 2014 (down from 230 to 201 minutes per month), indicating that fixed voice prices increased during the year. Further information on fixed voice pricing can be found in Figure 4.67 and section 4.1.5 of this report.

Figure 4.34 Average monthly retail voice revenue per fixed line



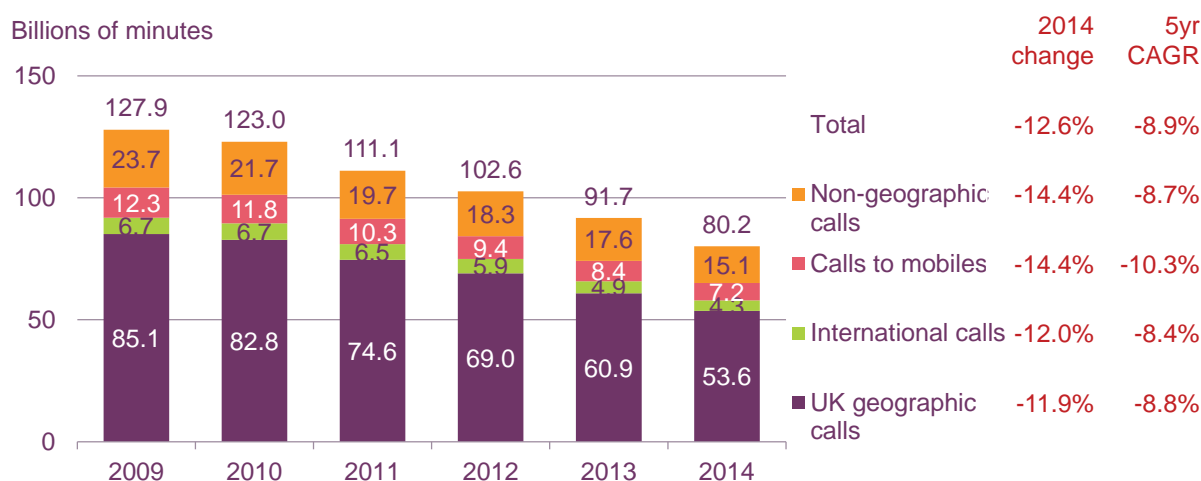
Source: Ofcom / operators

Fixed-originated voice call volumes declined by 12.6% in 2014

The decline in fixed voice call volumes accelerated in 2014, with total outgoing call minutes falling by 11.6 billion minutes (12.6%) to 80.2 billion minutes during the year (Figure 4.35). This decline was greater than both the 10.6% fall recorded in 2013 and the 8.9% annual average in the five years to 2014. Volumes fell for all of the call types outlined below, with declines ranging from an 11.9% fall in calls to UK geographic call minutes to 14.4% falls in calls to mobiles and ‘other’ (NTS voice) calls. As was the case in previous years, calls to UK geographic numbers accounted for the majority (67%) of total fixed call volumes in 2014.

Fixed voice call volumes in 2014 fell despite the number of lines remaining relatively static during the year (see Figure 4.37). Some of the drivers contributing to falling fixed voice call use were increasing fixed-to mobile substitution (as shown in Figure 4.28, mobile voice call volumes continued to grow in 2014, as did the proportion of total voice calls that were mobile-originated) and increasing used of text-based forms of communication, such as email and instant messaging, including those services provided by social networking sites.

Figure 4.35 Fixed voice call volumes, by type of call

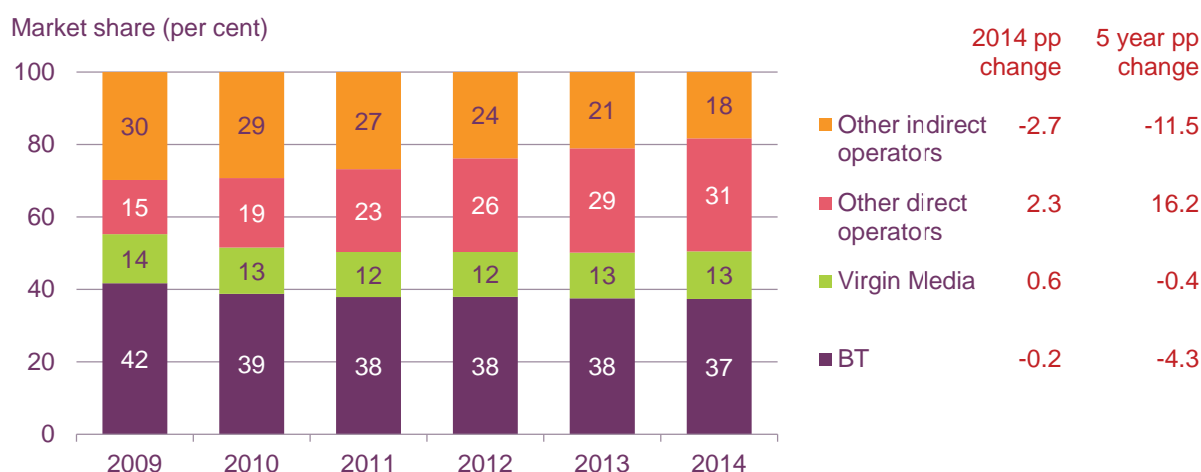


Source: Ofcom / operators

BT generated 37% of outgoing fixed voice call minutes in 2014

BT remained the largest UK fixed voice provider in terms of voice call volumes in 2014, with a market share of 37%, a decline of 0.2 percentage points compared to 2013, and of over four percentage points compared to 2009 (Figure 4.36). Virgin Media's market share increased slightly during the year, while the share of other direct operators (i.e. those providing service over their own network infrastructure) grew by 2.3 percentage points to 31%, largely at the expense of other indirect operators (those using another provider's network to provide services). Other direct operators' share of call volumes more than doubled in the five years to 2014, largely as a result of increasing use of full LLU. Further details regarding LLU take-up can be found in section 4.2.2 of this report.

Figure 4.36 Share of retail fixed voice call volumes



Source: Ofcom / operators

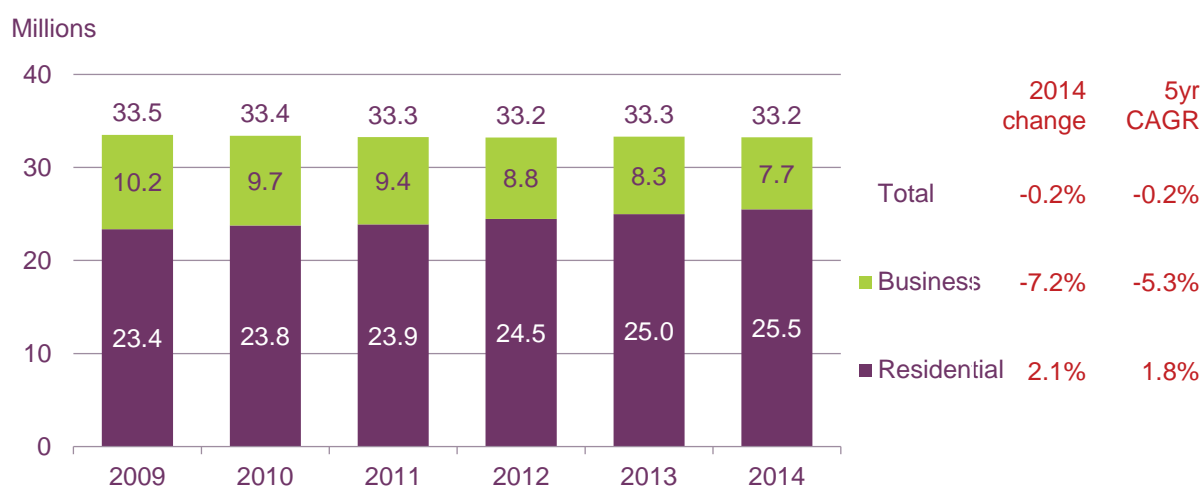
Note: Excludes non-geographic voice calls.

The number of fixed lines continues to be resilient, despite falling call volumes

The total number of fixed lines has remained relatively static over the last few years, although fixed-originated voice call volumes have declined significantly (see Figure 4.35 for more details). At the end of 2014 there were 33.2 million UK PSTN lines and ISDN channels, a fall of 0.1 million compared to 2013 (Figure 4.37). In the five years to 2014, a decline in the number of business lines (down by 2.4 million) has been partly offset by a 2.1 million increase in the number of residential connections.

As shown in section 4.2.6, the fall in the number of business lines is due to the declining use of ISDN and increasing take-up of VoIP as an alternative to traditional fixed voice calls (VoIP connections are not fully captured here). Conversely, growth in the number of residential lines is the result of increasing fixed broadband take-up (as most UK homes need a fixed voice line in order to be able to receive fixed broadband services) and growth in the number of households.

Figure 4.37 Number of fixed lines



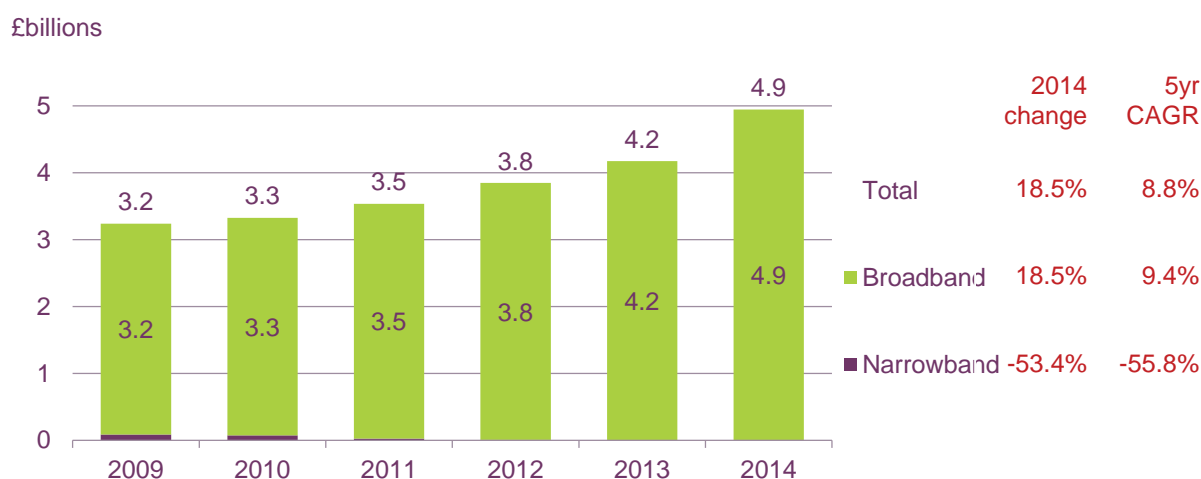
Source: Ofcom / operators

4.2.4 Fixed data services

Fixed internet revenue growth has accelerated as a result of increased fibre take-up

Non-corporate internet revenues totalled £4.9bn in 2014, a £0.8bn (18.5%) increase compared to 2013 (Figure 4.38). Almost all of this revenue was generated by broadband services, as estimated narrowband revenues were just £1.5m in 2014 (less than half the £3.1m figure for 2013). The main factor behind increasing residential and SME fixed broadband revenues in 2014 was the continued migration of UK consumers onto superfast services, which typically cost between £5 and £10 per month more than standard broadband services.

Figure 4.38 Retail residential and SME fixed internet revenues



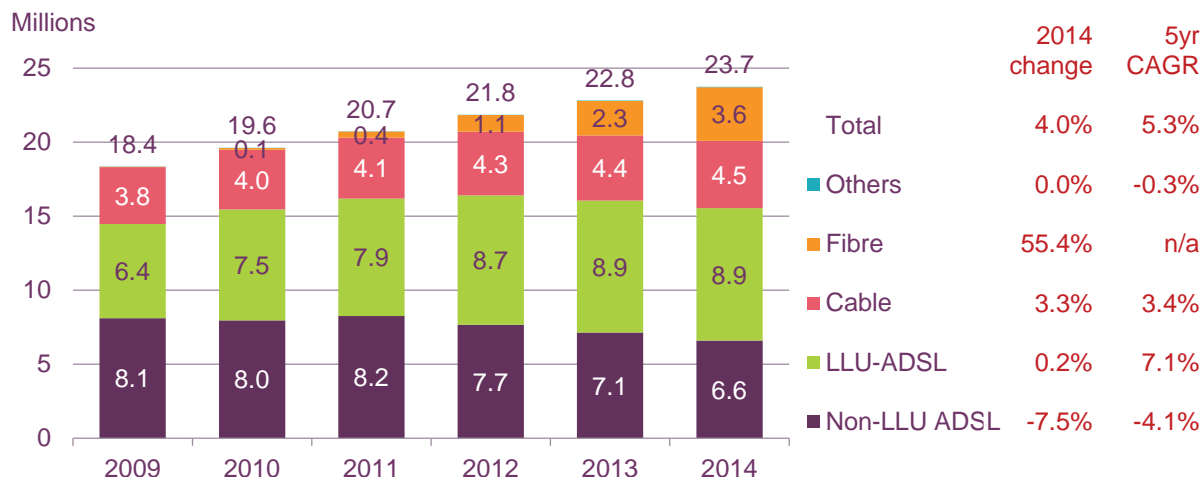
Source: Ofcom / operator data

The number of fibre broadband lines increased by 1.3 million in 2014

At the end of 2014 there were 23.7 million residential and SME UK fixed broadband lines, representing a 0.9 million (4.0%) increase since 2013 (Figure 4.39). The total number of non-LLU ADSL lines fell by 7.5% to 6.6 million during the year, while LLU-ADSL remained

unchanged at 8.9 million.⁸⁶ The main reason for the decline in non-LLU lines was consumers migrating onto superfast services. The number of fibre-based fixed broadband lines grew by 55.4% during the year, up from 2.3 million to 3.6 million, while the number of cable broadband lines continued to show steady growth, increasing by 0.1 million (3.3%) to 4.5 million. Although these services are generally more expensive than ADSL, for many consumers the higher connection speeds they offer justify this increase in cost.

Figure 4.39 Retail fixed broadband lines



Source: Ofcom / operator data

By May 2015, 90% of UK premises could receive next generation access broadband services, and 83% could receive superfast broadband

We are able to estimate the proportion of premises that are served by next generation access (NGA) networks (which are used to deliver superfast broadband services) by combining cable broadband availability data from Virgin Media with fibre broadband availability data from Openreach and Kcom.

Combining postcode-level availability data for cable and fibre services gives us a range of availability for NGA broadband services: for example, if cable broadband and fibre broadband services are both available to 50% of premises in a postcode, the availability of NGA services in that postcode will be somewhere between 50% of premises (where cable and fibre services are available to the same premises within the postcode area) to 100% of premises (where there is no overlap in the availability of cable and fibre services). In Figure 4.40 below, we show the mean of the possible range of availability of NGA services, which would be 75% in the example given above.

Our analysis indicates that 90% of UK premises were able to receive fixed broadband services over NGA networks by May 2015, a 12 percentage point increase compared to June 2014. In urban areas, 92% of premises were able to receive NGA broadband services in May 2015, compared to 67% in rural areas.

Not all NGA broadband connections are capable of providing superfast broadband services (i.e. an actual speed of 30Mbit/s or higher) however, and in particular, the speed achievable over an FTTC connection will depend on the length and quality of the copper connection

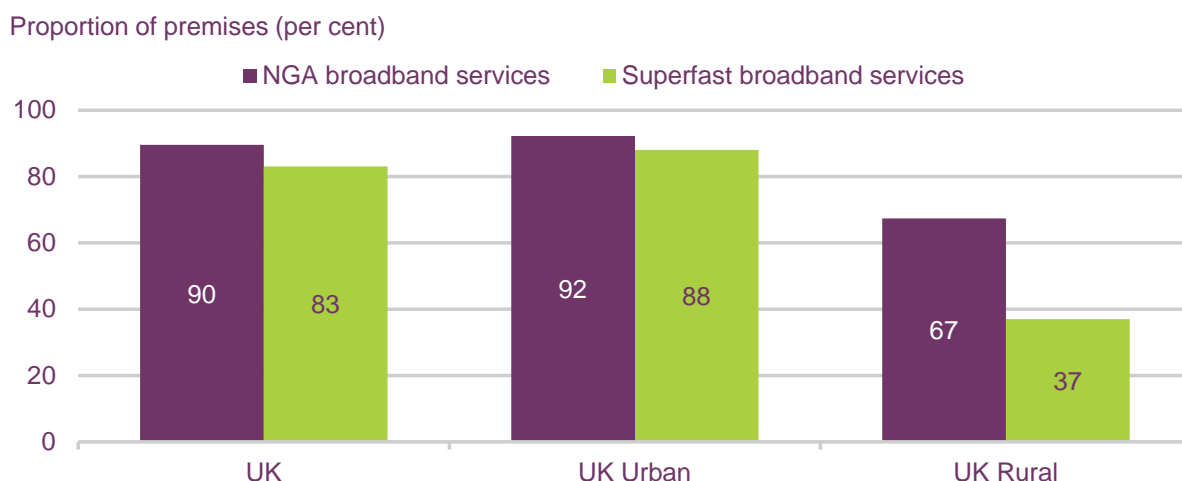
⁸⁶ The number of LLU-ADSL connections shown above is lower than the total number of LLU lines shown in Figure 1.32 as some LLU lines are used to provide fibre broadband services rather than ADSL.

from the street cabinet to the user's premises. In collecting data to inform its work monitoring the UK's communications market infrastructure in 2015, Ofcom asked providers for postcode-level data regarding the proportion of premises that could receive superfast broadband services.

These data suggest that while 90% of UK premises were able to receive NGA broadband services in May 2015, the proportion able to receive a superfast service was seven percentage points lower at 83%. This means that 7% of premises in the UK were in areas where NGA broadband was available, but were unable to receive actual broadband speeds of 30Mbit/s.

The proportion of premises that could receive superfast broadband services in urban areas of the UK (88%) was significantly higher than in rural areas (37%). This indicates that the proportion of premises in NGA areas that could not receive an actual fixed broadband download speed of 30Mbit/s was much higher in rural areas (30pp) than in urban areas (4pp).

Figure 4.40 Premises able to receive NGA and superfast broadband services

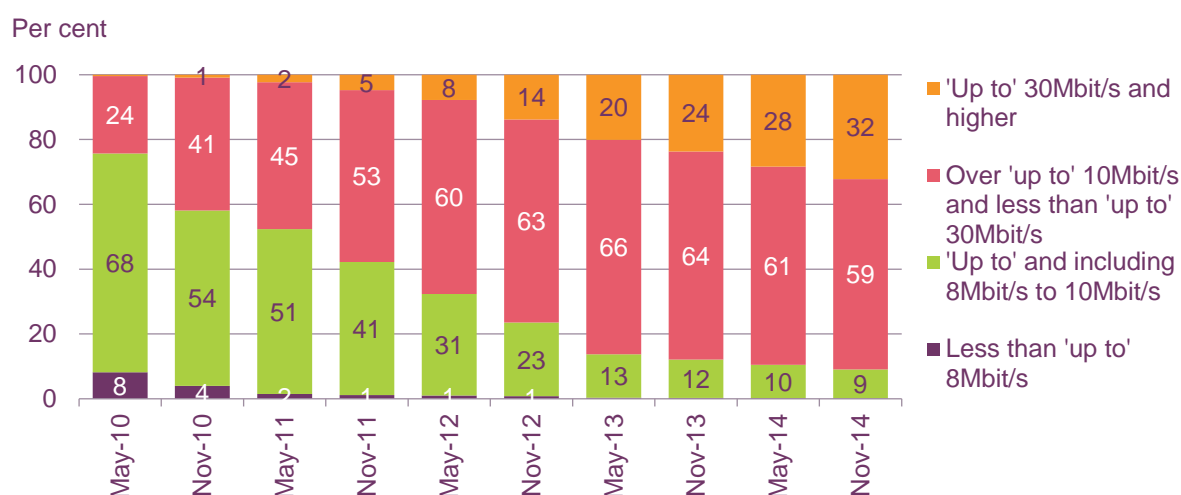


Source: Ofcom / Openreach / Virgin Media / Kcom, May 2015 data

Higher speed connection take-up continues to increase

The proportion of residential broadband lines that were fibre or cable connections with an advertised speed of 'up to' 30Mbit/s or higher had reached 32% by November 2014, a nine percentage point increase compared to the previous year (Figure 4.41). This growth is the result of consumer demand for greater bandwidth, as multiple users in the home share bandwidth, using multiple devices to access a growing number of web-based services including video streaming and online games. Both BT and Virgin Media have invested significantly in network upgrades, increasing the speeds that are available to consumers and allowing more homes to access superfast services. In total, connections advertised as 'up to' 10Mbit/s or higher accounted for 91% of residential connections in November 2014. The proportion of residential broadband lines with an advertised headline speed of 'up to' 8Mbit/s was less than 1% at the end of 2014.

Figure 4.41 UK residential broadband lines, by headline speed



Source: Ofcom, based on data provided by the UK's largest ISPs by retail market share (representing over 90% of the total market).

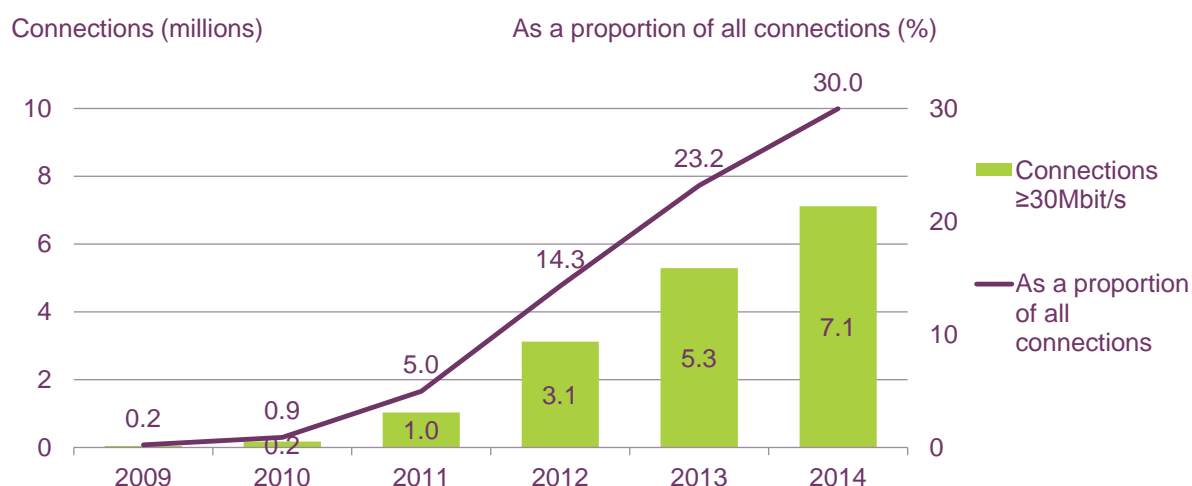
Note: The above 'up to' 10Mbit/s and less than 'up to' 30Mbit/s category includes ADSL2+ lines which are not marketed using a connection speed.

Superfast⁸⁷ lines now make up almost one in three of all broadband lines

Superfast broadband services are provided over NGA networks, which use technologies such as fibre-to-the-cabinet (FTTC), fibre-to-the-premises (FTTP) and DOCSIS 3.0 (in the case of cable networks). The number of superfast broadband lines increased by 1.8 million (34.5%) to 7.1 million in 2014, with the proportion of all fixed broadband lines that were classed as being superfast increasing by 6.8 percentage points to 30.0% over the same period (Figure 4.42). The main driver of this increase was consumers migrating to faster packages to support an increasing number of devices in the home (smartphones, tablets, e-readers, games consoles, media players) and also the fast-growing number of services which use broadband (video and music streaming, TV and video download services, voice and video telephony services).

⁸⁷ The definition of 'superfast' is a connection with an actual speed of 30Mbit/s or higher. Around 12% of FTTC connections with a headline speed ≥ 30 Mbit/s do not have an actual speed of 30Mbit/s.

Figure 4.42 Superfast fixed broadband lines



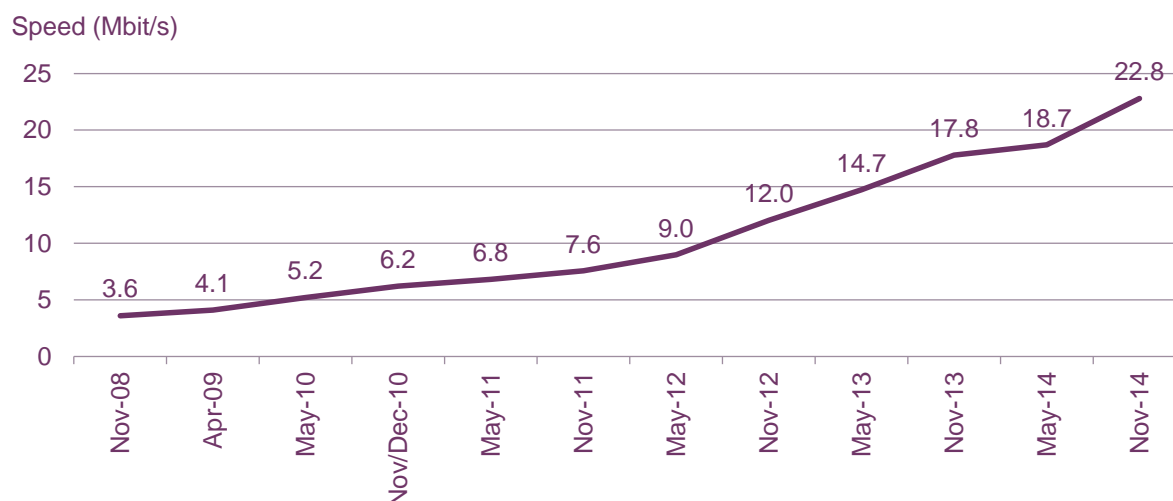
Source: Ofcom / operators

Notes: Includes estimates where Ofcom does not receive data from operators; includes Ofcom adjustment to exclude FTTC connections delivering less than 30Mbit/s.

Average residential broadband speeds increased by almost a third in the year to November 2014

Ofcom research shows that between November 2008 and November 2014 average residential fixed broadband speeds increased from 3.6Mbit/s to 22.8Mbit/s, representing an average annual increase of 36% over the period (Figure 4.43).⁸⁸ The rate of increase accelerated in 2012 when Virgin Media launched its first double-speed upgrade programme, increasing the speed of its fastest cable service to ‘up to’ 120Mbit/s,⁸⁹ and BT launched ‘up to’ 80Mbit/s fibre services (previously, only ‘up to’ 40Mbit/s services had been available)⁹⁰.

Figure 4.43 Average actual residential fixed broadband download speeds



Source: Ofcom, using data provided by SamKnows

⁸⁸ <http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/?a=0>

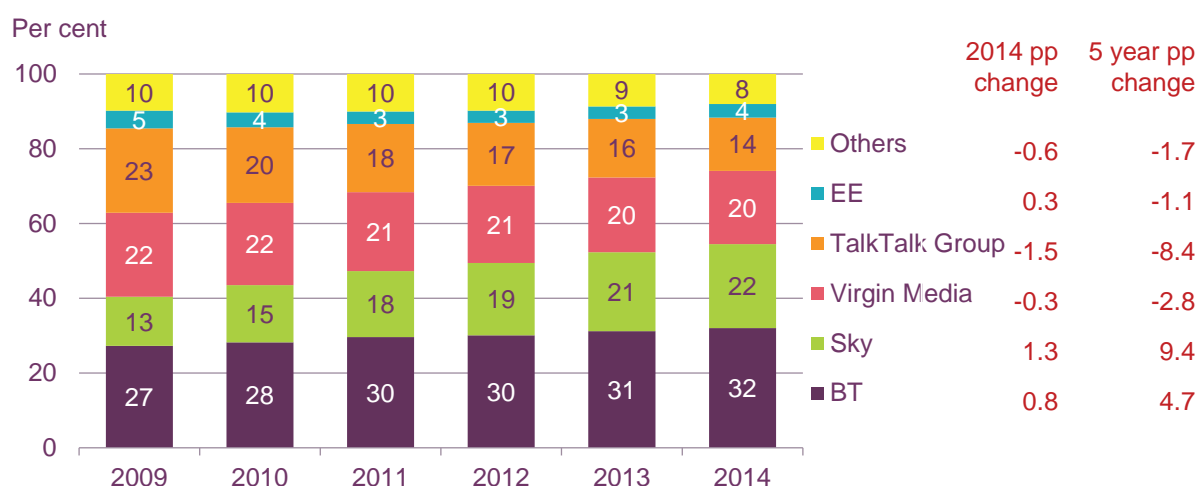
⁸⁹ Virgin Media now offers ‘up to’ 152Mbit/s services.

⁹⁰ Following a change in advertising rules, these FTTC services are now advertised as being ‘up to’ 76Mb/s and ‘up to’ 38Mb/s respectively.

BT continued to be the UK's largest fixed broadband provider in 2014

BT maintained its position as the UK's largest provider of residential and SME fixed broadband services in 2014, with its market share up by one percentage point to 32% during the year (Figure 4.44). Sky's market share grew for the fifth consecutive year, as some of its pay-TV customers moved onto triple-play bundles, including landline and fixed broadband services. Virgin Media's market share remained stable at 20%, while TalkTalk experienced a drop of one percentage points to 14% in 2014.

Figure 4.44 Retail fixed broadband market shares



Source: Ofcom / operator data

4.2.5 Mobile voice and data services

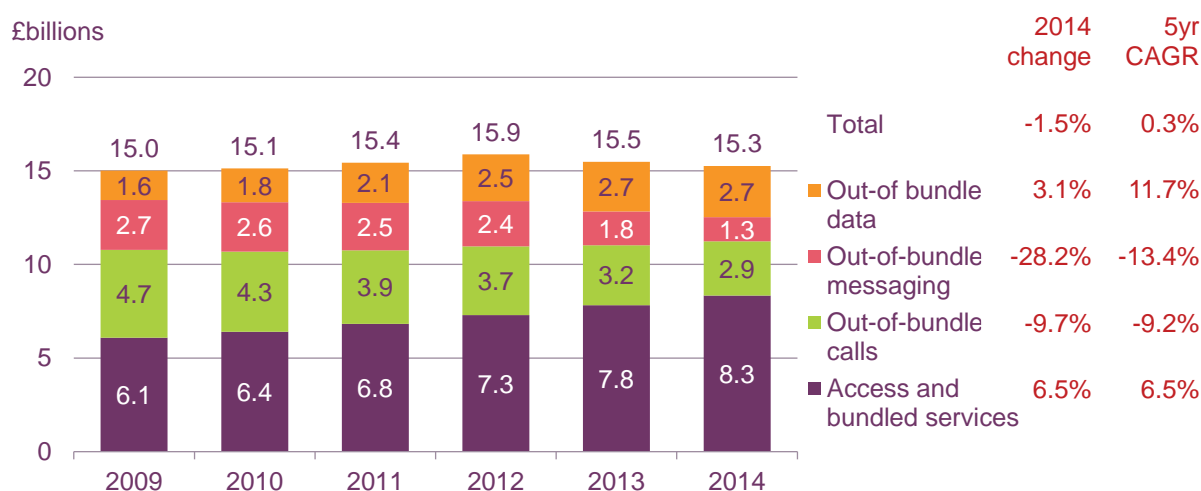
Falling out-of-bundle messaging and calls led to a decline in retail mobile revenues in 2014

Total retail mobile revenues fell by £0.2bn (1.5%) to £15.3bn in 2014 (Figure 4.45).

Mobile access and bundled service revenues increased by £0.5bn (6.5%) to £8.3bn in 2014, due to the increasing number of post-pay connections (see Figure 4.50). This was also the main reason for the decrease in the out-of-bundle call revenues (down by 9.7% to £2.9bn), despite an increase in outgoing mobile call minutes during the year (see Figure 4.47).

Falling SMS and MMS volumes (Figure 4.48) resulted in a £0.5bn (28.2%) decrease in out-of-bundle messaging revenues in 2014.

Figure 4.45 Mobile retail revenue, by service



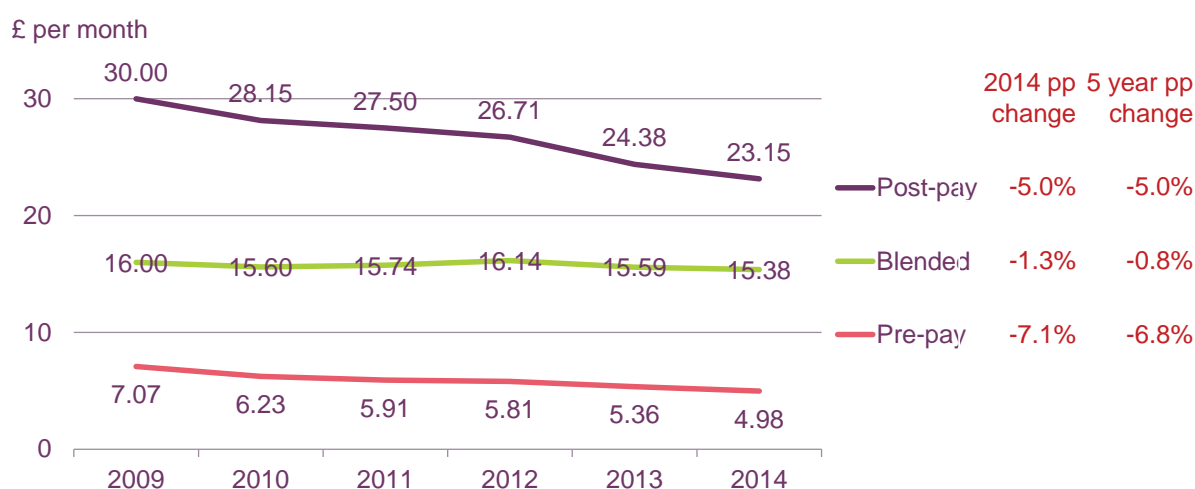
Source: Ofcom / operators

Average retail revenue per mobile subscription fell by 21 pence per month in 2014

Average monthly retail revenue per mobile subscription fell by 21 pence (1.3%) to £15.38 in 2014 (Figure 4.46). This reflected falling average revenues per user for both post-pay and pre-pay subscriptions in the year; the decline in average revenue per pre-pay user (down 7.1% to £4.98 per month) was greater than that for post-pay subscriptions (down 5.0% to £23.15 per month). Along with falling prices and declining SMS use, a key reason for falling average revenues among pre-pay and post-pay users is the migration of higher-use pre-pay users onto post-pay services during the year (see Figure 4.50 for more details).

The ways in which consumers purchase mobile phone tariffs has evolved in parallel with the underlying mechanics of mobile tariffs, blurring the division between pre-pay and post-pay. Historically, pre-pay and post-pay reflected the limitations of different billing platforms and became established as consumer segment descriptors. But as consumer demands have changed and billing platforms have evolved, the clear division between pre- and post-pay no longer exists.

Figure 4.46 Average monthly retail revenue per mobile subscription



Source: Ofcom / operators

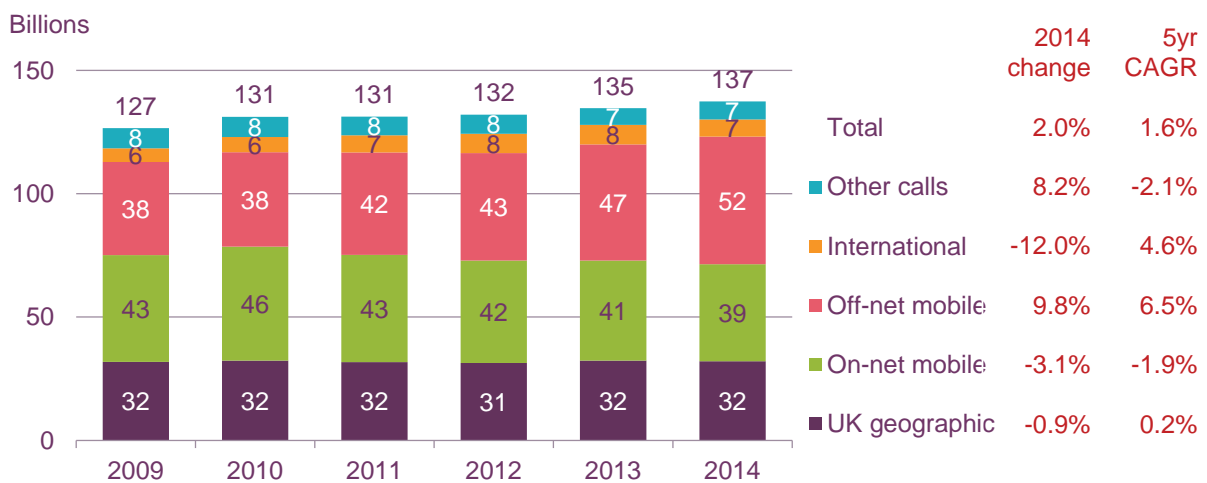
Note: Mobile voice revenues include revenues from bundled messaging and data services.

Total outgoing mobile call minutes increased by 2.0% in 2014

Data provided to Ofcom by the UK's mobile operators shows that mobile call volumes increased by three billion minutes (2.0%) to 137 billion minutes in 2014 (Figure 4.47).

Calls to mobiles continued to account for the majority of outgoing mobile calls during the year (66% of the total, up from 65% in 2013), and the proportion of calls to mobiles that were to mobiles on the same network fell from 46% (41 billion minutes out of a total of 88 billion minutes of mobile-to-mobile calls) to 43% (39 billion minutes out of 91 billion minutes) during the year. Call volumes to UK geographic numbers and to international destinations both decreased during the year, by 0.9% and 12% respectively.

Figure 4.47 Outgoing mobile call minutes, by type of call

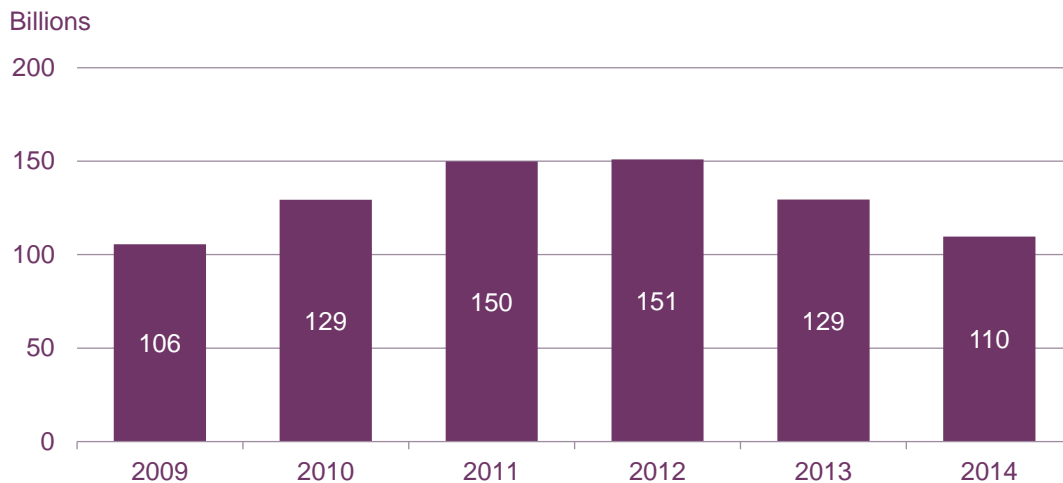


Source: Ofcom / operators

SMS use fell for the second consecutive year in 2014

The total volume of outgoing SMS and MMS messages fell by 20 billion messages (15.3%) to 110 billion messages in 2014, a similar drop to that recorded in 2013 (Figure 4.48). The main reason for declining message volumes is increasing smartphone take-up, as more sophisticated handsets enable mobile users to access alternative communication methods, such as email, instant messaging and the messaging services provided by handset makers and social networking sites. More details on consumers' use of data services on mobile phones can be found in Figure 4.81.

Figure 4.48 Outgoing SMS and MMS messages



Source: Ofcom / operators

The total number of mobile subscriptions increased by 1.6 million in 2014

At the end of 2014 there was a total of 89.9 million active mobile handsets, dedicated mobile data connections (such as mobile broadband dongles and data-only SIMs) and M2M connections, a 1.6 million (1.8%) increase on the previous year (Figure 4.49).

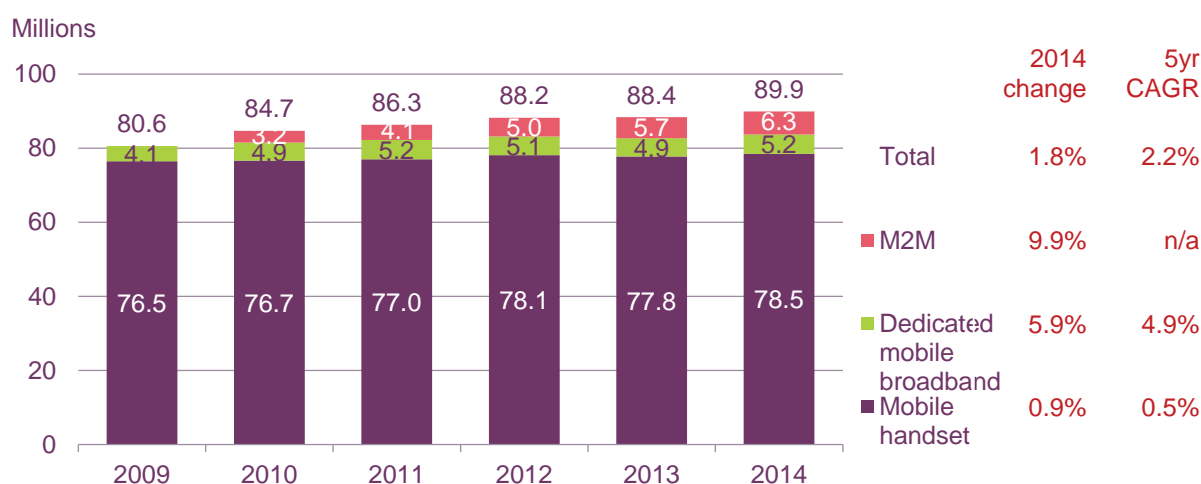
M2M

M2M stands for 'machine-to-machine'. The general definition of a M2M connection is a connection, often wireless, in which human input is not necessarily required. Commonly used examples of M2M are in energy metering (where the meter reports energy use back to a central billing database) or a burglar alarm, which may contain a SIM card to enable communication with monitoring offices. Vending machines are another common example, as some may use M2M technology to keep a central computer up-to-date with stock levels.

The number of M2M connections had its largest increase in 2014, up by 566,000 (9.9%) to 6.3 million connections, while the number of dedicated mobile broadband connections increased by 292,000 (5.9%) to 5.2 million and the number of mobile handset connections by 702,000 (0.9%) to 78.5 million during the same period.

The proportion of both dedicated mobile broadband connections and M2M connections increased in 2014, from 5.6% to 5.8% and from 6.4% to 7.0% respectively.

Figure 4.49 Mobile subscriptions, by connection type

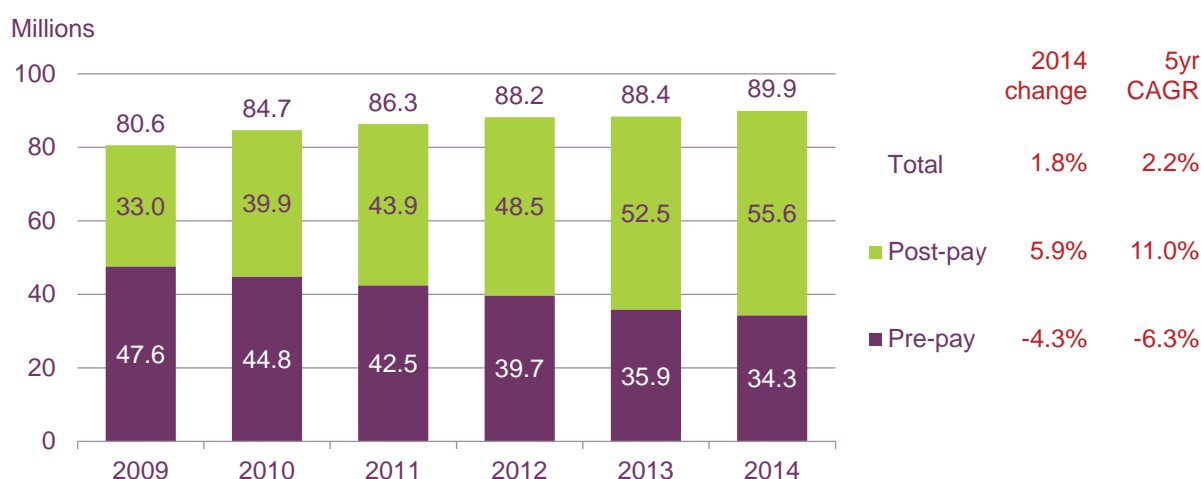


Source: Ofcom / operators

The proportion of post-pay mobile subscriptions increased by 2.4 percentage points to 61.8% in 2014

At the end of 2014, 61.8% of UK mobile connections were post-pay, a 2.4 percentage point increase compared to the 59.4% recorded in 2013 (Figure 4.50). The proportion of post-pay consumers has increased year on year, probably because mobile operators have made post-pay tariffs more attractive than pre-paid as, on average, post-pay subscribers spend more than pre-pay subscribers. Another reason may be increasing smartphone take-up, as consumers can spread the higher cost of the smartphone devices over the length of their contract. As mentioned earlier, the pre-pay /post-pay distinction is less clear than it was.

Figure 4.50 Mobile subscriptions, by pre-pay and post-pay



Source: Ofcom / operators

Note: Includes M2M

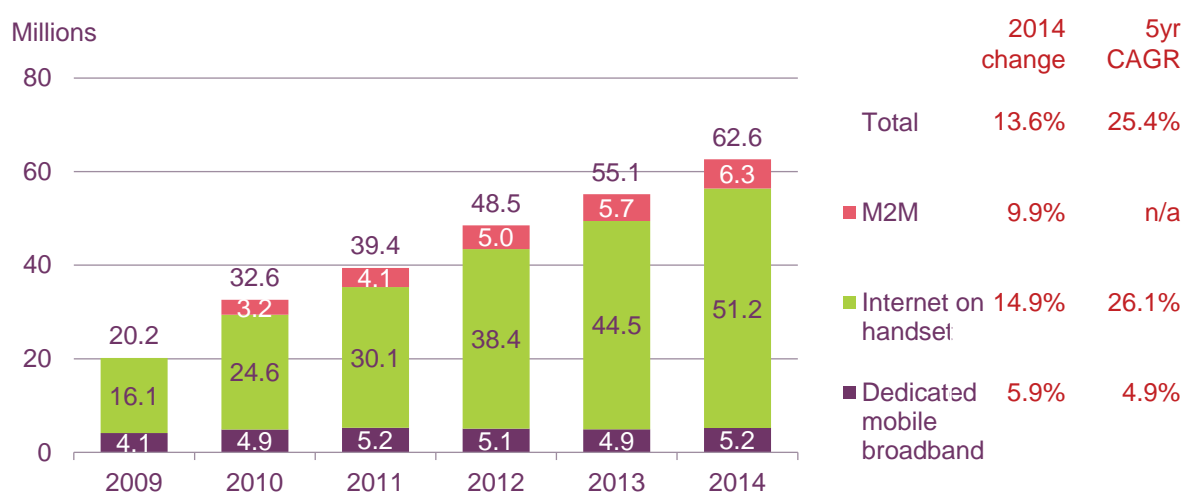
The total number of mobile data connections increased by 13.6% in 2014

The total number of UK mobile data connections (including internet on a mobile handset, dedicated mobile broadband and M2M connections) increased by 13.6% (7.5 million connections) to 62.6 million in the year to December 2014 (Figure 4.51).

Most of this increase (6.6 million connections) was in the number of mobile handsets that were used to make a data connection (up by 14.9% to 51.2 million), due to growing smartphone take-up. The number of M2M connections increased by 9.9% to 6.3 million during the year, while dedicated mobile broadband connections increased by 5.9% to 5.2 million over the same period.

Mobile handsets that were used to make a data connection continued to account for the majority of mobile data connections at the end of 2014 (81.7% of the total, up from 80.8% in 2013), while 8.3% were dedicated mobile broadband connections and 10.0% were M2M connections.

Figure 4.51 Mobile data connections, by type



Source: Ofcom / operators

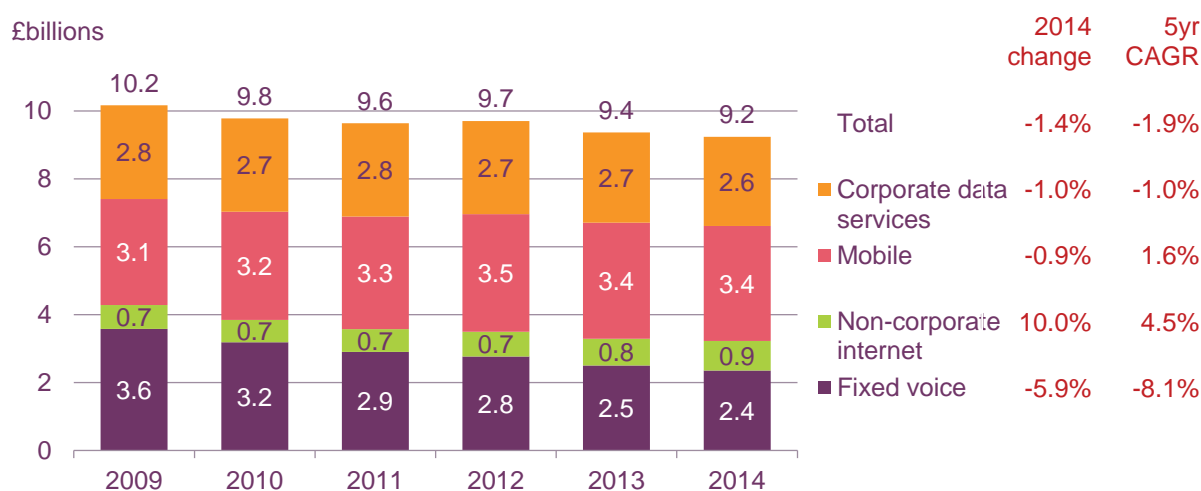
4.2.6 Business markets

Business markets generated £9.2bn in revenue in 2014

Total UK business telecoms revenues fell by £0.1bn (1.4%) to £9.2bn in 2014 (Figure 4.52). This was driven by a 1.0% decrease in corporate data service revenues as well as a £0.1bn (5.9%) fall in business fixed voice revenues, and was not offset by a £0.1bn (10.0%) increase in non-corporate internet services.

Business mobile revenues fell 0.9% in 2014, although there has been a 1.6% compound annual growth rate (CAGR) in the past five years. Fixed voice service revenues fell by £0.1bn (5.9%) in 2014, continuing the trend of falling fixed voice business revenues since 2009 (shown by the negative 8.1% five year CAGR). Overall, business retail telecoms revenues accounted for 29.7% of total UK retail telecoms revenues in 2014, a 0.6 percentage point decrease since 2013.

Figure 4.52 Retail business telecoms revenues, by service



Source: Ofcom / operator data, with the exception of corporate data services, sourced from IDC

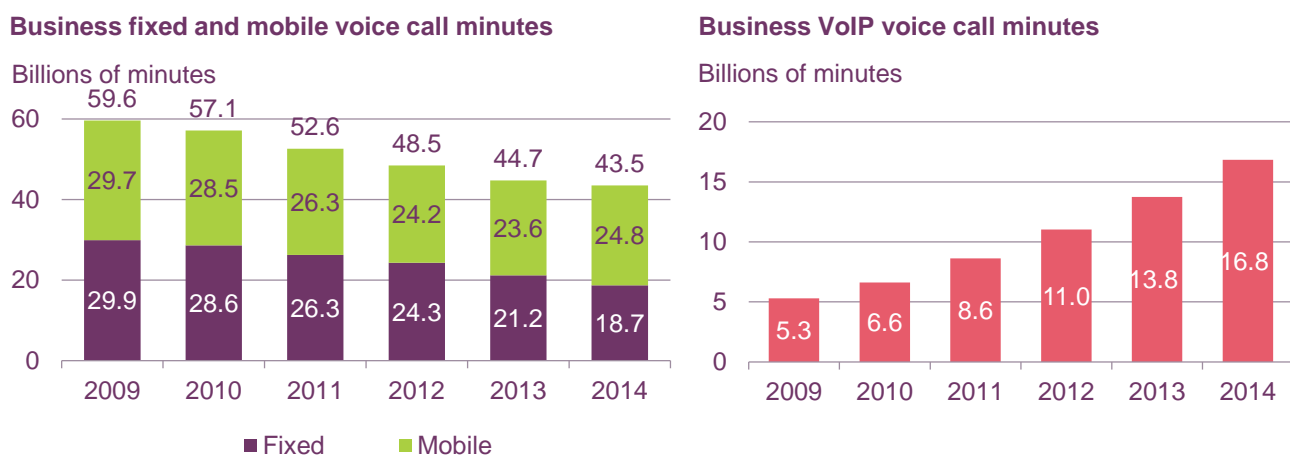
Note: Fixed voice figures exclude revenues from non-geographic voice calls; corporate data services comprises web hosting, Ethernet, IP VPN, digital leased line and frame relay/ATM services.

The rise in UK business mobile call minutes was not sufficient to completely offset the fall in business fixed voice minutes in 2014

The proportion of business calls that originated on mobile networks was 57.0% in 2014, representing a 4.3 percentage point increase on 2013. Total business call volumes fell by 1.2 billion minutes (2.8%) in 2014, driven by a fall of 2.5 billion (11.7%) fixed business minutes, although it is important to note that the fixed voice minutes shown here are likely to be understated as they do not fully capture the use of VoIP services. Mobile business minutes increased by 1.2 billion (5.2%) over this period, reversing the fall observed in 2013 (Figure 4.53).

Data provided to Ofcom by IDC suggest that UK businesses used 16.8 billion VoIP call minutes in 2014, a 22.4% increase on 2013. This increase was in line with the average year-on-year increase of 26.0% observed since 2009 and suggests that Ofcom operator data are likely to overstate the decline in business fixed voice call minutes.

Figure 4.53 Business voice call minutes



Source: Ofcom / operator data / IDC for VoIP data only

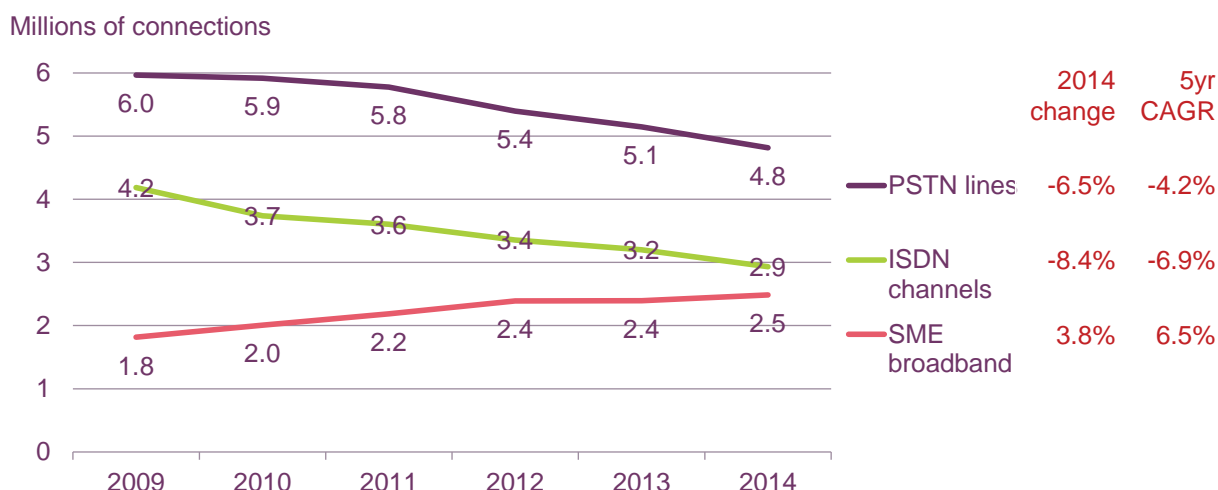
Note: VoIP volumes are not fully captured in the business fixed and mobile voice call minutes chart. It is not possible to sum the totals of both charts to calculate total business call volumes as some VoIP minutes may be included in the business fixed and mobile voice call minutes data.

The total number of business fixed lines fell by 0.6 million in 2014

At the end of 2014 there was a total of 7.7 million business fixed lines and ISDN channels, a fall of 0.6 million (7.2%) in 2014, and 2.4 million (23.7%) fewer than there had been at the end of 2009 (Figure 4.54). During the year the fall of ISDN lines was higher than that of PSTN lines, at 8.4% and 6.5% respectively. VoIP connections are not included in the business fixed line figures due to the difficulty of gaining accurate data on the business VoIP market because of its fragmentary nature. This means that it is likely that the total number of business fixed lines is understated.

The number of SME broadband lines increased by 0.1 million (3.8%) in 2014. Between 2009 and 2014 SME broadband lines increased by 0.7 million (a 5yr CAGR of 6.5%).

Figure 4.54 Business fixed voice and SME fixed broadband lines



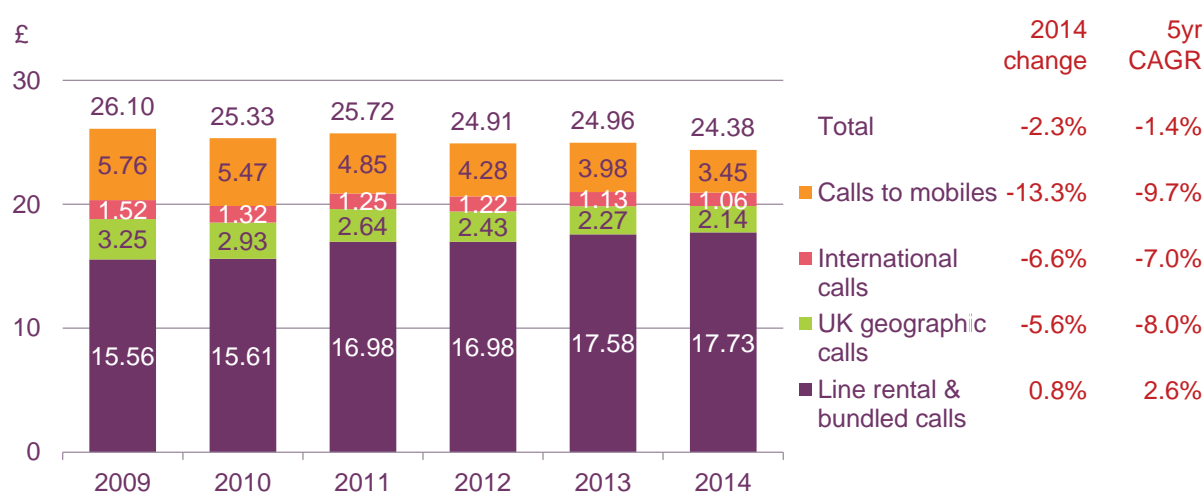
Source: Ofcom / operator data

Note: Mobile voice revenues include revenues from bundled messaging and data services.

Average monthly retail revenue per business line fell by 2.3% in 2014

The decline in business monthly retail revenue was due to falls in out-of-bundle UK geographic (5.6%), international (6.6%) and to-mobile calls (13.3%) leading to a 2.3% decrease in overall retail revenues per business fixed line to £24.38 (Figure 4.55). Line rental and bundled calls retail revenue per business fixed line rose by 0.8% in 2014, to £17.73. This continues the trend of rising revenues in this area, observed since 2009 (except for 2012 where the price stayed the same). The proportion of monthly retail business revenue per fixed line that is made up of line rental and bundled calls has risen from 59.6% in 2009 to 72.7% in 2014, a 13.1pp increase.

Figure 4.55 Average monthly retail revenue per business fixed line



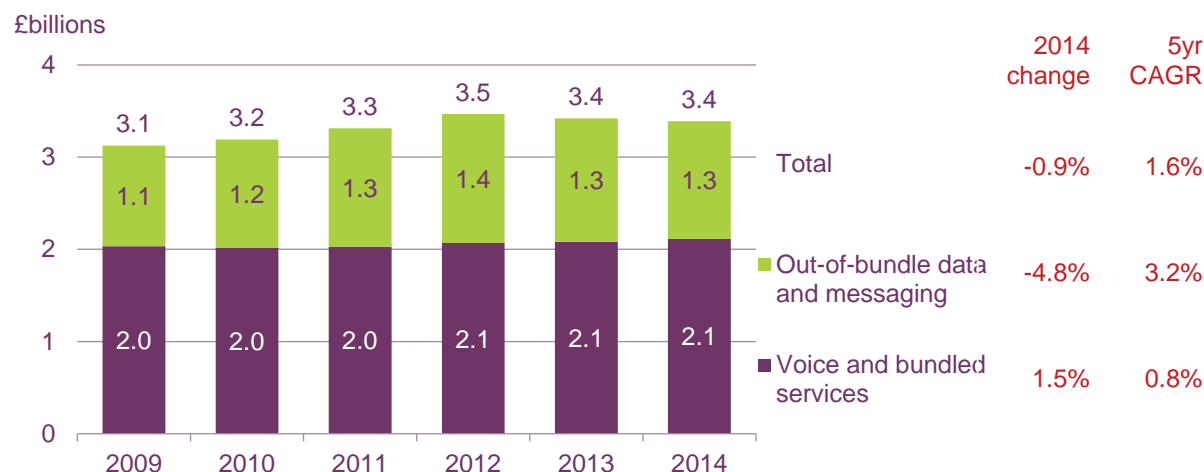
Source: Ofcom / operators

Note: Excludes revenues from non-geographic voice calls.

Business mobile revenues fell by 0.9% to £3.4bn in 2014

Retail business mobile revenues amounted to £3.4bn in 2014, a 0.9% decline compared to 2013 (Figure 4.56). Revenues from out-of-bundle data and messaging services fell by 4.8% to £1.3bn during the year. This was partly due to increased bundling of data services in the rental fee, and contributed to a rise of 1.5% in voice and bundled services business retail revenues.

Figure 4.56 Breakdown of business mobile revenues



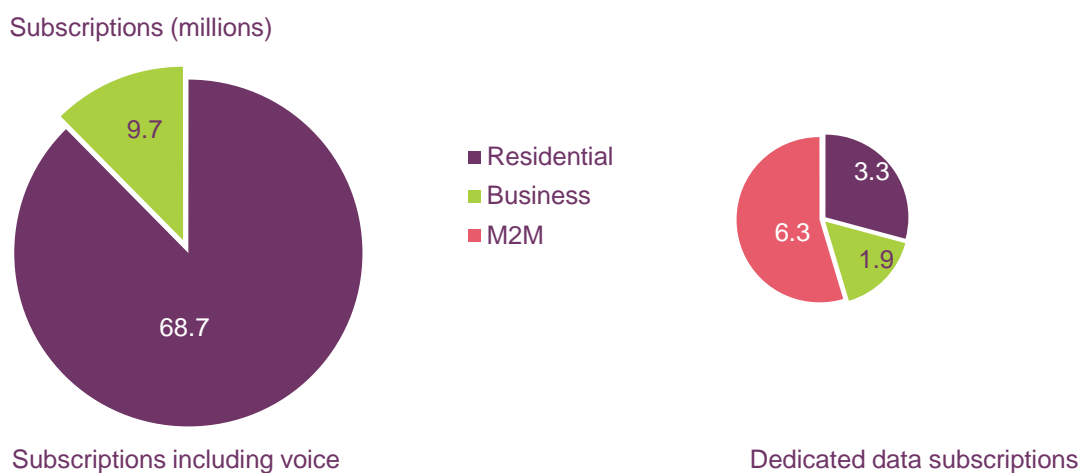
Source: Ofcom / operators

Businesses accounted for 13% of all mobile connections at the end of 2014

At the end of 2014 there were 9.7 million business mobile connections (excluding the 6.3 million M2M connections shown in Figure 4.57), equivalent to 13% of all such connections.

Businesses accounted for a higher proportion of dedicated data subscriptions than of subscriptions including voice services in 2014, at 16% and 12% respectively. More than half (55%) of the business dedicated data subscriptions were M2M connections in 2014.

Figure 4.57 Business mobile voice and dedicated mobile data connections



Source: Ofcom / operators

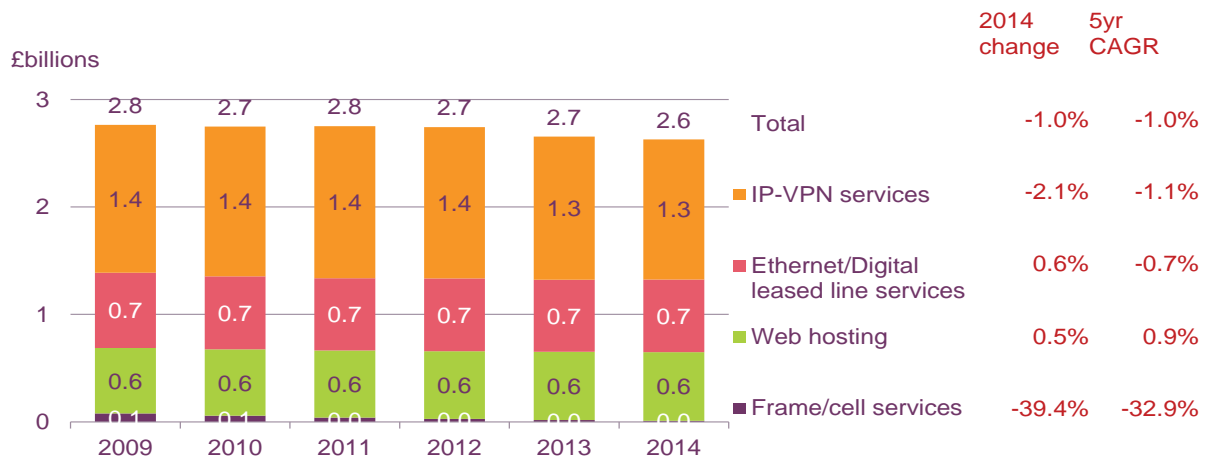
Note: Mobile broadband excludes smartphone data use.

Falling IP-VPN and digital leased line services were the main drivers of declining corporate data services revenues in 2014

Data provided to Ofcom by IDC show that total UK corporate data services revenue (i.e. spend on services that connect business sites to each other, and web hosting) fell by 1.0% (£26.6m) to £2.6bn in 2014 (Figure 4.58). This decrease was due in part to a small percentage fall in IP-VPN services revenue (2.1%) as this service generates the most revenue of all the corporate data services. It was also partly due to a 21.8% fall in digital leased line services revenue (when Ethernet services revenue was excluded). Although the percentage falls in these two areas were wildly different, the falls in actual monetary terms were similar at £27.4m and £27.9m respectively. Taken together, Ethernet and digital leased line service revenues increased by 0.6% in 2014. Frame/cell services revenues also fell (39.4%), but these are only a small proportion of total business data services revenues. Some growth was seen in web hosting services revenues (0.5%), although not enough to offset the falls in other areas.

Revenues from these services are related to connectivity revenues only (i.e. they exclude revenues relating to managed services).

Figure 4.58 Breakdown of corporate data services' revenues



Source: IDC

4.3 The telecoms user

4.3.1 Introduction

In this section we look at the major consumer trends in the use of residential telecoms services during the five years to 2014. The analysis in this section is based on a mixture of data provided to Ofcom by telecoms providers as part of its regular data collection programmes, Ofcom consumer research and data obtained from third-party suppliers.

The section is split into five main areas:

- Market overview: general trends in take-up and spend on fixed and mobile telephony services
- Fixed voice services: fixed voice usage trends and customer experience
- Fixed broadband services: developments in fixed broadband use and the customer experience
- Mobile voice and data services: mobile voice and data usage trends, price of voice services and customer experience, development in mobile broadband services.

Key findings

The key findings of this section are as follows:

- **The proportion of household spend on telecoms services fell to 3.5% in 2014.** The average UK household spend on telecoms services (calculated by dividing residential telecoms service revenues by the number of UK households) was £81.30 a month in 2014, £0.11 (0.1%) less than in 2013.
- **Fixed voice prices continued to increase in real terms in 2014.** The price of a basket of residential fixed voice services (including line rental and outgoing voice call volumes, based on average use in 2014) increased by 1.2% to £21.19 during the year, in line with the average increase over the previous five-year period.
- **Four in five UK homes had fixed or dedicated mobile broadband access in Q1 2015.** Total household broadband take-up (including both fixed and dedicated mobile broadband) was 80% in Q1 2015, a three percentage point increase on the previous year.
- **The average monthly price of a fixed broadband line increased by 9.6% in 2014** as consumers migrated to superfast services. The average monthly price of a residential fixed broadband line increased by £1.65 in real terms to £18.86 in 2014.
- **Average fixed broadband data use increases as more consumers take up superfast services.** In June 2014 the average fixed broadband line used 58GB of data per month, up by 93% on the 30GB average measured in June 2013.
- **The price of a basket of mobile services continued to fall in real terms in 2014.** The price of a basket of mobile services (based on average use of UK geographic, on-net mobile, off-net mobile, outgoing international calls, SMS and MMS messages in 2014) fell by six pence per month (0.4%) to £13.96 in real terms in 2014.

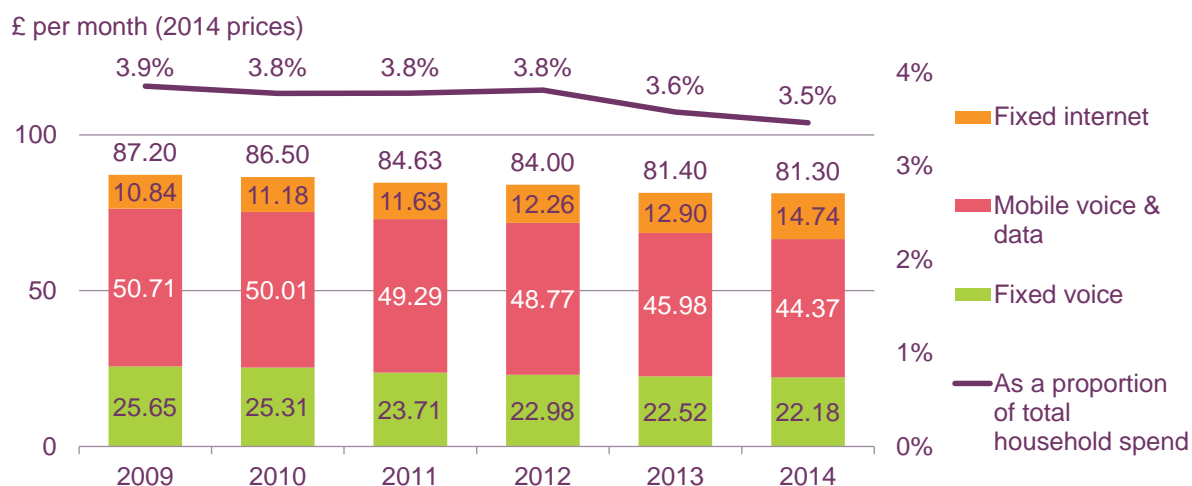
4.3.2 Market overview

The proportion of household spend on telecoms services fell to 3.5% in 2014

The average UK household spend on telecoms services (calculated by dividing residential telecoms service revenues by the number of UK households) was £81.30 a month in 2014, £0.11 (0.1%) less than in 2013 (Figure 4.59). This represented 3.5% of the average total household spend in 2014, down from 3.6% in 2013 and 3.8% in 2012.

Average household spend on fixed voice services fell by 1.5% to £22.18 in 2014, largely due to falling average monthly outbound fixed voice call volumes per person (Figure 4.68). Similarly, average household spend on mobile voice and data services fell by 3.5% to £44.37 in 2014, mainly as a result of falling average monthly mobile messaging volumes (Figure 4.78). Average household spend on fixed internet services increased by 14.3% to £14.74 in 2014 as a result of increased take-up and migration to superfast broadband services, which are generally more expensive than lower-speed services.

Figure 4.59 Average household spend on telecoms services



Source: Ofcom / operators / ONS

Notes: Includes estimates where Ofcom does not receive data from operators; adjusted to CPI; includes VAT.

Take-up of internet on mobile handsets reached 61% in Q1 2015

Take-up of mobile telephony services remained stable at 95%⁹¹ in the year to Q1 2015, as did take-up of fixed telephony services, which remained unchanged since 2012 at 84% (Figure 4.60). Eighty-five per cent of homes had an internet connection of any description (including through a mobile handset), up three percentage points since Q1 2014, and 80% of households had a fixed broadband or dedicated data-only mobile broadband connection during the year (also up three percentage points from 77%). The proportion of households with a fixed broadband connection increased by five percentage points in the year to Q1 2015, to 78%.

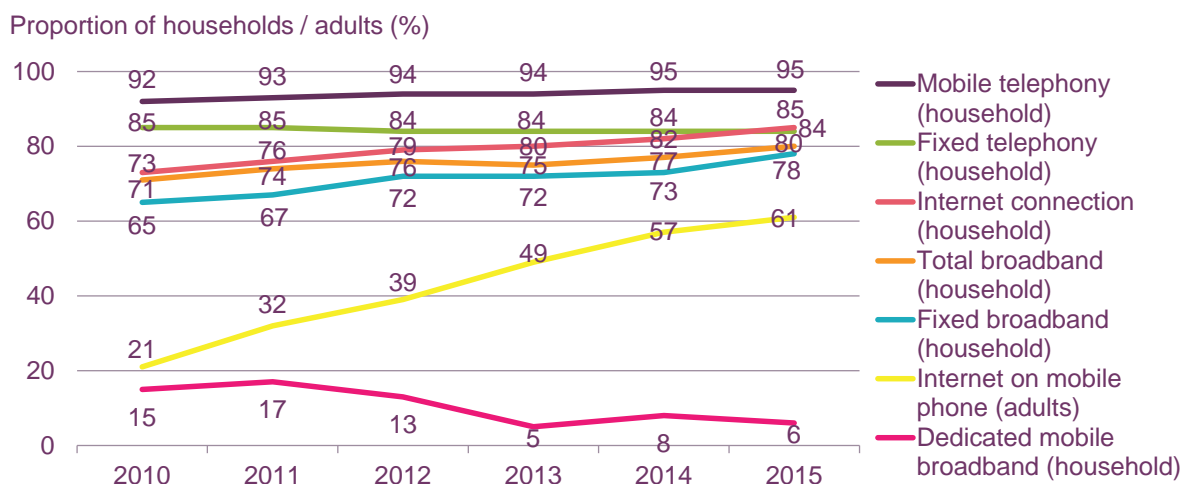
The proportion of adults accessing the internet on a mobile handset increased by four percentage points, to 61%, over the same period. This is probably due to increasing

⁹¹ This figure is households who use these services and therefore differs from the 93% of individuals who own or use a smartphone cited in the Fast Facts table on page 25.

smartphone take-up among UK adults: Ofcom research shows that 66% of UK adults owned a smartphone in Q1 2015 (Figure 1.43).

Only 6% of UK households owned a dedicated mobile broadband connection (either as their sole method of accessing the internet or alongside a fixed connection) in Q1 2015, a fall of two percentage points since 2014.

Figure 4.60 Take-up of key telecoms technologies



Source: Ofcom Technology Tracker. Data from Q1 of each year 2007-2013, then wave 1 2014-2015. Base: All adults aged 16+ (2015 n=3756).

QE1: Does your household have a PC or laptop computer? / QE8(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? Use of internet on mobile is personal take-up measure, whereas the other data relate to household take-up.

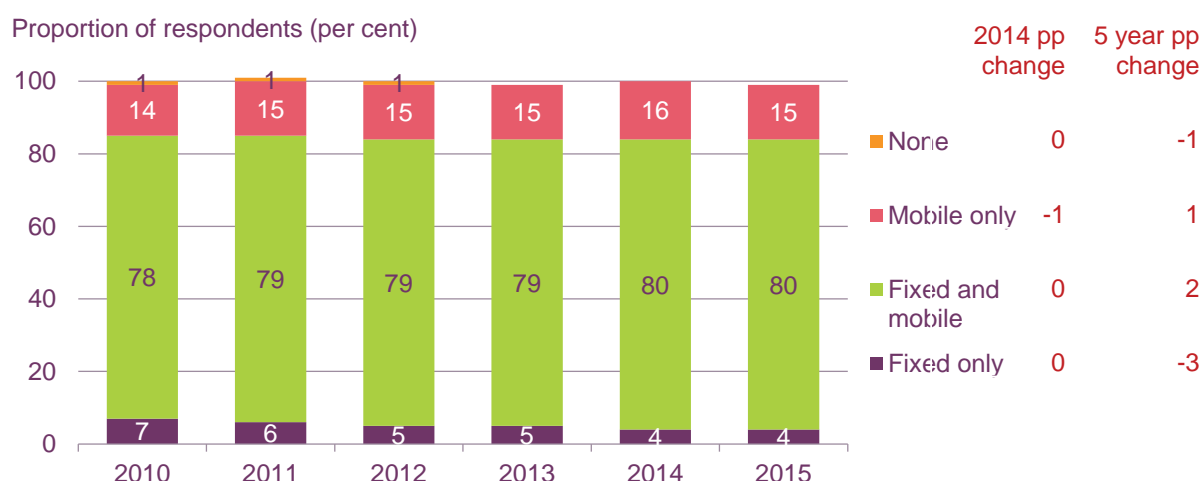
Fifteen per cent of UK homes were mobile-only in Q1 2015

The majority of UK households (80%) used both fixed and mobile telephony services in Q1 2015 (Figure 4.61). There were no significant changes in the proportions of homes that were mobile-only or fixed-only, at 15% and 4% respectively.

‘Mobile-only’ households are defined as those that have at least one mobile phone between the residents; **and do not** have ‘a landline that can be used to make or receive calls’.

Therefore this measure of mobile-only households includes a proportion (c 36% of mobile only homes) who say they have fixed broadband services. Most fixed broadband services require a fixed line. As such, these consumers may have a fixed line but no handset, and have responded on the basis that they cannot make or receive calls using their fixed line.

Figure 4.61 Cross-ownership of fixed and mobile voice telephony services



Source: Ofcom Technology Tracker. Data from Q1 2009-2013, wave 1 2014-2015

Base: All adults aged 16+

QC1: Household phone ownership

The average price of a fixed call minute was 45% higher than that of a mobile voice call minute in 2014

The average price of a fixed-originated voice call was 11.7 pence per minute in 2014, 45.0% higher than the 8.1 pence per minute average charge for a mobile voice call minute (Figure 4.62). While the average price of a mobile call minute (including monthly access fee) has decreased by 4.8% (0.4 pence) since 2009, the average price of a fixed voice minute (including line rental) has increased by 45.1% (3.6 pence) over the same period.

In 2014, the average price of a fixed voice call minute increased by 1.2 pence per minute (10.9%). The main driver behind this is the increase in fixed telephony prices (as shown in Figure 4.67, the price of a basket of residential fixed voice services increased in real terms in 2014). Also, average fixed voice call volumes per line have fallen and, as a result, a larger proportion of the line rental price is apportioned to each call minute. The average price of a mobile call minute was down 0.1 pence (1.2%) to 8.1 pence per minute.

Figure 4.62 Comparison of average fixed and mobile voice call prices



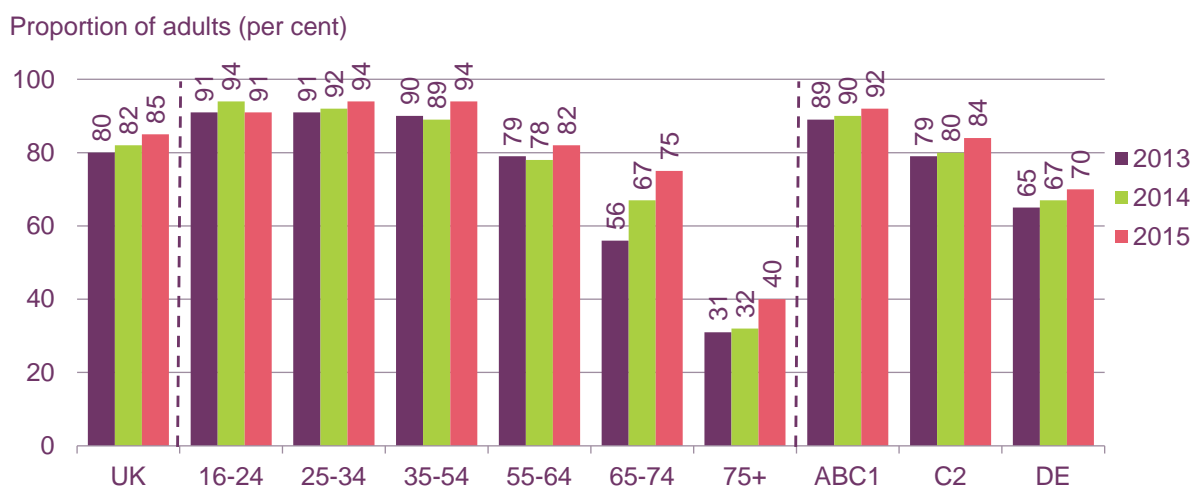
Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; fixed calculation excludes non-geographic voice calls.

Eighty-five per cent of UK households had access to the internet in Q1 2015

The proportion of homes which had an internet connection⁹² was 85% in Q1 2015, a three percentage point increase on Q1 2014 (Figure 4.63). The proportion of homes with an internet connection was 94% among those aged 25-54, 91% for the 16-24 age group, 75% among the 65-74 age group and 40% for the 75+ age group. Ninety-two per cent of consumers in the ABC1 socio-economic group had internet access, compared to 84% in the C2 group and 70% of the DE socio-economic group households.

Figure 4.63 Home internet access, by age and socio-economic group



Source: Ofcom Technology Tracker. Data from Q1 2013, W1 2014-2015

Base: All adults aged 16+ (n=3756)

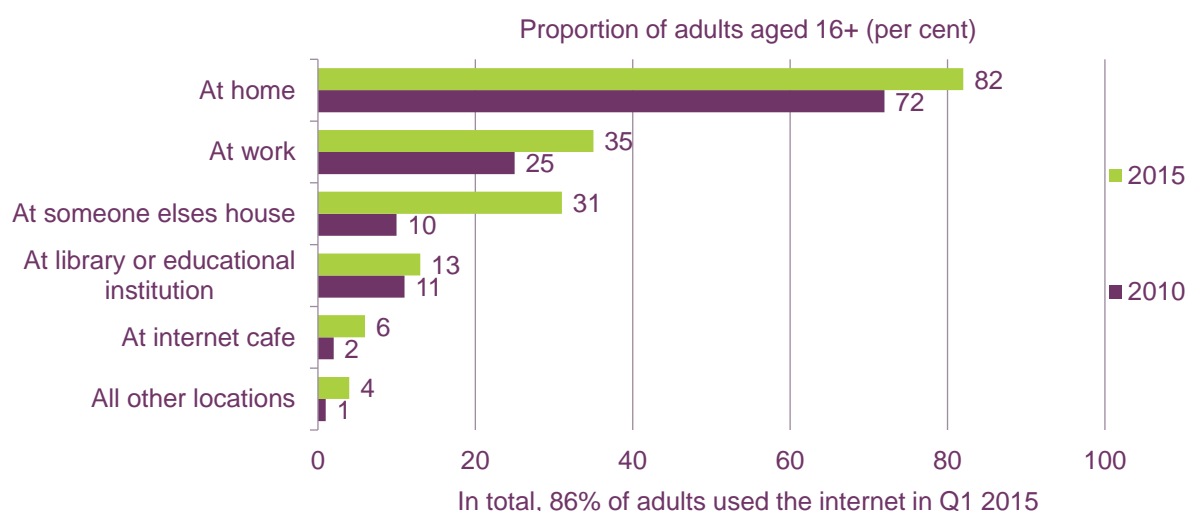
QE8(QE2): Do you or does anyone in your household have access to the internet/ World Wide Web at home (via any devices, e.g. PC, laptop, mobile phone etc)?

⁹² Via any device and connection method

UK adults are accessing the internet in increasingly varied places compared to 2010

The proportion of UK adults accessing the internet at home has increased by ten percentage points to 82% in the five years to 2015 (Figure 4.64). There were also increases in the proportion of adults accessing the internet at work (up by ten percentage points to 35%), at someone else's house (up 21 percentage points to 31%), at a library or educational institution (up two percentage points to 13%), at an internet café (up four percentage points to 6%) and across all other locations (up three percentage points to 4%). These increases are likely to be due to increased smartphone take-up and the increased availability of WiFi hotspots. In total, 86% of all UK adults used the internet in Q1 2015.

Figure 4.64 Location of internet access



Source: Ofcom Technology Tracker. Data from Q1 2010, wave 1 2015

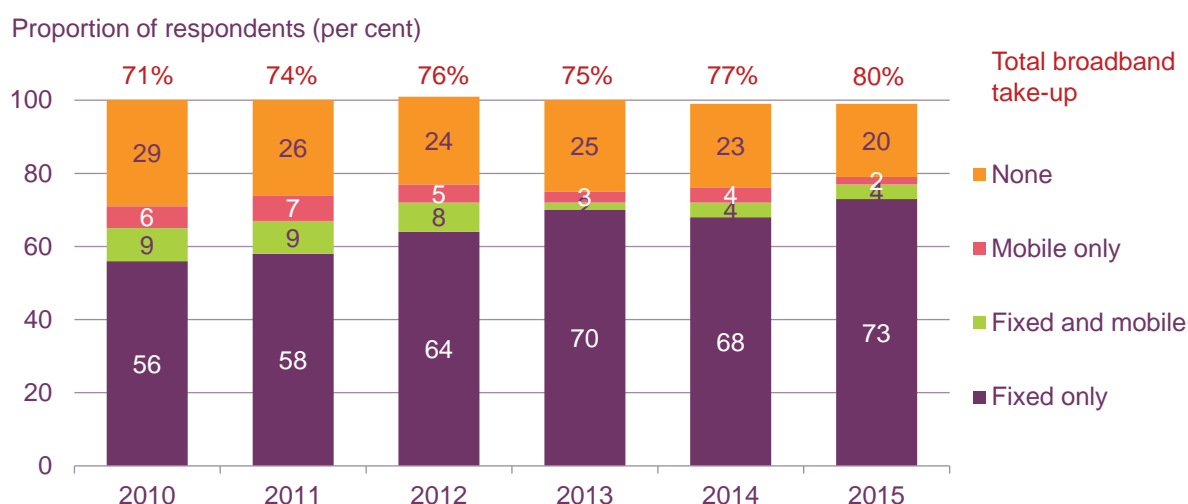
Base: All adults 16+

QE9(IN6): Do you ever go online anywhere other than in your home at all (via any device, e.g. PC, laptop, mobile phone, etc.)? IF YES: Where is that?

Four in five UK homes had fixed or dedicated mobile broadband access in Q1 2015

Total household broadband take-up (including fixed and dedicated mobile broadband) was 80% in Q1 2015, a three percentage point increase to the previous year (Figure 4.65). Almost three-quarters (73%) of homes had a fixed broadband service only (up five percentage points), while 6% of respondents said that they used dedicated mobile broadband only, or both fixed and dedicated mobile broadband, to access the internet at home in Q1 2015. Twenty per cent of households did not have a fixed broadband or a dedicated mobile broadband connection in Q1 2015, down three percentage points since Q1 2014.

Figure 4.65 Household penetration of fixed and dedicated mobile broadband



Source: Ofcom Technology Tracker. Data from Q1 of each year 2009-2013, then wave 1 2014-2015

Base: All adults aged 16+ (6090 in 2009, 9013 in 2010, 3474 in 2011, 3772 in 2012, 3750 in 2013, 3740 in 2014, 3756 in 2015)

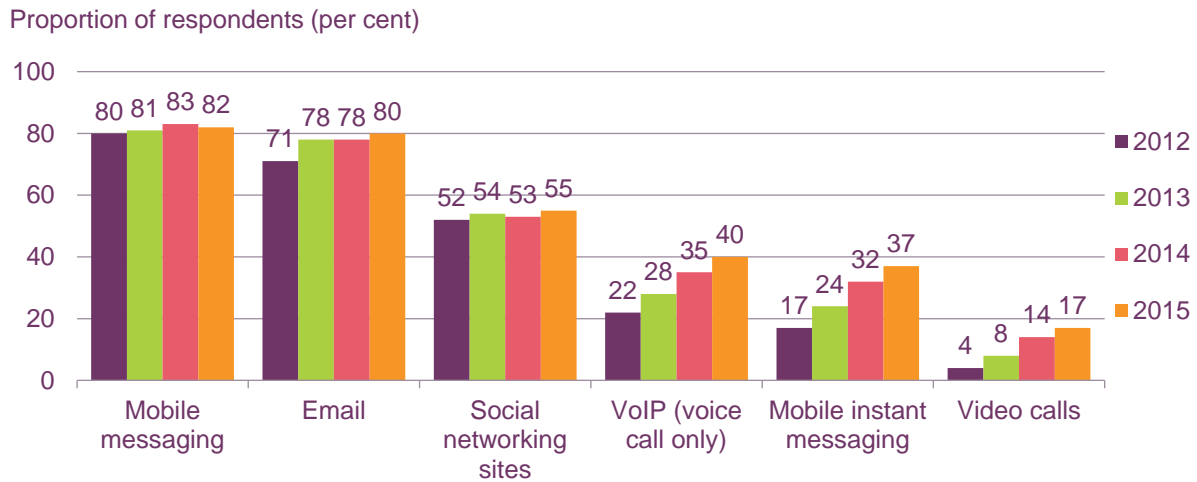
Note: Excludes smartphone only homes.

Use of non-traditional communications services increased in the year to Q1 2015

According to Ofcom research, around four in five adults (82%) used traditional mobile messaging services (SMS and MMS) and a similar proportion of respondents (80%) said they used email in Q1 2015 (Figure 4.66). Over half of all adults (55%) used social networking sites in Q1 2015; this has remained relatively stable over the past four years.

Significant changes were seen in the use of some non-traditional communication services in the year to Q1 2015. The proportion of adults using VoIP services (voice call only) increased by five percentage points to 40%, as did the proportion of those using mobile instant messaging services (e.g. WhatsApp), to 37%. The proportion of UK adults making video calls (e.g. Facetime) increased by three percentage points to 17% in the year Q1 2015. The drivers behind the increased use of non-traditional communication services are likely to be their lower price (as they run over data channels), their wider choice of platform and service as well as their flexibility compared to traditional voice telephony, and the increasing take-up of smartphones and tablets with easy-to-use apps (e.g. Facetime, WhatsApp and Skype).

Figure 4.66 Use of methods of communication other than traditional voice telephony



Source: Ofcom Technology Tracker. Data from Q1 2012-2013, wave 1 2014-2015

Base: All adults 16+

Note: VoIP data from 2013 are not comparable to those from previous years they have been compiled on a different basis.

QD28A Which, if any, of the following activities, other than making and receiving voice calls, do you use your mobile for? QE5A Which, if any, of these do you use the internet for? QE30 Have you or anyone in your household ever used one of these services to make voice calls using the internet at home? (Answers used relate to current use)

4.3.3 Fixed voice services

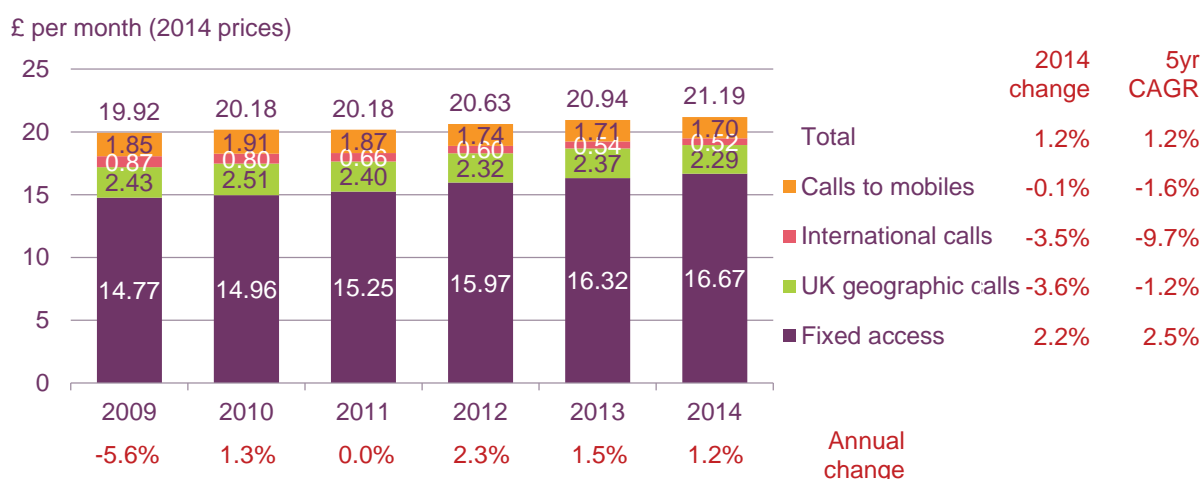
Fixed voice prices continued to increase in real terms in 2014

Figure 4.67 shows how the price of a basket of residential fixed voice services (which includes line rental and outgoing voice call volumes, based on average use in 2014) has changed in real terms (i.e. adjusted for inflation) in the five years to 2014. These figures are calculated using fixed voice revenue and volume data provided to Ofcom by telecoms providers (the revenue data includes an allocation of revenue from bundles that include fixed voice services).

The price of the basket has been on an upward trend since 2009, with the basket price having increased by an average of 1.2% per year in real terms in the five years to 2014, the same percentage increase that was recorded in 2014, when the monthly basket cost was £21.19. Over this period, providers have rebalanced their tariffs to better reflect the costs associated with providing fixed telephony services (which mainly relate to physical network infrastructure rather than call provision). (Further information on fixed tariff rebalancing can be found in section 4.1.5 of this report).

As a result, the proportion of the total basket price that relates to line rental increased by five percentage points to 79% between 2009 and 2014, although this shift was partly due to the increasing popularity of call 'add-ons', and declining average outgoing voice call volumes per residential fixed line (which, excluding non-geographic voice call volumes, fell by 42% to 153 minutes per month during this period).

Figure 4.67 Real price of a basket of residential fixed voice services



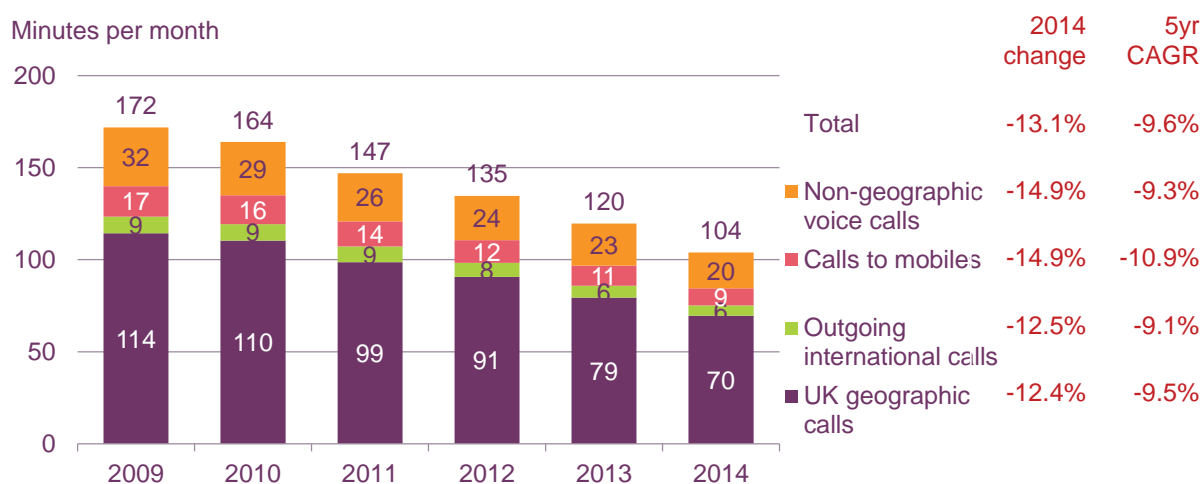
Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for CPI; includes VAT.

Average per-capita outgoing fixed call volumes fell by 13.1% in 2014

Increasing use of mobile phones and internet-based alternatives to voice calls, such as email and instant messaging (IM), contributed to an acceleration in the rate of decline in average monthly per-capita fixed voice call volumes in 2014 (Figure 4.68). Average outgoing fixed voice call minutes per person fell by 16 minutes per month (13.1%) to 104 minutes in 2014, an increased rate compared to the 11.2% fall recorded in 2013. There were double-digit annual falls for all of the call types shown below, with the annual fall in 2014 ranging from 12.4% for UK geographic calls to 14.9% for calls to mobile and to non-geographic voice calls, with each of these declines being higher than the average annual falls recorded in the five years to 2014.

Figure 4.68 Average monthly outbound fixed voice call volumes per person



Source: Ofcom / operators

Line rental price increases are driving increasing average fixed voice call charges

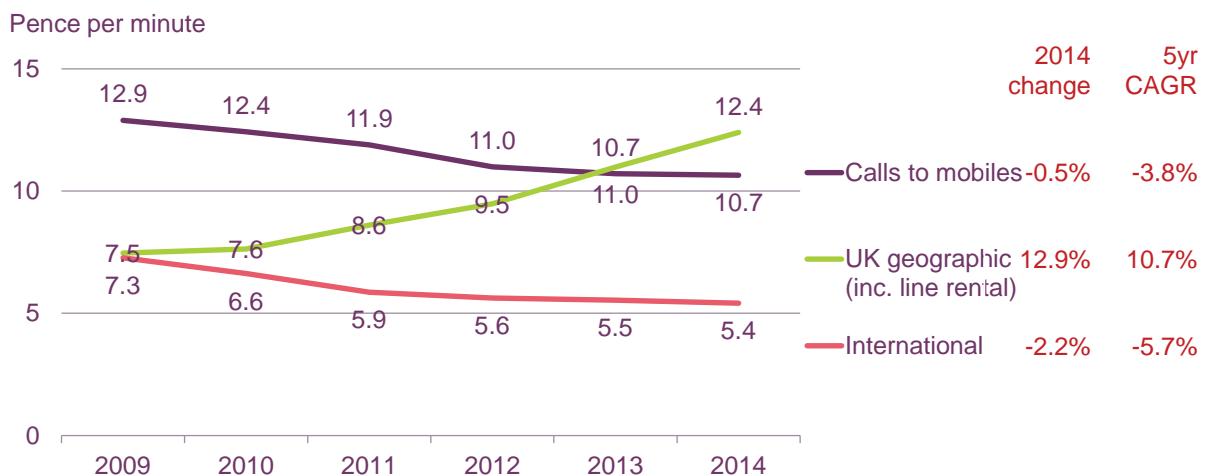
As shown previously in 0, the average price of an outgoing fixed voice call minute increased by 1.2 pence per minute (10.9%) to 11.7 pence in 2014. During the year, the average price

of an international call fell by 2.2% to 5.4 pence per minute, while the average price for calls to mobile phones fell by 0.5% to 10.7 pence per minute (Figure 4.69). In both cases, these falls are likely to partly be due to increased bundling of these call types with line rental services (revenues relating to bundled calls are captured as line rental revenues, which are included in the calculation of the average price of UK geographic calls): falling mobile call termination rates have enabled providers to reduce the price of calls to mobiles, and international call prices have fallen as a result of competition from low-cost VoIP services.

The key driver of increasing average fixed voice call charges over the past few years has been increasing average prices for UK geographic calls, which made up two-thirds of total fixed voice call volumes in 2014. The average price of these calls (which is calculated including the line rental fee, as even the most basic line rental services usually include some inclusive calls to landlines) increased by 12.9% to 12.4 pence per minute in 2014, and by an average of 10.7% a year during the previous five-year period.

While these increases are partly due to growing take-up of call bundles and falling call volumes per line (which means that the average price of each call minute includes a larger proportion of the line rental fee), the main driver over recent years has been increasing line rental charges. More information on fixed tariff rebalancing, which has resulted in rapid line rental price increases, can be found in section 4.1.5 of this report.

Figure 4.69 Average revenue per fixed-voice call minute

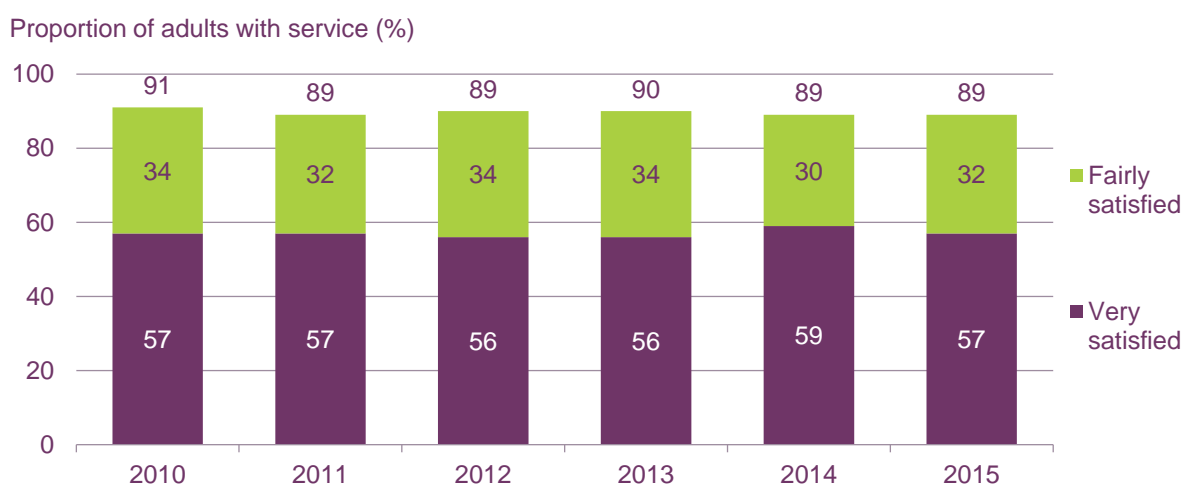


Source: Ofcom / operators

Consumer satisfaction with fixed voice services remains high

Ofcom research indicates that around nine in ten residential fixed voice users were either 'very' or 'fairly' satisfied with their service in Q1 2015 (Figure 4.70). This was a similar proportion to those recorded in each of the previous five years, with around two-thirds of those who were satisfied saying that they were 'very' rather than 'fairly' satisfied.

Figure 4.70 Overall satisfaction with residential fixed voice services



Source: Ofcom Technology Tracker. Data from Q1 2010-2013, wave 1 2014-2015

Base: All adults aged 16+ with a fixed line phone

Note: Includes only those who expressed an opinion.

Q: Thinking about your home phone service only, please use this card to say how satisfied you are with the overall service provided by (main supplier)?

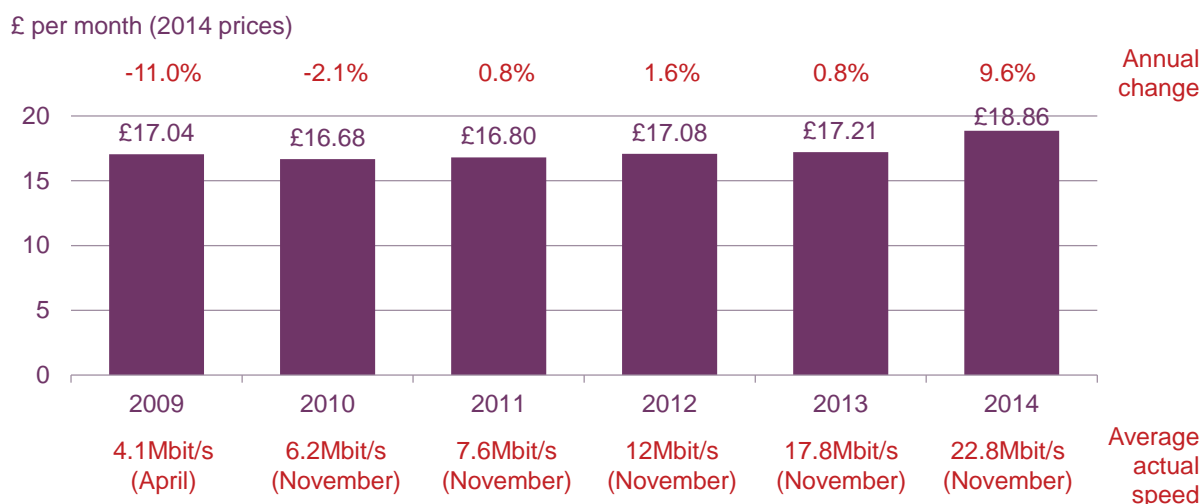
4.3.4 Fixed data services

The average monthly price of a fixed broadband line increased by 9.6% in 2014 as consumers migrated to superfast services

The average monthly price of a residential fixed broadband line (calculated by dividing operator-reported residential fixed broadband revenues by the number of broadband lines) increased by £1.65 in real terms (9.6%), to £18.86 in 2014 (Figure 4.71).

This represents the greatest increase in price in the last four years, as increasing numbers of UK consumers migrate onto superfast services (i.e. those providing speeds of 30Mbit/s or higher). Based on data provided by ISPs, Ofcom estimates that the proportion of UK residential broadband lines that were superfast increased from 23.2% in 2013 to 30.0% in 2014 (Figure 4.42). Although prices have risen, Ofcom research also shows that the average actual download speed of a UK residential fixed broadband line also rose significantly. Average speeds increased by 28.1% from 17.8Mbit/s in November 2013 to 22.8Mbit/s in November 2014 (Figure 4.43).

Figure 4.71 Real average monthly price of a residential fixed broadband line



Source: Ofcom / operator data

Note: Includes estimates where Ofcom does not receive data from operators; includes VAT; adjusted for CPI. Excludes cost of line rental.

Most ISPs bundle fixed broadband with voice and TV services

Figure 4.72 shows the lowest-price residential fixed broadband options offered by the major ISPs in June 2015. Virgin Media is the only major ISP to offer stand-alone fixed broadband services without the need to also take a fixed phone line. It currently offers an 'up to 50Mbit/s' service at £28.50 per month with no additional monthly costs. The lowest monthly charge for any broadband service (excluding activation charges and promotional discounts) including fixed phone line rental and VAT, was £21.49 offered by BT for an 'up to' 17Mb/s service with a 10GB allowance, closely followed by TalkTalk priced at £21.70 for the same speed of service with an unlimited allowance.

Figure 4.72 Lowest-cost bundled fixed broadband options from major ISPs

	Standard broadband only	Standard broadband & fixed line	Standard broadband, fixed line & pay-TV	Broadband ≥30Mbit/s only	Broadband ≥30Mbit/s & fixed line	Broadband ≥30Mbit/s, fixed line & pay-TV
BT	-	21.49	24.49	-	24.49	24.49
EE	-	26.35	29.35	-	36.35	39.35
Plusnet	12.49*	25.94	-	17.49*	30.94	-
Sky	-	23.90	33.89	-	26.40	46.40
TalkTalk	-	21.70	26.70	-	31.70	36.70
Virgin Media	-**	-**	-**	28.50	34.49	38.99

Source: Pure Pricing UK Broadband Pricing Briefing, 10 June 2015

Note: All tariffs exclude activation charges and promotional discounts and include VAT; all tariffs are the lowest price available; contract lengths vary; allowances for fixed-line and mobile calls, and availability of TV channels included within packages may differ by operator and option. Prices shown are packages as marketed to customers. Some operators allow users to customise packages to include e.g. anytime calls.

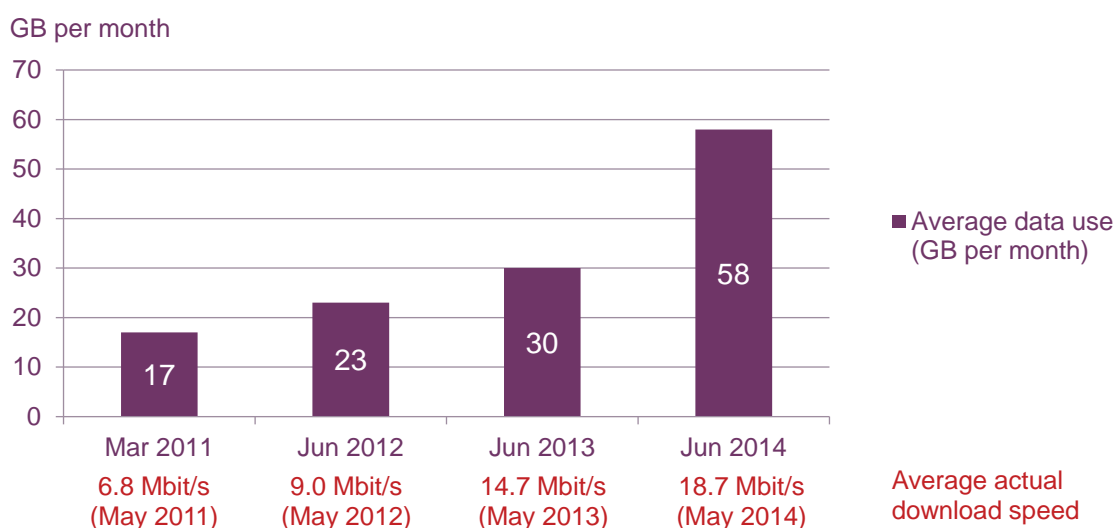
*Plusnet 'broadband only' offers require a fixed line service from Plusnet or another BT based landline provider.

** Virgin Media does not offer broadband at speeds lower than 30Mbit/s.

Average fixed broadband data use increases as more consumers take up superfast services

In June 2014 the average fixed broadband line used 58GB of data per month (Figure 4.73). This represents a 93% increase compared to June 2013 and demonstrates an acceleration in the rate of consumption; in the previous two years consumption had increased at an average rate of 33% year on year. This acceleration in use is partly due to the growing popularity of data-heavy video-on-demand services, such as BBC iPlayer, Netflix and Amazon Prime Instant Video, as well as higher broadband speeds which allow more members of a household to go online simultaneously.

Figure 4.73 Average fixed broadband data use per month

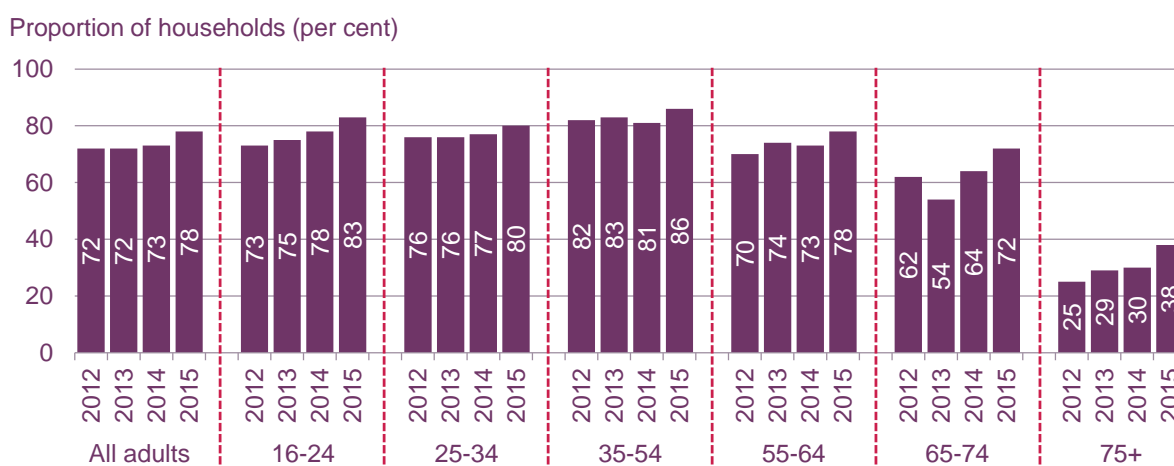


Source: Ofcom Infrastructure Reports 2011 – 2014

Fixed broadband take-up increased by 8pp among 65-74s and over-75s in the year to Q1 2015

Total fixed broadband take-up was 78% in Q1 2015, up by five percentage points on the previous year (Figure 4.74). Take-up increased significantly in the 65-74 age group and the 75+ age group, in both cases rising by eight percentage points, to 72% and 38% respectively in the year to 2015. However, as in previous years, the younger age groups had the highest take-up.

Figure 4.74 Take-up of fixed broadband, by age



Source: Ofcom Technology Tracker. Data from Q1 2013, then wave 1 2014-2015

Base: All adults aged 16+ (3750 in 2013, 3740 in 2014, 3756 in 2015)

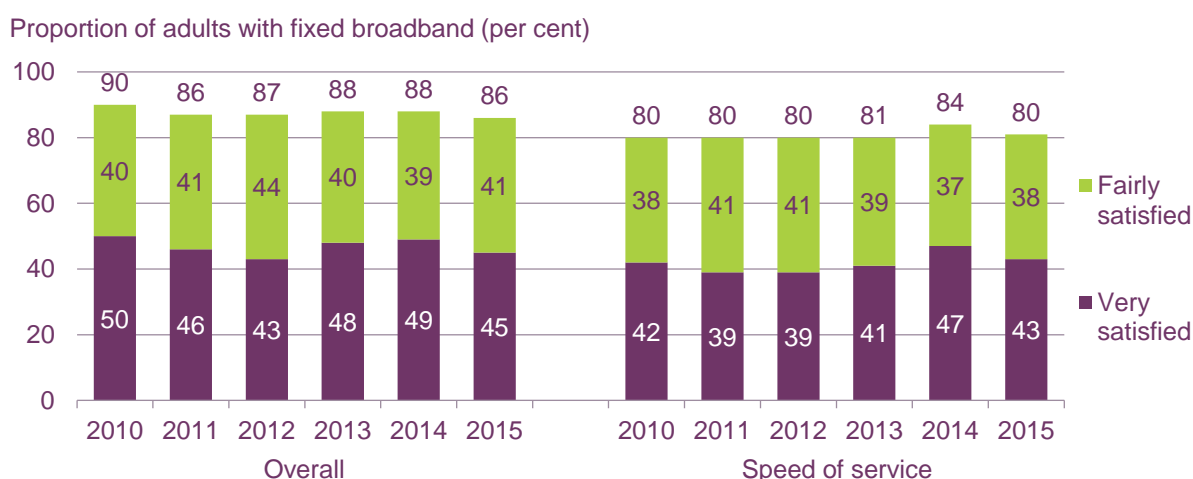
Note: It is likely that the fall in take up among 65-74s in 2013 was due to a sampling error.

Satisfaction with fixed broadband speed dropped in the year to Q1 2015

There was a drop in the number of respondents claiming to be 'very' rather than 'fairly' satisfied with their overall fixed broadband services in the year to Q1 2015: 45%, compared to 49% the previous year. However, the total number of adults who were 'very' or 'fairly' satisfied with their service was not significantly different from the previous year (Figure 4.75).

The proportion of adults who were 'very' satisfied with the speed of their fixed broadband service fell by four percentage points, to 43%, in the year to Q1 2015. As a result, the drop in satisfaction with broadband speeds; the total of those claiming to be 'very' or 'fairly' satisfied, also fell by four percentage points, from 84% in Q1 2014 to 80% in Q1 2015, despite the increase in average actual residential broadband download speeds shown in Figure 4.43.

Figure 4.75 Satisfaction with aspects of fixed broadband service



Source: Ofcom Technology Tracker. Data from Q1 2009-2013, then wave 1 2014-2015

Base: All adults aged 16+ with a fixed broadband connection

Note: Includes only those who expressed an opinion.

Q: Thinking about your fixed broadband internet service, please use this card to say how satisfied you are with your main supplier for... The overall service/ The speed of your service while online (not just the connection) provided by (main provider)?

4.3.5 Mobile voice and data services

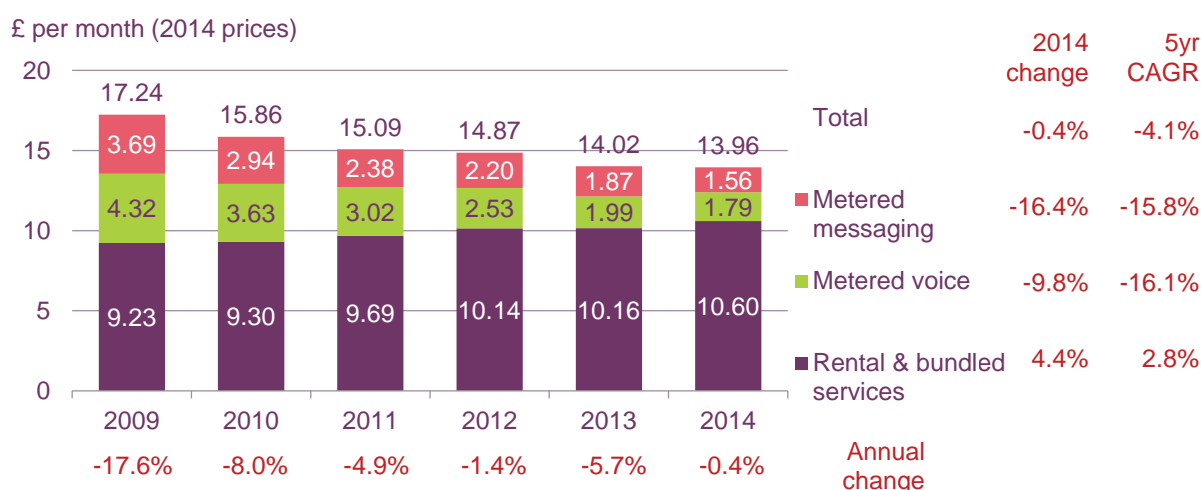
The price of a basket of mobile services continued to fall in real terms in 2014

The price of a basket of mobile services (which is based on average use of UK geographic, on-net mobile, off-net mobile, outgoing international calls, SMS and MMS messages in 2014) fell by six pence per month (0.4%) to £13.96 in real terms in 2014, indicating that the rate at which prices were falling had slowed compared to previous years (Figure 4.76).

The decrease in the price of metered voice calls and messaging (9.8% and 16.4% respectively) in 2014 was offset by a 4.4% increase in the monthly mobile access fee (including bundled voice, messaging and data).

The real price of a basket of mobile services has declined each year since 2009, with the price of metered voice calls falling by an annual average rate of 16.1%, and the cost of metered messaging by an annual average rate of 15.8% in the five years to 2014. The reason behind the fall is that post-pay contracts and pre-pay top-ups increasingly include a generous (or 'unlimited') allowance of voice minutes and SMS messages.

Figure 4.76 Real price of a basket of mobile services



Source: Ofcom / operators

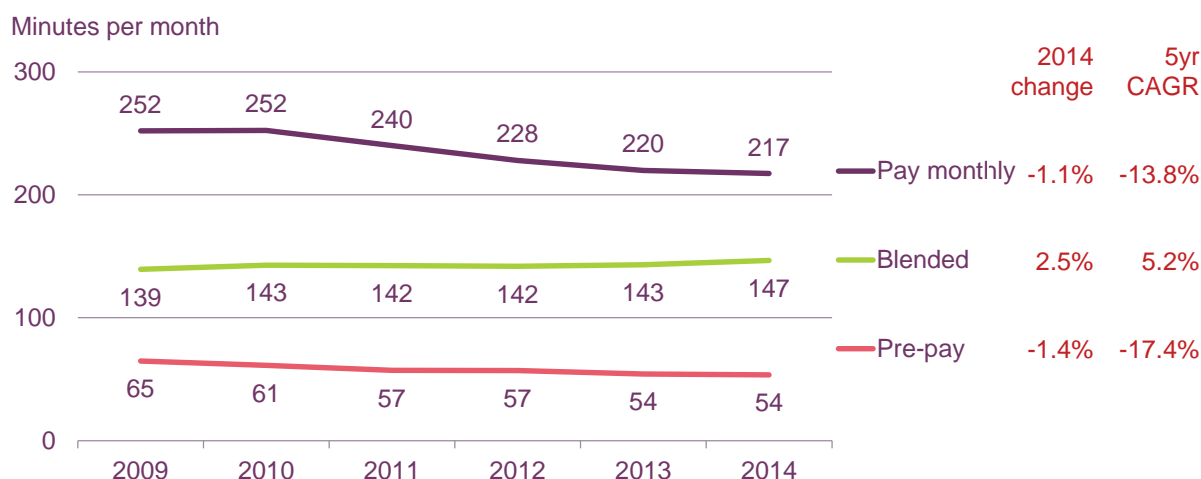
Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for CPI; includes VAT.

Average monthly mobile call minutes continued to fall for both pre-pay and post-pay subscriptions in 2014

On average, post-pay customers made 217 minutes of outgoing calls per month in 2014, four times the 54 minutes per month average for pre-pay customers (Figure 4.77). Average monthly outbound mobile call minutes decreased for both pre-pay and post-pay customers, while the total monthly average (including both post-pay and pre-pay) increased by 4 minutes (2.5%) to 147 outbound call minutes in 2014. This was due to the higher proportion of post-pay customers with higher average monthly outbound mobile call minutes.

While the rate of decline in average outgoing call minutes was 1.1% (2 minutes per month) for post-pay subscriptions in 2014, pre-pay customers made 1.4% fewer calls (1 minutes per month) than in the previous year. The reason behind the declining trend is likely to be the migration of high-use pre-pay consumers to post-pay subscriptions, which leads to a decline in the average monthly outbound mobile call minutes for both contract types.

Figure 4.77 Average monthly outbound mobile call minutes, by subscription type⁹³



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators.

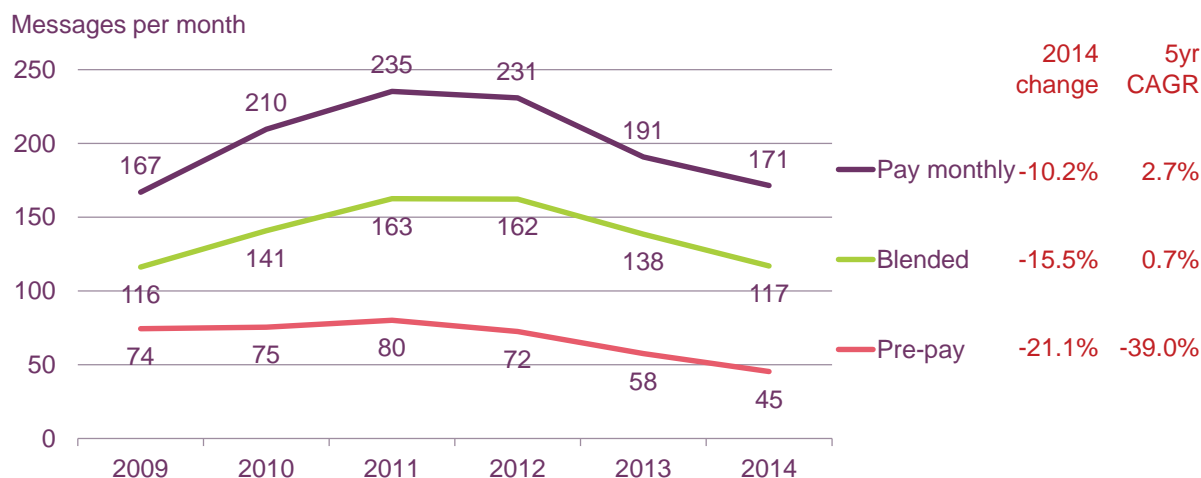
Average monthly mobile messages continued to fall in 2014

Average monthly outbound mobile messages decreased for both pre-pay and post-pay customers (Figure 4.78). On average, post-pay customers sent 171 mobile messages (including SMS and MMS) per month in 2014, almost four times higher than the 45 messages per month sent by pre-pay customers.

While the rate of decline in the average number of messages sent was 10.2% (19 messages per month) for post-pay subscriptions, pre-pay customers sent 21.1% fewer messages (12 messages per month) than in the previous year. The most likely reason behind the declining average monthly mobile messages is increasing smartphone take-up and use of alternative communication methods, such as email, instant messaging and the messaging services provided by handset makers and social networking sites.

⁹³ Blended average is the total average including both pre-pay and post-pay calls.

Figure 4.78 Average monthly outbound mobile messages per subscriber, by subscription type



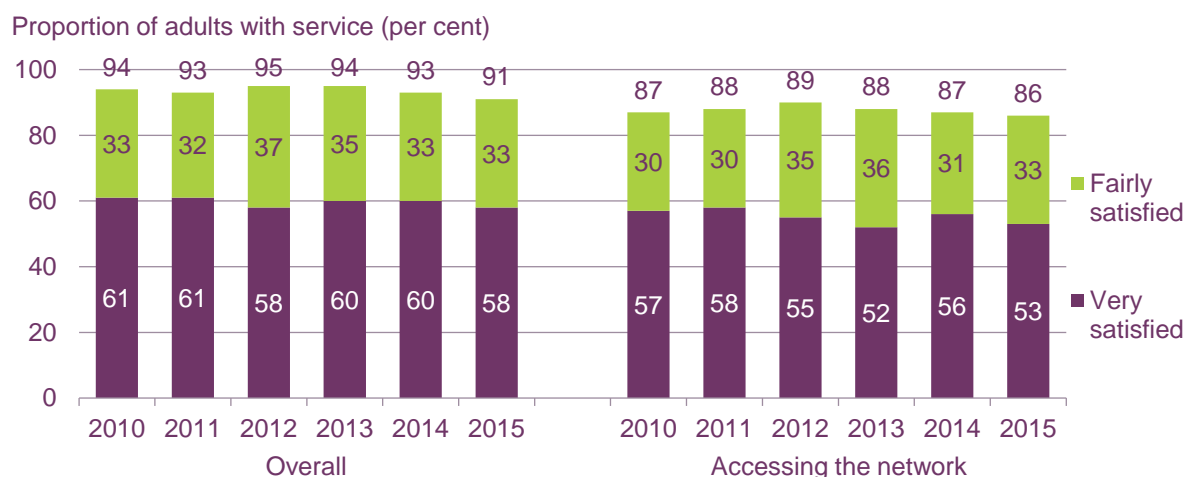
Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators.

Overall satisfaction with mobile services decreased in the year to Q1 2015

Overall satisfaction levels with mobile services decreased by two percentage points in the year to Q1 2015, when 91% of mobile users said that they were 'very' or 'fairly' satisfied with their mobile service (Figure 4.79). Satisfaction with accessing the network was lower than overall satisfaction, at 86%, in line with the figure recorded the previous year.

Figure 4.79 Satisfaction with aspects of mobile service



Source: Ofcom Technology Tracker. Data from Q1 2009-2013, wave 1 2014-2015

Base: All adults aged 16+ with a mobile phone

Note: Includes only those who expressed an opinion.

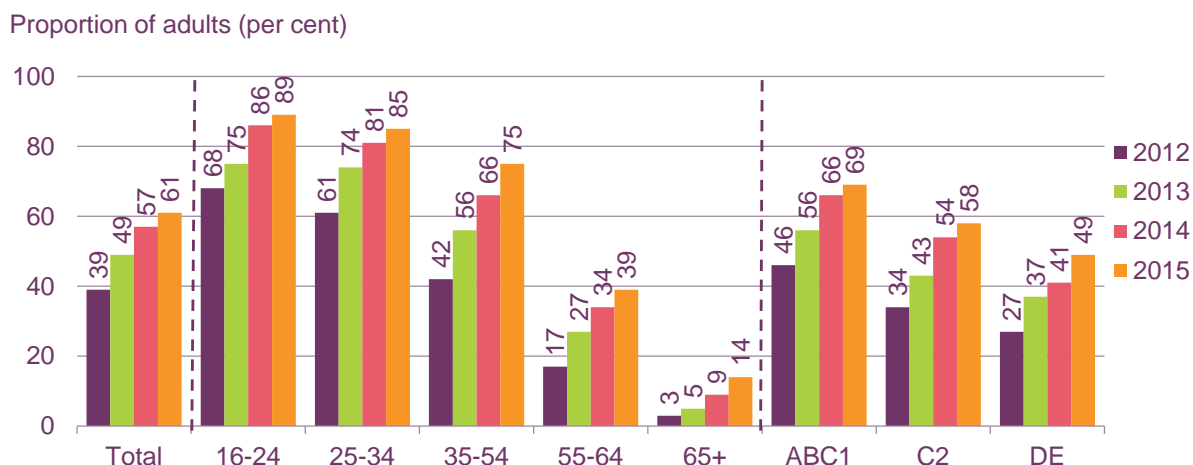
Q: Thinking about your mobile phone service, please use this card to say how satisfied you are with your main supplier for... The overall service/ Reception/ accessing network provided by (main provider)?

Three in five adults used data services on mobile phones in Q1 2015

Ofcom research shows that 61% of adults claimed to use data services on a mobile phone in Q1 2015, a four percentage point increase on the previous year (Figure 4.80). The highest proportion was among younger age groups; 89% of people aged 16-24 and 85% of people

aged 25-34 used data services on mobile devices. The proportion of data users was also higher among more affluent socio-economic groups (69% among ABC1). The main driver of increasing internet use on mobile handsets is the growth in smartphone take-up (see Figure 1.43).

Figure 4.80 Use of data services on mobile phones, by age and socio-economic group



Source: Ofcom Technology Tracker. Data from Q1 2011-2013, wave 1 2014-2015

Base: All adults aged 16+ (2015 n=3756)

Note: Internet use includes accessing the internet, downloading and streaming content, connecting using WiFi and using VoIP.

QD28A: Which if any, of the following activities, other than making and receiving voice calls, do you use your mobile for?

Use of mobile data services continued to increase in the year to Q1 2015

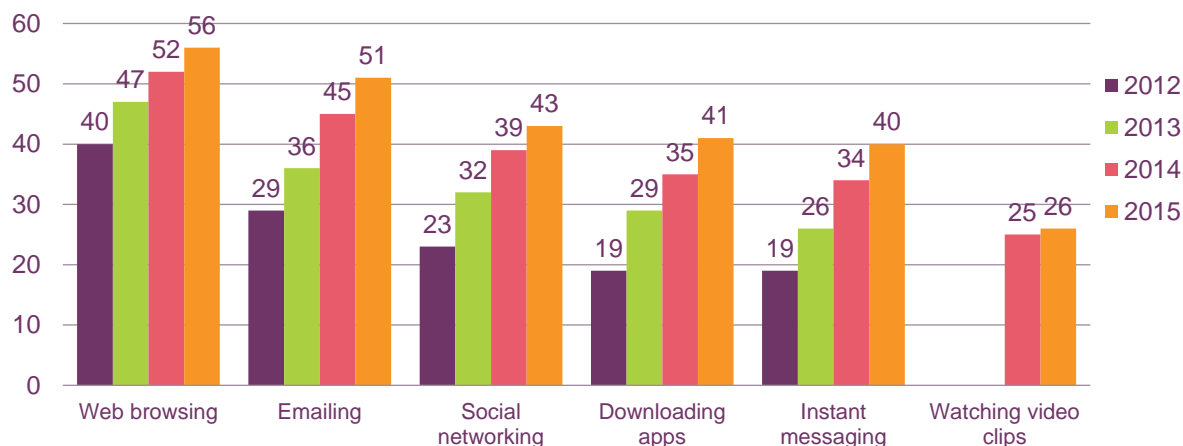
Ofcom research (Figure 4.81) shows that the proportions of mobile users who accessed websites, used email services or social networking, downloaded apps and used instant messaging on their mobile phone all increased in the year to Q1 2015, with the key driver behind these increases being growth in smartphone take-up (see Figure 1.43).

Almost three in five mobile users (56%) said that they browsed the internet on their mobile phone in Q1 2015, a four percentage point increase compared to Q1 2014, while half of the mobile users (51%) sent or received email (up by six percentage points) and 43% used social networking (up by four percentage points) over the same period.

The proportion of mobile users who downloaded apps or used instant messaging both increased by six percentage points in the year to Q1 2015, while one in four mobile users watched video clips in Q1 2015, in line with the figure recorded the previous year.

Figure 4.81 Use of mobile data services among mobile users

Proportion of mobile users using service (per cent)



Source: Ofcom Technology Tracker. Data from Q1 2012-2013, wave 1 2014-2015

Base: All mobile users aged 16+

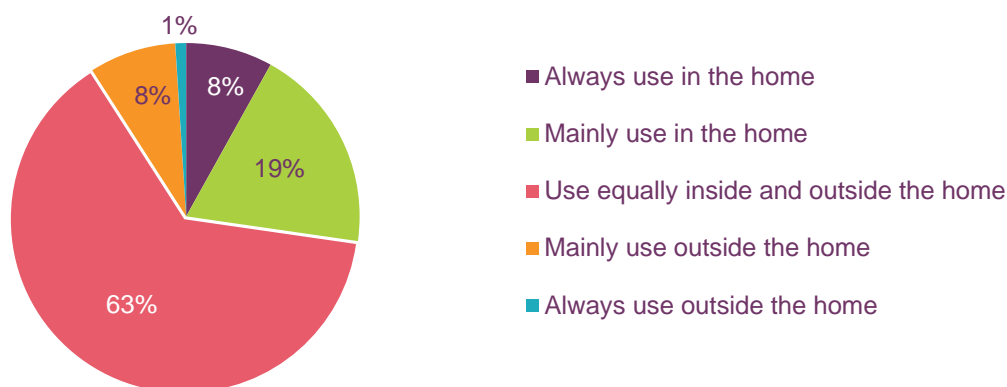
QD9A: Which if any of the following activities, other than making and receiving voice calls, do you use your mobile for?

A quarter of mobile data users access the internet on their mobile phone ‘always’ or ‘mainly at home’

Ofcom research shows that 63% of adults said they accessed the internet on their mobile phone equally inside and outside the home, while 27% accessed the internet always or mainly in the home and 9% always or mainly outside the home (Figure 4.82).

Figure 4.82 Location of internet access using a mobile handset

Proportion of mobile internet users (per cent)



Source: Ofcom Technology Tracker, W1 2015

Base: All adults aged 16+ who access the internet on their mobile phone

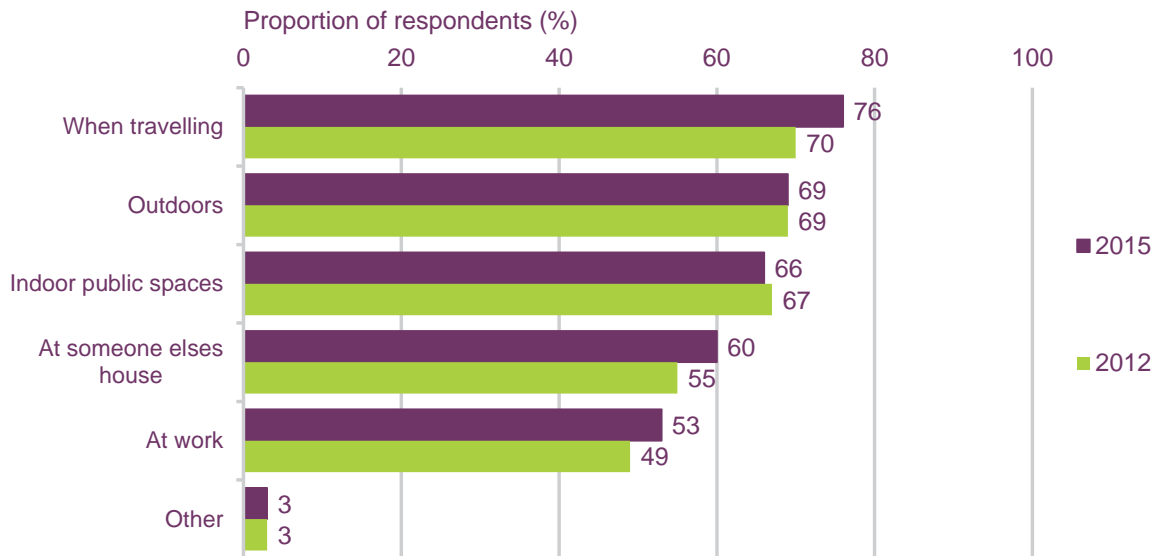
QD15(QD28C): Which one of these best describes where you use your mobile phone to access the internet?

Three-quarters of adults who accessed mobile internet outside the home used it when travelling

The proportion of adults who accessed mobile internet outside the home when travelling increased by six percentage points to 76% in the year to Q1 2015 (Figure 4.83). The second most-mentioned location of mobile internet use outside the home was ‘outdoors’, at 69%,

followed by 'indoor public places', at someone else's house and at work (at 66%, 60% and 53% respectively).

Figure 4.83 Location of mobile internet use outside the home



Source: Ofcom Technology Tracker, W1 2015

Base: All adults aged 16+ who use their mobile phone to access the internet outside the home QD16 (QD28F). SHOW CARD In which of these places do you use your mobile phone to access the internet outside of the home? Answers shown were first asked in 2012 survey

