



The Communications Market 2010

5 Telecoms and networks

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5.1 Key market developments in telecoms and networks

5.1.1 Industry metrics and summary

Figure 5.1 UK telecoms industry: key statistics

	2004	2005	2006	2007	2008	2009
Operator-reported retail revenue (£bn)	28.0	29.0	29.9	30.9	31.2	30.4
Operator-reported wholesale revenue (£bn)	9.3	9.6	10.1	10.4	10.5	10.2
Total operator-reported revenue (£bn)	37.3	38.6	40.0	41.3	41.7	40.6
Fixed voice call minutes (billions)	163	160	150	147	139	133
Mobile voice call minutes (billions)	64	71	82	100	111	118
Average monthly household telecoms spend (£)	71.1	71.4	69.4	67.0	64.5	62.1
Fixed access and call revenues (£bn)	10.6	9.9	9.5	9.3	9.1	8.8
BT share of fixed revenues (%)	58.8	56.9	54.7	53.9	52.4	49.8
Proportion of households connected to an unbundled exchange (%)	-	39.6	66.6	80.2	84.2	84.5
Fixed lines (millions)	34.5	34.0	33.6	33.5	33.2	32.1
Mobile retail revenues (£bn)	11.9	13.1	13.9	15.0	15.4	14.9
Active mobile connections per 100 population	99.9	109.2	115.9	121.8	126.3	131.7
Active 3G mobile connections per 100 population	4.3	7.7	12.8	20.6	30.3	41.8
Internet connections per 100 population	25.8	27.5	28.2	30.1	30.6	31.5
Fixed broadband connections per 100 population	10.2	16.4	21.5	25.7	28.4	29.9

Source: Ofcom / operators

With retail revenues totalling over £30bn in 2009 (equivalent to around £500 for every person in the UK), telecoms networks in the UK (fixed voice and internet networks, and mobile networks) contributed around 75% of total service revenues for the UK's communications industry.

However, after years of growth, 2009 was a difficult year for the UK's telecoms operators. For the first time, overall revenues declined, falling below 2007 levels. This was driven in part by the economic downturn, but also by the impact of falling prices and a slowdown in the growth of mobile and broadband connections. Revenues from mobile voice and messaging declined for the first time, and revenues from fixed-line internet connections also fell. But at the same time, massive growth in data use, the widening availability of super-fast broadband networks and changing consumer behaviour as more people access internet services on mobile phones all suggest a dynamic industry in which operators seek new revenue streams and consumers are presented with increasing opportunities to find new and better ways to communicate, to seek information and to find entertainment.

The following two sections look at the telecoms sector from an industry and then from a consumer perspective. In this section we look at five key market developments that are shaping the future of the industry and changing consumer behaviour.

- **Declining retail revenues while use increased.** We look at how the revenue mix in the telecoms industry has changed over the past decade, and highlight how in 2009 the long-term growth in mobile and internet revenues reversed, despite increases in voice volumes, data use and mobile messaging (page 280).
- **The growing gap between data use and revenues.** This decline in revenues came in the context of massive increases in data use; we examine how this gap has developed (page 282).
- **Broadband speeds increase.** The roll-out of ADSL2+ services and upgrades to cable networks resulted in actual broadband speeds increasing. However, with most DSL broadband now sold at an advertised speed of 'up to' 20Mbit/s or more, there is a growing gap between this and the average actual speed of 5.2Mbit/s. Meanwhile, deployments of super-fast broadband point to a new high-speed future, but current take-up is still very low (page 286).
- **Mobile broadband finds its niche.** After rapid growth in 2008, take-up of mobile broadband slowed in 2009. However, as fixed-line broadband take-up plateaus, mobile broadband is enabling some households to get online for the first time (page 291).
- **Growth of the 'pocket internet'.** The increasing take-up of smartphones is driving significant increases in the number of people accessing the internet on mobile phones, creating new business models and changing consumer behaviour (page 297).

5.1.2 Revenues fell across the board

For the first time since Ofcom began collecting data on the telecoms industry in the 1990s, retail revenues from telecoms service fell during 2009, down 2.6% to £30.4bn (Figure 5.2).

Although there has been a gradual shift from fixed to mobile, and from voice to data, the previous ten years had seen a continuous growth in revenues, which increased by an average of 5% year on year from 1998 to 2008. Revenue from fixed voice, which accounted for over 60% of total telecoms service revenue in 1998, continued to grow until 2000, but has subsequently experienced nine years of year-on-year decline. By 2009 revenue from fixed voice telephony had declined by an average of 2% annually since 1999, and now contributes less than 30% of telecoms revenue.

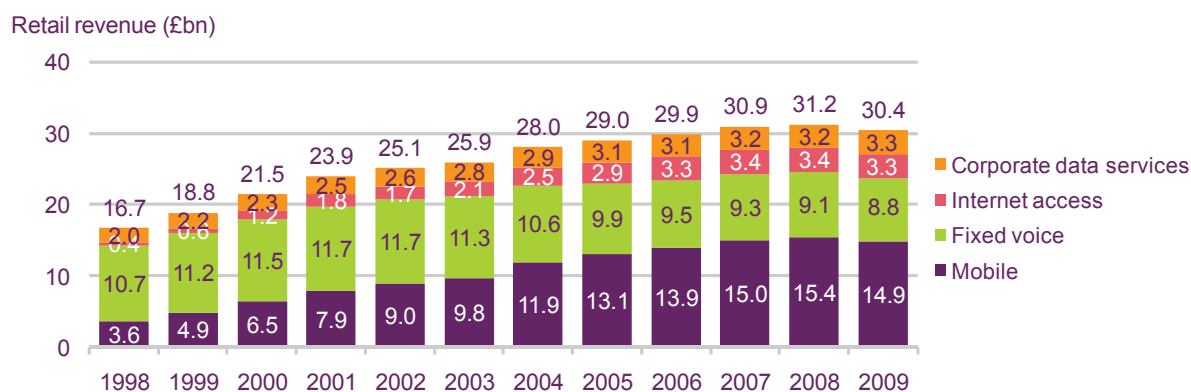
In contrast, revenue from mobile services has grown by an average of 12% a year over the past decade, accounting for nearly half of telecoms service revenue by 2008. Internet access revenue has also grown, by an average of 6% a year over the past five years, as broadband services have been taken up by the majority of households, while revenue from corporate data service increased by 2.7% annually over the same period. Overall, growth in mobile and data services ensured continued growth in revenue for the UK telecoms industry overall up until 2008.

In 2009, however, this revenue growth stalled. Revenue from mobile services, particularly from voice and messaging, declined sharply, the first decrease since mobile telephony

became a mass-market service in the late 1990s, falling by 3.5% to £14.9bn (and accounting for over two-thirds of the overall fall in telecoms retail revenues). In addition, growth in service revenue from fixed internet access, which had more than doubled from £1.7bn in 2002 to £3.4bn, declined for the first time, by 1.9% to £3.3bn.

Meanwhile, revenue from fixed voice services (including line rental) continued to fall; down to £8.8bn in 2009; a 24.7% decline from its peak in 2001. Fixed voice revenues fell by £284m in 2009, compared to a fall of £233m in 2008.

Figure 5.2 Operator-reported UK telecoms industry retail revenue



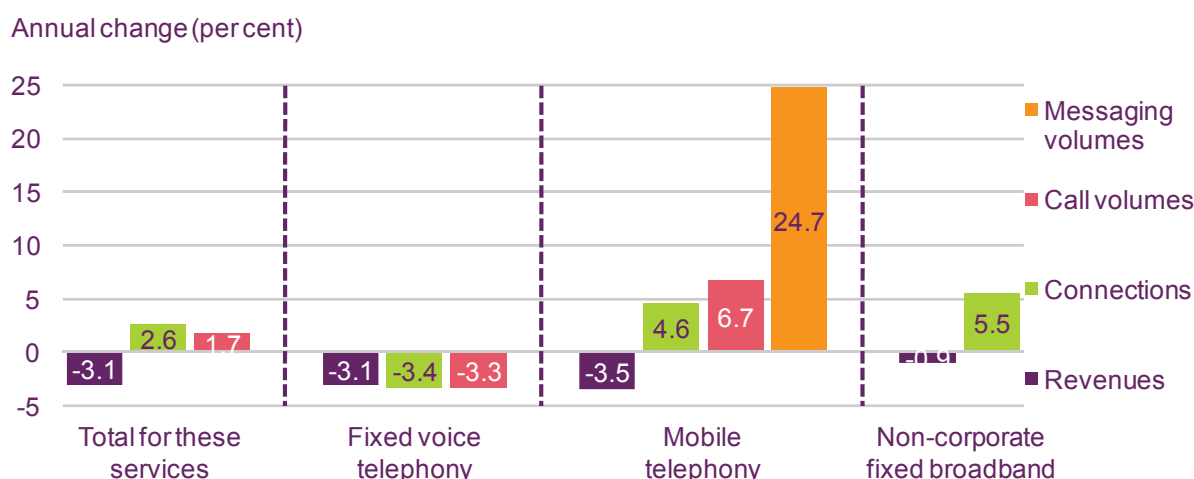
Source: Ofcom / operators / IDC

Figure 5.3 details how revenues, connections and use of telecoms services changed in 2009 compared to 2008. It illustrates that the decline in mobile revenues came in the context of an increase in the number of connections, and an increase in the number of call minutes and SMS/MMS messages. Revenues from voice and messaging services have declined due to falling prices, as an increasing amount of bundled voice minutes and text messages are included within access charges (i.e. monthly line rental charges), and consumers have taken advantage of SIM-only tariffs, where a large number of bundled minutes and/or text messages are included within a relatively low monthly line rental fee. However, it should also be noted that some costs have also fallen as the growth in SIM-only contracts and the emergence of 24-month contracts (see Section 5.1.7) have reduced acquisition costs, and network sharing has reduced network costs.

Similarly, the decline in broadband revenue came despite an increase in the number of connections. This was in part due to the increased take-up of dual-play and triple-play services, whereby consumers purchase broadband in association with another service (see Section 5).

In contrast, the falls in number of fixed voice connections and fixed voice minutes were slightly higher than the fall in revenues, indicating that prices increased slightly as consumers paid more per minute and more per connection. The fall in connections and call volumes was driven by an increasing number of households and businesses going mobile-only; the number of fixed-line connections fell by over 1.1 million in 2009, the largest annual decline since connections began falling in 2001 (see Figure 5.45 in the Telecoms Industry section below).

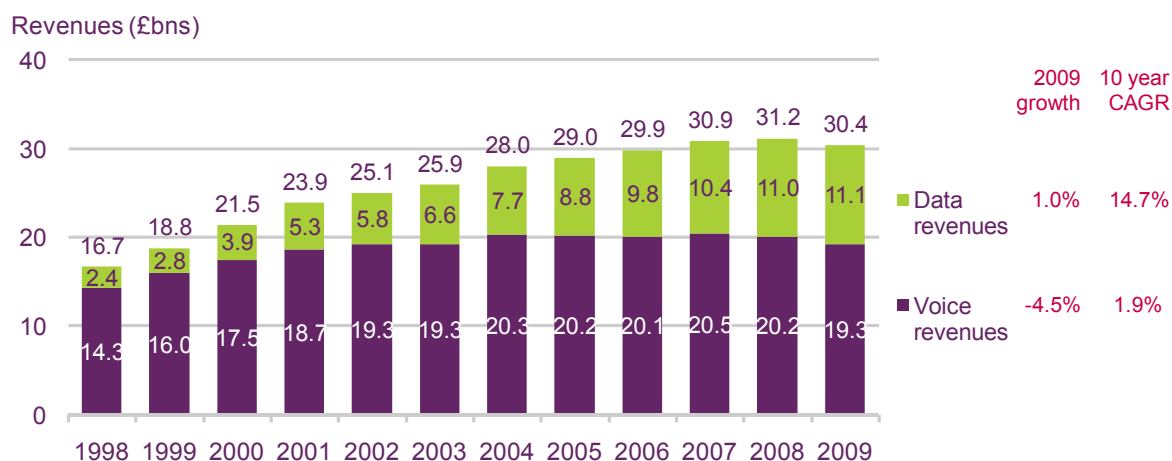
Figure 5.3 Change in operator-reported telecoms retail revenues and use in 2009



Source: Ofcom / operators

Figure 5.4 indicates that since 2002, revenues from voice (fixed and mobile combined) have been flat, while growth has been driven by data services. In 2009, this also stalled as revenue from data services slowed to just 1%, compared to 6% in 2008 and 6.6% in 2007. Revenue from residential fixed-line data services (mainly the provision of broadband) declined, while growth in mobile data services (including SMS) remained flat with increasing revenues from internet-based mobile services (which grew by at least 26% in 2009) offset by falling revenues from text messages. Revenues from corporate data services showed a positive increase, rising by 2.6% in 2009 compared to 1.5% in 2008.

Figure 5.4 Voice and data operator-reported UK telecoms industry retail revenue



Source: Ofcom / operators

The bundling of messaging and data services with monthly rental tariffs means that voice revenue includes an element of mobile data revenue.

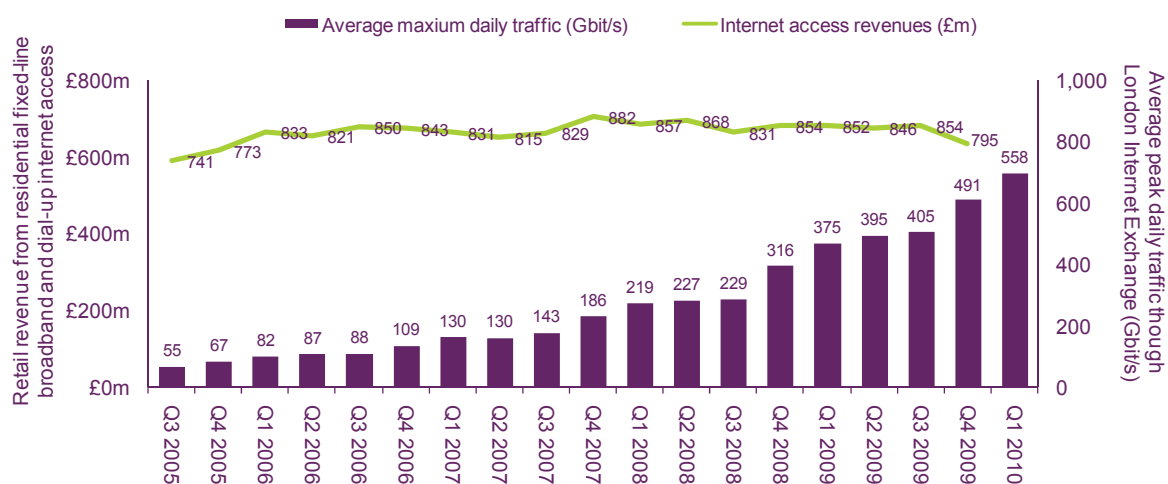
5.1.3 The growing gap between data volumes and data revenues

It has been a characteristic of the UK telecoms market for a number of years that revenues have not kept pace with usage. Analysis in Section 5.3.3 below finds that in nominal terms the revenue per minute for mobile voice has fallen from 15.1p in 2004 to 8.8p in 2009, while despite falling call volumes, the price per minute for fixed voice has increased at a slower rate than inflation, up from 6.6p in 2004 to 7.3p in 2009.

However, a striking feature of the telecoms market in 2009 was that a fall in overall retail revenues came in the context of massive increases in data use; total data volumes over the UK's infrastructure were an estimated 68% higher in 2009 than in 2008, and data volumes over mobile networks increased by 240%. It is clear that there is a growing wedge between data volumes, which have increased by a compound annual growth rate of around 70% between Q4 2005 and Q4 2009, and revenues from internet access, which have increased by a compound annual growth rate of less than 1% over the same period. (However, it should be noted that the relationship between data usage and costs is not linear – and that within access networks there may be scope for very significant increases in usage without any significant increase in costs.)

While there is no data available on the actual data volumes transferred over the UK's internet infrastructure, data transferred over the London Internet Exchange provides a useful proxy for tracking changes. Figure 5.5 indicates that amounts of data transferred have increased significantly every quarter since Q3 2005, with an increased rate of growth since the end of 2008. Over the same period, data revenues from residential internet access (fixed-line broadband and dial-up) have remained relatively flat.

Figure 5.5 Internet access revenues and average peak daily data traffic flowing across London Internet Exchange (LINX) switches



Source: Revenue data – Ofcom based on operator returns; Data traffic – LINX,

<https://www.linx.net/pubtools/trafficstats.html>

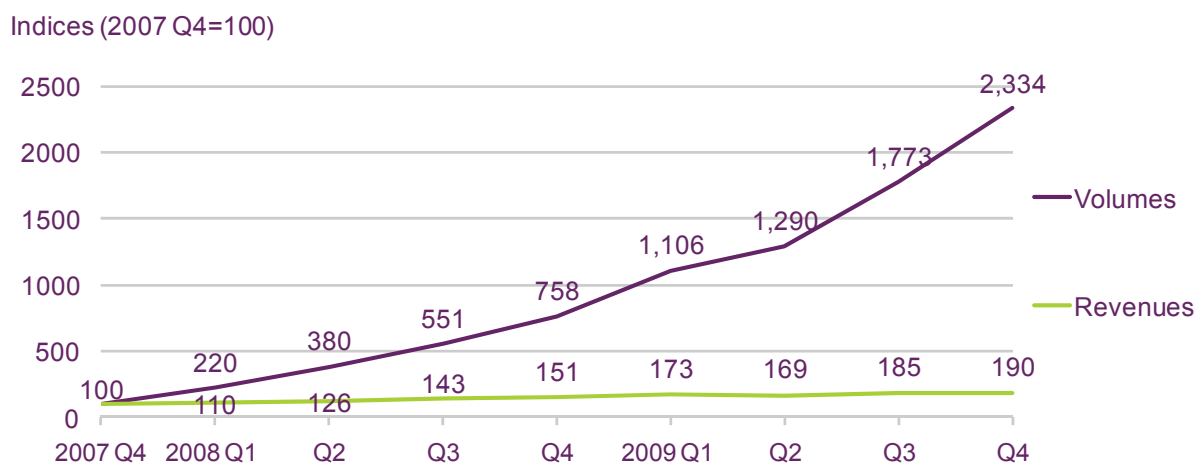
Note: LINX traffic data represent the average of the five-minute daily peaks of aggregate traffic across each of the LINX members' ports; LINX data exclude private peering; revenue data are for residential fixed-line internet access only and are not available for Q1 2010

Mobile data revenues have grown at a faster rate than fixed revenues, with Ofcom data, based on operator returns, indicating that non-SMS data revenues increased by 90% between Q4 2007 and Q4 2009. This has been driven by the increasing take-up of mobile broadband (whereby users connect to the internet via a cellular network on a PC by connecting a datacard or 'dongle'), and increasing use of internet services on smartphones such as the Apple iPhone and RIM's Blackberry devices.

Figure 5.6 uses Q4 2004 as a baseline to depict the growth in mobile data volumes and mobile revenues⁶⁴. It indicates a substantial growth in data revenues, but a much faster growth in data use, which we estimate increased by over 2200% in the two years to the end of 2009. During 2009 there was a slowdown of growth in data revenues, which increased by 26%, while data volumes more than doubled. Overall, this represents a 92% fall in the cost per unit of data between Q4 2007 and Q4 2009, and a 59% fall in the cost per unit of data between Q4 2008 and Q4 2009.

However, it should be noted that data revenues are likely to be understated, as we are only able to include data-specific revenues (i.e. metered fees or separate add-ons), whereas increasingly a data allocation is included within the monthly line rental fee for mobile contracts. The increase in data volumes and revenues should also be seen in the context of operators using existing capacity on 3G networks, and achieving substantial increases in capacity with the relatively inexpensive upgrade of 3G networks to HSPA.

Figure 5.6 Mobile data use and data revenues



Source: Ofcom / operators

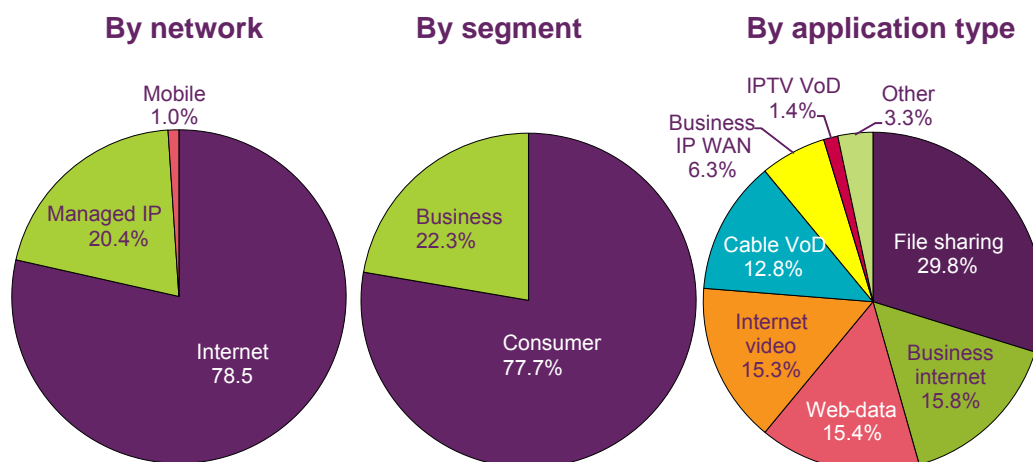
Note: Includes estimates where Ofcom does not receive data from operators; data revenue is likely to be understated as it excludes any data element included within standard pay-monthly tariffs.

Cisco estimates that the total volume of internet traffic in the UK was around 600 petabytes a month by the end of 2009 (a petabyte is approximately one million gigabytes). Figure 5.7 details Cisco's estimates on how this traffic broke down. It indicates that the majority of traffic (79%) was generated by fixed-broadband internet access while managed IP networks, such as VoIP and IPTV, accounted for 20%, and traffic carried over mobile networks represented about 1% of total monthly internet traffic. Consumer IP traffic represented 78% of the UK's traffic, with business use accounting for the remainder.

Only around 15% of this internet traffic was web data. File sharing (i.e. peer-to-peer sharing where internet users connect with each other and directly share files stored on their hard drives) accounted for around 30% of traffic and video (including cable and IPTV video on demand, but not including video exchanged through P2P file sharing) accounting for another 30%. In Section 4.3.2 of this report we detail the increasing use of video services on the internet, with 31% of adults in the UK watching catch-up TV on the internet in Q1 2010, while in April 2010 17.4 million people in the UK watched videos on YouTube.

⁶⁴ We have used an index rather than an absolute number as mobile data volumes are based on an incomplete and aggregated set of operator returns.

Figure 5.7 UK IP traffic, 2009



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2009-2014

Notes: The Cisco VNI forecast methodology rests on a foundation of analyst projections for internet users, broadband connections, video subscribers, mobile connections, and internet application adoption. Upon this foundation are layered Cisco's own estimates for application adoption, minutes of use, and kilobytes per minute based on Cisco VNI usage data (quantitative insights into current activity on service provider networks and qualitative samples of consumers' online behaviour) and other sources.

Other includes online gaming, mobile data and Internet-video-to-TV

There have been a number of drivers of this increase in data use – the availability of higher-speed fixed and mobile networks, the wide availability of ‘free’ online content (and in particular video and music content), the increase in use of peer-to-peer file sharing and hardware advances such as the emergence of increasingly sophisticated smartphones. Meanwhile, the availability of ‘unlimited’ broadband and data services from many operators has also contributed to a market where customers are used to, and expect, a great deal ‘free’.

The popularity of services such as the iPlayer, Spotify and Skype show that service providers as well as consumers have been able to benefit from this market situation. However, operators face a challenge as they attempt to ensure that they receive a return on investment for the infrastructure upgrades they need to make in order to address the growing demand for bandwidth.

One response has been to link tariffs to data use. Fixed broadband tariffs are increasingly now priced primarily by the data usage available rather than the speed offered – in the last year BT Retail, Orange, TalkTalk and Sky have all re-configured their tariffs to offer the same headline speed on all packages (‘up to’ 20 or 24Mbit/s) with different tariffs offering different data limits (or unlimited data on some of the highest-priced packages). Meanwhile, in June 2010 O2 became the first UK mobile operator to put a usage cap on new iPhone tariffs, setting a standard limit of 500MB per month with payments of an additional £5 for each additional 500MB of usage.

Another challenge for operators is to reduce the peak in usage by balancing traffic throughout the day. This has long been integral to operators’ traffic management policies; for example, by prioritising certain types of data during peak periods, or by throttling the speeds that users get when they exceed a certain volume of data in the peak period. Other ways of attempting to do this are by introducing time-of-day based charging into tariffs; for example, Plusnet has monthly data limits associated with its tariffs, but use between midnight and 8am

does not contribute to this limit. One of Orange’s mobile broadband tariffs for business users offers unlimited use during 9am to 5pm, but sets data limits at other times of the day (the peak time for mobile data use is typically after 6pm in the evening). Another response is to find alternative ways of delivering content, such as increased use of direct peering or content distribution networks; this can mean that increasing traffic does not always generate additional cost.

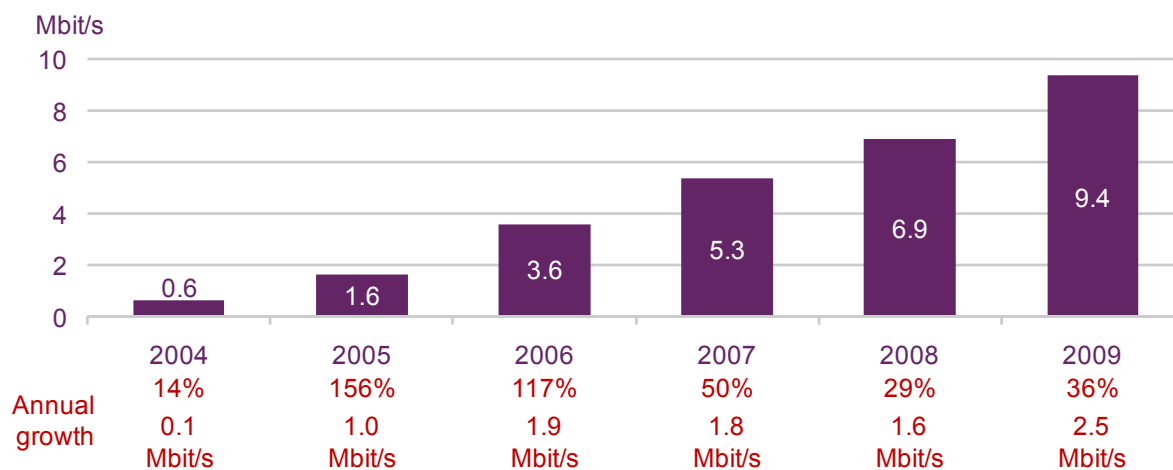
With data volumes continuing to increase, there is increasing focus on the ‘net neutrality’ debate. ISPs and network operators may seek new ways of internet traffic management to handle traffic more efficiently, to prioritise traffic by type, to guarantee bandwidth or to degrade the quality of certain content.⁶⁵

5.1.4 Broadband speeds increase, but the gap between actual and advertised speed grows

Average headline speeds pass 8Mbit/s for the first time in 2009...

During 2009 average headline broadband speeds (the ‘up to’ xMbit/s speeds at which services are frequently advertised) continued to increase, and in doing so passed 8Mbit/s for the first time (Figure 5.8). For a number of years ‘up to 8Mbit/s’ was the most commonly-offered headline DSL broadband speed, and the increase in average headline speeds to above this level is a major milestone in the development of the UK’s broadband services. The increase in average broadband headline speed in 2009 was 2.5Mbit/s, the largest ever recorded and an increase of over a third on the 2008 figure.

Figure 5.8 Average non-corporate fixed broadband connection headline speeds



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes mobile broadband connections

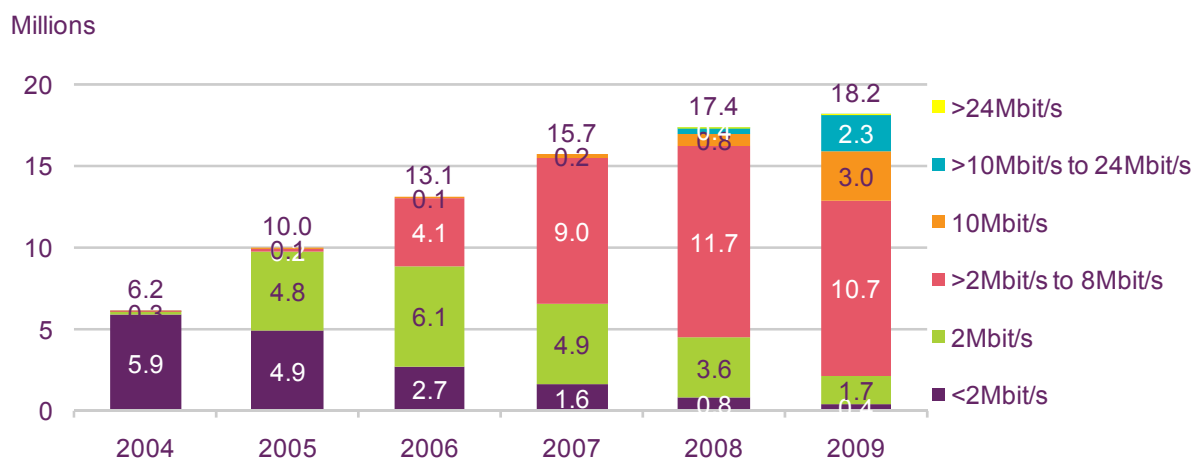
...driven by the upgrade of cable and roll-out of ADSL2+ services...

The increase in average headline connection speeds to above 8Mbit/s in 2009 comes as a result of growing take-up of LLU-based ADSL2+ services offering headline speeds of ‘up to’ 10Mbit/s, 20Mbit/s or 24Mbit/s, along with Virgin Media increasing the headline speed of its

⁶⁵ This has led to concerns that ISPs and network operators could engage in anti-competitive behaviour and suppress the quality of content from provider services. In June 2010 Ofcom published a discussion paper on traffic management and net neutrality: <http://stakeholders.ofcom.org.uk/binaries/consultations/net-neutrality/summary/netneutrality.pdf>

basic service from 'up to 2Mbit/s' to 'up to 10Mbit/s' and increasing take-up of its 'up to 20Mbit/s' and 'up to 50Mbit/s' packages. During 2009 the number of UK non-corporate broadband connections with a headline speed in excess of 'up to 8Mbit/s' increased from 1.2 million to 5.3 million (Figure 5.9), and this trend looks to continue in 2010 as a number of major DSL providers (including BT, TalkTalk, Orange and Sky) market their basic service as offering 'up to 20Mbit/s' or 24Mbit/s and migrate their existing customer bases to these higher-speed packages.

Figure 5.9 Non-corporate broadband connections, by headline speed



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes mobile broadband connections

But the gap between headline and actual speeds is increasing

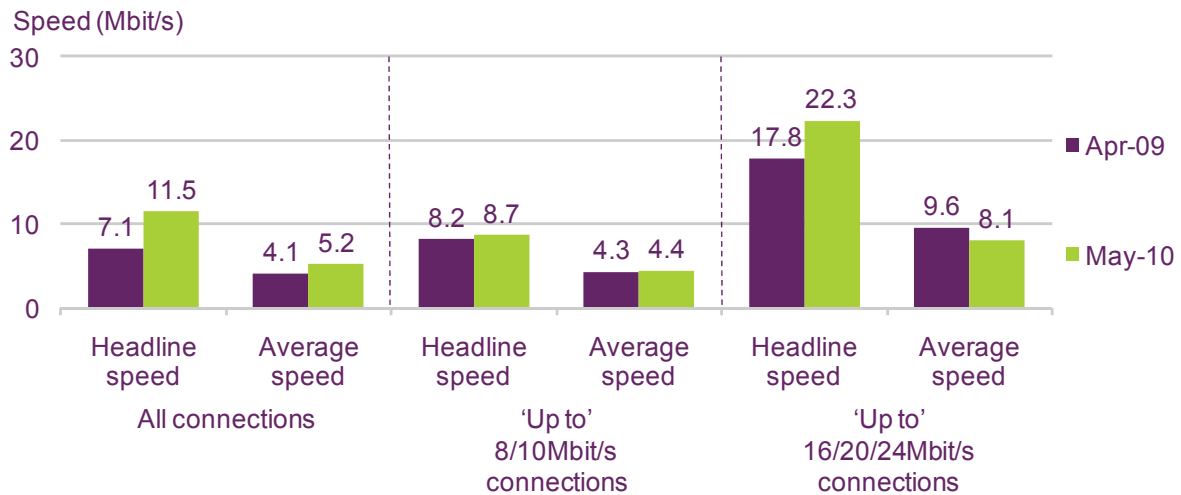
However, focusing on headline 'up to' speeds represents only a partial view of the evolution of broadband services. Average actual speeds delivered are well below these headline speeds, and as more 'up to' 20 or 24Mbit/s services have been launched, the gap between headline speeds and the actual speeds delivered has grown (Figure 5.10).

Ofcom research into the actual broadband speeds delivered to UK consumers (conducted in association with SamKnows)⁶⁶ found that although headline speeds increased by nearly 50% between April 2009 and May 2010, actual speeds delivered increased by just 27%, and averaged just 46% of headline speeds.

Mobile broadband connections suffer from similar issues, with connection speeds slowing considerably in peak periods when capacity does not keep up with demand. This is reflected in section 5.3.4, which shows that in Q1 2010 only 73% of mobile broadband users were either 'very' or 'fairly' happy with the speed of their connection, compared to 80% of fixed broadband users. We are currently looking to expand our broadband speeds research to cover mobile broadband connections, and hope to publish our findings in early 2011.

⁶⁶ <http://stakeholders.ofcom.org.uk/market-data-research/telecoms-research/broadband-speeds/broadband-speeds-2010/>

Figure 5.10 Average headline and actual broadband speeds, April 2009 and May 2010

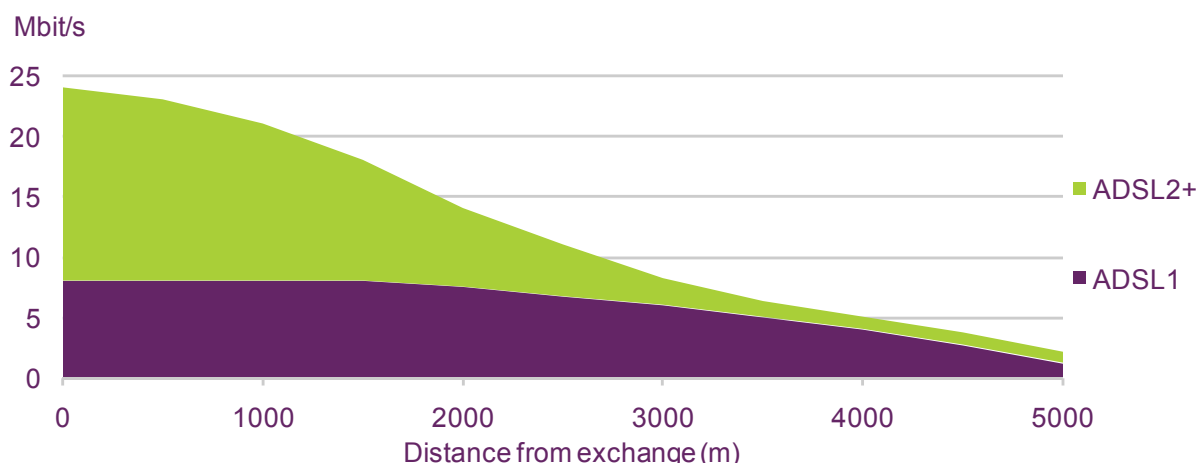


Source: SamKnows measurement data for all panel members with a connection in May 2010
 Panel Base: 1506 Notes: (1) Data have been weighted by ISP package and LLU/non-LLU connections, Rural/Urban, Geographic Market classification and distance from exchange to ensure that they are representative of UK residential broadband consumers as a whole; (2) As sufficient sample sizes were not available for consumers on packages of 'up to' 2Mbit/s or less, data collected for these packages in April 2009 have been factored in, in proportion to share of all connections in May 2010; (3) Data collected from single-thread download speed tests

ADSL2+ offers significant benefits only to those living less than 3km from the local exchange

The difference between actual speeds and headline speeds is mainly due to the limitations of ADSL technology, by which maximum attainable speeds decline rapidly over the length of the copper wire from telephone exchange to the end user's premises. As Figure 5.11 indicates, those living more than 3km from the local exchange will see little benefit from the switch from ADSL1 to ADSL2+, and very few connections will achieve anything approaching 24Mbit/s actual speeds. Cable services are not subject to the same constraints and our research found that cable services delivered actual speeds averaging over 80% of headline speeds, while for DSL broadband the average actual speed was less than 40% of headline speeds.

Figure 5.11 Theoretical maximum DSL speeds, by length of line from exchange to premises



Source: <http://www.tpg.com.au/dslam/faq.php>

Super-fast broadband is available to many... but take-up is very limited

‘Super-fast’ fibre-enabled broadband offers a step-change from the speeds available via DSL broadband, with headline speeds of ‘up to 40Mbit/s’ for fibre-to-the-cabinet services and ‘up to 50Mbit/s’ and higher for fibre-to-the-home and cable services. However, take-up of superfast services has been slow: for example, despite having launched at the end of 2008 (and being available to around half of UK households) there were only 74,000⁶⁷ ‘up to 50Mbit/s’ Virgin Media cable connections at the end of June 2010 (Figure 5.12).

There was little availability of super-fast services other than Virgin Media’s ‘up to 50Mbit/s’ at the end of 2009. However, in 2010 BT’s roll-out of its ‘up to 40Mbit/s’ Infinity service has accelerated; BT has announced that its fibre roll-out had reached over 1.5 million households⁶⁸ by July 2010 and was passing 100,000 additional premises each week. BT’s super-fast services are set to be available to 40% of the UK population by the end of 2012 and to 66% of the UK population by 2015, although, despite growth in the availability of its super-fast services in 2010, Point Topic estimates that there were around 12,000⁶⁹ live BT fibre connections at the end of June 2010.

In addition to these nationwide deployments by BT and Virgin Media, a number of local fibre deployments are making superfast broadband services available to consumers across the UK.

⁶⁷ <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NTQ4ODI8Q2hpbGRJRD0tMXxUeXBIPtM=&t=1>

⁶⁸ <http://www.btplc.com/News/ResultsPDF/q110release.pdf>

⁶⁹ Source: Point Topic report: NGA UK struggles to gain scale (<http://point-topic.com/content/ukplus/shortreports/BBVnga100803.html>)

Figure 5.12 Selected UK next-generation access projects

Operator	Project locations	Technology	Coverage	Estimated connections June 2010
Atlas Communications	Middletown, Northern Ireland	FTTC	150 homes	50
BT	Various locations across the UK	FTTC	1.5 million homes passed by July 2010, 40% of the UK population by 2012 and 66% by 2015	Ipswich - 50, Muswell Hill - 6,000, enabled exchange areas - 6,000, Ebbsfleet - 100
FibreCity Holdings	Bournemouth and Dundee	FTTP	88,000 homes passed in Bournemouth and 70,000 premises including 55,000 homes in Dundee (networks planned in Derby, Halton, Nottingham, Plymouth and York)	350
Independent Fibre Networks (IFNL)	Corby, Swindon and Andover	FTTP	6,000 homes passed in Corby, 835 in Swindon and 2,500 in Andover	350
Isrighthere	Liverpool, Leeds and Chelsea	FTTP	498 apartments and 160 retail units passed in Liverpool and 166 residential apartments in Leeds (plus 55 apartments to be passed in Chelsea)	719
Rutland Telecom	Lyddington, Rutland	FTTC	Between 180 and 200 homes passed in Lyddington	50
Velocity1	Wembley	FTTP	4,200 homes passed in Wembley City, North London	550
Virgin Media	Virtually all cabled areas nationwide (around half of UK homes)	DOCSIS 3.0	12.6 million homes passed	74,000 'up to' 50Mbit/s connections
West Whitlawburn Housing Co-operative	Glasgow	FTTP	100 new homes in Glasgow	100

Source: Ofcom / Point Topic 'NGA UK struggles to gain scale' (<http://point-topic.com/content/ukplus/shortreports/BBVnga100803.html>)

So, why such low current take-up

With almost half of UK homes able to get super-fast broadband via cable, why is current take-up so low? One reason may be the price differential between current super-fast services and lower-speed services. Virgin Media's standalone 'up to 50Mbit/s' service costs £38 a month for residential consumers, compared to £20 for its 'up to 10Mbit/s' offering. However, the price differential between BT Retail's fibre-based Infinity service and its DSL service is smaller, with its cheapest 'up to 40Mbit/s' Infinity FTTC product (where available) costing £19.99 a month (plus line rental from £9.49) compared to £14.49 plus line rental for its lowest cost 'up to 20Mbit/s' service. Figure 5.13 provides a summary of selected super-fast broadband tariffs.

A second reason may be the perception that current speeds are sufficient for most internet applications; for example, the BBC recommends a minimum speed of just 500kbit/s to use its iPlayer and 3.2Mbit/s for the high-definition service. However, it may still be video streaming that provides the tipping point from current generation to super-fast broadband services.

In 2010 the first generation of internet-ready televisions have been launched. Since the launch of flat-panel models the rate of television set sales has grown significantly, as prices have fallen and larger screen sizes have become available (according to GfK,⁷⁰ annual UK TV set sales grew by 68% in the five years to 2009). Within a few years, as main sets are replaced and are moved around the home, we may find there is the need for several HD web content feeds per household, and therefore a requirement for the higher bandwidths that only super-fast broadband connections can provide.

Figure 5.13 Selected super-fast broadband tariffs

	BT Infinity Option 1	BT Infinity Option 2	Virgin Media Broadband XXL	Velocity (Bournemouth)
Headline monthly charge	£19.99 (plus landline rental)	£24.99 (plus landline rental)	£38 (£28 with a landline)	£19.99
Headline speed ('up to')	40Mbit/s	40Mbit/s	50Mbit/s	100Mbit/s
Monthly data allowance	20GB	Unlimited	Unlimited	Unlimited
Contract length	18 months	18 months	12 months	12 months
Activation fee	£50	£0	£20	£50

Source: Ofcom

5.1.5 Mobile broadband finds its niche

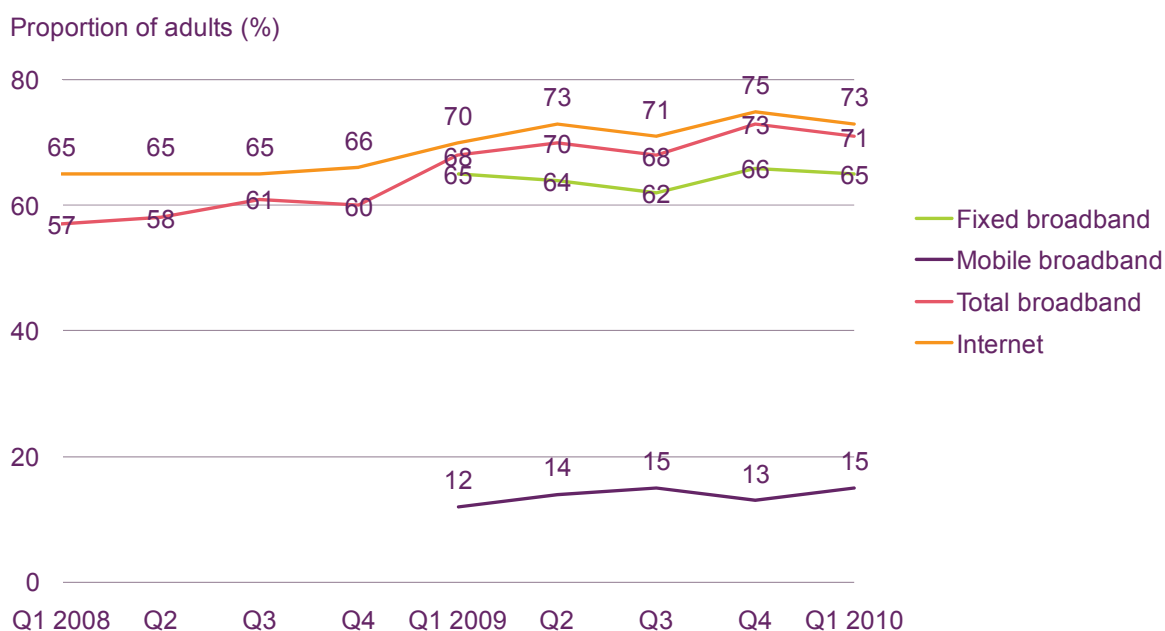
Mobile broadband take-up levels off

After rapid growth in the take-up of mobile broadband (where users connect to the internet using a cellular network via a USB modem or dongle connected to a laptop) following the launch of 3G 'dongles' in April 2007, there are indications that growth in take-up is beginning to decline.

By March 2009, mobile broadband appeared to have entered the mainstream, with Ofcom research indicating that 12% of all households were using mobile broadband (see Figure 5.14), equivalent to approximately three million households. In the 12 months to the end of March 2010 growth in household adoption of the service appears to have slowed, with penetration reaching a peak of 15% in Q3 2009. This is consistent with data collected by Ofcom from the UK operators, which finds that there were 4.1 million active mobile broadband subscribers at the end of 2009.

⁷⁰ Source: GfK retail sales data 2004-2010

Figure 5.14 Household penetration of broadband



Source: Ofcom research

Note: Data covering household penetration of fixed and mobile broadband is not available for 2008. Error margins on this data are +/- 1% at the 95% confidence interval.

Mobile broadband user groups

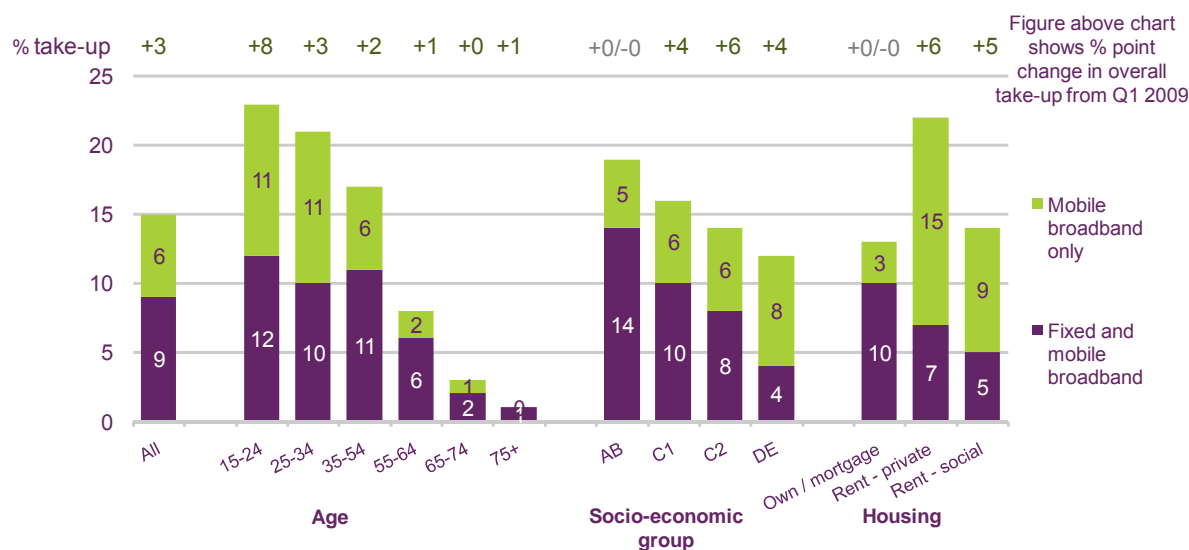
In the early stages of mobile broadband take-up, most people used it as a complement to an existing fixed-broadband service. However, by Q1 2010 there are some indications that more households are using mobile broadband as their only internet connection – Ofcom research finds that 60% of mobile users also had a fixed-line connection in Q1 2010, compared to 75% a year previously (see Figure 5.15), and our research suggests that the number of households which only had a mobile broadband connection doubled from 3% of all households in Q1 2009 to 6% of all households in Q1 2010 (note, however, that this should be treated as indicative only, as there is a margin of error associated with this consumer survey research). With fixed-line broadband levelling off at around 65%, it appears that the growth in overall household broadband take-up (up 68% to 71% in Q1 2010) is now being driven by households getting online for the first time via mobile broadband, mainly by purchasing lower-priced contract plans or pre-pay offerings,⁷¹ but also potentially by purchasing a computer for the first time, with a mobile broadband tariff that includes the price of a laptop or netbook PC within the monthly contract. A demographic analysis of mobile broadband take-up identifies some significant differences between types of user:

- The higher up the socio-economic classification, the more likely a user is to have mobile broadband. Nearly 20% of AB households claim to have mobile broadband, with nearly three-quarters of them using it as a complement to fixed broadband. These users represented the majority of early adopters. However, there was no change in levels of take-up among these users in the 12 months from March 2009.

⁷¹ Contract plans below £10.00 represented 21% of mobile broadband contract sales during May 2010, compared to only 7.3% in August 2009 according to Gfk. Based on data provided by operators, we estimate that one in five mobile broadband connections were prepay in Q4 2008, increasing to over one-third in Q4 2009.

- Much of the growth in take-up of mobile broadband since Q1 2009 has been among households in lower socio-economic groups. The largest increase in take-up has occurred in C2 households (where it has increased by six percentage points, to 14% of all C2 households) followed by C1 and DE groups (up four percentage points to 12% of all DE households). This is likely to be related to a combination of affordability and higher levels of 'mobility'. Unlike fixed broadband, mobile broadband users do not have to pay a monthly line rental, and pre-pay or one-month contracts allow users greater flexibility and control on spending without being tied into a long contract. Students (who fall mainly within DE households) and young professionals are more likely to invest in a mobile broadband connection as they can take their connectivity wherever they go, unlike a fixed-line broadband contract. More than a quarter of DE households have no fixed connection of any kind (see Figure 5.68 in the Telecoms User section below), and two-thirds of DE households that use mobile broadband do not have fixed broadband.
- Take-up is skewed towards younger consumers, with nearly one in four 15-24 year-olds and one in five 25-34 year-olds claiming to use the service and half of these using it as their only internet connection (see Figure 5.15). These two age groups have seen eight percentage point and three percentage point respective growth in penetration since Q1 2009. But only one in 12 55-64 year olds, and one in 33 65-75 year olds use mobile broadband, and this has remained largely static since Q1 2009. This higher take-up of mobile broadband among younger age groups is indicative of the changing behaviour patterns by younger users of mobile services. Increasingly referred to as 'mobile natives', they have grown up with interactive and mobile network access as the norm, and are making the step from mobile voice to mobile data services. By comparison, older users are more rooted to fixed-line communications and landline/broadband-based platforms, and are therefore less inclined to migrate to using mobile to connect to the internet.
- Adults living in rented private accommodation are more likely to use mobile broadband, with one in seven using it as their only method of accessing the internet. This is probably because those living in shared accommodation or in short-term lets, typically students and young professionals, do not want to be tied to a long-term fixed broadband contract, and prefer to take their broadband connectivity with them. It also reflects that a mobile broadband service is typically an individual purchase, whereas a fixed-line broadband service is typically a household purchase.

Figure 5.15 Take-up of mobile broadband, by socio-economic group



Source: Ofcom research, Q1 2010
 Base: All adults aged 15+ (n=9013)

Many consumers view the service as ‘not for them’

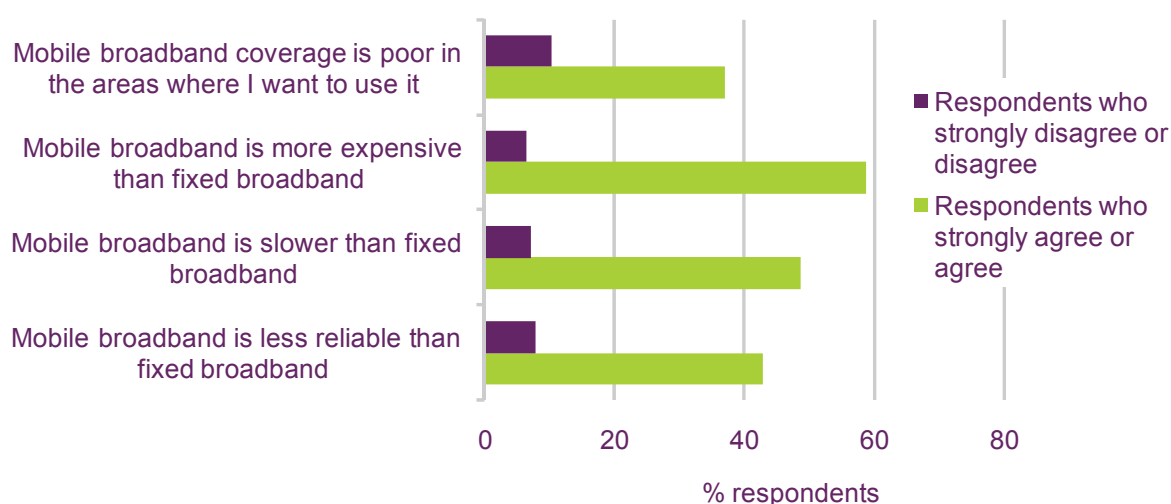
Despite the initial rapid take-up of mobile broadband, research by Analysys Mason indicates that a large majority within the UK (69%) would not consider taking the service and 45% of UK respondents disagreed with the statement that ‘mobile broadband is for me’, in comparison to the 15% who agreed⁷².

A number of factors may be driving this. The take-up of internet services on mobile phones (see Section 5.1.6) may reduce the perceived need for PC-based mobile broadband, as consumers may regard mobile-internet enabled handsets such as smartphones as a better and cheaper way to access the internet wherever they are, rather than relying on wireless connectivity through a laptop.

Another factor may be that many consumers do not perceive mobile broadband as an attractive alternative to fixed-line broadband. Nearly 60% of those who use both mobile and fixed-broadband agree that mobile broadband is more expensive than fixed, compared with less than 10% who disagree. This is despite many mobile broadband contract tariffs being priced at a similar level to fixed-broadband (with line rental) at £15 per month, and perhaps reflects the lower data caps and higher out-of-allowance data charges on mobile as opposed to fixed broadband. Less than one in ten mobile broadband users disagreed with the statement that “mobile broadband is slower than fixed broadband” and over 40% agreed that it was less reliable.

⁷² Analysys Mason, Mobile broadband survey: analysing consumer attitudes and usage, January 2010

Figure 5.16 Attitudes towards mobile broadband in the UK



Source: Analysys Mason

Question: 'How far do you agree or disagree with the following statement' n = 1024

Less than satisfied

Consumer satisfaction with mobile broadband is significantly lower than with fixed-line broadband, and has fallen since mid-2008 (Figure 5.17). There could be many reasons for differences in satisfaction between fixed and mobile broadband and the decline in satisfaction with the latter, including:

- Failure to meet consumer expectations – with mobile broadband tariffs priced at a similar level to fixed broadband and the service initially marketed by some providers as a substitute to fixed, new users of the service may be less satisfied with the service based on coverage, speed and/or reliability when compared with fixed broadband (average speeds from mobile broadband are around 1Mbit/s compared to over 4Mbit/s for fixed-line broadband⁷³).
- In some areas and at some times of the day, capacity on mobile networks may have not kept up with demand, creating network congestion resulting in poor download speeds and service disconnections. According to YouGov, satisfaction among mobile broadband users with 'staying connected' has seen the steepest declines of all network-related attributes, with 20% of mobile broadband rating their experience as poor in July 2009, compared to 9% in June 2008⁷⁴.
- Consumers may perceive that typical mobile broadband speeds and usage caps are insufficient for the use of data-hungry applications which have become increasingly popular via fixed broadband access, such as music downloads, video on demand and catch-up TV services

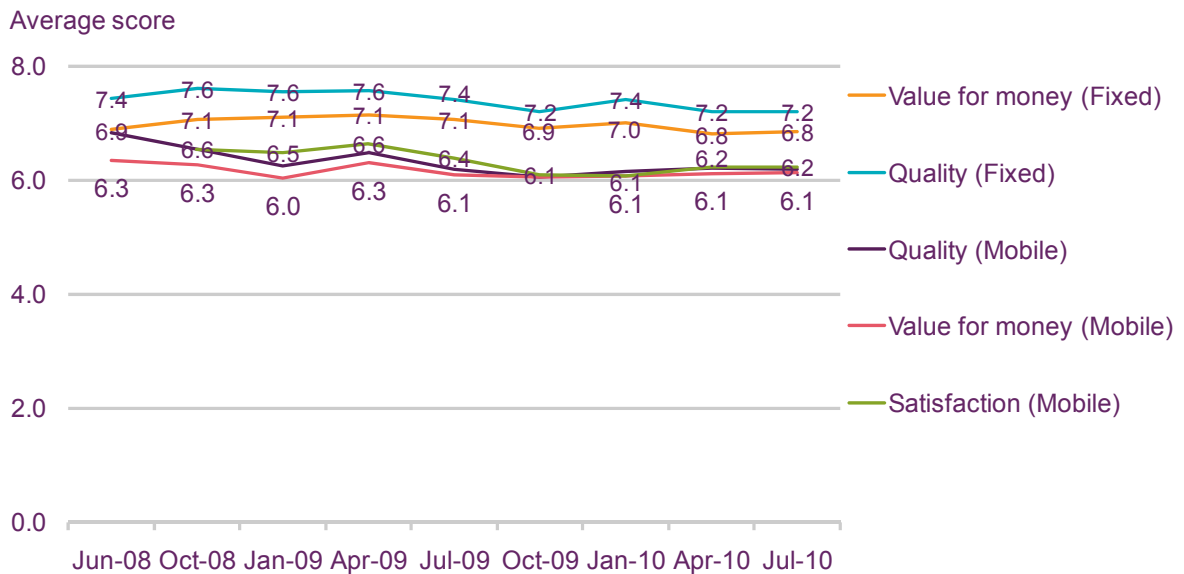
⁷³ Eptiro research in June 2009 found that the average UK mobile broadband speed was just under 1Mbit/s (<http://www.epitiro.com/news/epitiro-publishes-uk-mobile-broadband-research.html>); Ofcom research into fixed-line broadband found that average speeds were 4.1Mbit/s in April 2009 and 4.9Mbit/s in May 2010 (<http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/bbspeeds2010/bbspeeds2010.pdf>). Ofcom has commissioned research into mobile broadband performance and expects to publish findings in early 2011.

⁷⁴ YouGov Dongle Tracker Report, Wave 5. Using a scale of 1 to 10 where 1 is very poor and 10 is excellent 20% and 9% respectively rated their experience at between 1 to 3.

Operators have responded to increasingly levels of dissatisfaction by:

- Managing consumer expectations by focusing more on mobile broadband as a complement to fixed broadband.
- Providing more information on coverage and average download speeds. The majority of operators now offer a full refund within a set time period if the service fails to meet a customer's expectations.
- Increased coverage – by investing more heavily in network upgrades to the higher-speed HSPA standard and by sharing network services (T-Mobile/Orange and 3UK are in partnership, as are O2 and Vodafone). 3UK claims that by October 2010 it was providing HSPA coverage to 98.5% of the population.
- Using WiFi as a means to 'offload' data and ease capacity on the mobile networks. Many handsets are WiFi-enabled, and operators offer connectivity to public and private WiFi hot spots. Currently, O2 is in partnership with The Cloud and BT Openzone; Orange and Vodafone are in partnership with BT Openzone, and T-Mobile offers mobile users access to its own-branded WiFi hot-spots. Orange's UMA service and the Vodafone Sure Signal product allow users to create WiFi hot-spots (connected to a fixed broadband connection) for their mobile devices within their own homes.

Figure 5.17 Mobile broadband customer indicators



Source: YouGov

Base: All mobile broadband respondents who rated their mobile broadband operator and all respondents that had a fixed broadband provider.

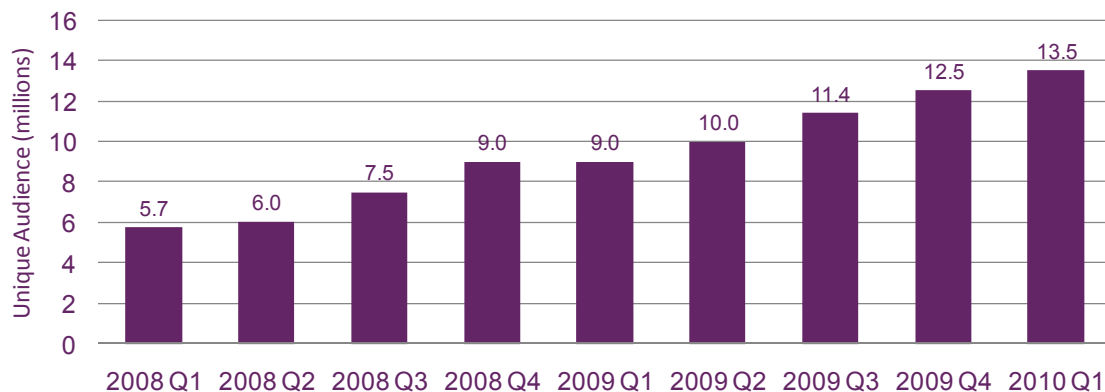
Q. Using a scale of 1 to 10 where 1 is very poor and 10 is excellent, how would you rate internet access from your provider?

5.1.6 Smartphones and the growth of the 'pocket internet'

Use of mobile internet has doubled in the past two years

In the two years to March 2010, the number of people in the UK accessing the internet on their mobile more than doubled, with data from Nielsen finding that around 13.5 million adults, or around 28% of UK adults with a mobile phone, reported that they visited at least one site on their mobile in March 2010 (Figure 5.18).⁷⁵

Figure 5.18 Number of people in the UK using the internet on mobile phones



Source: The Nielsen Company

Note: The figure reflects the number of people (aged 15+) who declare having visited any site on the internet on their mobile phone in the past 30 days

Take-up of smartphones mirrors the take-up of mobile internet

The large majority of mobile handsets in use are capable of providing internet access. MobileSQUARED estimate that 91% of handsets in use in mid-2010 were categorised either as 'smartphones' (phones that use an advanced operating system that facilitates the development and installation of third party applications which can be downloaded via the internet) or 'feature phones' (phones which are less advanced and support a simpler range of applications). Just 9% of handsets in use were categorised as 'legacy phones'; incapable of accessing the internet.⁷⁶

The take-up in the use of the internet on mobile phones has mirrored the increase in take-up of smartphones⁷⁷. Research from comScore Inc. finds that in May 2010, 26.5% of UK mobile phone users claimed to have a smartphone⁷⁸, more than double the number of two years' before. Growth has been particularly strong over the past year, growing by 81% from 7.2 million users in May 2009 to 12.8 million in May 2010 (Figure 5.19).

⁷⁵ The Nielsen data measures unique UK individuals who access the internet from a mobile phone. Data collected from mobile network operators by the GSMA/ComScore found that 16 million mobile connections accessed the internet in December 2009 (*Mobile Media Metrics* - GSMA / ComScore, 2010). The difference between the consumer research and operator data is likely to be primarily due to individuals using more than one mobile phone connection (e.g. multiple handsets/SIM cards) to access the internet. A second factor may be that some people access the internet on mobile phones without knowing it, or without visiting what they consider an internet site – for example by viewing maps via a mobile application.

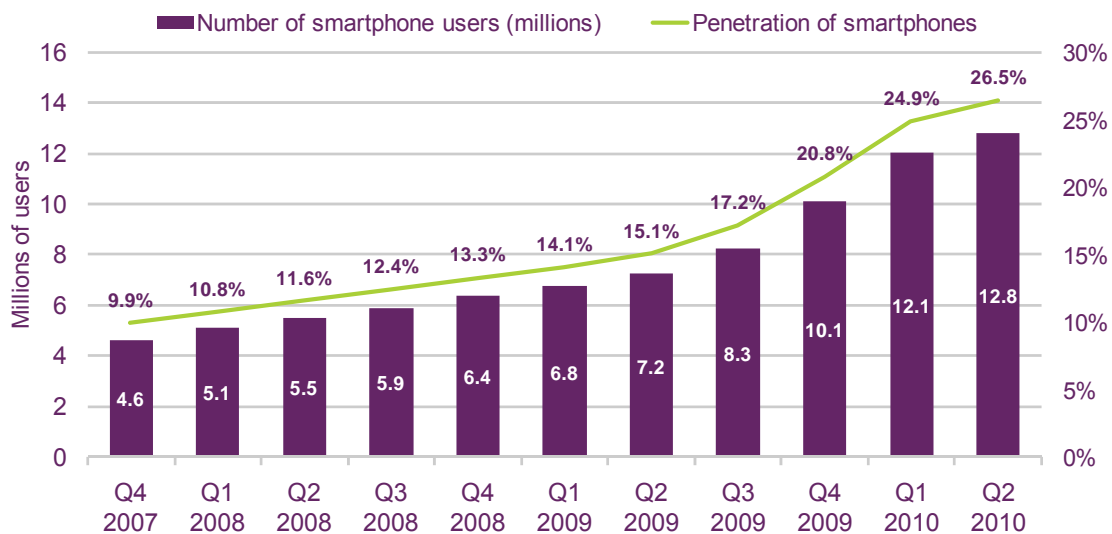
⁷⁶ www.mobilesquared.co.uk

⁷⁷ Although there is no generally agreed definition of a smartphone, the use of an advanced operating system that facilitates the development and installation of third party applications is commonly accepted as differentiating smartphones from 'feature' phones. In most cases, smartphones have other characteristics such as a large colour screen, a touchscreen or full QWERTY keyboard, access to fast internet through WiFi or 3G connection, or large memory storage.

⁷⁸ ComScore: MobiLens, June 2010

The number of mobile users with smartphones designed for internet access looks set to increase. In June 2010, nearly three-quarters (73.5%) of handsets sold with post-pay mobile contracts were smartphones⁷⁹. The arrival of smartphones based on Android (the open-source mobile operating system developed by Google) has extended choice, and relatively new players in the UK handset business, such as ZTE, Acer and Huawei, are now announcing targets to win significant parts of UK smartphone market share. Several of them, under their own brands or under the operators' brand names, aim to offer low-cost smartphones, with some models priced at under £100⁸⁰. Meanwhile, established smartphone manufacturers have enhanced their offerings, with Apple launching the iPhone 3GS in June 2009 and iPhone 4 in June 2010 and Research in Motion increasingly marketing its Blackberry-branded smartphones to the consumer segment.

Figure 5.19 Number of smartphone users and penetration of smartphones in the UK



Source: comScore, Mobilens, December 2007 - May 2010

⁷⁹ GfK 26 July 2010, Android Phones go from Strength to Strength in UK Contract Market http://www.gfkr.com/news_events/market_news/single_sites/006252/index.en.html

⁸⁰ Mobile Today, ZTE to grab share for top three spot, <http://www.mobiletoday.co.uk/News/news.aspx?id=66008&terms=android>

Open-source mobile operating systems

A mobile operating system (mobile OS, also called mobile platform) is the software that controls a mobile device – similar in principle to an operating system such as Windows or Linux that controls a desktop computer or laptop. The rise of smartphones has triggered intense competition in the area of mobile OS. Several large technology players are attempting to capture market share, but their approaches vary.

Some mobile operating platforms are closed-source and proprietary, like iOS, used on Apple's iPhones, or RIM OS, used on Blackberries. Ownership of the mobile OS allows the smartphone manufacturer to retain greater control over the end-user experience. A proprietary mobile OS may be used as a differentiating factor and may not be allowed to run on other devices, or may be licensed to a handset maker subject to a commercial agreement. Third-party developers can write software that runs on it using the application programming interface (API) and software development kit (SDK) provided by the mobile OS owner.

Other mobile platforms, such as Symbian or Google-backed Android, are open-source, which means that any handset manufacturer can install the OS on their devices and any third-party software developer can write applications for them.

In November 2007, Google formed a Linux-based open-source alliance to make inroads into the mobile platform market. Google's approach was to make open-source mobile OS Android simple to use for both end-users and application developers. Google's Android was made available to all handset makers, free of charge, placing few restrictions on its use.

As a result, now smartphone manufacturers can avoid spending time and effort creating their own OS by using Android and by just modifying it slightly for each handset. Google's strategy is similar to the strategy Microsoft used in the past in making the Windows operating system available for any computer hardware. The difference is that Google offers Android free of charge and encourages the development of third-party applications. Android has been embraced by some large handset manufacturers such as Samsung and Sony Ericsson, but also by smaller manufacturers such as HTC, Acer and ZTE.

With wide support among handset manufacturers, new Android phones are likely to be launched frequently. And, just as for the Apple iPhone, there is a vibrant and enthusiastic software developer community, committed to developing new applications for Android.

Android has made considerable progress over the past 12 months; the worldwide market share of Android-based smartphones rose from 2.8% in Q2 2009 to 17.1% in Q2 2010⁸¹. Due to successful launches of several Android-based smartphone models in the first half of 2010 Android's share of the UK mobile contract market has grown from 3% in Q1 2010 to reach 13.2% in Q2 2010.⁸²

More than three-quarters of smartphone users access the internet on their phones

Recent research by Ipsos finds that 56% of smartphone users claimed to use the mobile internet frequently, and only 22% said that they did not use it at all. This compares to half of feature-phone users⁸³ who claimed never use the mobile internet at all (Figure 5.20).

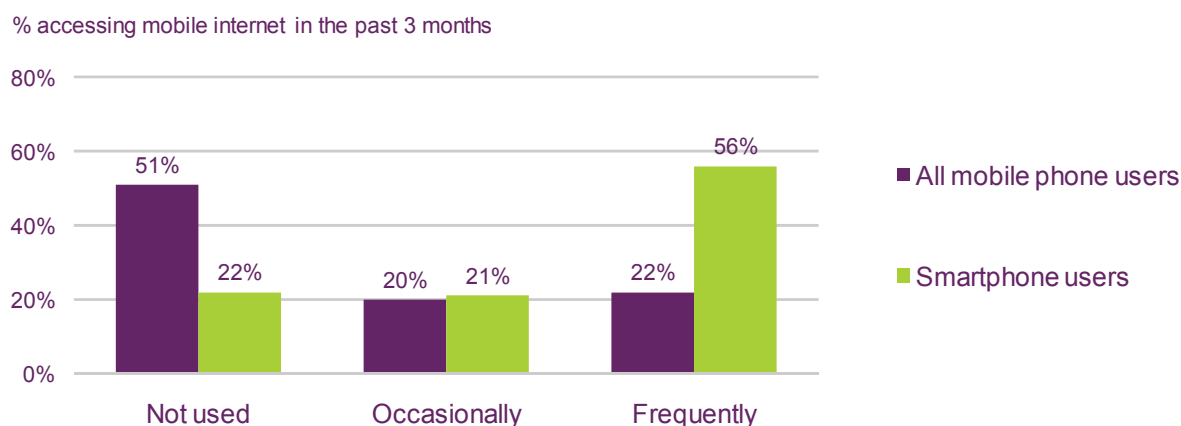
⁸¹ <http://www.bbc.co.uk/news/technology-10839034>

⁸² GfK, 26 July 2010, Android Phones go from Strength to Strength in UK Contract Market http://www.gfkr.com/news_events/market_news/single_sites/006252/index.en.html

⁸³ Feature phones are less advanced than smartphones and support a simpler range of applications, however, they are still capable of accessing the internet.

Separately, research from Essential Research found that 38% of all smartphone users claim to use the mobile internet every day, compared to 10% of all mobile users.⁸⁴.

Figure 5.20 UK phone users accessing mobile internet, by handset type



Source: IPSOS MediaCT, based on an online survey carried out in November 2009 among a representative sample of 500 general mobile consumers aged 16-50

iPhone and Android users are heaviest users of mobile internet

The most popular smartphone in the UK is Apple's iPhone, which was launched in 2007 and has sold over four million in the UK. Designed specifically for ease of internet access, and with more than 100,000 applications (or 'apps') available, the iPhone has transformed the way in which consumers use data services on mobile handsets. iPhone users typically access the mobile internet more frequently and more intensively than most other smartphone users, with 87% of iPhone users declaring that they access some form of mobile internet every day⁸⁵. Although the iPhone accounts for a relatively small percentage of all mobile handsets, iPhone users account for 24% of all daily mobile internet users⁸⁶. As a result, iPhone users generate a substantial share of mobile internet traffic. Figures collected by mobile advertising company Admob suggest that Apple devices generated 59% of all mobile internet page requests in May 2010 (see Figure 5.21).

Adopters of Android-based smartphones are similarly frequent users of mobile internet services. Despite accounting for just 6.7% of all handsets sold in the UK in May 2010, the share of requests generated by Android-based devices was already 26%, according to Admob. The overall share of requests generated by iPhone handsets has fallen in recent months, reflecting the rise in volumes of mobile internet traffic generated by Android-based devices.

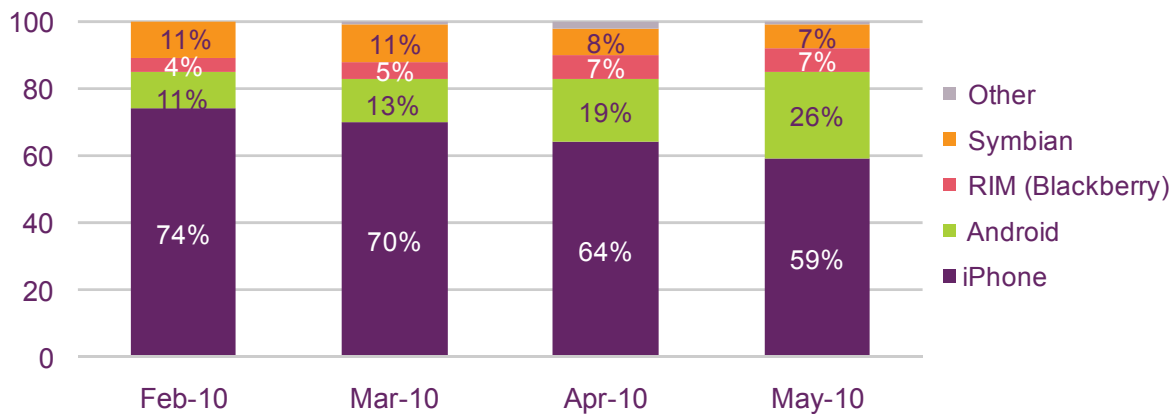
⁸⁴ Essential Research, Brandheld, March 2010 (page 9 and 17). Brandheld report is based on data collected in the survey of 2018 UK adults aged 16+, between June and December 2009.

⁸⁵ Essential Research, Brandheld, 2010 (page 9 and 17)

⁸⁶ In the Essential Research survey sample, 3% of respondents claimed to own an iPhone, and this 3% accounted for 24% of all mobile internet users. However, as other smartphone models have been launched in the first half of 2010, including Android-based handsets, iPhone 4, and others, the market may have moved on. For example, according to Ipsos MediaCT, in January 2010 iPhones accounted for 7% of all mobile phones, but this number may have risen. (Ipsos, *Moving Mobile Internet into the Mainstream*, 24 February 2010

http://ipsosmorigrads.com/DownloadPublication/1339_MediaCT_thoughtpiece_Moving_mobile_internet_into_the_mainstream_Feb10_web.pdf)

Figure 5.21 Mobile internet traffic volumes: share of requests, by mobile operating system

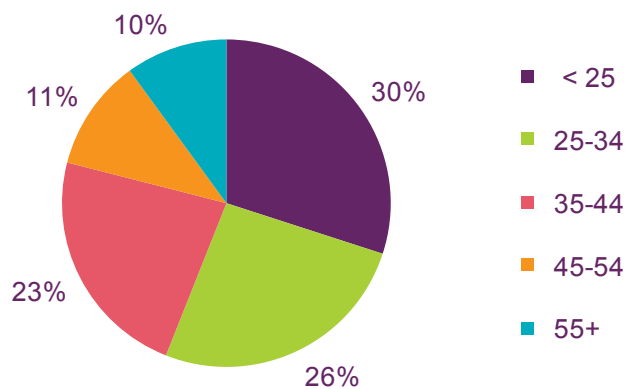


Source: Admob, May 2010, <http://metrics.admob.com/2010/06/may-2010-country-data/>

Young people more likely to use the mobile internet – but not necessarily on smartphones

Younger people are much more likely than older people to access the internet on their mobile phones. Research from MobileSQUARED (Figure 5.22) finds that 30% of mobile internet users are under 25, and just 10% are over 55. However, the correlation between smartphone ownership and age is less straightforward (Figure 5.23). Although 15-24 year-olds are most likely to use the mobile internet, they are also more likely to be using a feature-phone rather than a smartphone; iPhones account for only 7% of handsets used by 15-24 year olds, compared to 20% among 25-45 year-olds. This is likely to be related to affordability. However, those young people who do have a smartphone tend to use their handsets more intensively. According to GfK, 16-24 year olds who own a smartphone use 10.03 apps daily (mean score) which is double the national average of 4.76.⁸⁷

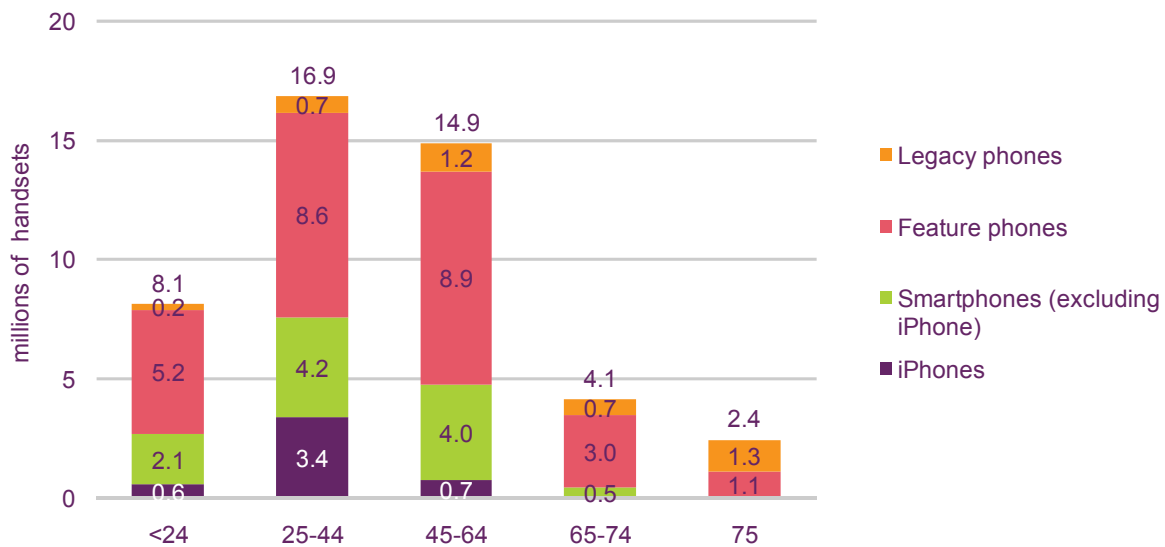
Figure 5.22 The majority of mobile internet users are under 35



Source: MobileSQUARED (2010)

⁸⁷ UK mobile app culture shows no sign of abating, 25 June 2010, GfK http://www.gfknop.com/imperia/md/content/gfk_nop/newsandpressinformation/uk_mobile_app_culture_release.pdf

Figure 5.23 Type of handset used, by age



Source: MobileSQUARED (2010)

5.1.7 Standard mobile contract lengths just got longer...

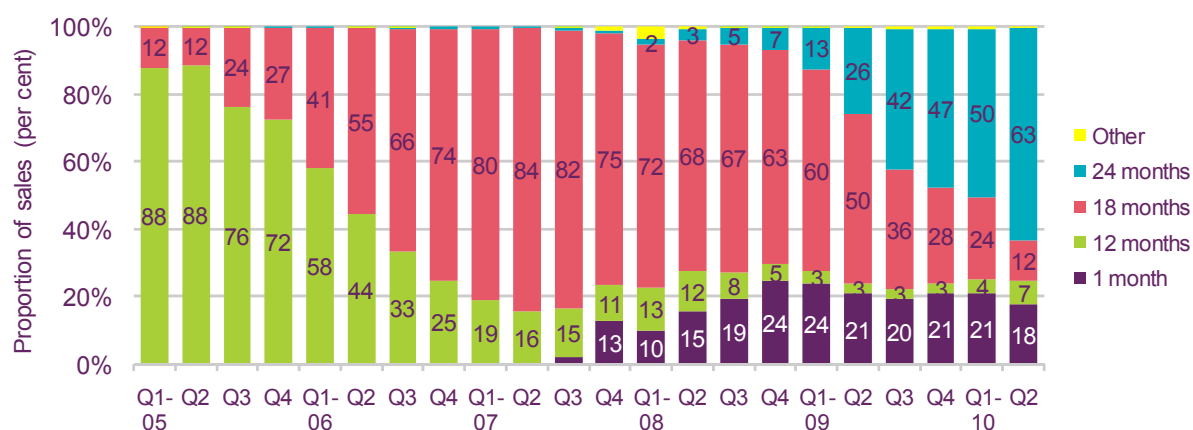
Two-year contracts with handsets become standard

Before 2005, most pay-monthly mobile connections were sold as 12-month contracts; in 2006 there was a shift towards 18-month contracts; and in 2009-10 there has been a shift towards offering 24-month contracts as standard (Figure 5.24). In Q2 2010 around 80% of all new pay-monthly contracts sold with handsets were for two years, this compares to less than one in three the year before, and less than one in thirty in Q2 2007. Most operators, by July 2010, were marketing 24-month contracts as their standard offering, with 18-month plans available at an additional cost, usually £5 per month. The savings which consumers make on longer contracts are in part related to the greater commitment they make to mobile operators, but are also driven by the cost of the mobile handset – with mobile operators able to charge a lower monthly fee as they recoup the cost of a subsidised handset over a longer period.

There is a suggestion that 12-month contracts are again becoming popular, with these accounting for 7% of new contracts in Q2 2010 compared to just 4% the previous quarter. It is uncertain whether this trend will continue, but there is increasing take-up of 12-month SIM-only contracts (which accounted for 15% of all SIM-only sales in March 2010, compared to less than 3% in March 2009, according to GfK⁸⁸), and some operators are offering alternative shorter contracts to those consumers who are wary of a 24-month lock-in. For example, Tesco Mobile launched the first 12-month contract on the iPhone 4 in June 2010, and in July announced that all Tesco Mobile contract tariffs would be available on a 12-month basis.

⁸⁸ GfK Retail and Technology UK Ltd, SIM Only share of new Mobile Connections, Mar09-Mar10.

Figure 5.24 Contract lengths for new mobile connections



Source: GfK Retail and Technology UK Ltd, *Contract Length Sales of new Mobile Connections, Q105-Q210*.

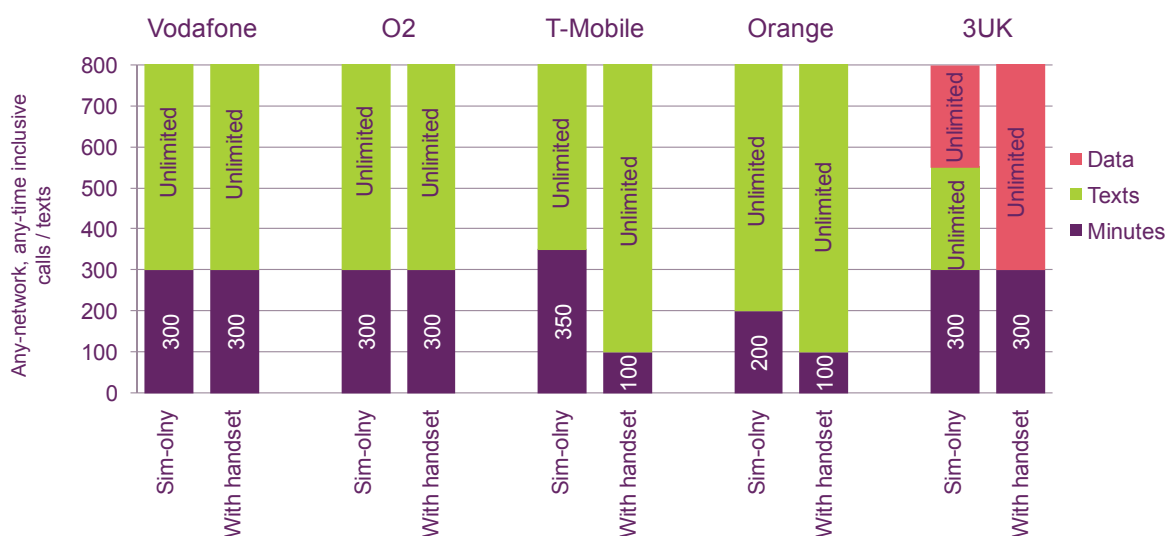
Notes: England, Scotland and Wales only (excludes Northern Ireland); based on GfK's coverage of 94% of the consumer market; based on new post-pay connections; excludes contract renewals; only represents sales through consumer channels (i.e. most business connections are excluded)

Low cost SIM-only one-month contracts the most popular alternative choice

For consumers not looking to replace their handset, a SIM-only pay-monthly contract often offers the best value, and, having launched in 2007, these contracts now account for more than one in five new pay-monthly connections. Figure 5.25 indicates that all UK operators offer £15-a-month SIM-only tariffs which include unlimited text messages and at least 200 minutes a month. Interestingly, the allowances within these SIM-only tariffs are broadly comparable to those available in a 24-month contract that includes a basic handset.

Growth of SIM-only sales are primarily being driven by consumers who are unwilling to commit to long contracts (many of these were previously pay-as-you go users) but who are attracted to the inclusive minutes, texts and data allowances. In addition, SIM-only contracts are attractive to consumers with high-end handsets who are either out of contract (because their initial contract has expired) or have purchased their handset upfront. They may prefer to keep their current handset and purchase a bundle of services on post-pay, or are wary of signing up to a 24-month subscription.

Figure 5.25 Inclusive any-network, any-time allowances in £15 SIM-only 30-day contracts, and £15 handset-inclusive 24-month contracts, July 2010



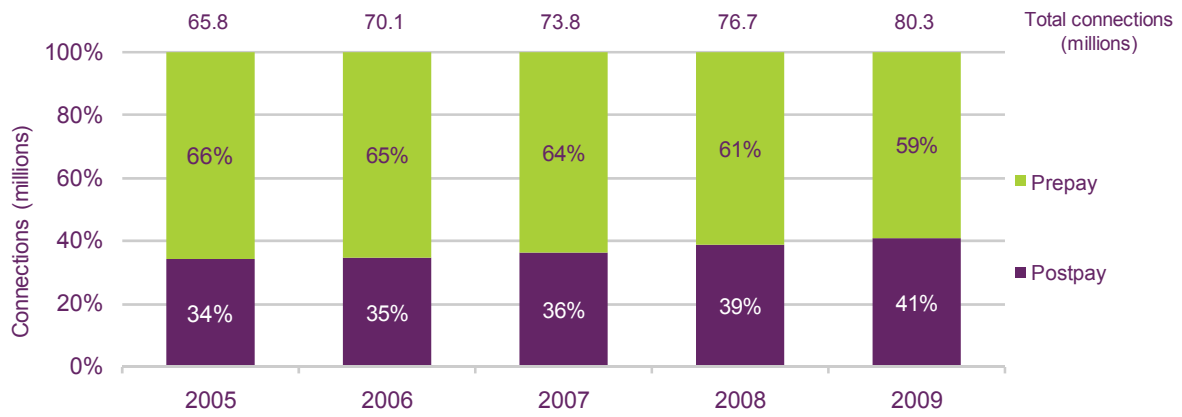
Source: Ofcom/tariff data from Pure Pricing UK Mobile Pricing Factbook/Operator websites
 Notes: Data based on tariffs available in July 2010; standard tariff with basic handset selected which offers highest number of anytime, any-network minutes and texts for £15 where available on a 24-month contract ; SIM-only one-month tariff selected with highest number of anytime minutes at £15; this table is indicative of inclusive any-time, any-network minutes only (and texts when they are additional to the maximum number of minutes) and should not be used to compare overall pricing as many additional factors are excluded, such as handset included, on-net calls, off-net calls, off-peak calls, data bundles and metered pricing

The share of post-pay mobile connections continues to increase

An ongoing trend in the UK market is the gradual migration of consumers from pre-pay (pay-as-you-go) to post-pay (pay monthly) packages. Figure 5.26 indicates that in 2009 41% of mobile connections were post-pay. During the year the number of post-pay subscriptions grew by over 3.1 million, significantly faster than pre-pay subscriptions, which increased by 455,000. This increase is likely to have been driven by the two trends discussed above:

- The increasing take-up of smartphones and the ability for consumers to pay for these phones over the course of a long (18-month or 24-month) contract.
- The increasing availability of monthly contracts, offering a sizeable number of minutes and/or text messages within contracts of £15 or less a month, and in particular, SIM-only contracts.

Figure 5.26 Market share of post-pay and pre-pay subscriptions



Source: End-year data provided to provided to Ofcom by operators

5.2 The telecoms industry

5.2.1 Introduction

In this section of the report we examine the recent trends in the telecommunications market from an industry and operator viewpoint. This section is structured as follows:

- Section 5.2.2 provides an overview of the industry in its entirety, considering recent developments in revenue growth, and availability and take-up of telecom services.
- Section 5.2.3 covers the latest developments in the roll-out of local loop unbundling (LLU) and the take-up of LLU services.
- Section 5.2.4 looks at the industry from the perspective of voice services, across both fixed and mobile networks. This section covers all methods of voice telephony including voice over internet protocol (VoIP).
- Section 5.2.5 looks at the industry from the perspective of data services, across both fixed and mobile networks. Internet access is the most common data service, particularly over fixed-broadband networks, and increasingly, over mobile networks. Text messaging is regarded as a data service within this section, although it is primarily used as a substitute for voice calls.

Structuring our market data by voice and data is a change from previous *Communications Market* reports in which we grouped our analysis by fixed-line voice, broadband and mobile. We believe that the wide availability and take-up of voice and data services across fixed and mobile networks means that this structure makes for easier comparison of voice and data services across all platforms. It also allows us to better explore the contrasting trends of voice and data services, where we see voice use flattening off and data use continuing to grow rapidly.

The key findings in this section of the report are:

- **Total retail revenue falls for the first time.** Operator-reported retail telecoms revenue declined by 2.6% to £30.4bn in nominal terms in 2009. This was driven by the first year-on-year fall in mobile voice revenues, combined with a small fall in fixed-line broadband revenues and an acceleration in the decline in fixed-voice revenues.
- **Fixed-line connections continue to fall.** The number of fixed lines fell by 1.1 million to 32.1 million lines during 2009 ; mobile connections continued to rise, reaching over 80 million driven mainly by growth in mobile broadband connections
- **Mobile increases proportion of voice calls; but share of voice revenue falls.** Forty six per cent of voice minutes originated on mobile phones in 2009, up from 41.8% in 2008. However, mobile's share of voice revenues fell slightly from 54.9% in 2008 to 54.3% in 2009
- **BT's share of fixed-line connections fell to under 60% for the first time in 2009.** The number of lines provided by BT fell from 20.6 million to 18.2 million lines during 2009. This is 5.2 percentage points lower than in the previous year and 23.3 percentage points lower than at the end of 2004.

- **Revenues from fixed internet and broadband services declined by 10%.** Despite an increase in the penetration of broadband among households to 73%, revenues from these services fell by £0.1bn to £3.3bn during 2009.
- **Adoption of 3G mobiles accelerates.** Nearly one in three mobile connections were using 3G at the end of 2009, as total 3G connections increased by 39% during the year to 25.5 million.

5.2.2 Industry overview

According to the Office of National Statistics (ONS) the UK telecommunications industry generated £63.9bn in turnover during 2009, an increase of 3% on 2008 (Figure 5.27). This figure and the trend in growth shown by ONS data is significantly different to the figures reported by the telecom operators to Ofcom; this has led us to estimate total wholesale and retail telecoms revenue at £40.6bn, 3% lower than in 2008.

This discrepancy is explained by the fact that ONS figures include turnover from activities in markets not regulated by Ofcom, such as revenue from the transmission of radio and television programmes, and network installation and maintenance costs.

Figure 5.27 UK telecoms industry revenue overview



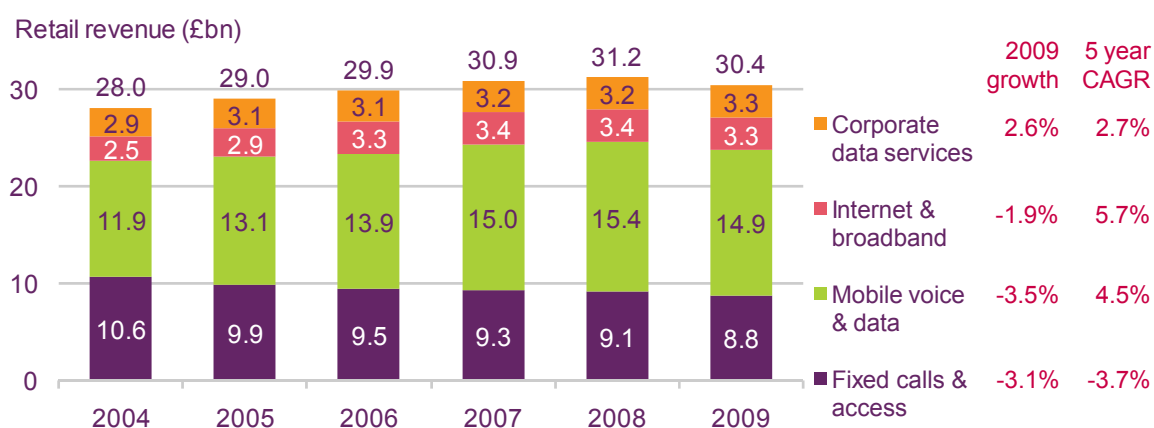
Source: Ofcom / ONS / operators

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

Overall service revenues fall for the first time

Ofcom's own figures from operators show that overall retail service revenues from telecoms operators fell during 2009, for the first time since market data began to be collected by Oftel in 1992. Figure 5.28 shows that total operator-reported revenues fell by 2.6% during 2009, to £30.4bn. The main cause of this fall was the first-ever decline in mobile revenue, which was down 3.5%. Fixed-line internet and broadband services fell by 1.9%, while the long-term decline in revenue from fixed-line voice services accelerated in 2009, decreasing by 3.1% compared to 2% in 2008 and 1% in 2007.

Figure 5.28 UK telecoms industry retail revenue



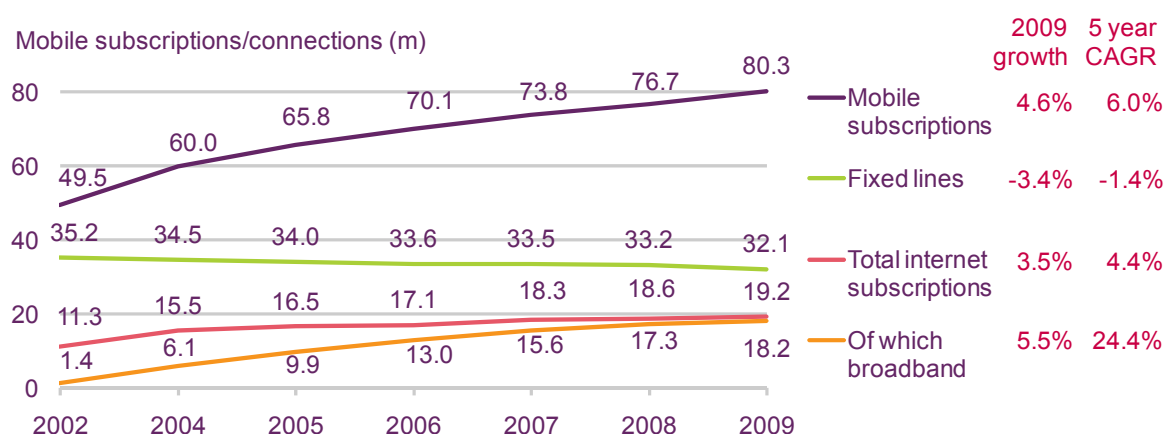
Source: Ofcom / operators / IDC

Fixed-line decline accelerates as mobile connections exceed 80 million

Fixed-line telephony continued to decline in 2009, falling by 3.4% (1.1 million) to 32.1 million lines (Figure 5.29), the fastest rate of decline since connections began to decrease in 2002. The rate of decline in lines used by business was nearly twice as high (-5%) as that in the residential fixed telephony market (-2.7%), suggesting that business users are more likely to switch away from fixed voice to other methods of communication, including VoIP and mobile.

The number of mobile connections continued to rise in 2009, increasing by nearly 5% to 80.3 million, partly driven by the increasing take-up of mobile broadband connections using a USB dongle or data card, which grew by 1.6 million connections over the year. Growth in the total number of residential and SME broadband connections slowed during 2009 to 5.5%, indicative of a mature market with a high level of penetration (65%).

Figure 5.29 Total telecoms connections



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; broadband excludes corporate connection; fixed-line connections includes PSTN lines and ISDN channels.

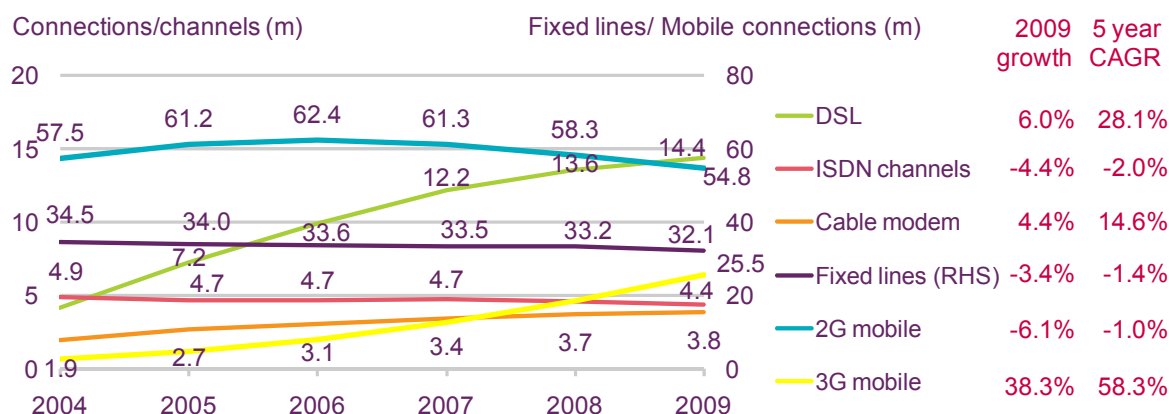
3G and DSL connections on the rise

The number of digital subscriber-line (DSL) connections continued to grow in 2009, rising by 6% to 14.4 million, reflecting the continued growth in broadband penetration (Figure 5.30). In contrast, the decline in ISDN channels began to accelerate in 2009 (-4.4%) compared to

2008 (-2.5%), suggesting that an increasing number of businesses are switching their voice calls to cheaper alternatives such as VoIP over broadband DSL and mobile telephony.

The number of mobile connections able to access third-generation mobile technology (3G) increased by 7.1 million during 2009 to 25.5 million; double the total number at the end of 2007. 2G connections fell by just 6.1% or 3.5 million connections during 2009, to 54.8 million, as the overall number of mobile connections grew by 4.6% to 80.3 million.

Figure 5.30 Fixed and mobile connections, by technology



Source: Ofcom / operators

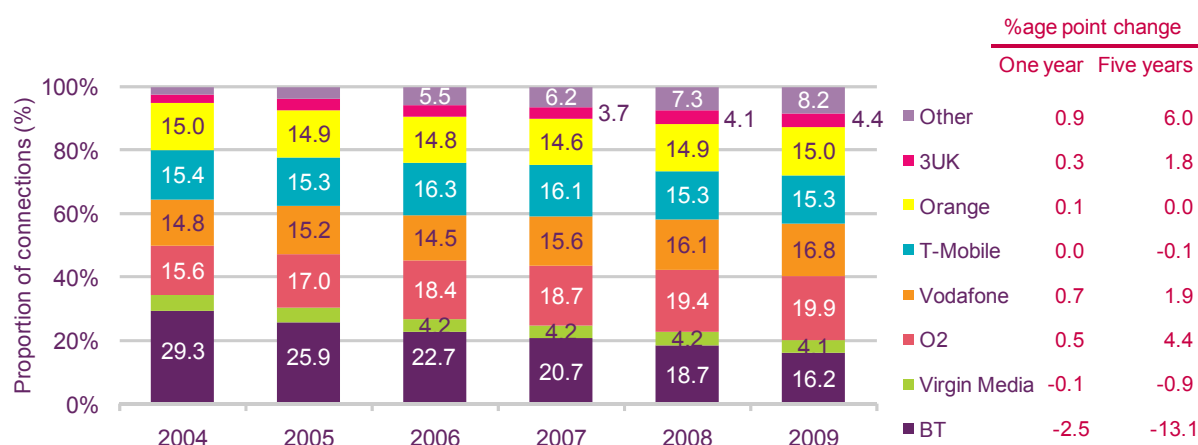
Note: Includes estimates where Ofcom does not receive data from operators; broadband excludes corporate connections

Mobile continues to take greater share of connections

Mobile operators made up over 71% of all telecoms connections at the end of 2009 according to Figure 5.31; an eight percentage point increase over the five-year period. This increase is likely to continue as the number of mobile-connected devices - particularly focused on data-centric services - continues to expand. Vodafone reported the largest increase in share among the mobile operators, increasing by 0.7% due to a strong increase in post-pay connections in the second half of 2009.

The decline in BT's share accelerated slightly in 2009 falling by 2.5 percentage points to 16.2%; this compares to a 2pp decline in 2008. Its share of total fixed connections stood at 56.7% at the end of 2009, down 5.2pp, as alternative operators, particularly LLU operators, continued to take market share. Growth in the number of cable connections (+33,000) during 2009 was less than growth in connections overall, resulting in a slight decline (-0.1%) in overall share.

Figure 5.31 Share of total UK fixed and mobile telecoms connections



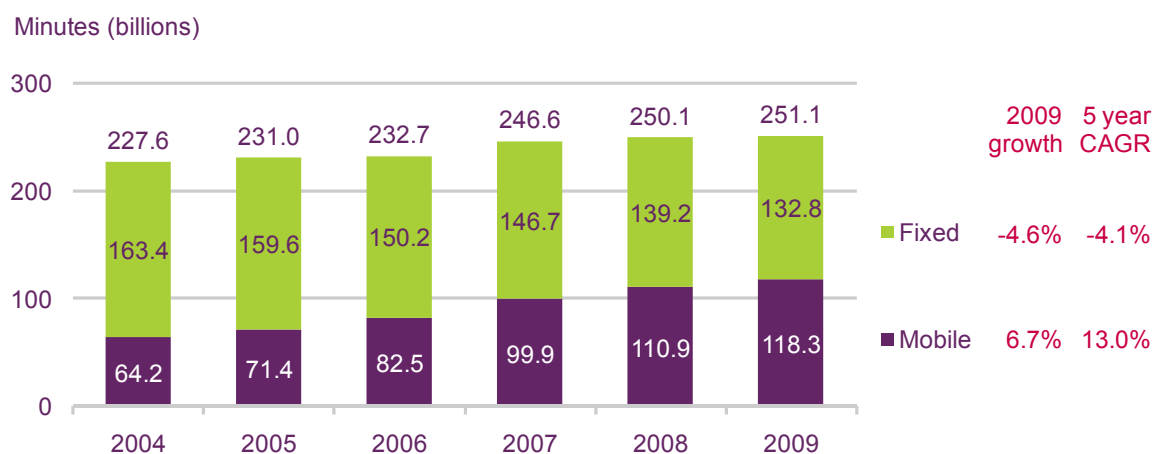
Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; 'Other' includes carrier pre-selection and wholesale line rental in addition to fixed other licensed operators. MVNOs and mobile service provider connections are included within the network operator figures

Mobile drives up overall voice telephony call volumes

Figure 5.32 indicates that since 2004 the growth in mobile voice has more than offset the decline in fixed voice volumes. This trend continued in 2009, although the overall increase in voice volumes was just 0.4%. Mobile voice volumes have increased by an average of 13% annually over the last five years, although the increase slowed to 6.7% in 2009 from a peak of 21% in 2007.

Figure 5.32 Total voice volumes



Source: Ofcom / operators

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

5.2.3 Local loop unbundling

Growth in proportion of unbundled local exchanges slows

During 2009 the proportion of UK premises connected to an unbundled exchange increased by just 0.4% to 84.5%, this compares to increases of 4.0% in 2008 and 13.6% in 2007. The slow-down in growth probably reflects LLU providers' focus on increasing take-up of their

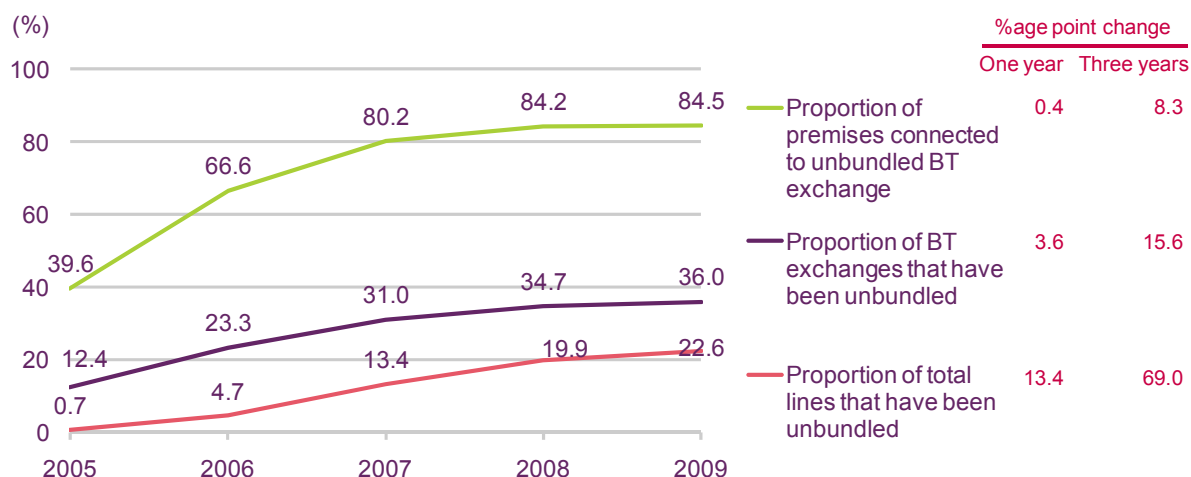
services from existing unbundled exchanges, shown by a 13.4% increase in the proportion of lines taking LLU services in 2009, compared to a 6.5% increase in 2008.

In the early years of LLU, alternative providers concentrated initially on unbundling exchanges that were connected to a large number of premises; unbundling just 36% of BT local exchanges achieved nearly 85% LLU availability (see Figure 5.33). Given the high up-front costs of unbundling an exchange, LLU providers are likely to be less inclined to unbundle the remaining BT exchanges, as these are typically connected to far fewer premises than those which have already been unbundled.

Local loop unbundling (LLU)

LLU enables operators to site their own equipment in the incumbent's local exchange, lease the local loop (the twisted copper pair from the exchange to the customer's premises) and, after connecting the local exchange to their own network, provide either DSL broadband or DSL broadband and fixed voice services. Under partial LLU the unbundling operator and the incumbent share the same line, with the LLU operator providing DSL broadband services and the consumer continuing to be billed for voice services by the incumbent. With full LLU the unbundling operator provides both DSL broadband and voice services and the customer's relationship with the incumbent ceases.

Figure 5.33 Proportion of unbundled exchanges and connected premises



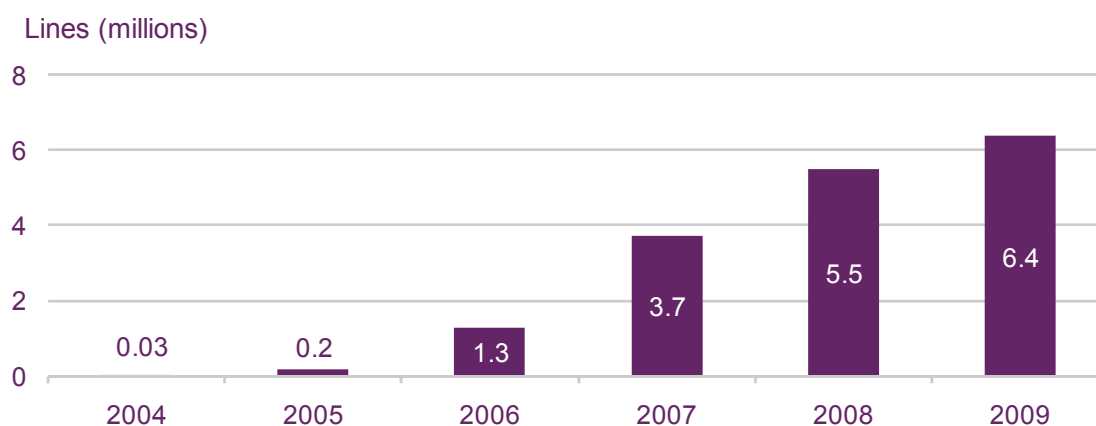
Source: Ofcom / operators

Growth in LLU lines slows to 16% during 2009

There were a total of 6.4 million unbundled lines providing either broadband or fixed voice and broadband services at the end of 2009, an increase of 0.9 million lines on 2008, considerably lower than growth in 2008 (+1.8 million) and 2007 (+2.4 million) Figure 5.34.

In the past, providers using unbundled lines have typically focused on providing unbundled broadband, while relying on the incumbent, BT, to continue supplying fixed voice services. But recently, LLU providers such as Sky (May 09) and O2 (Feb 2010) have begun to offer unbundled voice services as part of their bundled packages; Sky's use of bundled voice packages within its triple-play voice, broadband and TV accounts for a growing proportion of unbundled lines.

Figure 5.34 Fully and partially unbundled lines



Source: Ofcom / operators

5.2.4 Voice services

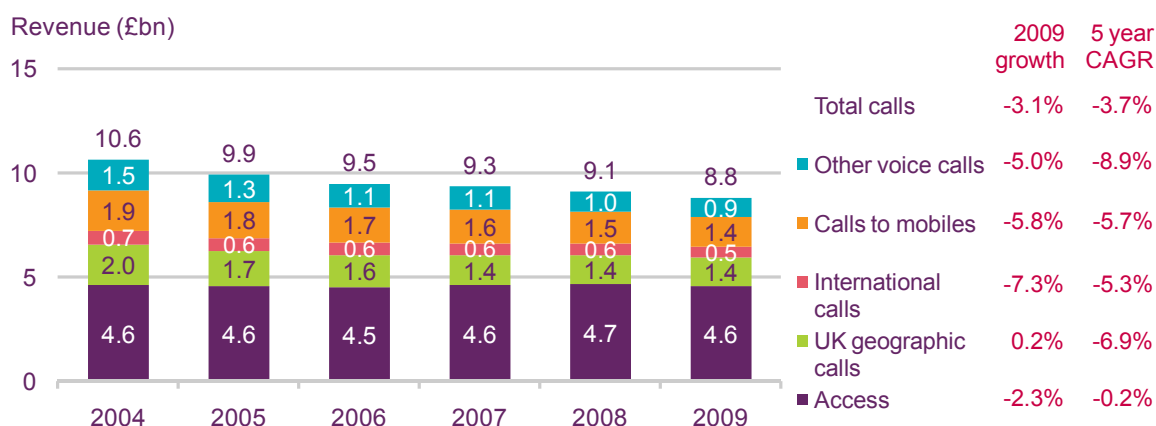
Fixed-line voice revenues

Fixed-line voice revenues fall by £0.3bn during 2009

The decline in fixed line voice revenues accelerated in 2009, falling by 3.1% to £8.8bn (Figure 5.35). This was partly due to a decline in revenue from international calls (-7.3%) as well as a decline in revenues from calls to mobiles (-5.8%) as the volume of fixed-to-mobile calls decreased (-6.3%). Revenue from 'other' voice calls, including calls to special services and premium-rate calls, declined by 5%, while revenues from access fell by 2.3% compared to a 1.2% increase in the previous year, mainly due to the significant fall in the number of fixed-line connections.

The loss of revenue from international calls is likely to be due to the growth of standard fixed-line access tariffs with discounted international call rates, or inclusive international minutes within a standard bundle of minutes. For example, Sky customers purchasing the Sky Unlimited Talk package for £5 a month receive unlimited calls to 20 international destinations and unlimited calls to mobiles in the USA & Canada, while new customers subscribing to TalkTalk's UK Anytime and UK Evening and Weekend phone packages receive unlimited calls to 36 international landline destinations.

Figure 5.35 Fixed voice telecoms revenues



Source: Ofcom / operators

Average access revenue per fixed line continues to rise

Average revenue per fixed line fell marginally during 2009, declining by £0.11 to £23.21. Revenue from access (line rental), however, increased (by 3.2%) as providers raised line rental charges in line with BT's £1 increase in April 2009 (Figure 5.36). At the same time, most providers are including more inclusive minutes within standard line rental tariffs, contributing to a 4.1% decline in average revenue from metered use, as users take advantage of their bundled minutes, although this decline slowed compared to 2008 (-4.4%) and 2007 (-5.9%). (Note that these data are from 2009, and pre-date BT and several other operators changing the hours of off-peak calls (which are inclusive within many tariffs) from 6am to 6pm to 7am to 7pm; we have yet to see whether this will have any impact on revenues.)

Figure 5.36 Average monthly voice revenue per fixed line



Source: Ofcom / operators

Note: Includes spend on non-geographic voice calls

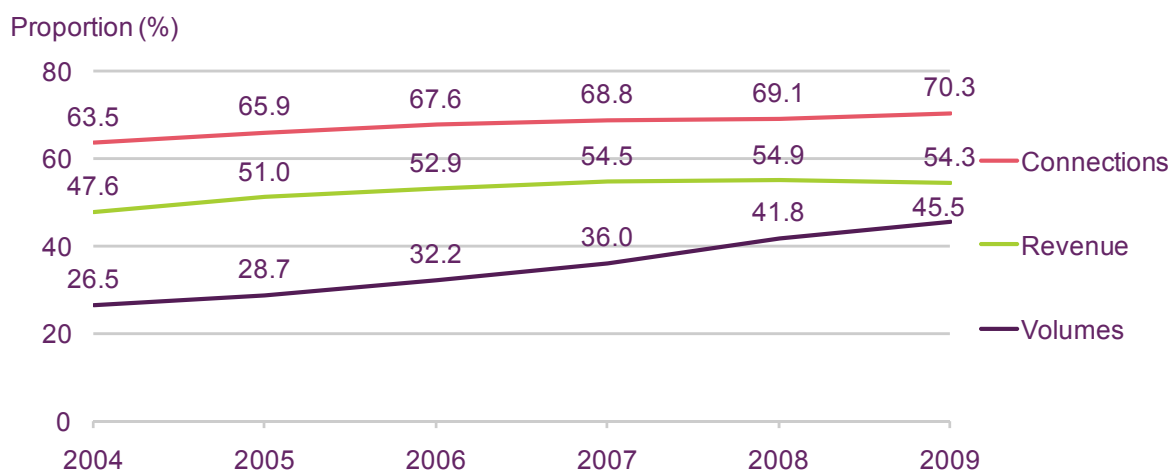
Mobile voice revenues

Mobile voice revenues fail to keep pace with growth in mobile call volumes

Since 2004 an increasing proportion of total voice volumes have originated from mobile devices. Based on current trends, mobile will account for the majority of voice telephony services within the next two years (Figure 5.37). Comparative revenues for mobile voice

(including line rental), however, have not grown at a similar rate and in 2009 mobile voice revenues actually declined as a proportion of total voice revenues, from 54.9% to 54.3%. This trend underlines how revenue per mobile voice minute has fallen, especially during 2009; it should also be noted that this decline is likely to be understated, as bundled tariffs revenues, which are included in this analysis, increasingly include not only voice minutes but also SMS (in some cases unlimited) and mobile data allowances.

Figure 5.37 Mobile telecoms share of voice connections, revenue and volumes



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators. Mobile figures do not include dongles/PC datacard connections

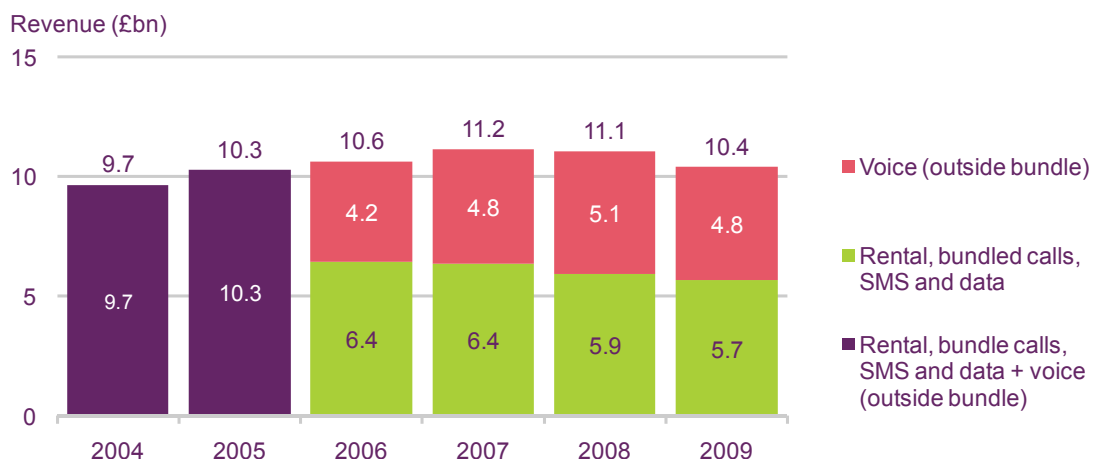
Revenue from voice and line rental falls by 6%

Revenue from line rental, bundled mobile services (i.e. use which is included within the line rental fee) and metered voice (i.e. voice calls that are outside the line rental fee, including pay-as-you-go use) fell overall by £0.7bn in 2009 to £10.4bn, significantly more than the £0.1bn decline in 2008 (Figure 5.38). Since 2006 revenue from line rental (i.e. the monthly fee payable by contract customers, which typically includes a number of voice minutes and/or SMS and/or data, and often also includes payment for some or all of a mobile handset) has been in decline, falling from £6.4bn to £5.7bn in 2009. This decline has largely been driven by falling prices, but the rise in SIM-only contracts is probably also a factor; SIM-only tariffs are typically lower in price, as operators do not have to recoup the value of a subsidised handset over the duration of the contract.

Until 2009 this trend was largely counter-balanced by increased revenues from voice charges outside bundled offerings. In 2009 however, these revenues also began to decline, and fell at a faster rate (-7.4%) than revenue from bundled services (-4.6%). It appears that a combination of lower pricing (whereby more inclusive voice minutes are included for the same priced tariff bundles) in combination with an increasing proportion of mobile users taking pay monthly contracts rather than pay-as-you-go, has resulted in a decline in the number of chargeable minutes that fall outside the allowance.⁸⁹

⁸⁹ According to research conducted by Opinium which surveyed 2,000 UK adults, 55% of mobile phone users on monthly contracts never use up their free minutes
http://www.reghardware.com/2010/07/05/contract_phones_wrong_contractss/

Figure 5.38 Estimated mobile telecom retail revenue from bundles and voice services



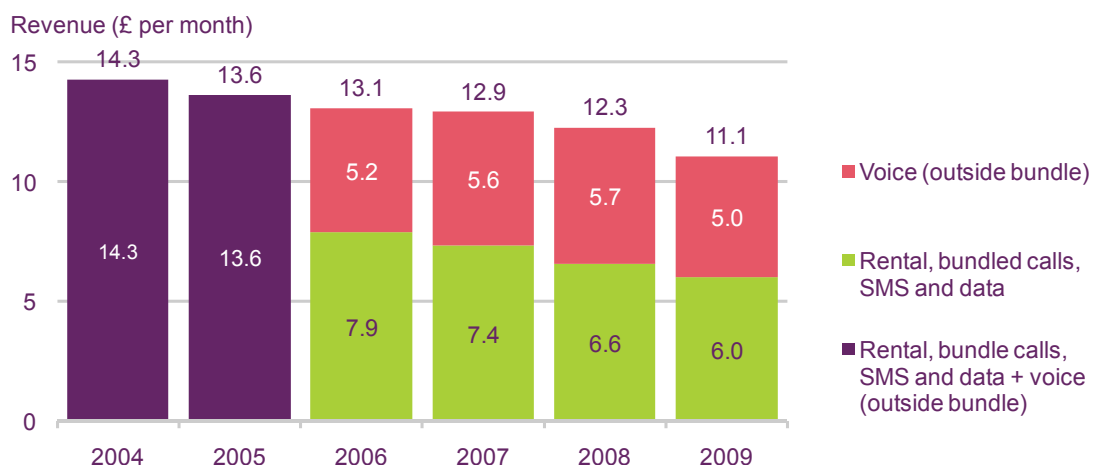
Source: Ofcom, based on data provided by operators

Note: The split between revenue from rental, bundled calls and SMS AND voice revenue (outside bundle) is available only from 2006 onwards.

Average voice revenue per connection fell by 10% in 2009

Average voice and access revenue per mobile connection has fallen steadily since 2004 as a result of falling prices and an increasing number of mobile connections (there are now over 1.3 connections per person in the UK). Since 2004 the average amount of revenue generated by each mobile connection from services other than SMS and data has fallen by 23% to £11.10, and this decline accelerated in 2009, as revenue per connection fell by a further 10% (Figure 5.39).

Figure 5.39 Average monthly retail voice revenue per mobile subscription



Source: Ofcom, based on data provided by operators

Note: The split between revenue from rental, bundled calls and SMS AND voice revenue (outside bundle) is available only from 2006 onwards.

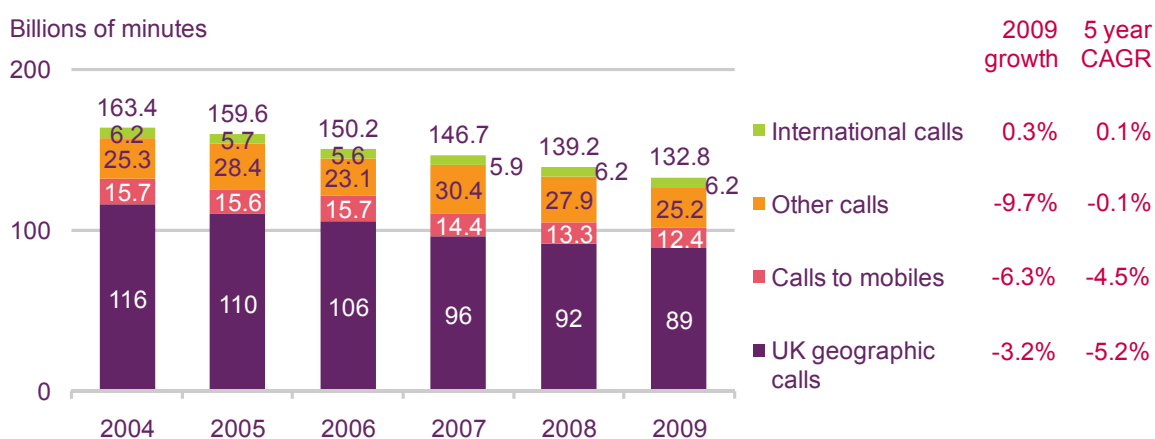
Fixed-line call volumes

Decline in fixed call volumes slows to 4.1%

Fixed call volumes have fallen by nearly 20% over the past five years, from a peak of 164 billion minutes to 133 billion, largely as a result of the decline of calls to UK fixed and mobile numbers (Figure 5.40). The annual rate of decline slowed to 4.1% in 2009, compared to 4.6% in 2008, although it was higher than in 2007 (-2.3%).

The largest fall in fixed-line volumes during 2009 originated from 'other' calls, in which category volumes declined by nearly 10% to 25.2 billion, possibly caused by the decline in calls to directory enquiries and premium rate numbers, as consumers use the internet to access information. The only type of fixed line calls that increased in 2009 were international calls, up by 0.3% to 6.19 billion minutes, a level similar to that reported in 2004.

Figure 5.40 Fixed telecom call volumes

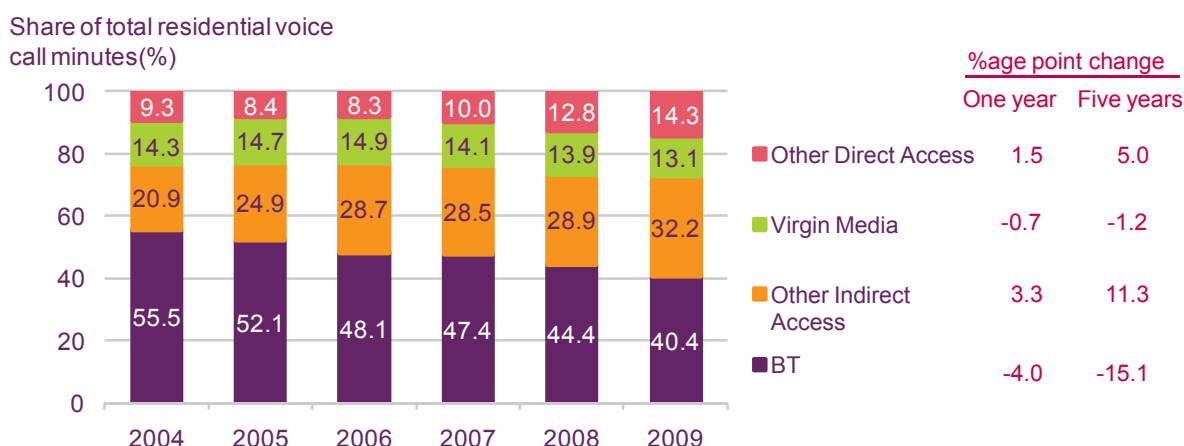


Source: Ofcom / operators

BT's share of fixed call volumes continues to fall

BT's share of total fixed-line call volumes fell by 4.0 percentage points during 2009 to 40.4%, while other direct (+1.5pp) and indirect access providers (+3.3pp) increased their share (Figure 5.41). Growth in the share of call volumes made using indirect access providers other than BT is driven mainly by providers of services via wholesale line rental (WLR) and local loop unbundling (LLU).

Figure 5.41 Share of retail residential voice call volumes

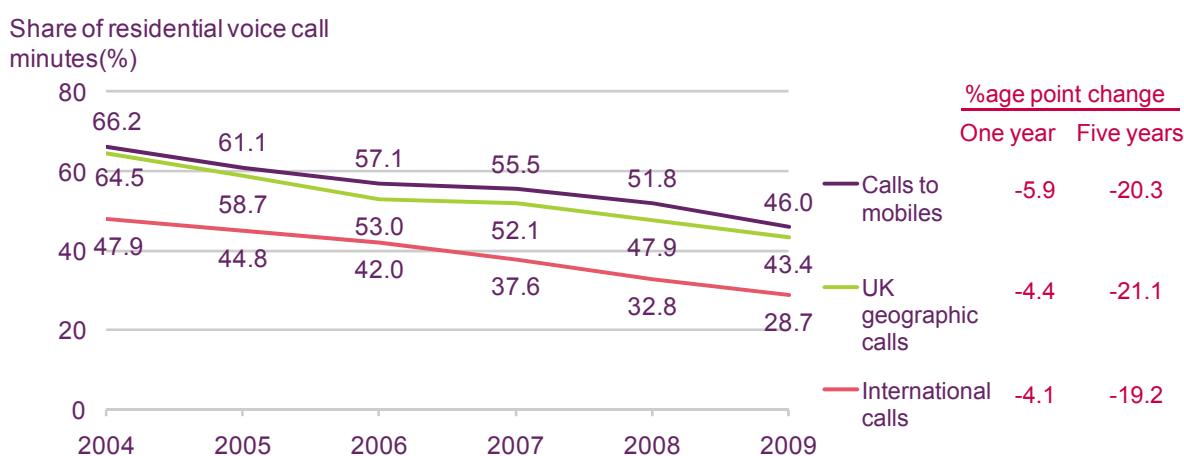


Source: Ofcom/operators
Excludes NTS calls

BT's share of UK and international calls continues to fall

Against other fixed-line providers, BT lost share of international calls (-4.1pp), UK calls (-4.4pp) and in particular calls to mobiles (-5.9pp) during 2009. The incumbent operator now accounts for less than 50% of all three call types (Figure 5.42).

Figure 5.42 BT share of retail fixed-voice call volumes, by type



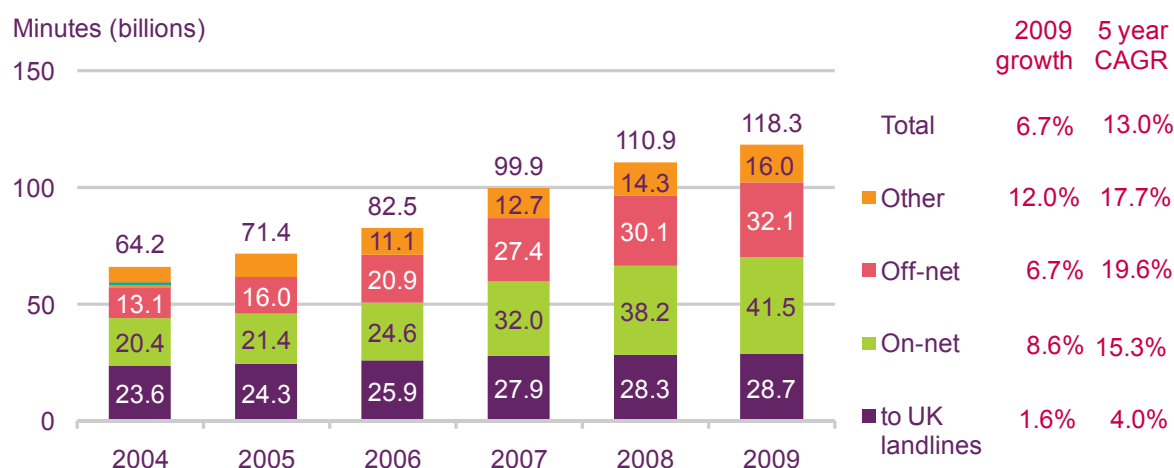
Source: Ofcom / operators

Mobile call volumes

Growth in mobile voice slows

The number of call minutes made from mobiles increased by 6.7% during 2009, down from 11.1% in 2008 and 21% in 2007 (Figure 5.43). Growth in the amount of international call volumes (+11.3%) contributed to 'other' call volumes increasing by 12% during 2009, reflecting the growth of international call-focused MVNOs such as Lebara Mobile and Lycamobile, in addition to lower international pricing and 'bolt-on' international tariffs from mobile network operators. UK mobile-to-mobile calls (off-net and on-net) increased by 7.8% during 2009, with calls to fixed lines increasing by just 1.6%.

Figure 5.43 Mobile telecom call volumes



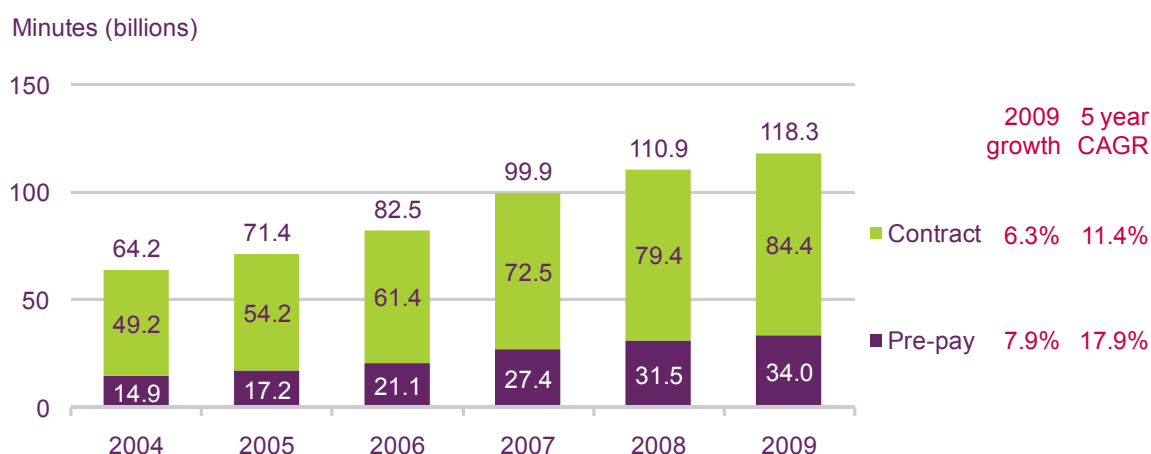
Source: Ofcom / operators

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

Pre-pay call minutes grow at faster rate than contract

Despite pre-pay losing market share in terms of connections (see Figure 5.44), pre-pay voice volumes grew faster than contract (pay-monthly) voice volumes in 2009 (+7.9%) and achieved a higher average annual growth rate (+17.9%) over the five years since 2004. By the end of 2009 pre-pay accounted for 29% of mobile call volumes, compared to 28% in 2008 and 23% in 2004. This is driven by falling prices for pre-pay services prompting higher use (we find that the cost per minute for pre-pay calls has fallen by 19% over the last two years – see Section 5.3.3 in the Telecoms User section). However, it also reflects lower use per contract subscriber over the past two years (-0.4%) compared to pre-pay (+24%), suggesting that recent growth in contract connections comes largely from mobile users with lower call volumes (and perhaps an increasing proportion of younger users, who are more likely to rely on text messaging rather than voice as their main means of communication, switching to contract plans, which now often include unlimited SMS).

Figure 5.44 Mobile telecom call volumes, by subscription type



Source: Ofcom / operators

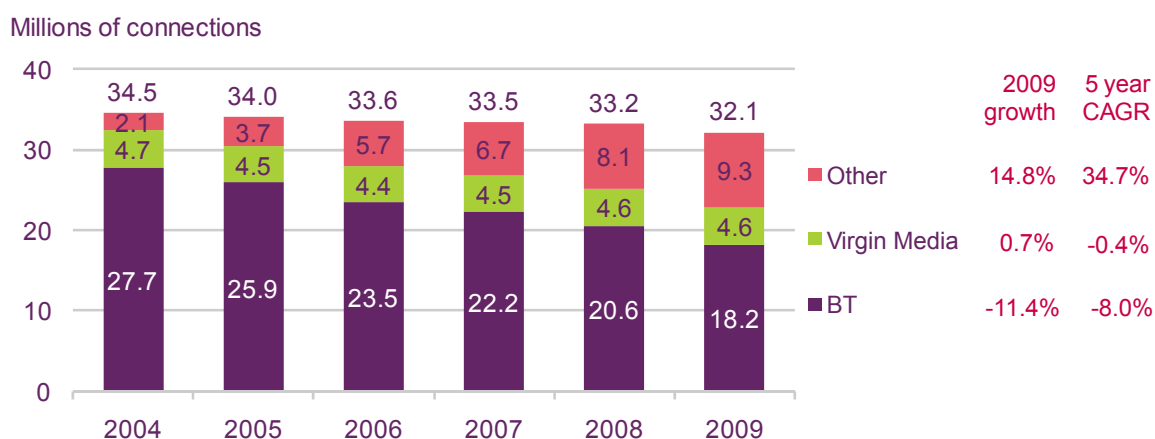
Note: Includes estimates where Ofcom does not receive data from operators

Fixed-line voice connections

BT's share of fixed voice connections falls to below 60%

BT's share of analogue lines and ISDN channels fell to 56.7% in 2009 (18.2 million lines). This is 5.2 percentage points lower than in the previous year and 23.3 percentage points lower than at the end of 2004. Virgin Media's share has remained flat over the past five years at around 14%, while the number of lines provided by operators other than BT and Virgin Media has increased by over 340% since 2004, accounting for 9.3 million lines and 29% of total fixed-line connections at the end of 2009 (Figure 5.45).

Figure 5.45 Fixed-line connections, by operator



Source: Ofcom / operators

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

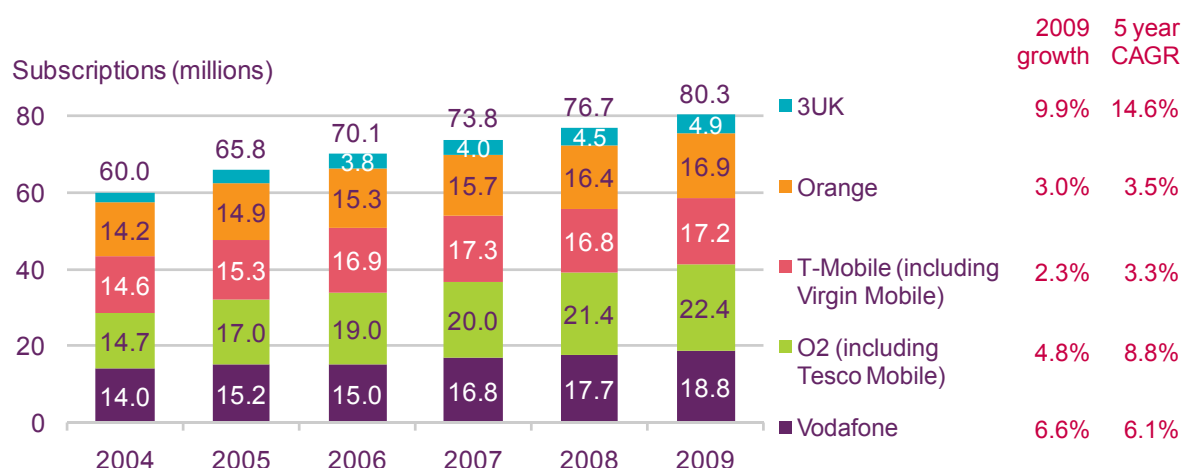
Mobile connections

Vodafone achieves highest increase in mobile connections in 2009

At the end of 2009 O2 had the largest number of mobile connections on its network, at 22.4 million, although Vodafone managed to achieve a higher growth rate over the year (+6.6), gaining 18.8 million connections (Figure 5.46). The UK's smallest mobile network operator, 3UK, recorded the largest percentage increase (9.9%) in connections during 2009, although this was lower than in 2008 (13.9%), possibly as a result of the slow-down in growth of mobile broadband (see Section 5.1.5) which 3UK spearheaded from 2007 onwards.

All five mobile network operators increased their number of subscribers in 2009, with Orange and T-Mobile achieving the lowest growth in connections during the year and over the five-year period since 2004. In May 2010 the two operators merged to form a new company called Everything Everywhere Ltd, which (based on end-of-2009 data) had a combined subscription base of 34.1 million on both networks (including MVNOs such as Virgin Mobile). The company has announced that the T-Mobile and Orange UK brands will continue to operate in the UK for at least 18 months following the merger.

Figure 5.46 Mobile connections, by operator



Source: Ofcom / operators

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

T-Mobile/Orange merger – Everything Everywhere

In September 2009 the European owners of Orange and T-Mobile UK (France Telecom and Deutsche Telekom) announced that they would merge their UK businesses to create a 50/50 joint venture under the company name Everything Everywhere Ltd. The European Commission granted clearance to the proposed merger in March 2010, after commitments were given on spectrum and network sharing.

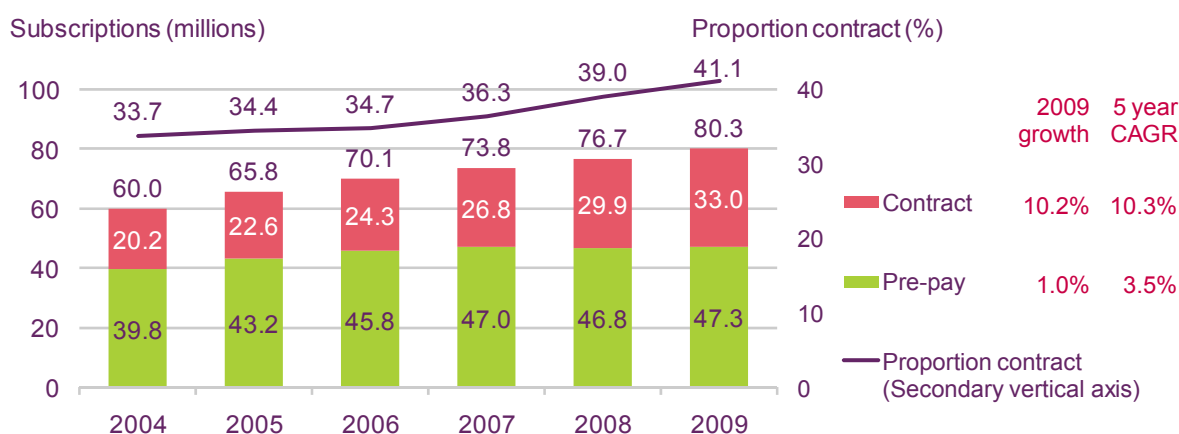
The new entity merged its accounts in April 2010 and was officially launched on 1st July. The companies involved said that they expected the merger to lead to operational cost savings of £445m per year from 2014 onwards, dependent on spend of up to £800m in integration costs over the next four years. The two brands will co-exist for 18 months, at which time a new branding strategy will be rolled out.

At the end of 2009, Orange and T-Mobile's combined customer base stood at over 34 million subscriptions on their network and a market share of 42.5% (36.4% excluding independent service providers and MVNOs).

Contract continues to increase share of mobile connections

Contract (pay-monthly) connections continued to account for an increasing proportion of mobile connections during 2009, increasing by 10% to 33 million connections (Figure 5.47). The growth of one-month SIM-only contracts, which enable subscribers to pay for their mobile service in arrears without committing to a long-term contract, has contributed to some pay-as-you-go subscribers migrating to contract tariffs. In addition, the latest smartphones are usually initially available only on post-pay contracts, and the high up-front costs of paying for high-end smartphones such as the iPhone 4 (typically retailing at around £500 SIM-free), means that contract tariffs are a way of spreading the cost of the handset over a 12, 18 or (increasingly) 24-month period, as contract subscribers effectively pay for their 'free' or low-cost smartphone over the length of their contract.

Figure 5.47 Pre-pay and contract mobile connections



Source: Ofcom / operators

Notes: Based on data provided to Ofcom by operators; includes estimates where Ofcom does not receive data from the operators

5.2.5 Data services

The growing importance of data services to the telecoms industry is evident in Figure 5.48, which shows that data services contributed 37% of total industry service revenues in 2009, up from 15% ten years previously.

With overall voice revenues in decline since 2003, and mobile voice revenues falling for the first time in 2009, operators are looking to data revenues to drive growth. The following examines the development of data services in terms of revenues, connections and volumes from the perspectives of both fixed-line and mobile operators.

Fixed-line broadband revenues

Revenue from fixed-line broadband has gone some way to counter the falls in revenues from voice telephony; however, as shown in Section 5.2.2, internet access revenues declined in 2009 as fixed-line broadband take-up levelled off. Nevertheless, it is likely that in the coming years, fixed-line operators will look to data services to drive growth, through offering higher-speed connectivity with the roll-out of superfast broadband, and developing new revenue streams through offering new services such as IPTV, cloud computing (file storage online) and machine-to-machine services such as smart metering and fleet management.

Mobile network operators (MNOs) face a similar challenge, with a steep fall in mobile voice revenues in 2009 leading to overall mobile revenues falling for the first time. MNOs are therefore looking to generate revenue growth from mobile broadband services available over connected laptops, handsets and new wirelessly connected devices such as e-readers, 'tablets' and other data-centric devices. Like fixed operators, mobile providers are investing in networks that provide faster data speeds (3G+ and 4G services) and are looking to develop new services that allow for the continued growth of devices connected wirelessly.

Figure 5.48 Voice and data revenue as a % of total telecom revenue



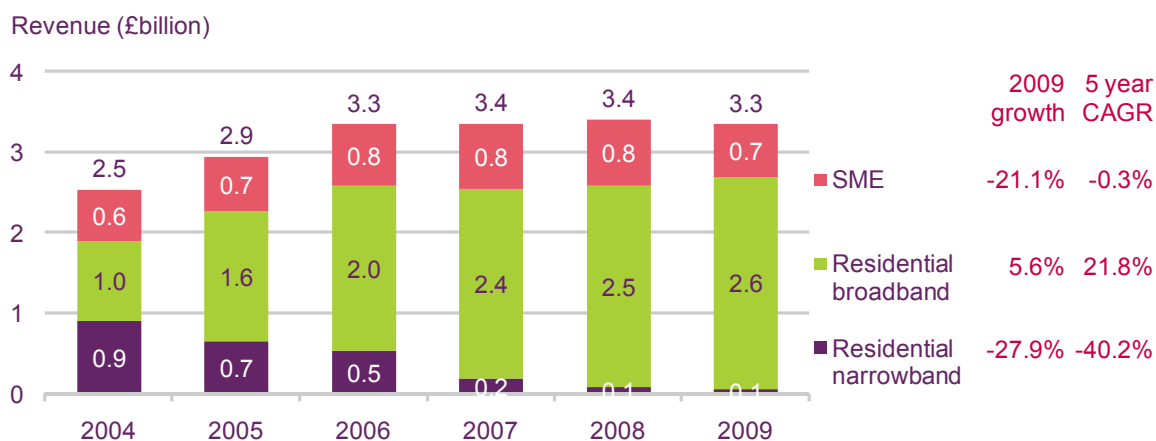
Source: Ofcom / operators

The bundling of messaging and data services in with monthly rental tariffs means voice revenue will include an element of mobile data revenue

Fixed-line broadband and internet revenues fall by £0.1bn

Revenues from fixed-line internet and broadband services declined by 2% in 2009 to £3.3bn; mainly driven by a 28% reduction in residential narrowband revenues and 21% decline in revenues from SME. Growth in revenues from residential broadband services was flat during 2009, rising by 5.6%, compared to 5.7% in 2008.

Figure 5.49 Estimated UK internet and broadband retail revenue



Source: Ofcom / operators

Mobile data revenues

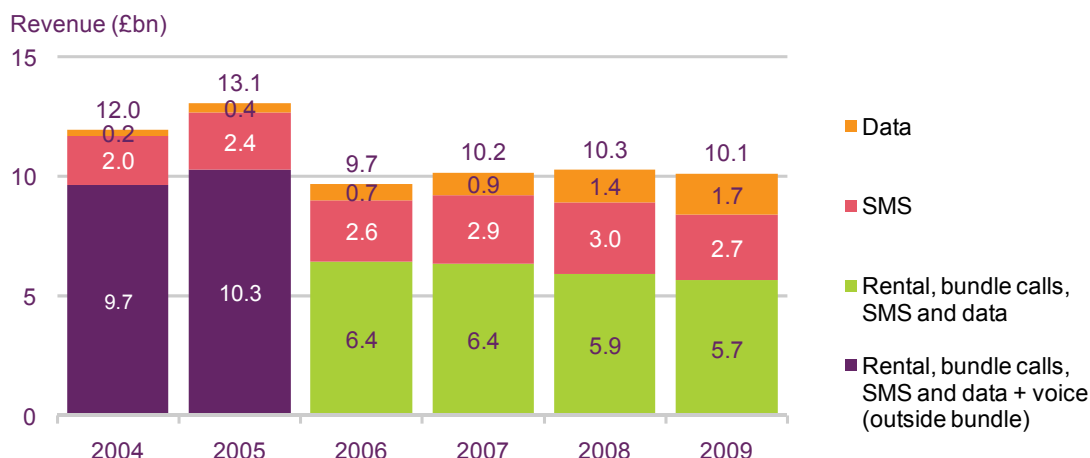
Revenue from non-bundled SMS falls by 9% during 2009

It is difficult to separate out data revenues from overall mobile revenues, as the line rental fee in contract connections frequently includes SMS messages and a data usage allowance. Figure 5.50 below shows the revenues from out-of-bundle SMS and data, and indicates that SMS revenues fell for the first time in 2009, by £0.3bn to £2.7bn. However, this does not tell the whole story; a characteristic of mobile pricing is that an increasing number of contract and pay-as-you-go tariffs include a high volume of inclusive SMS messages, and in some

cases unlimited messages; for example, T-Mobile offers ‘free texts for life’ for pre-pay users that top up by at least £10 every month.

Similarly, mobile tariffs increasingly offer inclusive data use within the monthly fee; all iPhone tariffs, for example. ‘Metered’ data revenues (i.e. those outside the monthly line rental fee) grew by 26% to £1.7bn in 2009, although it is likely that the actual contribution of data revenues was much greater, as they are now a more important component of the monthly rental fee (which contributed 57% of total mobile service revenues in 2009).

Figure 5.50 Mobile data revenues



Source: Ofcom / operators

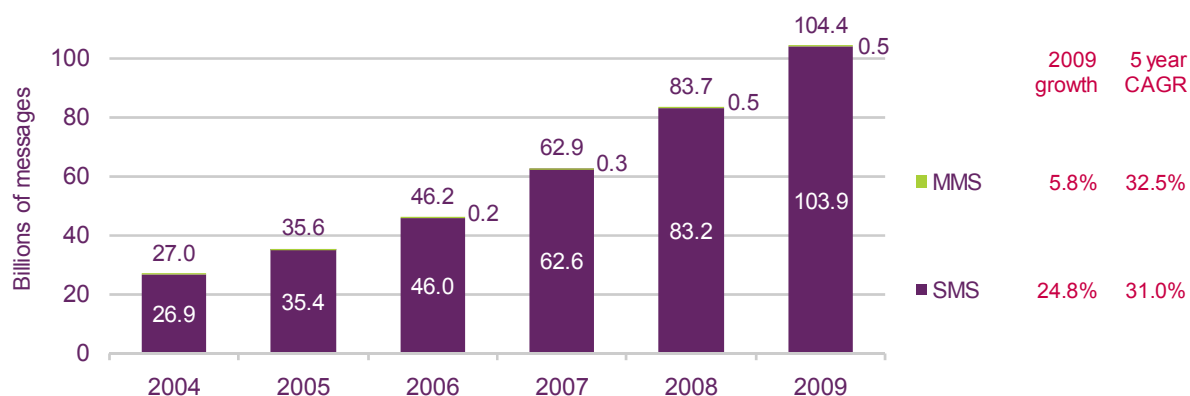
Note: The split between revenue from rental, bundled calls and SMS AND voice revenue (outside bundle) is only available from 2006 onwards.

SMS use soars even higher

Despite the increasing use of internet-based communications services such as social networking sites and instant messaging (see Section 4.1.2), the numbers of text messages sent by mobile users continued to climb, growing by nearly one-third to 104.4 billion messages in 2009 (representing an average of over four a day for every person in the UK), a faster rate of growth than in 2008 (24.8%) but on a similar level to annual growth between 2005 and 2007 (Figure 5.51). Meanwhile, the volume of MMS grew by just 5.8% during 2009 to around half a billion messages.

An increasing proportion of mobile users, particularly in younger age groups, rely on SMS as their main means of communication via a mobile handset, rather than mobile telecoms. In fact, as shown in Section 1.3 (*The Consumer’s Digital Day*), penetration of SMS on a daily basis is actually higher among mobile users than is voice. This increasing growth in SMS volumes is likely to reflect the increasing availability of tariff plans with unlimited text allowances at lower price points; attractive not only to younger users but also to most cost-conscious consumers.

Figure 5.51 Mobile messaging volumes



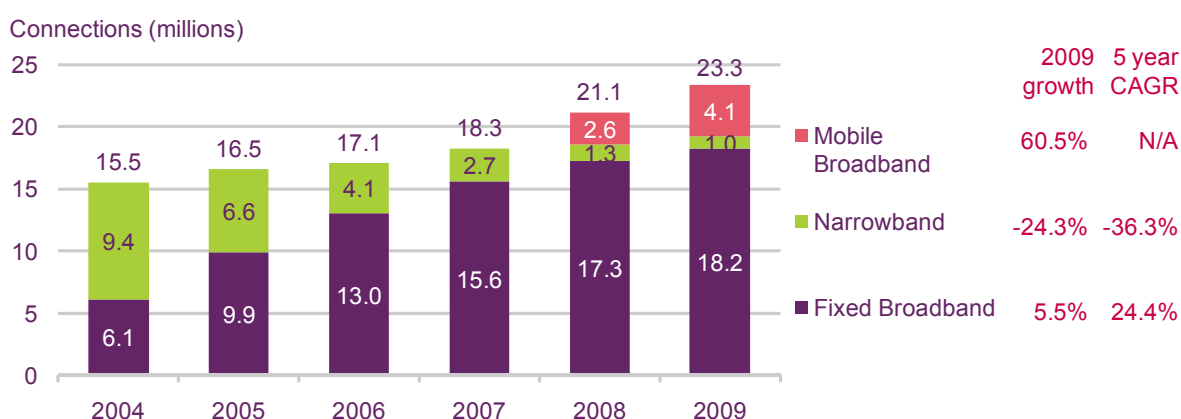
Source: Ofcom/operators

Fixed-line broadband connections

Total internet connections increase by 50% over five years

At the end of 2009 over 23 million connections accessed the internet, either over a dial-up, or fixed or mobile broadband connection, compared to 15.5 million at the end of 2004 (Figure 5.52). Fixed broadband accounted for the vast majority of connections (78%) in 2009, although its rate of growth slowed to 5.5% in 2009, compared to 11% in 2008 and 20% in 2007. This slow-down reflects the high penetration of fixed broadband services (with 65% of UK households having a fixed-line broadband connection in Q1 2010). Take-up of fixed-line broadband may also be constrained by some households opting to take only a mobile broadband connection (Section 5.1.5 details that much of the increase in mobile broadband during 2009 came from households having it as their only broadband connection), and potentially also by some households relying on their mobile phone for an internet connection (see Section 5.1.6).

Figure 5.52 Estimated UK internet connections



Source: Ofcom / operators

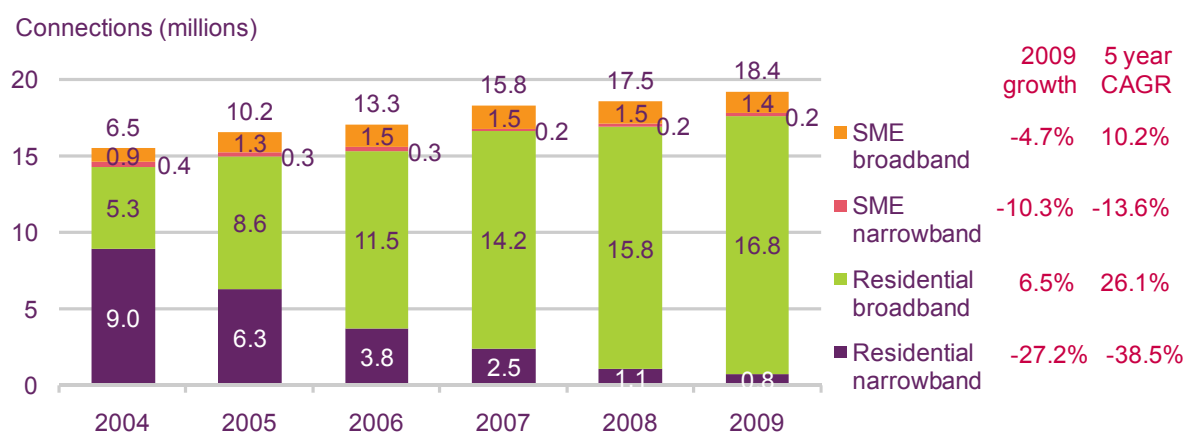
Mobile broadband is defined as connection to the internet via a PC datacard or dongle

Fewer than a million households use dial-up internet

Ninety-five per cent of residential fixed internet connections were broadband at the end of 2009, compared to 37% in 2004 (Figure 5.53). Among small and medium-sized enterprises

(SMEs), fixed broadband was the main method of access, with just over 10% still relying on dial-up. Based on recent trends, there will be approximately 150,000 SMEs and fewer than half a million residential users of dial-up by the end of 2010.

Figure 5.53 UK residential and small business fixed internet connections



Source: Ofcom / operators

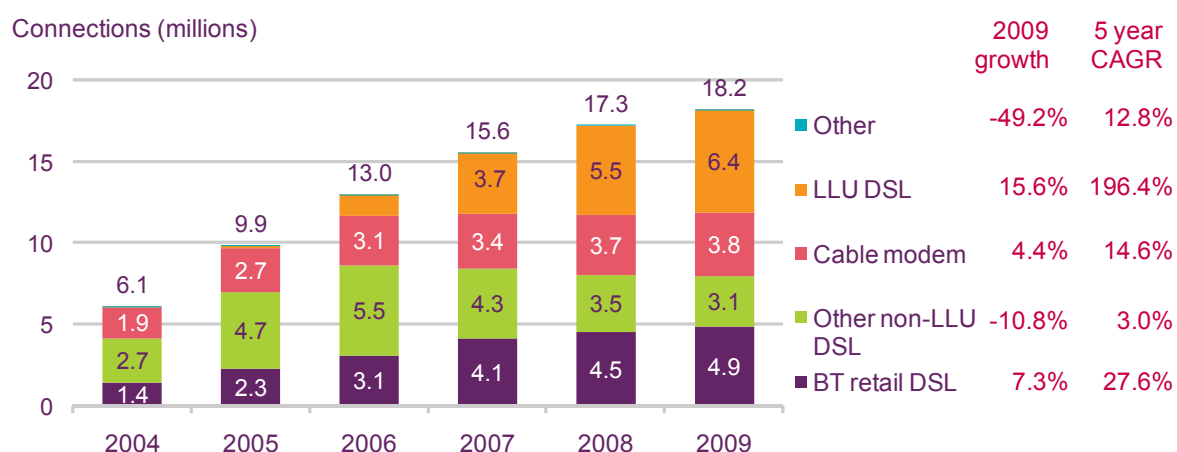
Note: SME broadband includes some connections over leased lines

LLU providers continue to gain market share

The proportion of fixed broadband connections using local-loop unbundling (LLU) grew to over one-third by the end of 2009; this compares to just one in ten three years earlier (Figure 5.54). However, BT Retail continues to have the largest share of broadband subscribers and increased its share by one percentage point during 2009, to 27%.

Growth in the number of fixed broadband connections using cable slowed during 2009 to 4.4%, nearly half the rate of growth in 2008 (7.9%).

Figure 5.54 UK residential and small business fixed broadband connections



Source: Ofcom / operators

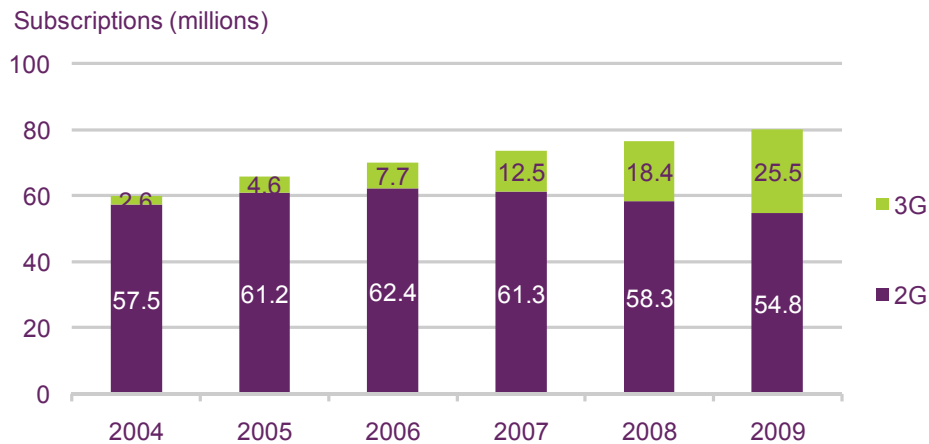
Note: Excludes connections made over cellular networks

Mobile data connections

3G adoption accelerates

Growth in the number of 3G connections accelerated in 2009, increasing by 7.1 million compared to 5.9 million in 2008 (Figure 5.55). This reflects the increasingly availability of lower-cost 3G-enabled handsets, particularly mass-market smartphones, and the take-up of mobile broadband using PC datacards and dongles (4.1 million connections), combined with greater network coverage and enhanced speeds using HSPA and HSPA+ technologies.

Figure 5.55 2G and 3G share of mobile connections, 2009

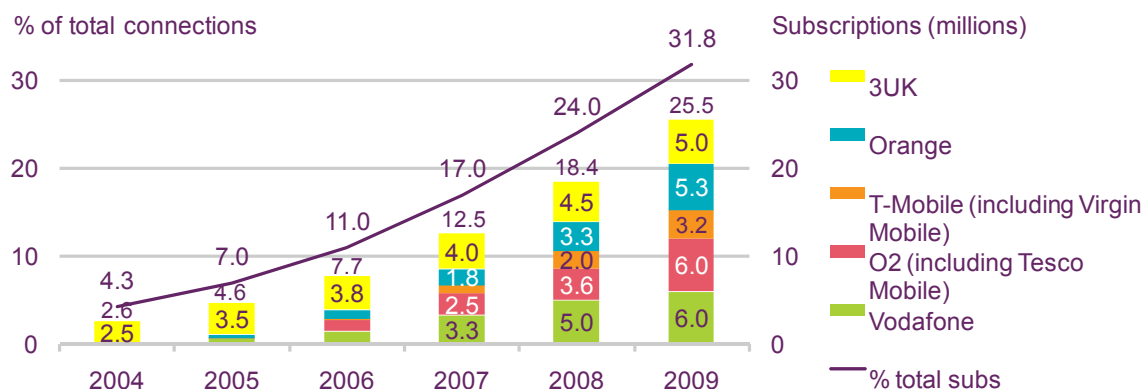


Source: Ofcom / operators

Nearly eight million 3G connections added in 2009

Nearly one-third of all mobile connections were using 3G at the end of 2009, compared to one in 25 at the end of 2004 (Figure 5.56). From its launch in 2003, 3UK managed to maintain its market lead with the largest number of 3G connections until 2008, when Vodafone claimed that number-one spot. In 2009, however, O2 became the largest carrier of 3G connections, with 6.01 million connections (23.6% of all 3G connections), slightly ahead of Vodafone (5.98 million). All three of these operators have adopted slightly different approaches to increasing 3G connectivity: O2 has focused on 3G-enabled smartphones (particularly the iPhone, and more recently, the Palm Pre) and less on mobile broadband, whereas Vodafone has grown its 3G subscription base through a mix of 3G-enabled handsets and mobile broadband connections, and 3UK has spearheaded the adoption of mobile broadband since it rolled out HSDPA on its network in 2007.

Figure 5.56 3G connections, by network operator



Source: Ofcom / operators

3G includes connections made via laptops/dongles as well as handsets

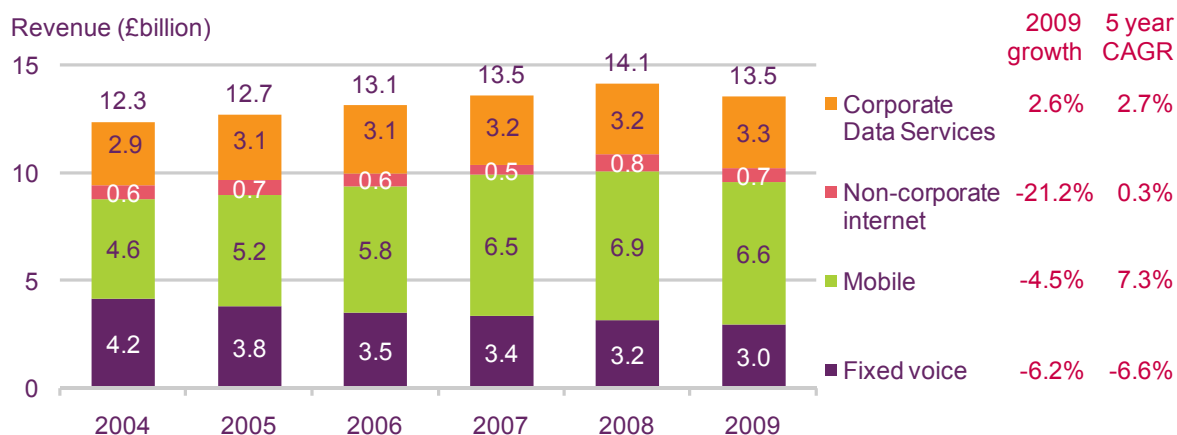
5.2.6 Business markets

Despite increasing use of mobile services, business telecoms revenues fell by 4.2% in 2009

Business spend on telecoms declined by £0.6bn to £13.5bn in 2009 (Figure 5.57). This is the first fall in business revenues recorded by Ofcom since 2002, and reflects declines in spend on internet (-21.2%), fixed voice (-6.2%) and mobile (-4.5%). Only spend on corporate data services increased during 2009, from £3.2bn to £3.3bn.

Although the impact of the economic downturn (see Section 1.1) may be a contributory factor in the reduction of telecoms revenue from businesses, the main driver behind declining revenues from mobile services is likely to be falling prices, as business use of increased during 2009 (see Figure 5.60 below). In contrast revenues from fixed-line voice have been in decline since 2000, falling from a peak of £5.4bn to £3.0bn in 2009 as a result of declining use.

Figure 5.57 Business telecoms service revenue

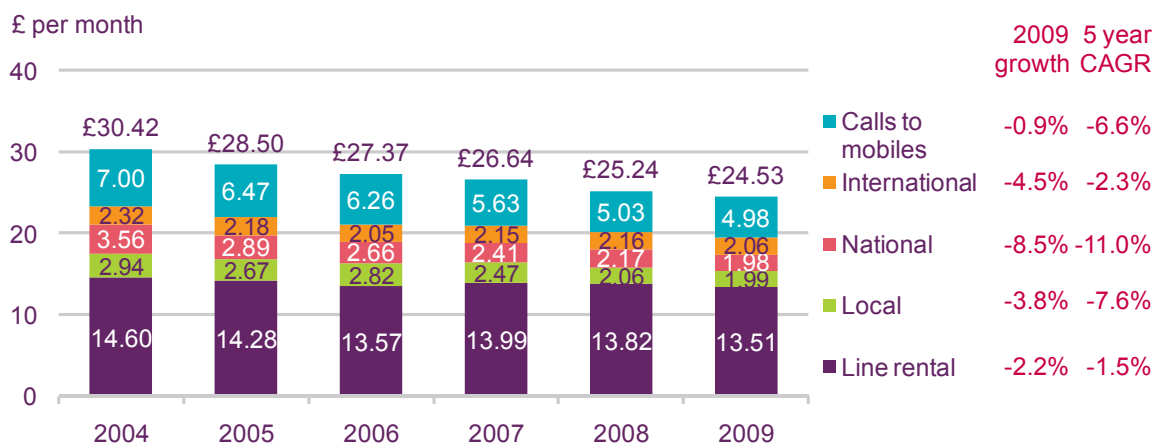


Source: Ofcom / operators / IDC

Average monthly revenue per business fixed line fell by £0.71

Average monthly revenue per business line continued to fall in nominal terms in 2009, falling by 2.8% to £24.53 (Figure 5.58). The largest reduction in spend during 2009 was in national calls (-8.5%), followed by calls to international destinations (-4.5%) and local calls (-3.8%); however, the rate of decline in spend on fixed-to-mobile calls slowed to just 0.9% in 2009, compared to 11% in 2008 and 10% in 2008.

Figure 5.58 Average monthly voice revenue per business fixed line



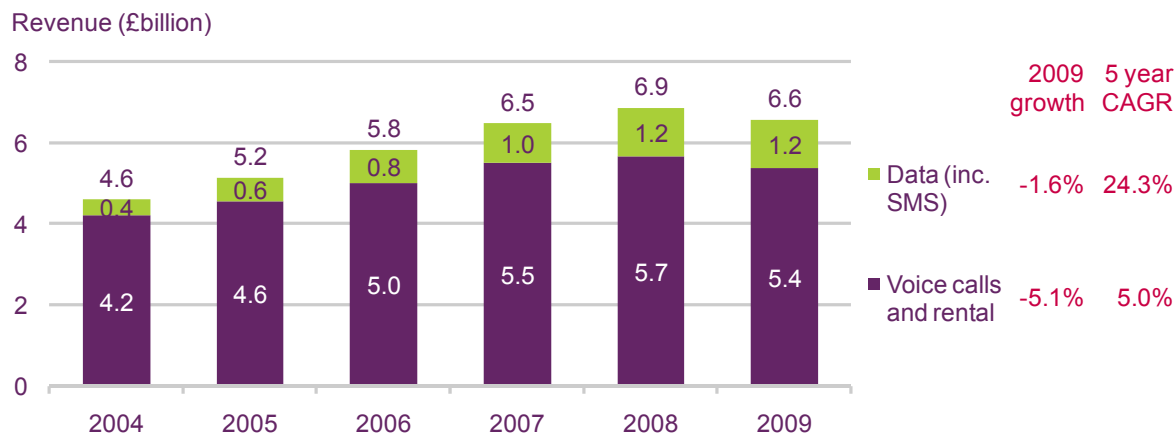
Source: Ofcom / operators

Note: Excludes revenues from non-geographic voice calls

Business spend on mobile voice falls by 5.1%

Revenues from business spend on mobile services declined by £0.3bn in 2009 to £6.6bn; this compares to year-on-year increases of £0.2bn in 2008 and £0.5bn in 2007 (Figure 5.59). The majority of this decline was due to falling revenues from rental and voice calls. This came despite an increase in overall call volumes (see Figure 5.60 below), indicating a fall in prices as an increasing amount of bundled voice minutes are included within access charges (i.e. monthly line rental charges). Revenues from mobile data services declined by 1.6% to £1.19bn during the year.

Figure 5.59 Breakdown of business mobile revenue



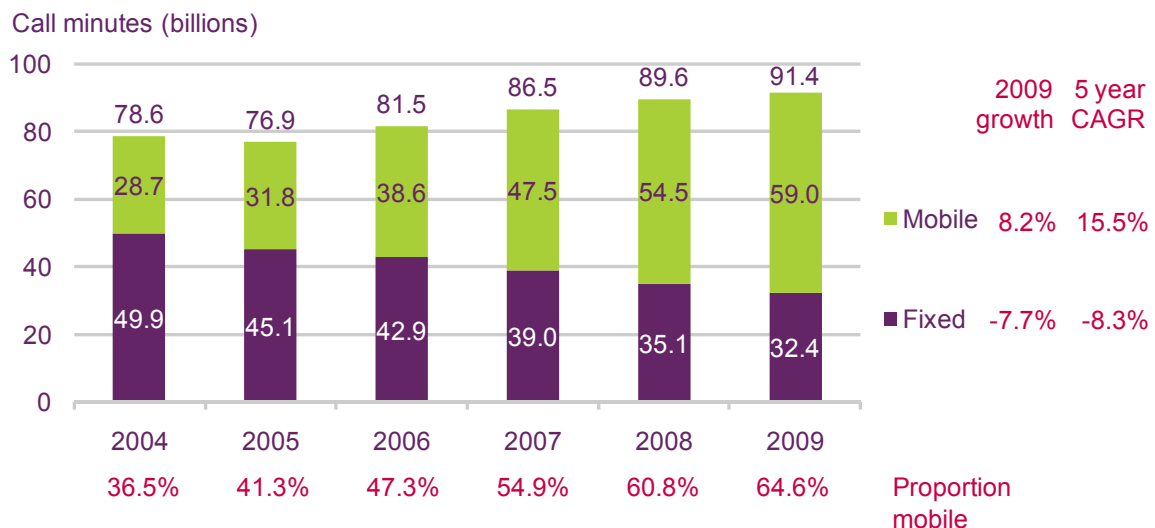
Source: Ofcom / operators

Mobile continues to drive overall growth in business voice volumes

Total originating business call volumes increased by 2% to 91.4 billion in 2009, driven by a 8.2% rise in mobile call volumes to 59 billion (Figure 5.60). Over two-thirds of all calls made by business users (excluding VoIP calls, for which data are not available) during 2009 were mobile-originated during 2009, this compares to just over one-third in 2004. The shift towards more business calls using mobile is probably being driven by growth in mobile-to-mobile call volumes, as an increasing number of mobile business plans provide free on-net calls, meaning that businesses incur no incremental cost when employees call each other.

Fixed-originated call volumes continued to decline in 2009, falling by 7.7% to 32.4 billion minutes. In addition to the increasing use of mobile for voice telephony, the use of cheaper VoIP services is also likely to be a contributory factor in driving down call volumes made from analogue lines, and may be a reason why overall growth in business voice call volumes slowed in 2009 compared to 2008 (3.5%) and 2007 (6.2%).

Figure 5.60 Business voice call volumes

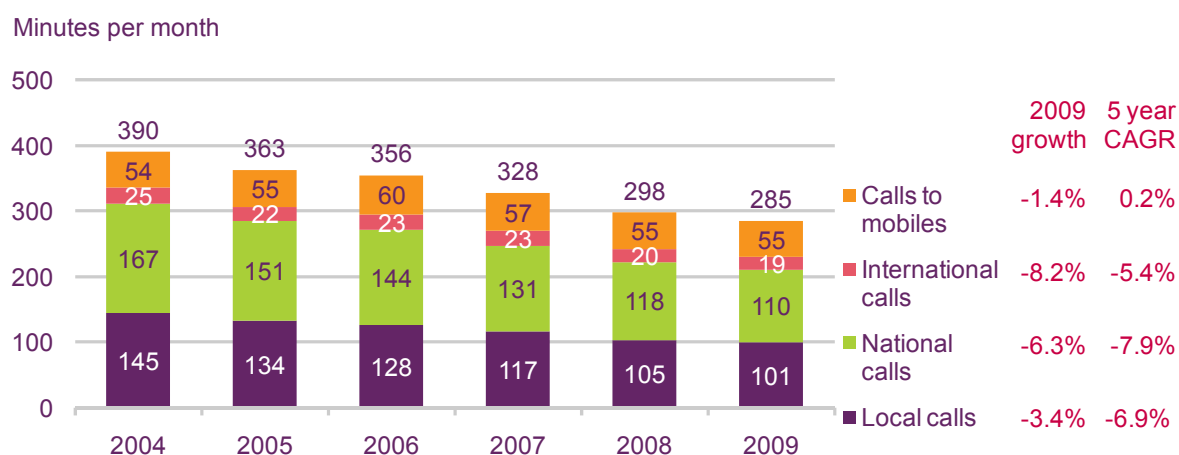


Source: Ofcom / operators

Note: Fixed data excludes NTS voice call volumes

Call volumes per business fixed line fell by 4.5% during 2009 (Figure 5.61). The largest proportional fall in business fixed-line call volumes was for international calls (-8.2%); this is likely to be the result of the increasing use by businesses of cheaper substitutes such as VoIP, and also the increasing use of mobiles for international calls, with overall outgoing mobile international call volumes (consumer and business) increasing by 11% during 2009. Call volumes for national and local calls continued to fall during 2009, as they have done over the last five years, while the decline in calls to mobiles fell by 1.4% in 2009 (a slowdown in the decline, with a fall of 3.5% in 2008 and 4.8% in 2007).

Figure 5.61 Average monthly outbound voice call volumes per business fixed line



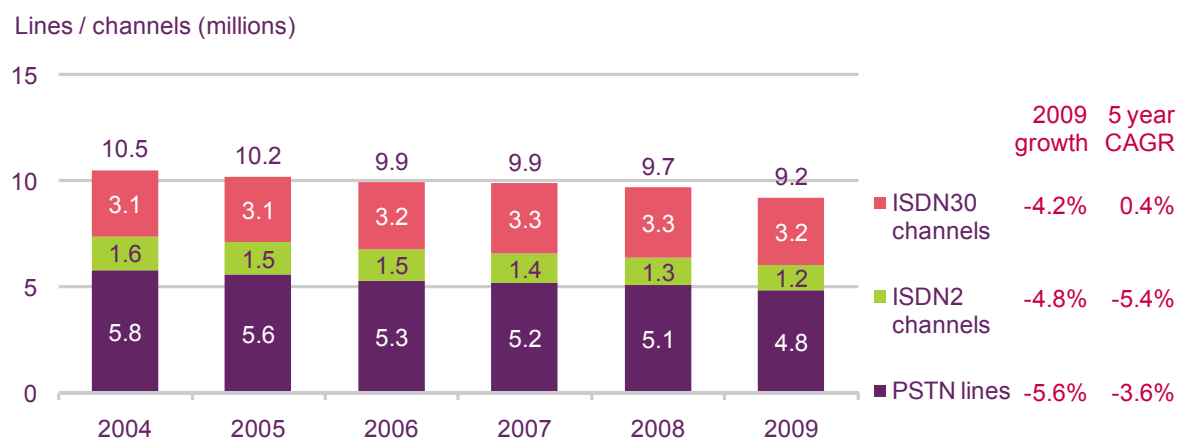
Source: Ofcom / operators

Note: Excludes non-geographic voice call volumes

The number of business fixed lines falls by 0.5 million

Decline in the number of analogue lines used by businesses accelerated in 2009, falling by 5.6%, the largest annual decline since 2002 (Figure 5.62). There was a 4.2% decline in ISDN30 lines, to 3.2 million in 2009, as well as a 4.8% fall in ISDN20 lines, to 1.2 million, a reflection that businesses are starting to move away from ISDN technology towards cheaper and faster broadband connections for internet access and voice over IP (VoIP).

Figure 5.62 Business fixed lines, by type



Source: Ofcom / operators

Note: Figures may be overstated due to an element of double-counting of WLR lines

ISDN

ISDN is a set of standards for digital transmission over ordinary telephone copper wire (and other media). The key feature of the ISDN is that it integrates speech and data on the same lines, resulting in better voice quality than a conventional analogue phone.

ISDN offers connections in increments of 64kbit/s (the equivalent of a standard analogue line). In the UK there are two main types of ISDN: ISDN2 (which consists of two 64kbit/s channels and a 16kbit/s signalling channel) and ISDN30 (thirty 64kbit/s channels and a 64kbit/s signalling channel). Each channel can be used independently, so an ISDN2 line can be used as two voice lines, one voice line and a 64kbit/s data connection, or as a 128kbit/s data connection.

Cheap broadband means that ISDN has largely been superseded as a method of internet connection, but it is still used in some industries, as an ISDN data connection is always a fixed, reliable 64kbit/s. ISDN30 remains popular as a way for large businesses to obtain multiple fixed-voice lines for a set cost.

5.3 The telecoms user

5.3.1 Introduction

In this section we look at the major consumer trends in the use of telecoms services. Analysis is based on data received from telecoms providers, our own consumer research and, where appropriate, third-party data.

We define a consumer as being any user of telecoms services, separated into two main categories: residential and business. In this section we focus on the residential sector.

In December 2009 Ofcom published *The Business Consumer Experience*⁹⁰ report, which looked at business consumers' views of telecoms services, and the 2010 report (which is also due to be published in December) will look at small businesses' use of telecoms services. An overview of business markets and average use is also given in section 5.2.6 of this report.

The key findings of this section are as follows:

- **Household take-up of broadband increased from 68% in Q1 2009 to 71% in Q1 2010.** Growth was driven by mobile broadband take-up, with fixed broadband take-up remaining at 65% (page 335).
- **There is some evidence that younger consumers are moving to mobile broadband.** Our research shows that among the 15-24 year-old age group fixed broadband take-up fell by 4 percentage points to 66% in the year to Q1 2010, while mobile broadband penetration increased by 8 percentage points to 23%. The 65-74 year-old age group was the only one among which fixed broadband take-up grew.
- **Average monthly household spend on telecoms services fell by 3.7% to £62.10 in 2009.** This represented 3.0% of average household spend, down from 3.2% in 2008, with most of this decline being due to falling mobile telephony prices (page 335).
- **People spent an average of around half an hour a day accessing the internet at home using a PC in May 2010.** This was more than twice as much as they had done five years before (page 352).
- **Over a quarter of DE homes were mobile-only in Q1 2010.** Our research shows a clear correlation between mobile-only households and socio-economic group, with 26% of DE households relying on mobile for all their telephony needs, compared to 9% of ABC1 homes (page 338).
- **Non-voice use of mobile phones accounted for 64% of total time spent by adults using mobile phones.** This proportion ranged from 41% among those aged 55 and over to 77% among those aged 16 to 24 (page 352).
- **More than 90% of consumers were satisfied with their fixed voice, mobile and fixed broadband services.** However, satisfaction with mobile broadband was lower (83%) and only 80% of those with fixed broadband and 73% with mobile broadband were satisfied with the speed of their service (page 356).

⁹⁰ <http://stakeholders.ofcom.org.uk/market-data-research/market-data/consumer-experience-reports/bce/>

5.3.2 Residential sector overview

More households have mobile connections than fixed connections

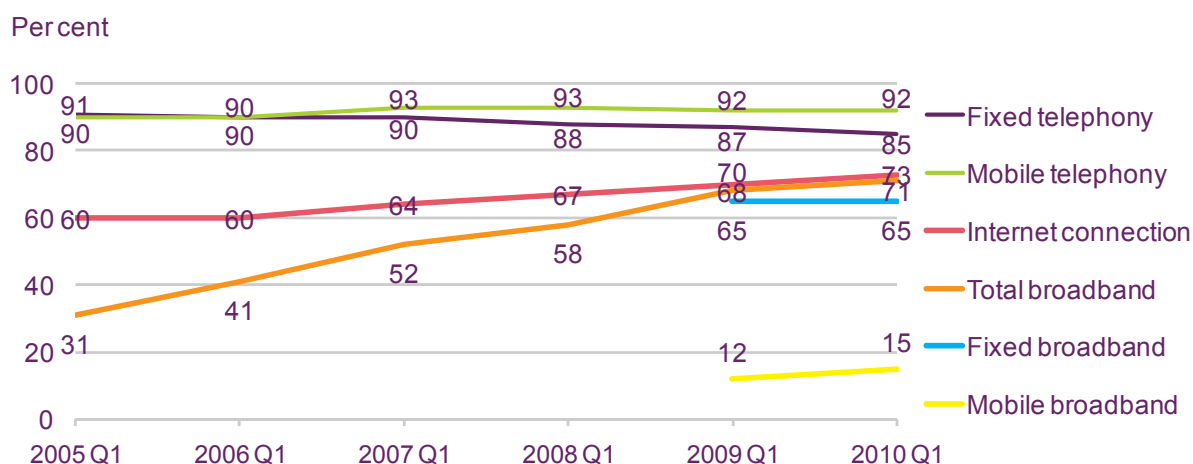
Household service take-up figures for the last few years show interesting parallels between the voice and broadband markets. The introduction of pre-pay mobile tariffs in the late 1990s led to rapid growth in mobile take-up, fierce competition between providers and falling prices. As the cost of a mobile voice call fell towards that of the equivalent call from a fixed line, mobile take-up and use increased while fixed began to decline, and in 2006 household mobile take-up passed that of fixed lines for the first time.

Since then, household take-up of mobile phones has plateaued at around 92% (Figure 5.63) while fixed-line penetration has started to fall as an increasing proportion of homes give up their landline and use mobiles as their sole form of voice telephony. Ofcom consumer research suggests that in Q1 2010 15% of households did not have a landline, an increase of two percentage points on the previous year. Differing levels of telecoms service take-up were evident across the UK nations, and household landline take-up was lowest in Scotland and Wales at 79%, while it was highest in England at 86%. Levels of mobile take-up among adults were highest in England (90%) and lowest in Scotland (85%) as were overall household broadband take-up levels, at 73% and 61% respectively.

Our research also suggests that the proportion of households using a mobile broadband connection as their only form of broadband is increasing. While total household broadband penetration grew by three percentage points to 71% in the year to Q1 2010, fixed broadband penetration was unchanged at 65%, indicating that mobile broadband was the main driver of growing overall broadband growth. In Q1 2010, 15% of all households had a mobile broadband connection, and 6% of all households had a mobile broadband connection and no fixed-line connection. The growth of mobile broadband is discussed in section 5.1.5.

It is unlikely that mobile broadband take-up will eclipse fixed broadband services, as has happened in the voice market, as it is difficult to see when mobile services will be able to match the speeds of their fixed equivalents: although HSPA-enabled mobile networks are capable of downstream speeds of up to 14Mbit/s, actual speeds are typically less than 1Mbit/s, around a fifth those of their fixed-line equivalents. The introduction of ADSL2+ and fibre-based fixed broadband services mean that this speed gap is likely to widen. Similarly, the download caps on most mobile broadband services are much lower than those on fixed broadband services meaning that for some users mobile broadband is not a direct substitute for similarly priced fixed offerings.

Figure 5.63 Household take-up of key telecoms technologies



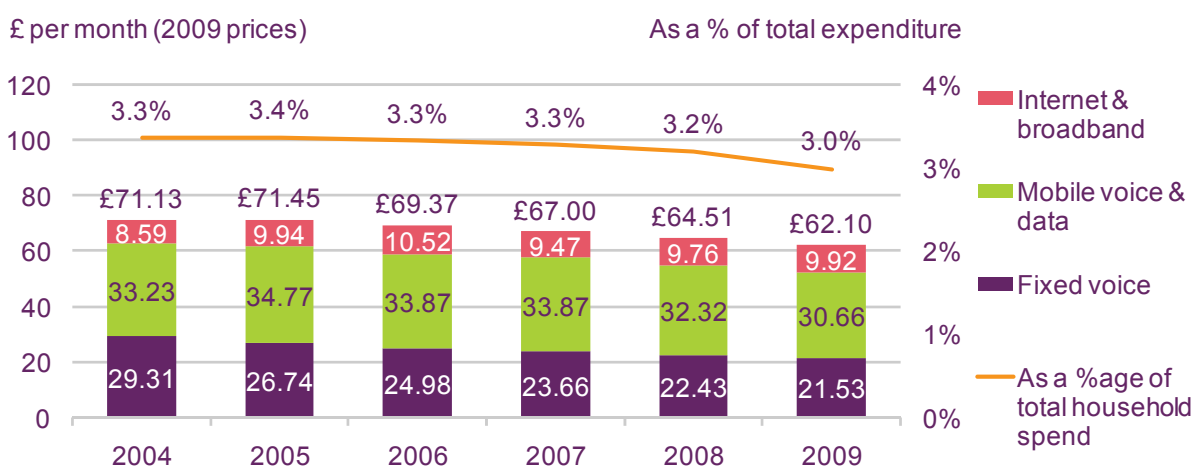
Source: Ofcom research
Base: All adults aged 15+

Average household telecoms spend falls to 3% of total household spend

Despite increasing levels of take-up and use, average spend on telecoms services has fallen in real terms in every year since 2005, as has the proportion of total household spend taken up by telecoms services (Figure 5.64). Average household telecoms spend fell by £2.41 a month to £62.10 in 2009, a fall of 3.7%, while the proportion of total household spend taken up by the purchase of telecoms services fell by 0.2 percentage points to 3.0%.

The majority of the fall in average monthly spend was in mobile services, where average spend fell by £1.66 to £30.66. Average spend on fixed voice services per household also fell by £0.90 a month to £21.53, to a large extent as a result of a fall in the number of connections (the analysis below shows the average spend for all UK households, including those which do not take communications services). Fixed internet and broadband was the only area where average spend increased, growing by £0.16 a month (1.6%) as a result of a 4% increase in the number of residential internet connections.

Figure 5.64 Average household spend on telecoms services



Source: Ofcom / operators / ONS
Notes: Includes estimates where Ofcom does not receive data from operators; adjusted to RPI; includes VAT

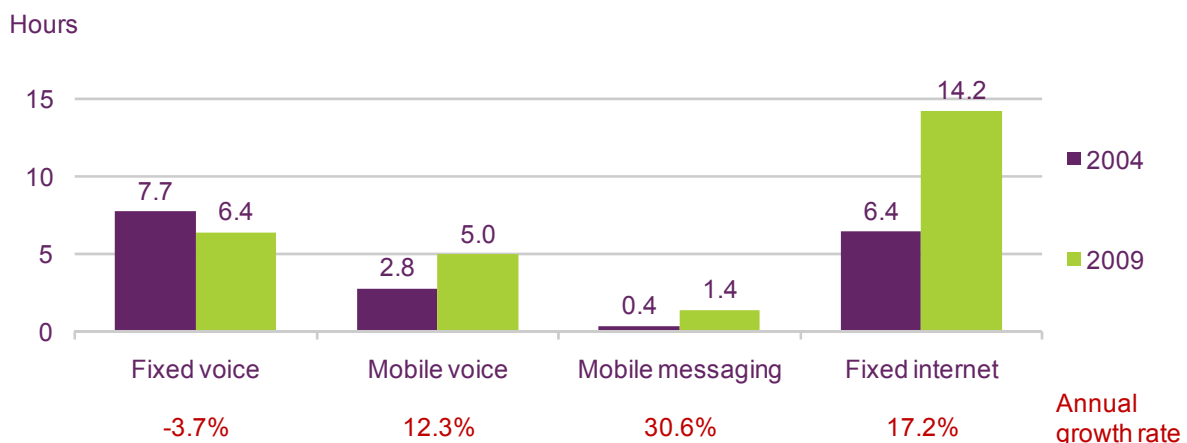
The average person spends around half an hour a day surfing the web at home over a fixed internet connection

Average monthly time spent per person making or receiving voice calls increased in the five years to 2009 as falling average fixed voice call volumes were offset by growth in mobile calls (Figure 5.65). Over the period fixed voice call volumes per person fell by 3.7% a year to 6.4 hours a month, while mobile use increased by 12.3% a year to 5.0 hours a month in 2009. This meant that in total, voice calls per person increased by an average of 1.6% a year over the five-year period, to 11.3 hours a month.

The amount of time spent on mobile messaging per person increased by an average of 30.6% a year in the five years to 2009, to an estimated 1.4 hours per person (assuming 35 seconds to send and receive each message). However, the main driver of growing average time spent using data services was an increase in accessing the internet using a PC or laptop at home, to 14.2 hours a month (broadly in line with the results from our *Consumer's digital day* study, which can be found in Section 1.3 of this report).

Growth in the average time spent online can be attributed to use of the internet becoming more mainstream, and to the popularity of social networking sites and sites streaming content, such as BBC iPlayer and Spotify (see Section 3.3.12) for more information on use of these services).

Figure 5.65 Average monthly time per person spent using telecoms services



Source: Ofcom / operators / Nielsen / UKOM

Note: Includes estimates where Ofcom does not receive data from operators; fixed voice call figures include NTS voice calls; mobile messaging figures assume an average of 35 seconds per message; Ofcom estimate of fixed internet use per person is based on Nielsen's data on the average monthly time spent online at home including the use of applications across the online population only; Nielsen's methodology changed in October 2006 so comparisons before this period should be treated with caution; fixed internet use figures are for May of the following year.

5.3.3 Fixed and mobile voice services

Take-up

In Q1 2009 92% of all households had at least one mobile phone while 85% of homes had a fixed line. Figure 5.66 shows that take-up varies significantly by age and socio-economic group:

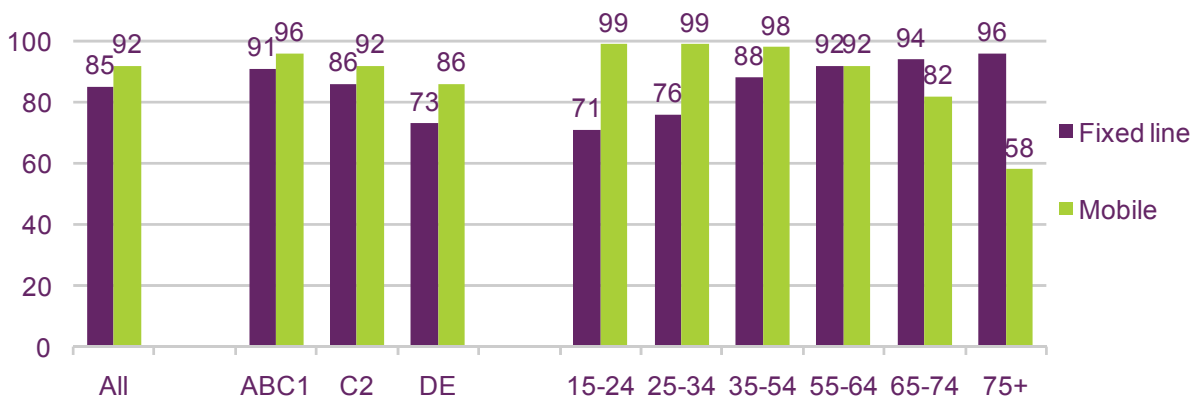
- Household take-up of both fixed and mobile services was higher among the ABC1 socio-economic group; for example, household landline penetration was 18

percentage points higher among ABC1 households than among DE homes, while for mobile services the difference was ten percentage points.

- Older people were more likely to have a landline, with 96% of over-75s having a landline, and take-up falling with age; just 71% of 15-24 year-olds lived in a household with a landline. The opposite was true for take-up of mobile services, which fell from 99% among the 15-24 and 25-34 year-old age groups to 58% among the over-75s.

Figure 5.66 Household telecoms connections, by socio-economic group and age

Proportion of respondents with service (per cent)



Source: Ofcom research, Q1 2009

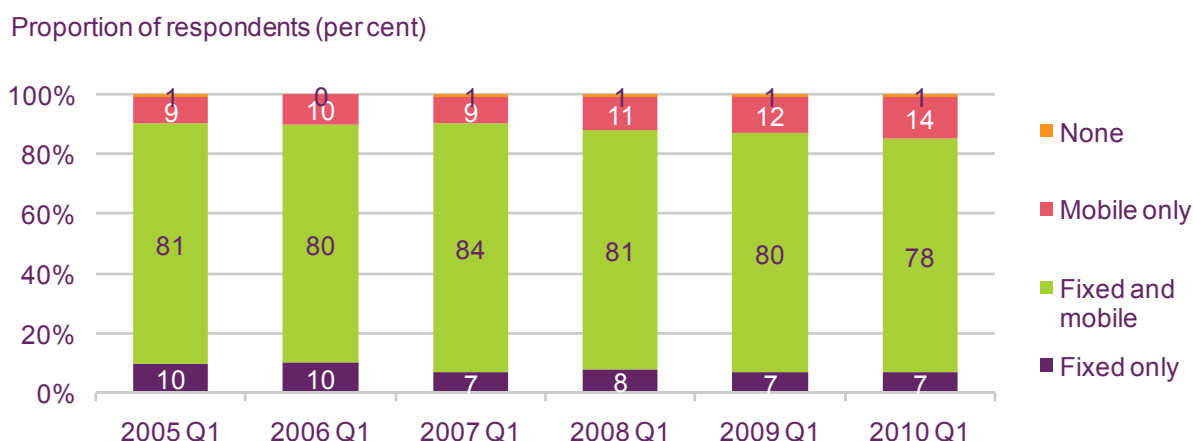
Base: All adults aged 15+

15% of households did not have a landline in Q1 2010

Over the past few years there has been a marked increase in the proportion of mobile-only households, that is, households without a fixed line which use a mobile / mobiles as their sole form of voice telephony. Ofcom research suggests that in the three years to Q1 2010, the proportion of homes that were mobile-only grew by five percentage points to 14% (Figure 5.67).

Growth in the proportion of mobile-only homes comes as the mobile networks increase the amount of minutes that are bundled with their mobile contract line rental, and as growth in the take-up of mobile broadband (on a PC) and mobile internet (on a mobile phone) means that it is not always necessary to have a landline in order to be able to access the internet. There are several possible reasons why a higher proportion of DE respondents are in mobile-only households: it is easier for them to get a pre-pay phone than a fixed line contract, pre-pay mobiles enable them to better control their telephony spend, and pre-pay is the cheapest way of keeping in contact for those who make only a few outgoing calls.

Figure 5.67 Household penetration of fixed and mobile telephony



Source: Ofcom research
Base: All adults aged 15+

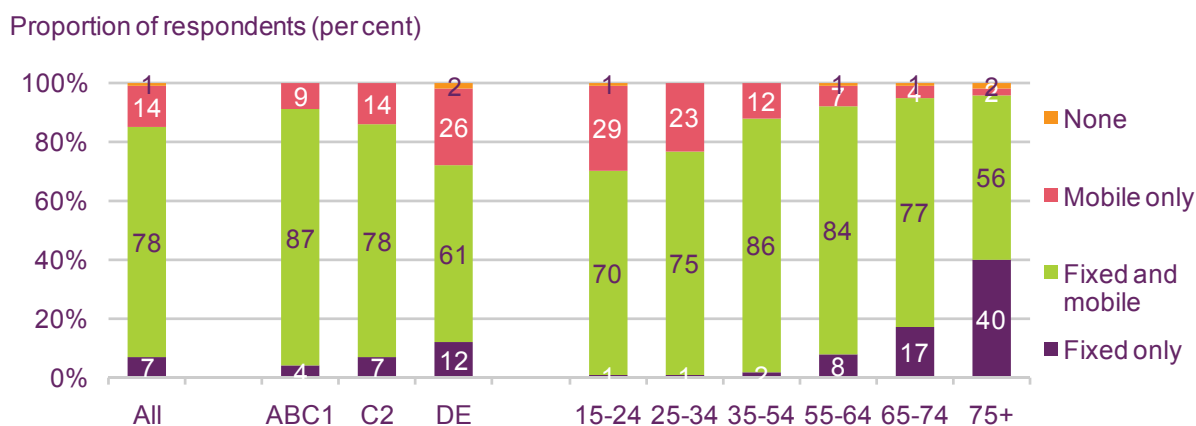
Over a quarter of DE households are mobile-only

Our research shows a clear correlation between age, socio-economic group and levels of mobile-only households, with the DE socio-economic group and younger respondents being more likely to live in homes where mobiles are the sole form of telephony (Figure 5.68). According to our figures, in Q1 2010 26% of DE households were mobile-only compared to 9% of ABC1 homes, and 29% of households aged 15-24 were mobile-only compared to 2% of those aged 75+.

Forty per cent of over-75 households had only a landline, compared to just 1% of those aged 15-24 and 25-34. Respondents in lower socio-economic groups were more likely to live in fixed-only households, and were therefore less likely to use both fixed and mobile telephony (overall, 12% of DE households have a fixed line only, compared to just 4% of ABC1 households).

These results are unsurprising, as DE households tend to be lower-income and may therefore choose not to use both fixed and mobile telephony in order to reduce their telecoms spend, or may be wary of signing up to a contract that commits them to a regular monthly spend. Similarly, many older households might be happy to stick with a fixed line, as they do not see the need for a mobile or its additional expense.

Figure 5.68 Household penetration of fixed and mobile telephony, by socio-economic group and age



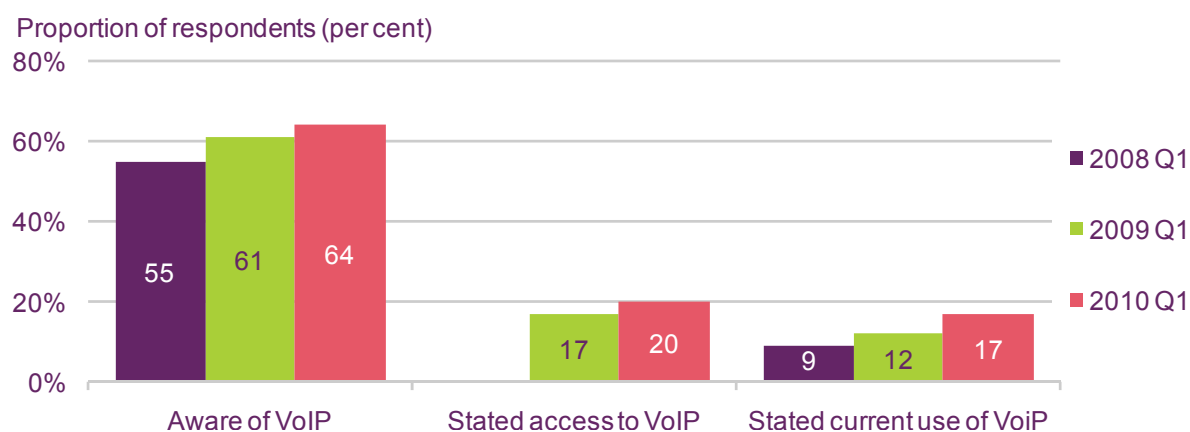
Source: Ofcom research
Base: All adults aged 15+

17% of adults say that they currently use voice over internet protocol (VoIP) services

VoIP services allow consumers to make voice calls to fixed and mobile phones, as well as voice and video calls to suitably-equipped PCs over a broadband internet connection. The benefit of this is that PC-to-PC VoIP calls are generally free, and 'breakout' VoIP calls to fixed and mobile numbers tend to be cheaper than the equivalent calls originating on a fixed or mobile network. Whereas, traditionally, PCs and laptops have been used to make VoIP calls, in recent years fixed phones and mobile phones which allow the use of VoIP have become available.

Our research shows that in the year to Q1 2010 there have been increases in the proportion of people who are aware of VoIP, who have access to VoIP and who say that they currently use VoIP (Figure 5.69). The largest increase was in the proportion of people who said that they currently used VoIP, which increased by five percentage points to 17% during the year, driven in part by three percentage point increases in both the proportion of people who were aware of VoIP (to 64%) and those with access to it (to 20%) during the period.

Figure 5.69 Awareness, stated access to and use of VoIP



Source: Ofcom research

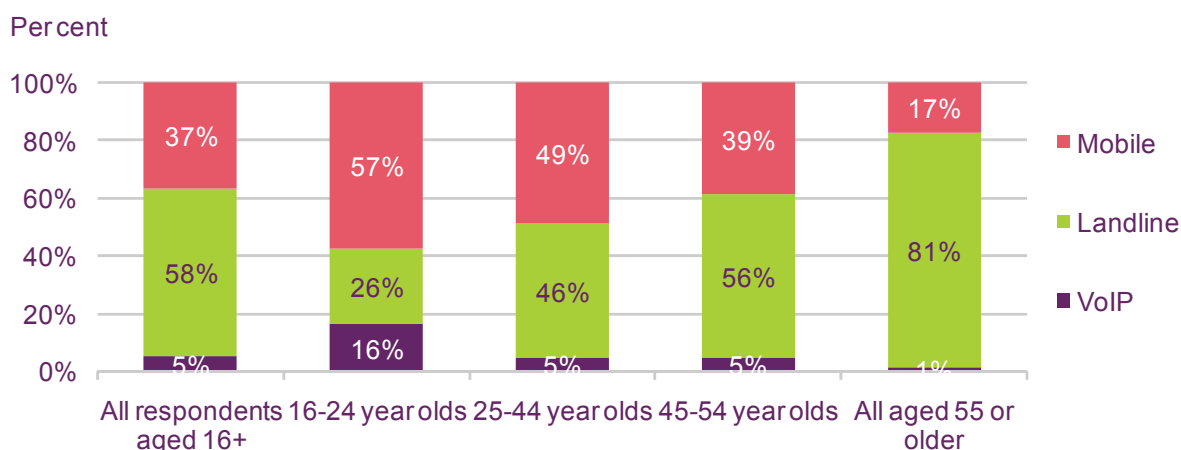
Base: All adults aged 15+

Note: Question wording changed in 2009 so treat comparisons with previous data with caution; stated access not collected in 2008.

16-24 year-olds are the highest users of VoIP services in the home

Ofcom research showed that in Q1 2010 the use of VoIP among 16-24 year olds accounted for a higher proportion of total voice calls while in the home (16%) than any other age group. This was more than three times the level reported among any of the other age groups covered by the research and the 5% average among all respondents (Figure 5.70). The 16-24 year-old age group's use of voice communication services also stood out due to the low proportion of total voice calls made using a landline (26%), and the high proportion made using a mobile (57%). These compare to averages of 58% for landline use and 37% for mobile use among all respondents.

Figure 5.70 Use of voice communication services in the home



Source: Ofcom research, Q1 2010

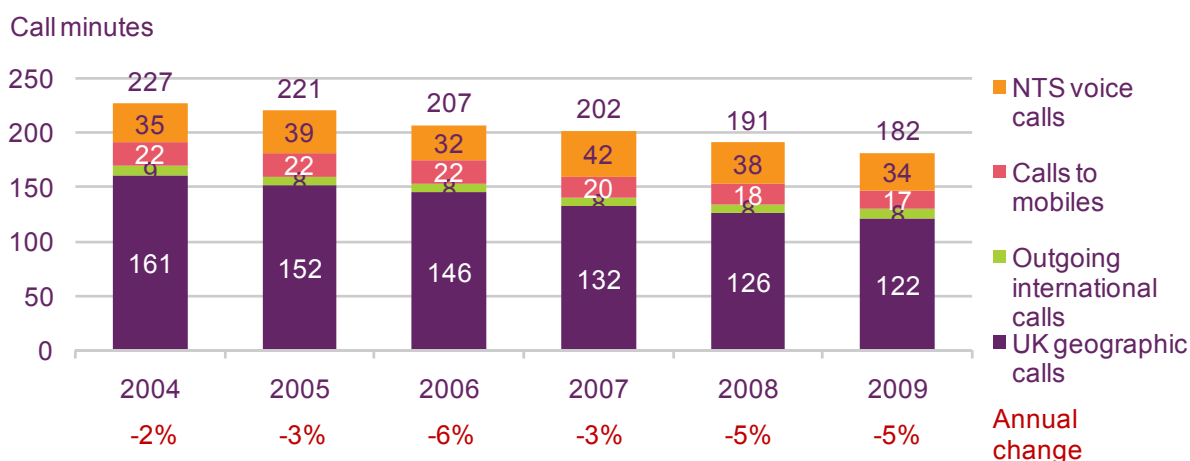
Base = All respondent days: 16+ = 7966; 16-24s = 1106; 25-44s = 3003; 45-54s = 1484; 55+ = 2373

Use of fixed and mobile voice services

Average calls per person fall by 5% in 2009

Average fixed voice call volumes per person fell by 5% to 182 minutes per month in 2009, having fallen in each of the previous five years (Figure 5.71). The continued decline in average fixed telephony use came despite the increasing number of landline tariffs that include an allowance of inclusive calls.

Figure 5.71 Average monthly outbound fixed voice call volumes per person



Source: Ofcom / operators

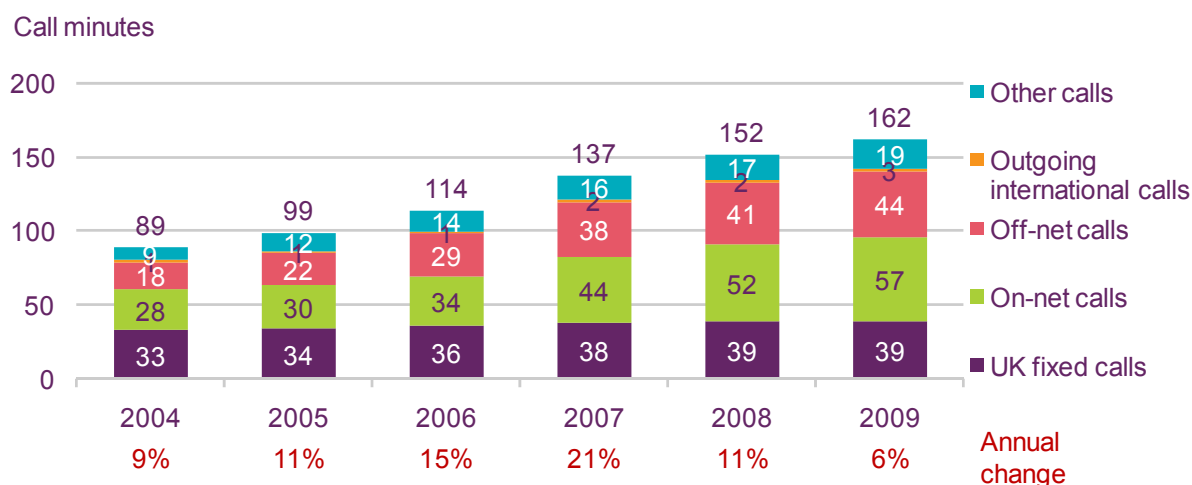
Note: Includes estimates where Ofcom does not receive data from operators

Growth in average mobile voice call use slows to 6% in 2009

Average outgoing calls per person increased by 6% to 162 minutes a month in 2009 (Figure 5.72). This represents a significant slowdown in growth, with average call volumes having increased by 11% in 2008 and 21% in 2007. This slowing growth comes in the context of a market approaching saturation with new connections coming from consumers adding second handsets (we estimate that, excluding mobile broadband connections, there were around 1.25 active mobile subscriptions per UK inhabitant at the end of 2009), and late adopters who are likely to be less frequent users. In addition, advances in handset capabilities and the

availability of tariffs including unlimited text messages and data use mean that these services will increasingly be used as a substitute for voice calls.

Figure 5.72 Average monthly outbound mobile voice call minutes per person



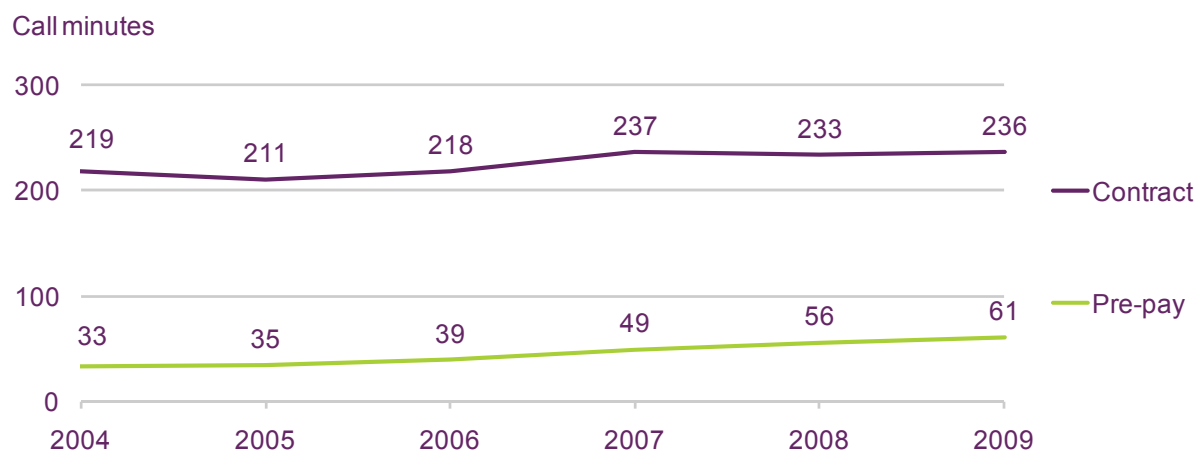
Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes 3UK

Average calls per contract and pre-pay mobile subscription both grow in 2009

Average voice calls per contract (pay-monthly) mobile subscription (236 minutes) were almost four times those from pre-pay (pay-as-you-go) subscriptions (61 minutes) in 2009. However, while average call minutes per pre-pay subscription grew by 9% in 2009, calls per mobile contract increased by just 1% (Figure 5.73).

Figure 5.73 Average monthly outbound mobile call minutes, by subscription type



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; calculation excludes mobile broadband connections

Cost of fixed and mobile voice services

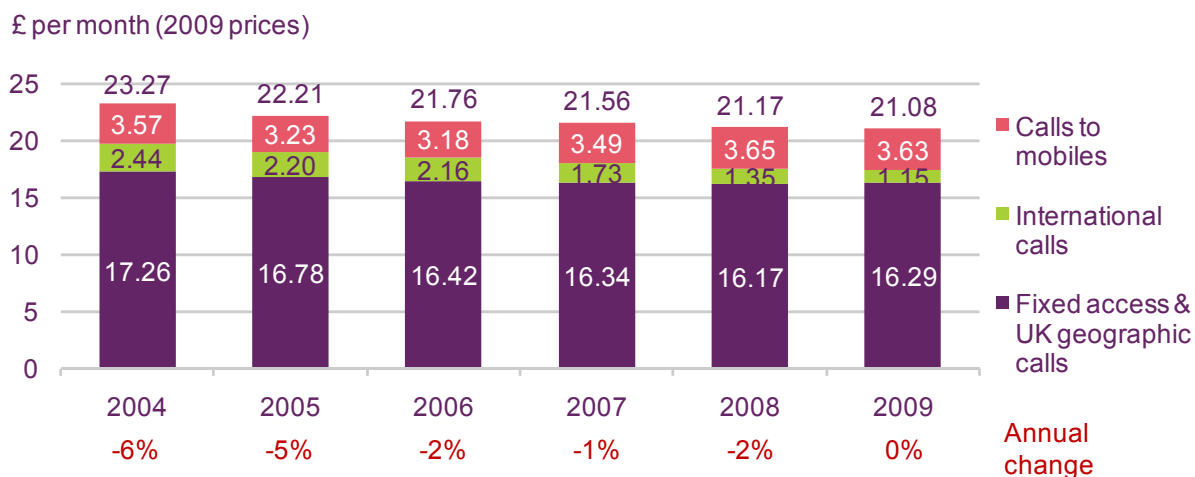
Cost of a basket of fixed voice calls is unchanged in 2009

We use analysis of the cost of a basket of telecoms services as a means of comparing costs over time. This analysis derives the 'real cost' to the consumer by calculating the average price per minute for access and calls (and price per text message for mobile) in a year, and

then defining the basket as the average number of minutes (and messages) used in 2009. Costs are then adjusted for changes in the retail prices index (RPI) in order to provide a year-on-year comparison.

The cost of a basket of fixed voice call services was unchanged in 2009 in real terms, having fallen in each of the previous five years (Figure 5.74). However, this cost includes VAT, which from December 2008 to the end of 2009 went down from 17.5% to 15%; had this not been the case, the cost of the basket of residential fixed services would have increased by 2% during the year.

Figure 5.74 Cost of a basket of residential fixed voice services



Source: Ofcom / operators

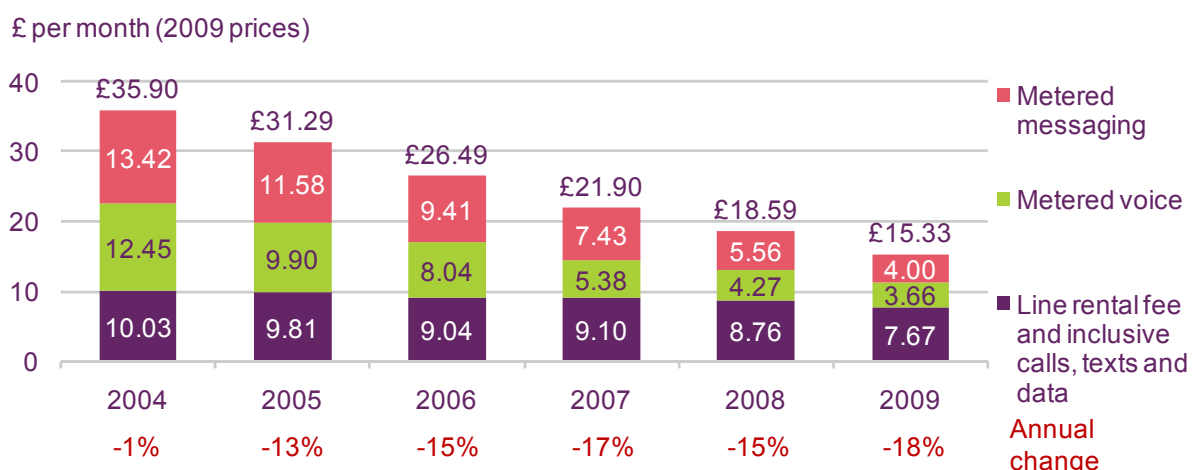
Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for RPI; includes VAT

Cost of a basket of mobile services continues to decline, falling by 18% in 2009

The cost of a basket of mobile services continued to decline in 2009, falling by £3.26 a month to £15.33 (Figure 5.75). This represents an 18% fall, and the cost of our basket of mobile voice and text services in 2009 (which equates to average use in that year) was less than half than it would have been four years previously in 2005, when it would have cost £31.29.

However, this must be treated with caution as there is, of course, a relationship between prices and usage – average call volumes were much lower in 2004 than in 2009, partly because prices were higher, so while using 2008 call volumes to compare pricing does provide some insight into pricing trends, it does not represent consumer spending. Although the cost of the basket halved between 2005 and 2008, average revenue per subscription fell by just 9% over the same period (see Figure 5.39 in the telecoms Industry section above). In addition, this analysis will include an element of rental revenues that are associated with inclusive data allowances.

Figure 5.75 Cost 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 RPI; includes VAT

Average landline and mobile costs converging

Figure 5.76 shows the average cost of fixed-originated and mobile-originated voice minutes, calculated by dividing total access and call revenues by total call volumes. It indicates that the difference in costs has gradually converged as the cost of mobile minutes have fallen sharply and the cost of fixed minutes have slowly increased (in nominal terms – costs have not been adjusted for inflation). The average cost of a mobile-originated call was 8.8 pence per minute in 2009, 21% higher than the 7.3 pence per minute for fixed-originated calls.

Figure 5.76 Comparison of average fixed and mobile voice call charges



Source: Ofcom / operators

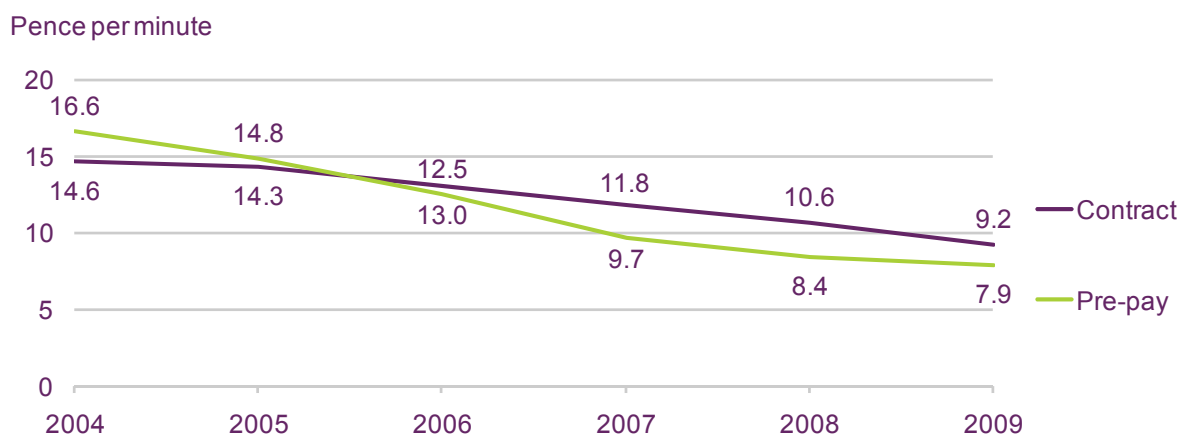
Note: Includes estimates where Ofcom does not receive data from operators; fixed calculation excludes non-geographic voice calls

Average costs of pre-pay and contract call minutes decline in 2009

The average cost of a contract (pay-monthly) mobile-originated call minute was 9.2 pence in 2009, 17% more than the 7.9 pence average for pre-pay calls (Figure 5.77). This difference was less than the 26% figure for 2008, as the average cost of a contract call minute fell by 13% compared to a 7% fall in the cost of a pre-pay minute. It should be noted, however, that the cost per minute for contract connections also includes the cost of the handset, which is included ‘free’ or heavily subsidised in many contract subscriptions. In addition, over half of all call minutes made by pre-pay users are on-net (i.e. to a number on the same network),

compared to just over a quarter of contract call minutes, and on-net calls are typically charged at a lower rate than calls to another mobile network and calls to landlines.

Figure 5.77 Average mobile cost per voice minute, by customer type



Source: Ofcom / operators

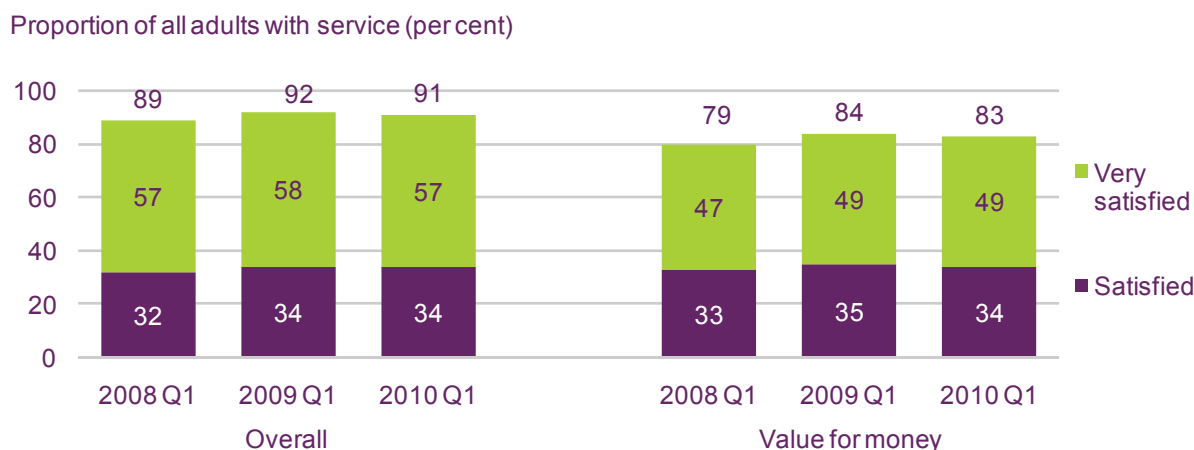
Note: Includes estimates where Ofcom does not receive data from operators; contract calculation includes rental element which will often include a number of inclusive messages and data allowance; calculations use actual minutes of use

Satisfaction with fixed voice and mobile phone services⁹¹

Satisfaction with fixed-line services is unchanged

In the year to Q1 2010 levels of satisfaction with fixed-line voice services were unchanged (Figure 5.78). Overall satisfaction with landline services remained high, with 91% of respondents with a landline saying that they were either satisfied, or very satisfied, with their overall service, and 57% saying that they were very satisfied with it. As in previous years, levels of satisfaction with the value for money of fixed-line services were lower than overall satisfaction levels, with 83% of adults with a fixed phone saying they were either very, or fairly, satisfied with the value provided by their service.

Figure 5.78 Residential consumer satisfaction with aspects of fixed-line service



Source: Ofcom research

Base: All adults aged 15+ with a fixed line phone

Note: Includes only those who expressed an opinion

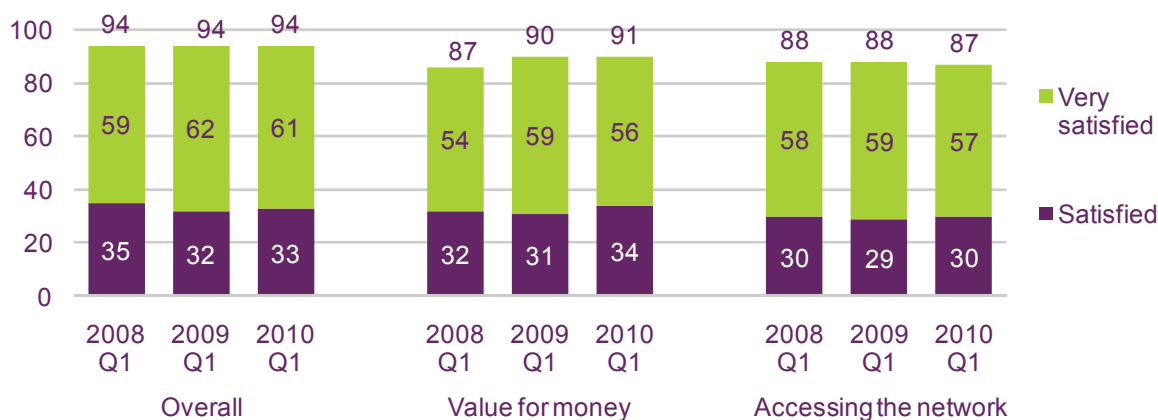
⁹¹ See Figure 5.95 and Figure 5.96 below for data on satisfaction with fixed and mobile broadband services

Satisfaction with mobile telephony services remains high, at 94%

In Q1 2010 94% of respondents with a mobile phone said that they were very, or fairly, happy with their mobile service, identical to levels in both of the previous two years (Figure 5.79). The perceived value for money offered by mobile services was 91% in Q1 2010, higher than the corresponding fixed-line figure of 83%. Satisfaction with accessing mobile networks was also high, with 87% of mobile users saying that they were either fairly, or very, satisfied with the ease with which they could access their network.

Figure 5.79 Residential consumer satisfaction with aspects of mobile service

Proportion of all adults with service (percent)



Source: Ofcom research

Base: All adults aged 15+ with a mobile phone

Note: Includes only those who expressed an opinion

5.3.4 Data services

Take-up

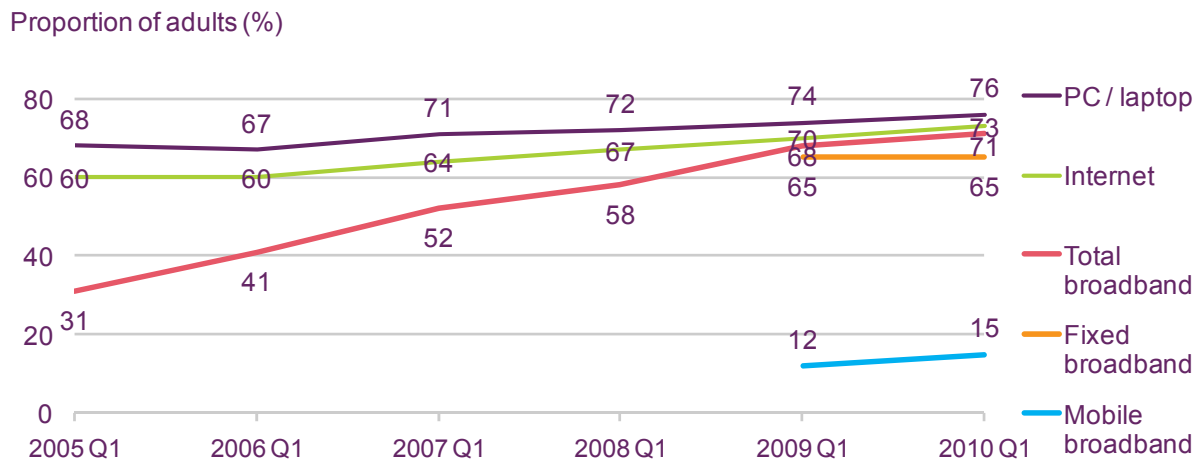
Two per cent of households continue to use dial-up services

In Q1 2010 71% of households claimed that they had a PC broadband connection, either fixed or mobile (Figure 5.80). This represented a three percentage point increase on the figure for a year previously, a significant slowing in take-up growth, given that there was double-digit growth in 2008 (caused by the migration of dial-up users to fixed broadband and also due to the growth of mobile broadband). According to our research, fixed broadband take-up was unchanged in the year to Q1 2010 and it was growth in take-up of mobile broadband services that drove the increase in overall broadband penetration (see Section 5.1.5 above).

A key factor limiting further broadband growth is PC/laptop penetration, which was 76% in Q1 2010, a two percentage point increase on the year before and just five percentage points higher than overall broadband take-up. Of the 5% of households with a PC/laptop and no broadband connection in Q1 2010, 3% did not have an internet connection, while 2% used dial-up internet services, presumably either because they were infrequent internet users, were not aware of the benefits of broadband or the online services that it enables them to use, or because it was not available to them.

It should also be noted that a growing number of people are using the internet on mobile phones (see Section 5.1.6 above), with 28% of mobile phone users accessing the internet on their phone in Q1 2010.

Figure 5.80 Household PC and internet take-up



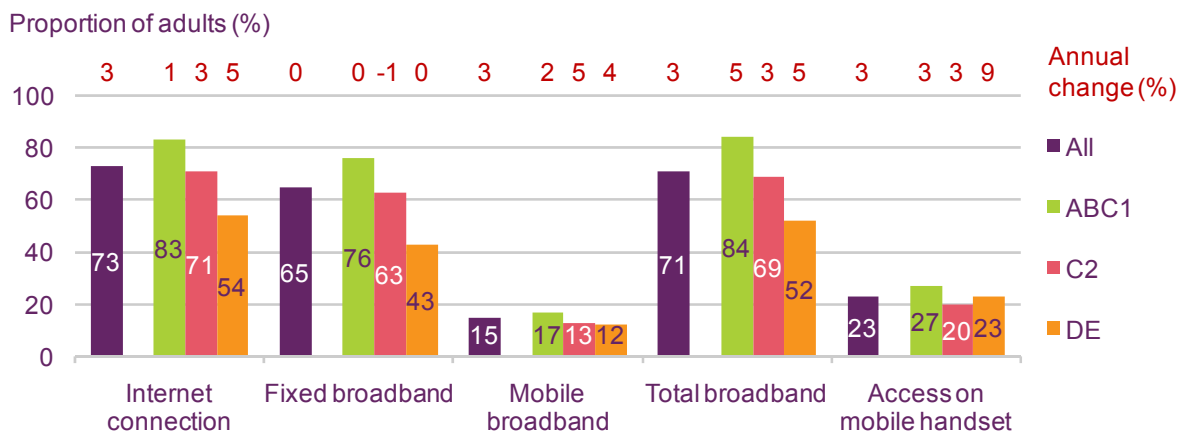
Source: Ofcom research
Base: All adults aged 15+

Use of data services is higher than average among ABC1 households

Our research suggests that take-up of internet services, fixed and mobile broadband services and overall broadband was higher than average among ABC1 households (Figure 5.81). Overall internet take-up among ABC1 households was 83%, ten percentage points higher than the UK average of 73%, while total broadband take-up among ABC1 respondents was 84%, 13 percentage points higher than average. ABC1 household take-up of fixed broadband was 76%, 11 percentage points higher than the 65% average, mobile broadband take-up was 17% compared to an average of 15% and mobile internet use on a mobile phone at 27% was four percentage points higher than average (23%).

Take-up of all of these services was lower among C2DE homes than it was in ABC1 households. For example, total broadband take-up was 69% in C2 homes and 52% in DE homes.

Figure 5.81 Household take-up of data services, by socio-economic group



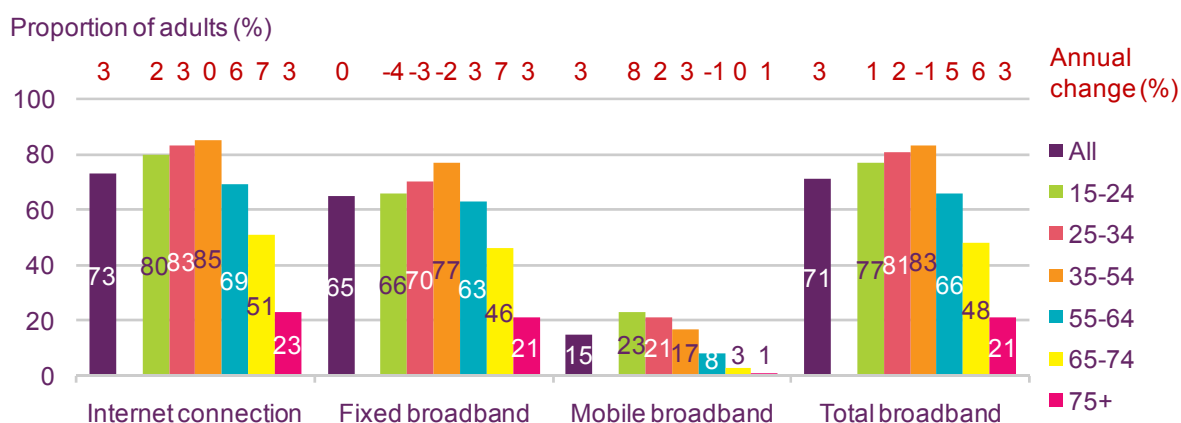
Source: Ofcom research, 2010 Q1 data
Base: all adults aged 15+

Broadband take-up highest among 35-54 year olds at 83%

Whereas there is a simple relationship between the age of a respondent and take-up of fixed and mobile voice services, with mobile take-up falling and landline take-up increasing as age increases (see section 5.3.3), this is not the case for data services (Figure 5.82)

Household take-up of all data services was higher among younger age groups than older respondents, and, for all services except mobile broadband, highest among 35-54 year-olds. For internet, fixed broadband and overall broadband services take-up rates increased with age to a peak among 35-54 year olds, after which they declined sharply as age increased. The take-up of mobile broadband by age more clearly followed that of mobile telephony, with household take-up declining as age increased (also in section 5.3.3).

Figure 5.82 Household take-up of data services, by age



Source: Ofcom research, 2010 Q1 data

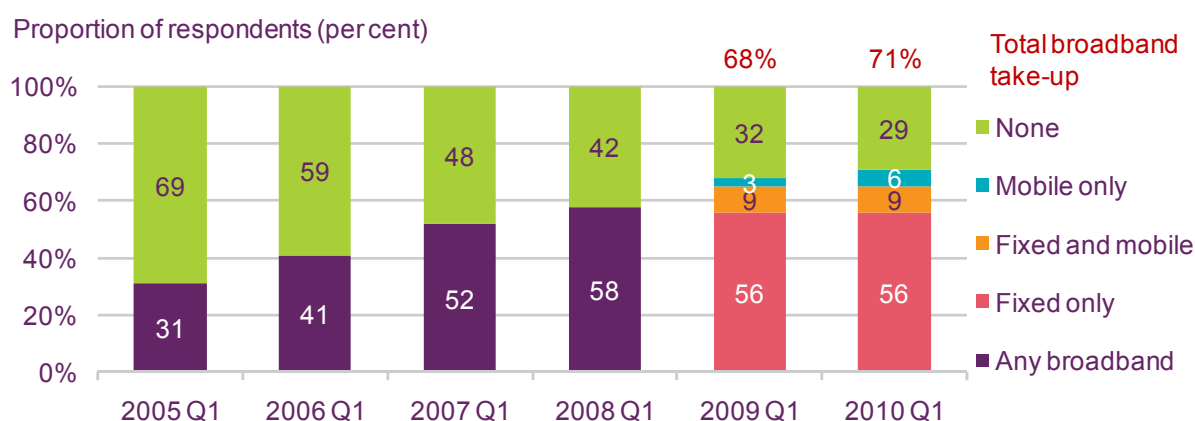
Base: all adults aged 15+

Six per cent of households used mobile and not fixed broadband in Q1 2010

Our research suggests that in Q1 2010 56% of UK households had a fixed broadband internet connection and did not use mobile broadband, while 9% of homes used both (Figure 5.83). Both of these figures were unchanged from those reported in 2009, although operator data show that there has been some growth in the number of residential fixed broadband lines (see section 5.2.5).

The data also suggest that in the year to Q1 2010 the proportion of households using mobile broadband as their only form of broadband doubled, from 3% to 6%, and it was this that drove the three percentage point increase in overall broadband take-up. Section 5.1.5 of this reports looks at the use of mobile broadband services in more depth.

Figure 5.83 Household penetration of fixed and mobile broadband



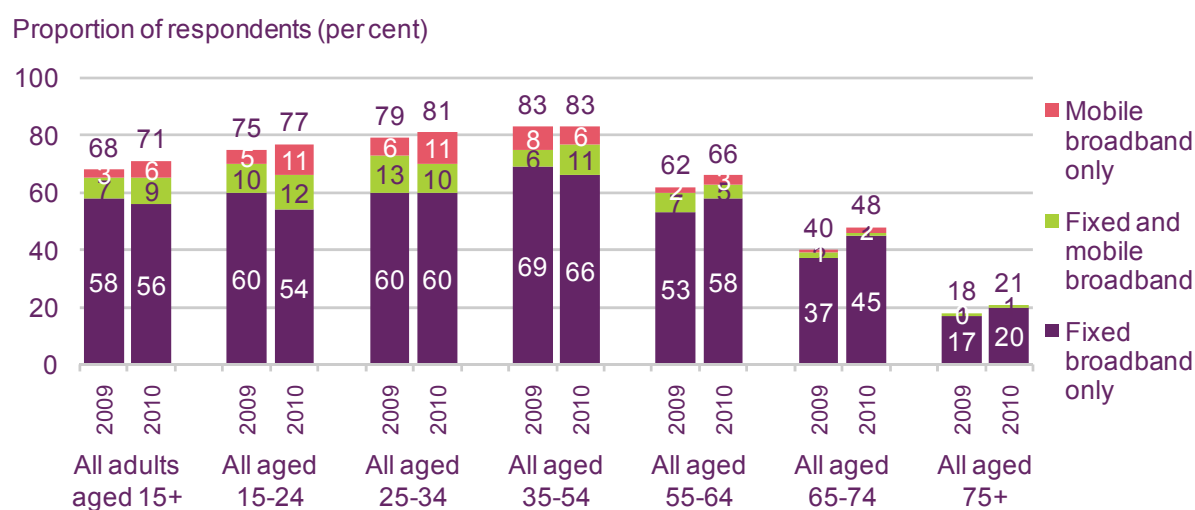
Source: Ofcom research
Base: All adults aged 15+

Older consumers embrace fixed broadband services as younger people switch to mobile broadband

Ofcom consumer research suggests that while overall fixed broadband take-up was unchanged at 65% in the year to Q1 2010, take-up increased among older age groups and fell among younger consumers. While there was a four percentage point fall in fixed broadband penetration among those aged 15 to 24 years old over the period, fixed broadband penetration rates increased by seven percentage points among those aged 65 to 74 (Figure 5.84).

Our research indicated that although there was no change in mobile broadband take-up among those aged 55 and over in the year to Q1 2010, take-up increased by eight percentage points among those aged 15 to 24 and by three percentage points among 35-54 year-olds. This suggests that younger age groups may be switching from fixed to mobile broadband (and driving overall mobile broadband growth by doing so), while increasing fixed broadband take-up among older consumers has offset the resulting fall in take-up among younger people.

Figure 5.84 Take-up of fixed and mobile broadband services, by age



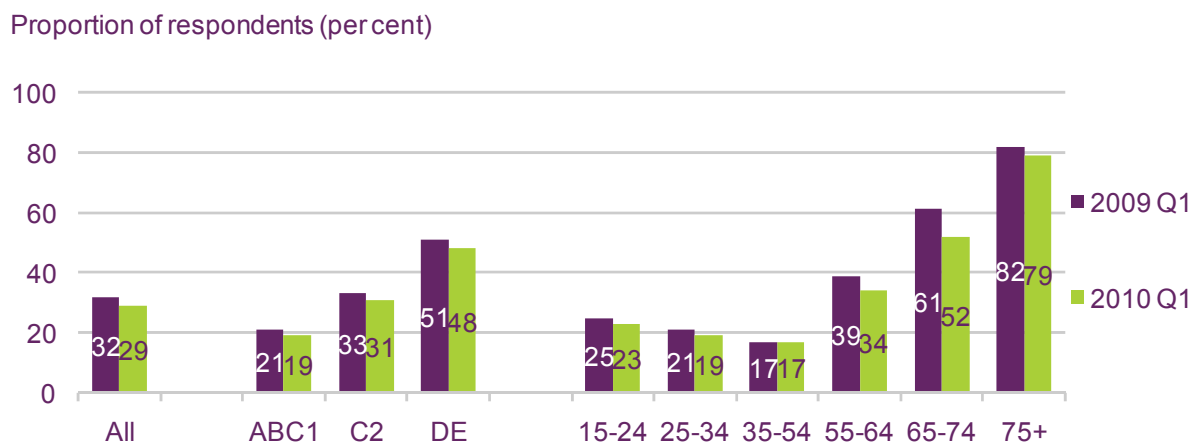
Source: Ofcom research, data as at Q1 of each year
Base: All adults aged 15+

29% of UK households did not have a broadband connection in Q1 2010

Figure 5.85 below examines the 29% of households that do not have a broadband connection and how these break down by socio-economic group and age. It shows that households in lower socio-economic groups are more likely to not have broadband; while less than a fifth of ABC1 households (19%) did not have a broadband connection in Q1 2010 the same was true of almost half (48%) of DE households

An interesting story emerges when looking at household non-ownership of broadband by respondent age. Non-ownership of broadband declined slowly as respondent age increased up to the 35-54 age group, where broadband non-ownership was at its lowest, at 17% of respondents. Above this age group levels of broadband non-ownership rose sharply, up to a maximum among the 75+ age group where almost four-fifths (79%) of respondents said that they did not have a home broadband connection.

Figure 5.85 Non-ownership of home broadband, by socio-economic group and age



Source: Ofcom research, Q1 2009

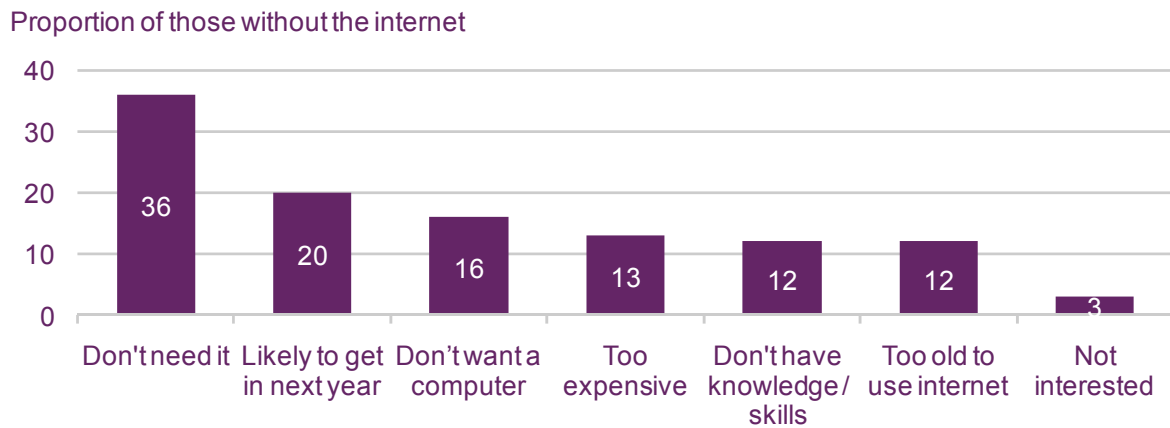
Base: All respondents

Perceived lack of need for internet is the most-cited reason for not having it

We asked all respondents who did not have a home internet connection what the main reasons for this were. Of these, one in five (20%) said that they intended to get a home internet connection within the next twelve months, while the most frequently-cited reason for not having it (mentioned by 36% of those without the internet) was that they did not have the need for an internet connection (Figure 5.86). Despite the fact that internet take-up is lower among lower socio-economic groups, only 13% claimed that the main reason for not having an internet connection was that it was too expensive.

In total, 60% of those without the internet (17% of all adults) claimed that they did not need it (36%), did not have the knowledge and skills to use it (12%) or were too old to use it (12%). This suggests that there is still a need for web and internet education among certain sectors of society.

Figure 5.86 Main reasons for not having a home internet connection



Source: Ofcom research

Note: Note: 4% of people without the internet did not know what their main reason was or provided an 'other' reason

Base: All adults without a home internet connection aged 15+

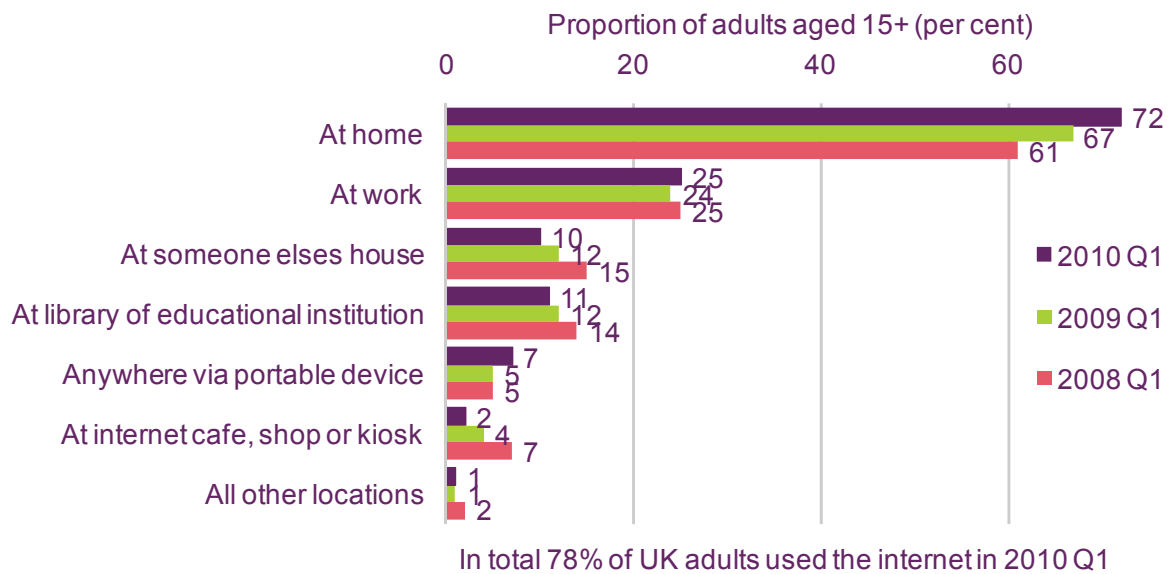
Six per cent of people only access the internet in a place other than home

Our research also asked about where people access the internet, and the most frequently-cited response was at home, which was mentioned by 72% of respondents (Figure 5.87). However, a number of other places were mentioned, including work (mentioned by 25% of respondents), someone else's house (10%), at a library or educational establishment (11%) or at an internet cafe, shop or kiosk (2%).

A further 7% of people said that they accessed the internet on the go, using a mobile device, two percentage points more than said they had done this a year previously, and partly a reflection of advancements in mobile handset internet capabilities over the past few years. While 72% of respondents said that they used the internet at home, 78% of people said that they ever used the internet (up from 74% a year previously) suggesting that 6% of people in the UK only ever access the internet while outside the home.

More information on the location of media use can be found in our *Consumer's digital day* study which can be found in Section 1.3 of this report.

Figure 5.87 Location of internet access



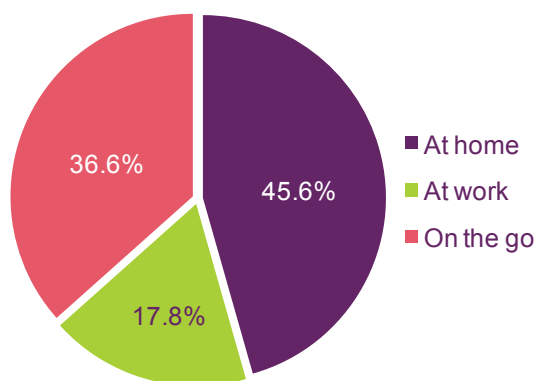
Source: Ofcom research

Base: All internet users aged 15+

Almost half of internet use on a mobile handset is at home

Figures from Cisco show that almost two-thirds of the time spent using mobile internet services in the UK is either at home or at a place of work, with over 45% of time spent online being in the home. Similarly, just over a third (37%) of mobile internet use is on the go, as shown in Figure 5.88. With many mobile handsets offering WiFi as well as cellular connectivity, the fact that almost half of mobile internet use is in the home means that some data traffic will be routed over the user's home WiFi network and fixed broadband connection rather than the mobile provider's cellular network (our research suggests that 66% of UK homes used wireless routers in Q1 2010).

Figure 5.88 Location of internet access using a mobile device



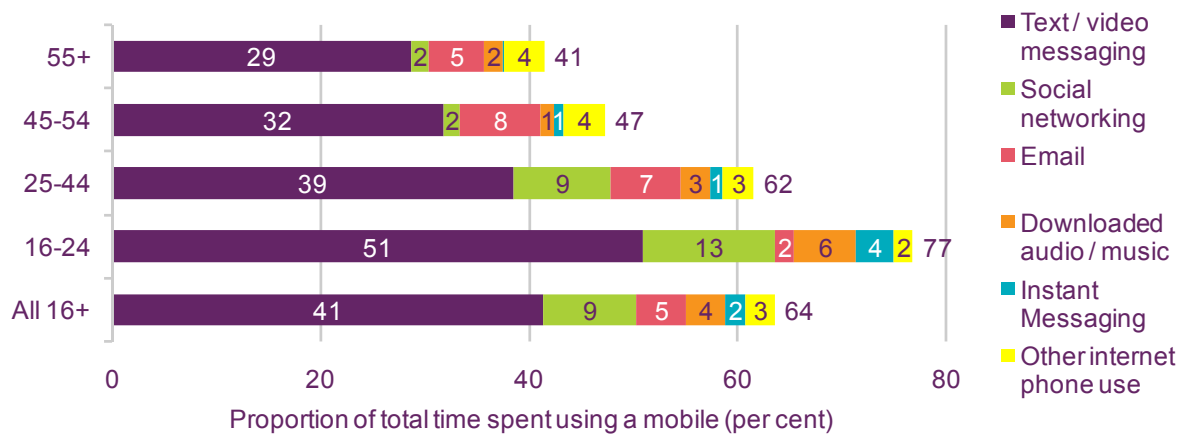
Source: Cisco Visual Networking Index Global Mobile Data Forecast, 2009-2014

Many mobile users mainly use their mobiles for messaging and other data services

Ofcom research in Q1 2010 showed that many mobile users spent the majority of time using their mobile for non-voice purposes (Figure 5.89). In terms of time spent, on average, only those aged 45 or older used their mobile mainly to make voice calls, while 16-24 year-olds spent more than three-quarters (77%) of their time using a mobile on data services (including text and video messaging, which accounted for over half of total time using a

mobile). On average, respondents spent almost a quarter of their time using a mobile (22%) on data use other than text or picture messaging.

Figure 5.89 Mobile phone data services use as a proportion of total use



Ofcom research, Q1 2010

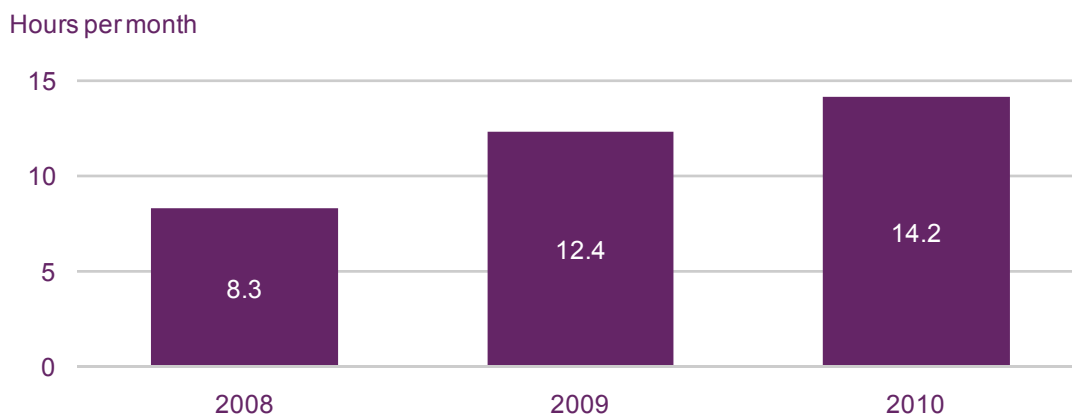
Base = All respondent days: 16+ = 7966; 16-24s = 1106; 25-44s = 3003; 45-54s = 1484; 55+ = 2373

Use of fixed and mobile data services

PC / laptop internet use grows by 15% in the year to May 2010

The average person spent over 14 hours surfing the internet on a PC or laptop at home in May 2010 (Figure 5.90), equivalent to 27 minutes a day and a 15% increase on the 12.4 hours (24 minutes a day) reported for May 2009. However, growth in the average time spent surfing the web on a PC/laptop is slowing, with growth in the year to May 2010 being less than a third of the estimated 49% growth for the previous year. The main reason for this slowdown is likely to be slowing growth in household broadband penetration, which grew by three percentage points in the year to Q1 2010, compared to double-digit growth in the previous year (note that the analysis below looks at the average time online per person in the UK, not the average time online spent by internet users).

Figure 5.90 Average fixed PC / internet time online at home per person



Source: Ofcom / Nielsen / UKOM

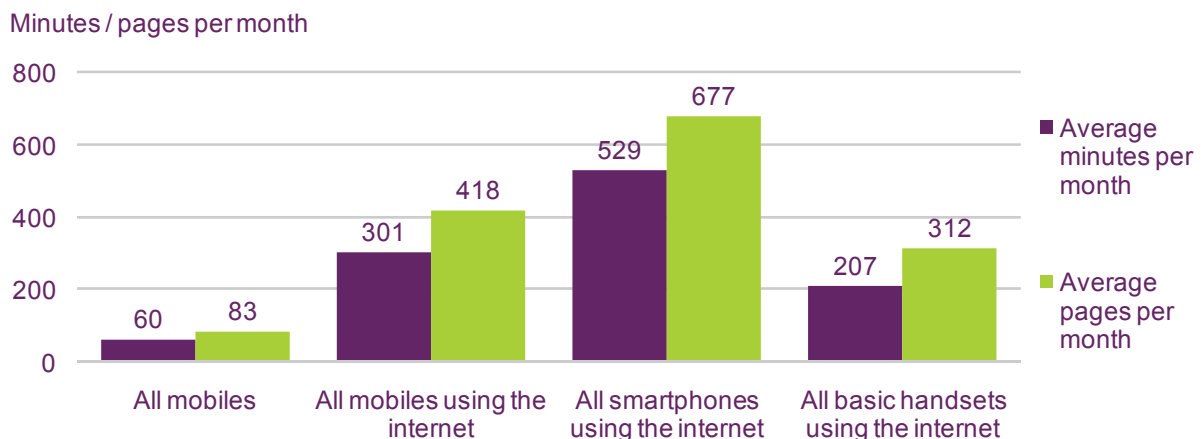
Note: Ofcom estimate of fixed internet use per person is based on Nielsen's data on the average monthly time spent online at home including the use of applications across the online population only; data are for May of each year.

The average mobile user spends an hour accessing the internet on their handset

Data from the GSM Association's *Mobile Media Metrics* shows that in December 2009 the average mobile user spent an hour a month surfing the internet on their handset and in doing so looked at an average of 83 web pages (Figure 5.91). The data also show that there were 15.9 million unique mobile internet users during the month.

Mobile internet users spent on average over five hours a month using mobile internet services, with use by those with a smartphone (8.8 hours a month) being more than twice that of basic handset users (3.5 hours). See Section 5.1.6 for a more in-depth analysis of use of the internet on mobile phones.

Figure 5.91 Average internet use per mobile subscription



Source: GSMA *Mobile Media Metrics*

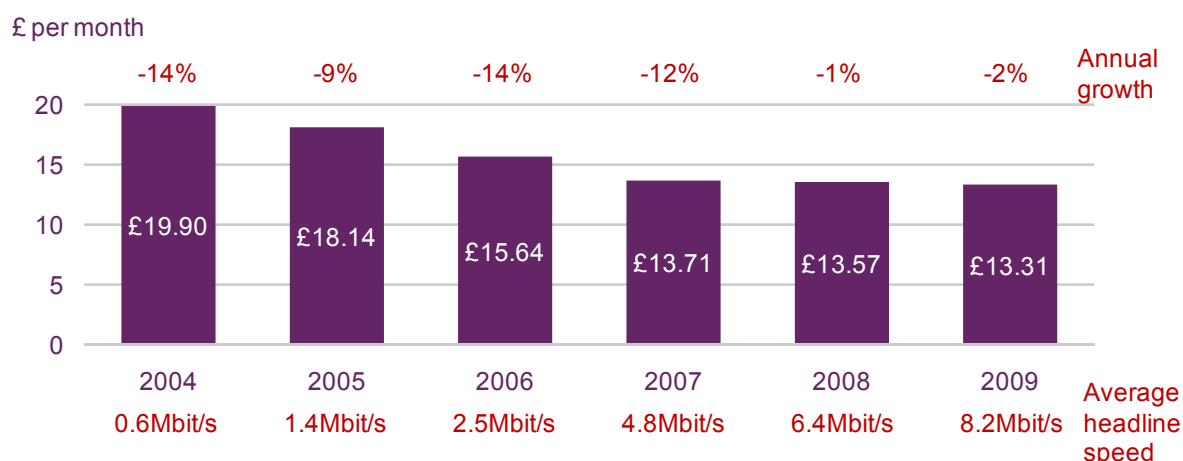
Note: Based on pre-production data for December 2009

Cost of fixed and mobile data services

Average cost of a residential fixed broadband connection falls by 2% in 2009

The average cost of a residential fixed broadband connection continued to fall in 2009, when it was an estimated £13.31 (Figure 5.92). This represented an annual decrease of 2% in nominal terms during the year, slightly higher than the 1% fall in 2008. Overall, the cost of having a home broadband connection has levelled off since steep falls in 2004, 2005 and 2006, while average connections' headline speeds have continued to increase (see Figure 5.10).

Figure 5.92 Estimated average monthly cost of a residential fixed broadband connection



Source: Ofcom / operators

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

Wide variety of tariffs available, with savings for those who bundle services

A summary of the lowest-cost broadband tariffs from a selection of ISPs, as at June 2010, is shown in Figure 5.93 below. A wide variety of tariffs are available to UK consumers, with the monthly cost of a broadband connection (and a fixed line, as is required with all providers except Virgin Media cable) ranging from £17.74 to £27.53 among those ISPs listed. The table also gives an indication of the discounts that are available for consumers who bundle communications services: for example, Virgin Media's standalone 'M' broadband service costs £20 a month, while a bundle of the same broadband service, a fixed line and a digital TV service costs just £5.99 a month extra. More information on bundling can be found in Section 1.1 of this report.

Figure 5.93 Lowest-cost fixed broadband options from major suppliers, July 2010

Provider	Broadband only	Broadband and fixed calls	Broadband and fixed line	Broadband and mobile	Broadband and pay-TV	Broadband, fixed line and mobile	Broadband, fixed line and pay-TV
AOL	£14.99 ¹	£9.99 ¹	£21.24	-	-	-	-
BSkyB	-	-	-	-	-	-	£29.00
BT	-	-	£27.53	-	-	-	£42.52
O2	£7.50 ^{1,2}	-	-	£7.50 ^{1,2}	-	-	-
Orange Home	£12.00 ¹	-	£20.50	£9.00 ²	-	£17.50 ²	-
Plusnet	£6.49 ¹	-	£17.74	-	-	-	-
TalkTalk	-	-	£18.48	-	-	-	-
Virgin Media	£20.00	-	£24.49	£30.00	£30.50	£34.49	£25.99
Vodafone	-	-	£25.00	-	-	£25.00 ²	-

Source: PurePricing UK Broadband, Bundling and Convergence Update, July 2010

¹ Also requires BT fixed line rental at £11.54 a month

² Plus cost of mobile tariff

Notes: 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, plus availability of TV channels included within packages may differ by operator and option;

Mobile broadband services available for less than £10 a month

Figure 5.94 below summarises the cheapest stand-alone mobile broadband products available from UK providers. This shows that, excluding the effect of the increase of VAT to 17.5% in 2010, of the providers listed O2, 3UK and Virgin Mobile have launched lower-cost tariffs, while Vodafone and Orange have increased the download limits on existing products. Because mobile broadband does not require rental of a fixed line, it represents a lower-cost way for some households to get online, although, as detailed in Section 5.1.5 above, the typically slower speeds provided and the lower usage limits do not make it directly comparable to fixed-line broadband.

Figure 5.94 Lowest-cost stand-alone mobile broadband contracts, by provider

Provider		Monthly charge	Data allowance	Minimum contract length	Charges above allowance	WiFi hotspot use
Vodafone	2009	£14.68	1GB	1 month	£14.68 / GB	Not included
	2010	£15.00	3GB	1 month	£15.00 / GB	Not included
O2	2009	£14.69	3GB	1 month	19.6p / MB	Unlimited
	2010	£10.00	1GB	1 month	2.4p / MB	Unlimited
T-Mobile	2009	£14.68	3GB fair use	18 months	n/a	Unlimited
	2010	£15.00	3GB fair use	18 months	n/a	Unlimited
Orange	2009	£9.79	1GB	18 months	1.43p / MB	Not included
	2010	£10.00	1.5GB	18 months	2p / MB	Not included
3UK	2009	£9.79	1GB	12 months	10p / MB	Not included
	2010	£7.50	1GB	18 months	10p / MB	Not included
Virgin Mobile	2009	£14.68	3GB	18 months	£14.68 / GB	Not included
	2010	£10.00	1GB	2 months	£15 / GB	Not included

Source: Pure Pricing UK Mobile Pricing Factbook

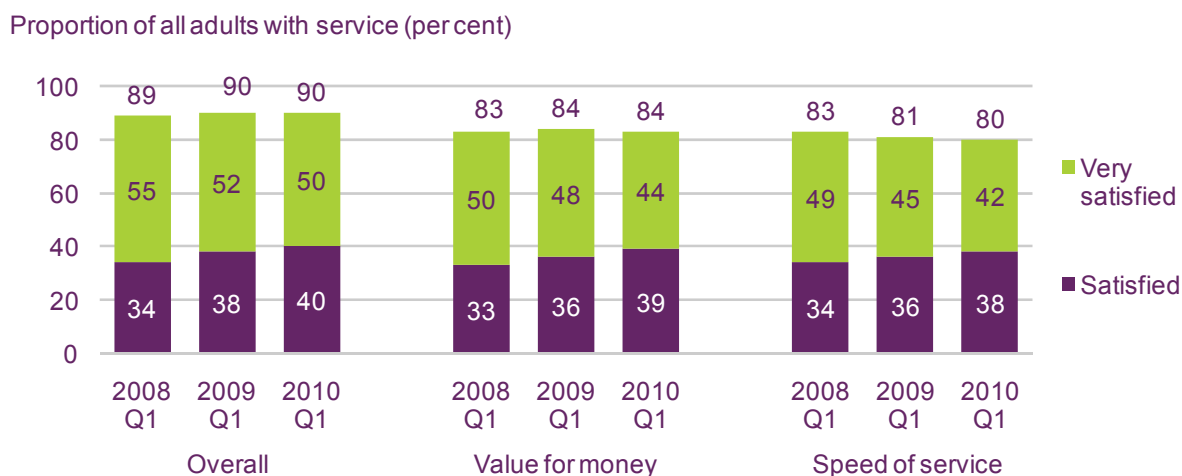
Note: Data as at March of each year; all tariffs exclude activation charges, hardware costs and promotional discounts; all tariffs are the lowest price available, contract lengths vary

Satisfaction with fixed and mobile data services

Ninety per cent of consumers are satisfied with their fixed broadband service

Overall satisfaction with fixed broadband services was unchanged among consumers in the year to Q1 2010, with 90% of those with a broadband connection at home being either very, or fairly, satisfied with their service (Figure 5.95). Satisfaction with the value for money of fixed broadband services was also unchanged, at 84%. A lower proportion of consumers (80%) were satisfied with the speed of fixed-line services, and satisfaction levels have fallen slightly over the last two years. This comes despite increasing actual speeds, so is likely to be due to a combination of an increasing demand for internet services that require higher speeds (for example streaming video), a perception among an increasing minority that the speeds delivered to them are not satisfactory for these services, and an increasing gap between the actual speeds delivered and the advertised 'up to' speeds.

Figure 5.95 Residential consumer satisfaction with aspects of fixed broadband service

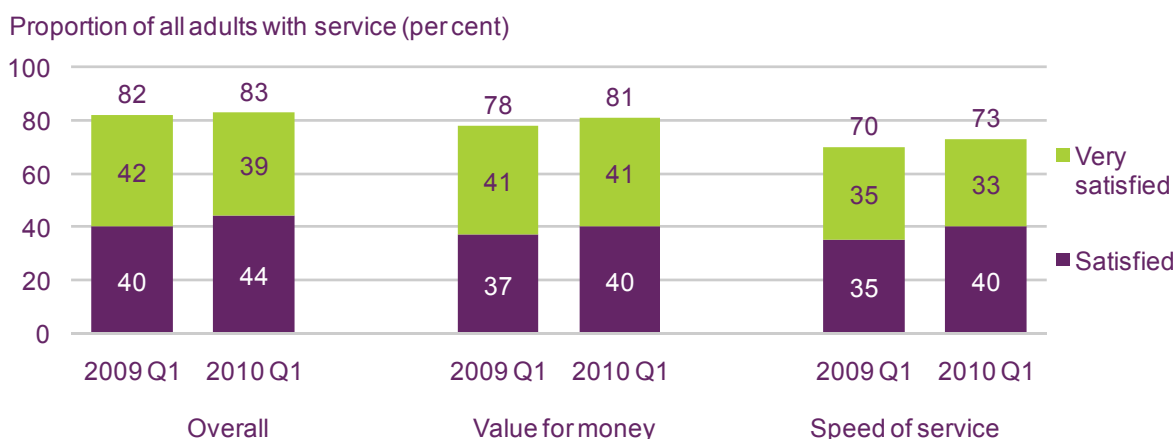


Source: Ofcom research
 Base: All adults aged 15+ with a fixed broadband connection
 Note: Includes only those who expressed an opinion

Consumers not as satisfied with mobile broadband services as with fixed

Levels of satisfaction with mobile broadband services continued to be lower than for fixed services in Q1 2010, when 83% of mobile broadband users said that they were satisfied or very satisfied with their service (Figure 5.96). Satisfaction with the value for money of mobile broadband was at a similar level, with 81% of mobile broadband users being very, or fairly, satisfied. However, satisfaction with the speed of mobile broadband connections was lower, with less than three-quarters (73%) of users being either very or fairly satisfied with the download speeds provided by their connection. This is likely to be due to the relatively low speeds provided by mobile broadband, which average less than 1Mbit/s, around a fifth of the average speed of fixed-line broadband services (see Section 5.1.5 above).

Figure 5.96 Residential consumer satisfaction with aspects of mobile broadband service



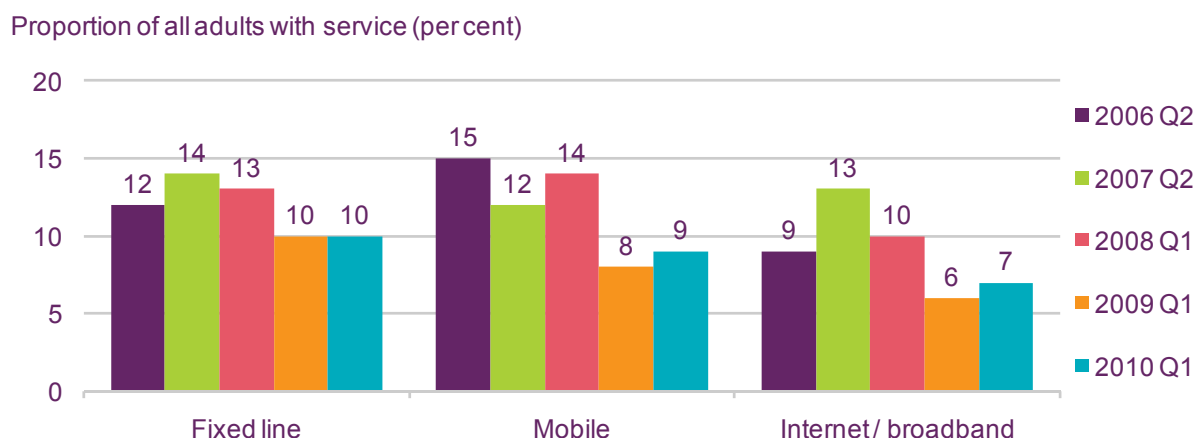
Source: Ofcom research
 Base: All adults aged 15+ with a mobile broadband connection
 Note: Includes only those who expressed an opinion

5.3.5 Switching

Switching levels unchanged for all services

Levels of switching of landline, mobile and broadband services were unchanged in the year to Q1 2010, with 10% of people with a landline, 9% of people with a mobile phone and 7% of broadband users saying that they had switched provider in the previous year (Figure 5.97). Switching levels remain lower than they had been before Q1 2009 for all services.⁹²

Figure 5.97 Proportion of consumers who switched provider in the previous 12 months



Source: Ofcom research

Note: Data for 2008 onwards are the proportion of broadband consumers who had changed broadband provider in the last 12 months and is not directly comparable with previous data which is the proportion of internet users who had switched; 2009 data are based on fixed broadband consumers; switching when moving home is excluded from these data.

⁹² Ensuring that consumers can switch communications provider, by removing unnecessary barriers, is one of Ofcom's nine priorities in its *Annual Plan* for 2010/11, <http://www.ofcom.org.uk/files/2010/06/annplan1011.pdf>, pp13-14