Ofcom

Citizens and communications services

Ensuring that communications services work in the interests of UK citizens

January 2015

About this document

Ofcom has been regulating communications services in the UK for over ten years. Over that period the way that communications services are delivered and used has changed significantly.

Ofcom's principal duty, as set out in section 3(1) of the Communications Act 2003, includes furthering the interests of UK citizens in relation to communications matters. This document reviews the development of communications services and how they further the interests of citizens. It focuses on the work Ofcom does to ensure that as many people as possible can use and benefit from communications services.

The document describes this work in three main areas:

- availability;
- accessibility; and
- affordability.

We also look ahead to work which will be needed to maintain or improve the availability, accessibility and affordability of communications services for citizens.

This report complements our January 2014 publication, *Cost and Value of Communications Services in the UK*, which focused on the development of services for UK consumers.

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Section 1

Foreword

1.1 Foreword from the Chairman

Access to good communications is important for every one of us. Reliable and affordable services oil the wheels of our daily lives and support the economy and society as a whole. And increasingly, new technology is at the heart of those communications.

Our ability to access, use and rely on not only our television, phone and postal services, but also our mobile phones and broadband connections, determine how fully we can play a part in our economy, society and culture.

In the UK, we have a strong tradition of securing citizens' access to communications services. In the postal sector, for landline phones and in broadcasting this has led to the principle of 'universal access', secured through a combination of competition and regulatory interventions. Ofcom set a 98% indoor coverage requirement on one of the 4G mobile licences, while the government has established a Universal Service Commitment for basic broadband.

This report looks at the availability, accessibility and affordability of communications services in the UK and takes stock of how well they support the needs of UK citizens. It should be read alongside Ofcom's Cost & Value report which, published in January this year, described how competition and innovation has improved the range and quality of communications services in the UK over the last 10 years. The report found that average spend on broadband in this period has fallen by about half and spend on mobile phones by about a quarter, while the services on offer have improved. For most sectors that Ofcom regulates, not only are consumers spending less, but they are also getting more for their money.

But new markets bring new challenges. In many respects, the UK's communications sector compares well against international benchmarks, but there is still more that it can do to serve citizens. We know that not everyone is able to access mobile and broadband services when they need to and that a significant minority lack the digital skills to make use of the internet.

This report deals not only with problems of service quality and coverage that still affect many people, but also with issues that concern the most vulnerable in society, including for those who struggle with poverty or disability. We understand that services like text relay or subtitling mean that people with hearing difficulties can use their phones or enjoy television. Such unsung services change people's lives.

These issues, and the plans that are already under way to take forward improvements into the digital world, are increasingly important as digital access becomes key to so many services. This is why promoting opportunities to participate remains a key priority for Ofcom.

Dame Patricia Hodgson

Chairman

Section 2

Executive summary

Communications services are vital to our participation in society. Today, we expect to be served by a range of communications services, whether one to one (e.g. phone and post), one to many (e.g. broadcasting), or all the mixtures made possible by broadband, the internet and the social web.

Participation as a citizen is conditioned by the availability of communications services, their accessibility and affordability. This report is focused on those three themes.

Ofcom's principal duty, as set out in section 3(1) of the Communications Act 2003 is, in the carrying out of its functions, to further the interests of citizens and consumers. This report describes how communications services particularly benefit citizens and the extent to which the market is delivering these services. It looks at the part played by regulation and public policy, and it also sets out some of the most significant future policy challenges.

Earlier this year Ofcom published a report on the cost and value of communication services. It demonstrated how regulated competition has served consumers over the last decade, and this report complements that work.[1]

A focus on citizen interests is implicit to all that we do, and we carry out significant pieces of work where that focus is particularly prominent. Important examples are our third review of public service broadcasting and our report on internet citizens. Their special areas of focus are not replicated here, but alongside this document form part of a wider programme of work on how communications services address the interests of citizens.

2.1 Availability

As members of an increasingly connected society, the availability of communications services is becoming more and more important to our daily lives. Whilst there is more to do, good progress has been made.

Fixed voice telephony. Universal availability of fixed phone lines for all citizens is underpinned by a Universal Service Obligation (USO). Take-up is high, but in the last ten years many citizens have begun using a wider range of other devices, including mobile devices and internet-based services, to make voice calls.

Emergency services. The UK has an effective emergency call system. It is supported by regulatory requirements on mobile emergency call roaming, emergency SMS, network reliability, and the provision of caller location information.

Fixed broadband. The networks that support superfast broadband are available to 78% of the country. The government has set a target of 95% of the UK receiving speeds of at least 24Mbit/s by 2017, while discussions are underway about providing superfast broadband for the final 5%. There are, however, large variations in speeds locally, regionally and across each of the Nations. Around 2% of UK households currently receive a broadband speed of

[1] Every year Ofcom publishes a report on the state of the UK's communications infrastructure. In December 2014 the most recent Infrastructure Report was released, and we used it to update some of the figures presented here.

less than 2Mbit/s and do not have the option of switching to superfast.[2] There is also an increasingly compelling argument that speeds of 10Mbit/s are needed to achieve an effective quality of service. We will therefore need to seek to improve speeds for homes that cannot receive such a service.

Mobile voice coverage. Aggregate figures for mobile voice coverage of premises are encouraging. However, non-existent or patchy coverage ("not-spots" and "partial not-spots") persists in some locations, especially away from population centres and on roads and rail. Even where coverage is predicted, users' experience may be compromised by environmental factors such as modern building materials, or the poorer radio reception characteristics of some modern smartphones. More needs to be done to improve coverage for users. Ofcom has set out a five point plan to make progress and we are supporting other initiatives which seek to address these problems including the government's Mobile Infrastructure Project and a range of commercial initiatives which seek to improve the consumer experience.

Mobile data coverage. This has improved markedly over the past ten years as 3G networks have matured and 4G services have been rolled out. As part of the recent 4G spectrum auction we imposed a coverage obligation on one of the licenses, requiring the licence-holder to provide indoor coverage to 98% of premises at speeds of 2Mbit/s by 2017, with at least 95% coverage in each of the Nations.

Broadcasting. The national digital TV switchover programme significantly increased the availability of digital terrestrial television (DTT) services. Over 20 TV channels, including the main Public Service Broadcasting channels and high definition services, are now available to over 98.5% of the UK population. An even greater number of purely commercial channels are also available on DTT to around 90% of the population. Satellite and cable coverage also provide platform choice for citizens, although neither offer coverage as high as DTT. Today, DAB coverage is increasingly widespread, but does not yet match FM coverage, being patchier in rural areas and in the Nations.

Post. The oldest public communications service remains highly valued and is underpinned by statutory requirements on Royal Mail to maintain a universal service.

2.2 Accessibility

It is essential that communications services are accessible to all members of society.

Telecoms services for disabled people. As technology has advanced, so have the communications options for users with disabilities. These include emergency SMS and 'next generation' text relay (where a third party relays the call and transcribes speech to text and text to speech as necessary).

Television access services. There is a well-established regulatory framework to ensure high quality television access services: subtitling, signing and audio description. The provision of these services has significantly increased over the last decade.

Digital inclusion and skills and confidence online. As society becomes more connected, being offline creates a greater risk of social exclusion. Making good use of the internet requires certain skills, and millions of those who have gone online in the last ten years have

[2] The government has established 2Mbit/s as the minimum speed for delivering an acceptable service https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78096/10-1320-britains-superfast-broadband-future.pdf .

acquired them. But these skills are not yet universal, and work is still needed to help those who are online use the internet safely and confidently. Ofcom has a specific duty to promote media literacy, and provides research and evidence on trends in this area.

2.3 Affordability

In addition, we will only maximise the potential of communications services if they are widely affordable.

Competitive markets delivering choice and value. Our recent report into the cost and value of communications services sets out a general trend of lower prices and higher quality over the last decade. Effective competition helps to promote genuine choice and ensure that citizens are not priced out of essential services. Where competition does not occur naturally, carefully focused regulation aims to facilitate competition where possible and provide protection for those who are vulnerable. Local loop unbundling, for example, enabled the emergence of a range of broadband providers offering competitive, affordable packages.

Ensuring everybody can afford essential services, including broadband. There are many more communications services now than ten years ago, and those deemed essential are widely affordable. But for a small number, cost remains a barrier. The USO mandates a social tariff for landline services. BT has recently introduced a low-cost broadband package for BT Basic customers, giving up to 10 GB usage per month. This is a significant step in ensuring that broadband, and the communications services it supports, are affordable to low income households. The safeguard cap on Second Class mail helps to ensure all citizens can continue to afford a basic postal service.

2.4 Future opportunities and challenges

The regulated market is currently serving citizens well, with high levels of access providing a secure foundation for the growth and success in communications services in the UK. But more work is needed to ensure that this continues. We have identified a number of areas in our 2014/15 Annual Plan that require immediate action, including:

- improving mobile coverage, where we have set out a five point action plan, which seeks to address the issue of full and partial not-spots;
- securing the universal provision of the postal service; and
- improving the quality of live subtitling.

We have also identified a number of longer-term policy challenges that the market, the regulator and government will need to consider. The key ones are:

- rising citizen expectations, in particular around the availability, reliability and speed of data services and mobile networks;
- ensuring that the benefits of technological change are shared, in particular that all parts of society are able to make use of services provided over the internet;
- facilitating innovative new technologies, such as machine-to-machine communication, to benefit citizens.

Section 3

Quick guide to the findings in this report

Priority area	Progress in the last decade	Work still to do
Fixed broadband	Current generation broadband is now almost universally available. Successively more advanced broadband technologies, including ADSL2+, DOCSIS 3.0, and fibre-to-the-cabinet have also been rolled out to large parts of the country, leading to significant increases in average speeds. The networks that support superfast broadband are now available to 78% of the UK, with further roll-out underway, stimulated by around £1.5bn of public funding. The government has set a target of 95% of the UK receiving speeds of at least 24Mbit/s by 2017.	Going forward, we face three key challenges: (i) securing a minimum adequate service for the homes that still cannot receive 2Mbit/s; (ii) improving speeds for homes that cannot at the moment receive an effective quality of service, of around 10Mbit/s; (iii) achieving further increases in the coverage of superfast broadband. These are being addressed through a combination of ongoing commercial investment and delivery, the work of the government's Broadband Delivery UK programme and policy discussions about what is a suitable absolute minimum.
Mobile coverage	The number of areas where voice coverage is provided by more than one operator has increased as mast sharing agreements have taken effect. 3G data services have moved into the mainstream since 2004, with coverage increasing from 75% of premises (measured by coverage of the largest network), to 99% of premises with outdoors 3G coverage from at least one operator. 4G services have recently been rolled out and coverage is already relatively widespread, with 72% of premises covered (outdoors) by at least one operator.	Coverage remains weaker in certain situations, in particular indoors, on road and rail routes and in some rural areas. Users' experience may also be compromised by factors such as modern building materials and poorer radio reception characteristics of some modern smartphones.These challenges are being addressed by a number of initiatives including further commercial mast sharing and the government's Mobile Infrastructure Project. We have included a licence requirement of 98% indoors coverage of 4G by 2017 on one operator, and the other operators have stated they will match this. Ofcom publishes coverage data by operator as a guide to consumers. We are also considering what further steps could be taken to improve coverage outdoors, and working with government and industry on ways to address full and partial not-spots.
Contacting emergency services	Mobile emergency call roaming has been introduced to ensure 999 or 112 can be called even where the caller's network is not available. Emergency SMS has been mandated to ensure	The industry is taking steps to improve emergency caller location information on mobile calls. We are closely monitoring the effectiveness of this initiative and keeping under review new developments

	that deaf and hard-of-hearing citizens can easily contact the emergency services.	and opportunities that may offer emergency services richer information.
Broadcast access services	UK viewers now enjoy significantly higher levels of subtitling, signing and audio description than they did in 2004.	Further work is in hand around the availability of 'talking Electronic Programme Guides' and to improve the quality of live subtitling. We have recently consulted on the signing arrangements for low audience TV channels.
Digital inclusion	Internet take-up has increased from around 53% of homes in 2004 to 82% in 2014, reflecting its increasing importance to society. This is driven by the proliferation of online services and devices that give access to them.	Those that remain 'offline' face arguably greater risks of exclusion than they did ten years ago, and those online require ongoing development of their skills and knowledge to remain safe and confident users. We will continue to use our research in this area to improve understanding of the barriers to digital participation, particularly low skills and confidence, to inform policy.
Affordability	Average real prices have fallen for each of the main communications services – landline, broadband and mobile – with the exception of post and some pay TV services. Average broadband prices have fallen by 48% between 2004 and 2012.	We will continue to focus on ensuring that markets are competitive, with widespread innovation and the ability for new players to enter markets providing competitive pressure on prices. We will continue our work to improve awareness of the most affordable deals, to help consumers switch when they want to, and ensure that affordable services continue to be available to the least well off members of society.

Section 4

Why communications services matter to citizens

4.1 Introduction

Ofcom's principal duty, under Section 3(1)(a) of the Communications Act 2003 (the "Act") includes, in carrying out its functions, to further the interests of citizens in relation to communications matters. The Act defines citizens as "all members of the public in the United Kingdom."

The importance of communications services to citizens can be seen from several perspectives.

4.2 Social inclusion

The communications sector helps to meet a basic need for citizens to be able to contact one another. Under Section 3(2)(b) of the Act we are under a duty (among other things) to secure the availability of a wide range of electronic communications services in the UK.

Voice services, both fixed and mobile, as well as services offered over the internet allow friends and family to keep in touch. Among the young, elderly and vulnerable, communications services foster a sense of security, encouraging greater social participation, while the wide range of freely available radio and television channels encourages a sense that citizens everywhere can take a full part in society and the economy. The importance of social inclusion makes access to communications services for those with impairments or special needs a particular focus. Indeed Section 3(4)(i) of the Act requires that we have regard where relevant to the needs of persons with disabilities, the elderly and those on low incomes.

Modern communications technology also supports communities. Broadband, for example, enables those living in remote areas to keep in touch with loved ones elsewhere or to work from home in roles that would otherwise require them to travel long distances. Other kinds of community depend on being connected, with organisations such as *Mumsnet* and *The Student Room* helping to bring together a large number of users across the country to share and discuss issues of common interest.

Where circumstances of social or economic deprivation exist, they can be made worse when communications services are lacking. The risk of this can be mitigated by making those services available, accessible and affordable.

4.3 Education and information

The internet is providing easier access to education and information than ever before for those who have skills and confidence online. Access to such resources is increasingly important, and Ofcom has a duty under section 11 of the Act to promote media literacy, so that as many citizens as possible are able to share in the benefits of digital technologies.

Prosperity is closely associated with the internet. Not only do more people trade online now than ever before, but the internet has become one of the most important means by which employers recruit workers. As such, those looking for work increasingly benefit from the

internet. Many universities now offer open-access online courses, which have extended the reach of educational institutions to millions, offering free tuition to those who might otherwise have no access to it.

Access to TV, radio and the internet also support democratic participation by ensuring that all citizens are able to keep track of public policy debates, and to understand and engage with democratic processes. Post also offers a means to vote to those who might not otherwise be able to reach polling stations.

4.4 Accessing public services

For some time postal and telephone services have been critical for the effective operation of public services, from the sending and receiving of tax forms or benefits applications to telephone consultations with GPs.

The internet allows public services to be more efficiently delivered, better targeted and more easily accessed than ever before.[3] The government has recognised this in its "Digital by Default" strategy. At the moment this approach is typically concentrated on transactional services such as applying for road tax or a driver's licence, although there may be potential in the future for other face-to-face public services to move online.

4.5 Safety of life

Since the establishment of the 999 service in 1937 the expectation has grown that the emergency services will be easily contactable whenever and wherever they are needed. The ability to access the emergency services in times of need is arguably one of the most significant citizen interests in communications.

[3] For more details on citizens' use of public services online see *Internet Citizens 2014* http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/Internet_Citizens_Report_14.pdf

Section 5

Ensuring that communications services are widely available

5.1 Introduction

Citizens expect to be within reach of each other and the services they depend on. In an increasingly connected society, they have come to rely on interacting across longer distances and with greater immediacy than ever before. Their ability to do so depends on the availability of communications services. As broadband becomes an increasingly important part of our lives, expectations about what is regarded as necessary universal services are extending beyond the traditional phone line and 999 and 112 services.

Section 3(2)(b) of the Act requires Ofcom to secure, in carrying out our functions, the availability of a wide range of electronic communications services in the UK. Section 3(4)(e) further requires us to have regard, in performing our duties, to the desirability of encouraging the availability and use of high speed data transfer services.

5.2 Voice telephony

Almost all UK premises can make use of a telephone landline service, guaranteed by the Universal Service Obligation. Over the last ten years the range of voice telephony services has grown, creating more choice for citizens, with the traditional landline increasingly treated by some households as a backstop.

The right to an operational fixed telephone line is one of the most well-established features of telecoms regulation, supported by Universal Service Conditions imposed on BT and KCOM (in the Hull area). As a result, availability is very high. BT reports that typically less than 0.1% of requests for new lines are not fulfilled.[4] KCOM indicates that no requests for a telephone line have been turned down.[5]

Most people in the UK regard a telephone landline as a key part of their lives. In our recent Essential Services and Affordability Research it was reported that 59% of those surveyed regarded landline voice calls as essential or very important from a personal perspective.[6] In the same survey 30-39% of respondents thought fixed voice services were essential to society.

In recent years, however, many citizens have come to rely less on their landline to make voice calls. Over 90 billion minutes of calls are still made over the traditional network annually, but this is down from 133 billion minutes five years ago.

This reduction is partially because of increases in other ways of making calls, in particular growth in the use of mobile networks, and internet-based voice services such as Skype. It is

[4] Some requests might not be fulfilled if the cost of providing a connection exceeds the £3,400 'reasonable cost' limit and the customers choose not to pay the excess charges.
[5] *The Infrastructure Report 2011* http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/bbspeeds2011/infrastructure-report.pdf
[6] *Results of research into consumer views on the importance of communications services and their affordability* (July 2014) http://stakeholders.ofcom.org.uk/market-data-research/other/cross-media/affordability/

also because citizens are making increased use of text-based communication services, such as instant messaging, social networking and micro-blogging sites (such as Twitter).

Despite this gradual reduction in the importance of traditional voice services, the number of residential phone lines is gradually increasing. This is likely to be because a traditional phone line is necessary to receive fixed broadband, and broadband access to the internet has increased in importance.

5.3 Contacting the emergency services

Perhaps the most important use of a telephone line is the ability to make a 999 or 112 call to the emergency services. Regulatory obligations are in place on all providers, focussed on ensuring that these calls do not fail.

Over the last ten years technological advances have offered new means of summoning help, in particular most emergency calls are now made from mobile phones. We have introduced national roaming for mobile emergency calls to improve reliability, added the option of emergency SMS for those unable to make voice calls, and have been examining ways to improve the accuracy of the emergency location information provided by mobile handsets.

Future challenges around contacting the emergency services include ensuring that communications services continue to meet the expectations of citizens as the technology that underpins the fixed communications infrastructure is upgraded, as well as exploring the role of new kinds of mobile data, such as the role for pictures or videos captured by mobile devices.

Every year around 36 million calls to the police, ambulance, fire service and coastguard are made using this service, around two thirds from a mobile phone. This amounts to around a call every second.

Given the critical nature of this service, Ofcom requires providers take all necessary measures to maintain uninterrupted access to it, and provide accurate information on the location of the person making the call, so that assistance can be provided to the correct location as quickly as possible. We also require emergency calls to be free of charge for the caller.

Several specific measures have been taken to ensure uninterrupted access to emergency services. In the case of a fixed telephone line, service is maintained in the event of a power cut either by supplying power to the telephone via the communications network, or through the provision of battery backup. In the case of mobile, access to emergency services is maintained by allowing a caller to roam onto any network that is available when their own network is not.[7]

We have also intervened to ensure that all UK citizens can access the emergency services. In particular, citizens who are unable to make voice calls, due to hearing or speech impairments, can now use emergency SMS to send a text message to the 999 or 112 service, which is then passed to the police, ambulance, fire and rescue, or coastguard service.

[7] It is still the case, however, that if coverage is not available from any provider, it will not be possible to make a call from a mobile phone.

The ability to locate the caller is a vital element of emergency call handling. It allows the call handling agent to ensure that the call is delivered to the correct emergency call centre, who can then quickly dispatch emergency assistance to the correct location. The industry is currently implementing measures to improve the location accuracy provided by mobile phones, by making use of the GPS capability built into most modern handsets.

Looking further ahead, we expect the number of sources of emergency calls to increase. For example, REALRIDER is a smartphone app designed for motorcycle riders. It can detect collisions using sensors contained in a smartphone, and automatically alert the emergency services. We also expect demand for new types of data to be passed to the emergency services, including pictures and video. We will continue to consider how best to exploit the opportunities presented by these new technologies.

5.4 Fixed broadband availability

Ten years ago, basic broadband services were widely available across the UK. Since then, new broadband technologies have emerged, each an advance on its predecessor. The spread of these improved networks has been driven in part by the emergence of new devices for accessing the internet, such as smartphones and tablets. These have supported significant increases in broadband take-up and also contributed to growing expectations about the availability, speed and reliability of networks.

However, each wave of innovation has also brought new coverage challenges, three of which are particularly important today:

1) A small but significant number of homes are still unable to access a service of at least 2Mbit/s, and there is more work needed to deliver wider availability of good quality broadband, especially in rural areas.

2) There is an increasingly compelling argument that speeds of 10Mbit/s are needed to achieve an effective quality of service, especially where there is simultaneous use of the connection by different services or users within the home.

3) Superfast broadband coverage has increased rapidly, but remains short of universal coverage, and there are challenges around rural coverage and also some urban 'not-spots.'

Over the past ten years, broadband access to the internet has increasingly been regarded as an essential service. Therefore, although broadband does not form part of the Universal Service Obligations imposed on BT and Kingston Communications, the government has set out its intention to ensure that everyone in in the UK is able to access broadband speeds of at least 2Mbit/s. It has also set out a target for 95% of the UK to receive superfast broadband (which it defines as at least 24Mbit/s) by 2017.

Ten years ago, basic broadband services were widely available, with 87% of telephone exchanges upgraded to support the provision of broadband services based on ADSL technology over existing telephone lines. Additionally, cable networks delivering broadband services based on DOCSIS technology were available to 46% of households.[8]

However, the performance of this initial generation of broadband services was limited, with typical advertised speeds of between 0.5 and 1 Mbit/s per second, and take-up remained relatively low at around 18% of homes (4.4m connections at the end of June 2004).[9] Many

[8] *Communications Market Report* 2004 http://stakeholders.ofcom.org.uk/binaries/research/cmr/cm_2004.pdf
[9] *Communications Market Report* 2004 http://stakeholders.ofcom.org.uk/binaries/research/cmr/cm_2004.pdf

households were still using dial-up connections, and overall around 50% of homes had some form of internet connection.

Since then, broadband coverage has grown to become nearly universal. Over this time the performance of fixed broadband networks has increased dramatically, with new generations of technology allowing UK citizens to access an ever wider array of services online. We can identify broadly three waves of innovation.

Firstly, the ADSL technology used to provide broadband over conventional telephone lines has been upgraded, with services based on ADSL2+ technology now widely available. Whereas households using the original ADSL technology received an average actual download speed of 3.3Mbit/s in May 2014, households which have been upgraded to ADSL2+ received an average speed of 8.1Mbit/s.[10]

This delivery of more advanced ADSL-based services has largely been driven by competition between providers, underpinned by a regulatory obligation on BT to offer Local Loop Unbundling. This obligation allowed providers other than BT to install their own equipment in BT exchanges, and provide broadband services over BT's lines. By June 2013 there were over nine million unbundled lines.

Secondly, the DOCSIS technology used to provide broadband services over cable has also been upgraded. The current generation of cable technology can provide speeds of up to 152Mbit/s. 4.4m households and businesses received broadband services via cable in the first quarter of 2014,[11] and in May of this year, these services had an average speed of 43.3Mbit/s.[12]

Thirdly, BT has responded by upgrading its network to bring fibre closer to the home, and this is available for other retail providers to use. BT has been upgrading its cabinets to deliver 'fibre-to-the-cabinet' services using VDSL technology, and in June 2014 this network passed just under 70% of premises.[13] These services currently provide maximum download speeds of 'up to' 38Mbit/s or 76Mbit/s (on a retail basis), and in May 2014 had average download speeds of 33.3Mbit/s and 58.7Mbit/s respectively.[14]

Much of the investment to date in superfast broadband has been encouraged by competition between providers. We have adopted a regulatory approach that balances our responsibility to promote competition with the user benefits associated with increased investment in next-generation networks. This seeks to provide BT with a reasonable degree of commercial flexibility, in particular in relation to pricing, whilst not allowing this to be used to undermine competition.

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[10] UK Fixed-line Broadband Performance as of May 2014, published October 2014 http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/broadband-speeds-may2014/

[11] *Telecommunications market data tables Q1 2014* http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/tables/q1-2014/

[12] UK Fixed-line Broadband Performance as of May 2014, published October 2014 http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/broadband-speeds-may2014/

[13] The Communications Market 2014 Nations reports http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/

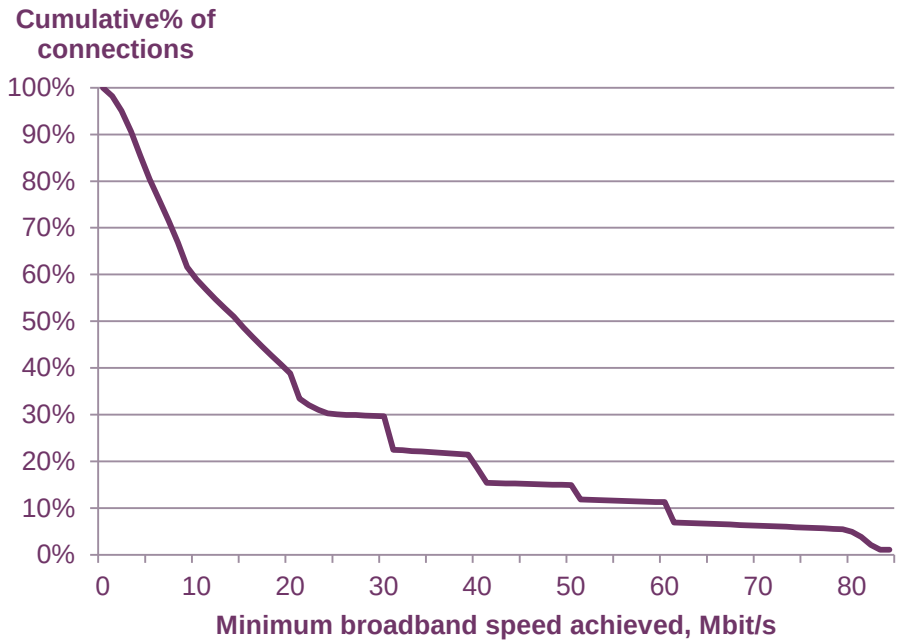
[14] *UK fixed-line broadband performance, May 2014* http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/may2014/Fixed_bb_speeds_May_2014.pdf

In more rural areas, private sector investment has been supplemented by around £1.5bn of public funding through the government's Broadband Delivery UK programme. We have supported this process through the provision of technical advice.

Overall, 78% of UK premises were served by next generation access services as of June 2014,[15] and plans are in place to increase superfast broadband availability to 95% of premises by 2017. Take-up has also grown, and now stands at 82% of households,[16] well above the 42% take-up of internet access in 2002, the year when dial-up internet take-up peaked.[17] The average broadband speed for residential consumers across the UK was 18.7Mbit/s in May 2014.[18]

However, it is important to note that whilst the average speed provided to UK households continues to improve, this average masks significant variability in broadband performance. This is illustrated by the figure below, which shows the percentage of households receiving different levels of performance. This shows that 60% of connections are faster than 10Mbit/s on average, across the UK.

UK Distribution of broadband speeds, 2014[19]



Source: Ofcom/operators

Despite the rapid and extensive roll-out of superfast broadband, 4% of broadband connections operated at speeds of less than 2Mbit/s in June 2014. Around half have the option of switching to superfast, at an additional cost of typically £5 - £10 per month.

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[15] *The Communications Market 2014 Nations reports* http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports

[16] *Communications Market Report* 2014 http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr14/2014_UK_CMR.pdf. 82% of households have an internet connection of any type.

[17] *Communications Market Report* 2005 http://stakeholders.ofcom.org.uk/binaries/research/cmr/telecommunications.pdf

[18] UK Fixed-line Broadband Performance as of May 2014, published October 2014 http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/broadband-speeds-may2014/

[19] *The Infrastructure Report* 2014 http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2014/infrastructure-14.pdf

Therefore around 2% of UK households currently receive a broadband speed of less than 2Mbit/s and do not have the option of switching to superfast.

Moreover, the broadband speed required by a typical household is likely to increase over time, as individual applications require more bandwidth, and the number of simultaneous applications increases. We may begin to view around 10Mbit/s as the effective quality of service broadband consumers expect, with 2Mbit/s more of an 'essential' level. Last year we estimated that around half of all broadband connections in the UK were at least 10Mbit/s.

Going forward, we therefore face three key challenges:

(i) securing a minimum adequate service for the homes that still cannot receive 2Mbit/s;
(ii) improving speeds for homes that cannot at the moment receive an effective quality of service, of around 10Mbit/s;
(iii) achieving further increases in the coverage of superfast broadband.

These are being addressed through a combination of ongoing commercial investment and delivery, the work of the government's Broadband Delivery UK programme and policy discussions about what is a suitable absolute minimum.

5.5 Mobile coverage

Coverage of mobile voice services has remained at or above 99% of premises over the last ten years. However, while these aggregate figures for mobile household coverage are encouraging, patchy or non-existent coverage in some locations ("not-spots" and "partial not-spots") means there is significant room for improvement.

A decade ago most citizens made very little use of mobile data. Over the last ten years, however, demand for mobile data has dramatically increased, driven in part by take-up of smartphones and tablets. The availability of 3G services has risen significantly across the country and 4G services have recently been rolled-out. Citizen expectations around mobile coverage are at the same time increasing steadily, especially as mobile data becomes more important.

In response to these growing expectations there are significant schemes underway to improve coverage. These include the government's Mobile Infrastructure Project and commercial infrastructure sharing projects. Mobile data coverage will be improved by the regulatory requirement that 4G services are delivered to at least 98% of households by 2017, with at least 95% coverage in all the Nations of the UK.

However, demand for mobile capacity and extensions of coverage are likely to continue to grow given the ever increasing importance of mobile services. Our 2014/15 Annual Plan lays out our intention to undertake further work to encourage improved mobile coverage, with work in this area also detailed in our five point plan. In particular, we are currently working with industry and Government on a number of measures that would address both partial and total not-spots.

The success of the mobile phone has been founded on widespread coverage, enabling citizens to stay in contact as they move around. With citizens' expectations of service

availability and quality growing, coverage has become an important issue.[20]There are however practical issues which complicate measurement of mobile coverage:

- The maps of mobile coverage produced by operators are based on theoretical models, calibrated using measurements of actual performance that are broadly accurate overall but can never be absolutely accurate in predicting coverage at a specific location.

- Consumers use mobile phones in many different situations – indoors, outdoors, on the move, in cars, as pedestrians along roads in built-up areas and in wide open spaces. No single measure of coverage can capture all these use cases. We therefore assess mobile coverage against a range of different measures in order to gauge the overall consumer experience.

No theoretical model is perfect and there will always be some variance between predicted and actual coverage. For our Infrastructure Report 2014 we carried out our own measurement programme, as well as gathering data from operators.

The coverage provided on a variety of different measures, is summarised in the table below.

Claimed outdoor coverage levels for "all" and "at least one" operator, June 2014[21]

	2G Voice and Text		3G Data	
	Coverage from all operators	Coverage from at least one operator	Coverage from all operators	Coverage from at least one operator
Premises	97%	>99%	84%	99%
Motorways	>99%	100%	83%	100%
A + B Roads	84%	97%	45%	91%
Land mass	68%	89%	26%	78%

Ten years ago, 2G mobile voice services were already widespread, with coverage at around 99% of premises. At the same time, mobile data services were still very much in their infancy, with 3G coverage of each operator ranging from around 30% to around 75% of premises.[22]

Today, at least 99% of UK premises have both 2G and 3G outdoor coverage from at least one operator. 97% of UK premises have 2G coverage from all operators, and 84% of UK premises have 3G coverage from all operators.

It is worth noting that the methodologies used to predict mobile network coverage are also changing to reflect the way that user behaviours and expectations are evolving. For instance, the nature of 3G technology is that coverage is dependent on how busy the network is and what speeds are delivered. When the 3G spectrum was licensed in 2000, the

[20] In July 2014 Ofcom published a report on consumer views of the importance and affordability of communications services. It found that most consumers typically consider telephone services (particularly mobile) and access to the internet to be essential.
[21] *The Infrastructure Report* 2014 http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2014/infrastructure-14.pdf
[22] *Communications Market Report* 2004 http://stakeholders.ofcom.org.uk/binaries/research/cmr/cm_2004.pdf These figures are based on operators' public statements at the time, and are therefore not directly comparable with Ofcom's more recent assessments of mobile coverage.

assumptions made on network usage and speeds were very light, in line with consumer behaviour at the time. The analysis used in this report is based on a methodology which assumes higher network use and higher speeds than we specified in the original obligation, in line with fact that consumer behaviour has altered, leading to much higher network usage and higher speed expectations.

In addition, consumer experience may also be compromised by reception problems caused by higher levels of signal blocking from modern construction materials and techniques and, in some instances, the fact that some multi-purpose smartphones have inferior radio reception characteristics compared to earlier handsets dedicated to making and receiving calls. Consequently, we have decided to use more exacting methodologies for predicting coverage. This can lead to a slightly lower apparent coverage level but this is likely to more accurately reflect actual user experience.

We expect 4G networks to provide significantly greater levels of coverage for mobile data services than current 3G networks. As part of the recent 4G auction we imposed an ambitious coverage obligation on one of the licenses, requiring the licence-holder to provide indoor coverage to 98% of consumers at speeds of 2Mbit/s by 2017, with at least 95% coverage in each of the Nations. This licence was acquired by O2, who have publically stated that they intend to reach the 98% target by the end of 2015. The other mobile operators have made public statements committing to reach similar targets.

Mobile coverage is generally poorer for citizens using mobile phones to make calls while on the move. For example, about 13% of A and B roads are currently in partial 2G not-spots, areas where 2G voice coverage is only provided by a subset of operators.[23] We expect a material improvement in these figures; in particular we expect the commercial site-sharing agreement between Vodafone and O2 to reduce the number of partial 2G not-spots on A-roads and B-roads.

There are a number of initiatives currently underway to improve mobile coverage. The government's Mobile Infrastructure Programme has provided funding of £150m to improve mobile coverage in areas where it is currently poor or non-existent. Commercial initiatives to improve coverage include Vodafone's rural Open Sure Signal programme, which enables the deployment of small base-stations to rural locations.[24] We have recently published a call for inputs on the use of smart repeaters to improve mobile coverage within buildings and are also undertaking work to better understand the impact of using mobile phones whilst in vehicles, which may cause service to appear degraded.

However, demand for mobile capacity and extensions of coverage are likely to continue to grow, given the increasing importance of mobile services. Our 2014/15 Annual Plan lays out our intention to undertake further work to encourage improved mobile coverage, with work in this area also detailed in our five point plan. This work will include supporting the government's Mobile Infrastructure Project and other mobile coverage initiatives, improving the quality of consumer information around mobile coverage to encourage informed customer choice and competitive pressures for switching suppliers, and examining how rail and road coverage might be improved.

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[23] *The Infrastructure Report* 2014
http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2014/infrastructure-14.pdf

[24] http://www.vodafone.co.uk/our-network-and-coverage/what-affects-your-coverage/rural-open-sure-signal/?cid=vnty-vod-auto/dvynfvtq%28uv%28bx%29zbzne

5.6 Broadcasting

TV coverage

The national digital TV switchover programme significantly increased the availability of digital terrestrial television (DTT) services compared to pre-switchover levels. Over 20 TV channels, including the main Public Service Broadcasting channels and high definition services, now achieve near-universal availability to over 98.5% of the UK population, a figure chosen to match pre-switchover analogue coverage. An even greater number of purely commercial channels are also available on DTT to around 90% of the population. Satellite and cable coverage also provide platform choice for citizens, although neither offer coverage as high as DTT.

UK citizens have access to a widely available DTT service that is free at the point of use. The regulatory framework plays a significant role in ensuring that this remains so.

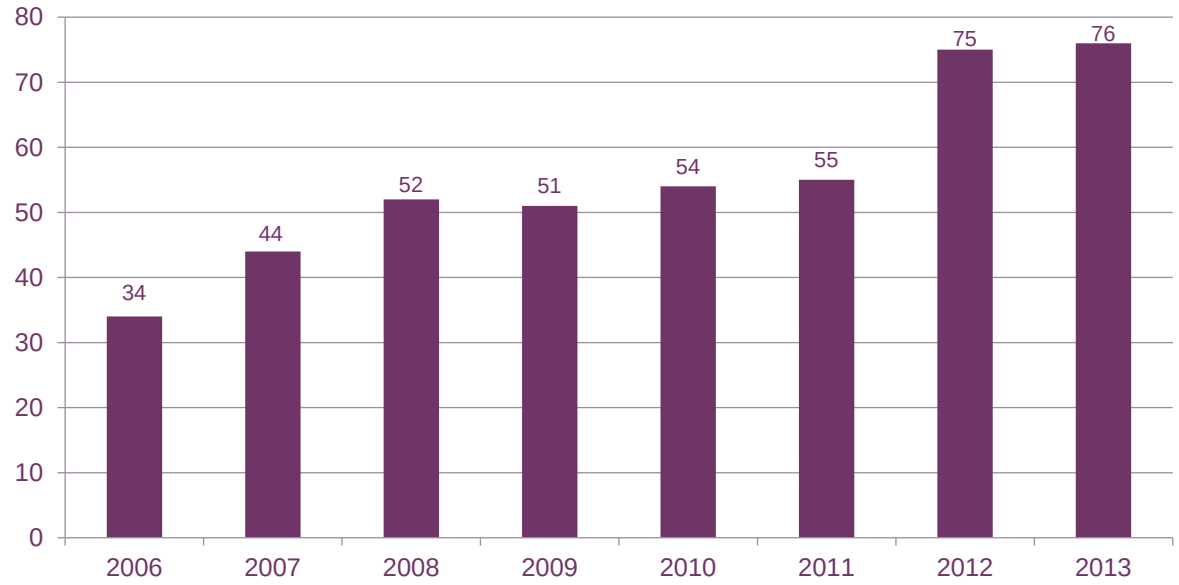
The switch from analogue to digital TV was completed in October 2012. This marked the end of a significant national infrastructure programme, which required effective cooperation between Ofcom, the government and the broadcasters. Following the completion of switchover, the coverage of the three Public Service Broadcaster (PSB) multiplexes (that carry programme services such as BBC One, ITV and Channel 4) now exceeds 98.5% of UK households. This near-universal coverage has required significant infrastructure investment by the broadcasters: the UK's larger 80 transmitter sites deliver PSB DTT coverage to around 90% of the population, while the remaining 8.5% is served by around 1,100 smaller "relay" transmitters.

Approximately 90% of households are covered by national 'commercial' multiplexes[25] - carrying programme services including Dave, QVC and Yesterday. An "interim" (600 MHz) multiplex covers 76% of UK households, and provides primarily HD content (including Al Jazeera HD, BBC Four HD and 4Seven HD).[26] Ofcom is also currently licensing local TV channels. Local channels are already operating in ten towns and cities across the UK.

[25] A slightly higher number of households may receive coverage from one or two, but not all, of the commercial multiplexes.

[26] *The Infrastructure Report* 2014
http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2014/infrastructure-14.pdf

5.7 Number of TV channels available in UK: DTT and all TV channels



Source: IHS / Ofcom
Notes: TV channels only. SD, HD and +1 channels all count as unique channels. Regional versions of national channels not counted. Data based on spot check (channels numbers may also vary throughout single year). Does not include HD services launched on interim multiplex in late 2013.

From time to time, spectrum management decisions have necessitated changes to the spectrum allocated to DTT. In these cases we recognise the important role that the DTT platform fulfils in making free-to-view content available, and the need to ensure that DTT reception is protected. For example, when making the 800MHz spectrum band – previously used by DTT – available for 4G mobile services, Ofcom required the mobile network operators to create and fund a new organisation, *at800*, to manage a process for preventing or mitigating any interference that TV viewers might experience as a consequence of 4G mobile roll-out.

Satellite TV is the second most popular TV platform in the UK, with over 10m households using subscription and/or free-to-air satellite services. Satellite coverage is predominantly determined by whether there is line-of-sight from an individual household to the satellite, and by whether it is practical for the householder to install a satellite dish. This makes it hard to estimate coverage accurately, given the local nature of the features that determine line-of-sight, such as tree or building clutter, or whether a dish can be installed, including the need for planning or landlord permission, or whether a block of flats has a shared distribution system. Nevertheless, we estimate that satellite coverage is likely to be over 90% of UK households.

Cable TV is available to around half of UK households, with 44% of homes passed by Virgin Media's cable network in June 2014.[27] Though extensive, the cable footprint tends to concentrate in areas of relatively high population density. After a period of relative stability in

[27] *The Infrastructure Report 2014* http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2014/infrastructure-14.pdf. This figure replaces the previously published 48%. It reflects a new approach to analysing coverage, which uses smaller units of measurement and gives more accurate results.

the availability of cable TV, Virgin Media recently announced plans[28] to extend their network to an additional 100,000 homes in east London.

The internet also now plays a significant role in complementing and enhancing the traditional TV broadcast platforms – DTT, satellite and cable. Platform operators are using internet protocol TV (IPTV) technology to offer extra channels and features like in-built video on demand players, such as the BBC iPlayer. The main constraint on availability of these platforms is the broadband connection speed, which has to be sufficiently fast and reliable to carry a watchable video stream.

Radio coverage

Ten years ago, the majority of citizens relied on analogue radio (FM and AM), which had widespread coverage. Digital radio (DAB) coverage was increasing rapidly but not yet widely used. Today, DAB coverage is increasingly widespread, but does not yet match FM coverage, being patchier in rural areas and in the Nations. The BBC has set out plans to increase DAB coverage to 97% by the end of 2015, and there are also plans to extend the coverage of local DAB so that it matches the FM coverage of local commercial radio.

Ten years ago, the vast majority of radio listening was to traditional FM or AM analogue radio. Analogue radio was well established, and available to around 98% nationally.[29] DAB coverage was already relatively widespread, with 86% of GB households served by the national commercial DAB radio multiplex,[30] and 80% of UK households served by the BBC national networks on DAB. However, DAB take-up was very low, with only an estimated 2.5% of households owning at least one DAB set.

Today, radio is available not only on FM, AM, and DAB, but also via internet and digital TV platforms. The primary advantage of DAB is that it offers a wider selection of free-to-access services than analogue radio, while maintaining the ability to use portable radio sets. However DAB coverage is not yet as widespread as analogue radio, and household take-up of DAB-compatible radio sets remains below 50%.[31]

FM coverage for national BBC stations currently stands at 99% of UK households and 97% for Classic FM (the only national commercial FM station). For the national commercial and BBC AM stations, coverage varies between 81% and 96% of UK households. At present the BBC's DAB coverage is strong in urban areas, but poorer in some rural areas, particularly in the Nations. However the BBC plans to extend indoor coverage of its national DAB multiplex from the current coverage of 94% to 97% of households during 2016, and local DAB coverage is expected to be extended over the same period so that it broadly matches the existing coverage of local FM commercial radio stations. National commercial DAB services now reach 90% of households (indoor coverage) and 76% of roads,[32] with plans to increase this over the next two years.

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[28] Virgin Media Press Release, 6 August 2014. http://about.virginmedia.com/press-release/9444/virgin-media-takes-superfast-broadband-to-east-london

[29] *Communications Market Report* 2004 http://stakeholders.ofcom.org.uk/binaries/research/cmr/cm_2004.pdf

[30] As set out in the Communications Market Report 2004, Digital One did not have a licence for Northern Ireland, and the percentage coverage was calculated within its licensed area only.

[31] 48.5% in Q2 of 2014. Source: RAJAR.

[32] *The Communications Market: Digital Radio Report* (September 2014) http://stakeholders.ofcom.org.uk/binaries/research/radio-research/digital-radio-reports/2014_Digital_Radio_Report.pdf

The government has set out a framework and criteria for decisions about a possible future migration from AM and FM radio to DAB, though no date for a radio switchover has been set. To support any future government decisions in this area, Ofcom publishes an annual report on the availability, take-up, use of and attitudes to digital radio services. Ofcom has also undertaken technical planning work to assess how DAB coverage could match current levels of FM coverage before any future radio switchover takes place.

Community radio stations have been licensed on FM and AM around the UK, with stations generally serving a small area (around a 5km radius). They are not-for-profit stations and members of the local community typically get involved in producing output and running the station. These stations are intended to bring 'social gain' benefits for their target community, such as opportunities for training. Community stations must serve a community of interest such as a particular age, ethnic or language group.

There are over 200 community stations broadcasting across the UK, with another 35 stations preparing to launch. Ofcom is still licensing new services; for example in October 2014 we announced the licencing of three new community radio services in Staffordshire.

5.8 Postal services

The regulatory regime for post ensures the continued availability of a universal postal service. This includes regular, high-quality deliveries, widely available collection points and a simple one-price-goes-anywhere pricing structure. Over the past ten years, however, letter volumes have declined while parcel volumes have grown, creating a new challenge for the sustainability of the universal service.

Postal services fulfil an important role in UK society. Securing the provision of a universal postal service is Ofcom's primary duty with regard to postal regulation. Ofcom has designated Royal Mail as the universal service provider and as such it is required to provide a six-day per week collection and delivery service for letters (five days per week for parcels). Pricing is uniform regardless of the distance travelled within the UK. This reflects the social and economic importance of these services to citizens and businesses.

We monitor Royal Mail's delivery of its Universal Service commitments which include requirements for a high standard of quality, including next day delivery for at least 93% of First Class mail. Royal Mail's *End Year Quality Results 2013-14* shows they have hit First Class and Second Class delivery targets nationally over the twelve months to the end of March 2014.[33]

Our research into postal users' needs found that the postal market is highly valued by residential users.[34] However, different users rely on post to varying degrees, and users' needs and preferences are evolving, particularly in relation to the delivery of parcels.

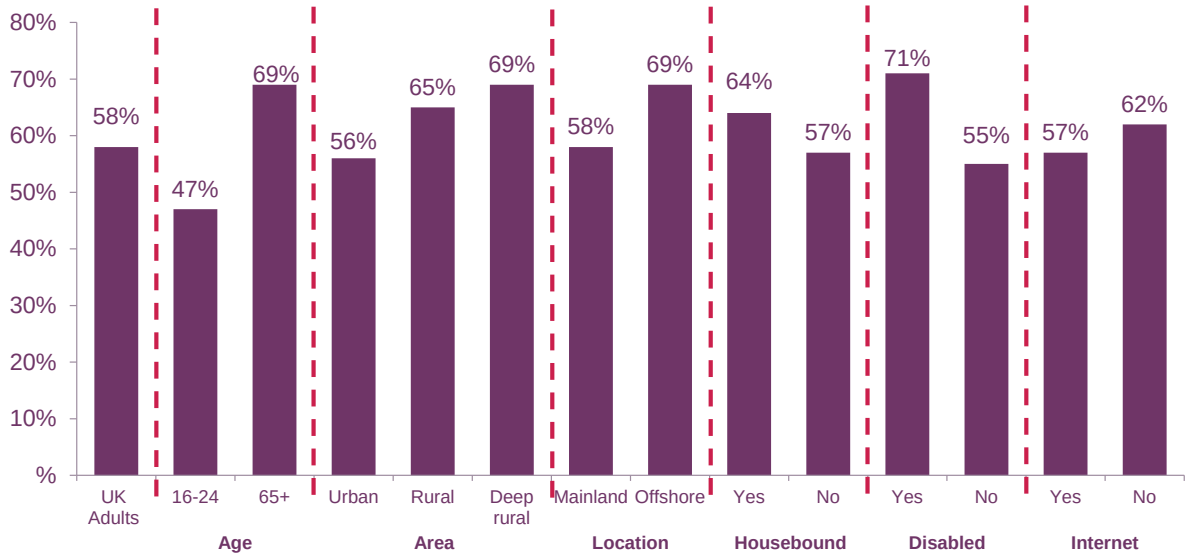
More than half (58%) of residential customers considered that they would feel cut off from society if they were not able to send or receive post, but this varies by demographic, as the chart below shows.

[33] *Royal Mail, DUSP 1.10.7: Full Year Results 2013-14, May 2014* http://www.postbrenhinol.com/sites/default/files/Quarterly%20Quality%20of%20Service%20and%20Complaints%20Report%202013-14%20MAY%20Q4.pdf

[34] *Review of postal users' needs* (March 2013) http://stakeholders.ofcom.org.uk/binaries/consultations/review-of-user-needs/statement/statement1.pdf

Perceptions of the importance of post

Agreement that I would feel cut off from society without the post – residential customer sub-groups



Source: TNS BMRB for Ofcom, 2012; Universal Service Obligation Postal User Needs 2012 Quantitative research report.[35] *Notes: All residential respondents; Question: "How far do you agree or disagree with the following statement? 'I would feel cut off from society if I were not able to send or receive post.'"*

As the chart above suggests, postal services are considered less important by some citizens than others. Mail volumes overall have declined by 28% since 2008, as some businesses and consumers have substituted post for electronic means of communication, such as email, SMS, telephone calls and social networking. While letter volumes have fallen, packet and parcel volumes have grown as increasing numbers of consumers are buying goods online for delivery by post. The proportion of mail that is accounted for by parcels has increased from 8% to 12%.[36]

Under our duties we continue to monitor trends in post, ensuring that the Universal Service is maintained. In June 2013 we introduced increased protection for consumers against the removal of post boxes in rural areas.[37]

[35] *Universal Service Obligation, Postal User Needs 2012* Quantitative research report http://stakeholders.ofcom.org.uk/binaries/research/post/quantitative-oct2012/report.pdf
[36] *Communications Market Report 2014* http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr14/2014_UK_CMR.pdf
[37] *Regulation of the provision of post boxes* (June 2013) http://stakeholders.ofcom.org.uk/consultations/provision-post-boxes/statement/

Section 6

Ensuring that communications services are accessible for all

6.1 Introduction

It is essential that communications services be accessible to all members of society. Certain services available ten years ago, such as priority fault repair and accessible billing, remain in use today. Others, such as emergency SMS are more recent, and reflect the broadening accessibility of the communications market. This trend is driven both by regulation and by the market itself, particularly the proliferation of connected devices such as tablets and laptops.

In this section we describe the specific services that are mandated to ensure that vulnerable people or those with disabilities have equivalent access to telecoms, post and broadcasting. We then consider digital inclusion, confidence and skills.

6.2 Telecoms and postal services for disabled people

A number of provisions exist to help ensure that people with disabilities are able to make effective use of telecoms services. These include text relay, third party bill management and priority fault repair.

The last ten years have also seen the introduction of some new services, including emergency SMS. People with hearing or speech impairments can now hold faster, more fluent telephone conversations thanks to a 'next generation' text relay service, which is now available. We are also supporting a government initiative to encourage the roll-out by businesses and public services of video relay, so that deaf users can make and receive calls in British Sign Language.

Disabled citizens should, so far as possible, have access to communications services that are functionally equivalent to those enjoyed by other people. An inability to access communications services risks excluding people with disabilities from active inclusion in civil society and the workplace.

Under the General Conditions of Entitlement, which apply to all providers of communications networks and services in the UK, Ofcom requires communications providers to offer the following services to disabled users and to publicise their availability:

- access to a text relay service, where a relay assistant is joined to the call and voices over what is typed by a deaf or speech-impaired user and types what is said by a hearing person;
- priority fault repair for users with disabilities who need an urgent repair;
- free directory enquiries for people who cannot use the printed directory because of visual impairment or other disability;
- third party bill management, allowing disabled people to nominate a friend or relative to assist with managing their account;

- mobile SMS access to the emergency services for users with hearing and/or speech impairments;
- provision of bills and contracts in accessible formats for people who cannot read regular print.

It is likely some of these services would not be provided by the market without regulatory intervention. Ofcom helps ensure these services are both available and publicised. We have also taken steps to publicise them ourselves, for example by sending information to social services departments.

Case study

Mr B is visually impaired and cannot read standard print. He receives his fixed line and mobile bills in large print, allowing him to manage his accounts independently.

Communications providers may not charge customers for bills in formats such as braille or large print, even if the consumer's tariff would normally carry a charge for a paper bill.

Take-up of text relay has fallen in recent years, possibly because of the availability of services such as online shopping and banking and text-based services such as SMS and instant messaging. Nevertheless, text relay continues to be highly valued. Thanks to the recent introduction of a 'next generation' service, text relay is now accessible from mainstream devices such as PCs, tablets and smartphones, and calls to deaf users will no longer require a prefix.

Deaf sign language users are keen to see video relay introduced in the UK so that they can make and receive calls in British Sign Language via an interpreter based in a call centre. Ofcom is supporting the government's initiative to encourage businesses and public services to put video relay in place for their customers.

Emergency SMS enables people who cannot make a voice call because they are deaf or speech-impaired to summon help by sending text messages to 999 or 112. Emergency SMS began as a trial in 2009. This proved highly successful and the service was made permanent in 2011 when it was mandated by Ofcom.

More than 100,000 people have registered to use emergency SMS and this number continues to rise. Thousands of messages are sent to the emergency services using this facility each year.

Emergency SMS messages are routed via BT's Text Relay call centre, which is open around the clock, and users receive replies so that they know their message has been received. Replies can reassure callers that help is on the way, and can also include information such as advice about how to care for someone who is ill or injured in advance of an ambulance arriving.

Case study

Mrs S (a British Sign Language user) and her colleague were working late one evening and her colleague collapsed. Mrs S was able to use emergency SMS to call for an ambulance while remaining with her colleague and reassuring her.

She said:

"*It is absolutely fantastic to use this service. [As a] first time user I am highly recommend to make permanent service because I save her life."* [Direct quote]

We are also aware of people using emergency SMS to call for help in cases of heart attack, childbirth, allergic reaction to nuts, overdose and attempted suicide.

The Articles for the Blind scheme also enables certain items for blind and partially sighted people to be sent through the post first class, free of charge. The list of items covers equipment and material which help blind and partially sighted people to engage in activities independently. It includes written material embossed or in large print, Talking Books and their playback equipment, specialist equipment such as magnifiers and watches, and mobility aids.

Case study

Mr D is blind. Every two weeks he receives a parcel with the braille books he has ordered from the RNIB and is able to return the books he has read free of charge using an 'Articles for the Blind' sticker. He has also used the Articles for the Blind service to send his guide dog's harness to be repaired. Because it is difficult for him to get the Post Office, Royal Mail collects Mr D's parcels from his home free of charge.

6.3 Television access services

Television access services – subtitling, signing and audio description – help citizens with sensory impairments to understand and enjoy television. UK broadcasters have significantly increased the level of access service provision over the last ten years and the level of access services provided to UK television viewers is amongst the best in the world.

However, there is more work to be done in some areas, and we have recently mandated broadcasters to report on the quality of live subtitling.

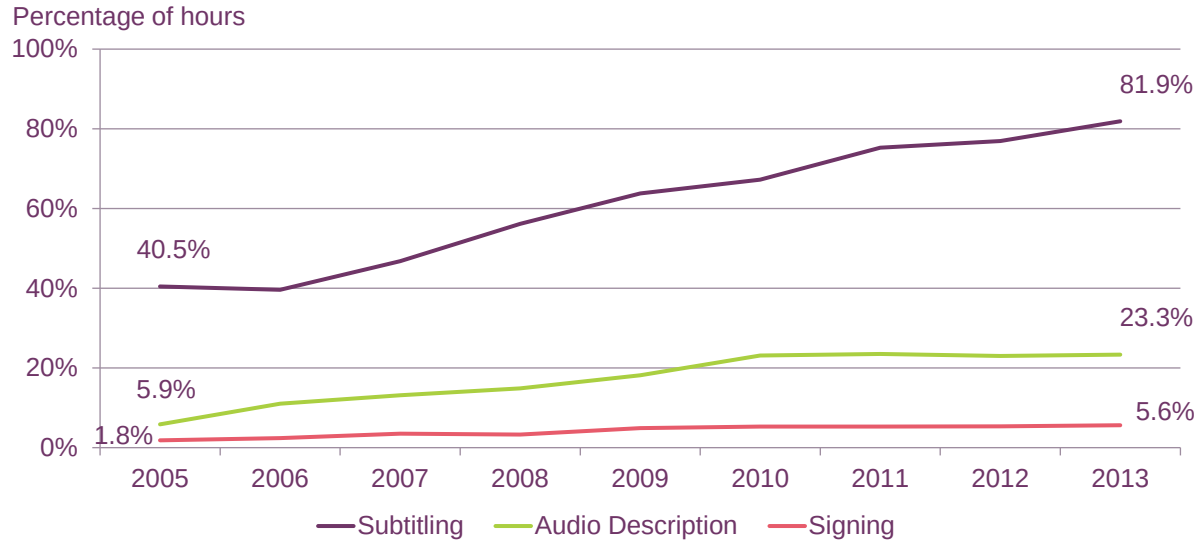
All citizens, including people with sensory impairments, should be able to understand and enjoy television. Since 2003, Ofcom has used its powers under the Communications Act to require broadcasters to offer more and better television access services: subtitling, audio description and sign language.

Subtitling for hearing impaired viewers consists of dialogue and sound effects displayed in text form at the bottom of the television screen; users have the option to turn it on or off. Audio description comprises a separate audio track in which a narrator uses spaces in the original sound track to describe what is going on for the benefit of people with visual

impairments; like subtitling, it can be turned on or off. Signed television programmes usually incorporate the image of a signer translating dialogue and sound effects into sign language. A few programmes are presented in sign language.

Ofcom has required audio description targets to be met within five years rather than ten years, which is the back-stop set out in the Act. Following a review in 2010, the government persuaded the BBC, ITV, Channel 4 and Sky to commit to audio describe 20% of programming. Other channels have also exceeded their targets on a voluntary basis.

Access service provision as a proportion of broadcast hours



Source: Ofcom/broadcasters.
Note: % of hours is calculated as a proportion of total, non-exempt hours broadcast by channels that have a requirement to provide that service.

Around 70 channels contribute to signing on television. Larger channels must sign up to 5% of their programming to ensure access by sign language users to the most popular programmes. Smaller channels now have the choice of either showing 30 minutes of sign-presented content each month, or contributing to other arrangements that help to make sign-presented content available. Ofcom has recently consulted on whether smaller channels should do more.

Broadcasters and electronic programme guide (EPG) providers are also required to ensure that programme information standardises acronyms to make information about access services clearer.

The Communications Act enabled Ofcom to extend access service obligations to broadcasters of DTT, cable and satellite channels, and to set ambitious targets. As a result, around 70 TV channels in the UK have a high level of provision and awareness of access services:

- the UK compares favourably with other EU member states on the provision of subtitling by commercial, rather than just public service, broadcasters
- UK subtitling requirements are 80% for channels with at least 0.05% audience share, with Channels 3 and 4 at 90% and the BBC at 100%;
- access services are now available on all the major TV platforms – DTT, satellite and cable;

- awareness of audio description has risen from 37% in 2008 to 60% in 2013; levels of awareness for longer-established services – subtitling and signing – are much higher.

An area where we know that improvements can be made is in the quality of live subtitles. There is now a growing quantity of live subtitling, usually for live programmes, but sometimes for topical or late-delivered content. Live subtitling entails unavoidable delays which mean that speech and subtitling cannot be completely synchronised. Errors and omissions are also not uncommon. It is clear from viewers' feedback that, while subtitle users value the opportunity to watch live TV, they sometimes find live subtitling frustrating, and, on occasion, unwatchable. Addressing these concerns, Ofcom last year required broadcasters to start reporting on the quality of live subtitles to identify areas for improvement.

6.4 Digital inclusion

Over the last ten years the majority of UK citizens have embraced digital technologies, including internet-based services, driven in part by the increasing usability and affordability of a wide range of connected devices such as smartphones and tablets. The level of digital inclusion in the UK is now generally very high measured against comparable countries. However, certain groups in society are falling behind in making use of such technologies, in particular older people and those in lower socioeconomic groups.

Under section 3(4)(e) of the Act, Ofcom must have regard, in the performing of its duties, to the desirability of encouraging the use of digital communications services. We also have a duty under section 11 of the Act to take steps calculated to promote media literacy. Our research contributes evidence and insight to initiatives that aim to increase digital inclusion.

The development and widespread availability of the internet has unlocked numerous benefits. There are benefits to individual citizens – such as instant access to information for educational reasons – and to society – such as reducing the cost of providing certain public services by offering them online.

Getting online

The internet is increasingly important for citizen-related activities as well as consumer activities, for example accessing public services and information.

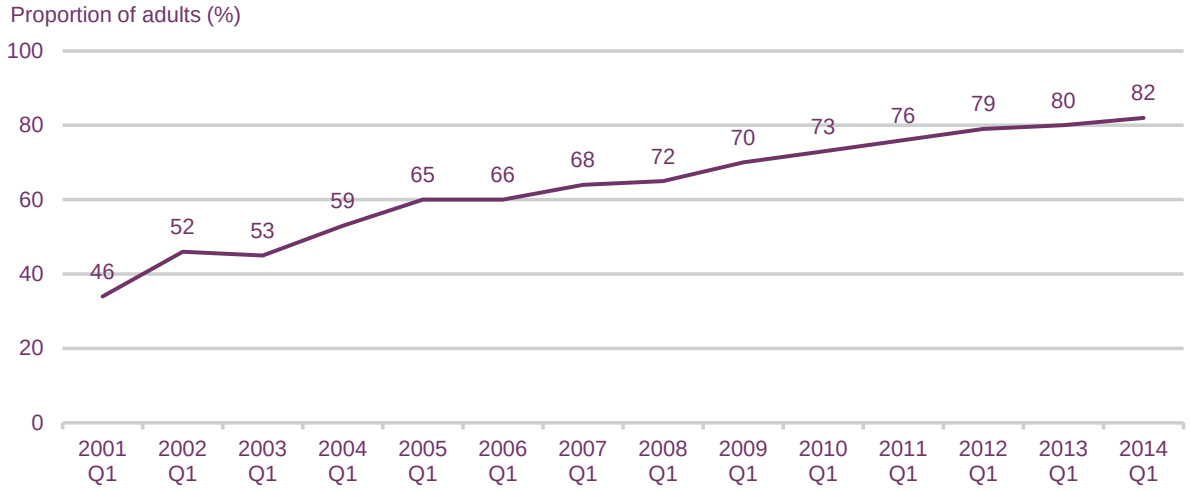
Across the UK population, 82% of adults live in households with an internet connection.[38] This figure has almost doubled since 2002, when 42% of households were connected. Though the increase has been gradual, it was more pronounced early on, and the figure has grown more slowly in recent years.

This is not a direct measure of how many people are actually online, but combined with figures on the use of connected devices, it helps illustrate the increasing importance of the internet to society. The take-up of tablets has increased considerably over the last year, and smartphone take-up is also continuing to grow. Both devices have seen particular growth

[38] *Communications Market Report 2014*
http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr14/2014_UK_CMR.pdf

among older people. 22% of people aged 65+ have a tablet – a more than three-fold increase since 2013 (6%). Overall, 44% of the UK population now has a tablet, nearly double the proportion last year. 61% of people now have a smartphone, compared to 51% last year, during which time the percentage of smartphone owners aged 65 or older has also nearly doubled to 14%.

Home internet access 2001-2014



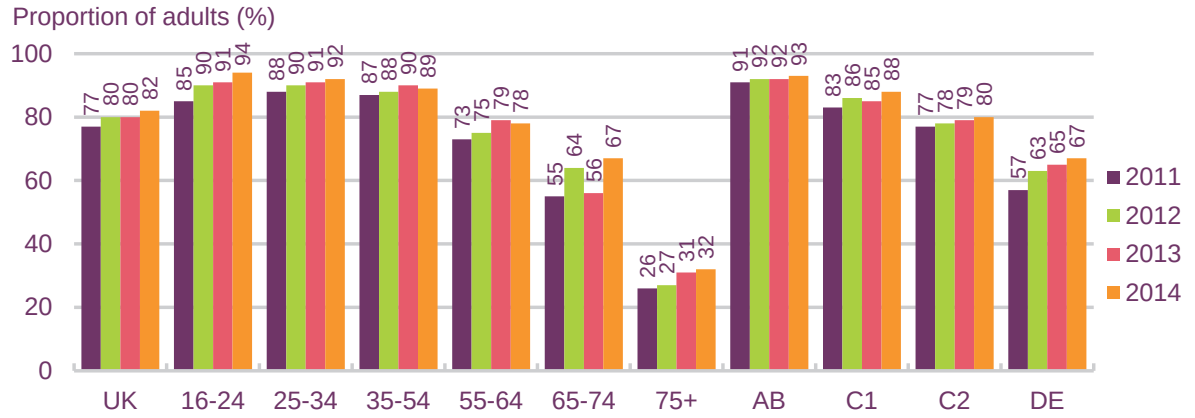
Source: Ofcom technology tracker survey, Q1
Base: All adults 16+
QE2. Do you or does anyone in your household have access to the internet/Worldwide Web at home?

The overall level of broadband take-up by UK households is high compared to other countries; it is the highest among the EU5 countries, for example.[39] However, this UK-wide figure masks differences among certain groups. For instance:

- adults aged between 16 and 54 are approximately three times more likely to have a household internet connection than people aged over 75;
- a household in the 'AB' socio-economic group is almost one and a half times as likely to be connected than a household in the 'DE' group.

[39] The EU5 is France, Germany, Italy, Spain and the UK. See *The European Broadband Scorecard 2014* http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/bbresearch/scorecard-14

Home internet access: by age and socio-economic group



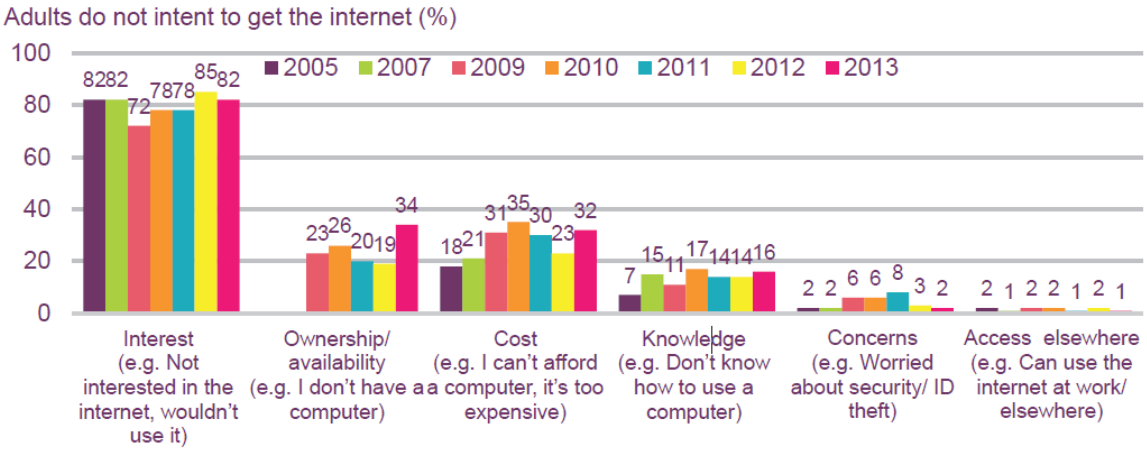
Source: Ofcom research, data as at Q1 2014
Base: All adults aged 16+
QE2: Do you or does anyone in your household have access to the internet/ worldwide web at home?

There are many reasons why these differences exist and why a small but significant share of the population does not currently go online. The reasons range from conscious choices – or voluntary factors, e.g. not wanting a computer/laptop – to conditions that prevent people – or involuntary factors, e.g. because of expense or a lack of skills. A statement of 'lack of interest' as a reason could be masking those who do not intend to get the internet at home for underlying reasons such as a lack of experience or a lack of confidence, and who do not feel comfortable giving such a response.

The most frequently cited reasons people gave for not having an internet connection are examples of voluntary factors – a feeling that they are not interested in the internet or a device that can access the internet.[40] Efforts continue to be made to help people to get online. However, a potentially growing challenge remains in getting the remaining section of the population online.

[40] There are a number of organisations that have focused on this issue. They include Age UK, Citizens Online, Digital Unite, The Tinder Foundation, Go ON UK, Post Office, BT and Three, among others.

Stated reasons for not intending to get home internet access in the next 12 months: 2005, 2007, 2009, 2010, 2011, 2012 and 2013



Source: Ofcom research, fieldwork carried out by Saville Rossiter-Base in January to February 2014
QE2/ QE24 – Do you or does anyone in your household have access to the internet / World Wide Web at home (via any device)?/ How likely are you to get internet access at home in the next 12 months?
Base: All adults aged 16+ (5812 aged 16+ in 2008, 6090 aged 16+ in 2009, 9013 aged 16+ in 2010, 3474 aged 16+ in 2011, 3772 aged 16+ in 2012, 3750 aged 16+ in 2013, 3740 aged 16+ in 2014).

6.5 Skills and confidence online

With the growth of internet take-up, the spread of connected devices and the increasing significance of the internet in the lives of the majority, the importance of promoting skills and confidence online is even higher than it was ten years ago.

Under section 11 of the Communications Act 2003 Ofcom has a duty to take steps calculated to promote media literacy. We discharge this duty largely through research, which raises awareness of the areas for improvement and informs public policy.

Getting online is only the first step in making the most of the internet. The extent of the benefits that citizens derive is determined by their media literacy. Being media literate means having the skills, knowledge and understanding needed to make good use of both traditional and new communications services. Media literacy also helps people to make informed choices and to protect themselves and their families from potential risks associated with using these services.

Ofcom has a duty to promote media literacy. In carrying this out we run an extensive research programme to understand issues such as the barriers to going online and, once people are online, what their levels of use and understanding are. This includes their knowledge and behaviour around online safety and security, privacy and information. The research focuses on attitudes and motivations and how they all fit together, and is a vital first step in identifying issues and supporting a wide range of stakeholders who help UK citizens make the most out of the internet and newer communication services.

There is also a central role for industry in promoting safe, confident use of the internet. This role ranges from the development of devices and applications that are themselves engaging and simple to use, the provision of easy-to-understand educational literature, such as "*How to*..." guides, through to the provision of specific online safety features that help to ensure confident, safe use of the internet.

Use of government services online

As more UK citizens get online and become confident using the internet, it can play a bigger role in various aspects of their lives. The internet is already a big factor in consumer activities, for example: people in the UK are some of the most frequent online shoppers in the world, ranking first among European and a range of other countries.[41]

The internet is increasingly important for citizen-related activities as well. The government has a "Digital by Default" strategy for the provision of public services and information. But take-up of public, citizen-focused services is not as high as it is for consumer services: the UK ranks fourth out of the EU5 for regular engagement with government services online.[42]

Percentage of population who interacted online with public authorities within the last 12 months: 2013

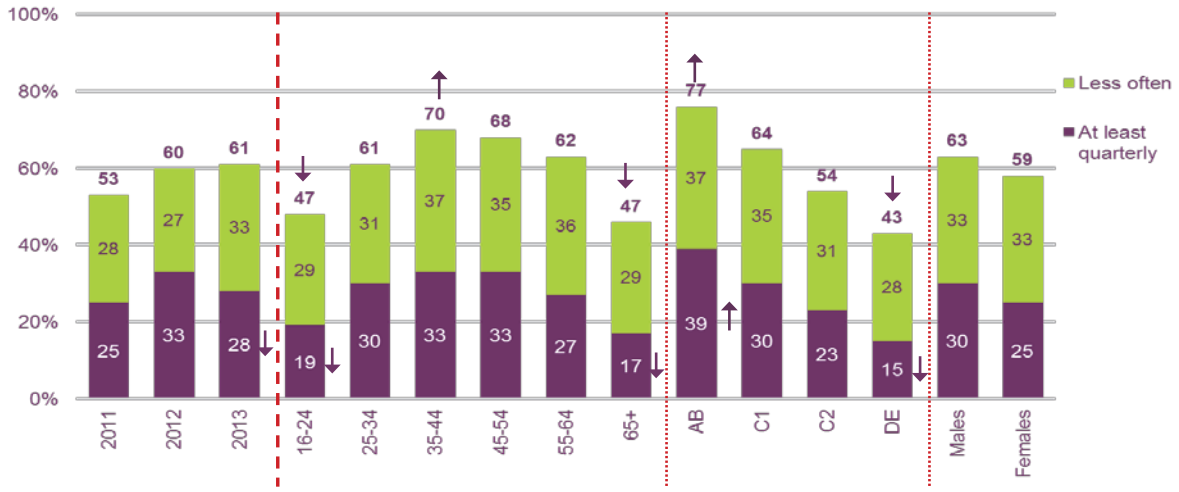
Source: Eurostat, Community survey on ICT usage in Households and by Individuals, 2013.
Note: (1) Data refer to Q1 2013. (2) These data cover individuals aged 16 to 74.

Our research indicates that the share of UK internet users who say they have completed government services online has grown over time, from 53% in 2011 to 61% in 2013.

[41] Almost three-quarters (73%) of the online population in the UK are buying goods for delivery over the internet on at least a monthly basis, and almost one quarter are shopping online at least weekly. See *The International Communications Market Report 2013* http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr13/international/

[42] *The European Broadband Scorecard 2014* http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/bbresearch/scorecard-14

Frequency of completing government processes online: 2011-2013, and by demography in 2013



Source: Ofcom research, fieldwork carried out by Saville Rossiter-Base in October to November 2013
Base: All adults aged 16+ who go online at home or elsewhere. Significance testing shows any difference between any age group or socio –economic group and all adults and between males and females

In 2013, when UK internet users were asked the reasons why they do not use government services online, the most common reason cited was that they felt no need to (25%). The next most popular reasons were related to a preference to talk in person/by phone instead (20% and 14% respectively) and being unaware that it was possible to perform government processes online (13%).[43] Fewer than 10% cited usability issues. Safety was a concern for 8% of respondents.

These responses suggest four broad issues:

- a significant minority of citizens are unaware of the availability of online services;
- some people prefer human interaction for complex or sensitive transactions, so are unlikely to use online services until that changes;
- many of the reasons people give for not using government services online are interlinked and are also related to the individual's confidence online and sense of safety and trust, and ease of use or need; and
- some of the groups most likely to need government services are also those least likely to be online, or be confident online, e.g. older people, people with disabilities, and those in low income households.

Supporting other organisations

Ofcom's media literacy role has focused increasingly on the provision of research, and the dissemination of that research to a wide range of stakeholders through a variety of programmatic activities including:

- our Quarterly Bulletin which is distributed to around 1,200 subscribers and collates information about new research and activities in the field;

[43] *Adults' Media Use and Attitudes Report 2014* http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/adults-2014/2014_Adults_report.pdf

- our research events which are held at least twice a year and bring together a range of stakeholders to share and discuss new and emerging trends based on our research findings.

We deliver bespoke presentations to a wide range of academic and industry stakeholders events, from the BFI to MeCCSA to the annual Children's Media Conference.

We also provide support for the government across a range of related policy debates such as:

- internet filtering, which made use of our research into children's media literacy;
- online child safety, through our involvement on the Board and the evidence group of UKCCIS; and
- online security, through our involvement on the steering group of Get Safe Online, which makes use of our research into adults and children's media literacy.

Section 7

Ensuring that communications services are affordable

7.1 Introduction

Competition in the communications sector has underpinned reductions in the real prices of communications services over the last ten years (with the exception of post and some pay TV services). At the same time investment and innovation have delivered new networks and services and increased quality and choice. Consumers' views on the value for money of communications services are positive and the UK communications sector is competitive in terms of prices when benchmarked against international comparators.

The affordability of communications services is central to their accessibility. An aim of market regulation is to ensure that services are generally provided at the lowest commercially viable level, and that where possible a range of price points exists so that people can choose the level of service that best meets their own circumstances. This does not necessarily mean making all services universally affordable, but there is a special concern that services society might consider essential or particularly important are available at a price that makes them universally affordable.

As a matter of public policy, public service broadcasting (PSB) should be universally available and free at the point of use.

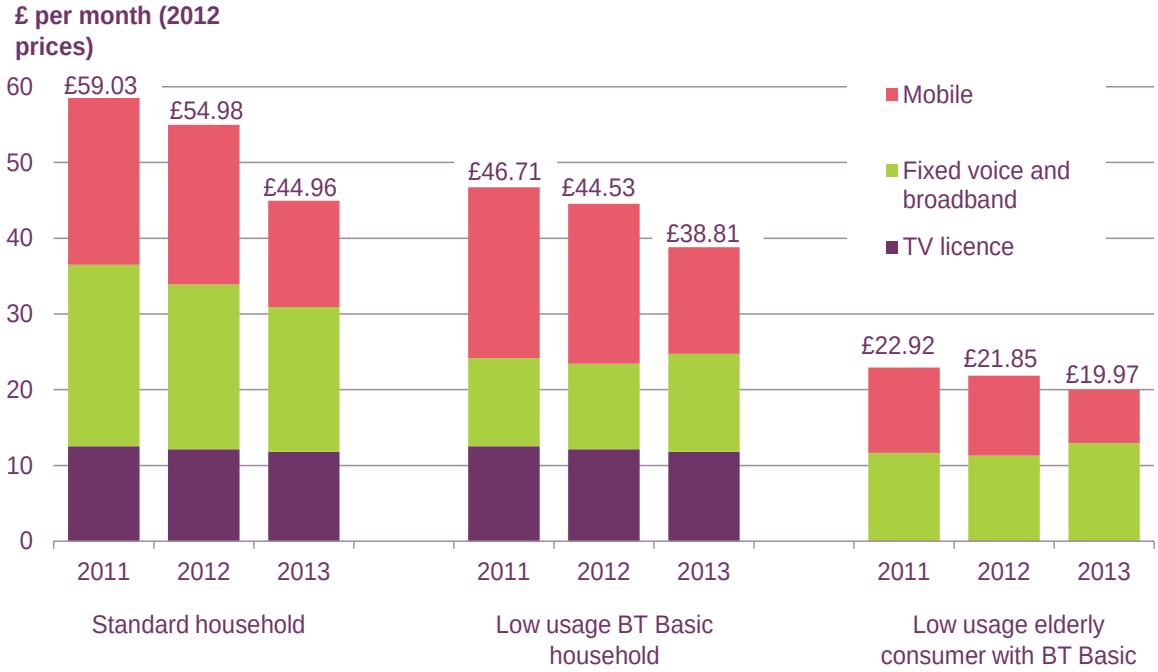
As reported in our January 2014 publication, *Cost and Value of Communications Services in the UK:*[44]

- broadband availability and use have increased while prices have declined – the average real price of a broadband package decreased by 48% between 2004 and 2012;
- at the same time, broadband speeds have increased significantly;
- consumers are using mobile services more and for an increasing range of functions, and the prices of services have fallen significantly. The price of a basket of mobile services fell from £39.65 in 2003 to £12.87 in 2012.
- average fixed line connection and usage charges have fallen over the past ten years;
- the price of a typical bundle of fixed line services has also fallen;
- trends in pricing for pay TV are mixed. Some pay TV prices have gone up but there is evidence that choice and functionality have also increased. The TV licence fee has decreased in real terms, while choice and functionality of free-to-view TV have increased;
- the UK ranks cheapest, or second cheapest, in the EU5 for most mixed baskets of communications services. [45]

[44] *Cost and value of communications services in the UK* (January 2014) http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-13/cost_value_final.pdf

The Cost and Value report also showed that a basket of typical 'core' services for a household – a basic broadband connection, two basic mobile packages, a basic landline package and a TV licence – costs around £46 a month, or 1.7% of average household income. The price of each of these baskets has declined since 2011.

Lowest available prices for 'core' communications services (2012 prices)



Source: Ofcom analysis of best value tariff data supplied by Teligen. Plusnet website for Plusnet broadband price in 2013.
Note: Figures in real terms, RPI 2012. Lowest available price for standard household in 2013 prices is £46 per month in 2013.

7.2 Affordability of communications services that users regard as essential

Ten years ago, discussion around affordability was focussed on landline services, basic free-to-view television, phone boxes and postal services. Today the communications market is more complex, and views on which electronic communications services are deemed as "essential" vary across different groups of society. However the services most commonly seen as essential include access to the internet and mobile voice services.

Most people have not experienced difficulty paying for such communication services, but a small number do report cost as a barrier. A competitive marketplace has generally delivered affordable options in these areas but Ofcom will remain alert to market developments that threaten the affordability of essential services.

After ten years of falling prices, there have recently been some increases, notably in the prices for a fixed-voice line, although prices remain lower in real terms than they were a decade ago. We have recently undertaken research into whether the cost of those

[45] The EU5 refers to a subset of Member States used as comparators to the UK in the International Communications Market Report.

communication services deemed essential to participation in society was a barrier to the take-up of these services.[46]

What is essential?

We have adopted a working definition of essential communication services as communication services essential to participate in society and in economic activities. Our research findings reflect the changes in what is seen as essential over the last few years:

- the services seen as most essential by consumers were voice services in general, but mobile services in particular (voice and text), and access to the internet, particularly fixed internet;

- some services were seen as essential by some consumers, but less important by others, influenced by demographic factors such as age and socio-economic group. For example, mobile internet was seen as more essential by younger age groups;

- radio, pay TV and internet from a public place tended to be viewed as essential for society by fewer consumers, again depending on consumers' usage of the service, and

- services which are generally much less used or are auxiliary services were seen as less essential, both personally and for society (Public Call Boxes (PCBs), itemised billing and directories).

Most consumers (86%) do not report having ever had any difficulties paying for any communication services. This is consistent with other market indicators which Ofcom routinely collects. Overall, very few customers will face affordability issues in relation to mobile, internet (fixed and on-the-go) and landline phone.

The high take-up of key communication services also suggests that, in most cases, affordability is not a barrier to using essential communication services. In addition, there are many low cost options available to consumers, such as low cost bundles of fixed services and pay-as-you-go tariffs for mobile services. For instance the price of a broadband subscription at home can start at just under £17 including line rental, basic pay as you go handset at £9, and basic mobile smartphone contracts at £7.50.[47]

As well as high take-up, there is a relatively low incidence of telecoms debt, at 2–3%, compared with 2% for electricity, 3% for gas and 4% for water.[48] In addition, the average debt per indebted mobile customer has also fallen by approximately £5.90 over the last four years.[49]

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[46] *Results of research into consumer views on the importance of communications services and their affordability* (July 2014) http://stakeholders.ofcom.org.uk/binaries/research/affordability/affordability_report.pdf, and associated research reports, available at: http://stakeholders.ofcom.org.uk/market-data-research/other/cross-media/affordability/

[47] Prices based on cheapest price and low usage, see: http://consumers.ofcom.org.uk/price-comparison/ and http://www.tesco.com/direct/technology-gaming/pay-as-you-go-mobiles/cat3375958.cat?selected-sort-option=&sc_cmp=TPS_PAYG_Stamp1&sortBy=3 .

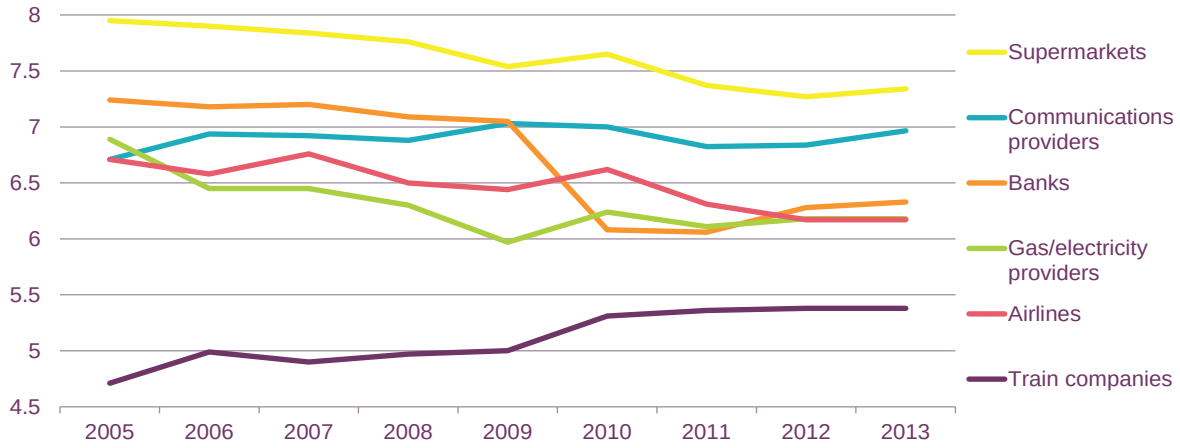
[48] *Telecoms debt omnibus* (August 2013) http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/Telecoms-debt-omnibus-data/Telecom_debts_omnibus_summa1.pdf

[49] Source: data from MNOs. Although MNOs calculate debt in different ways, each operator's method of calculation is consistent across the four years.

Value for money

Communication services are generally seen as good value for money in comparison to other sectors.

Consumer value for money rating (score out of 10)



Source: Firebrand Insight

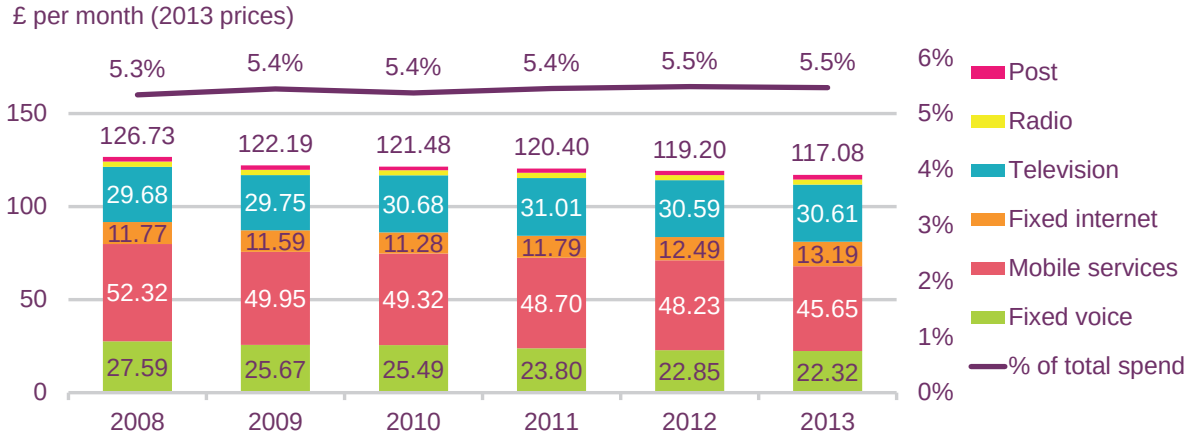
The positive perception of the value for money of communication services is also illustrated by our research. Overall, a significant number of consumers rate mobile (58%), broadband (56%), internet via tablet or smartphone (54%) and landline (49%) as very or fairly good value for money, with about another third of respondents rating these services as average value for money. However we do note that there have been some price increases in the market following the conclusion of this research, which may affect this perception.

Average spend

Consumers' average monthly spending on communications services has fallen in the last five years, being £117.08 in 2013, compared with £126.73 in 2008 (at 2013 prices).[50]

[50] *Consumer Experience Report 2013*, Figure 104. See http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-13/TCE_Research_final.pdf

Average household spend on communications services



Source: Ofcom / operators/ ONS
Notes: Fixed voice spend includes the price of fixed-line access; TV includes pay-per-view; figures are adjusted for CPI; includes VAT.

Our analysis of spend data from the Office of National Statistics shows that low income consumers spend a higher proportion of their income on mobile services and on landline and internet than those with the highest income. In 2011, households in the lowest spend quintile spent 4.6% of their total spend on mobile contracts while the highest quintile spend 1.3%. Similarly, households in the lowest spend quintile spent 3.2% of their total spend on fixed telephony and internet, compared with 0.9% of those in the highest quintile.[51]

Cost as a barrier?

A minority of consumers say that cost is a barrier in obtaining services they would like to have and that are generally seen as essential, as shown below.

Service	Percentage of people that cite cost as the main barrier
Broadband	7%
Fixed landline	6%
Internet via a smartphone/tablet	5%
Internet via a dongle	3%
Mobile services	1%

Source: Jigsaw Research for Ofcom, 2014

About one in ten people would like to have fixed internet, internet via a smartphone or a dongle, or a landline, if cost was not an issue. When non-users who would like to have the service were asked why they do not use services, cost was the main reason in relation to fixed broadband (59%) and landline (55%) (i.e. 7% and 6% of the whole population). It is possible that responses on cost as a barrier for fixed line and broadband were linked, as a fixed line is required to have fixed internet in the home, and out of those who would like broadband and identify cost as a barrier, only 18% have a landline.

[51] *Results of research into consumer views on the importance of communications services and their affordability* (July 2014) http://stakeholders.ofcom.org.uk/binaries/research/affordability/affordability_report.pdf

The qualitative research undertaken for our work on affordability also found a few cases where the cost of the service, or of the equipment and set-up, had a role to play in limiting or preventing access to internet services. Mostly, non-users of the internet said they were uninterested in going online, but there were cases of current or former internet users who had cancelled their service or were prevented from developing their internet usage because of old desktops or laptops that were too expensive to replace. The cost of fixed internet was also a factor for some low income consumers in using mobile for broadband access.

7.3 Social tariffs

Social tariffs, such as BT Basic, play an important role in ensuring that people on low incomes can afford a landline. However, awareness amongst eligible recipients is low. We are engaging with consumer groups to target relevant consumer information to low income citizens, and exploring with industry its engagement with low income groups.

Whilst social tariffs do not cover broadband access, BT has recently launched a new broadband product to BT Basic customers. BT Basic plus broadband is £9.95 a month.

Social tariffs are designed to ensure that low-income households are not excluded from basic telecoms services by their cost. This delivers benefits to society, because all citizens are included and hence contactable.

Social tariffs derive from European universal service legislation designed to make sure that universal services are universally affordable. BT and KCom (in the Hull area only) are required to provide these tariffs as designated Universal Service providers.

The main social tariff in the UK, BT Basic, is designed for people on low incomes who make few calls but who rely on the telephone, and is available to customers in receipt of certain state benefits. BT Basic reflects the fact that for these customers, the line rental forms the vast majority of their bill. It reduces the line rental from £47.97/quarter to £15.30/quarter and includes a £4.50 call allowance. It also includes free weekend calls of up to 60 minutes' duration to 0845 and 0870 numbers.

The following services are free of charge for BT Basic customers:

- Installation
- Paper bills
- Caller display (this requires a compatible phone)
- Payment methods other than direct debit
- Call barring (on request) – for example calls to international, mobile or premium rate numbers.
- Bill checking via Call My Bill

There is no minimum contract period for BT Basic, so customers can change from BT Basic to any other package at any time.

There are currently around 420,000 households on BT Basic.

Case study

Mrs P has lived alone since her husband died. She does not make many calls, but her son and daughter phone her twice a week. Mrs P relies on her phone line because she has a care alarm. She is on a low income and receives Pensions Credit (Guaranteed Credit). Being on BT Basic saves her over £130 a year.

BT Basic customers can purchase broadband alongside BT Basic, either from BT or from another provider.

BT has recently launched a new broadband service for BT Basic customers priced at £4.85/month, making it possible for BT Basic customers to purchase a voice and broadband package for £9.95 a month.

BT Basic helps to ensure that low-income households are not excluded from basic telecoms services, but does not offer the inclusive call packages that are generally provided as part of mainstream phone and broadband bundles. For people who make more than 45 minutes of calls per quarter, a tariff with inclusive calls may be better value. The market provides competitively priced packages to meet this need, for example both the Co-Op and Post Office offer budget home phone packages, and BT recently launched a new service providing a low-cost landline facility for those users who wish to make a greater number of calls.

BT Basic Broadband includes a 10 GB/month allowance. BT's website sets out a typical list of things a customer could do with this allowance:

- 30 hours of internet browsing
- Streaming of up to 10 hours of video
- Downloading of 1 film (standard definition) and up to 10 albums

Customers who are close to exceeding their allowance will receive an email, and customers who exceed their allowance will be charged for the excess.

There is no installation charge for BT Basic broadband other than for postage and packing of the router. BT Basic broadband includes parental controls.

Awareness of social tariffs

Our affordability research indicated that awareness of the BT Basic social tariff was low. In particular, 73% of those on Income Support were unaware of social tariffs.

There was also a low level of interest in these tariffs. Among non-users on Income Support, 54% said that they would not be interested. The main reason for lack of interest among these non-users is that they do not see a need for a landline (37%). 10% say the reason for their lack of interest is that they want to bundle with other services, and 9% that they only need to use the internet.

7.4 Affordability of postal services

We have recently allowed Royal Mail greater pricing freedom in order to ensure the ongoing provision of the universal postal service. However, the safeguard cap on Second Class letters and large letters seeks to ensure that all citizens can continue to afford a basic postal service.

The Postal Services Act 2011 and the EU Postal Services Directive 1997 require universal postal service prices to be affordable.

In March 2012, Ofcom gave Royal Mail significantly more pricing freedom to help secure the ongoing provision of the universal postal service, subject to certain key safeguards.[52] These included a safeguard cap on Second Class stamp mail (up to 2kg) to ensure vulnerable consumers could continue to afford a basic universal postal service.

We have carried out research into the needs of citizens on low incomes and those who may be particularly reliant on postal services including, for example, the elderly and disabled, or those who lack internet access. The evidence we have collected indicates that universal postal services are affordable for virtually all citizens and consumers (including low income and other vulnerable consumers) at current prices.[53]

Ofcom continues to monitor affordability through our general monitoring regime to track Royal Mail's performance.[54] In particular, we will continue to carry out quantitative 'tracker' research to monitor post use, and to assess the affordability of universal postal services, value for money and satisfaction with post and postal prices. We will also commission further consumer research to explore consumer views and experiences concerning affordability if we consider that this is necessary to supplement our ongoing monitoring.

[52] *Securing the Universal Postal Service* (March 2012)
http://stakeholders.ofcom.org.uk/binaries/consultations/review-of-regulatory-conditions/statement/statement.pdf
[53] *The affordability of universal postal services* (March 2013)
http://stakeholders.ofcom.org.uk/binaries/post/affordability.pdf
[54] *Annual monitoring update on the postal market, financial year 2012-13*
http://stakeholders.ofcom.org.uk/binaries/post/post/Annual_monitoring_update_2012-13.pdf

Section 8

Future opportunities and challenges

8.1 Introduction

The UK communications market currently furthers citizens' interest through continued industry investment and innovation, supported by effective regulation. This combination has led to meaningful choice, low prices and widespread adoption of communications services. However, like all technology-based sectors, the communications industry is very dynamic and there are no guarantees that the situation will continue this way in future. To ensure that existing service standards continue to be met, or improved, industry and policy makers must identify and address the challenges and opportunities arising from on-going technological change.

Ofcom aims to design policies that respond to citizens' needs and growing expectations, and ensure their particular circumstances are taken into consideration. We also need to ensure innovation isn't stifled, nor too heavy a regulatory burden placed on the industry, while retaining flexibility to adapt regulation in the light of technological developments. As this background of innovation offers new opportunities for citizens to participate actively in society, we need to ensure that the benefits communications services can offer are shared across society.

We will therefore need to focus our approach to regulation in light of the following challenges:

1) Ensuring citizens' growing expectations are met and continue to address specific citizen needs

Meeting growing expectations for fixed broadband

The vast majority of citizens in the UK can access a broadband speed of 2Mbit/s.[55] Average actual residential fixed broadband speeds were 23.4Mbit/s in June 2014, and are increasing.

An increase in citizens' expectations of broadband speeds may be driven by developments in commercial and public services that are important for all citizens (for instance if online public service delivery starts to require a high-quality video stream or video-conferencing). It may also be that as the internet becomes an ever more pervasive feature of our lives, the need for simultaneous use of different applications requires higher speeds for all citizens.

This is not just a concern for rural areas – some urban areas also face very low broadband speeds with take-up of broadband remaining varied across major cities.[56]

The challenge of tackling broadband speeds is closely related to ongoing improvements to the UK's broadband network through the government's Broadband Delivery UK programme. In the absence of further intervention, however, up to 5% of the UK may still be without

[55] The government's stated ambition is that virtually every household can receive a speed of at least 2Mbit/s, establishing this as the minimum speed for accessing essential services. At present, 96% of connections provide download speeds of at least 2Mbit/s, and of the remaining 4% of connections, half are in areas where it is not possible to upgrade to a superfast broadband connection.

[56] *Availability of communications services in UK cities* (June 2014) http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/UK_cities.pdf

superfast broadband beyond 2017, although the government is exploring ways to increase coverage even further.

Meeting growing expectations for mobile coverage

Mobile coverage is currently widespread. While the penetration of smartphones has increased, so too have citizens' expectations of where they should be able to use their mobile phone and, for data use, what the quality of the service should be.

We are aware, however, of circumstances that lead to frustration. These include poor road and rail coverage, and particularly acute problems for rural communities with little or no mobile coverage for both voice and data.

We are addressing these issues where we can, imposing an extensive 4G coverage obligation and supporting network sharing. We are also looking into the release of more spectrum to help solve the problem. For instance, we have set out plans to make the 700MHz band available for mobile services. This could help to improve coverage, but it is unlikely to provide benefits to citizens until 2020 at the earliest.

As part of our on-going work in this area we are considering a set of policy options, many of which would ultimately be for government to implement. Targeted interventions would also be required to respond to issues such as rail coverage.

None of these options are likely to be straightforward to address, and mobile coverage remains a concern which will potentially become more significant over time.

2) Ensuring that the benefits of communications services are shared across society

Collectively the communications industry, policy makers and the regulator have made a lot of effort to ensure that as many people as possible can access communications services by focusing on the *supply* of those services. However, there are still some important issues to address to increase *demand* for the services as well. This involves showing people the benefits of newer communications services; it also involves making sure they are within financial reach and offer people good value for money.

The costs associated with digital exclusion (i.e. not using the internet) are growing over time – both for people who do not use the internet and for those who use it but only for very limited uses because of their level of skill or confidence. In the future for example, online public services could include face-to-face-style services like remote medical consultations as well as the current simple processes and transactions. That would increase both the *benefits* to citizens of being online and the *costs* to those who are not.

Over time the number of citizens who are not online is likely to decrease as more people are persuaded to get connections, or as barriers fall that had stopped them before. It is, however, also likely that it will become harder to convince the most resistant households to go online. This is a challenge that will require collaboration between industry, government, Ofcom and the wider public sector and other stakeholders supporting vulnerable citizens.

3) Identifying and supporting new ways in which communications services may benefit citizens

While there are clearly some significant challenges that lie ahead for ensuring that citizens continue to be well served by communications services, it is important to recognise the many opportunities as well. As we move to an increasingly digital infrastructure across our

economy, data and wireless services offer some of the most exciting and widespread opportunities for growth and innovation. The potential benefits to citizens and society deriving from them are likely to be large.

One example is the opportunity to enhance safety of life services. Providers currently support communications methods aside from standard voice calls, in particular emergency SMS and text relay. In the future multi-media and video services may offer improvements to help callers give better information to the emergency services and to improve the response the emergency services can offer.

Some of the biggest opportunities may ultimately come from the combined impact of a number of different developments. For example, innovations around the Smart Cities agenda have the potential to deliver public safety benefits, as well as other advantages, including information to help reduce traffic on the roads, bin collection, and water leaks.[57] There is a combination of technologies (Wi-Fi, mobile networks, machine-to-machine communication and long range radio) involved in delivering the smart city agenda. They could help create a complete network across the UK, sharing information and data about where resources are being consumed which would enable better monitoring and management of utilities like water and energy. This, in return, could help consumers make better informed choices about their consumption, lowering their costs.

Of course delivering these opportunities will involve confronting many of the challenges outlined above to ensure that the infrastructure will be able to deliver.

[57] The government's UK "Smart Cities" industry strategy was launched in October 2013.

8.2 How are we addressing these challenges?

Availability

	What are the future challenges?	How do we intend to address them?
Fixed broadband	Developments in commercial and public services and the increasing importance of the internet in daily life mean citizens expect universal internet availability, and higher broadband speeds than 2Mbit/s, the level the government has established as the minimum acceptable level of service.	Ofcom is supporting both the commercial and public intervention enabled roll-out of superfast broadband through technical advice to government and the provision of benchmark information. We will continue to ensure that our regulatory approach takes account of the user benefits associated with increased investment in next-generation networks. And we will continue to publish speed data, in part to encourage further investment by providers. Ofcom is also working with industry to test how 'white space' technology might be put into practice. The trials test a range of uses, such as internet access for rural communities.

	What are the future challenges?	How do we intend to address them?
Mobile coverage	While there is currently widespread mobile coverage, there are still patchy areas or areas where there is no coverage at all (e.g. road and rail coverage). Citizens' expectations of service availability and quality of data coverage are also growing.	Ofcom has set out a five-point action plan to improve mobile coverage and address not-spots.[58] We have imposed a 98% indoor coverage obligation on one of the 4G licenses and have also supported network sharing by the MNOs. We have also set out plans to release spectrum in the 700 MHz band for mobile services to support wide-area coverage in the longer term. We provide technical support to government in relation to planning and other policy options that may improve mobile coverage. This includes work relating to the mobile infrastructure project (MIP) which will extend coverage into areas where there is currently none. We are publishing more information on the coverage and quality of mobile networks and services to help consumers to make informed buying decisions and encourage investment by mobile operators. We have recently published a call for inputs on the use of smart repeaters to improve mobile coverage within buildings and are also undertaking work to better understand the impact of using mobile phones whilst in vehicles.
Emergency services	As technologies continue to evolve, we must strike the balance between ensuring new, innovative services are available to consumers, and protecting citizens through standards for access to emergency services. Future policy opportunities include the potential for emergency service contact through a range of next generation networks and services.	We are in discussion with communications providers to ensure that new technology services offer resilient and reliable access to emergency services. We are also monitoring the adoption and effectiveness of industry initiatives to allow the emergency services to get better mobile location based on, for example, GPS-type location information.

[58] http://consumers.ofcom.org.uk/phone/mobile-phones/coverage/five-point-plan-to-improving-mobile-coverage/

Accessibility

	What are the future challenges?	How do we intend to address them?
Digital inclusion and media literacy	The costs associated with digital exclusion are growing over time. The challenges fall into two fields: 1. Promoting digital inclusion by helping those who are not using the internet to become more aware of its benefits and the options for getting online. 2. Promoting digital competence and confidence, giving people the means to make full use of digital technology and services as well as informed choices about their content.	We will continue to support the work of other agencies and encourage the industry to promote safe, confident use of the internet. We provide and disseminate the findings of our media literacy research and affordability research to help understand issues such as the barriers to going online, and once people are online, the levels of use and understanding related to the online environment.

Affordability

	What are the future challenges?	How do we intend to address them?
Helping low income households	The cost of internet access remains a barrier for around 7% of people. There is sometimes low awareness of cheap deals among low-income groups. Some consumers face affordability issues when buying services, e.g. 2% report debt in relation to communication services when facing difficulties paying for these services.	Ofcom will continue to work to improve awareness of the most affordable deals and to help consumers switch when they want to. Levels of debt are consistent with previous findings and industry information shows that levels of debt and percentage of indebted consumers have fallen between 2010 and 2013. We are improving links between debt charities and communication providers (CPs), to encourage them to be more responsive to the changing circumstances of consumers We will develop further indicators to monitor affordability and report on our findings annually to track the prevalence of debt and costs as a barrier to participation.

Section 9

Glossary

2G Second generation of mobile telephony systems. Uses digital transmission to support voice, low-speed data communications, and short messaging services.

3G Third generation of mobile systems. Provides high-speed data transmission and supports multimedia applications such as full-motion video, video-conferencing and internet access, alongside conventional voice services.

4G The fourth generation of mobile phone mobile communication technology standards, which provides faster mobile data speeds than the 3G standards that it succeeds.

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

ADSL2+ A technology which extends the maximum theoretical downstream data speed of ADSL from 8Mbit/s to 24Mbit/s/

AM Amplitude modulation. Type of modulation produced by varying the strength of a radio signal. This type of modulation is used by broadcasters in three frequency bands: medium frequency (MF, also known as medium wave (MW)); low frequency (LF, also known as long wave (LW)), and high frequency ((HF, also known as short wave (SW)). The term AM is also used to refer to the medium frequency band (see MF, below).

Broadband A service or connection generally defined as being ‘always on’ and providing a bandwidth greater than narrowband.

Communications Act Communications Act 2003, which came into force in July 2003.

DAB Digital audio broadcasting. A set of internationally-accepted standards for the technology by which terrestrial digital radio multiplex services are broadcast in the UK.

Digital switchover The process of switching over the analogue television or radio broadcasting system to digital.

DOCSIS Data Over Cable Service Interface Specification. It is a standard for the high speed transmission of data over cable networks. The latest commercially-available generation of the technology is known as DOCSIS 3.0.

DTT Digital terrestrial television. The television technology that carries the Freeview service.

EPG Electronic programme guide. A programme schedule, typically broadcast alongside digital television or radio services, to provide information on the content and scheduling of current and future programmes.

Fibre-to-the-cabinet Access network consisting of optical fibre extending from the access node to the street cabinet. The street cabinet is usually located only a few hundred metres from the subscriber premises. The remaining segment of the access network from the cabinet to the customer is usually a copper pair but could use another technology, such as wireless.

FM Frequency modulation. Type of modulation produced by varying the frequency of a radio carrier in response to the signal to be transmitted. This is the type of modulation used by broadcasters in part of the VHF (Very High Frequency) band, known as VHF Band 2.
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Free-to-air Broadcast content that people can watch or listen to without having to pay a subscription.

Internet A global network of networks, using a common set of standards (e.g. internet protocol), accessed by users with a computer via a service provider.

Large letter This refers to Royal Mail's definition Large Letter. A Large Letter is any item larger than a Letter and up to 353mm in length, 250mm in width and 25mm in thickness, with a maximum weight of 750g.

LLU (local loop unbundling) LLU is the process where the incumbent operators (in the UK it is BT and Kingston Communications) make their local network (the lines that run from customers premises to the telephone exchange) available to other communications providers. The process requires the competitor to deploy its own equipment in the incumbent's local exchange and to establish a backhaul connection between this equipment and its core network.

Machine to machine (M2M) – wired and wireless technologies that allow systems to communicate with each other.

MNO Mobile Network Operator, a provider which owns a cellular mobile network.

Mobile broadband Various types of wireless high-speed internet access through a portable modem, telephone or other device.

Multiplex A device that sends multiple signals or streams of information on a carrier at the same time in the form of a single, complex signal. The separate signals are then recovered at the receiving end.

Next-generation access networks (NGA) New or upgraded access networks that will allow substantial improvements in broadband speeds. This can be based on a number of technologies including cable, fixed wireless and mobile. Most often used to refer to networks using fibre optic technology.

PSB Public service broadcasting, or public service broadcaster. The Communications Act in the UK defines the PSBs as including the BBC, ITV1 (including GMTV1), Channel 4, Five and S4C.

Smartphone A mobile phone that offers more advanced computing ability and connectivity than a contemporary basic 'feature phone'.

SMS Short Messaging Service, usually used to refer to mobile text messaging.

Social networking site (SNS) A website that allows users to join communities and interact with friends or others who share common interests.

Superfast broadband Sometimes known as next-generation broadband, super-fast broadband delivers headline download speeds of at least 30Mbit/s.

Telecommunications, or 'telecoms' Conveyance over distance of speech, music and other

sounds, visual images or signals by electric, magnetic or electro-magnetic means.

Text relay A system which allows hearing and speech-impaired people to converse over the telephone with hearing callers by converting their speech to text and vice versa. The conversion is done by Relay Assistants working at a Relay Centre.

VDSL Very High Speed DSL. A high speed variant of DSL technology, which provides a high headline speed through reducing the length of the access line copper by connecting to fibre at the cabinet.

WiFi hotspot A public location which provides access to the internet using WiFi technology.