Access and Inclusion

Digital communications for all

Contents

One page overview

Digital services have long been recognised as important for citizens' participation in society, the economy and the democratic process. While Ofcom's work to encourage competition has helped to deliver the three central goals of availability, take-up and effective use of key services, the market alone may fail to secure them universally. As a result, we have worked directly to make progress towards those three goals. As examples, we help to define and enforce the Universal Service Obligation for fixed line telephony and are ensuring that at least 98.5% of the population will receive digital terrestrial television following switchover.

But the digital world is changing. Given the growth of broadband and mobile services, of digital broadcasting and of technologies and services which could provide greater benefits for disabled users, the time is right for us to check whether our approach to access and inclusion issues remains appropriate. We have done so by considering four questions:

- Which services matter most from an access and inclusion perspective?

- What are the significant gaps in the geographic availability of these services?

- Are there issues preventing widespread take-up of these services?

- Are there significant impediments to the effective use of these services?

In light of our analysis, we are proposing five immediate priorities for our work in this area:

- **Broadband availability and take-up.** We will help achieve a better understanding of the obstacles to increased availability and take-up of broadband. We are already working closely with Government and others to determine how the proposed Universal Service Commitment should be introduced, and will publish new research on take-up in spring 2009.

- **"999 mobile roaming."** We are working with mobile network operators, emergency authorities and call handling agents so that in an emergency people can call 999 through any mobile network if their own has no coverage. Subject to successful testing, this will be introduced late this year.

- **Services for disabled people.** We are firmly committed to ensuring that disabled people can access communications services on an equivalent basis to others and propose to work to tackle the most critical issues that they face. This will include assessing the policy case for improving the existing text relay service.

- **Universal Service Obligation (USO):** We intend to assess the way the USO currently works, its fitness for purpose and the extent of any financial burden it imposes. This will be the most significant review we have carried out since 1997.

- **Media literacy.** As requested by Government in its Digital Britain interim report, we will be managing the development of a National Media Literacy Plan.

For some aspects of this work, we will take the lead in order to consider how best to use our powers to make progress. For other aspects, it will be appropriate for Government and others to play that role, supported by Ofcom's expertise. We see this as a critical area and one that we want to pursue with vigour. We welcome the views of stakeholders on our analysis and on the priorities we think we ought to adopt.

Section 1

Executive summary

1.1   The communications sector has undergone a revolution over recent years. The way that many consumers engage with technology has changed dramatically in a relatively short space of time. Just 15 years ago, most UK households would have only had access to a basic landline, a television service with four channels, and an analogue radio service. Today a majority of households have multi-channel television, mobile phones and broadband services. As a result, they can communicate with the outside world in new ways, whether for entertainment, for information, for domestic tasks, for work and as citizens. This represents a social transformation of enormous significance which can benefit everyone and, for many, digital communications are now an essential part of life.

1.2   Many aspects of that transformation have been delivered by competition, which has enabled high availability and take-up of communications services. Regulation has helped, especially in fixed telephony and broadband, by incentivising providers to offer lower prices, develop attractive new services, and invest in network roll out. But there are limits to what the market can deliver through competition alone.

1.3   This may be because it is commercially unattractive to build new networks in remote areas or to provide tailored services or equipment for disadvantaged groups. It may also be because those on low incomes are unable to make the financial commitments to take up the services they want. In addition, parts of the population, such as many older people, may not take up new services because they are unaware or unconvinced that those services might be important to them.

1.4   Ofcom's primary duty is to further the interests of citizens and consumers in communications matters. The widespread availability, take-up and effective use of key digital communications is important for society as a whole: for children to learn in the most effective way; for people to know about what is going on in their locality or in the wider world and do something about it; for people to access public services or job markets effectively; or just to buy things at the most competitive prices. So questions of access and inclusion in digital communications need to be taken seriously, particularly where they involve the most disadvantaged sections of society.

1.5   This issue is not new. Lack of access to a fixed telephone service or public service broadcasting has been a matter of public concern for decades because the market alone may not be able to deliver these services to a sufficient proportion of the population. Therefore there are already policy interventions in place aimed at increasing availability and take-up of these essential services.

1.6   For landline services, the Universal Service Obligation (USO) administered by Ofcom requires BT (and Kingston Communications in Hull) to offer a connection to all UK households on reasonable request at a uniform price. It also requires BT and Kingston to provide a special tariff to ensure that those on low incomes can access the service, and a relay service for people with hearing and speech impairments so that they can also use the telephone. Finally, the USO ensures that there continues to be a network of payphones even where it may not be economic for individual phone boxes to be maintained.

1.7   Furthermore, we have a duty to ensure the widespread availability of television services: analogue terrestrial television services have been transmitted to 98.5% of

households, and digital switchover will ensure the same coverage for digital terrestrial services. We also guarantee the provision of television access services so that people who would not otherwise be able to enjoy television, such as the hearing and visually impaired, can do so through audio description, subtitling and sign language. In 2009 we will review the Television Access Services Code to see whether it needs changing in light of economic and technical developments in order to ensure that access services continue to be delivered in an effective and appropriate way.

1.8 An important strand of Ofcom's work in this area is media literacy. We are actively engaged in promoting media literacy to help people develop the competence and confidence to use - and manage their use of - digital communication services. Ofcom has no specific powers to compel action in this area, but we can act as a catalyst by providing leadership, generating a robust evidence base and influencing other organisations to improve outcomes. With others, we have secured the introduction of a BSI Standard for internet content control, and established an International Media Literacy Research Forum to raise awareness of the latest research and key issues facing policy makers across the globe. We have also developed an online resource to keep stakeholders informed of initiatives that are being undertaken across the UK.

1.9 Despite this existing work, changing technology and markets mean that new services without safety nets have become increasingly important. Almost three million households now have mobiles as their only phone, and broadband is regarded as an essential service by many. This changing context therefore means we should review our approach to access and inclusion issues to ensure it remains appropriate and relevant.

1.10 As a result, we have considered four questions in this document:

- For which communications services would a lack of widespread availability and take-up raise concerns from an access and inclusion perspective?

- What are the significant gaps in the geographic availability of these services?

- Are there issues preventing widespread take-up of these services?

- Are there significant impediments to the effective use of these services?

1.11 Understanding the key issues and how Ofcom can help address them is a central part of our overarching duty to further the interest of both citizens and consumers. We seek to make effective use of the powers given to us under the existing statutory framework. But our duties require us to do more: to inform, disseminate best practice and facilitate change as, for example, in our promotion of media literacy. Our work both complements and reinforces that of Government, as well as the voluntary and private sectors, using our evidence and analysis to help shape the future regulatory framework, both in the UK and the EU.

1.12 The table below summarises where today's gaps in the delivery of key communications services arise.

Service	Important from an access and inclusion perspective?	Availability, take-up and effective use of the service
Fixed voice	Yes, access enshrined in law.	• USO helps ensure widespread availability and take-up. • However, market and technical developments may mean that we need to revise the services made available as well as the funding and procurement framework within which they are provided.
"Mobile 999 roaming"	Access to emergency services on the move is particularly important.	• When mobile customers are out of range of their own network they cannot use other available mobile networks to call emergency services.
Mobile voice	Gaps in mobile voice coverage seen by many as important. We are considering coverage issues further, including the need for further research, as part of our Mobile Sector Assessment.	• Available data suggests near 100% availability of 2G networks, but this masks "not-spots" and areas of poor quality coverage. • Overall take-up is good: 91% of households have a mobile phone, though levels are lower for elderly and disabled people and low income households. • Effective use is hampered to some extent by concerns about access to inappropriate content, particularly for children (media literacy); and older and disabled people may face difficulties using mobile phones.
Mobile broadband	May be important in the future.	• Availability of 3G networks is at 90% but the HSPA coverage required for broadband is more limited. Furthermore existing coverage is focused on areas with high population density; there are "not-spots" as well as areas of poor quality coverage.
Current generation broadband	Of growing importance and Government now considers it needs to be universally available by 2012.	• Availability over existing telephone lines is very widespread at basic speeds of 512kbps, but falls by up to 15% if services such as video are a requirement. Cable and wireless networks offer alternatives, though the ability of wireless to deliver high and sustained bandwidths to large numbers of customers is limited by available spectrum. Not-spots in relation to speeds over 512kbps are unlikely to be fully filled by market delivery. • Overall take-up is just less than 60% and appears to be reaching a plateau, with significantly lower rates amongst groups such as older people, people on low incomes, mobile-only households and disabled people • There are concerns about a lack of media literacy skills. SMEs may also lack skills to use internet effectively. Elderly and disabled people may face particular usability issues.
Super-fast broadband	May be important in the future.	• Network rollout already announced is likely to cover approximately half of households but seems likely to leave significant not-spots • Nature of services requiring super-fast broadband unclear at this early stage but likely to bring individual, social and economic benefits.
Digital Television	Yes, access enshrined in law.	• Digital Switchover (DSO) will ensure 98.5% coverage of DTT. Almost all those without DTT coverage have access to digital satellite television. • Take-up is at 85% and increasing. Potential for low take-up and use by older and disabled people is being addressed by the DSO Help Scheme.
Digital Radio	Analogue radio important, digital radio may be important in the future.	• Virtually universal analogue AM and FM coverage and take-up. • DAB coverage is at 90% and almost 30% of people now live in a DAB household. The proposed Digital Radio Delivery Group will be working to increase availability, attractiveness and affordability of digital radio.

1.13   In light of this analysis, we propose to target our access and inclusion work in the coming months in the following five areas: broadband availability and take-up; "999 mobile roaming;" services for disabled people; Universal Service Obligation and media literacy.

1.14   **Broadband availability and take-up:** While the vast majority of people and businesses can already get broadband at a basic speed of 512kbps, this proportion starts to fall as higher speeds are considered. For example, currently around 15% of households are unable to get speeds of 2Mbps. 2Mbps is significant as it has been mentioned by the Government for a possible Universal Service Commitment (USC) to be effective by 2012 in its Digital Britain interim report.[1]

1.15   Ofcom welcomes the Government's proposal. Its delivery will depend on the types of services that people need to be able to access via the internet, how much money is available to fulfil the commitment and the resolution of a range of technical issues. For example, we need to understand the range of technical designs that could be used to increase the availability of broadband to premises that currently cannot receive a service of 2Mbps. A variety of technical solutions are available, both wireline and wireless, and the most efficient implementation of a USC is likely to be via a combination of these. For example, not-spot clusters might be served via fixed-line solutions based on new cabinets, whilst more isolated not-spots might be served either via upgrades to individual lines, or by wireless solutions delivered using existing mobile infrastructure. The most isolated not-spots might be served via satellite wireless. In practice we expect that the optimum mix of technologies would be determined via some form of competitive tender. We have already started working with Government, industry and others to determine how the proposal for a broadband USC should be implemented.

1.16   Furthermore, despite the already widespread availability of broadband at basic speeds, take-up remains at just less than 60% and appears to have reached a plateau. Take-up is significantly lower for disadvantaged groups, specifically older people (13% for people aged over 75 years old), people on low incomes (28% for people in households with income of up to £11,500 p.a.) and disabled people. Our analysis suggests that there are four broad categories of people who currently do not have internet access at home:

- The self-excluded: these are people who could afford to have internet access at home but do not want it. This is likely to be the largest group of people without internet access.

- The financially excluded: people who would like to have internet access but cannot afford it (including any training they would need to be able to use it).

- The dual excluded: people who are not interested in having internet access at home and, even if they were, could not afford it.

- The geographically excluded: people who would like to have access at home and could afford it but cannot get a reliable service where they live. This is likely to be the smallest category of people without internet access at home.

1.17   Without additional public initiatives in this area, barriers such as a lack of perceived need and cost may prevent a significant minority from reaping the benefits that broadband internet can bring. Ofcom is carrying out detailed research into the groups

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[1] Available at http://www.culture.gov.uk/what_we_do/broadcasting/5631.aspx

of people who do not have broadband at home to better understand why this is the case and the policy implications, as a further contribution to the Digital Britain and Digital Inclusion Action Plan processes. This will be published in spring 2009.

1.18 **"999 mobile roaming:"** in the UK, geographic mobile coverage varies by network but it is not currently possible to make an emergency 999 / 112 call over any available mobile network when out of range of your home network. This service was available in the UK up until the mid-90s when it was switched off in response to the emergency authorities' concerns about the high number of hoax and nuisance calls. This service is now available in most other EU countries and Ofcom believes that enabling it to happen in the UK would enhance public safety. We are working with mobile network operators (MNOs), emergency authorities and call handling agents to develop a technical solution for doing so. Subject to successful testing, this will be introduced late this year.

1.19 **Services for disabled people.** Communications services are important for all citizens, including disabled people who can face particular difficulties when using them. We are firmly committed to ensuring that disabled people can access communications services on an equivalent basis to others, so that they are able to take full advantage of the benefits such services can bring. We propose to tackle the most critical issues that they face. Our review will commence by looking at the text relay service, which gives hearing impaired people access to the telephone. This service remains important for users, but relies on technology that is 30 years old and suffers from a number of drawbacks compared to alternative services. In particular, conversations are stilted due to the time delay required for the relay assistant to type the hearing person's contribution and the need to "take turns," in addition it is not possible to use the service for conference calls.

1.20 **Universal Service Obligation:** The existing Universal Service Obligation (USO) provides a safety net for basic voice telephony services. Changes to markets and use of services mean that it is appropriate to undertake a review of the current USO implementation. For example, call volumes from payphones have declined significantly, in part because of the growing use of mobile phones. We intend to review the existing implementation of the USO and consider whether changes to it are required. It will include an assessment of the extent to which the USO results in a significant net burden upon BT and Kingston Communications, the current universal service providers, and will consider the case for alternative funding and procurement models to ensure that USO provision is both effective and proportionate. This will be the most significant review we have carried out since 1997. It will also be necessary to consider, in this context, any changes to the USO that arise from the Government's Digital Britain review and how issues such as its proposed Broadband Universal Service Commitment might impact the scope or implementation of the Universal Service Order.

1.21 **Media literacy:** Government, in its recent Digital Britain interim report, has asked us to assess our current statutory responsibilities in relation to media literacy and, with the BBC and others, to work to recommend a new definition and ambition for a National Media Literacy Plan. This is in light of the significant market changes in the availability of digital technologies and how they are used. A media literacy working group has been formed, chaired by Ofcom and including stakeholders in government, industry and consumer groups to take forward the development of the Plan.

1.22 In addition, we plan to initiate a programme of work to help us understand the experiences of business users of telecommunications services. As part of this we will undertake a research programme to identify whether the needs of business

consumers are being met and assess the extent to which Ofcom's policies are adequately targeted at addressing any concerns.

1.23   We are keen to seek views from a wide range of stakeholders on these issues. We have included a number of questions on the proposed priority areas and on the analysis that underlies them, which are summarised at Annex 4. The consultation period closes on 3 June 2009.

Section 2

Introduction

2.1   For Ofcom, "access and inclusion" means enabling people to take part in and benefit from the economy, democracy and society as a whole. It has long been recognised that communications services can provide people with access to political, educational and cultural activities and resources; make it easier to participate in civil society, to learn and develop new skills, to connect with their community, as well as to search for work. They also make it easier for businesses to engage with a wider range of customers and suppliers.

2.2   However developments in digital technologies have opened up new, more effective means of engagement. As a result, we can now use communications services as a means to a growing range of ends in our everyday lives, as illustrated in Figure 1.

Figure 1: Examples of applications and benefits of using communications services
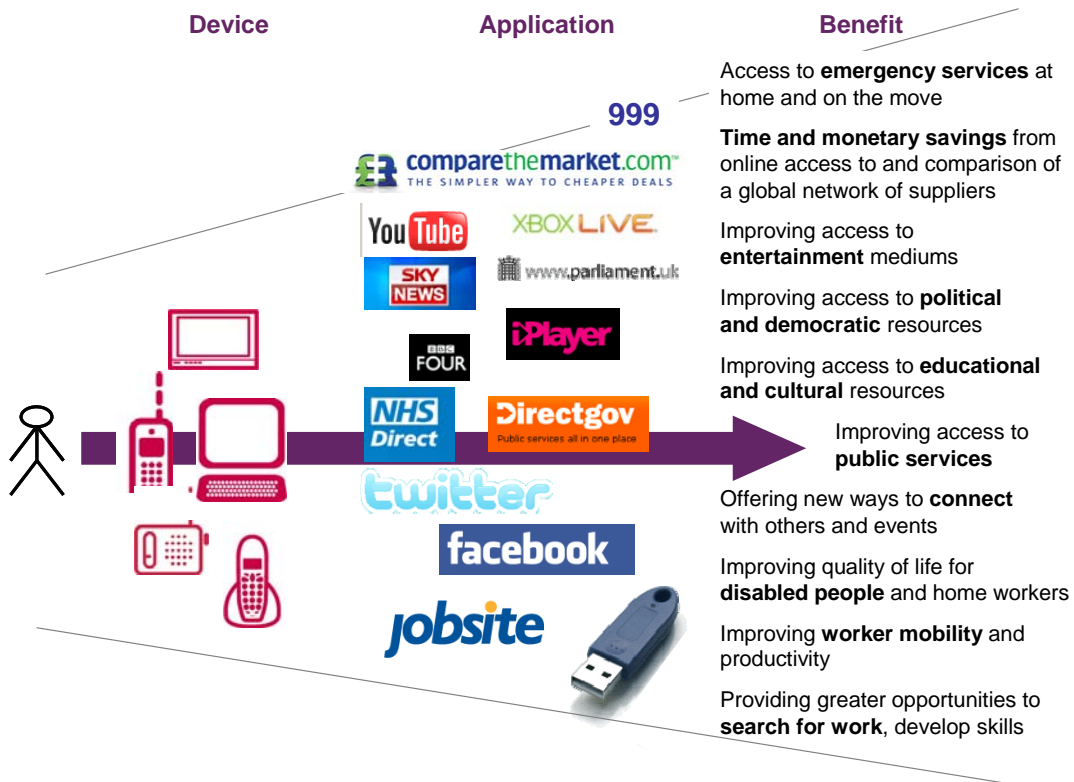
2.3   Competition, supported where necessary by regulation, has helped deliver many of these changes. But the market may fall short of delivering to all groups in society, leaving the benefits unevenly spread. For this reason, Ofcom, alongside others, is involved in a range of specific access and inclusion work streams, in line with our principal duty to further the interests of citizens and consumers. [2]

2.4   Our work is spread across three key areas, as Figure 2 below depicts.

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[2]   Ofcom's principal duty, as set out in section 3(1) of the Communications Act 2003 is to further the interests of citizens in relation to communications markets and to further the interests of consumers in relevant market, where appropriate by promoting competition.

Figure 2: The three key areas of Ofcom's access and inclusion work

Availability → Take-up → Effective use

2.5   The key issues for each component are as follows:

- **Geographic availability:** whether key communications services are available where people and businesses need to use them, at the required quality of service. This raises questions about drivers for and the extent of network coverage, the scope for the market to deliver increased coverage over time and whether delivery of next generation deployments is likely to widen (or narrow) existing digital divides.

- **Take-up:** whether people and businesses choose to take-up key communications services and, if not, what are the barriers that prevent them from doing so? Evidence to date suggests that the main barriers to take-up are: a lack of perceived need or benefit, lack of affordability and a lack of skills and knowledge of how to use a service. Tackling these barriers should result in more people choosing to have services in their own home or to use them through publicly available access points.

- **Effective use:** whether people and businesses that have taken-up services are able to use them effectively. To derive the full benefits that communications services can offer, citizens and consumers need to have equipment and services that they can use and know how to make the most of (i.e. be media literate). Barriers to effective use are primarily a lack of media literacy skills, a lack of easy-to-use equipment and a lack of suitable equipment or service for disabled people.

2.6   Each component is important in its own right. There are however links between them. In particular there are overlaps between barriers to take-up and to effective use[3]. Nonetheless it is helpful to retain a distinction between these two areas. This emphasises that it is not enough to ensure that people have access to services; they also need the skills and confidence and suitable equipment if they are to use them effectively and participate fully in the economy and society more broadly.

Question 2.1: Do you agree with the overall framework for assessing the components of access and inclusion of relevance to Ofcom?

Purpose of this document

2.7   This consultation document sets out our role in relation to access and inclusion in the context of our position as a regulator and the applicable statutory framework. It also reviews which services are likely to be the most important from an access and inclusion perspective and where the key gaps arise in relation to their availability, take-up and effective use. In light of this, it proposes five areas in which we should step up our access and inclusion work over the coming year.

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[3] This can be seen most clearly when you consider a lack of computer IT skills. This may dissuade someone from having a PC and broadband access in their home. In addition, if they were to have access, their lack of skills could also prevent them from using the service effectively.

Structure of this report

2.8   This document is structured as follows:

- Section 3 sets out Ofcom's role in promoting access and inclusion with reference to our duties and powers.

- Section 4 considers which services matter most from an access and inclusion perspective.

- Section 5 outlines existing measures to improve the availability of key services and in light of this, looks at the remaining key gaps and which ones should be priorities for Ofcom.

- Section 6 summarises existing measures to improve take-up of communications services and considers key gaps and which ones should be priorities for Ofcom.

- Section 7 outlines existing measures to enable people to be able to use key services effectively and key areas where further work is needed and which ones should be priorities for Ofcom.

- Section 8 provides further detail on Ofcom's proposed new priority areas and summarises key actions.

2.9   In addition, Annex 4 includes the full list of questions to which stakeholders are invited to respond.

Section 3

Ofcom's role

Summary

3.1 Access and inclusion is a central part of our duty to further the interests of citizens and consumers in communications markets. In furthering this duty, our interest is in promoting the widespread use of key communications services to help ensure that citizens and consumers can take part in society. This includes promoting the availability, take-up and effective use of those services needed to participate.

3.2 We seek to make effective use of the powers given to us under the existing statutory framework. However we also work to inform, disseminate best practice and facilitate change, including by proactively engaging to shape the debate on what the future regulatory framework should look like. Our access and inclusion work is often complementary to that of the many other institutions and bodies also actively involved in promoting the use of communications services.

What are our duties relating to access and inclusion?

3.3 Our work on access and inclusion falls within our principal duty to further citizens' and consumers' interests, and is one of our highest priority areas.[4] Our role relates to promoting the "direct use" of digital communications technologies as defined by the Government's recent Digital Inclusion Action Plan.[5] This is often referred to as promoting "digital inclusion."

3.4 In carrying out our principal duty we are required to secure the availability of a wide range of electronic communications, television and radio services throughout the UK.[6] This requirement means that we must consider the extent to which electronic communications and broadcasting services are available across the UK.

3.5 In addition, we have a number of specific duties that are relevant, such as to ensure certain proportions of programming with subtitling, audio description and sign language, and to ensure the availability of easily usable equipment. These duties are set out in the Communications Act 2003, as summarised in Box 1, along with the groups of consumers and citizens that Ofcom needs to have regard to when carrying out its duties.

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[4] See Ofcom's Annual Plan 2008/9
(http://www.ofcom.org.uk/about/accoun/reports_plans/annual_plan0809/statement/annplan0809.pdf)
and draft Annual Plan 2009/10 (http://www.ofcom.org.uk/consult/condocs/draftap0910/summary/)
[5] This is distinct from the indirect use of such technologies to improve service delivery, in particular the delivery of public services, such as the provision of telecare services, e-clinics and virtual viewing of social housing. With the exception of public service broadcasting, public service delivery lies outside of Ofcom's remit; our focus is therefore on promoting the direct use of digital communications technologies needed to participate in society.
[6] section 3(2) of the Communications Act 2003

Box 1: **Summary of Ofcom's duties under the Communications Act 2003**

Section 3(1) of the Communications Act 2003 states that the principal duty of Ofcom is to:
(a) further the interests of citizens in relation to communications matters; and
(b) further the interests of consumers in relevant markets, where appropriate by promoting competition"

The Communications Act 2003 also states that in doing so, Ofcom needs to have regard to a number of factors. [7] The following are of particular relevance to access and inclusion:

- The desirability of encouraging the availability and use of high speed data transfer services.
- The vulnerability of children and of others whose circumstances appear to Ofcom to put them in need of special protection.
- The needs of people with disabilities, of the elderly and of those on low incomes.
- The different needs of persons in different parts of the United Kingdom, of different ethnic communities and of persons living in rural and in urban areas.

The Act also sets out a number of more specific duties that are relevant to access and inclusion:

- To keep universal service tariffs under review and monitor changes to tariffs. [8]
- To promote better public understanding of available electronic media material (media literacy)[9]
- To take steps or encourage others to ensure availability of easily usable equipment. [10]
- To put in place and enforce a code to promote use of television services by people with hearing and visibility impairments. [11]
- To ensure (so far as is reasonable and practicable) people with visual impairments can use the public teletext service [12]

3.6   In the UK, the Secretary of State for Business, Enterprise and Regulatory Reform is responsible for determining the services that are subject to a Universal Service Obligation in the Universal Service Order ('the Order').[13] It is then Ofcom's responsibility to implement the Order by the establishment of the Universal Service Obligations for each service set out in the Order. To do so we have designated BT and Kingston Communication as Universal Service Providers (USPs), who have to provide a number of services at a uniform price across the UK. Some of the main USO requirements include the provision of the following:

- A fixed voice telephony connection upon reasonable request.[14] The line must be capable of supporting a dial up modem to provide narrowband internet access.

- Social tariffs for consumers who have difficulty affording telephone services. Current examples include BT Basic, BT Light User Scheme and InContact Plus.

- Reasonable access to public payphones. BT and Kingston Communications face restrictions on the removal of loss making payphones where local communities demonstrate local need;

- Directory information and a directory enquiries service. The information should be updated every year and a service should be available to those using public payphones.

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[7] As set out at section 3(4).
[8] section 68(1) Communications Act 2003.
[9] section 10 Communications Act 2003.
[10] section 10 Communications Act 2003.
[11] section 303 Communications Act 2003.
[12] section 308 Communications Act 2003.
[13] Under section 65 of the Communications Act 2003.
[14] Where the cost of provision exceeds £3,400, the USPs may employ non-uniform pricing.

- Equivalent access to fixed voice telephony services for people with a disability. This includes the provision of a text relay service by BT, access to directory information facilities, a priority service to repair faults, special bills designed for people who have eyesight difficulties or are blind, and call boxes that are easy to enter and use.

What are our powers?

3.7   The **powers available** to enable us to fulfil our duties under the Communications Act 2003 are set out in Table 1.

3.8   The nature of our powers vary, but it is worth noting that:

- Ofcom does not typically have powers to require private sector communications providers to address market shortfalls in availability beyond enforcing the USO in relation to fixed line telephony and narrowband internet access, the level of which is set out in the recital to the USD. In particular, we currently have no statutory powers to require communications providers to meet all reasonable requests for access to broadband or mobile services. Neither does Ofcom have powers to require private sector communications providers to take steps to increase take-up or the effective use of these services by particular social groups.

- Ofcom does not have any specific powers in relation to its duties to promote the availability of easily usable equipment (Section 10) or media literacy (Section 11).

- Unlike other government and administrative bodies, Ofcom does not have the power to administer funds to address gaps in delivery itself. The exception is in the case of promoting media literacy. Here we receive a limited amount of funding directly from the Department for Culture, Media and Sport, which enables us to support a number of initiatives.

3.9   However, many other institutions and bodies are also actively involved in promoting access and inclusion, in line with their own powers, funds or positions of influence. This means that to fulfil our duties, we should look beyond our immediate powers to engage with others to improve outcomes for citizens and consumers.

Table 1: Summary of Ofcom's relevant duties and powers in promoting access and inclusion

Area	Duties (Communications Act 2003)	Powers and functions*
Geographic availability	• Secure availability of a wide range of electronic communications services throughout UK (Section 3(1)(b)) • Secure availability of a wide range of TV and radio services (Section 3(2)(c)) • Have regard to desirability of encouraging availability of high speed data transfer services (Section 3(4)(e))	• We can make regulations to designate at least one provider to meet all reasonable requests for fixed telephony access, and require provision of public payphones to meet needs in terms of geographic coverage and USO conditions. • We monitor and enforce coverage requirements in 3G mobile licences and in public service multiplex licenses • We can issue analogue radio licenses to cover specific geographic areas. Each licence includes a condition that requires the licensee to provide its service for as much of the licensed area as is "reasonably practicable". • We have no specific powers to encourage the availability of high speed data transfer services.
Take-up	• Have regard to desirability of encouraging use of high speed data transfer services (Section 3(4)(e)) • To keep universal service tariffs under review and monitor changes to tariffs (Section 68)	• We have no specific powers to encourage the use of high speed data transfer services. • We can require appropriate tariff options and packages for low income subscribers. • We can require the prices of publicly available telephone services to be uniform throughout UK.
Ability to use services effectively	• To put in place and enforce a code to promote use of television services by people with hearing and visibility impairments. (Sections 303-7) • To ensure (so far as is reasonable and practicable) people with visual impairments can use the public teletext service (Section 308) • Have regard to the needs of people with disabilities, of the elderly and of those on low incomes, the vulnerability of children, and different persons in different parts of the UK (Section 3(4) (h),(i), (l)) • Take steps or encourage others to ensure availability of easily usable equipment (Section 10) • To promote better public understanding of available electronic media material (Section 11)	• We can require provision of subtitling, audio description and sign language on certain proportions of television services. • We can take special measures to ensure that disabled users have access to affordable publicly available telephone services (fixed voice telephony). • We have no specific powers to promote easily usable equipment or better public understanding of media material.

* Communications Act, 2003, Wireless Telegraphy Act 2006, the Electronic Communications (Universal Service) Regulations 2003.

Potential future changes to the communications framework

3.10   The statutory communications framework has to date had a particular focus on promoting widespread access fixed line telephony and television. However two recent publications have signalled a potential change in approach: the European Commission's communication on the scope of the USD and the UK Government's interim Digital Britain report.

- The **European Commission's communication** looked at the case for extending the scope of the USD to include mobile and broadband[15] It argued that while the criteria for extending the scope to mobile phones or broadband were not met at the time of the assessment, there may be a case for a broadband USO in the near future. The Commission intends to start a debate about the future shape of the USO at the European level during the course of 2009. Among the questions raised in the paper are the degree to which the scope of USO should be determined at a national, rather than pan-European, level, whether mobile telephony should be included within the scope of the USD and whether the USD should be extended to cover broadband. This debate may ultimately lead to changes in the scope of the USD.

- The UK Government's **interim Digital Britain report**[16] sets the strategic framework for the UK communications sector. This includes a proposal for a broadband Universal Service Commitment by 2012.

3.11   More generally, the Department for Communities and Local Government has published and consulted on a **Digital Inclusion Action Plan**,[17] with a framework for action (a Charter for Digital Inclusion) to help facilitate cross-sector engagement, and a proposal for a Digital Inclusion Champion to develop, embed and promote the Charter, support the digital inclusion needs of the most disadvantaged citizens and communities, and maintain a strategic oversight of the issues. The Government's interim Digital Britain report emphasised the need for the Digital Inclusion Champion to increase take-up.

3.12   The UK is not alone in considering what more could and should be done to tackle the digital divide, particularly in relation to broadband. A number of other countries are looking at this issue, including the French Government's 'France Numérique 2012' programme, and the USA's new technology agenda.[18]

What do we see as our access and inclusion role?

3.13   The economics of communications networks typically mean that services are unlikely to be universally available; some gaps in market provision are inevitable. Barriers to take-up and effective use of services (such as cost, affordability, or a lack of skills or usable service/equipment) also mean that some groups risk being excluded from the benefits that these services offer.

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[15] The European Commission communication can be read in full at: http://ec.europa.eu/information_society/policy/ecomm/doc/library/communications_reports/universal_service/572_final_en.pdf. Ofcom's statement for the last review of Universal Service Obligations in 2006 can be accessed at: http://www.ofcom.org.uk/consult/condocs/uso/uso_statement/

[16] See http://www.culture.gov.uk/what_we_do/broadcasting/5631.aspx

[17] *Delivering Digital Inclusion: An Action Plan For Consultation* October 2008; available at http://www.communities.gov.uk/publications/communities/deliveringdigitalinclusion

[18] http://www.whitehouse.gov/agenda/technology

3.14   As outlined above, to varying degrees, we have powers, duties and influence to address these shortfalls but it is not for Ofcom to resolve all these issues on its own. We need to work with others to deliver the right outcomes for consumers and citizens.

3.15   With this in mind, we can identify three types of possible interventions, each of which implies a different role for Ofcom:

- **For those interventions that fall within Ofcom's existing powers, we need to explore the case for action and, where appropriate, make effective use of our powers**. For example we administer the current USO and the code for television access services and can review and implement changes to these within the scope of the existing legal framework to ensure they remain fit for purpose.

- **For those interventions that fall within Ofcom's broad framework for action (as defined by our duties) but where our existing powers are insufficient or inappropriate, we need to work with others to support change.** To help do so we need to maintain a robust evidence base to inform activity. We also have a role to play in disseminating best practice and working in partnership with others to deliver outcomes. For example with others we have developed tools such as the BSI kitemark for content control, to help parents and others filter out inappropriate content from the internet. We have also worked with broadcasters to raise people's awareness of audio description services.

- **For those interventions that would require a new or revised legal framework, we can work proactively to shape the debate on what the future framework should look like, drawing on our expertise in the communications sector.** For example, we have a role to play in thinking about how the existing USD might in due course be extended to include broadband, and how the UK Government might deliver its proposal for a broadband universal service commitment.

Question 3.1: Do you agree with the types of possible interventions that our powers and duties offer us?

Question 3.2 What do you see as Ofcom's future role in promoting access and inclusion?

Section 4

Which services matter for access and inclusion?

Summary

4.1   This section considers which communications services matter most from an access and inclusion perspective. The Government has long recognised the importance of promoting widespread access to fixed line telephone and television services, and measures to help achieve this have been incorporated into the statutory communications framework. However changing technology and markets mean that new services, mobile and broadband internet in particular, are now used by a majority of households and businesses, raising the question of whether these services are also important.

4.2   Broadband internet offers access to a wealth of services and content and is changing the way in which people and businesses take part in the economy and society, including by offering them new opportunities to do so. The Government has in effect recognised this through its recent proposal for a Universal Service Commitment for broadband, to be effective by 2012. Our initial view therefore is that broadband internet merits an immediate policy focus.

4.3   The key advantage that mobile devices offer over and above other services is the ability to communicate or access the internet while on the move. From an access and inclusion perspective, our initial view is that this is particularly important for accessing the emergency services. However we also recognise the importance of access to mobile voice services more generally, along with concerns about coverage gaps, which we discuss in Section 5.

Introduction

4.4   Communications services are important tools that enable people to take part in the economy, in their community and society as a whole. As well as bringing benefits for individuals and firms, these services help promote inclusion in society as a whole, bringing benefits to us all as citizens. In particular they can:

- help people find out information about public authorities and policies, political issues and engage in related activities, contributing to an informed democracy;

- make it easier to access educational services and content and improve skills;

- enable people to find out more about different cultural identities, promoting cultural understanding;

- promote a greater sense of belonging to a community, either a "virtual" one comprising people with shared interests or a community that is local to where people live or work;

- improve access to public services, including access to emergency services;

- enable people to keep in touch with one another, providing peace of mind and a sense of social inclusion;

- make it easier for people to search for work; and

- make it easier for businesses to manage relations with suppliers and customers.[19]

4.5   For example the telephone promotes social inclusion, facilitates access to public and other services and to customers and suppliers, while the television and radio provide access to news as well as political, educational, cultural and community programmes.

Changing use of communications services

4.6   While these three services remain important, developments in digital technology have led to a significant change in the communications services people use. Just 15 years ago most households would only have had access to a basic landline, a television service with four channels and an analogue radio service, whereas today a majority of households have multi-channel television, fixed and mobile phones as well as broadband services (Figure 3).

Figure 3: Take-up of communications services (by household)
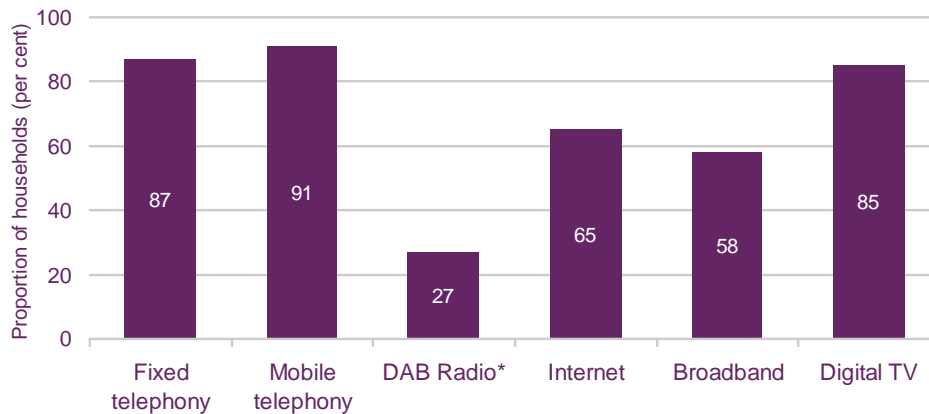
Source: Ofcom communications tracking survey, all adults 15+
*Source RAJAR, % Adults(15+) who own a DAB set at home. Using DAB sets is not the only way to listen to digital radio. Digital TV and the internet provide alternative platforms and hence the DAB figures underestimate use of digital radio

4.7   In addition, overall business use of mobiles is growing quickly, albeit at a slower rate than for residential customers, with overall mobile revenues from business use increasing from £3.6 billion in 2002 to £6.7 billion in 2007.[20] Past Ofcom research into ownership by small and medium-sized enterprises (SMEs) found that at the end of 2005, just over one half of SMEs had mobile phones.[21]

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[19]   Ofcom research has found that half of Small and Medium-Sized Enterprises (SMEs) believe that communications services are vital to the future success of their business, this increases to 70% when SMEs with more than 100 employees are considered, *SME engagement with digital communications services* September 2006
[20] Ofcom *Mobile citizens, mobile consumers* August 2008 available at http://www.ofcom.org.uk/consult/condocs/msa08/.
[21]   Page 11 *SME Engagement with Digital Communications Services* 2006.

4.8   The vast majority of businesses already use the internet: over 98% of businesses with more than 50 employees and almost 90% of businesses with 10-49 employees use the internet.[22] Internet take-up is highest amongst sectors such as financial services, and ICT and real estate and is lowest amongst the retail, wholesale, catering and travel sectors.[23] One key reason for such high take-up is that it can offer businesses a powerful retail channel, as well as a route for communicating with suppliers.[24]

4.9   Technological developments have resulted in two key changes in behaviour:

- First, people have changed the way in which they carry out a wide range of activities. Rather than simply rely on a phone conversation or post for communication, or on television, newspapers and magazines for information, it is now possible to communicate using SMS, e-mail, instant messaging, social networking sites, and to find out a wealth of information on the internet. In addition, businesses can buy and sell products online.

- Secondly, digital technologies have opened up new opportunities. It is now easy to connect with a far wider range of people and communities than has been possible before through social networking and community interest websites.[25] This is particularly true for people who live in geographically isolated places, or who have limited mobility (including because of a disability), helping promote social inclusion and a greater sense of belonging to a community. Broadband internet access makes it easier for people to work from home, which may help draw more people into the labour force, or even to set up their own businesses when they would not otherwise have done so.[26]

4.10   However there is a risk that people or businesses that do not have access to such services will be left behind and miss out on opportunities enjoyed by others. Furthermore, inequality of access to key communications services may not only be a symptom of wider exclusion, but also potentially also a cause, as argued by the Minister for Digital Inclusion:

> "Inequality in the use and application of digital technologies is a new driver of social exclusion in the 21st century, which risks accelerating existing social divides and creating new ones. Digital exclusion is a symptom of wider exclusion, but also a cause." *Rt. Hon Paul Murphy MP, Digital Inclusion Action Plan:[27]*

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[22] See http://www.statistics.gov.uk/pdfdir/ecom1108.pdf, ONS does not publish data for businesses with less than 10 employees. Ofcom research in 2005 found that 84% of SMEs used the internet, three quarters of which had broadband connections.

[23] See http://www.statistics.gov.uk/pdfdir/ecom1108.pdf

[24] UK Online found evidence that it can help individual businesses increase their sales opportunities, with people purchasing up to 20% more online than they would offline.
See FreshMinds and UK online centres (2008) Economic benefits of digital inclusion: building the evidence. Ufi Ltd.
www.ukonlinecentres.com/corporate/images/stories/downloads/economic%20benefits%20of%20digital%20inclusion%20-%20building%20the%20evidence.pdf

[25] These could for example be political, cultural, or academic.

[26] DCLG's research *Community perspectives on Digital Inclusion – Qualitative Research to Support the Development of the Digital Inclusion Strategy* 2008 found that digital technologies offered more flexible working which could better enable people on low income or lone parents to work.

[27] See http://www.communities.gov.uk/publications/communities/deliveringdigitalinclusion

4.11   Against this background we have focused on mobile, broadband internet and digital radio services, because there are already measures in place to promote widespread availability and take-up of fixed voice telephony and digital television.

Mobile

4.12   Mobile telecommunications have made it possible to communicate while on the move via phone conversations, SMS or e-mail; and the vast majority of people say that this is the main reason for using their phone.[28] It is also possible to access the internet on the move via mobile phones and dongles. Services such as mobile TV are emerging, blurring distinctions between telecoms and broadcasting. As a result, many businesses and consumers now make extensive use of mobile communications services. Indeed, just over 10% of households now only have access to a mobile phone, with no fixed line telephone.[29]

4.13   Our Mobile Sector Assessment highlighted ways in which mobile communications can facilitate access and inclusion.[30] They help people arrange political, educational and cultural activities, support interactions between people, facilitate access to public services,[31] and enable the emergency services to respond faster and more accurately to 999 calls. Mobile services are also a vital input for businesses. Use of mobile technology is likely to evolve further and in the future mobile devices may, for example, become more widely used to access public services.

4.14   At present the key advantage that mobile devices offer over and above fixed communications services is the ability to communicate and use the internet (and potentially also the TV) while on the move. From an access and inclusion perspective this can be particularly important for accessing the emergency services, when the ability to make an immediate call to emergency services can be critical (and potentially life-saving). However we also recognise the importance of access to mobile voice services more generally.

Broadband internet

4.15   Broadband internet is used for a very wide range of purposes: for communicating, for work and studies, online purchases, finding out the news, leisure as well as civic activities, (see Figure 4).[32] This is true across different age groups.

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[28] 97% of people say they the main reason they use their mobile phone is to contact other people, a further 1% say they use it for fun. Ofcom *Adult Media Literacy Audit* 2008

[29] Around 12% of adults in the UK live in a mobile only household (Ofcom communications tracking survey Q2 2008).

[30] Further discussion of potential benefits of mobile phones can be found in Section 5, *Mobile citizens, mobile consumers* Ofcom 2008

[31] For example some GP surgeries and hospitals send text messages to remind people of appointments. In the future mobile devices may become more widely used to access public services more generally, particularly if they can remove the need to handle small amounts of cash.

[32] This is true across the UK and across different socio-economic groups, although the total amount of time spent on the internet varies as does the proportion of time spent on particular activities and number of uses. Those in socio-economic group ABC1 and those living in urban areas tend to use the internet for a wider variety of activities than other groups.

Figure 4: Type of activity undertaken online at least once a week

4.16 It can help people and businesses take part in the economy and society in a range of ways including the following:

- It provides information on public services as well as direct access to a growing range of public services online. Citizens can for example pay their car tax online, access heath advice through NHSdirect, and search for and view social housing online. The internet provides a quicker and more convenient way of finding out about and accessing services, especially for those who are less able to travel perhaps because they live in rural areas and would otherwise need to travel long distances, or are disabled.[33]

- It provides access to a wide range of material on public policy and administration, forms of expression such as voting, and to democratic debate through discussion and interest groups. This was illustrated by the levels of online engagement in the US elections.

- It offers access to a rich source of information, educational and cultural resources because for example it offers access to live, archived, or catch-up content, and to interact with the stories and events that are of interest, including those from overseas. In is a helpful tool for children when carrying out their homework. It can also offer online e-learning opportunities enabling people to develop skills and gain accredited qualifications.[34]

- It provides a new way of searching and applying for jobs and can make it easier to work from home providing new opportunities to work.

- It offers business new ways to promote and market themselves, and access to a wider range of customers and suppliers.

- It offers new ways to connect and stay in touch with others for example though social networking which allows users to build online profiles, personal networks,

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[33] See for example DCLG *Community Perspectives on Digital Inclusion* 2008.
[34] See for example DCLG *Community Perspectives on Digital Inclusion* 2008

and keep in touch with friends and events in real-time, promoting social inclusion, as outlined in Box 2.

Box 2: **The growing potential of digital services to facilitate inclusion – a social networking case study**

Social networking facilitates inclusion by offering people new and varied ways to communicate via the internet through their PC or their mobile phone. It enables self-expression though creating online profiles, managing personal networks, creating and interacting with content, and staying informed with friends and events in real-time. The rapid growth of such sites suggests that they are now a mainstream communications technology for many people. Half of all users access social networking sites at least every other day.

Users of all ages found social networking sites to be a helpful way of managing their existing relationships, and for getting back in contact with old friends; younger people value the ability to contact others in a playful way. People who found it difficult to get out of the house to meet people thought that social networking sites were a good way of meeting people and having social contact. Overall the sites can offer a user friendly and an engaging way of learning new skills and building greater confidence online.

Social networking is not without its drawbacks; there are concerns about privacy and safety. Many users appear unconcerned about the potential risks. This in part reflects a lack of awareness of the issues, an assumption that they have been taken care of by others, low levels of confidence on how to protect themselves.

Social Networking; an Ofcom research report, April 2008
http://www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrss/socialnetworking/report.pdf

4.17   A recent research report from the Communications Consumer Panel found evidence that consumers recognise the importance of internet access, with some people seeing basic access to the internet as a "right" in the same way that access to the utilities is.[35]

4.18   A lack of access to broadband internet has the potential to pose real costs to citizens, and society, by excluding people from potentially important content and resources. For example, school children without access to the internet at home may find it harder to carry out school assignments; those without web access may find it harder to research and subsequently find employment and develop skills; businesses in certain regions may find it difficult to remain competitive if they cannot access particular communications services of sufficient quality.

4.19   While current generation broadband access[36] is widely used, operators are only just beginning to roll out networks that deliver super-fast broadband.[37] It is therefore too early at present to understand the additional benefits that super-fast broadband will bring. For example a recent study published by the Broadband Stakeholders Group found that it was difficult to reliably predict the scale or timing of the social and

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[35] Communications Consumer Panel *No one should miss out: consumers say what they want from the digital future* February 2009.

[36] Current generation broadband refers to services delivered over existing fixed, wireless and mobile networks and infrastructure. For example, ADSL (Asymmetric Digital Subscriber Line) is a technology used for sending data quickly over a conventional copper telephone line.

[37] Super-fast broadband is delivered by next generation access (NGA) networks that will allow substantial improvements in broadband speeds and quality of service compared to today's services. The term can be applied to a range of technologies, including cable, fixed wireless and mobile capable of delivering super-fast broadband. It is most often used to refer to networks using fibre optic technology of which fibre-to-the-home (FTTH) and fibre-to-the-cabinet (FTTC) are the two main variants.

economic benefits.[38] However the services supported by super-fast broadband are likely to provide access to a wide range of video rich and immersive information and communications services that help participation in society and the economy. Hence access may well become important in the future. In his report to Government, Francesco Caio has argued that it is likely to become a "critical utility" in the medium-to long-term.[39]

4.20   Penetration of mobile broadband is currently low (around 10% of adults state that somebody in their household uses mobile broadband).[40] However this is a relatively new service and take-up is growing as people and business take advantage of being able to access the internet on the move. Ofcom welcomes the growth in availability and take up of these services, and we recognise that they may become more significant from an access and inclusion perspective in the future.

Digital Radio

4.21   Radio provides access to news, educational and cultural programmes as well as local services for communities,[41] promoting social inclusion.

4.22   Through DAB, listeners in the majority of UK cities have access to over 35 digital radio stations. It is possible to pause and rewind live radio programmes; and to discover more information about radio programmes through text and data services. In addition, it is possible to access at least 25 radio services through digital terrestrial television, over 90 stations over satellite television, and many more over broadband networks.

4.23   However analogue radio already offers access to over 300 commercial radio stations, as well as a range of services from the BBC and community radio stations. Furthermore, while radio listening across all platforms stands at 45.5 million listeners per week or 90% of the UK population aged (15+),[42] less than 20% of this is currently via digital platforms. This indicates the continued importance of analogue AM and FM services. However digital radio may become important in the future as it becomes more widely available and adopted.

Which services matter most for access and inclusion?

4.24   Assessing which communications services matter most from an access and inclusion perspective is a matter of judgement. However it is helpful to consider the following aspects:

- How does a given service help facilitate participation over and above other communications services?

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[38] Plum Consulting *A framework for Evaluating the Value of Next Generation Broadband, A report for the Broadband Stakeholder Group* May 2008

[39] Francesco Caio *The next phase of Broadband UK: Action now for long term competitiveness, Review of barriers to long term investment in Next Generation Access* September 2008

[40] Ofcom's communications tracking survey Q4 2008. This is consistent with estimates from Analysys Mason that there have been almost 2m new mobile broadband subscriptions in the last two years. Research from GfK (2008) suggests that around two thirds of adults with mobile broadband also have a fixed broadband connection at home. Therefore at present many people have a mobile broadband connection to complement their fixed broadband connection.

[41] As recognised in the Government's interim Digital Britain report.

[42] RAJAR, Q1 2004

- Are a majority of people actively using the service to participate, such that those without access are at risk of exclusion?

4.25   The importance of fixed voice telephony and television services has already been recognised by the Government and forms a key part of our existing work. But it is timely to consider the nature of the benefits of mobile, broadband internet, and digital radio. Our initial view is that:

- Mobility is clearly valued highly and regarded as increasingly essential by both individuals and businesses. From an access and inclusion perspective this feature can be particularly important for accessing the emergency services, when fixed line telephony (and the payphone network) may sometimes offer poor substitutes. We note, however, that there is now only a small proportion of households without access to mobile phones (9%),[43] and 86% of people personally own a mobile phone.[44]Nevertheless, while there is a need to prioritise work on the quality and extent of mobile access to emergency services, we recognise the importance of access to mobile voice services more generally along with concerns about coverage.

- Broadband internet provides access to a wide range of content and services that help participation in the economy and society, much of which would be difficult to access using other communications services. The majority of individuals and businesses now have broadband internet access, but there remains a significant minority of households without access to the service (about 40%).[45]

- The majority of radio use continues to be via analogue rather than digital radio platforms. Digital radio may well become more important in the future as it becomes more widely adopted. The Government has proposed that a Digital Radio Delivery Group be created to work to increase both availability and take-up.

4.26   Therefore while all three of these digital services are clearly of importance, our initial view is that broadband internet appears to merit more immediate policy focus from an access and inclusion perspective, as summarised in Table 2. This is in line with the Government's proposal for a universal broadband commitment by 2012. In addition, a particularly important benefit that mobile phones can bring is the provision of timely access to emergency services.

Question 4.1: We have considered the ways in which mobile, broadband internet and digital radio services can facilitate participation in the economy and society. Our initial view is that of these three services, having access to broadband internet is likely to be the one requiring most immediate policy focus from an access and inclusion perspective, along with 999 roaming. Do you agree?

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[43] See Figure 3 of this consultation document.
[44] Ofcom Communications tracking Survey Q2 2008, base 2109
[45] See Figure 3 of this consultation document.

Table 2: Key communications services and inclusion

Service	Examples of how the service can facilitate inclusion	Service important for access and inclusion?
Fixed voice	• Can provide enhanced sense of belonging to a community, improved access to public and other services.	Yes; access enshrined in law*
Mobile voice	• Provides better access to emergency services, improved sense of belonging to the community, improved access to customers and suppliers, can facilitate organisation of political or social events.	Important for accessing emergency services. Many argue that it is important more generally.
Mobile broadband	• Provides access to broadband internet on the move.	May be important in the future
Current generation broadband	• Can provide direct access to public services, a wealth of educational, political and cultural material, ability to search and apply for jobs, new opportunities to connect to community, to be engaged in political debate. Offers businesses access to a wider range of customers and suppliers.	Of growing importance, Government now considers that it needs to be universally available by 2012. This merits a particular policy focus.
Super-fast broadband	• Little evidence that consumers or citizens need access to super-fast broadband now (over and above current generation broadband), but position may change over time as the services supported by super-fast broadband stand to bring individual, social and economic benefits to UK household and businesses.	May be important in the future
Digital television	• Provides access to news, political, educational, and cultural and community programmes	Yes; access enshrined in law**
Digital radio	• Provides access to news, political, educational, and cultural and community programmes. However this is also largely provided by near ubiquitous analogue radio.	Analogue radio important, digital radio may become important in the future

* As part of the USO, BT and Kingston are required to meet all reasonable requests for fixed line telephony, and narrowband internet access. ** Public service broadcasters are required to provide digital television coverage for 98.5% of population.

Section 5

Availability

Summary

5.1   This section considers whether key communications services are available in areas where people need to use them. The existing communications framework recognises that some areas will not be commercially attractive to serve, so the market is unlikely to deliver 100% availability of services throughout the UK. It includes measures to ensure that basic telephony services, as well as analogue and digital television are available to close to 100% of the population. However there are currently no comparable measures in place for mobile, broadband or digital radio services. In light of the work of the Digital Radio Working Group and the Government's proposal for a Digital Radio Delivery Group to increase the availability of digital radio, our focus here is on broadband and mobile services.

5.2   In terms of current generation broadband, availability at a basic speed of 512kbps is good, and schemes set up by devolved administrations are addressing remaining not-spots in the nations. The more significant gaps arise for speeds above this. These are likely to reduce, but not disappear, as BT and others upgrade their networks. We propose that broadband availability should be a priority area within our access and inclusion work, and will be fully engaged in helping the Government assess what service should be provided through its universal broadband commitment and how this should be implemented.

5.3   Available data suggests that overall mobile coverage is good, particularly for 2G services. But there remain concerns both about "not-spots" and the quality of mobile coverage in some areas. We are considering the various types of coverage issues that exist and our approach to them, including the need for further research, as part of our ongoing Mobile Sector Assessment.

5.4   The one service for which widespread availability of mobile networks is particularly important is the ability to call emergency services. However in the UK people can only call emergency services from their mobile phone if their own network is available; "999 mobile roaming" is not possible. This is an important gap; and one that we propose as a priority area for Ofcom. We are working with mobile network operators and the emergency authorities to develop and test a technical solution. Subject to successful testing, we expect this to be introduced late this year.

Introduction

5.5   The economics of communications networks mean that the market itself may not deliver universal availability of communications services. Gaps typically arise because of a combination of factors such as the topography of a particular area, the structure and quality of historic network investments, as well as demographic factors and low population densities which can make particular areas unattractive to serve on a commercial basis.

5.6   Gaps can therefore be service (or technology) specific and are not simply an issue for very remote, inaccessible rural areas; they may also relate to areas where the quality of service is insufficient to be able to use it effectively. This is a particular issue for mobile and broadband where the speed and reliability of service varies

widely,[46] and determines which applications can be used, with a direct bearing on the extent to which citizens and consumers can participate in the economy or society.

5.7   The pattern of rollout may change over time, for example rollout of new networks may be focused, initially at least, on urban areas with high population density. Even in more mature networks, new technical developments may help fill gaps in coverage (e.g. femto cells may help fill gaps in mobile network coverage).

5.8   Where the market does not deliver coverage to a sufficient proportion of the population, or appear likely to do so within a desired time period, there may be a case for public sector intervention. There are two broad options: either procuring network rollout in a specific area, or using regulation to compel providers to offer a service when they otherwise would not have done so (such as under the USO). Either way, care needs to be taken to minimise the distortion to competition.

5.9   Within the UK, availability of key services is high, as Table 3 highlights, though there is some variation by nation and question marks over BT's reported figure of 99.6% availability of broadband at speeds of 512 kbps. In addition, data on mobile network availability masks localised "not-spots" and concerns about poor quality coverage.

Table 3: Summary of geographic availability of key services – by household

Service	UK 2004	UK 2005	UK 2006	UK 2007	UK 2008	Nation variations 2008
Fixed telephony	• 100%	• 100%	• 100%	• 100%	• 100%	• England: 100% • Scotland: 100% • Wales: 100% • N. Ireland: 100%
Digital Terrestrial TV*	• 73%	• 73%	• 73%	• 73%	• 73%	• England: 73% • Scotland: 82% • Wales: 57% • N. Ireland: 58%
Digital Satellite TV	• 98%	• 98%	• 98%	• 98%	• 98%	• n/a
Digital Radio (DAB)**	• 85%	• 86%	• 89%	• 89%	• 90%	• n/a
Mobile (2G)***	n/a	n/a	• 100%	• 100%	• 100%	• England: 100% • Scotland: 99% • Wales: 98% • N.Ireland: 100%
Mobile (3G)***	n/a	n/a	• n/a	• 84%	• 90%	• England: 95% • Scotland: 72% • Wales: 68% • N.Ireland: 44%
Broadband (512kbps) ****	• 90%	• 96%	• 99.6%	• 99.6%	• 99.6%	• NI: 100%***** • Scotland and Wales are lower at 99.3%.

Sources: Communications Market Reviews 2004, 2005, 2006, 2007, 2008
Notes: * Availability of signals of all six multiplexes. This will increase to 98.5% through digital switchover, and most of those without coverage will have access to digital satellite television.   **Services available from at least one operator (BBC or Digital One).   *** Data shows the proportion of people living in a postcode area with at least 75% area coverage from one or more mobile networks, and data is likely to mask not-spots and areas of poor quality coverage. HSPA coverage required for broadband speeds is more limited.   **** Proportion of premises able to receive DSL services at 512kbps based on data reported by BT. *****100% availability at 512kbps on a technology-neutral basis as a result of DETI contract, although this is sometimes disputed, particularly by those in rural areas. n/a: areas where we do not have data available on a comparable basis.

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[46] And may widen further as next generation networks are rolled out.

What has Ofcom done?

5.10 Ofcom has worked to improve the availability of key services in two ways. First it has sought to assist market delivery of services by taking action to promote competition, which can provide suppliers with incentives to expand network rollout to capture additional customers. Ofcom regulation has been designed to support and promote competition in relation to mobile telephony and broadband in particular. For example, Ofcom has sought to:

- Ofcom has ensured access to BT's local loop through local loop unbundling and allowed other operators to install broadband equipment in BT exchanges. This has enabled other operators to offer higher speed broadband services.

- Introduce new regulations to help facilitate the extension of wireless broadband access across the country. The regulations cover the 5.8 GHz band, currently used by a number of operators to provide fixed wireless broadband services in the UK. Under the regulations, the operators are now able to increase power levels, potentially extending the range and variety of services into parts of the country not previously covered, including rural areas.

- Consult on proposals to open up certain spectrum bands used by mobile phone operators which are presently limited to 2G use. We looked at how these spectrum bands could be used for 3G and other technologies and the effect that changing the use of these key spectrum bands could have on competition and consumers, including improved rural coverage and greater availability mobile broadband services.

5.11 Secondly, recognising that there are limits to what the market can deliver, we have also engaged in a range of specific work streams to promote availability by:

- Taking steps to increase the availability of key services where we have the power to do so. Specifically, we have implemented the USO which ensures that basic telephony services are available to all,[47] we enforce the 3G mobile license requirement to rollout networks to 80% of the population, and under DSO we are ensuring that public service broadcasters provide 98.5% coverage of digital television in line with analogue coverage. Ofcom also plays a role in expanding the scope of digital radio in the UK. Our licensing programme for DAB will lead to a significant expansion in both national and local digital radio services over the next three years.[48] For example, the advertisement of new local multiplexes over the last few years should significantly improve DAB coverage in Wales, particularly for the BBC's services, Radio Wales and Radio Cymru.

- Where we have limited powers, we have sought to inform others by publishing data on availability of services,[49] and providing guidance for public sector bodies when drawing up schemes to extend broadband rollout. We have also supported the work of the Digital Radio Working Group in understanding barriers to more widespread availability.

5.12 Table 4 provides a summary of these measures by service.

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[47] Subject to the ability of BT and KCom to apply non-uniform pricing where the cost exceeds £3,400.
[48] As set out in Ofcom's statement *The Future Licensing of DAB Digital Radio* July 2006
[49] In particular Ofcom publishes an annual Communications Market Review and a separate, annual, Nations and Regions Communications Market Review. These are available at http://www.ofcom.org.uk/research/cm/

Table 4: How Ofcom helps improve the availability of services

Area	Key steps taken to date (excluding initiatives to promote competition)
Research	• Publish data on availability of key communications services UK wide, by nation, region and in rural and urban areas.
Fixed telephony	• Enactment of USO which requires that all reasonable requests for connection to fixed line telephony network at a fixed location are met by designated providers and for the provision of reasonable access to public payphones.
Mobile	• 3G mobile licenses require providers to roll out to 80% of population. Ofcom gave notice to O2 in February 2008 that it would shorten its license by four months if it did not comply with its rollout obligation by June 30 2008. On 2nd May we announced that O2 now meets its obligation [50] • We commissioned a drive-by survey of the A470 to provide an insight into the level of mobile service availability on this main road which runs the full length of Wales.[51]
Broadband	• With BERR, we have published best practice guidance for public sector broadband schemes.[52] • We have asked the Office of Telecommunications Adjudicator to put in place a process with Openreach to track number of monthly broadband orders that cannot be fulfilled
Television	• Through DSO, we will ensure that public service broadcasters provide digital television coverage to 98.5% of population, the same proportion as for analogue television.
Radio	• Ofcom has licensed a network of analogue community radio stations across the UK. We have also licensed further local DAB multiplexes. • Ofcom has also supported the work of the DRWG in understanding barriers to more widespread availability.

Other public sector initiatives

5.13 To date, the key area of involvement by public sector bodies has been in relation to increasing the availability of broadband networks, where Regional Development Agencies, Local Authorities and the devolved administrations have funded specific projects to expand service availability to areas not served by the market. The European Commission also plays a role in funding the rollout of networks through its Structural Funds.[53]

5.14 The majority of schemes involving Regional Development Agencies, Local Authority Strategic Partnerships and the devolved institutions are aimed at promoting business competitiveness or social cohesion (by improving connectivity to socially challenged residential areas).[54] For example, the East Serve project in Manchester offers wireless broadband internet access to the area's residents to promote inclusion. The

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[50] See http://www.ofcom.org.uk/media/news/2008/05/nr_20080502a

[51] See http://www.ofcom.org.uk/research/cm/cmrnr08/wales/wales.pdf

[52] Ofcom, DTI *Public sector broadband schemes: a best practice guide* February 2007 http://www.ofcom.org.uk/media/mofaq/telecoms/pbs/dti_pbs.pdf

[53] See http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/newregl0713_en.htm

[54] Though some of the more recent public sector interventions are based on NGA technologies, delivering super-fast broadband is not necessarily their main driver. Rather, they are seeking to promote business competitiveness or social cohesion, but it makes sense more sense – for cost and future-proofing reasons – to fill gaps in current availability broadband with NGA solutions rather than copper based ones.

project has also played an important role in developing ICT skills in the community, and residents believe that the scheme has improved access to the employment market. To improve local business competitiveness, the FibreSpeed project in North Wales aims to provide an open access telecommunications infrastructure network offering a range of wholesale products to service providers on an equitable, non-discriminatory and transparent basis.[55]

5.15   There have also been significant programmes by the devolved administrations to fill gaps in household broadband availability, as outlined in Table 5 below.

Table 5: Devolved administrations' projects to fill broadband not-spots

	Wales	**Scotland**	**Northern Ireland**
Key Bodies	Welsh Assembly Government (WAG)	Scottish Government	Department of Trade and Industry Northern Ireland (DETI)
Programmes to promote broadband availability in rural areas	*Regional Innovative Broadband Support Scheme* – Completed work to enable 35 non-commercial exchanges with ADSL in 2007. Project now focussed on addressing 'not-spots' with scheme to capture and map not-spots, which will be focus of work. Other WAG initiatives include Fibrespeed (see local scheme tables) and Public Sector Broadband Aggregation initiatives[56]	*Broadband Scotland* programme launched in 2004 - BT awarded contract to provide ADSL to 378 non-commercial exchanges in Scotland. Avanti awarded £3.3m contract to provide subsidised broadband connectivity (no installation or set-up charges) to registered users in 'not-spots' under the *Broadband Reach[57]* project, via DTH satellite, satellite / radio hybrid or radio and fixed link networks. This project has recently completed its 1000th installation.[58].	DETI *Broadband Fund[59]* (part funded by EU) provides support for broadband schemes in Northern Ireland Avanti Communications awarded £1.1m contract to provide satellite broadband in NI to priority users unable to access via DSL/cable. Eligible users will have installation and connection charges for the satellite broadband service waived Avanti Communications also awarded £120k in January 2009 by DETI to study potential for delivery of high speed mobile broadband and voice coverage in rural NI.

5.16   In addition to the above schemes relating to broadband, the **Digital Radio Working Group (DRWG)**, created by the Secretary of State for Culture, Media and Sport has looked at the future of digital radio, including coverage issues. Recognising that there are a range of issues for Government to address, the Government's Digital Britain project team have signalled their intent to support DAB digital radio and they plan to create a Digital Radio Delivery Group whose role would be to increase the attractiveness, availability and affordability of DAB and to advise on a Digital Migration Plan.

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[55]http://new.wales.gov.uk/topics/businessandeconomy/broadbandandict/initiatives/fibrespeed/?lang=en

[56] See http://wales.gov.uk/topics/businessandeconomy/broadbandandict/initiatives/?lang=en
[57]See http://www.scotland.gov.uk/Topics/People/BroadbandforScotland/SEBroadbandInitiatives/LatestNewsAnnouncements
[58] See http://www.scotland.gov.uk/Topics/People/BroadbandforScotland/SEBroadbandInitiatives/LatestNewsAnnouncements
[59] See http://www.detini.gov.uk/cgi-bin/get_builder_page?page=4363&site=10&parent=233

Gaps in availability

5.17 Table 3 showed that the availability of key communications services is good overall. There are already measures to promote widespread availability of television and fixed voice telephony services. In addition, availability issues in relation to digital radio will be addressed by the Government, which is proposing to create a Digital Radio Delivery Group to work to increase availability (and take-up).

5.18 The key remaining availability issues relate to the following three areas, as summarised in Table 6 and outlined below:

- The availability of current generation broadband at speeds over 512 kbps. Our focus is on current generation broadband because, as noted in Section 4, there is little evidence that consumers or citizens need super-fast broadband.

- Gaps in the coverage of mobile services, because the way that coverage is currently measured and reported may mask localised not-spots and areas of poor quality coverage.

- Public payphones and the existing USO.

Table 6: Summary of key geographic availability gaps and issues by communications service

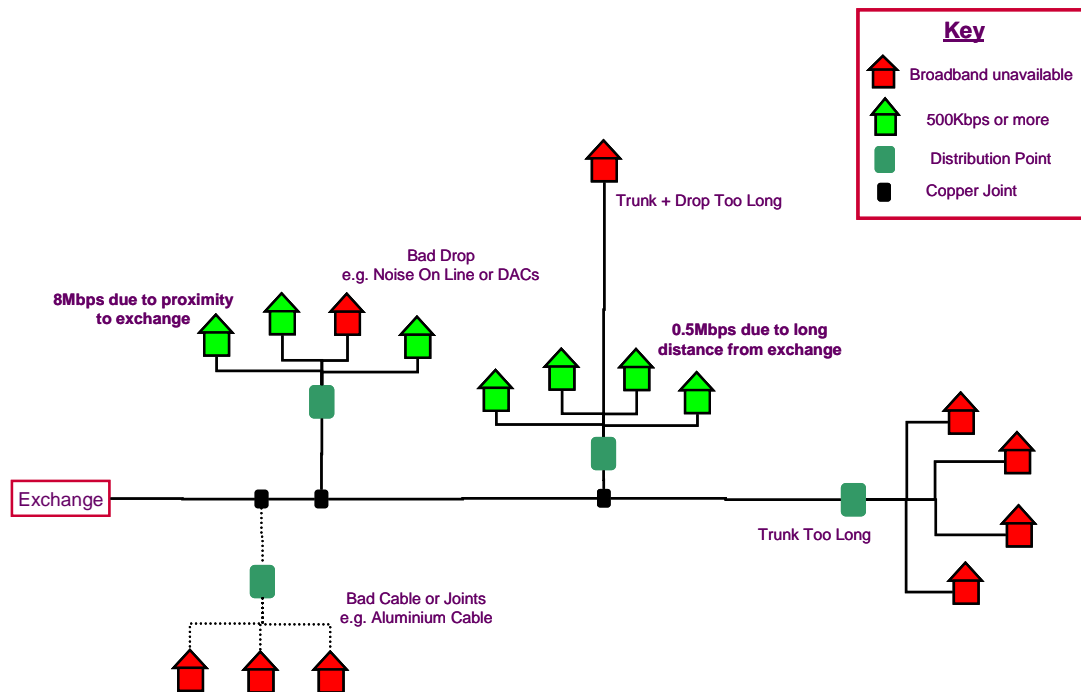| Service	Key gaps and issues
Fixed telephony	• No major availability issues because of BT's and Kingston's obligation to supply a connection to the public telephone network at a fixed location, following a reasonable request. • These providers must also provide reasonable access to public payphones. There is some debate as to their level of provision given steady reductions in their use and revenue earned.
"999 mobile roaming"	• 999 mobile roaming is not currently available in the UK, limiting access to emergency services. This is important given variation in coverage by operator.
Mobile voice	• Existing methodology for measuring suggests 100% availability of 2G mobile services by population. However high level data masks localised not-spots and areas with poor quality network coverage.
Mobile broadband	• Availability of 3G services is at 90% but the High Speed Packet Access (HSPA) coverage required for broadband speeds is more limited. In addition, there are localised not-spots and areas with unreliable coverage, or availability of low speeds only. • Ongoing investment, MNO network sharing and spectrum changes (e.g. 2G liberalisation and DDR award) may help increase availability.
Current Generation Broadband	• BT reports that 99.6% of households can get 512 Kbps, though there are question marks about the accuracy of this; devolved administrations are addressing not-spots at this basic speed in the nations. Availability is estimated to fall to 85% for speeds of 2 Mbps.
Super-fast broadband	• Market roll-out only just begun but likely to leave many not-spots.
Digital Television	• DSO will ensure 98.5% digital coverage. • Freesat from Sky and BBC/ITV will push to near 100%.
Digital Radio	• Analogue AM and FM stations provide near universal coverage across the UK • DAB coverage is currently 90%. Ofcom issues digital licences to improve coverage in specific areas e.g. North Wales. Government has proposed a Digital Radio Delivery Group to increase availability overall (as well as take-up).

Broadband

5.19   In the UK, the majority of broadband services in UK are delivered over telephone lines using Digital Subscriber Line (DSL) technologies.[60] Early DSL deployments were based on the Asymmetric DSL (ADSL) standard which is able to deliver download speeds of up to 8Mbps. More recently, Internet Service Providers have been introducing a new version, ADSL2+, which offers higher speeds than ADSL and in certain circumstance can achieve speeds of up to 24Mbps.

5.20   A common feature of all DSL based technologies is that the speeds achievable are dependent on the line length, or more accurately, the electrical signal loss of the line. Therefore, the further a premises is from a telephone exchange, the higher the electrical line loss and the slower the speed of service. This is illustrated in Figure 5.

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[60] DSL equipment (the "DSLAM") in the local telephone exchanges is connected directly to individual telephone lines which run uninterrupted to individual premises where a DSL broadband modem is installed.

Figure 5: Reasons why broadband may not be available over telephone lines

Key	
🔺 (red)	Broadband unavailable
🔺 (green)	500Kbps or more
▮	Distribution Point
■	Copper Joint

Trunk + Drop Too Long

Bad Drop
e.g. Noise On Line or DACs

8Mbps due to proximity
to exchange

0.5Mbps due to long
distance from exchange

Exchange

Trunk Too Long

Bad Cable or Joints
e.g. Aluminium Cable

5.21 Other factors that help determine whether a broadband service can be supported and, if so, what speed is achievable:

- **Line quality.** The type of metal and the wire gauge (thickness) of the line affects DSL performance. For example aluminium and/or thin wires tend to result in lower speeds than copper and heavy gauge wires. The number and quality of joints within a line can also affect performance.

- **Electrical Interference.** As with any telecommunications system, the performance of DSL based services are degraded when unexpected electrical interference, or "noise", is present in the system. Some noise can be accounted for in the system design, such as "cross talk" of signals from one line to another. However, other sources of noise are harder to predict and control. In-home telephone extensions can sometimes act as an antenna, picking up unwanted electrical signals from devices such as faulty power supplies or fluorescent lights and channelling them onto the incoming telephone line. Depending on the nature of this interference this can lead to intermittent or permanent degradation of broadband service, and in some circumstances prevent broadband from operating at all. In recognition of the problems caused by electrical noise BTWholesale has developed a device which is fitted to the front of the telephone master socket which isolates the customers internal extension wiring from the BT line. The effect of these "iPlates" is to reduce the ingress of electrical noise from the in home environment onto the incoming telephone line and can therefore improve broadband performance.

5.22 In addition to these factors, the actual broadband speed an end user experiences depends on the available bandwidth of backhaul networks and how many other people are simultaneously trying to use it. This is known as network contention and is the primary reason why broadband speeds can vary during the day.

5.23 Due to the range of factors that determine the DSL performance that a particular line can support, predicting exactly how many lines can support broadband and at what speed is highly problematic. As noted in Table 3, data reported by BT has suggested that 99.6% of copper lines can support speeds of 512 kbps, although there are question marks about the accuracy of this data.[61] The devolved administrations have programmes in place to address remaining not-spots at this speed in the nations.

5.24 The real issue therefore is availability of broadband at speeds greater than 512 kbps. Further work is needed to establish reliable data here, but indications are that current availability of broadband at speeds of 2 mbps is of the order of 85%. A speed of 2 Mbps is significant because it has been mentioned by the Government for a possible Universal Service Commitment. As BT rolls out its 21CN programme and ADSL2+ technology, coverage at higher speeds should improve. In addition, household adoption of simple measures such as the iPlate should also help.

5.25 As well as delivery over telephone lines, broadband can also be provided via cable networks, mobile networks and by satellite. Each of these technologies has different technical characteristics:

- **Cable networks**. These use a combination of fibre optic and coaxial cable, which is generally referred to as "Hybrid Fibre Coax" (HFC). Unlike DSL, the speed of the broadband services delivered via HFC networks does not degrade with distance. However, because the network capacity at each fibre termination cabinet is shared between all the broadband users within it the cable operator must consider the impact of network contention and plan capacity accordingly. The technology that delivers broadband over HFC networks has improved over time, enabling higher speeds of 50Mb/s.[62] Cable networks cover about 49%[63] of UK homes, primarily in urban areas, with no public commitments to increase coverage.

- **Mobile broadband**. In mobile, high capacity links between the operator's core network and each base station utilise a mixture of technologies (fibre, microwave, lease line) and the data is broadcast via radio waves. Like cable, because a number of end users share the radio spectrum, the network operator must plan its capacity accordingly to take into account contention. The introduction of a new technology, HSPA (High Speed Packet Access) has enabled operators to offer higher speeds. Future developments, such as HSPA+ promise to bring further improvements and more fundamental upgrades, such as LTE (Long Term Evolution) are also being developed. Unlike fixed networks, estimating coverage and availability of mobile broadband is particularly problematic due to the complexity of predicting signal quality in specific locations (such as inside a consumer's home) and coverage can also vary by time of day depending on how many people are using the network.

- **Satellite broadband.** This system uses a large base station in the sky and dishes at the end user location, which need to be carefully aligned due to the limited transmission power of satellites. This technology is primarily used in areas

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[61] The Government has reported 98.5% availability at 512kbps in its interim Digital Britain report, based on expected modelled capabilities of BT's current active copper lines (see page 56 *Digital Britain the Interim Report* January 2009).

[62] The original DOCSIS (Data Over Cable Service Interface Specification) standard first developed in the 90's have recently been upgraded (to DOCSIS 3)

[63] See Figure 3.61 in Ofcom *Nations and regions Communications Report* http://www.ofcom.org.uk/research/cm/cmrnr08/england/england.pdf

that are poorly served by other solutions and/or transient applications e.g. site offices of building projects. In particular, it has been used by government backed rural access schemes in Scotland and Northern Ireland due to its wide geographic coverage. While the footprint of the satellites used to deliver broadband cover the whole of the UK, there are some premises which may not be able to install a dish to receive it.[64] Furthermore, the capacity of satellite is shared by a large number of users, such that it is highly contended and unlikely to be suitable for mass market delivery of broadband services.

5.26   To summarise, while availability at higher speeds should improve as BT and others upgrade their networks, gaps are likely to remain. The extent to which this raises policy concerns depends on which applications it is important for people to have access to, because this in turn determines the speed and quality of service that needs to be provided.[65] This is an area that needs further consideration, in particular of the costs of delivering improved access to broadband at higher speeds. We propose that this is a priority access and inclusion issue for Ofcom. We are already working closely with Government and others to determine how the proposed broadband Universal Service Commitment should be implemented.

5.27   Alongside this, as outlined in our recent statement on super-fast broadband we are working to support rapid and widespread investment in super-fast broadband and the continued critical role of competition to promote choice and wide availability.[66]
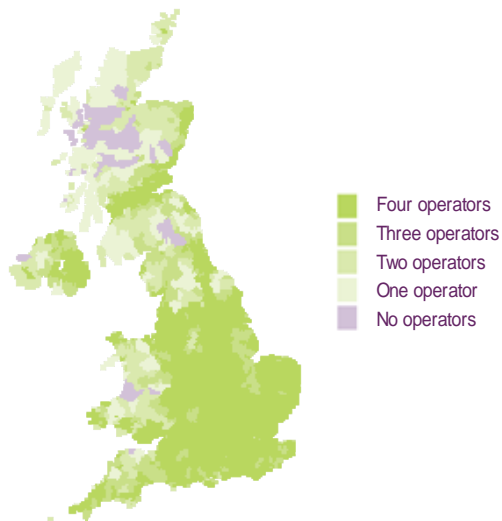
Mobile

5.28   As set out in our recent Mobile Sector Assessment, the coverage of mobile networks is generally good but there are still areas of the UK that are not served by some or all operators, and areas with poor quality service at the edge of the network where there is coverage but the quality of service is poor.

5.29   Coverage of 2G networks is more extensive than 3G networks, as shown in Figures 6 and 7. Furthermore 3G coverage is very focused on areas with high population density. This means that areas such as London and the North West (Manchester and Liverpool conurbations) have greater coverage than areas such as Scotland, Wales and Northern Ireland.

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[64] The consumer dish must be installed such that it has line of sight to the satellite. It must therefore be possible to mount it on the correct side of the building and be free of obstructions such as hills, trees and other buildings. Installing dishes on shared buildings and in built-up areas may also be subject o planning restrictions and lack of landlord consent.

[65] As the Government's interim Digital Britain report suggested, a speed of 512 Kbps is suitable for basic video streaming and tele-health, a speed of 1 Mbps is needed for using iPlayer and fast internet browsing, and 2 Mbps is needed for video conferencing via TV and long-form video (MPEG4).
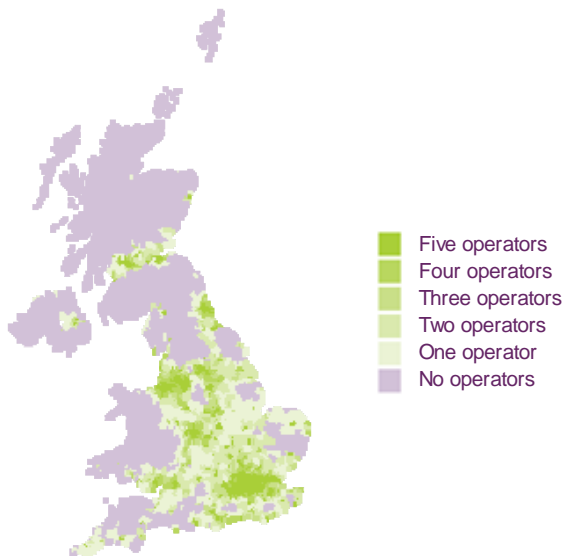
[66] Ofcom *Delivering super-fast broadband in the UK,* available at
http://www.ofcom.org.uk/consult/condocs/nga_future_broadband/statement/statement.pdf

Figure 6: Map of 2G mobile phone geographic coverage in the UK

Four operators
Three operators
Two operators
One operator
No operators

Figure 7: Map of 3G mobile phone geographic coverage in the UK

Five operators
Four operators
Three operators
Two operators
One operator
No operators

5.30 Providing coverage in areas of mountainous and hilly terrain generates higher costs than in other areas due to the increased number of base stations required and the costs of getting power and backhaul circuits to these locations. If population densities in such areas are low, it may not be commercially viable for operators to extend coverage in those areas. There may also be issues with intermittent or unreliable coverage, where is it difficult to establish or maintain a mobile call or data transfer. This could for example result in reduced productivity and lost business for mobile workers.

5.31 In response to our recent Mobile Sector Assessment consultation,[67] stakeholders have highlighted concerns about both:

- Traditional "not-spot" problems, which are only caught at a high level by Ofcom's coverage data and maps, in part because an area is included as "covered" if an operator has 75% coverage.

- Problems with poor quality of service indoors and in transit (such as on trains and arterial routes) which result in intermittent and unreliable mobile voice services, and slow and dropped data connections. These are also masked by high level data on coverage.

5.32 We are considering the various types of coverage issues that exist and our approach to them, including the need for further research, as part of our ongoing Mobile Sector Assessment.

5.33 As outlined in Section 4, an issue of particular importance is the widespread availability of mobile networks for emergency calls. While "999/112 mobile roaming" is available in other EU member states,[68] it is not currently available in the UK. It was switched off in the mid-nineties in response to the emergency authorities' concerns about hoax and nuisance calls.

5.34 This is a concern in the light of differences in network coverage in some parts of the UK, particularly in Wales, Scotland and Northern Ireland, where less than two thirds of postcode districts have 2G coverage at 75% by all four 2G mobile networks.[69]

5.35 Therefore the absence of 999/112 roaming in the UK leaves an important service gap: introducing it would enable people to call the emergency services over other available mobile networks when out of range of their own home network, thereby enhancing public safety and potentially saving lives. We therefore also propose that this is an immediate priority issue.

Basic voice telephony and universal service obligation

5.36 A different type of availability issue relates to basic telephony services and the provision of public payphones in particular. There have been significant changes in the market since Ofcom last commenced a review of the USO in the UK. For example, call volumes from payphones are declining,[70] in part driven by the growing use of mobile phones. This means that an increasing number of public phone boxes are loss making. With no sign of such trends reversing, this raises questions about the future sustainability of this aspect of USO. This is one of the issues that Ofcom proposes to examine in more detail through a review of the current implementation of the USO, as outlined in Section 8.

5.37 **Therefore in terms of availability, we would welcome stakeholders' views on our proposal to step up our work in relation to the following three areas, further details about which are provided in Section 8**:

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[67] Available at http://www.ofcom.org.uk/consult/condocs/msa08/
[68] See http://ec.europa.eu/information_society/activities/112/index_en.htm
[69] Furthermore in Scotland and Wales, just less than half of postal code districts have 75% network coverage by all four 2G operators. Ofcom Nations and Regions Communications Market Review 2008
[70] In 2004, 0.68% of fixed voice call minutes originated from PCBs. In 2007 this had fallen to 0.23% of fixed voice call minutes.

- Availability of current generation broadband at speeds above 512kbps.

- Introduction of "999/112 mobile roaming".

- A review of the scope of the existing USO in relation to basic voice telephony services, to ensure that it remains fit for purpose.

5.38   We are further considering concerns about mobile coverage, including the need for further research, as part of our ongoing Mobile Sector Assessment.

> *Question 5.1: Do you agree that Ofcom should include availability issues in relation to current generation broadband and the ability to call the emergency services from another network if one's own network is unavailable in its immediate access and inclusion priorities?*
>
> *Question 5.2: Are there other gaps in the availability of key services that you believe are particularly critical for consumers and citizens?   Please support with evidence where possible.*

Section 6

Take-up

Summary

6.1   In this section we consider the extent to which people and firms take up key communications services, where available. Competition to attract and retain customers can help increase take-up, but some groups may be commercially less attractive to serve than others or face particular barriers to take-up.

6.2   The most frequently given reason for not taking up a communications service is a perceived lack of need. Disadvantaged groups such as people on low incomes disabled and older people, particularly those over 75 years old, may also have concerns about affordability or may feel they do not have the skills needed to use a service. Additionally, disabled people may consider that a service is not suitable for them or would be particularly difficult for them to use effectively, an important area that we return to in Section 7.

6.3   Where a service is judged important, there may be a case for policy interventions to help disadvantaged groups overcome barriers to take-up. There are already measures to help people on low incomes and with hearing or speech impairments to use the telephone, and to help disabled and older people take up digital television. In addition there is a range of initiatives to help encourage people to try using the internet, and measures to provide internet access at home for school children from jobless and low income families.

6.4   However overall take-up of broadband is less than 60% and appears to have reached a plateau, while take-up for disadvantaged groups is lower still. In light of the growing importance of broadband, as outlined in Section 4, this appears to be a significant gap. This suggests that new measures may be needed to help lift broadband take-up and ensure that a significant minority is not left behind. Despite our lack of powers in this area, we propose that this issue should be a priority for Ofcom, and we will be actively working with Government and others to understand and identify how practically to address this issue.

Introduction

6.5   Competition among providers helps promote the widespread take-up of services, and is a key driver behind the high levels of take-up that we now see in respect of certain services within the UK: over 85 per cent of households take-up fixed and mobile telephony and digital television services, while take-up of broadband is just under 60 per cent (Figure 8).

Figure 8: Household penetration of key communications technologies
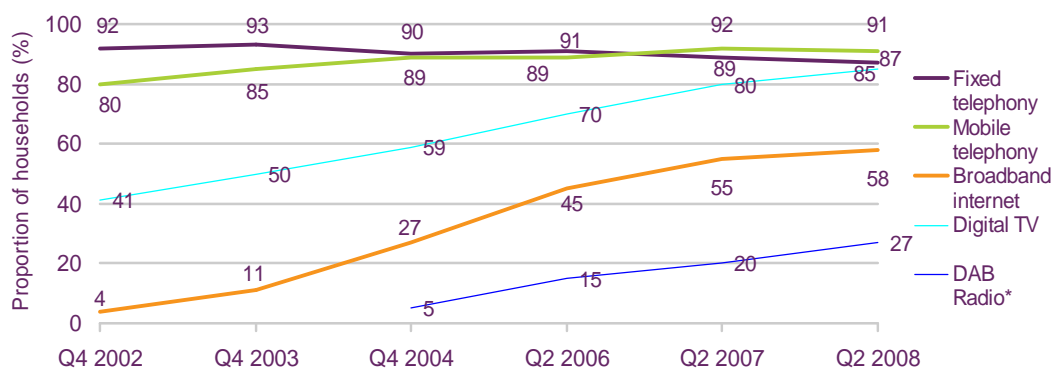
Source: Ofcom communications tracking survey, all adults 15+
*Source RAJAR, % Adults(15+) who own a DAB set at home. Using DAB sets is not the only way to listen to digital radio. Digital TV and the internet provide alternative platforms and hence the DAB figures underestimate use of digital radio

6.6   However there are some groups that are less commercially attractive than others and may therefore be less well served by the market, perhaps because they are harder to reach or attract than others or because they are likely to generate particularly low revenue. For example, there are typically lower than average take-up rates amongst disadvantaged groups such as those on very low incomes, disabled people and older people and, in particular, those aged 75 years or above.

6.7   Understanding the reasons why take-up is low is crucial. Survey evidence suggests that the main reason people choose not to use a communications service (be it internet, mobile phone, digital TV or radio) is a perception that they have no need for a service or are satisfied with the services they already use.[71] For some people this will represent an informed position, but for others it could reflect the fact that it is difficult to understand the benefits of communications services without trying them.

6.8   Additional issues that face disadvantaged groups in particular include:

- **Concerns about affordability.** This may relate to the absolute cost of equipment or the service itself, but may also arise where people would have limited control over bills, particularly if they would need to sign up to a long term contract.

- **Lack of skills or knowledge of how to use a service**. This may reflect factors such as low literacy levels or low media literacy skills. It is particularly likely to be true for people who do not come into contact with a service when at school, university or work, who do not have friends or family they can learn from including elderly people who may not have had any experience of using a service.

- **Lack of a suitable service or end-user equipment**. This is a particular issue for disabled people, where if the right equipment or service is not available they may be unable to use the service independently or may find it very difficult to do so. Even where the right equipment or service is available they may be unaware of it

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[71] For example, the reason most likely to be given by people for not getting the internet is lack of interest or perceived need (55%), expense is the next most-mentioned reason (22%). Also, the most frequently given reasons for not taking up a mobile phone is a lack of perceived need (74%) and cost (10%). Source: Ofcom communications tracking survey Q2 2008.

or may be unable to afford it. This issue is picked up under Section 7 as it also affects people's ability to use a service effectively.

6.9 Where these factors are unlikely to be addressed by the market, there may be a case for public sector intervention.

Question 6.1: Which of the barriers to take-up do you believe most pertinent, and for which groups in society? What other factors may be relevant?

What has Ofcom done?

6.10 Ofcom has worked to improve the take-up of services in two ways, in a similar manner as for the promotion of wider geographic availability of services.

6.11 First, we have sought to assist market delivery of services by taking action to promote competition, which encourages providers to offer lower prices and develop new services to retain and attract customers. For example, Ofcom has sought to promote greater competition in the fixed line telecoms market at the deepest level of infrastructure by ensuring access to BT's local loop on a wholesale level and through Local Loop Unbundling (LLU). LLU has increased competition in the fixed market, and there are four or more LLU operators with a presence in almost half of all unbundled exchanges. By 2008 the number of LLU broadband connections had reached 3.7 million as consumers took advantage of a range of broadband offers at lower prices. This has helped increase broadband take-up from 4% of households in 2002 to 58% in 2008.

6.12 Secondly, we have worked to improve take-up more directly by:

- Taking steps to increase the take-up of key services where we have the power to do so. Specifically, we have implemented and kept under review the provision of social tariffs to help people on low incomes afford fixed voice telephony services. As part of our USO review in 2005/6 we found that BT's social tariffs needed revising because they were not sufficiently targeted at people with very low incomes; this led to BT introducing its new scheme, BT Basic, in 2008. We also require BT and Kingston to offer uniform pricing for fixed voice telephony, to help ensure that people living in rural areas can afford the service.

- Informing and working with others to improve outcomes where we have limited powers by, for example, publishing detailed research on who does not have services and reasons why not, and using Media Literacy funding to help support schemes that encourage non-users, particularly older people, to try using the internet.

6.13 Table 7 provides a summary of key measures to date.

Table 7: Promoting take-up

Encouraging take-up (excluding initiatives to promote competition)	
Research	• Publish research into take-up of key communications services, including a range of socio-economic factors. Detailed qualitative research with particular groups provides additional information (e.g. people with low incomes, different sensory impairments, children, ethnic minority groups, SMEs).
Affordability	• Require BT and Kingston to provide tariff options for people on low income. Ofcom then keeps these tariffs under review. • Require BT and Kingston to offer uniform pricing for fixed voice telephony throughout UK
Lack of interest or skills	• Support schemes that encourage non-users and the elderly in particular to try using the internet with funding we receive for our Media Literacy programme.

Note: Issues relating to a lack of suitable equipment or service are discussed in Section 7.

Other public sector initiatives

6.14   Other public sector initiatives have focused on three key areas: broadband internet, digital television and radio. Initiatives to promote **internet** access include those designed make it more affordable, such as community internet access points or free computers and broadband access for school pupils, as summarised in Table 8.

6.15   The BBC runs a Digital Switchover Help Scheme, under agreement with the Government, to help older and disabled people who may find it difficult to switch to **digital TV**.[72] Every eligible person is offered practical help to convert one TV set to digital in the run-up to switchover in each region. They are provided with a set-top box, help installing the equipment if needed, an easy-to-understand demonstration of how it works and a free helpline for an initial period.[73]

6.16   The Government has recently announced that it proposes to create a **Digital Radio** Delivery Group with the aim of increasing the attractiveness, availability and affordability – and hence the take-up - of DAB.[74]

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[72] People are eligible if they are aged 75 years or more, or if they are registered blind or partially sighted. Also eligible are people who are receive (or could receive) disability living allowance or attendance allowance. The service is free for people who receive pension credit, income support or income-based jobseeker's allowance.

[73] See http://www.helpscheme.co.uk/en/helpscheme/index.php

[74] See BERR, DCMS *Digital Britain The Interim Report* January 2009.

Table 8: Examples of Government activity to address the primary barriers to take-up[75]

Organisation	Examples of Government activity to address barriers to take-up
Department for Children, Schools and Families	• Computers for pupils / Home Access Task Force[76]
Local Authorities	• Community access points e.g. kiosks, libraries
DCMS	• DSO Help Scheme - assistance for elderly & disabled people
Department for Work and Pensions	• Social networking site for older people
Department for Communities and Local Government	• Best practice support for local authorities
Northern Ireland Executive	• Department of Enterprise, Trade and Investment - Expert broadband advice service for local businesses[77] • Department of Finance and Personnel – Promotion of a range of initiatives,[78] including Everybody Online which shows communities how the internet and other forms of technology are relevant to them and their needs
Scottish Government	• Overarching strategy - Digital Inclusion in Partnership – includes a range of initiatives aimed at tackling the issues around the digital divide[79]
Welsh Assembly Government	• e-learning strategy – Online for a Better Wales[80] • Communities @One - helping reach out to the people most excluded from new technologies and give them the opportunity to see what it can do for them[81]

Key gaps in take-up

6.17   As Figure 8 indicated, in general take-up of key communications services in the UK is high. However, there are four areas where issues arise, at least in relation to particular groups of people. Our initial view is that the clear priority within this list is broadband take-up, where we assess that the combination of value to society of the service and the gap in current take-up is the largest:

- **Broadband**: take-up is just less than 60% and appears to be reaching a plateau. As explored in further detail in Section 8, take-up is very low for disadvantaged groups such as elderly people, especially those aged 75 or over (13%), low income households, especially those with incomes of less than £11,500 (28%) and people with disabilities; groups for whom the market seems unlikely to significantly increase take-up levels.

- **Mobile**: the market has delivered high take-up, particularly through the introduction of the pay-as-you-go tariff option. As of Q2 2008, 91% of households

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[75] Recent examples can be found in Delivering Digital Inclusion Annex: Public Sector Use of Information and Communications Technologies to Support Social Equality: http://www.communities.gov.uk/publications/communities/digitalinclusionannex
[76] See http://www.dcsf.gov.uk/pns/DisplayPN.cgi?pn_id=2008_0208
[77] See http://www.northernireland.gov.uk/news/news-deti-111208-3.9-million-broadband
[78] See http://www.eolni.org.uk/?tabindex=3&tabid=2261
[79] See http://www.scotland.gov.uk/Publications/2007/02/28141134/0
[80] See http://wales.gov.uk/topics/socialjustice/jobsandskills/?lang=en
[81] See http://www.walescoop.com/en/site/default3be0.html?sID=68

now have a mobile phone. Take-up is lower for households with elderly people (81% for 65 – 74 year olds and 50% for people over 75 years old), in socio-economic group DE (84%) and low incomes (79%), as well as for people with disabilities (take-up varies depending on the nature of the impairment). However take-up of mobile by these groups is higher than for broadband.

- **Digital television**: take-up is again high (85% of households) and increasing. There is some concern that elderly and disabled people may face difficulties, but this is being addressed by the DSO Help Scheme.

- **Digital radio**: it is difficult to judge overall take-up of digital radio because of the range of platforms over which it can be listened to, but the majority of radio use continues to take place over analogue devices. The Government's proposed Digital Radio Delivery Group will be working to increase take-up.

6.18   Table 9 summarises key take-up gaps and issues by communications service.

Table 9: Summary of key take-up gaps and issues by communications service

Service	Key take-up gaps and issues
Fixed voice	- Take-up by 87% of households. This has fallen as people have chosen to switch to use mobile phones instead. The USO includes measures to promote take-up for people on low incomes (social tariffs).
Mobile	- 91% of households in the UK have a mobile phone - Home take-up is lower than average for the elderly (81% for 65 to 74 year olds and 50% for people 75 or over) and low income households (79%). Survey data indicates lower than average take-up of around two thirds among people with either hearing, visual or mobility impairments, although as samples are small, this should be treated as indicative only. - Take-up of mobile broadband is currently low but growing.
Current Generation Broadband	- 58% of UK households have broadband at home, but growth appears to be reaching a plateau. - In addition, there are very low take-up rates for the elderly (33% for people aged 65 – 74, 13% over 75 years) and those in households with incomes under £11,500 (28%). Survey data indicates lower than average take-up among people with hearing, visual and mobility disabilities although as samples are small, this should be treated as indicative only. The market alone appears unlikely to deliver higher take-up for disadvantaged groups.
Super-fast broadband	- Too early to assess what issues there might be around take-up.
Digital Television	- Take-up is high (85%) and increasing. - TV access services help people with hearing and visual impairments to access television (see Section 7) - Some concern about take-up when analogue actually switched off in the absence of intervention – hence DSO Help Scheme to help encourage take-up by elderly and disabled people.
Radio	- No issues on take-up for FM/AM. - The Government proposes creating a Digital Radio Delivery Group to increase take-up of DAB.

6.19   In light of the growing importance of broadband internet access, the fact that overall take-up is currently less than 60% of households and appears to have reached a plateau and the particularly low levels of take-up by disadvantaged groups, we propose that the take-up of current generation broadband should be a new priority

issue for us. This will entail feeding into the Government's Digital Britain project on which groups have low take-up, why, and what might encourage them to choose to use internet in the home. An initial overview of the issues can be found in Section 8.

6.20   As outlined in Section 7, Ofcom is also proposing to review the key barriers that disabled people face when looking to use communications services, with a view to assessing what more can be done to promote their take-up and effective use of key services.

Question 6.2: Do you agree that new measures may be needed to help lift broadband take-up, particularly to address low levels of take-up by disadvantaged groups, and that this issue should be a new priority area for Ofcom?

Section 7

Ability to use services effectively

Summary

7.1   This section looks at whether people who have communications services are able to use them effectively. A key issue here is media literacy – whether people have the confidence and competence to use, and manage their use of, digital communications. Media literacy issues are particularly relevant for the internet, mobile phones, and digital television. Ofcom is already active in this area. We have provided leadership to influence stakeholders and work in partnership to promote media literacy through a range of activities, such as building a robust evidence base, helping identify and raise awareness of best practice, and working in partnership with others to develop and raise awareness of content management tools. This work is ongoing. In addition, as requested by Government in its interim Digital Britain report, we have recently formed a media literacy working group with stakeholders from government, industry and consumer groups to draw up a new National Media Literacy Plan. Therefore media literacy will remain a priority area for us.

7.2   There are also questions about whether services or equipment have been designed in a way that is easy to use. Ofcom has promoted awareness of these issues through the research it has carried out and by holding a usability event with a wide range of stakeholders.

7.3   A third area, which overlaps with the other two, relates to services for disabled people. It can be difficult for disabled people to use communications services independently. For example, blind and deaf people cannot enjoy the television fully and deaf people cannot use the telephone on their own without adjustment. Here Ofcom uses its powers to ensure that both public and commercial broadcasters provide television programmes with audio description, subtitling and signing, (and will be reviewing the framework for doing so in 2009). We also ensure that communications providers give their customers access to a text relay service so that hearing and speech-impaired people can use the telephone.

7.4   In light of the particular difficulties that disabled people face when using communications services, we are proposing to make this a priority area. We are committed to ensuring that disabled people can access communications services on an equivalent basis to others. We propose to tackle the most critical issues that they face, and will identify these by carrying out a review of available evidence. One key area will be the text relay service, where technological developments suggest that we should assess the case for introducing improved relay services.

Introduction

7.5   People and businesses need to be able to use communications services effectively so that they can make the most of the services and content needed for participation in the economy and in society as a whole.

7.6   There are three key sets of linked issues here. The first is a lack of **media literacy** skills. Media literacy is an umbrella term covering a set of personal skills, knowledge and understanding of the media and communications technology. There is no single, agreed definition of media literacy but Ofcom has defined it as: "the ability to

access,[82] understand and create communications in a variety of contexts."[83] This covers issues such as can individuals navigate hardware and software for key services to find relevant and quality information in a timely manner? Do they evaluate the origins, veracity and quality of material available to them? Table 10 outlines some key competences that a media-literate person may be able to demonstrate.

Table 10: Key media literacy competences

Definition		Example competences
Access	Use	Evaluate and use technology
		Use an electronic programme guide and web browser
	Navigate	Access, store, retrieve content and services
		Search effectively and safely
	Manage	Customise applications
		Use firewalls and filters
Understand	Read	Recognise editorial, advertising & sponsorship
		Understand media contexts and motivations
	Deconstruct	Critique – i.e. have a view on the quality and provenance of material
	Evaluate	Make informed choices about media/services offered
Create	Produce	Use technology to communicate ideas, information and opinions
	Distribute	Contribute to the democratic process using electronic media
	Publish	Post and transact online
		Use and create media responsibly and ethically

7.7   The second set of issues relate to whether the service or equipment has been designed in a way that is **easy to use** (also referred to as "usablity"). It may be difficult to judge how easy a particular piece of equipment is to use before purchasing it. However once purchased, a lack of usability may inhibit the ways and extent to which a service is used. How easy a service or piece of equipment is to use will vary from person to person, but usability issues affect older and disabled people in particular. There are unlikely to be one-size-fits-all solutions. However there are general principles that can be followed at the design stage to increase the number of people who can readily use mainstream equipment.

7.8   The third area overlaps with the previous two and concerns services for **disabled people**, who often face particular difficulties using communications services that are directly related to their sensory impairment. As a result they may need changes to the way in which a service is provided in order to be able to benefit fully from it, such as audio description on television, or screen readers for the internet.

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[82] 'Access' in this context refers to the ability to use, navigate and manage equipment, content and services rather than to the availability of services.
[83] There are parallels with traditional literacy: the ability to read and write text. Media literacy is the ability to 'read' and 'write' audiovisual texts. People can become media literate though informal media education as consumers of a range of media, or by more formal learning through media studies and similar courses.

What has Ofcom done?

7.9   Ofcom has been active across the range of these issues, as summarised in Table 11 and subsequent text.

Table 11: Summary of Ofcom's work to promote effective use of services

Effective Use	
Research	• Identifying media literacy gaps and emerging issues through research (including the Media Literacy Audit), identifying barriers facing disabled users in particular, and issues facing SMEs when using digital communications services
Media Literacy: Skills and knowledge	• In conjunction with the Home Office, development of a BSI Standard for Internet Content Filtering software • Support of the Broadband Stakeholder Group in development of Content Information Good Practice Principles • Evaluation of the Mobile Content Code with CHIS and the Home Office • The development on an online resource Media Literacy Matters to support the identification of projects, events and publications by geographic area, platform and target audience and facilitate the sharing of best practice. • The development of an international media literacy research forum to facilitate the exchange of information and studies and the sharing of best practice. • Provision of a regular ebulletin to keep stakeholders informed of events, publications and developments in the field of media literacy. • Provision of secretariat for Associate Parliamentary Media Literacy Group • Working in partnership with a wide range of bodies.[84]
Easy to use equipment	• Research on ease of use of domestic digital television equipment • Research audit of easily usable communications equipment • 2008 conference to raise awareness of usability issues • Commissioned scoping research into use of labelling schemes to identify easily-usable equipment.

Services for disabled people	• Require audio description, subtitling and sign language on certain proportion of TV programmes. Require broadcasters to promote awareness of these services.
	• Maintain a code of practice to help make electronic programme guides as accessible as possible to disabled people
	• Require communications providers to offer customers access to text relay service
	• Require all communications providers to provide
	    - bills and contracts in alternative formats such as Braille or large print, when requested to do so
	    - directory information free of charge and through connection for people who cannot read or handle a telephone directory
	    - a priority fault repair service
	    - Third party bill management, where someone other than the customer can be nominated to receive bills
	    - accessible public payphones (applies to providers of public pay telephones)

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[84] For a full list see http://www.ofcom.org.uk/advice/media_literacy/review0408/reviewml0408.pdf

Media Literacy

7.10   As noted in Section 3 of this consultation, section 11 of the Communications Act (2003) gives Ofcom a duty to promote media literacy in relation to content or services published by means of electronic media[85]. However the Communications Act 2003 does not give Ofcom any specific powers to enforce this duty. As a result our approach has been to provide leadership and to influence stakeholders - including policy makers, education, industry and the voluntary sector - to promote media literacy. Developments in Europe also affect Ofcom's delivery of media literacy. In some cases this is as a result of Directives which have been enshrined in UK legislation. In others, EC Communications and Recommendations set a wider European context, within which the UK is an active player.[86]

7.11   Ofcom's work to promote media literacy is intended:

•   to give people the opportunity and motivation to develop competence in, and confidence to, participate in communications technology and digital society; and

•   to inform and empower people to manage their own media activity (both consumption and creation).

7.12   In December 2008 we published a **Review of Ofcom's Media Literacy Programme** ("the December Review") over the last four years.[87] We decided that it was time to take stock and consider where and how we need to enhance our work to promote media literacy in the rapidly changing landscape and we sought feedback from a wide range of key stakeholders. The Review looked in particular at our role in:

•   **Building the evidence base**. This is Ofcom's most important tool in providing leadership and directing the activity of others engaged in promoting media literacy. We have an ongoing and wide-ranging research programme to investigate the extent of media literacy in the UK and to identify emerging media literacy issues. This includes regular in-depth audits of both children's and adults' media literacy, as well as studies looking at specific groups such as ethnic minority groups and disabled people, or specific issues such as social networking.[88]

•   **Delivering outcomes**. We deliver outcomes by engaging with policy makers, opinion formers, educators and industry to raise awareness of the need for the promotion of media literacy for all members of society.

•   **Building partnerships**. We build partnerships to foster and support existing partnerships to achieve our goals. We will continue to discuss potential collaboration with new partners, where we recognise a need from our research and where they are best placed to address that need. This partnership work is outlined in full in our December review but includes working with others to develop the British Standards Institute (BSI) Standard for internet content filtering

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[85] 'Electronic media distributed by means of an electronic communications network to members of the public or of a section of the public'. Communications Act 2003 s11(2)(b)
[86]   Further information on the Audio Visual Media Services Directive http://ec.europa.eu/avpolicy/reg/avms/index_en.htm
on the Consultation on Media Literacy http://ec.europa.eu/avpolicy/media_literacy/index_en.htm
and the Recommendation on Protection of Minors (2006)
http://europa.eu/scadplus/leg/en/lvb/l24030a.htm
[87] http://www.ofcom.org.uk/advice/media_literacy/review0408/
[88] See http://www.ofcom.org.uk/advice/media_literacy/medlitpub/

software, and supporting the Broadband Stakeholder Group in development of Content Information Good Practice Principles.

Easy-to-use equipment

7.13   Ofcom does not have powers in this area either but we continue to work with industry, consumer and research groups and others to promote good practice in the development of easily usable equipment, in line with our duty under section 10 of the Communications Act.

7.14   To help raise awareness and understanding of the issues we have published two key pieces of research to date. The first was on the usability of digital television[89] and the second an audit of ease of use issues with communications services.[90]

7.15   In addition, last year we held a conference about usability to raise awareness of inclusive design issues and help us assess next steps.[91] One of the issues raised at this conference was the desirability of a usability labelling of communications equipment, and we have subsequently commissioned a scoping study to explore some of the issues that would arise in setting one up.

Services for disabled people

7.16   Ofcom has a specific duty under the Communications Act 2003 to take account of the needs of disabled people. Ofcom therefore takes a great deal of interest in understanding the needs of disabled people in relation to communications services. We take action where we can and where we have the powers to do so. Our key powers are in relation to television access services and provision of a text relay service.

7.17   **Television access services** help people with hearing or visual impairments to understand and enjoy television:

- Subtitling for hearing-impaired viewers consists of text display of dialogue and sound effects 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 on screen gestures and facial expressions for the benefit of people with visual impairments; like subtitling, it can be turned on or off.

- Signed television programmes incorporate the image of a signer translating dialogue and sound effects into sign language for the benefit of those who use it to communicate.

7.18   Through the Television Access Services Code, Ofcom ensures that broadcasters provide minimum proportions of programmes with subtitling, sign language and audio

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[89] Ofcom *Summary of research on the ease of use of domestic digital television equipment* 2006
[90] Ofcom *Ease of use issues with domestic electronic communications equipment, A research audit by Mike George and Linda Lennard* 2007
[91] See http://www.ofcom.org.uk/research/usability/usability08/

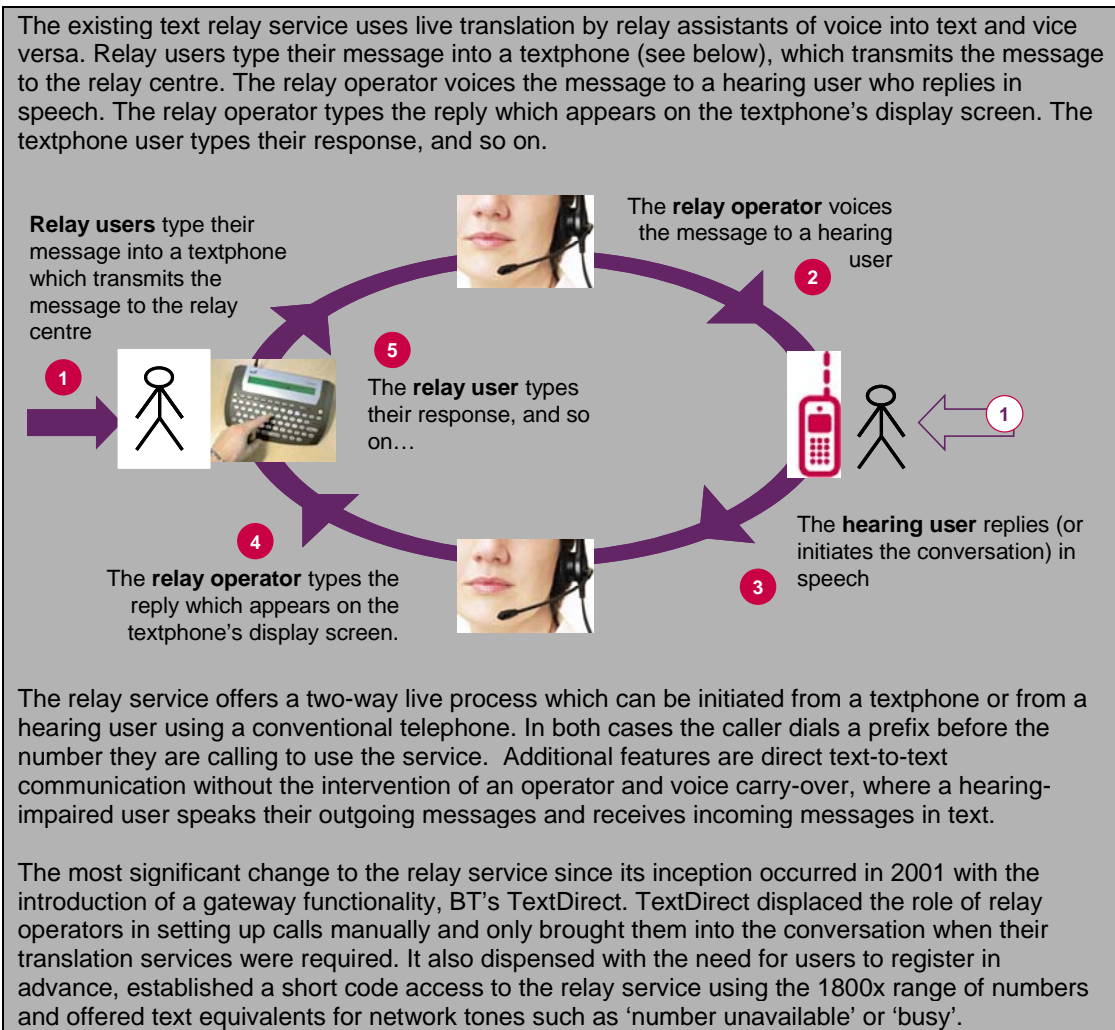description to ensure that people with sensory impairments can enjoy and benefit from television. [92]

7.19   Ofcom's 2006 review of Television Access Services found that awareness of audio description was low. In light of this we facilitated a major awareness campaign conducted by 16 broadcasters and the RNIB. This consisted of promotional trails broadcast on more than 70 channels over 6 weeks in February and March 2008, together with radio and press features and advertisements and direct mail outs. This campaign proved to be very successful. Survey data from January 2008 found that 37% of the general population and 43% of visually impaired people in the UK said they were aware of AD. When the survey was repeated in March 2008 awareness within the general UK population had increased to 60% and within the visually impaired community to 72%.

7.20   In addition, we have carried out a consultation into sign language on television,[93] and found that sign provision for low audience channels needed to change to provide improved benefits for British Sign Language (BSL) users. In response to this a working group composed of representatives from the deaf community, deaf broadcasters and hearing broadcasters proposed the formation of a trust to be funded by the relevant channels to commission sign presented programming for broadcast on the Community Channel between 7am and 11pm, as an acceptable alternative arrangement to the statutory requirements. Over 60 channels have signed up to The British Sign Language Broadcasting Trust. A signing zone began on the Community Channel in January 2009 – initially this was largely made up of acquired programming, with new original material due on line in spring 2009.

7.21   During 2009, Ofcom will conduct a further review of the Television Access Services Code. We will consider the existing framework for the provision of access in light of economic and technical developments, to ensure that the Code continues to deliver services in an effective and proportionate way. We will also conduct further research into awareness, take-up and usage of audio description and to conduct an analysis of the social and financial implications of any possible increase in audio description quotas on the provision of all access services before considering recommending any increase in the Audio Description targets to Government.

7.22   Under General Condition 15, Ofcom requires all companies that provide telecommunications services to the public to provide services such as free directory enquires for blind people, as well as access to a relay service for deaf people (see Table 11 for the complete set of services). The **text relay** service enables hearing and speech impaired people to use the telephone, as outlined in Box 3. This is provided by RNID under contract to BT.[94]

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[92] The Ofcom code on Television Access Services gives effect to section 303 of the Communications Act by requiring relevant cable and satellite channels to join public service broadcasters in providing access services. Access services are additional features, such as subtitling, signing and audio description, to help disabled and older viewers enjoy television programmes. The code sets interim targets that rise progressively towards the ten-year targets set in the Act. The Code applies to the most popular channels - those with an average audience share in all UK households of 0.05% over a 12 month period - which can afford to meet the access service targets by paying up to 1% of their total revenues. Broadcasters have to report their access service performances to Ofcom and performance figures are published on a quarterly basis and reveal a general trend of over-delivery on targets by broadcasters. Channels that have under-performed are required to make up their obligations or face sanctions. See http://www.ofcom.org.uk/tv/ifi/codes/ctas/

[93] See http://www.ofcom.org.uk/consult/condocs/signing/

[94] As a Universal Service Provider, BT has to ensure that a text relay service is provided.

Box 3: How the text relay service works

The existing text relay service uses live translation by relay assistants of voice into text and vice versa. Relay users type their message into a textphone (see below), which transmits the message to the relay centre. The relay operator voices the message to a hearing user who replies in speech. The relay operator types the reply which appears on the textphone's display screen. The textphone user types their response, and so on.

Relay users type their message into a textphone which transmits the message to the relay centre

The **relay operator** voices the message to a hearing user

The **relay user** types their response, and so on…

The **relay operator** types the reply which appears on the textphone's display screen.

The **hearing user** replies (or initiates the conversation) in speech

The relay service offers a two-way live process which can be initiated from a textphone or from a hearing user using a conventional telephone. In both cases the caller dials a prefix before the number they are calling to use the service. Additional features are direct text-to-text communication without the intervention of an operator and voice carry-over, where a hearing-impaired user speaks their outgoing messages and receives incoming messages in text.

The most significant change to the relay service since its inception occurred in 2001 with the introduction of a gateway functionality, BT's TextDirect. TextDirect displaced the role of relay operators in setting up calls manually and only brought them into the conversation when their translation services were required. It also dispensed with the need for users to register in advance, established a short code access to the relay service using the 1800x range of numbers and offered text equivalents for network tones such as 'number unavailable' or 'busy'.

7.23   Ofcom requires all publicly available telephone providers (mobile and fixed) to give its customers access to a relay service.[95] Providers currently discharge this obligation by giving access to the service provided by BT. There is no additional charge for this service, and callers receive a rebate on their telephone bills to compensate them for the additional time that the call takes. The only additional expense to the customer is purchasing a text telephone; however, these are often provided by Social Services or Access to Work.[96]

7.24   Ofcom has recently drawn up a number of quality of service measurements that BT, as the provider of text relay services, has agreed to follow to ensure that the quality of the existing service is maintained, as outlined in Box 4, and listed in full at Annex 5.

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[95] http://www.ofcom.org.uk/telecoms/ioi/g_a_regime/gce/cvogc150807.pdf, specifically general condition 15.
[96] For further information on Access to Work see http://www.direct.gov.uk/en/DisabledPeople/Employmentsupport/WorkSchemesAndProgrammes/DG_4000347

Box 4: Quality of Service measures for the text relay service

Ofcom has drawn up a set of quality of service measures taking into account:

- Best practice in other countries. We found that within European Member States, Denmark, Italy, Sweden and Switzerland have standards for quality of service focused on the length of time before the call is answered. Sweden's quality of service standards also cover confidentiality agreements, training for relay assistants, relay assistants' typing speed, handling of emergency calls and customer service.
- Discussions with BT and consumer groups representing people with hearing impairments
- The requirements of Article 11 and the quality of service measures set out in Annex III of the Universal Service Directive.[97]

As a result the quality of service measures will cover the following aspects:
- Speed of answering calls
- Transcription speeds
- Transcription accuracy
- Handling of emergency calls
- Training for relay assistants
- Confidentiality
- Handling of international calls
- Complaints handling procedures
- Monitoring, mystery shopping and reporting arrangements
- Customer satisfaction levels

7.25   In addition we have supported the following initiatives:

- *Switch On!* This is a media literacy learning resource being developed with the support of Mencap to help people with learning disabilities develop the confidence and competence to engage with digital communications media. This material is being evaluated by people with learning disabilities. The Open College Network London Region is also developing this resource into a qualification for people with learning disabilities.

- The production of a pilot news review programme for people with learning disabilities - *Your News* - in partnership with ITN, Mencap and the Media Trust/Community Channel. The pilot was shown on the Community Channel and a number of web services and featured items on general news, sport and celebrities as well as items of particular relevance to the target audience. The effectiveness and impact of the pilot is being evaluated and the indications are that there is a real appetite for further news reviews on a regular basis. Fundraising and conversations with broadcasters are underway to allow the concept to be rolled out as a series on a broadcast platform.

Other public sector initiatives

7.26   There is a wide range of bodies involved in promoting the effective use of communications services and media literacy in particular. Key government players in media literacy include Department for Culture, Media and Sport (DCMS), Department for Children, Families and Schools (DCFS), Home Office and Department for Business, Enterprise and Regulatory Reform (BERR) along with relevant departments across the Scottish Parliament, the National Assembly for Wales and the Northern Ireland Assembly.

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[97] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0051:0077:EN:PDF

7.27　One recent key initiative aimed at improving safe and effective use of the internet by children has been the Byron review, which looked at the risks to children from exposure to potentially harmful or inappropriate material on the internet (and in video games).[98]　The Government has since published an action plan[99] to implement the review's recommendations. Much of the detailed work will be undertaken by the new UK Council for Child Internet Safety (UKCCIS) whose members will come from industry, the voluntary sector and other key partner organisations.

7.28　Other initiatives include support to help people use the internet such as Myguide, a simple interactive guide to using the internet, and training initiatives. As outlined in Section 6, the DSO Help Scheme offers elderly and disabled people help installing and using digital televisions.

7.29　At a European level, the Commission promotes e-accessibility to help all citizens realise their right to benefit from new opportunities that the Information Society offers. Activities are focused in two main areas: working to ensure mainstream products and services are designed to be accessible by as broad a range of users as possible ("Design for All"); and promoting up-to-date assistive technologies where users require further support.[100]

Key gaps

7.30　Unlike service availability and take-up, there is no simple quantitative proxy for measuring how effectively people use communications services. As a result, a mix of survey data and qualitative studies is relied upon to understand the current situation.

7.31　Our **Media Literacy** Audits suggest that measures of interest, awareness and competence vary significantly by age and socio-economic group. Generally people aged over 65 and those from C2DE households have lower media literacy compared to the UK general population. While those aged 16 – 24 generally exhibit higher levels of interest and awareness as well as volume and breadth of use; but they show lower than average levels of understanding of funding sources and regulation of content.

7.32　There is also evidence from the audits that further work is required in relation to parental awareness and the use of content management tools. Although reports from around the UK vary, approximately 70% of parents in households with cable or satellite television say they have not set controls to restrict their children's access to television channels. Findings suggest that around 47% of internet households containing children have no software installed to limit children's access to certain types of websites - a reduction from 52% in 2006 – and that not all of those who have installed such software use it.

7.33　Overall the key Media Literacy gaps appear to relation to the following groups:

- Older people – when using, navigating and managing media, as well as reading, deconstructing and evaluating media

- Younger people – critical awareness and understanding of media messages

- Parents – specifically content management tools such as filtering software

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[98] http://www.dcsf.gov.uk/byronreview/
[99] See http://www.dcsf.gov.uk/byronreview/actionplan/
[100] http://ec.europa.eu/information_society/policy/accessibility/index_en.htm

7.34 Therefore there remain significant media literacy gaps for individual consumers. There may also be gaps in the skills and knowledge of communications services amongst people running small businesses. Past Ofcom research has found a lack of confidence amongst SMEs in relation to communications services, which suggested that SMEs in rural areas needed support to make effective use of websites and e-mails.[101] In 2009/10 we plan to initiate a programme of work to help us to understand the experiences of business users of communications services and to assess whether Ofcom needs to do more to ensure business customers' needs are met. As part of this work, we will undertake a research programme to identify whether the needs of business consumers of telecoms services are being adequately met, and will also evaluate the extent to which Ofcom's policies are adequately targeted at addressing any concerns.

7.35 Our evidence on **usability** of the key communications devices focuses on the physical experience of using handsets, keyboards, screens and navigation menus. Larger screen sizes and a standard keyboard layout would seem to explain why fewer people say they have difficultly in using a PC compared to a mobile phone. However, the picture may be reversed if we looked into more technical aspects and for example considered people's difficulties in installing firewalls and software upgrades. The available evidence points to people having fewer difficulties in using mobile phones in 2008, compared to previous years (see Figure 9), and this may be down to the increasing prevalence and comfort in using text services across demographics.

Figure 9: Communications services that people say they have difficulty using
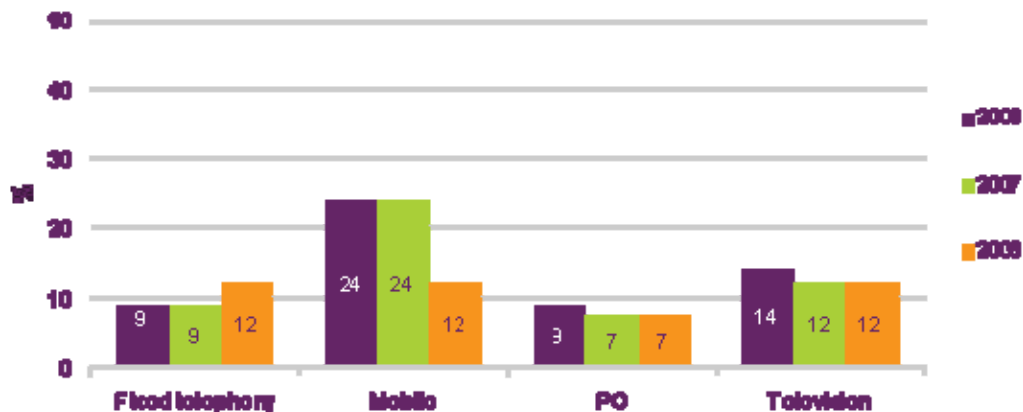
Source: Ofcom communications tracking survey, all adults 16+, Q2 2008

7.36 Ofcom's ease-of-use audit has highlighted a range of usability issues in relation to communications equipment, including the following:

- Potential concerns in relation to telephones include issues such as size of buttons and screens, and ease of navigation. For people with visual impairments it may be important that the operation of keys is positive, and for those with motor control problems, voice activation can be helpful. People with hearing impairments may need to use the text relay service to be able to use a telephone and some have concerns about interference from mobile phones when using hearing aids.

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[101] Ofcom *SME engagement with digital communication services* September 2006.

- People found digital television difficult to install and operate. The DSO Help Scheme is however providing targeted assistance to help address these issues by providing set top boxes with accessible features, along with installation assistance and a free helpline for an initial period. People with visual and hearing impairments need access services to enable them to use television effectively, and people with visual impairments may have particular difficulties with electronic programme guides.

- Difficulties using computers can hinder internet use, and can be exacerbated by complex hardware and software. Elderly and disabled users typically face problems using PCs. Poor website design can present further difficulties for disabled people in particular.

- An issue with digital radio arises for visually impaired people when information about channels is displayed on small screens with poor contrast, making it difficult for them to tell which station they are listening to. This issue has been reinforced by research just published by RNIB,[102] which found that digital radios with voice output[103] enable visually impaired people to use the radio independently.

7.37   The audit suggests that disabled people face the most acute usabilty issues.

7.38   Further evidence on the particular issues that **disabled people** face when seeking to use communications services independently can be found in our in-depth qualitative research, as summarised in Box 5.

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[102] RNIB *Are you really listening? The equipment needs of blind and partially sighted consumers for accessible and usable digital radio* 2009
[103] Audible feedback to user on for example which button has been pressed and which channel is being listened to.

Box 5: Overview of Ofcom's qualitative research into disabled people's use of communication services

To date we have carried out three in-depth pieces of research into the issues facing people with disabilities. These have focused on the following groups: people with hearing impairments, visual impairments and learning disabilities.[104] While the specific issues facing people with different types of sensory impairments vary, some themes appeared throughout the different pieces of research. Disabled people have issues with the usability of equipment, and find assistive technology to be expensive. Dealing with call centres was a problem for many people with disabilities, for example visually impaired respondents were frustrated by being asked to read out serial numbers or look at on-screen menus and deaf people mentioned problems dealing with call centres via the text relay service. Many disabled people said that call centre staff did not seem to understand that the call might take longer than average as a result of their disability. Respondents often had to ask family and friends to resolve an issue. There is also a lack of assistance available when purchasing equipment, and more generally a lack of awareness of specialist options available to them,

Specific findings included the following:
- People with visual impairments relied heavily on their memory for things like the order of contacts stored in their mobile phone; the numbers of TV and radio channels. Re-ordering of channels was therefore a problem when using e.g. remote controls or mobile phones. Reliance on memory could be a barrier to switching; it also limited use of available functions. Web pages could be difficult to follow, and voice recognition software was perceived to be poor quality or time consuming to use when there was lots of text on a page.
- Deaf people reported getting other people to make and receive calls on their behalf, or restricting calls to a small circle of family and friends. Older deaf people and people with a profound hearing impairment were the most likely to be using textphones. There were also concerns about compatibility of mobile phones with hearing aids. Some people were using their mobile phones to have video conversations in sign language; however the picture quality was not always good and this service was perceived as relatively expensive.
- People with learning disabilities reported difficulties understanding bills, and found that mobile phones were difficult to use because of their small size and the large number of non-essential features. They had difficulties using the television, particularly when trying to read screen text or using remote controls.

7.39   As Box 5 suggests, there is a range of issues facing disabled people. Further work is needed to assess which of these are the most significant and how they might be addressed. One area that needs reviewing is the text relay service. This remains a vital service for hearing and speech-impaired people who want to make telephone calls. However the existing technology is 30 years old, and suffers from a number of drawbacks, as outlined at Section 8. Technological developments mean that other, better, alternatives are now possible. There is a need to assess the policy case for introducing improvements to the existing service to bring hearing impaired people's use of the telephone closer to that for people without hearing impairments.

7.40   Therefore there remain a range of issues that can hinder both peoples' and businesses' ability to use communications services effectively (as summarised in Table 12):

- There are ongoing concerns about media literacy gaps, which we continue to work with others to address.

- Small firms may also face issues relating to a lack of skills and knowledge of how best to use communications services. We plan to initiate a research programme

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[104] These reports are available at http://www.ofcom.org.uk/research/tce/ce07/annex5.pdf;
http://www.ofcom.org.uk/research/tv/reports/visual/;
http://www.ofcom.org.uk/research/tce/ce08/disabilities.pdf

> to understand whether the needs of business consumers of communications services are being adequately met and to evaluate the extent to which our policies are targeted at potential concerns.

- There is a range of issues about whether communications equipment has been designed so that it is easy to use. These particularly affect elderly and disabled people. Alongside this is a wider set of issues facing disabled people and their ability to use communications services.

7.41 In light of this, we envisage media literacy remaining a priority issue for Ofcom, particularly as it takes forward Government's request that we work with others to draw up a new National Media Literacy Plan (see Section 8).

7.42 In addition, we propose to make services for disabled people a priority area. We are committed to ensuring that disabled people can access communications services on an equivalent basis to others, so that they can take full advantage of the benefits such services can bring. We propose to tackle the most critical issues that they face. To enable us to do so we will carry out a comprehensive review of the most critical issues facing disabled people. Our review will commence by looking at the existing relay service, given our regulatory role in this area, the ongoing importance of telephony service as well as the significant technological developments that have taken place since it was introduced. This is in addition to ongoing work in relation to, for example, monitoring compliance with General Condition 15 and with the Television Services Access Code.

Table 12: Summary of key effective use gaps and issues

Service	Key effective use gaps and issues
Media Literacy	- There continue to be gaps in people's media literacy. Our work here is ongoing but will focus on key gaps identified in relation to older people, younger people and parents, and we will be working closely with others to help address these gaps. We are also working with other stakeholders to develop a National Media Literacy Plan, as requested by Government. - SMEs may also face difficulties in using services such as the internet effectively.
Usability	- Usability is a particular issue for older and disabled people, further work is needed to assess the most critical issues.
Services for disabled people	- Need to tackle critical barriers facing disabled people when using communications services. Our review will commence by assessing whether the relay service should be improved to reflect developments in technology since it was introduced. This work is in addition to our planned review of Television Access Services.

Question 7.1: Do you agree with our assessment that tackling the barriers that disabled people face when using communications services should be a priority, and that as part of this our review should assess the case for introducing improved relay services for hearing impaired people?

Question 7.2: Are there other issues in the area of effective use of key services that you believe are particularly critical for consumers and citizens?   Please support with evidence where possible.

Section 8

Priority areas

Summary

8.1   This section provides further information on the areas we are proposing as priority areas. The key actions in relation to each of these areas would be as follows:

- Working closely with Government and others to determine how best the proposed broadband USC should be implemented as well as carrying out research to better understand the reasons why people do not have internet at home and feeding the findings into the Digital Britain and Digital Inclusion Action Plan processes.

- Working with mobile network operators, the emergency authorities and call handling agents to develop and test a technical solution for mobile 999 roaming, in anticipation of introducing it later this year.

- Tackling the most critical issues facing disabled people when using communications services, informed by a comprehensive review of the issues facing disabled people.. As part of this we expect to review the policy case for introducing improved relay services for hearing and speech impaired people.

- A review of the UK's implementation of the current USO to ensure that it remains fit for purpose. This will include a review of the net burden of the existing USO and consider the case for alternative funding and procurement arrangements. It will be the most significant review we have carried out since 1997.

- Working with other stakeholders to draw up a National Media Literacy Plan, as requested by the Government in its Digital Britain Interim Report.

Introduction

8.2   During the course of this paper, we have set out to start answering four questions:

- For which communications services would lack of widespread availability and take-up raise concerns from an access and inclusion perspective?

- What are the significant gaps in the geographic availability of these services?

- Are there issues preventing the widespread take-up of these services?

- Are there significant impediments to the effective use of these services?

8.3   As a result of our review, we believe there are five priorities for us to focus on over the coming months:

- Current generation broadband availability and take-up

- "999 mobile roaming"

- Services for disabled people.

- A review of the existing Universal Service Obligation in relation to basic telephony services.

- Media literacy.

8.4   We hope to use this consultation document to seek stakeholders' views on our proposed priorities and rationale for choosing them.

Current generation broadband availability and take-up

8.5   One of the key objectives emerging from the Government's Digital Britain interim report was the need to upgrade and modernise our digital networks, to provide an infrastructure that enables Britain to remain globally competitive. More specifically, the Government set out proposals for a broadband "Universal Service Commitment" (USC), to be effective by 2012, covering options up to 2Mbps. It intends to develop detailed proposals for the design and operation of a new funding scheme, which it expects to be more broadly-based than the mechanisms for funding the existing narrowband Universal Service Obligation (USO.)

8.6   Ofcom welcomes these proposals and is working with Government, industry and others to develop a broadband USC. Its delivery depends on the types of services that people need to be able to access via the internet, how much money is available to fulfil the commitment and the resolution of a range of technical issues. For example we need to understand the variety of technical designs that could be utilised to increase the availability of broadband to premises that cannot currently receive service and to increase the availability of speeds of up to 2Mbps to premises that presently can only support lower speeds.

8.7   Separately, Ofcom is working to understand the potential levers that could increase the level of take-up of broadband services where they are made available. At present, even with relatively widespread availability of broadband, approximately 40% of households do not take a broadband service. We are undertaking research to understand more about the reasons why such homes do not take broadband services, what it would take for them to take-up broadband and as a result what policy options exist that could serve to increase the level of take-up.

Broadband availability

8.8   Existing broadband not-spots are a highly localised phenomenon. Figure 5 showed some reasons why a home might not be able to receive broadband or otherwise might only be able to receive broadband at relatively low speeds over existing telephone line. Whilst these reasons sometimes mean that not-spots are in clusters, they can also mean that the availability issues can affect a single premises in an area where broadband is otherwise available. Certainly, the issue of availability is not a simple rural/urban issue. Instead, availability is dependent upon specific characteristics of individual premises and the extent to which different technologies provide coverage in the area.

8.9   There are five sets of technologies that are capable of providing high degrees of broadband coverage and these are set out in Table 13.

Table 13: Key technologies for providing broadband

Type of network	Network operator	Technology	Coverage characteristics
Telephone Lines	BT, KCOM	ADSL, ADSL2+	Most exchanges enabled Some "not-spots" due to long or low quality lines Bandwidth depends on loop length
Cable (HFC)	Virgin	DOCSIS 3	49% national coverage And network readily scalable to higher bandwidth
Fixed wireless		e.g. WiMax	Potential to provide coverage comparable to wireline networks, but limited commercial success to date
Mobile wireless	MNOs	3G, HSPA	3G coverage to over 80% of population, although HSPA coverage (required for broadband speeds) is more limited. Peak bandwidths comparable to fixed, but the ability to deliver high and sustained bandwidths to large number of consumers within each cell limited by the available spectrum
Satellite wireless			Very high coverage and able to deliver over 2Mbps but limited satellite transponder capacity may lead to contention problems in the future

8.10 This complexity means that a Universal Service Commitment (USC) is likely to consist of a number of different technical solutions. Which one is deployed in any given case will depend upon a combination of the factors that mean broadband is not currently available and the cost effectiveness of a solution in delivering a given level of service.

8.11 Certainly, no single type of network is likely to represent the most efficient means of supporting this commitment in all locations. The precise balance between them depends upon a number of factors. In determining the most appropriate technical solution for delivering to a USC, the following considerations will be of relevance:

- It seems likely that, for the foreseeable future, the fixed access networks operated by BT, Virgin and Local Loop Unbundling Operators will continue to provide the most efficient means of providing high levels of continuous bandwidth (as required by streaming video) to most consumers.

- There are however a number of not-spots in BT's network, where broadband service cannot be provided, or cannot be provided at the speed that forms the USC. The not-spots are primarily caused by long line lengths, which limit the bandwidth that can be provided using ADSL. Some of these will be resolved by the deployment of new technologies (ADSL2+) or through devices such as the BT iPlate (to eliminate interference from home wiring). In addition, some households in DSL 'not-spots' may be in cable coverage areas.

- Where remaining not-spots appear in clusters, it may be cost effective to address them by deploying new fixed-line solutions, such as fibre-to-the-cabinet.

- However, where the not-spots are more uniformly spread, an alternative means of addressing them might be via cellular wireless networks. Total capacity will always be limited by the available spectrum, but recent growth in mobile broadband demonstrates what can be achieved despite this. The release of new spectrum and the deployment of new technologies should allow further progress.

- Finally, the most efficient means of providing a backstop service in the most rural areas is likely to be via satellite wireless. This approach to providing a backstop option is one respect in which a broadband USC could differ from the existing narrowband USO. The existing narrowband USO assumes service is always provided via a fixed line, but where the cost of provision would exceed £3,400 the provider charge the consumer higher prices, resulting in a very costly backstop option, whereas broadband satellite can almost certainly be provided to any household for a much lower connection cost.

8.12   In practice we expect that the optimum mix of technologies would be determined via some form of competitive tender.

8.13   The creation of a USC for broadband involves a number of distinct steps. First, the design of the USC should be based on the types of services that are deemed essential. It is important to understand the services that are expected to be delivered because different applications may require a broadband connection with technical characteristics that are service specific. The most obvious example of this is that high quality broadcast video applications may require substantial downstream speed capability. However, if the deemed requirement was for two-way streaming video, then there might be a need to utilise connections that are less asymmetric (facilitating high upstream, as well as downstream, speed) and which had low latency (meaning a that the connection is more responsive and has shorter delays.)

8.14   Second, an understanding of the most appropriate technical design for the infrastructure that could deliver the USC is required. The design should take account of a number of factors:

- The technical specification required to deliver USC services.

- The availability of existing infrastructure.

- The most cost effective way to extend existing infrastructure into areas which do not currently have service.

- The timescales over which this could be rolled out.

8.15   Third, the USC can only be implemented following the resolution of a number of legal, policy and funding issues. The legal instruments that will be utilised in establishing the regime need to be identified and the parties that will pay for the roll out and operation of the service should be determined. Funding could come from any of industry, government and the consumer or a combination of any of these. The means of funding would need to take account of a number of rules and regulations, including state aid rules. There are also a number of complex procurement and implementation issues that would need to be resolved, such as identifying the providers that could deliver the service and establishing which providers are selected to implement the solutions.

8.16   Together, these steps facilitate the universal availability of broadband at a level that will provide a defined set of essential or desirable services. However, whilst

increasing availability of broadband is undoubtedly a significant step in raising broadband penetration, it is unlikely alone to be sufficient to drive a significant increase in take-up of broadband services. Ensuring that broadband service is available is not always sufficient to ensure that people connect to it. We find evidence for this in the significant number of households that already have broadband available but who do not currently take a broadband service.

8.17   In order to improve access to broadband and inclusion, it is therefore important to consider what actions could be taken to encourage higher rates of take-up, complementary to actions to provide greater availability. Ofcom is working with industry, government and other relevant stakeholders to drive forward both the availability and take-up agendas.

8.18   Whilst many of these details might only emerge much closer to the actual implementation of a USC, we anticipate that further details of the policy framework and implementation plans for a USC will form part of the Government's Digital Britain report later this year.

Broadband take-up

8.19   In addition to ensuring the widespread availability of broadband, it is necessary to ensure widespread take-up to deliver the fullest public policy benefits associated with the development of broadband internet services.

8.20   We note that, even with a very widespread availability of a basic broadband service, take-up of broadband is currently just less than 60% of homes (see Figure 10) and the rate at which people are taking up broadband is beginning to slow: between Q2 2007 and Q2 2008 the broadband take-up rate only increased by 3% per annum, compared to 10% per annum for the 2 preceding years. It appears that take-up of the internet has reached a plateau (Figure 10). With broadband having largely displaced narrowband, broadband take-up is also likely to plateau.

**Figure 10: Take-up of broadband, internet and PCs in the home**
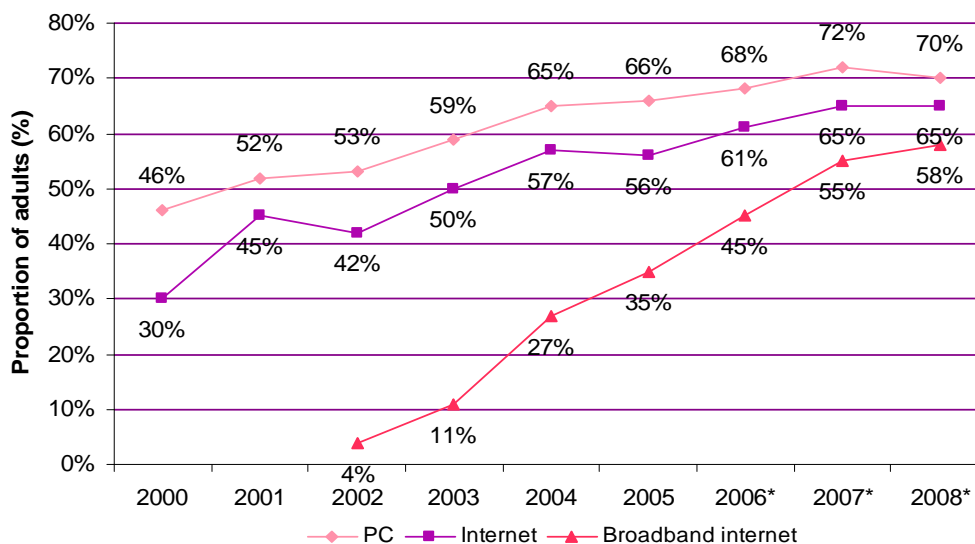
Source: Ofcom communication tracking survey.
Base: All Adults 15+. Data for 2006 - 2008 based upon Q2 data, all other data based on Q4. Note that the reduction in PC ownership between 2007 and 2008 is not statistically significant.

8.21   This means that there are a large number of adults (up to around 16 million[105]) who do not currently have the internet at home.

8.22   Furthermore, the majority of people without internet access at home say that they do not intend to take it up in the next 12 months;[106] nor do they use it outside of their home (e.g. at work, libraries, internet cafes).[107]

8.23   Within the UK, take-up rates vary geographically. However, the differences do not appear to be due to any single factor,[108] and in particular it is no longer the case that take-up is lower in rural than in urban areas: in 2008 take-up of broadband in rural areas was 59% while in urban areas it was 57%.[109]

8.24   Broadband take-up is however strongly influenced by demographics, as shown in Figure 11 and summarised in Table 14.

Figure 11: Variation in broadband take-up by demographic factors
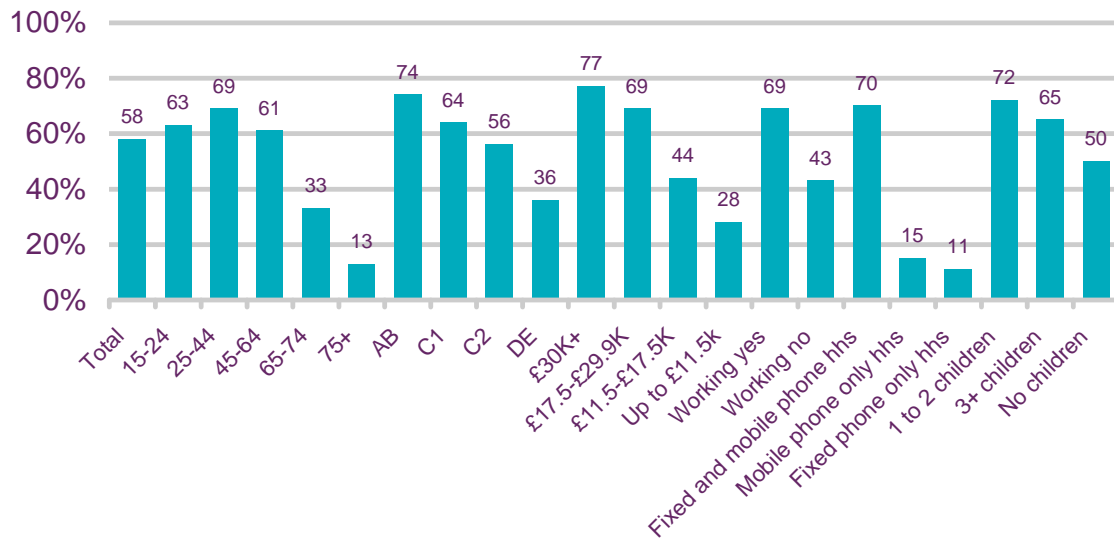
Source: Ofcom Communications tracking survey Q2 2008, adults 15+
hhs = households

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[105] Based on data in the 2001 census
[106] Ofcom's communications tracking survey (Q2 2008) indicates that of the 35% of adults without the internet at home, four fifths do not intend to get the internet in the next 12 months.
[107] Only about one fifth of people who do not have access to the internet at home access it elsewhere.
[108] Differences in take-up between the nations and the English regions were normalised separately for age, gender, working status, socio-economic group, and urban/rural split. This did not change the relative positions of the regions and nations, which suggests that it may be a combination of these factors and other softer aspects such as mix of employment types, education and attitudes that affect take-up.
[109] Source Ofcom Communications tracking survey, Q1 2008, adults 15+.

Table 14: Summary of key differences in take-up by demographic factor

Demographic factor	High take-up of broadband at home	Low take-up of broadband at home
Income	77% of people living in households with income of over £30,000 p.a. or more have broadband	28% of people in households with income of up to £11,500 p.a.[110] have broadband
Age	69% of people aged 25-44 have broadband	Only 33% of people aged 65 – 74 and 13% of people aged 75+ have broadband
Socio-economic group	74% of people in AB households have broadband	Only 36% of people in DE households have broadband
Work status	69% of people in work have broadband	Only 43% of people not working have broadband
Presence of children	72% of people with 1- 2 children and 65% of people with 3 children have broadband	50% of households without children have broadband

8.25   It should be noted that there are heavy overlaps between the demographic categories with low take-up. For example, a significant proportion of people on very low incomes are in socio-economic group DE and a high proportion of people not working also fall into the low income category.

8.26   As well as these core groups, broadband take-up at home is also low for:

- People with disabilities. Indicative survey evidence suggests that people with hearing, visual or mobility impairments have lower than average levels of take-up of broadband.[111]

- People living in mobile only households, for whom take-up of broadband at home is only 15%.

8.27   Further detail on the groups of people without access to the internet at home is set out in Annex 6.

8.28   Overall among people who do not intend to get the internet in the next 12 months, the two main reasons[112] given are:

- They are not interested in the internet (55%).

- They cannot afford to take up the service (22%).

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[110] This threshold is used in our market research to identify people on low incomes. It is in line with thresholds used by other government bodies (e.g. ONS uses a figure of £10,500 p.a. and DWP uses a figure of £12,700 p.a.).
[111] Source: Ofcom Communications tracking survey Q2 2008. See *The Consumer Experience 2008* report Annex 3 for details.
[112] Source: Ofcom Communication tracking survey Q1 and 2 2008, n = 887. Base: among people without internet access who say they are unlikely to take up in next 12 months, multiple answers possible, spontaneous. Ofcom's Media Literacy Audit report among adults 2007 also supports these findings.

8.29   In light of this we have set out an illustrative matrix of the population without the internet (Table 15).[113] There is a very small proportion of people who cite lack of availability in their area as a reason for not having it. However the more significant groups are those who say they do not want the internet, cannot afford it or both. In general terms we find that older people tend to not want the internet, whilst affordability is more likely to be a key issue for younger people.

Table 15: People without basic internet access

Resources	Interest	
	Do want it	**Do not want it**
Have resources	Geographical exclusion Approx. 1%	Self-exclusion Approx. 55%
Do not have resources	Financial exclusion Approx. 30%	Dual exclusion Approx. 15%

Source: Analysis of reasons give by people without internet at home who do not intend to get the internet in the next 12 months from the Ofcom communications tracking survey Q1 and Q2 2008.[114] Note: The figures are estimates and do not add to 100 because of rounding. The figure for "geographical exclusion" is a rough estimate not based on survey data; it assumes that some people who cannot get internet access at home would not want to have it or do not have the resources for it. By financial exclusion we include people who cannot afford internet access, including any training they would need to use it.

8.30   The most important qualification in relation to Table 15 is that the size of the geographically excluded group would be much larger if higher speed current generation access were considered, for example if speeds of 2 Mbps were considered.

8.31   Qualitative research on communication technology carried out by Ofcom and the Communications Consumer Panel suggests underlying reasons for non-take-up[115] may be more complicated. Broadly expressed concerns about "cost" or whether broadband is "desired" may embrace a more subtle set of barriers that include:

- Lack of interest and/or knowledge about broadband, which could stem from a lack of experience in using PCs as well as in the internet itself.

- Prohibitive cost of equipment or lack of access to equipment.

- Desire to avoid long term contractual commitments to a service provider.

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[113] Note that this classification is based on high level quantitative data that is subject to a number of possible limitations. For example, respondents' answers may differ depending on the level of knowledge and experience they have of what the internet can offer.. In addition, people tend to be reluctant to state cost as a barrier.

[114] People who do not have access at home but say they intend to get it in the next 12 months are excluded from this analysis. However, due to the change in the economic climate since this research took place, these consumers' stated intention to purchase may have changed.

[115] Ofcom Consumer experience qualitative study among people with hearing impairments 2007; among people with visual impairments 2008; among people in low income households 2007, among people with learning disabilities 2008, Consumer panel research among older people and communications technologies, 2006.

- Lack of skills or confidence to use, or learn how to use, computers and the internet.

8.32 Further information on reasons why particular groups do not take-up internet access at home is provided at Annex 6.

8.33 However, we need to explore these reasons further and have commissioned a significant in-depth qualitative and quantitative research study to do so. It will look at the role of a range of factors including attitude towards technologies, lifestyles and will also explore consumers' willingness to pay for access at home, and their views on potential policy initiatives to encourage take-up.

8.34 It is possible that the market will address some of these barriers over time and lead to increased take-up of broadband. For example, to the extent that the cost and complexity of PCs, as a means of providing internet access, has historically limited broadband take-up, we might expect this to be addressed by the continued downward trend in the cost of computer equipment and the recent growth in mobile-based broadband services. Other developments, such as the development of IPTV, iPlayer and the nascent Project Canvas[116] have the potential to increase the desirability of a broadband connection to the many homes which do not have PCs[117] but do have televisions.

8.35 However, we are still some distance from the level of broadband take-up that exists for other communications services, such as voice telephony and broadcast television. We have therefore considered what else might appropriately be done to stimulate broadband take-up, and some examples of possible policies are included in Table 16.

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[116] Canvas will provide streaming video services such as the BBC iPlayer to Freeview and FreeSat devices. It is also proposed that it will also include some more advanced interactive text based services that will utilise the broadband connection

[117] Ofcom Communications Tracking survey Q2 2008 indicates that 30% of people live in a home without a PC.

Table 16: Examples of potential policy options to address barriers to increased broadband take-up

Policy	High level barrier	Detailed barrier	Key groups of consumers
Prepaid broadband	Cost	Not wanting to commit to long term contracts	Low income households[118] and people who are more transient
Reduce cost of computer equipment	Cost	High cost of a computer	Low income households
Social broadband tariff	Cost	High ongoing cost for some people	Low income households
Free broadband for access to public sector, and selected commercial content	Cost/Desire	High ongoing cost for some people. Fear of the internet environment	Low income households and those with limited experience of computers (mainly older people and DE socio-economic groups)
Widespread training schemes	Skills	Lack of computer skills, and knowledge of what broadband can offer	Those with limited experience of computers and/or the internet (mainly older people, people in low income homes and DE socio-economic groups)
Development of new types of devices to use the internet	Skills / desire	Unfamiliarity with computers	Mainly older people, people in low income homes or DE socio-economic groups

8.36   As people may face different and potentially multiple barriers, there is unlikely to be one single option that would deliver universal take-up of broadband. Three broad policy options are:

- **Making devices more accessible:** The device used to access broadband services could present a significant barrier to people taking up broadband service. Homes without PCs are also homes without broadband – and homes without PCs are also homes where individuals often lack familiarity with computer equipment. Mobile devices may have a part to play in increasing the take-up of broadband services, and that this will work well for some sections of society. However, there are other sections of society that may require a different approach. To this end, a common standard could be developed that would allow simple broadband enabled computer devices to be produced that conform to specific requirements in terms of accessibility and use.

- **Increasing affordability of broadband service and equipment:** In voice telephony, the concept of a social tariff for voice services (a basic service at a low price) is well established. It allows customers who might not otherwise be able to afford voice telephony to take a basic telephone service and is part of the UK's Universal Service Order. If access to broadband is socially desirable, then it may also be appropriate to consider a social tariff for broadband. However, unlike with

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[118] There is a high overlap between low income households and those in DE socio-economic groups. These groups often face similar barriers that are a combination of costs and attitudinal.

voice telephony, it may be that for broadband, other aspects of affordability may need to be addressed. The cost of computer equipment, for example, may need to be partly subsidised for some users, in the same way that digital set top boxes are subsidised as part of the rollout of digital television. Likewise, some groups may need access to subsidised training services or specialist software (such as people with visual impairments). Without such assistance, it may be difficult for some groups to become part of a broadband-enabled society.

- **Ensuring ubiquitous availability of a public service internet:** This broad concept would seek to provide a walled garden of content, free to the user in every home. Content would be restricted to approved material that delivers public service content and to other selected sites that paid to gain access to the service and complied with accessibility requirements. This service would provide a safe environment within which novice users could take their first steps towards becoming familiar with internet services and both novice and expert alike could utilise to access a wide range of public services, wherever they were.

8.37 Ofcom expects to publish the results of its qualitative and quantitative research into barriers to broadband take-up in spring 2009 and to feed the results into the Government's Digital Britain and Digital Inclusion Action Plan processes.

999 mobile roaming

8.38 Today, dialling 999 or 112 (the single European emergency number) provides users with near instant access to emergency services. Box 6 outlines how the service works and the different parties involved in providing the service.

Box 6: Operation of 999/112 calls for emergency services

The system that connects an emergency caller to the appropriate emergency service requires the interplay of three separate groups of players operating under differing institutional frameworks: Communications Providers, Call Handling Agents and the Emergency Authorities.
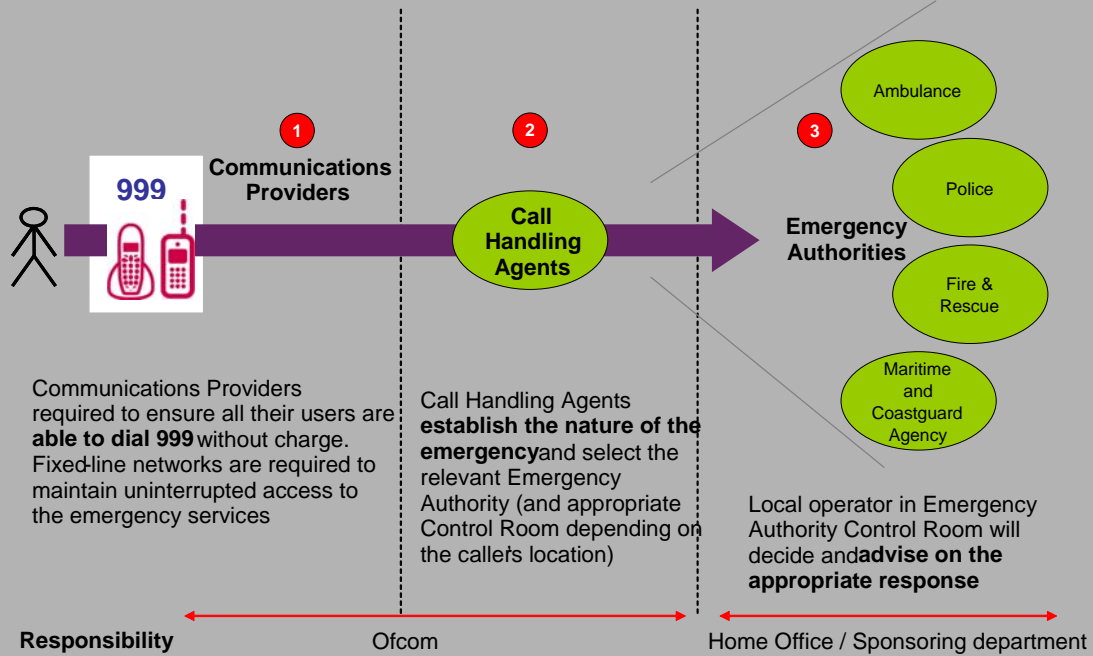
The first link in the chain is provided by Communications Providers who are required under the General Condition of Entitlement 4 to ensure that all their users are able to dial 999 or 112 without charge and to provide location information where this is technically feasible. Moreover fixed-line networks are required under the General Condition of Entitlement 3 to maintain uninterrupted access to the emergency services. At times of network overload this may involve prioritising 999/112 calls over non-emergency calls.

Once a user has dialled 999 or 112 they are connected by their Communications provider to a Call Handling Agent. Call Handling Agency services are provided on a wholesale basis, primarily by BT and CWC but also by Global Crossing (for the railway network) and Kingston Communications (in the Hull area).

Emergency Operators of the Call Handling Agents determine how a 999/112 call should be dealt with. In the case of a genuine emergency this will involve establishing the nature of the emergency – and so selecting the relevant Emergency Authority[119] – and the appropriate Emergency Authority Control Room, which will depend on the caller's location.

Once the call has been put through to the relevant Control Room the local operator will decide and advise on the appropriate response which may involve dispatching an emergency vehicle and offering advice and support to the caller.

Emergency call process

999

| **1** Communications Providers | **2** | **3** |

Call Handling Agents

Emergency Authorities

Ambulance

Police

Fire & Rescue

Maritime and Coastguard Agency

Communications Providers required to ensure all their users are **able to dial 999** without charge. Fixed-line networks are required to maintain uninterrupted access to the emergency services

Call Handling Agents **establish the nature of the emergency** and select the relevant Emergency Authority (and appropriate Control Room depending on the caller's location)

Local operator in Emergency Authority Control Room will decide and **advise on the appropriate response**

Responsibility   Ofcom   Home Office / Sponsoring department

Ofcom has regulatory oversight of this process up to the point where a call has been handed over to an Emergency Authority, at which stage a separate institutional regime applies. Ultimate responsibility for this stage lies with the Home Office although each Emergency Authority is answerable to its sponsoring department. Oversight of the entire process is provided by the 999/112 Liaison Committee which brings the various players together for co-ordination purposes and meets under the Chairmanship of the Department of Communities and Local Government (DCLG).

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[119] There are four mainline Emergency Authorities: the Police Service, the Ambulance Service, the Fire and Rescue Service and the Maritime and Coastguard Agency. Additionally the police will forward calls to Mountain Rescue where necessary.

8.39   There are now more 999 calls from mobile than fixed line phones.[120] However, in the UK there is no provision for mobile emergency calls to be routed over any mobile network other than the one to which the handset is tied. This means that a customer of a given network may only make 999/112 calls from an area with coverage by that network.

8.40   This is a concern in light of differences in network coverage in some parts of the UK as illustrated in Figures 6 and 7. This is particularly the case for Wales and Scotland where just less than half of postal code districts have 75 percent network coverage by all four operators.[121] The result is that people in some parts of the country – most likely to be rural areas - may experience an emergency but will not be able to call emergency assistance because they are out of range of their home network.

8.41   Furthermore, a recent European Commission report suggests that, of the 25 member states that provided information, the UK is the only one where emergency roaming is not currently possible.[122] While this service was available in the UK until the mid-nineties, we understand that it was switched off at the request of the emergency authorities due to concerns about the volume of hoax and nuisance calls.

8.42   Concern about mobile users' inability to make emergency calls over non-home networks has been widely voiced over the last few years. Responses to Ofcom's recent consultation on the mobile sector[123] echo these concerns and there are strong arguments for emergency roaming advanced by the Scottish Government and the Welsh Assembly, the former welcoming the work that has already been undertaken with a view to improving coverage for use of emergency services and the latter calling on Ofcom to address the existing mobile roaming situation urgently.

8.43   Ofcom believes that the launch of an emergency roaming service would bring UK citizens significant benefits by extending the accessibility of the emergency services, primarily in the nations and regions. The 999/112 Liaison Committee is supportive of this. However there are a number of policy and technical issues that Ofcom, MNOs the emergency authorities and CHA need to consider when assessing the optimal way of introducing it back into the UK.

Policy considerations

8.44   When considering the introduction of 999 mobile roaming, the emergency authorities and call handling agents are interested in obtaining as much information as possible about the call / caller to:

- Facilitate the provision of emergency assistance, if needed. For example, information about the location of the caller helps emergency services reach the caller if he or she is unable to identify their location. Similarly, identification of the caller's number enables the emergency authorities to call back if necessary.

- Help identify and investigate nuisance or hoax callers. In certain circumstances callers making repeated hoax calls may be denied service by their provider or face prosecution.

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[120]   http://ec.europa.eu/information_society/activities/112/docs/uk.ppt
[121]   See footnote 69.
[122]   Communications Committee *Implementation of European emergency number 112 – results of the second data-gathering round (January 2009)* February 2009
[123]   http://www.ofcom.org.uk/consult/condocs/msa08/responses/

8.45   Hoax and nuisance calls present particular problems for the operation of the emergency services. It is difficult to obtain figures on this, but the Thames Valley police force has said that of the 360,000 emergency calls to them every year, about 75 percent were inappropriate calls that is to say where the gravity of the situation did not justify calling for emergency assistance.[124] The same report indicated that ambulance services in the area are also affected. Last year, they received nearly 5,000 nuisance 999 calls. As well as the expense of dealing with such calls there is the more serious threat of diverting resources from genuine emergencies, which may have life threatening consequences.

8.46   As outlined in Box 7, evidence from Europe suggests that the incidence of hoax calls is higher where a mobile phone does not have a SIM card.[125] This suggests that one approach is to only extend 999 mobile roaming to mobile phones with an active SIM card.

Box 7: The European experience of hoax / nuisance calls

The European Commission's 2008 report on *The implementation of the European Emergency Number -112* indicates the scale of hoax and nuisance calls in countries where mobile roaming is active.

A common experience is that the share of hoax/false calls is higher for mobile calls, in particular because of the large numbers of inadvertent calls. However in the 19 countries where SIM-free access to the emergency services is possible, the experience is that hoax calls are more likely to be made from SIM-free handsets. Spain and Slovakia in particular identified this correlation.

For this reason, Germany is proposing to disable SIM-free emergency calls later this year. Sweden reported that 98% of emergency calls lacking CLI information, primarily because they are SIM-free calls, were hoax.

Technical considerations

8.47   Against the above policy background, there are two main ways of introducing 999 roaming:

- Access via Limited Service State;

- Access via national roaming.

8.48   **Limited Service State (LSS)** is a specification embedded in mobile networks and handsets. It is intended to enable access to all available networks for the purpose of making emergency calls. LSS is the state a handset enters when it is not allowed to register on a network, that is when it is out of coverage of its home network but there is coverage by another network that is "forbidden" because roaming on that network is not allowed. In order to be able to make an emergency call while in this state, the mobile network operator controlling the network that provides coverage in that area must allow a limited form of access known as "Access Class 10". This will enable the

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[124] Source http://news.bbc.co.uk/1/hi/england/oxfordshire/7819213.stm

[125] It should be noted that a handset may enter a SIM-free status for a variety of reasons. It is not just a case of the SIM card not being installed – the SIM may be disabled because a pay-as-you-go phone has exceeded its time limit for non-usage or because the customer is in payment arrears. A phone may also have its SIM card disabled if it has been stolen.

handset to 'camp' on any acceptable cell[126] and make emergency calls through that network.

8.49   The main features of the LSS solution are:

- Emergency calls may be made over any available network;

- Location information available although limited to the location of the base station to which the handset is connected (Cell ID);

- No Calling Line Identification (CLI) information;

- No possibility of making a return call (because the CLI is not present);

- The handset will revert to its home network as soon as this becomes available.

8.50   A **national roaming solution**, which requires a handset to undergo a registration process on a non-home network, would provide the same information and facilities as if a handset were connected to its home network: more granular location information, CLI information, the ability to notify, trace and disconnect nuisance callers, additional caller details for investigative purposes and the capability of making return calls.

8.51   However it is likely to take longer to introduce, and to be significantly more expensive for mobile network operators to do so. One additional drawback is that handsets become 'locked' onto the roamed network as, to save battery life, the handset will only scan for available networks including its home network every 30 minutes or so.

8.52   In light of the above, **Ofcom is working with mobile network operators, the emergency authorities and call handling agents to develop a technical solution based on Limited Service State**. It is the easiest and the less costly of the two solutions to introduce. The emergency authorities are keen to see the service extended in a timely way, even if this means that they would receive less detailed information than they would under the alternative approach.

8.53   MNOs will be carrying out the necessary testing over the coming months. Subject to successful testing, we expect the service to be in place by the end of the year.

8.54   A further extension to the accessibility of the emergency services is being developed under the aegis of the 999/112 Liaison Committee. This is a project to enable emergency access through SMS messaging, intended to provide a safety net for users with hearing or speech difficulties. In the first instance this service will require prior registration and will be supported by the RNID. Trials are expected later this year.

Services for disabled people

8.55   Disabled people are active users of communications services. In some cases they have higher than average use of key services, for example, Ofcom research has found that disabled people watch more television than average,[127] and recent research from RNIB suggests that radio is more important to blind and partially sighted users than to sighted users.[128] They may also become more reliant on certain

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[126] As defined in 3GPP TS 25.304 § 4.3
[127] Media Literacy Audit: Report on media literacy of disabled people (Ofcom, 2006)
[128] Are you really listening? (i2 media research on behalf of RNIB, 2009)

services, for example they may find online shopping or banking more accessible than using the high street, they may also need to know that they can phone for help if in difficulty or in an emergency.

8.56 However disabled people often need changes to the way in which a service is provided in order to be able to benefit from it and use it independently, for example audio description on television or a relay service for the telephone.

8.57 As outlined in Section 7, Ofcom has carried out three key in-depth studies into how people with different impairments use communications services and the difficulties they encounter when doing so. These have focused on people with visual impairments, hearing impairments and learning disabilities and have highlighted a range of issues, as has Ofcom's ease of use audit (see Section 7).

8.58 **Ofcom is committed to ensuring equivalent access to communications services for disabled people. We propose to work to tackle the most critical issues that they face.** To enable us to do so we will pull together the findings of existing research and review, in conjunction with stakeholders, which are the most critical issues facing disabled people when using communications services and what can be done to help address them.

8.59 As part of this, in light of the continuing importance of the telephone, we are proposing to **review the policy case for introducing new or improved relay services**. This is an area where Ofcom already has regulatory responsibilities and where we are aware that technological developments mean that improvements in the existing service are possible.

8.60 Although the number of calls handled by the current service is falling (Box 8), it is still highly valued by those who use it.[129] Unsurprisingly, older deaf people who were unable to use the phone before the advent of TypeTalk value it particularly highly. They often recall having to ask family and friends to make calls for them before the service was introduced.[130]

Box 8: Key facts on use of the text relay services

The existing text relay service operates 24 hours a day, 7 days a week and handles an average of 33,000 calls a month, although this number has fallen significantly over the last few years, and continues to fall by around 0.7% per month. However, the average call duration has risen slightly (this could be because simple messages are being dealt with by SMS). This fall in call numbers is probably for a number of reasons, including a partial migration to other forms of communication such as email, instant messaging and SMS.

Without prior registration, the number of active users can only be estimated. Using data provided by BT we estimate that the number of separate users is currently approximately 11,000, down from about 18,000 in 2004.

About 90 percent of calls using the relay service are initiated as text calls (i.e. by people who are deaf or speech-impaired); the remainder as voice calls.

8.61 And while communication services such as SMS and email are valued by deaf people, they seem unlikely to replace telephone communication in the medium term, for two main reasons.

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[129] People with hearing impairments and communications services (Ofcom, 2007)
[130] People with hearing impairments and communications services (Ofcom, 2007)

- Callers may want or need to know that an urgent or time-sensitive message has been received and to ask for a reply in real time. With email and SMS there is no way of knowing if the person being emailed or called is monitoring their account or has their phone with them and switched on.

- There are certain calls that must be made by telephone. For example, it is not usually possible to book a doctor's appointment by email or SMS.

8.62 The existing technology is 30 years old and many deaf people find that it does not meet all their needs, particularly at work. Drawbacks of the existing service include:

- Both parties are highly aware of the presence of the relay assistant, because for example it is the relay assistant who introduces the service to the hearing person[131] and because of the time delay as the assistant types the hearing person's communication.

- The conversation has to 'take turns', with each participant saying or typing 'go ahead' at the end of their turn. As a result many hearing people who are unused to the relay service find this type of call very awkward, and the conversation does not flow easily. In particular, it is difficult to speak to children, who may not understand the need to follow turn-taking protocols, or that the operator is relaying what someone else (for example their grandparent) is saying

- The service does not allow people to take part in conference calls, which can cause difficulties in the workplace

- A hard of hearing person cannot use any residual hearing that they have to listen to the other party's tone of voice and inflection.

- Calls to organisations whose phone systems have menus ('press 1 for sales, 2 for customer service') cause difficulties because the relay operator is not always able to keep up with the different options.

8.63 One respondent to a City University study commissioned by Ofcom said that he often used a British Sign Language (BSL) interpreter for telephone calls. He found that using the text relay service put off potential clients because they thought that they were marketing "cold calls,"[132] even though it is against the law for service providers to hang up on a caller because the call is being made via the relay service.

8.64 Technological improvements mean that relay services that offer consumers greater functional equivalence to voice telephony are possible and would be of interest to people with hearing impairments if they could be provided at reasonable cost.[133] The two key alternative services are captioned telephony and video relay. However, it currently seems unlikely that the market will deliver more advanced relay services

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[131] When a hearing person answers a call that has been made through Typetalk, they first hear a recorded message saying: Please hold for an operator-assisted call from a textphone user and a Typetalk Relay Assistant will be automatically connected into the call. The Relay Assistant then says "Hello, you have a call from a deaf or speech-impaired person and I will be relaying the call. Please say 'go ahead' when you have finished speaking."

[132] Feasibility of Additional Telephone Relay Services (City University for Ofcom, 2007)

[133] Ofcom's hearing impairment research (2007) found high levels of interest in captioned telephony and video relay if they could be provided at reasonable cost. There is a campaign for new and improved relay services for deaf people in the UK being run by TAG, a consumer group representing hearing impaired people

because of the cost of providing them. For example a private captioned telephony service operated for some time in the UK but ceased in late 2007 because too few people could afford to use it (even when some funding was available through Access to Work).

Additional/enhanced relay services

8.65   The key improved relay services are **IP access to text relay, captioned telephony** and **video relay**. The first two focus on converting speech into text and the third speech into sign language. Box 9 summarises the availability of such services in other EU Member States.

8.66   **IP access to the text relay service** would enable people to have fixed and mobile access to text relay via a PC with an internet connection. It would remove the need for specialist terminal equipment, which would be likely to make the service more attractive.

8.67   A decision would have to be made about whether pre-registration would be needed in order to reduce the likelihood of the system being used for fraudulent purposes – this has been a major problem in the USA since IP access was introduced, and has led to deaf people having problems ordering goods over the phone, because businesses reject the calls thinking they are fraudulent.

Box 9: Relay services available in other Member States and in the USA

European Member States are able to implement "special measures for disabled end-users", including deaf or speech-impaired people, under the Universal Service Directive.

In September 2008, Ofcom sent a questionnaire about relay services for deaf and speech-impaired people to all members of the European Regulators Group, which has 33 members (including some outside the EU). The replies were analysed, and the data compared with the Measuring progress of e-Accessibility in Europe (MeAC) study published by the Commission in October 2007. The main findings were:

- Text relay using a textphone is currently available in 12 of the 27 Member States
- The UK is the only country in Europe where deaf and speech-impaired customers have a choice of telecoms provider. Among other benefits, this guarantees mobile access to the relay service
- IP access to text relay is available in Belgium, Germany, Denmark and Sweden
- Video relay is available in Sweden and Germany. In Sweden, the video relay service is funded out of general taxation. In Germany, work use is reimbursed by a Government scheme that supports disabled people in employment and social use is currently funded by the universal service provider
- Captioned telephony is not currently available in any Member State

In the US, video relay and captioned telephony are available in most states from private sector providers who are reimbursed from the Universal Service Fund; this is under a funding model where all subscribers have a levy on their telephone bill that goes into a Universal Service Fund.

8.68   The key difference between a **captioned telephone relay service** and the existing text relay service is that the relay operator uses speech recognition technology trained to his or her voice to replicate what the caller is saying and turn it into text. This can speed up the conversation to a near-natural conversation pace. In addition:

- a hearing impaired user can speak directly to the other party with his or her own voice (should he or she wish to do so)

- the hearing impaired user can listen to the actual voice and inflections of the other party, and read the text of the conversation to support and clarify what is heard and understood

- The hearing party does not need to be aware of the presence of the relay assistant

- If words need repeating or spelling it is the hearing-impaired person who asks for this, meaning that they are more in control of the conversation

8.69   The per-minute cost of captioned telephony is unlikely to be significantly more than TextDirect as the relay operator is still present for the call, although there is an additional requirement for speech recognition technology. However, evidence from the USA suggests that the demand for captioned telephony would be likely to be very high if it were free at the point of use.[134]

8.70   **Video relay** enables sign languages users to communicate with hearing people in real time using a sign language interpreter based remotely. It is ideal for people whose first language is BSL, many of whom have difficulties with written English. This service requires a broadband connection and video equipment.

8.71   The cost per hour would be significantly higher than for text relay because of the hourly rate commanded by qualified sign language interpreters. However, demand would be limited by the number of people whose first language is BSL.[135]

8.72   In light of these technical developments, Ofcom proposes that it assess the public policy case for introducing subsidised access to improved relay services. To inform this, we have commissioned research to:

- Gain a good understanding of the telecommunications needs of hearing impaired people.

- Set out the characteristics of the services available today, e.g. in terms of cost, price to end users, conversation speed and volume of use.

- Assess the extent to which existing services fail to meet these needs, and the social and economic consequences of this shortfall.

- Make an initial assessment as to whether the shortfall in the existing services might be reduced at reasonable cost.

8.73   We expect this research to be completed in spring 2009 and will be discussing it with stakeholders and Government. Where there is a case to take action we will do so.

Basic telephony services and the Universal Service Obligation (USO)

8.74   The Universal Service Obligation (USO), as currently defined, helps ensure that basic telephony services are available at an affordable price to all citizens and consumers across the UK. As set out in Section 3, the scope is determined by the

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[134] *Parallel views: Education and Access for Deaf people in France and the United States.* Selected papers from the French-American Symposium. Washington DC: Gallaudet University Press.
[135] Estimates of the number of deaf signers who use BSL as their first language range from 30,000 to 70,000, with the RNID using a figure of 50,000. BSL has been recognised as an official language in the UK since 2003 and there is a call for a question about this to be included in the 2011 Census.

European Universal Service Directive and the UK Universal Service Order. It includes reasonable requests for a connection to the fixed network with functional internet access; special tariff schemes for low income customers; reasonable geographic access to public call boxes; and the provision of a text relay service for customers with hearing impairments.

8.75   There are both social equity and economic grounds for the existing USO. In terms of social equity, it provides services to help groups that the market may not serve allowing them to take their full part in the economy and society. The groups include people on low incomes, disabled people, and people in rural areas for whom the cost of provision of service might otherwise be prohibitively expensive. In addition, all citizens benefit by having a larger telephone network; they can contact and be contacted by more people. The benefits of USO are also felt more broadly among organisations, companies and government. This is because the USO provides the opportunity to connect with consumers and citizens through telephony-based services and cheap, universal means of communication help to facilitate economic activity.

8.76   The USO is not cost-free. It involves obliging telecommunications companies to offer certain services and services to certain consumers when they would not do so under normal commercial conditions. As a result, certain customers and certain geographic areas receive service that might otherwise not be available. Ofcom is empowered to review the financial burden borne by a particular universal service provider in complying with the obligations imposed.

8.77   The first such assessment was made by Oftel in 1995[136] and this has been reviewed periodically, most recently by Ofcom in 2005.[137] The assessment entails estimating the cost of the obligations on BT and Kingston Communications as well as the benefits that accrue to them as a result of the obligations. To date, Ofcom has determined that the costs of the USO were generally offset by the benefits received and therefore that there was no significant net burden that arose from being designated a USP. If Ofcom were to conclude that a significant net burden did arise, then it would be open to Ofcom to examine potential funding options, including the possibility of financing the USO through an industry fund.

8.78   Ofcom plans to begin a work programme that will review the current implementation of the Universal Service Order and consider what changes may be necessary to ensure that the USO implementation remains fit for purpose.

8.79   In common with previous reviews, Ofcom considers that a periodic review of the USO is necessary to:

- ensure that the obligations continue to meet the needs of consumers as demands and technology change;

- find the right balance between the needs of vulnerable customers and changing commercial conditions; and

- make sure the benefits of measures reach those who need them by targeting and creating incentives

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[136] The final statement is available at
http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/consumer/univ_2.htm
[137]   See http://www.ofcom.org.uk/consult/condocs/uso

8.80   The review will incorporate an assessment of the net burden that the USO implies for the Universal Service Providers and will consider whether alternative funding and/or implementation arrangements may be appropriate. It will be the most significant review we have carried out since 1997.

8.81   In order to ascertain whether the burden that USO funding implies is appropriate, Ofcom will also consider the social value that might be attached to some aspects of the USO in order to understand whether USO funding is being appropriately targeted.

8.82   In this context, it will be necessary to consider any changes to the USO that arise from the Government's Digital Britain review and how issues such as the proposed Universal Service Commitment for broadband might impact the scope or implementation of the Universal Service Order.

Media Literacy

8.83   Media literacy is an umbrella term covering a set of personal skills, knowledge and understanding of the media and communications technology. As outlined in Section 7, Ofcom uses the following definition:

Media literacy is the ability to access,[138] understand and create communications in a variety of contexts.

8.84   We have been actively involved in promoting media literacy, in line with our duty under the Communications Act 2003 (see Box 10), which provides the current statutory remit. As the Communications Act 2003 does not give us any specific powers to enforce this duty, our approach has been to provide leadership and to influence stakeholders (including policy makers, education, industry and the voluntary sector) to promote media literacy. Last year we carried out a significant review of our work programme over the last four years, which was published in December 2008 (see Section 7).

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[138] 'Access' in this context refers to the ability to use, navigate and manage equipment, content and services rather than to the availability of services.

Box 10: Ofcom's duty to promote media literacy under Communications Act 2003

Section 11: Duty to promote Media Literacy

(1) It shall be the duty of OFCOM to take such steps, and to enter into such arrangements, as appear to them calculated –

(a) to bring about, or to encourage others to bring about, a better public understanding of the nature and characteristics of material published by means of the electronic media;

(b) to bring about, or to encourage others to bring about, a better public awareness and understanding of the processes by which such material is selected, or made available, for publication by such means;

(c) to bring about, or to encourage others to bring about, the development of a better public awareness of the available systems by which access to material published by means of the electronic media is or can be regulated;

(d) to bring about, or to encourage others to bring about, the development of a better public awareness of the available systems by which persons to whom such material is made available may control what is received and of the uses to which such systems may be put; and

(e) to encourage the development and use of technologies and systems for regulating access to such material, and for facilitating control over what material is received, that are both effective and easy to use.

(2) In this section, references to the publication of anything by means of the electronic media are references to its being -

(a) broadcast so as to be available for reception by members of the public or of a section of the public; or

(b) distributed by means of an electronic communications network to members of the public or of a section of the public. European Member States are able to implement "special measures for disabled end-users", including deaf or speech-impaired people, under the Universal Service Directive.

8.85   In January, the Government's interim Digital Britain report emphasised the importance of people developing media literacy skills to ensure they can reap the full benefits of engaging with digital technologies[139] and recognised the contribution that a wide range of organisations is already carrying out to promote media literacy. But argued that a step change was required, with a clear central focus and agenda for delivery.

8.86   Specifically, Government has asked us to assess our current statutory responsibilities in relation to media literacy (as set out in Box 10) in light of the significant market changes in the availability of digital technologies and how they are used. It has asked us to work with the BBC and others to recommend a new definition and ambition for a National Media Literacy Plan.[140]

8.87   In response to this, we have established a Media Literacy Working Group, chaired by Ofcom and comprising representatives of relevant government departments and education and training agencies, Nations, industry, and adult learning providers to take this work forward. The National Media Literacy Plan will outline the basis of

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[139] Section 5 BERR, DCMS *Digital Britain: the Interim Report* January 2009
[140] See Action 22 BERR, DCMS *Digital Britain The Interim Report* January 2009

Ofcom's contribution to the step change in media literacy called for in the Digital Britain Interim Report.

Question 8.1: Do you agree with the proposed priority areas? Are there any areas that should be ranked above these and why?

Question 8.2: Which areas might we focus on in future years and why?

Responding to this consultation

How to respond

A1.1   Ofcom invites written views and comments on the issues raised in this document, to be made by 5pm on 3 June 2009.

A1.2   Ofcom strongly prefers to receive responses using the online web form at http://www.ofcom.org.uk/consult/condocs/access/howtorespond/form, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.

A1.3   For larger consultation responses - particularly those with supporting charts, tables or other data - please email ian.vaughan@ofcom.org.ukattaching your response in Microsoft Word format, together with a consultation response coversheet.

A1.4   Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Ian Vaughan
Floor 6
Dept Consumer Policy
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 7981 3333

A1.5   Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.

A1.6   It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 5. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

Further information

A1.7   If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Ian Vaughan on 020 7783 4331.

Confidentiality

A1.8   We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether

all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

A1.9   If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A1.10   Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at http://www.ofcom.org.uk/about/accoun/disclaimer/

Next steps

A1.11   Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

A1.12   Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.

A1.13   If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.

A1.14   If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW

Tel: 0141 229 7401
Fax: 0141 229 7433

Email vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1   Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2   Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3   We will be clear about who we are consulting, why, on what questions and for how long.

A2.4   We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5   We will consult for up to 10 weeks depending on the potential impact of our proposals.

A2.6   A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Ofcom's 'Consultation Champion' will also be the main person to contact with views on the way we run our consultations.

A2.7   If we are not able to follow one of these principles, we will explain why.

After the consultation

A2.8   We think it is important for everyone interested in an issue to see the views of others during a consultation. We would usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

A3.1   In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.

A3.2   We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.

A3.3   The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.

A3.4   We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.

A3.5   Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing ☐   Name/contact details/job title ☐

Whole response ☐   Organisation ☐

Part of the response ☐   If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here. ☐

Name   Signed (if hard copy)

Annex 4

Consultation questions

Section 2: Introduction

> *Question 2.1: Do you agree with the overall framework for assessing the components of access and inclusion of relevance to Ofcom?*

Section 3: Ofcom's role

> *Question 3.1: Do you agree with the types of possible interventions that our powers and duties offer us?*

> *Question 3.2 What do you see as Ofcom's future role in promoting access and inclusion?*

Section 4: Which services matter?

> *Question 4.1: We have considered the ways in which mobile, broadband internet and digital radio services can facilitate participation in the economy and society. Our initial view is that of these three services, having access to broadband internet is likely to be the one requiring most immediate policy focus from an access and inclusion perspective, along with 999 roaming. Do you agree?*

Section 5: Availability

> *Question 5.1: Do you agree that Ofcom should include availability issues in relation to current generation broadband and the ability to call the emergency services from another network if one's own network is unavailable in its immediate access and inclusion priorities?*

> *Question 5.2: Are there other gaps in the availability of key services that you believe are particularly critical for consumers and citizens?   Please support with evidence where possible.*

Section 6: Take-up

> *Question 6.1: Which of the barriers to take-up do you believe most pertinent, and for which groups in society? What other factors may be relevant?*

> *Question 6.2: Do you agree that new measures may be needed to help lift broadband take-up, particularly to address low levels of take-up by disadvantaged groups, and that this issue should be a new priority area for Ofcom?*

Section 7: Ability to use services effectively

> *Question 7.1: Do you agree with our assessment that tackling the barriers that disabled people face when using communications services should be a priority, and that as part of this our review should assess the case for introducing improved relay services for hearing impaired people?*

Question 7.2: Are there other issues in the area of effective use of key services that you believe are particularly critical for consumers and citizens?   Please support with evidence where possible.

Section 8: New priority areas

Question 8.1: Do you agree with our proposed priority areas? Are there any areas that should be ranked above these and why?

Question 8.2: Which areas might we focus on in future years and why?

Quality of service for text relay

Introduction

A5.1 Under its Universal Service obligations, BT is responsible for making sure that there is a text relay service in the UK for the benefit of deaf and speech-impaired people, and of people who want to communicate with them. Other providers of fixed and mobile telephone services to the public must give access to this service.

A5.2 Ofcom has agreed with BT that we will jointly agree and publish quality of service standards for the text relay service. This will help to ensure that deaf and speech-impaired people receive a good service.

A5.3 There will be quarterly reporting on compliance with these standards. The standards themselves will be reviewed annually.

A5.4 The key principles of the agreed quality of service measures outlined below are that people who use the relay service should be able to rely on a number of things, in particular that:

- Their call will be answered quickly

- The relay operator will facilitate the call in a professional way

- Confidentiality will be respected

- Emergency calls will be prioritised

Key performance indicators and principles agreed by BT and Ofcom

Relay Assistant's Role

A5.5 The relay assistant will provide a real-time voice to text and text to voice transcription service. They will act as an impartial facilitator and not participate in the conversation except where one party's lack of knowledge of the service or of the other party's communication needs is impeding the conversation.

A5.6 The relay assistant may, if appropriate, insert notes of sounds or emotions that the textphone user would otherwise miss e.g. phone ringing, laughing, etc.

Confidentiality

A5.7 Conversations facilitated by the relay assistant may **only** be recorded, or parts of conversations noted, in the following situations:

- An emergency call

- For quality measurement and training

- When one party is abusive to the relay personnel

- Where there is a technical problem which needs investigation

A5.8   Relay assistants may not have writing materials at their workstations (except by specific arrangement, e.g. if they are asked to complete a form as part of a feedback trial).

A5.9   Relay service employees must sign a confidentiality agreement which states that they will be dismissed and may be prosecuted if they discuss or use any information from the conversations they relay. This does not cover comments directed at the relay assistant or discussions between a party and the relay assistant.

Training for relay assistants

A5.10   The training will provide relay personnel with knowledge of the communications needs of deaf, hard of hearing, speech-impaired and deafblind textphone users.

A5.11   Refresher training will be undertaken as required.

Call Types

A5.12   The standard relay service will facilitate calls by providing an English transcription service from and to textphone users in the UK. Where a call originates outside the UK the call will only be connected to a UK telephone number.

Reporting

A5.13   The performance indicators above will be reported quarterly to Ofcom.

Complaints handling

A5.14   Complaints handling procedures must be agreed between BT and Ofcom.

Key Service Performance Indicators

Target	Measure
90% PCA15 Standard Calls[141]	90% of standard relay calls answered within 15 seconds
95% PCA5 Emergency Calls	95% of emergency relay calls answered within 5 seconds
85% Hit Rate	PCA15 target met for 85% of 15 minute intervals
<5% customers dissatisfied	Less than 5% of customers surveyed express dissatisfaction with the relay service
<3% Standard Calls Abandoned	Less than 3% of standard relay calls abandoned[142]
<2% Emergency Calls Abandoned	Less than 2% of emergency calls abandoned. This is in line with the standard voice service measure.

All measures to be averaged over a four week period

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[141] "PCA" is short for percentage of calls answered, so "90% PCA15" means that 90% of calls are answered within 15 seconds
[142] "Abandoned" means that the call is ended by the caller before the relay assistant is brought in

Supplier Management Performance Indicators

A5.15   Supplier management performance indicators include the above metrics plus the
additional metrics shown below.

Target	Measure
94% of Calls Correctly Handled	Relay assistants will be monitored at least quarterly for speed of transcription, accuracy, and process conformance.
>40 Words Per Minute (wpm)	In conversation voice to text transcription speed better than 40 wpm (when the textphone user is able to receive 40wpm or faster).
>98% Accuracy	Average voice to text transcription accuracy of better than 98%.
<1 Complaint Per 1000 Calls	Less than one complaint relating to the relay per 1000 calls handled by the relay

All measures to be averaged over a four week period

These quality of service KPIs and principles will be reviewed annually.

Annex 6

Broadband take-up

Introduction

A6.1   As outlined in Section 8, broadband take-up varies by demographic profile. There is also variation by geographical location. This annex provides further information on geographic variation in take-up rates, before exploring demographic variations in more detail.

PC, internet and broadband take-up varies by geographic area

A6.2   Within the UK, Ofcom's communications tracking survey (Q1 2008) shows that it is no longer the case that broadband take-up is lower in UK rural than in urban areas; take-up is very similar with 57% of people in urban areas having broadband at home compared to 59% in rural areas. However, PC, internet and broadband take-up at home does vary by nation, as shown in Figure A1 below.

Figure A1: PC, internet and broadband take-up by nation
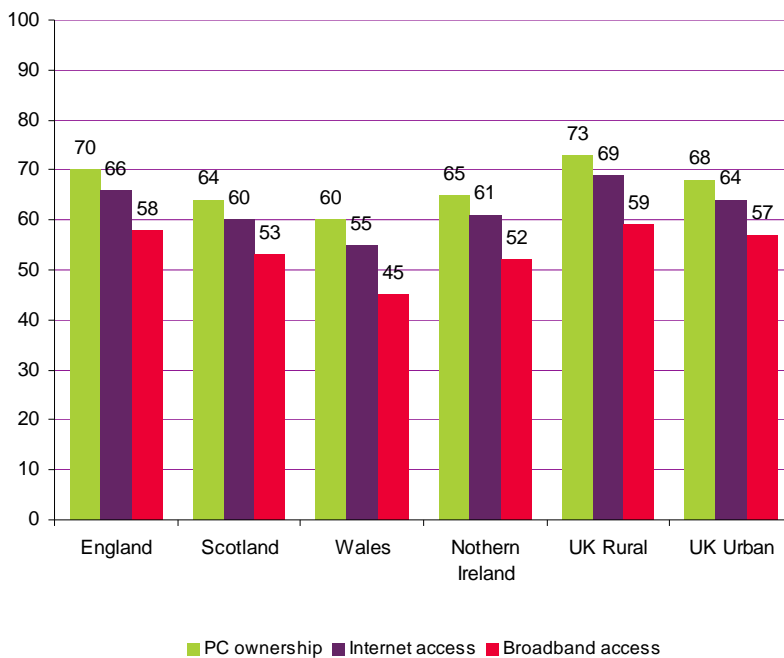
Source: Ofcom communications tracking survey Q1 2008. Base: Adults aged 15+/ Aged 16+ in Northern Ireland

A6.3   Broadband take-up is higher in England (58%) than the other nations of the UK, with the lowest levels of take-up seen in Wales (45%). The take-up levels in Scotland (53%) and Northern Ireland (52%) are below the UK average (see Figure A2).

Figure A2: Broadband take-up for UK nations and English regions
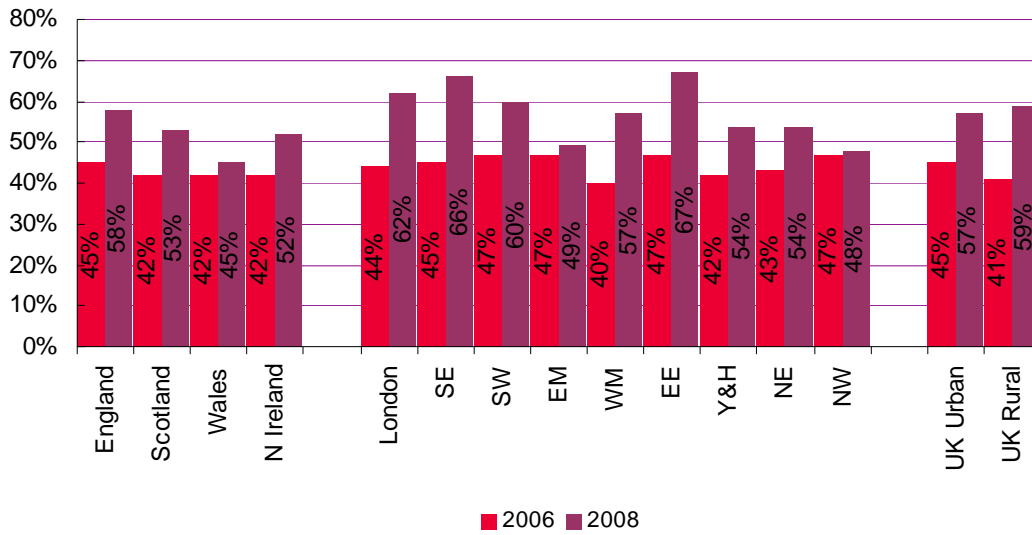
Source: Ofcom communications tracking survey Q1 2008. Base: Adults aged 15+/ Aged 16+ in Northern Ireland

A6.4   Within the English regions there is also a range of take-up levels. The highest area of take-up is the East of England at 67%, with the South East and London following on at 66% and 62% respectively. The lowest levels of take-up are found in the North West (48%) and the East Midlands (49%).

A6.5   Based on normalisation of the data it does not appear that geographical differences in take-up by nation or English region can be explained due to any single factor of age, gender, working status, socio economic group and urban/rural location. This suggests it may be a combination of these factors and other softer aspects such as mix of employment types, education and attitudes that affect take-up levels.

Demographic factors

A6.6   PC, internet and broadband take-up also varies by demographic profile. Figure A3 shows that take-up differs by age, with people over 65 significantly less likely to have a PC, internet or broadband at home compared to UK adults as a whole.

Figure A3: PC, Internet and broadband access in the home by age

● PC ownership ■ Internet access ■ Broadband access
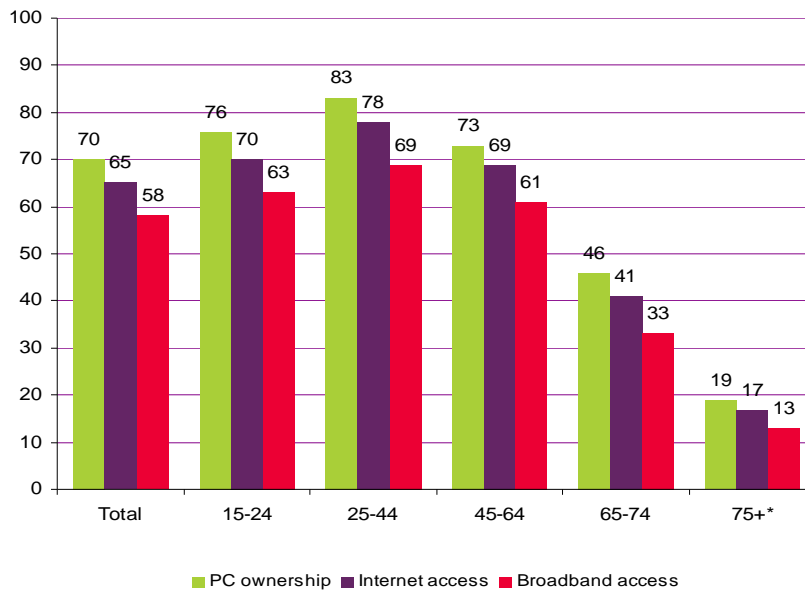
A6.7 Figure A4 shows that take-up also differs by socio-economic group, with people in DE homes significantly less likely to have a PC, internet or broadband at home compared to UK adults as a whole.

Figure A4: PC, Internet and broadband access in the home by socio-economic group

● PC ownership ■ Internet access ■ Broadband access
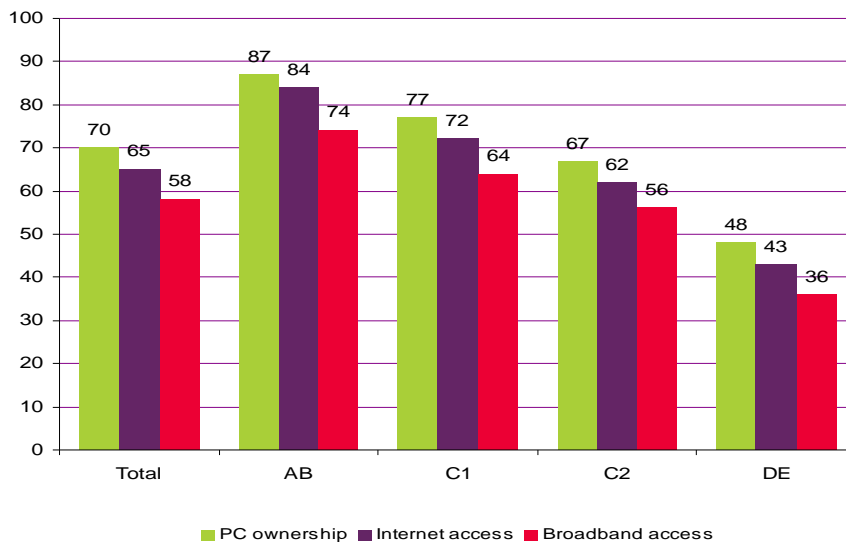
A6.8 We applied a range of multivariate techniques[143] among people without the internet at home[144] to identify key factors that differentiated this group from the wider

---

[143] Techniques included hierarchical, principal component and regression analysis.
[144] Source Ofcom's communications tracking survey, Q1 and Q2 2008.

population. These were found to be age, social economic status, access to landlines, working status and type of household tenure[145]. These factors explain approximately two thirds of the variations in non-take-up. The remaining variation may be driven by attitudinal differences such as engagement with technology.

A6.9 As many of these key factors are correlated (e.g. age, household tenure, working status and socio-economic status), it was possible to identify three key groups which this annex focuses on:

- Adults aged 65 or over.

- Adults in the DE socio-economic groups who are under 65, for which there is a heavy overlap with people in households with very low income.

- Adults in ABC socio-economic groups who are under 65. While internet take-up amongst adults in ABC households is high (80%), this group is the largest in terms of absolute numbers. As a result the 20% without internet access represents 5.6 million people.

A6.10 All of the adults without internet access in the UK can be classified into one of the three key groups identified above[146]. Figure A5 below shows the breakdown into three categories (65+, 15-64 in DE homes, 15-64 in ABC homes) for all UK adults, people with internet access at home and those without.

Figure A5: Profile of adults with and without access to the internet at home
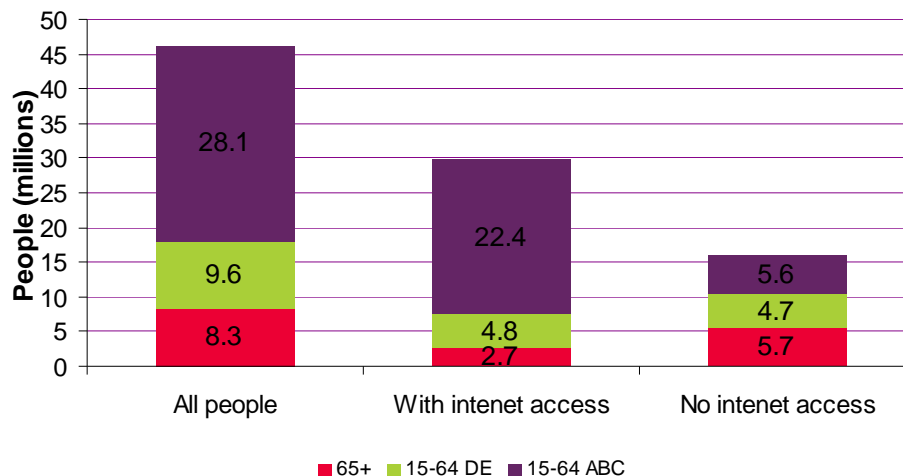
A6.11 In addition we have carried out an analysis of three further groups that have distinct characteristics:

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[145] Ethnicity was not identified as a key factor. Ofcom's media literacy audit of UK adults from ethnic minority groups 2008 found that internet take-up among ethnic minority groups is overall higher than the UK average. The 4 ethnic groups in this study are generally younger than the UK average which is likely to affect take-up of the internet. However age is not the only influencing variable and the report concluded that other socio-economic and cultural factors also appear to play a role in take-up.

- People in mobile-only households

- People with disabilities

- Low income families with school children

A6.12   The following sections outline available information on people in these 6 groups without internet access.

Adults aged 65 or over

A6.13   The over 65 group has a low level of internet take-up at around 32%.

A6.14   From analysing the over 65s in more detail there are some clear differences between those people 65+ with internet access and those without. People 65+ without internet access are more likely to be:

- in a household without a mobile phone

- in a household with income under £11.5k

- in a household without digital TV[147]

- in the DE socio-economic group

- female

- not working

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[147] Levels of Pay TV are also lower amongst households without the internet at home (27%) compared to those with the internet at home (46%)

Figure A6: Profile differences between those with internet and those without among people aged 65+
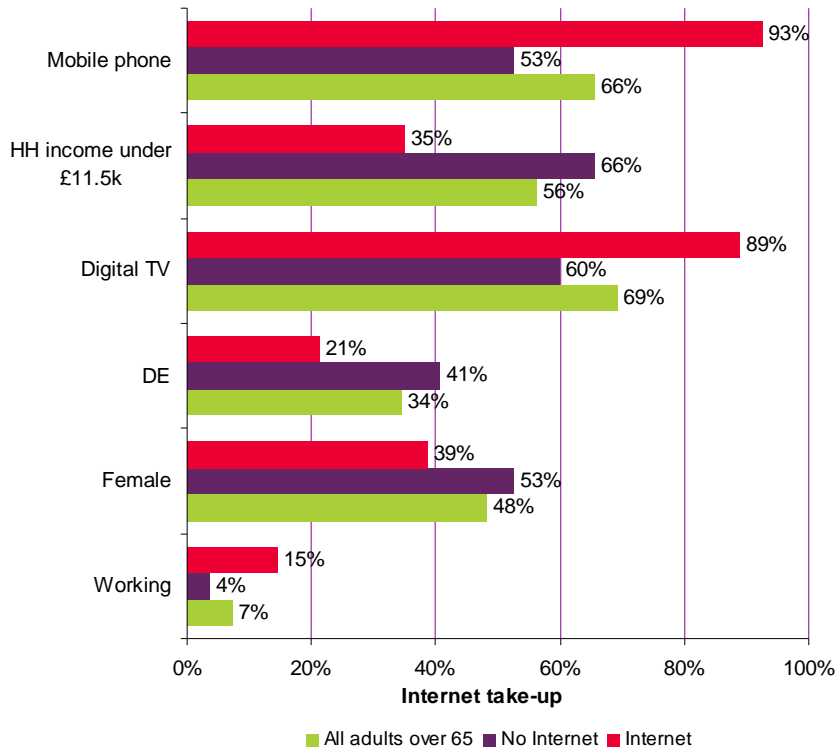
A6.15 Among people 65+ without the internet at home, only 6% have a PC at home. The majority own their home (61%), and one quarter live in social housing (26%). Most (94%) have a fixed line phone, with only 2% not having either a landline or a mobile, and 5% are without a landline. The majority do not have experience of the internet anywhere, with only a very small minority saying that they used the internet outside of the home (4%). (This is significantly below the average among all people without internet at home of around one fifth).

A6.16 Only 4% of people 65+ without the internet said that they are likely to get it at home in the next 12 months. The primary reason for not getting the internet is a lack of need or interest (64%), followed by a lack of underlying skills or age[148] (21%) and cost (11%), as set out in Figure A4.

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[148] This category predominantly included responses related to lack of underling skills, e.g. not knowing how to use a PC. People also cited age as a reason, which could be related to skills and/or motivation or attitude.

Figure A7: Reasons given by over 65s for not having the internet at home
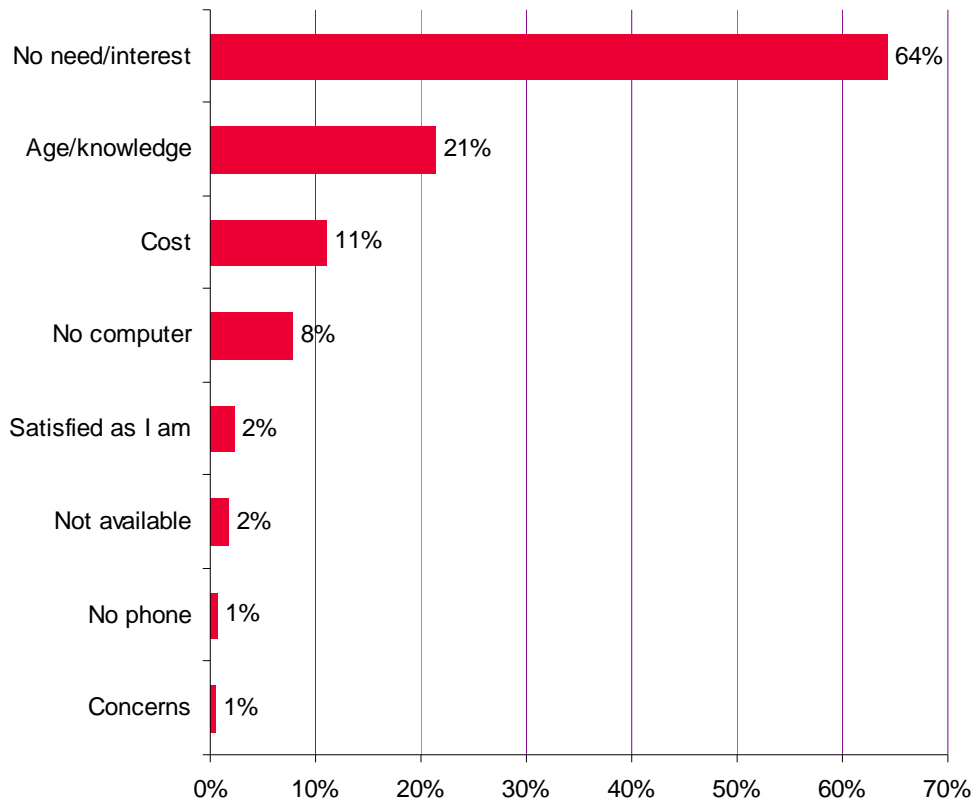
A6.17   In addition to the quantitative research which highlights the high level reasons for not having the internet at home, there is also qualitative research into older people's attitudes towards technology which included an exploration of attitudes towards the internet.

Qualitative research

A6.18   Qualitative research carried out by the Communications Consumer Panel[149] found that the most significant factors in the decision to take up the internet were individual lifestyle and technology attitudes and past experience of PCs and the internet.

A6.19   Costs and other economic factors were rarely mentioned as a barrier. It seemed that those on lowest incomes would find the money if they had sufficient interest. (Though it should be noted that the research in to older people did not focus specifically on those with a low income.)

A6.20   Older people were observed to fall into four groups:

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[149] Source: Older people and communications technology, Ofcom Consumer Panel, 2006

- **Absorbers:** internet users who have previously used PCs and/or the internet at work, often for more than 10 years. Almost all of this the people who used PCs at work have the internet at home. This group recalled the difficult transition from paper to PCs, though were grateful for the learning opportunity and it was now an important part of staying in touch with other people.

"We were very good at doing our drawings by hand and saw no need to use CAD programs. It was extremely difficult to adjust but you had to or you didn't have a job". (Edinburgh, 59)
"It didn't come naturally, but like anything, the more you practised the easier it got". (Manchester, 61)
"When I retired, the first thing I did was set up an office at home, it made me feel better about not going to work". (Edinburgh, 63)

- **Self starters:** nobody in this group had experienced a PC or the internet at work. Motivations for getting the internet at home varied from the specific – a relative moving abroad and using email to communicate – to something more general such as wanting to keep up and not get left behind. Some of the challenges overcome by this group may help to develop policies to helping other groups become internet users.

"I love to travel and whenever I met someone they would give me their email address and so I had to get going if I was to keep in contact". (Manchester, 72)

"I just thought it was time I had a go, I hated the feeling that all this was going on around me and I didn't know what it was about". (Southampton, 72)

- **Disengaged:** around two thirds of non-users were classified as disengaged. This group voluntarily excluded themselves from using the internet. However, given the right environment the research concluded that they would be interested in finding out more about the internet. Many of the group were observed to have increased interest as the discussions in the study progressed.

"I never thought I'd be interested, but after all this talk, I'd like to have a go". (Edinburgh, 67)
"You know, there are a few things I'd like to know about – my family history for example". (Southampton, 68)

- **Rejecters:** around one third of non internet users did not shows any signs of interest in the internet and actively rejected it. This was often due to factors such as being busy caring for grandchildren, busy with other hobbies, no desire to take on new challenges, and not wanting to risk appearing foolish in front of the family if they struggle.

A6.21   The self starter group identified a wide range of barriers that they overcame when staring to use the internet. Any policies designed to increase broadband usage amongst older people should take these into account:

"I was completely bewildered to start off with, I didn't know how to use the mouse but I kept going back and it started to make sense". (Cardiff, 65)

> *"Everyone was much younger, it didn't seem a beginners' class to me". (Edinburgh, 63)*
>
> *"It's when you get stuck that you need some help to get you moving again". (Cardiff, 62)*
>
> *"Its so important to have someone who has been through the difficulties themselves – we just don't think the right way and it takes lots of repetition for it to sink in". (Edinburgh, 74)*
>
> *"We haven't been brought up with technology and so it's really difficult to take it all in – remember your brain slows down when you get old!" (Belfast, 67)*
>
> *"I'm not talking about those dreadful help lines – it would be lovely to know there was someone to call if there's a problem, it would give you confidence to try things out". (Southampton, 59)*

Adults under 65 in DE socio-economic groups

A6.22   Half of adults under 65 in the DE socio-economic groups have the internet at home.

A6.23   There are some clear differences between those adults in DE homes under 65 with internet access and those without. Figure A5 illustrates some key differences showing that people without internet access are more likely to be:

- in a household without pay TV

- in a household without a landline

- in a household with income under £11.5k
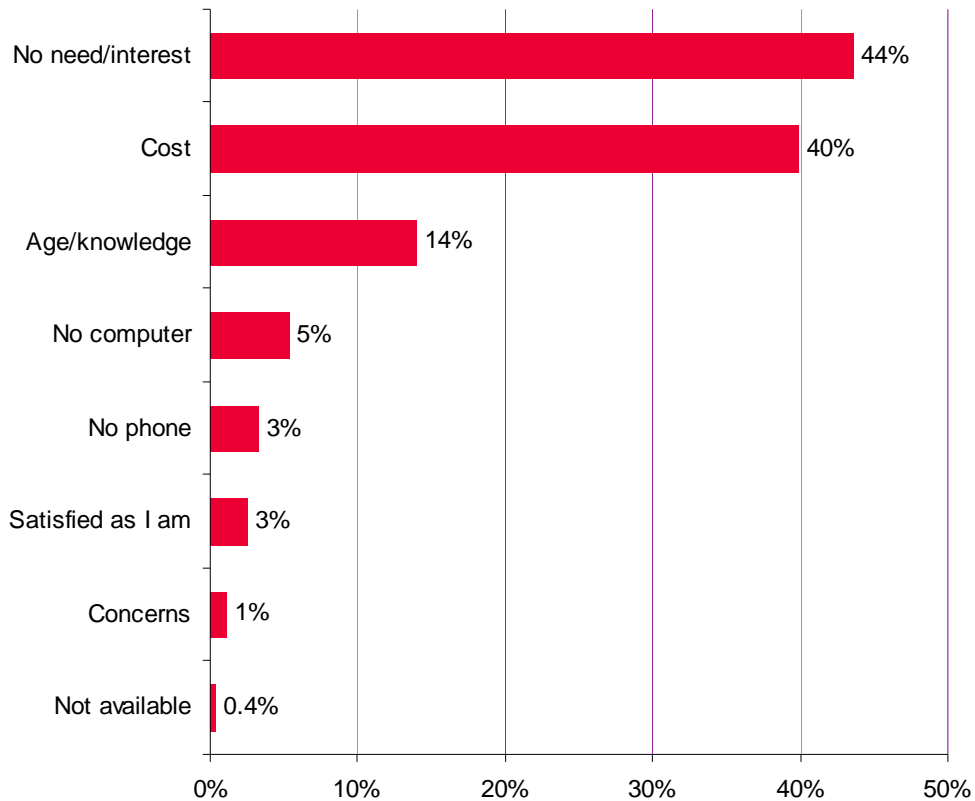
- in socially rented accommodation

- not working

Figure A8: Profile differences between those with and without the internet among people under 65 in DE socio-economic groups
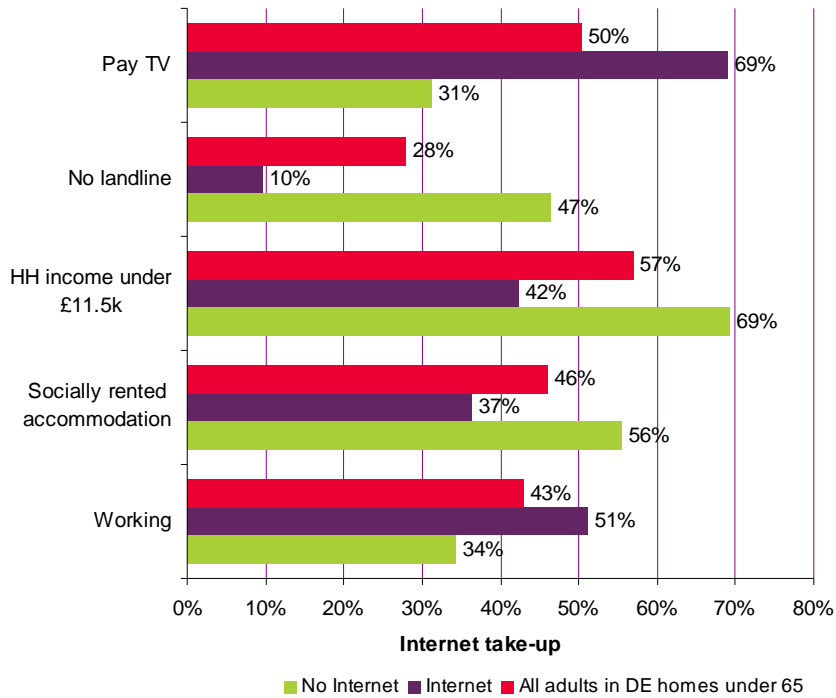
A6.24   Among people under 65 in DE homes without the internet at home, only 15% have a PC at home, 44% are in mobile only households, 46% in mobile and fixed line, 8% with fixed line only and 3% with neither. 78% live in private or social rented accommodation. Just over one fifth use the internet outside the home.

A6.25   About one fifth (22%) said that they are likely to get the internet at home in the next 12 months. Among those not intending to take-up, the primary reasons for not getting the internet at home are a lack of need or interest (44%) and cost (40%). 14% stated a lack of underlying skills or age related issues.

Figure A9: Reasons given by under 65s in DE socio-economic groups for not having the internet at home

Reason	Percentage
No need/interest	44%
Cost	40%
Age/knowledge	14%
No computer	5%
No phone	3%
Satisfied as I am	3%
Concerns	1%
Not available	0.4%

Source: Ofcom communications tracking survey Q1 and 2 2008. Base: Those not intending to get the internet in the next 12 months.

A6.26   In addition to the quantitative research which highlights the high level reasons for not having the internet at home, there is also Ofcom qualitative research into the attitudes of people on low incomes towards technology and this study included reasons for not having the internet at home.[150]

Qualitative research

A6.27   Qualitative research[151] showed that internet take-up among low income households was based on a variety of social and environmental factors, in which income was a consideration but not generally deciding factor. Factors included age, work status, family status, health and financial management.

A6.28   For the majority in the research, there were few barriers to take up.[152] Communication services were generally found to be affordable, good value and respondents had access to the services they wanted. For a significant minority, predominantly at the lowest end of income scale and on full benefits, there were a

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[150] The qualitative research was in to households with a low income. This has a high level of overlap with households in the DE socio-economic segments.

[151] Source: Low income consumers and the communications market, Ofcom, 2007.

[152] Note: research was carried out among people who had at least one communication device at home and as such is not fully representative of people on low incomes.

number of interrelated income factors (involving financial status and management), that in combination formed barriers to take up. These barriers were felt by younger people, whereas older people aged 60+ were less likely to be interested in the internet overall.

A6.29 Interviews with people on very low incomes (who are most likely to be in the DE socio-economic group) highlighted that current contract-based broadband offers are a barrier to take-up. The main barriers that were identified include:

- People with irregular incomes were less willing to commit to a monthly contract as missing a payment could lead them to be in debt and incur bank charges for failed payments.

- Some people who have previously had contracts for mobile phones or fixed lines have incurred large bills due to additional usage. Despite many broadband contracts not including usage charges, previous experiences have made people wary of signing up to a contract.

"It's the best way of avoiding getting into trouble, you've either got the money or you haven't. I don't think I'd have a mobile if I had to be on a contract, I've been there before and had lots of problems with huge bills" (Single, Belfast)

- Some people do not have a bank account, or have a poor credit history, and think that they are not likely to be accepted as an internet customer.

"As far I know you can't sign up for these services without a bank account so I don't even think about them as I don't have one" (Single, Cardiff)

- Some people cited the high cost of a fixed line as a barrier to getting broadband, though in general the absolute level of the monthly fee was not an issue for most people.

- In contrast, some people cited the high up-front costs of a PC as being a barrier to getting the internet.

A6.30 All of these issues raised in the qualitative research can be classified as 'cost' related issues. This research found that a monthly contract is likely to be the biggest financial barrier to people on very low incomes getting internet at home.

A6.31 Among those people in low income households with broadband, the flat fee nature of broadband packages was seen as being attractive as there is no possibility of additional usage fees. Any policy options involving packages designed for lower usage levels could aim to avoid additional charges for increased usage.

"Knowing it's a flat rate every month makes it easy to budget – it's always on and you can use it as much as you like – great" (Single, Glasgow)

A6.32 By contrast take-up of mobile phones amongst this group was similar to national averages, with people having similar spending levels. However, the vast majority of mobile telephones were prepaid, which overcomes the contractual issues outlined above. This suggests that a prepaid broadband product is likely to be of particular

interest to people on a low income as it will help them to avoid regular long term financial commitments, and add more flexibility in their spending.

A6.33　The other main barrier to getting the internet in low income households is a stated lack of interest or need (though this was mainly amongst older people in low income homes). The qualitative research amongst low income households with children, which is discussed in the following paragraphs, provides some important insights in this area.

A6.34　Take-up of internet at home is also lower amongst people who are less settled and unlikely to be in the same property for a year or more.

"I've just been through a divorce and my circumstances have changed completely – from a house, I'm now in a single housing association room with very little money, so just having a mobile suits me for the moment" (Single, Cardiff)

"I've just moved into a shared house and it would be nice to get the internet but we haven't sorted things out about how we'd all do it – someone's got to be responsible and we don't know how long we're going to be here" (Single, Studley)

A6.35　There is also qualitative research that focuses on low income families. This is discussed in more detail later.

Adults under 65 in the ABC socio-economic groups

A6.36　Four fifths (80%) of people under 65 in the ABC socio-economic group have the internet at home, meaning 20% do not have access. There are some clear differences between those with and without internet access. People without internet access are more likely to be:

- in a mobile only household

- a households without pay TV
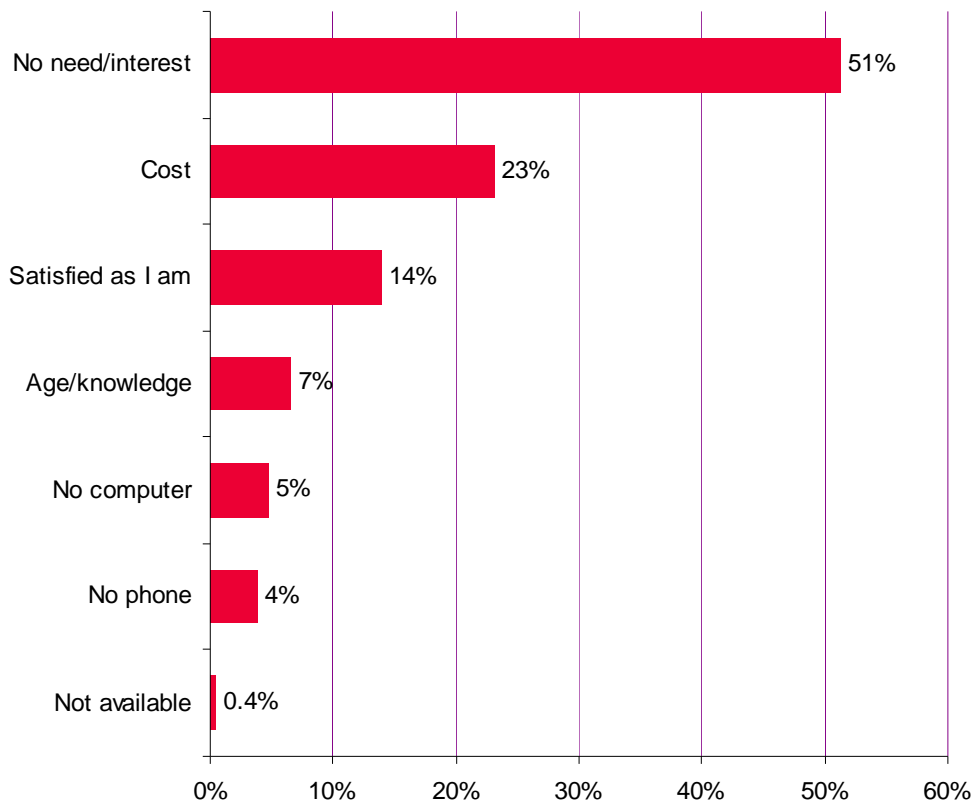
- in a household with income under £17.5k

Figure A10: Profile differences between those with internet and those without among people under 65 in ABC socio-economic groups

Internet take-up

■ No Internet　■ Internet　■ All adults in ABC homes under 65
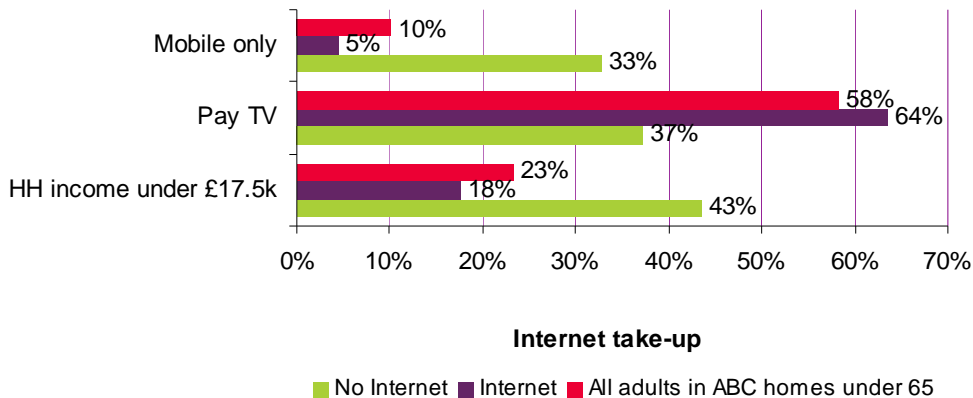
Source: Ofcom communications tracking survey Q1 and Q2 2008

A6.37 Over four fifths of people without the internet at home are in C1C2 homes. 60% have a fixed line and mobile phone, with one third (33%) in mobile only homes and just 6% in fixed line only homes. One quarter (26%) have a PC at home. Just over three quarters have digital TV (77%), whereas one fifth (21%) have terrestrial only television. The majority are working (72%).

A6.38 Just over two fifths (43%) of people without the internet at home, use it elsewhere. Just under one third (29%) say they intend to get it at home in the next 12 months. Of those who do not, the primary reason for not getting the internet is a lack of need or interest (51%), followed by cost (23%).

Figure A11: Reasons for not getting the internet at home among people under 65 in ABC socio-economic groups

A6.39 Due to the higher than average internet take-up levels among people under 65 in ABC homes, there has not been qualitative research among those without the internet to explore the reasons for not having the internet in more detail. However, it should be noted that in absolute terms, those under 65 in ABC homes without the internet are as large as the over 65s. Ofcom is currently undertaking research among all people without the internet at home, which will give further insight into understanding the reasons for non take-up among this group.
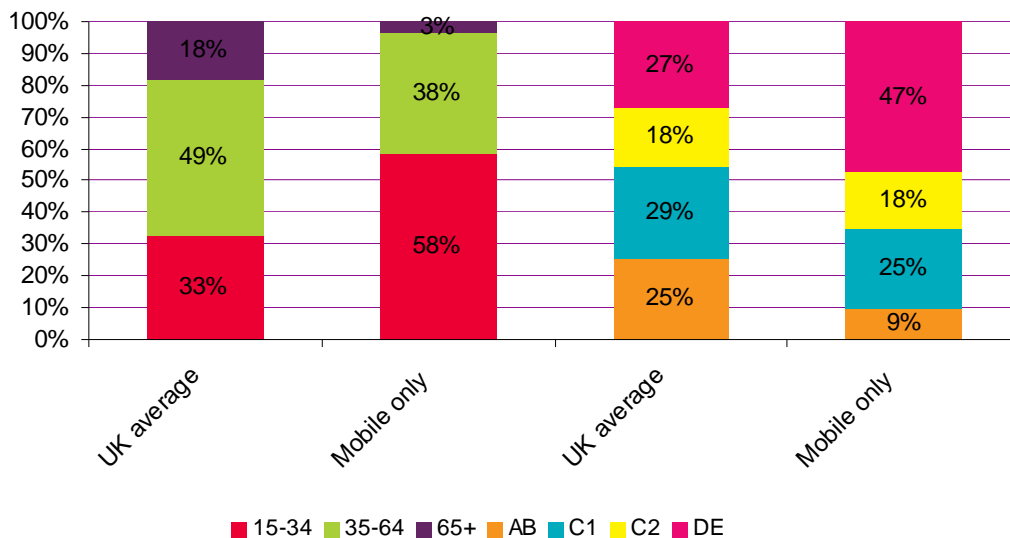
Mobile-only households

A6.40   With the increased use of mobile telephony for voice calls inside the home there has been a move away from using fixed lines, with certain parts of society becoming mobile phone only households (i.e. no fixed line voice). Around 12% of adults in the UK live in a mobile only household (Ofcom communications tracking survey Q2 2008). This same research shows that 81% of people in mobile only households say they are unlikely to get a landline in the next 12 months. The most common reasons stated are that people are happy to use a mobile (52%), have no need for a fixed line (48%) and that fixed lines are too expensive (17%).

A6.41   Before looking in detail at those people in mobile only homes who do not have the internet, it is useful to start with a description of people in mobile only homes overall, compared to the UK as a whole.

A6.42   Figure A12 provides a more detailed description of people in mobile only homes compared to all UK households. As shown below people in mobile only households are more likely to be younger and from a lower socio-economic group.

Figure A12: Profiles of people mobile only households compared to the UK average

Source: Ofcom communications tracking survey Q1 and Q2 2008. Base all people 15+

A6.43   Around one quarter (27%) of people in mobile only households have the internet at home, leaving around three quarters of people in this group in a household without internet access.

A6.44   The low level of internet take-up amongst people in mobile only households may be due to the linkage between fixed line broadband and fixed line voice connections. Those mobile only households with the internet appear to primarily have a broadband connection which does not require a fixed voice line.

A6.45   From analysing this group in more detail there are some clear differences between those in mobile only households with internet access and those without. People without internet access are more likely to be:

- in a household with income under £11.5k

108

- not working

- without pay TV

- in the DE socio-economic group

Figure A13: Profile differences between those with internet access and those without among people in mobile only households

Internet take-up

■ No Internet ■ Internet ■ All adults in mobile only homes
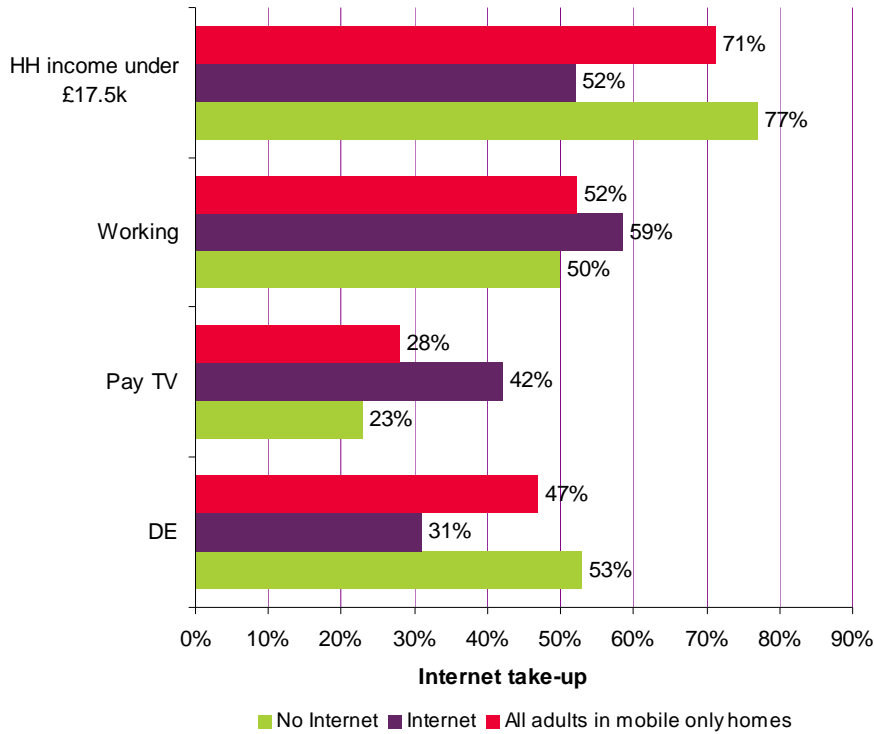
A6.46   Among people in mobile only homes without the internet at home, 19% have a computer at home, and 77% live in rented accommodation. Around 40% use the internet outside of the home.

A6.47   Just over one quarter (28%) say they intend to get the internet in the next 12 months. For those who do not intend, the primary reason given is cost (46%), followed by no need (37%) and not having a landline (11%).

Figure A14: Reasons for not having the internet at home among people in mobile only homes
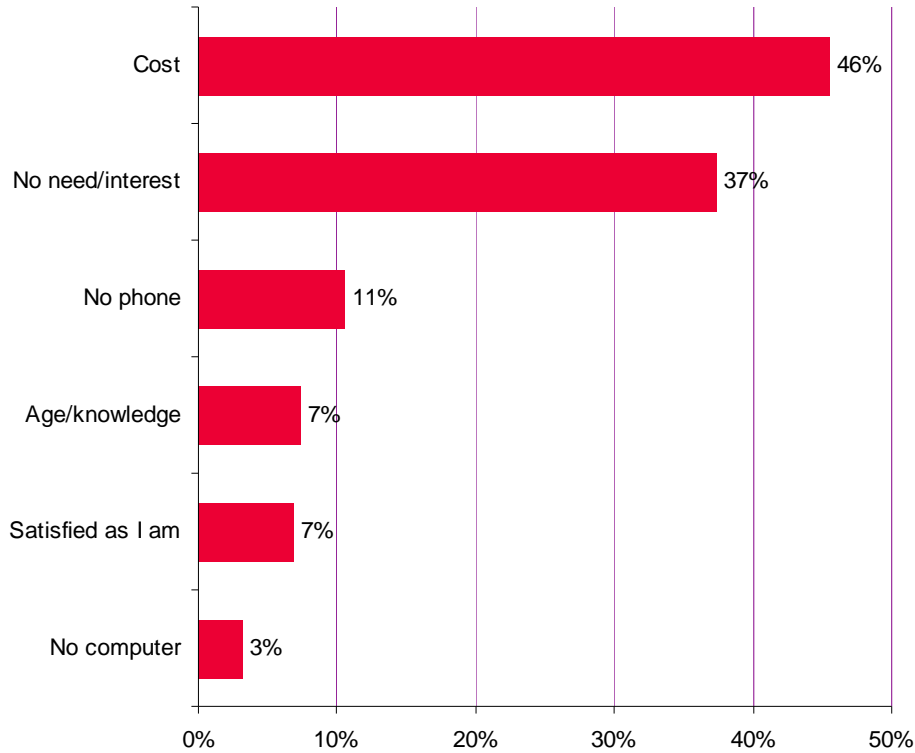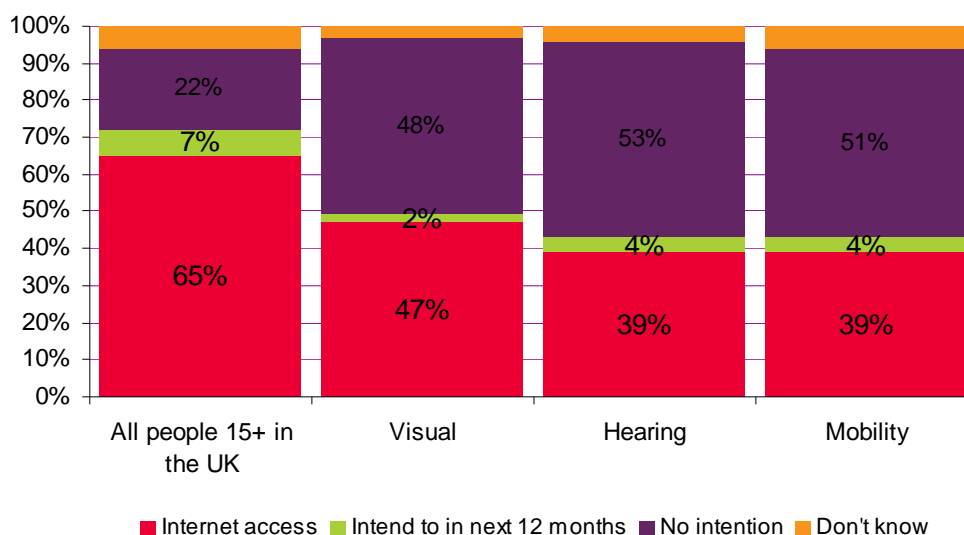

Source: Ofcom communications tracking survey Q1 and 2 2008. Base people who do not intend to get the internet in the next 12 months

People with disabilities

A6.48   As well as the groups discussed previously, internet take-up is also low for people with disabilities. Ofcom's communications tracking survey suggests that people with hearing, visual or mobility impairments have lower than UK average levels of take-up of the internet.[153]

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[153] Source: Ofcom communications tracking survey Q2 2008. See Ofcom *Consumer Experience report* 2008, annex 3 for more details.

Figure A15: Internet take-up and intention to take up among people with visual, hearing or mobility disabilities

Source: Ofcom communications tracking survey Q2 2008. Note small base size – treat as indicative only

People with visual impairments

A6.49 Ofcom communications tracking survey indicates that take-up of the internet is significantly below average at 47% compared to a national average of 65% (Q2, 2008). However, this data needs to be treated as indicative only due to the small base size.

A6.50 Qualitative[154] research found that people with visual impairments have particular difficulties using the internet as it is primarily a visual medium. This study identified that there are a number of ways to make the internet more accessible to people with visual impairments:

- For people with less severe visual impairments it is possible to improve readability of screens using software magnifiers and by changing the contrast and colours. Such approaches are generally understood and widely used.

- Modifications can be made to keyboards that improve the usability by making keys more tactile. These are often implemented on a DIY basis, though specialist keyboards can also be purchased. Some uses, particularly younger people, are less comfortable with such approaches due to a desire not to stand out.

- Many people were aware of more advanced software solutions such as screen readers (e.g. JAWS) and voice recognition software. Screen readers were generally felt to work well, but most people did not believe that speech recognition software was yet of a high enough standard.

A6.51 The main barrier to people taking up more advanced solutions such as specialist keyboards and screen readers was high costs. Specialist keyboards were observed to cost around £200, and screen readers £800.

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[154] Source: People with visual impairments and communications services, Ofcom, 2008

A6.52   It was noted that many websites were well designed for people with visual impairments, but this was not uniform. Many older websites were particularly poor, and a desire for more standardisation amongst websites was raised.

People with hearing impairments

A6.53   Ofcom research[155] among people with hearing impairments suggests that the internet poses them the least hearing related barriers to take-up when compared to other e-communications services. One barrier that was raised is difficulty using telephone help lines.

A6.54   The research highlighted that barriers to internet take-up included perceived costs, lack of confidence, and not seeing the potential benefits. As with the wider population, older people, and those in DE socio-economic groups were less likely to have the internet at home.

People with learning difficulties

A6.55   Research[156] among people with learning disabilities identified a range of barrier to using the internet which included cost, literacy/numeracy, short-term memory difficulties, a lack of awareness of what one could do with the internet, and parents and carers associating the internet with potential dangers. Usage was also related to age. The cost and age related barriers are similar to those in the wider population, though it should be noted that people with learning disabilities are also more likely to have low incomes.

A6.56   The study found that there is generally a desire to use the internet, but assistance is often required from friends and family due to a lack of literacy skills. Examples of assistance included:

- Friends and family writing website addresses on paper so that they can be entered one letter at a time.

- Dealing with email accounts that are often required registering to websites.

- Updating profiles on social networking sites on behalf of the person with a learning disability.

A6.57   Uses of the internet were found to vary, but popular uses included gaming, keeping up to date with their favourite band, celebrity, TV programme or football team, looking up pictures (of celebrities, animals), or watching video clips (e.g. YouTube). Participants were largely unaware of the potential of the internet for information and services such as banking, online shopping, or finding information.

Low income families with school children

A6.58   The take-up of broadband amongst school children is particularly important from a social policy perspective as it has positive benefits for education and social

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[155] Source: People with hearing impairments and communications services, Ofcom, 2007
[156] Source: People with learning disabilities and communications services, Ofcom, 2008

inclusion. Use of internet[157] at home amongst school age children is higher than the national average at 73% versus 63% for adults 15+.

A6.59   However, there is also a proportion of children who use the internet at school, but do not have access at home. Once this is included internet usage rises to 89% of school age children. There is a significant increase in the levels of usage as children become older, with the internet being used by 74% of 5-7 year olds, 93% of 8-11 year olds and 98% of 12-15 year olds.

Figure A16: usage of the internet by children aged 5-15 years
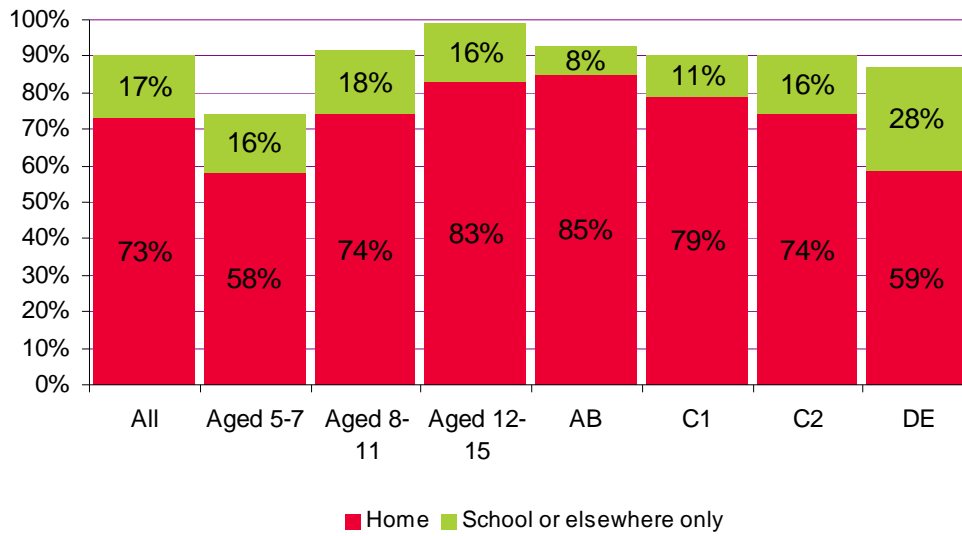
Source: Ofcom's children's media tracker, 2008

A6.60   The research also shows that internet usage at home amongst children is also correlated to socio-economic status, with 59% of children from DE households using the internet at home compared to 85% amongst children in AB households. However, once usage at school is also factored in the differences in usage are much less pronounced, with a range from 87% to 93%. The different usage levels at home are likely to be due to the age of the child and lower take-up levels in DE households.

A6.61   Qualitative research[158] among low income families provides insight into those families both with the internet, and those without it. The research identified three groups without the internet at home: **planners**, **considerers**, and **fearfuls**.

A6.62   **Planners** are close to getting the internet at home, with the financial barrier being strongest in this segment. This group are likely to be planning to get the internet due to the needs of their children, who are often approaching secondary school age. They are likely to have actively researched issues such as the costs of hardware and broadband subscriptions. They may have talked to friends and paid more attention to advertising. This research means that they usually have a good ball park estimate of the financial outlay required.

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[157] The research data relates to use of the internet, access is higher than usage levels amongst children.
[158] Source: Children and the internet - A research study into the social effects of lack of internet access on socially disadvantaged children and families, Ofcom Consumer Panel, 2007

A6.63   The **considerers** are more likely to be parents with primary age children who are working towards getting the internet when their children reach secondary school age. Again, the financial outlay (particularly for the PC) is often the biggest barrier that they foresee.

A6.64   Both of the considerers and planners had a clear idea of the benefits that broadband would bring to their children.

> *"I do feel guilty that they are missing out"' (Mum, Glasgow)*
>
> *"Internet kids are probably more impressive"' (Dad, Birmingham)*
>
> *"It's the way forward. We are going to find a way to afford it; otherwise I fear that my kids will be at a disadvantage." (Dad, Glasgow)*
>
> *"It's a priority for us, especially for secondary school. He'll need it then for his homework" (Mum, London)*

A6.65   Some parents also felt that getting internet for their children would spur them on to embrace the opportunities that broadband brings.

> *"I am curious about the internet for me too. I would love to go back to work, but I don't know where to start. I reckon that going on the internet could help. My friends also book holidays, arrange to go to concerts. I think I could get addicted to it quite quickly". (Mum, Glasgow)*

A6.66   The **fearfuls** are a group that are not likely to get broadband. They are generally wary of getting broadband as they did not understand broadband, and often cited risks that the internet poses such as fraud and child safety.

A6.67   There was a significant difference in stated views on broadband between men and women.

A6.68   **Fearful dads** will confidently express their views and will often present a front that makes their decision to not get the internet seem rational. It is important to them that they are seen to be doing the right thing by their children, with them often citing child safety dangers, and alternative ways to access the internet (e.g. the library or at the homes of friends and family).

> *"All they would do is play games on it, if they need it for school work they can go to the library or use it at the local Youth Club." (Dad, Glasgow)*
>
> *"They can get hold of disgusting pornography. I just don't want to invite that into my home. It is filthy." (Dad, Birmingham)*
>
> *"I don't see why they can't just use books for school, after all I did." (Dad, Leicester)*
>
> *"If my kids need access to the internet, I just send them round to their uncles. They don't seem to go that often, so I presume that they don't really need it"' (Dad, Birmingham)*

A6.69   In contrast, **fearful mums** were more overt in their fears which usually arose from a lack of personal understanding of computers and the internet. Fearful mums were much more likely to openly express the feeling that they are letting their children down."

> *"I'm worried about things and events you hear. Like children accessing the wrong stuff they shouldn't. I just wouldn't know how to stop it." (Mum, Birmingham)*
>
> *"I'm afraid of machinery. I just think I'm going to break it.' (Mum, London)*
>
> *"I'm too scared to even go out and find out about it. I wouldn't even know where to start." (Mum, London)*

A6.70   Despite the apparent differences in attitudes between fearful dads and fearful mums it is likely that in many cases the fearful attitude is due to a lack of knowledge rather than a fully informed decision to not get broadband. The research seemed to indicate that most parents of school children that were grouped as fearful appreciated the positive benefits of the internet, but did not see these as being large enough to overcome their personal fears about getting it.

Annex 7

Glossary of terms and definitions

21CN: BT's upgrade of their core network (the backbone of the network).

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

3G Third Generation Cellular Mobile. Provides high-speed data transmission and supports multimedia applications such as full-motion video, video-conferencing and internet access, alongside conventional voice services.

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.

Audio description An assistive service that enables people with visual impairments to use the television by providing a separate audio track in which a narrator describes on screen activity.

Bandwidth Measure of maximum capacity of a data link in a telecommunications network. Usually expressed in Kbps or Mbps

Broadband A service or connection that is capable of supporting always-on services which provide the end-user with high data transfer speeds. A large-capacity service or connection that allows a considerable amount of information to be conveyed - often used for transmitting bulk data or video or for rapid Internet access.

Communications Act 2003 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.

DOCSIS 3 - Data Over Cable Service Interface Specification: The international standards for sending data over a cable network.

DSL Digital Subscriber Line. A family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high-speed digital lines, capable of supporting advanced services such as fast Internet access and video-on-demand. ADSL, HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL).

DSO Digital switchover. The process of switching over the current analogue television broadcasting system to digital, as well as ensuring that people have adapted or upgraded their televisions and recording equipment to receive digital TV.

DTT Digital Terrestrial Television. Currently most commonly delivered through the Freeview service.

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.

Fibre-to-the-home A form of fibre optic communication delivery in which the optical signal reaches the end user's living or office space.

Freeview Free digital service giving access to over 30 TV channels, over 20 radio stations plus a new whole world of interactive services

HSPA High Speed Packet Access. Downlink and uplink mobile broadband technologies are jointly referred to as HSPA.

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

ISP Internet Service Provider. A company that provides access to the internet

Kbps Kilo bits per second (1,000 bits per second). A unit of measurement of data transmission speed

LLU Local Loop Unbundling. Process by which a dominant provider's local loops are physically disconnected from its network and connected to competing providers' networks. This enables operators other than the incumbent to use the local loop to provide services directly to customers.

Local Loop Access network connection between the customers premises and the local PSTN exchange, usually a loop comprised by two copper wires twisted together.

LTE Long Term Evolution. 4th Generation Cellular Mobile

Mbps Mega bits per second (1,000,000 bits per second). A unit of measurement of data transmission speed

MNO Mobile Network Operators

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

Mobile termination The charge operators which originate calls have to pay to mobile operators to deliver calls to their mobile customers

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.

Narrowband A service or connection providing data speeds up to 128kbps, such as via an analogue telephone line, or via ISD.

Not-spots Geographic areas not currently served by the network roll-out of a particular communications service.

NGA Next generation access networks. Broadband access networks that connect the end-user to the core network capable of with a bandwidth quantity and quality significantly in excess of current levels (a benchmark of 20 Mbps or more is often used).

PC Personal computer

Platform The device on which a technology runs

SIM Subscriber Identity Module. A small smart card type device that has details of the mobile subscriber including the public telephone number and the numbers required by the network to recognise and authenticate the subscriber

SMS Short Messaging Service. Facility to send text messages of up to 160 alphanumeric characters between compatible devices.

SME Small to Medium sized Enterprise. A company with fewer than 250 employees.

Socio Economic Group (SEG) A social classification, classifying the population into social grades, usually on the basis of the Market Research Society occupational groupings (MRS, 1991). The groups are defined as follows.

> **A.**   Professionals such as doctors, solicitors or dentists, chartered people like architects; fully qualified people with a large degree of responsibility such as senior civil servants, senior business executives and high ranking grades within the armed forces. Retired people, previously grade A, and their widows.

> **B.**   People with very senior jobs such as university lecturers, heads of local government departments, middle management in business organisations, bank managers, police inspectors, and upper grades in the armed forces.

> **C1.** All others doing non-manual jobs, including nurses, technicians, pharmacists, salesmen, publicans, clerical workers, police sergeants and middle ranks of the armed forces.

> **C2.** Skilled manual workers, foremen, manual workers with special qualifications such as lorry drivers, security officers and lower grades of the armed forces.

> **D.**   Semi-skilled and unskilled manual workers, including labourers and those serving apprenticeships. Machine minders, farm labourers, lab assistants and postmen.

> **E.**   Those on the lowest levels of subsistence including all those dependent upon the state long-term. Casual workers, and those without a regular income.

Tariff Schedule of rates and charges for a service

Text relay Assistive service that enables hearing and speech impaired people to use the telephone via translation of text messages into voice and vice versa.

USO Universal Service Obligation. The set of Universal Services that Universal Service Providers are required to supply.

USP Universal Service Providers BT and, in Hull, Kingston Communications, who have certain licence obligations designed to ensure that a basic level of telephony service is available to everyone in the licensed area upon request.

WiMax A Wireless MAN (Metropolitan area network) technology, based on the 802.16 standard. Available for both fixed and mobile data applications.