

Consumer Expert Group report into the use of the Internet by disabled people: barriers and solutions.

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Summary

The Consumer Expert Group (CEG)¹ was asked in the Digital Britain Report to report on the specific issues facing disabled people using the Internet. This report responds to that request. We urge that this report is used to inform the government's long-term strategy, as well as the immediate work that is being done by both the Consortium for the Promotion of Digital Participation and by the Champion for Digital Inclusion, Martha Lane Fox, in their work to get people online.

In the course of research for this report it became clear that there are a number of issues which specifically affect disabled people and discourage them from using the Internet. The research also shows that people with certain disabilities face issues that are very specific to their disability. These issues came up repeatedly in evidence provided by CEG members themselves, and in discussions with other organisations². This report is informed by their practical experience of supporting disabled people to get online. This report focuses mainly on Internet access via computers because this is currently the most common form of access and most of the evidence we received was about that form of access. However, other ways of accessing the Internet such as TVs and mobile phones that are often presented as easier or cheaper ways to use the Internet are assessed as well.

The issues, consistently cited as reasons for low take-up can be grouped under four headings that reflect the journey into ongoing Internet access:

1. Motivation
2. Starting out and getting online
3. Continuing the journey: Making the Internet work for me
4. Enjoying the benefits and dealing with the dangers/risks of using the Internet

1. Motivation

Disabled people's decisions about not going online will often be informed by the same issues that influence non-disabled people: fear of not being able to use it, the fact that the person is living contentedly offline, anxiety about the costs, fear of the web itself etc. For those who see no relevance in going

¹ See Annex A for a list of CEG members.

² See Annex B for a list of external organisations consulted in the course of this research.

online encouraging use of the Internet is often a case of getting people to see the benefit for them personally.

For some disabled people, a number of specific additional reasons can combine to make the Internet and computers inaccessible and put them off going online. Disabled people are less likely to be in work so they are less likely to have had contact with computers and technology. As a result disabled people can be less likely to be aware of the benefits that technology can bring, or have less familiarity with computers.

There are a range of disabilities with different needs. Specific disabilities require a range of different access technology³ and considerations for accessibility in web design. The high cost of access technology often puts this technology out of the reach of disabled people and can put people who need access technology off going online. With only 50%⁴ of disabled people in employment, and many over the age of retirement, prohibitive costs are a significant reason why disabled people are reluctant to go online. This is the also the case for the costs of buying the computer and broadband connection. For many disabled people, these basic costs are out of reach even before any additional costs have been factored in.

Motivation is not the only issue. Very often, the supply side of Internet use for disabled people is just not adequate. Websites, sign-up pages and forms are often inaccessible, even with access technology. None of the major content authoring tools are fully accessible and this means disabled people lose the opportunity to 'create' online and are barred from uploading their own User Generated Content (UGC). If the technology and infrastructure is not accessible it will be hard to convince disabled people to go online. One bad experience online can make some people give up.

2. Starting Out and Getting Online

A lack of awareness about the access technology available, and of the ways in which it can help break down the barriers to the Internet, is another key issue in looking at low take-up for disabled people. The lack of awareness amongst mainstream retail outlets about access technology is another limiting factor. Disabled people can't get appropriate advice from mainstream retailers on suitable equipment at the point of purchase.

³ "access technology" in this document is used to mean any technology or device that is required to meet the specific needs of a disabled person and allow him or her to use the internet independently, and that is different from, or additional to, the technology or devices used by non-disabled people. It can be software such as a screen reader or voice input software, but also equipment and hardware such as a specialist keyboard, rollerball mouse or screen.

⁴ Disability Rights Commission
http://83.137.212.42/sitearchive/DRC/Newsroom/key_drc_facts_and_glossary/number_of_disabled_people_in.html

Public access points are often seen as a way to introduce people to the Internet and information technology (IT) without them having to buy the equipment themselves. It can be easier than getting a computer and broadband subscription into the home and it offers a way to experience the Internet without prohibitive costs.

Public access is certainly beneficial for some groups, in particular for older people, for whom the social interaction which comes with public access can be an advantage. For some groups though, public access points are not a feasible option. Access technology often needs to be personalised for the user and the best personal settings and preferences for that user need to be saved. But this is not possible in public access points and it can easily take up to half an hour to reset the personal settings. In these cases, even those public access points with access technology can't provide the same experience that someone would get with a computer and broadband connection in their home. For housebound people, or people with severe disabilities needing complex access technology, including specialist keyboards as well as software, the only realistic way in which they can fully engage with the Internet will be with access at home.

Using access technology requires training and training requires funding to access it. Furthermore, for training to be accessible it must be carried out in an appropriate manner which in many cases will mean that one to one training is required.

Alternatives to using the computer to access the Internet, such as mobile phones or a television, come with their own accessibility problems that need addressing before they can be presented as viable alternatives for disabled people.

3. Continuing the Journey: Making the Internet work for me

Website design and usability continue to act as barriers for disabled peoples' full engagement with the Internet and IT. Unless accessibility is embedded as a first principle in website design, access technology software will continually be playing catch up to try and find solutions to inaccessible website development.

The ever increasing interactive nature of website design and application development is actually making the situation much harder to resolve. Software development such as Flash and AJAX, and use of CAPTCHAs⁵, cause problems for access technology and more websites become inaccessible to disabled people. Although the increasing use of graphics might be beneficial for some disabled people, it makes the use of access technology that relies on text streams impossible unless a text alternative is available. One example of access technology which is reliant on text streams are the screen readers for visually impaired or dyslexic people.

⁵ See Glossary for technical terms

The Web Content Accessibility Guidelines 2 (WCAG2) try to address some of these emerging accessibility issues but their complex nature makes it difficult for web designers and programmers to implement. Guidance on implementing WCAG 2 should be introduced to make clearer to website designers exactly how these guidelines apply to them, and how the decisions that web designers take to address accessibility issues actually affects disabled people using the website.

In addition to being made accessible, websites need to be usable for people who are using access technology. In one example, the homepage of a publicly funded website which is fully readable with a screen reader, took the blind user of a screen reader 17 minutes to read.

Ongoing support is essential for some disabled people using the Internet. This support needs to be provided in a format which is accessible. The problem of how to provide such support, and how to fund it emerged from the evidence of several different organisations. For some people, telephone helplines might be feasible, however other options would need to be considered for people who are deaf and hard of hearing, such as offering a text phone number, accepting calls through Text Relay (formerly TypeTalk). Home visits are a good way of supporting people's use of the Internet, especially when people encounter unexpected problems with the computer. But most charities don't have the funds to support this kind of activity. Training centres need to have more than just start up funding, they also need ongoing capital funding to ensure they can continue to provide ongoing training to people who need it.

The constantly changing nature and sophistication of technology is yet another barrier for access technology users. Access technology software on a computer is often reset when the Windows operating system updates itself. In addition, access technology software can become obsolete when the operating system it interacts with is upgraded. There is a cost and a training need associated with keeping up with the latest versions of access technology. These issues can make disabled users of access technology much more reluctant to persist with Internet use.

4. Enjoying the benefits and dealing with the dangers/risks of using the Internet

It came across strongly that off-line alternatives to on-line services need to continue to be provided.

The CEG believes that even where disabled people are using access technology they may not get 'equal access' to the Internet. An experienced user of screen reader software will use shortcuts to get to the page that they want to, without reading all of the pages on the way. Similarly some disabled people tend to restrict their use of the Internet to websites which they know are fully accessible.

Some disabled people may never be able to go online, or may never choose to. Already we can see a shift towards online only services which exclude

disabled people who cannot access the Internet, or choose not to use it. For these reasons the CEG believes it is imperative that adequately resourced services continue to be provided offline.

Some disabled people, particularly those with learning difficulties or mental health problems, seem likely to be more vulnerable to the negative aspects of the Internet, for example scams/fraud. They need particular support in this area. However potential fraud is faced by all users of the Internet, and it is important for everyone, including disabled users, to be educated about the dangers of the online world as a standard part of any Internet training.

We recognise that the growing use of mobile phones to access the Internet may mean Government chooses to meet its agenda for Digital Britain by encouraging Internet access via alternatives to the computer such as mobile phones, game consoles or via a digital television with Internet capability. While we recognise the growing use of mobile phones as a device to access the Internet is helpful for some, they are not a suitable alternative for everyone. At this point, standard mobile phones are not disabled people friendly and those with access technology are substantially more expensive. Television design and remote controls are also an area in which we recognise there are accessibility issues for disabled people. Devices such as mobile phones and television can not be considered as cheaper viable alternatives to get online for some disabled people, because of their current lack of accessibility and usability for disabled people or the cost associated with purchasing accessible versions.

Recommendations

Our study has identified a number of specific issues facing disabled people in using the Internet. The following recommendations represent a comprehensive list of actions needed to address them, grouped to reflect the journey into sustained Internet access. We recognise however that there may be more work to be done to fully capture the needs of those with learning disabilities. Our recommendations are limited to those who are not in education or employment because there are statutory provisions available to disabled students and employees, and a separate study would be needed to fully determine the quality of this existing provision and whether it meets the needs of disabled people in education and employment.⁶

Motivation

1. Government must ensure a mechanism is put in place through which disabled people can access training, equipment and services, including access technology⁷, and funding to cover the additional costs they face because of their disability.

This mechanism must:

- be available to people on the basis of need, and not be linked to any eligibility for, or take-up of disabled peoples' benefits, as these benefits are only available to a proportion of the disabled people who need, but cannot afford equipment and training;
- ensure disabled people have access to a proper assessment of their access technology need as well as their training needs, whether in work or not, similar to the system used by Access to Work assessments. As multiple disabilities are not uncommon in the general population and older people in particular are likely to have multiple disabilities, assessors should, as a minimum, have pan-disability awareness training;

and,

regarding 'access technology':

- include access to funding for access technology and equipment to suit individual needs;

⁶ Such as Access to Work, or the Disabled Students' Allowance etc

⁷ "access technology" in this document is used to mean any technology or device that is required to meet the specific needs of a disabled person and allow him or her to use the internet independently, and that is different from, or additional to, the technology or devices used by non-disabled people. It can be software such as a screen reader or voice input software, but also equipment and hardware such as a specialist keyboard, rollerball mouse or screen.

- include access for upgrades of access technology software when new versions are released to keep up with developments in mainstream software;
- regarding 'training':
- include access to funding for training on the use of access technology to suit individual needs and in a manner appropriate to individual needs.
2. Government must ensure a mechanism is put in place through which understanding and awareness of the availability of, and options around access technology is raised. As a minimum this must include:
- promoting accessibility features in current Internet and computer and other technology (e.g. the ability to increase font size, short cut keys for navigation);
 - promoting easy to use fully accessible Internet access options without computers that are suitable for disabled people, e.g. via fully accessible mobile phones or fully accessible televisions ;
 - promoting the full range of access technology available for using the Internet;
 - training of people to advise on the range of suitable options for access technology that enables Internet access across all disabilities;
 - a 'one stop shop' to bring together information about all the options for Internet access technology which are available;
 - ensuring that easily understandable, non-jargonistic information about accessibility is available to disabled people themselves to inform them about their options;
 - taster sessions specifically tailored for disabled people to try out computers, the Internet and different access technology in a supportive and accessible environment.

Starting Out and Getting Online

3. An appropriate training fund for support should be set up sufficient to achieve the following:
- 3.1. Increased effectiveness of community based training for disabled people, including:
- to provide resources that will allow community based projects that support and train disabled and older people in Internet use to widen project access, or increase the number of people they are able to work with;
 - viable peer to peer support networks for older and disabled people, including provision for these networks to be established and maintained;

- provision of home visits for housebound disabled people to set them up with internet access and provide training
- adequate communication support in the training for disabled people with specific communication needs such as BSL users;
- availability of access technology software on computer training projects in the community.

3.2. Provision of training for those who support disabled Internet users to:

- raise the level of awareness of basic access features offered by mainstream Internet technology;
- raise the level of knowledge and skill of trainers on access technology – trainers should have a minimum qualification and pan-disability awareness before being eligible to provide in-depth access technology training to users; and
- require general pan-disability awareness training for all IT trainers and staff at government-funded IT public access points.

4. To avoid a postcode lottery, the Government first needs to assess the geographical spread of training provision for disabled Internet users across the UK. Using this information the Government can then ensure adequate training provision is available to all disabled Internet users, regardless of their location.

Continuing the Journey: Making the Internet Work for Me

5. Government and other public authorities, in fulfilling their obligations under their Disability Equality Duty, should have fully accessible public websites in order to promote equality of opportunity for disabled people and to eliminate discrimination. This means that they must apply best practice which includes:
 - Using a definition of website accessibility which in practice means that accessible websites are level 2 compliant with web accessibility technical standard Website Content Accessibility Guidelines 2 (WCAG 2) and with Authoring Tools Accessibility Guidelines (ATAG) and that they have been tested for ease of use by older and disabled users;
 - Ensuring that all Government websites are fully accessible (as defined above) and easy to use, including government blogs and forums;
 - building accessibility into their procurement procedures for procurement of webdesign, software and equipment used for accessing the Internet;
 - making website accessibility a condition of licence for all those activities which are licenced, either directly by Government or

- through sector-specific regulators such as broadcasting, telecommunications, financial services and public utilities; and
- making website accessibility a condition for public funding.

6. Government must promote:

- the accessibility and usability of equipment as promised in its ageing strategy 'Building a society for all ages'⁸; and
- websites with a simple structure, in which content and presentation is properly separated in order to allow the users to customise and enrich as suits their needs.

8. Manufacturers of web authoring software should

- include advice about creating accessible websites with their web authoring software packages; and
- be encouraged to embed accessibility into their web authoring design templates.

9. Government must encourage colleges and higher education institutions (HEIs) to embed accessibility as a first principle into their computer programming qualifications to encourage a culture of accessibility awareness within future generations of web designers.

10. The BSI should be supported in their work to develop BS8878 which signposts website developers and commissioners to WCAG2 and provides credible non-technical guidance on how to implement these guidelines. In addition, mechanisms should be put in place by Government to ensure that this BSI work is promoted and put into practice.

11. Accessibility auditors for websites should adhere to minimum standards set by a recognised body which should be designated for this purpose. Recognised accreditation for "website auditing" should be given and promoted through this body - perhaps via a BSI kitemark

Enjoying the Benefits and Dealing with the Dangers/Risks of using the Internet

12. Government regulation should tackle the inaccessibility of new online services which have offline equivalents that have traditionally been regulated to provide accessibility. In particular the inaccessibility of IPTV and VoIP is of concern, where there is a sharp contrast between the absence of accessibility requirements for these new services and the mandatory requirement for accessibility on their traditional of-line counterparts: TV access services are mandatory on traditional broadcasting and text relay services are mandatory in traditional telephony.

⁸ <http://www.hmg.gov.uk/media/33830/fullreport.pdf>

13. For disabled people who can't go online, or who chose not to, properly resourced off-line services must continue to be provided.

14. Publicly funded training provision in Internet use should include education about risks and the potentially negative aspects of the Internet and how to deal with them e.g. scams/fraud and identity theft.

15. Campaigns which raise general awareness about online scams/fraud to the public, should also have strategies built in to ensure they are effectively communicated to disabled people, including to people who require communication support.

Other Forms of Access

15. We recognise the growth in use of mobile phone, PDAs and the potential of TV and other such technology as a means to access services, and the Internet in particular and the fact that they are increasingly promoted as cheaper alternatives to using a computer to get online. This recognition and our concerns about the current inaccessibility of these devices must be fully integrated into all of the above recommendations. This is necessary so that access for all is achieved across all of the potential gateways that disabled people may use to access the Internet.

16. We recognise that Internet access on mobile phones, PDAs etc is increasing which means that websites should allow for this - websites should be useable on devices with small screens and limited scripting support.

Introduction

According to The Family Resources Survey⁹ there are up to 10 million disabled people in the UK and millions of other individuals who are affected by mild cognitive, sensory, and physical impairments. The Disability Rights Commission¹⁰ states that of the 10 million disabled people in the UK, 4.6 million are over State Pension Age and 700,000 are children. Only 50% of disabled people of working age are in work compared to 81% of non-disabled people of working age¹¹.

The Digital Britain Report

The Digital Britain Report was published on 16 June 2009. There were several strands to the Government's recommendations on how to increase Internet take-up right across the population and how to ensure everyone has the opportunities afforded by use of digital technologies. To achieve the objective of near universal participation outlined in that report, this Consumer Expert Group (CEG) report will need to inform the Government's strategy to implement the Digital Britain report, including the work of the Consortium for the Promotion of Digital Participation (Consortium) and the work of the Champion for Digital Inclusion and Expert Taskforce.

Those not using the Internet risk missing out on the full benefits of digitally delivered public services that can provide greater personalisation for the user, a key potential benefit for disabled people. They can suffer economic disadvantage if not online – the average household can save up to £23 per month using price comparison websites and online only deals¹². This is very important for disabled people, of whom only 50% are able to work and many are on low incomes. Nearly 1 in every 5 web users use the Internet to investigate a health concern and it is increasingly becoming a place to share advice and experience in health matters¹³.

In the Digital Britain Report, the Government made a commitment to ask the CEG to report on the specific issues confronting disabled peoples' use of the Internet. Stephen Carter, in his role as Minister for Communications,

⁹ Family Resources Survey 2003/4 London: Analytical Services Division, Department for Work and Pensions 2005

¹⁰ Now the Equality and Human Rights Commission

¹¹ Disability Rights Commission

http://83.137.212.42/sitearchive/DRC/Newsroom/key_drc_facts_and_glossary/number_of_disabled_people_in.html

¹² Economic benefits of digital inclusion – building the evidence, published in April 2008 by UK online centres

¹³ Does the Internet improve lives? – FreshMinds/UK online centres, April 2009

Broadcasting and Technology wrote to the CEG on 30 June asking them to report the Group's views on usability and accessibility of the Internet, why there is relatively low take-up of the Internet by disabled people and what might be done to address any ergonomic, format or other usability issues which can act as a barrier. This report acts as the response from the Consumer Expert Group to the Minister's request.

Internet take-up

In terms of Internet take-up, disabled people are disproportionately under-represented when compared with the general population, as detailed in the following table. Older people, many of whom are disabled or have evolving impairments brought on by the ageing process are also disproportionately under-represented in the section of society which has broadband access.

Fig.1. Table of UK population home access to broadband

| | Broadband Access at Home |
|--|---------------------------------|
| <i>People with visual impairments</i> | 42% ¹⁴ |
| <i>People with a hearing impairment</i> | 32% ¹⁵ |
| <i>People with a mobility impairment</i> | 36% ¹⁶ |
| <i>Older People 65 -74</i> | 33% ¹⁷ |
| <i>Older People 75+</i> | 13% ¹⁸ |
| General Population | 70%¹⁹ |

Despite the 70% penetration of broadband in the home according to Ofcom, we note that does not necessarily mean that 70% of the population are information technology (IT) literate and have sufficient IT skills. We hope that the work of the Consortium would continue to encourage digital life skills and digital media literacy to ensure the whole population has the necessary IT skills for life in the 21st Century.

¹⁴ Ofcom's Consumer Experience report 2008
<http://www.ofcom.org.uk/research/tce/ce08/>

¹⁵ Ofcom's Consumer Experience report 2008
<http://www.ofcom.org.uk/research/tce/ce08/>

¹⁶ Ofcom's Consumer Experience report 2008
<http://www.ofcom.org.uk/research/tce/ce08/>

¹⁷ Ofcom's Access and Inclusion Report
<http://www.ofcom.org.uk/consult/condocs/access/access/>

¹⁸ Ofcom's Access and Inclusion Report
<http://www.ofcom.org.uk/consult/condocs/access/access/>

¹⁹ Accessing the Internet at Home – A Quantative and Qualitative Study Among People without Internet at Home, Ipsos Mori
<http://www.ofcom.org.uk/research/telecoms/reports/bbresearch/bbathome.pdf>

Economics and Independence

The Internet can have a magnifying effect – the advantages of using the Internet can have a huge impact but the disadvantages can have much more of an impact, especially for disabled people. For some disabled people access to the Internet can allow much more independence in daily life. For example, a blind person can access online banking and shopping, deaf and hard of hearing people might be able to stay in touch with friends and family more easily via e-mail or IM (Instant Messenger), BSL (British Sign Language) users may be able to use videoconferencing software to converse in their first language (BSL), a housebound person is able to shop for themselves online and technology can open up a whole world of literature and expression for dyslexic people. There are numerous examples of people's lives being significantly improved by being able to access IT and the Internet. For some people, it is actually easier to do things online. As with all things though, there must be a choice available and people might not wish to, or be able to do everything online.

If we want disabled people to fully participate in society and in employment, IT skills and access to the Internet are essential. There are, however, many barriers that prevent disabled people from accessing and using the Internet.

The ageing of the UK population means that disabilities, especially those associated with age, will become more prevalent in society. Issues around accessibility of the Internet for disabled people will affect more and more people, and this group of people will become a larger consumer base. This means there will be more economic drivers for making sure that this group can fully access and use commercial Internet sites and sites delivering information and services.

Methodology

In order to gain as clear a picture as possible, the CEG carried out interviews and commissioned written submissions from a range of external organisations, particularly those with practical expertise in helping disabled people access the Internet, or with practical insight into the issues which affect disabled people.

In deciding which organisations to request evidence from, the CEG focused on those that had a practical experience of helping disabled people get online and access IT and the Internet. We requested the advice of 14 external organisations and heard back from 12. The membership of the CEG covers some of the issues already but we felt there was a gap in evidence from organisations set up to practically help disabled people get online, and organisations which covered those with cognitive impairments. A full list of all organisations that helped in the course of this research can be found in Annex

B along with a brief description of what they do. Annex A contains a list of members of the CEG.

The CEG is indebted to those organisations that were prepared to share their insights with us.

Background

1. Motivation - why aren't disabled people using the Internet?

1.1 Relevance and benefits for the user

Disabled people have the same motivations for going online as non-disabled people: using the internet will be valued if it makes an aspect of their life easier, quicker or more satisfactory in another way. Sometimes people want to be able to communicate by email with their service providers. Sometimes email is easier for disabled people. The desire to contact family members by email can be a great motivator, as can finding out more about your favourite hobby or getting the cheapest deals for products by using price comparison websites. But disabled people face more barriers to getting online than non-disabled people.

Three broad types of motivation were discussed with the CEG:

1. Those people who say 'the Internet is of no relevance to me', 'I don't want it or need it' can often be hard to convince. But these people can sometimes be convinced through the use of the Internet to do something that interests them personally. For example, by using the Internet in a foreign language course, or as part of an art class.
2. Those who don't want to be left behind and are determined to get involved.
3. Those who feel a sense of forced motivation – those who want to do something which is only available online

These are broadly the same types of motivation that non-disabled people have. But the difference is that if a disabled person doesn't have the right support and equipment they will not be able to fully engage with the Internet.

Disabled people face the same costs for a computer and broadband subscription and the same issues with lack of relevance to their daily life as non-disabled people face. But, disabled people are often on low incomes and therefore even the basic cost of a computer and broadband subscription will be out of their reach. This is before they incur any extra costs of access technology which may be necessary and which they will then have to make an extra effort to learn how to use. A lack of awareness of what is available to them to help them access IT and the Internet also acts as an extra barrier to them going online. This added requirement to learn about access technology can also put disabled people off using the Internet and present a greater challenge than the challenge faced by non-disabled people. In addition, there may be a need to work with technology that assumes a different method of interaction – for instance using a keyboard with systems designed primarily for mouse users – which adds an extra level of complexity.

In many ways, users of the Internet expect it to make something easier, faster or more convenient. Regular users of the Internet will know what they can do

online to simplify their lives. A dyslexic person might use the internet and access technology as their way into literature, without which they might have more problems reading and writing. A blind person or person who is housebound might be able to live more independently. Even if at first it is not easy, eventually users of the Internet become familiar with the technology. But, for disabled people it is particularly important that they have a positive first experience given the barriers they will already have had to overcome to get online.

We support the Consortium in its efforts to raise awareness about the benefits of going online, and taking forward its programme of targeted outreach. But it is vital to the objective of access for all not to forget the necessity of raising awareness of the specific benefits for disabled people as well.

1.2 Cost

On top of the basic cost of a device to access the Internet like a computer and broadband subscription, disabled people will often need access technology to get access to the Internet. This means there can be disproportionate costs involved for disabled people to access the Internet and this can act as a significant barrier to getting people online. And these costs will need to be spent before someone has decided that a computer and the Internet is for them.

There is some free open source access technology software but using open source software means users can often lose functionality and features. Technical support is unlikely to be available and it is more difficult to find training courses. This means that open source software can only be seen as a solution for more technically savvy users. But, the high end of access technology can cost thousands of pounds. Of course, the more complex a level of access technology someone requires, the more it will cost. One of the most popular screen readers for people who are blind or partially sighted, JAWS, costs from £700 for a basic package but will incur a licence fee as well. Even something as simple as a tracker ball mouse, often used for people with arthritis or hand mobility problems can cost from £15 to £50 depending on what the user needs. Someone in the autistic spectrum may need equipment costing up to £3000 for a high resolution graphics card to minimise screen flicker, plus software which tries to impose an appropriate colour scheme.

Cost Case Study:

M, a volunteer for the Thalidomide Trust, uses a complex system of access technology software to access the Internet. She was one of the Thalidomide victims and was born without arms, partially sighted in one eye and blind in the other. She then lost her eyesight completely. When Mandy was first introduced to screen readers she was typing with her toes as speech recognition software had just been launched and was not yet compatible with screen readers. QWERTY keyboards are designed for fingers so using screen readers was difficult. Many years later, she tried speech recognition software which she was then able to use with screen readers but it was still clumsy and crashed easily. Eventually, years later, she thought the quality and reliability has improved sufficiently to give her the confidence to try using it. Mandy was granted compensation so is able to purchase her complex software package, but is very conscious that other people that are in similar situations are not able to do so. The system she uses at the moment costs £5000, which will include three days of training, but not the computer itself.

Using access technology means she is able to use the computer most days, write lengthy reports for her volunteer work for the Thalidomide Trust, e-mail friends and colleagues, do online shopping by herself and surf the Internet. She believes it has given her a new lease of life. She's now able to correspond with people without assistance, and do her own shopping which she couldn't do before because she is unable to go out without assistance.

For disabled people, who are often on low incomes or unemployed, the cost of access technology of this nature is often prohibitive without some form of grant or subsidy.

Generally speaking the costs of access technology are not decreasing over time, as because of the relatively small market, there are no real economies of scale and there is not much competition between providers. Most software has very complicated features and does far more than most people use it for. To date, there has not been much interest from industry to create 'lite' versions of access technology software that have a low training requirement for cheaper prices. However, the Home Access Programme, which was set up to provide a computer and broadband subscription to children from low income families without home access, has installed a simple suite of access technology – software for those with language and speech difficulties and dyslexia, mind mapping software and a screen magnifier (including Read & Write Home Access version [Text help], Mindview [Matchware] and iZoom) on all machines provided through the Home Access Programme. The additional licences procured means that this software will then be sold at around £50 on discs to anyone who needs it. However, it is unlikely that this will change the market for anyone with even slightly more complex needs for whom this package is not sufficient.

The costs involved with access technology are ongoing over the duration of its use. Subsequent software updates and licences cost more money and are often out of the reach of a disabled person. More costs are then incurred to get support and training on how to use the new versions of access

technology. Disabled people often find it too costly to buy new versions of access technology and it is for this reason that a lot of disabled people are using out of date software packages that do not work very well with the latest websites.

Trial periods for access technology software are generally around the standard 31 days. This causes problems as there is not enough time to get a full feel of the software and how it might help, especially when training is intermittent. This is especially relevant for disabled people for whom the cost of access technology software is much higher. A longer trial period for access technology software could allow people to experience the software fully before deciding whether to buy it. This high cost of access technology software also affects web designers who want to buy the software to test out the accessibility of their site before releasing it. But, having to buy several different types of software and at such high costs means they can't carry out usability testing with all different types of access technology software.

There is no one uniform scheme which can provide financial assistance for disabled people to access computers and the Internet. There are charitable initiatives to sponsor peoples' software but there is not sufficient funding to offer help to everyone who needs it. And there is no central access to funding schemes. This means it can be very difficult to find out about possible places to go for financial support.

1.3 Lack of awareness of access technology and and the challenge of finding the most suitable access technology

Lack of awareness about access technology by both disabled people and those who support them is a continuing barrier to getting people online. Without knowing exactly what can be possible online, and how that can be accessed, there is very little motivation for disabled people to get online and start using IT. Awareness of the range of different access technology available needs to be raised amongst all groups of disabled people.

The same can be said of those who support disabled people. An enthusiastic support worker who understands the benefits of going online and accessing IT will be invaluable in raising awareness of what the access technology can do.

A lack of awareness amongst people in computer retail outlets means that disabled people have very few places to go to find out about the options available for them and how these options can break down the barriers to getting online. As with funding issues, there is no one place to go for advice about equipment that could allow access to the Internet and which provides information across the range of disabilities.

There is a huge gap in the knowledge of those provide Internet training about access technology. Most trainers, even those with formal qualifications in IT training, can't train someone in the use of access technology. Most are

unaware of the basics, such as the accessibility features which are available in common products such as Windows. This is a huge barrier to raising awareness of the benefits of Internet access and IT use.

Case study: finding the most suitable access technology

L, who is deafblind, describes her situation as follows: my needs as a deafblind person are complex and unique, and something like screen reader software with synthesised speech output for a blind person does not meet my needs. Instead I use specific screen reader software with a Braille display. Only some screen reader software packages provide full support for Braille displays. I communicate face-to-face using a deafblind manual, which means that any computer training and advice needs to be provided by a trainer with deafblind manual skills, or needs to be facilitated by a computer literate deafblind manual interpreter.

2. Starting out and getting online

2.1 Public access versus broadband at home

Public access, or the use of the Internet in community spaces such as libraries, UK online centres, or in Internet cafes, is often seen as a way to introduce people to the online world in a supported environment without them having to buy equipment and cope with the upkeep of that equipment. Some organisations support new learners of the Internet with IT training and advice.

Public access points can be a good way of demonstrating the benefits of the Internet to non-users. However, there are problems that a disabled person might face when using a public access point. Access to the Internet for disabled people will often involve the use of access technology. For a blind or partially sighted person this could be screen magnification software or a screen reader. For dyslexic people this could be voice recognition and a screen reader which also highlights text. These two types of screen readers are not necessarily analogous. Deafblind people (those with a dualsensory disability) who are Braille users would need specialist keyboards. The public access point is unlikely to be able to provide all these options, and usually public access points have no access technology, or a very limited choice of access technology available for people to use.

Access technology software, when set up, is personalised for the user. This means that a particular user doesn't have to repeatedly re-input their settings before they use the computer. This personalisation can't be done simply in public access points as the computers are there to be used by everyone. Even if a public access point has access technology this is not always available when users with specific needs want to make use of it, especially if there is no booking system in place that gives preference to disabled users.

Often these computers will be unavailable. Very few public access points have staff who are aware of access technology. Even fewer have staff who have been trained in the use of access technology. This is all on top of whether the public access point has the appropriate access technology to use i.e. the type and version which the user needs or is familiar with.

Public Access Case Study:

K lost her vision in one eye and found that doing things online like booking train tickets and theatre tickets, email etc was her preferred way of accessing services. With screen magnification software she was able to do these things online. She found that using the computer gave her a sense of freedom and made her life easier. But, to use the computer she needed access technology software. Her local library in Ladbroke Grove didn't get Lunar Plus screen magnification software until last year so she would make the effort to travel to a centre in Westminster to use the computers there. Even when the library got Lunar Plus software, she was often unable to get to use that computer because the computer with Lunar Plus on it was loaned out to anyone, regardless of their need.

Some organisations which help disabled people get online have been told stories of users not being able to plug in their Braille keyboards or tracker ball mouse in a public access point. Allowing the use of simple personal equipment, such as a specialised keyboard, would allow some disabled people the chance to access the Internet in public access points more freely.

Public access in day centres and clubs for disabled people may be a way around these issues but there are some groups for whom public access is not a realistic option. This group would include housebound people and people with severe disabilities. These people will need access at home if they are to truly engage with the Internet. The CEG was also told of the potentially disability unfriendly nature of some public access points making them inappropriate for some users. For example, a dyslexic person may have issues with self-esteem which would make public access in a library unfeasible. Likewise, the fluorescent lighting, noise and distractions of a public access point might be a barrier to someone in the autistic spectrum or with some form of cognitive impairment such as dementia. For deaf and hard of hearing customers, a noisy environment can be very distracting. Distraction and noise associated with public access points can affect a wide-range of people with cognitive and sensory impairments. A person who is deafblind would need someone who is capable of communicating with them at a public access point, for example through hands on signing²⁰. This is on top of the basics of whether the public access point itself is physically accessible. In addition, some public access computers are "kiosks", which allow very little in

²⁰ This method of communication is based upon British Sign Language. With this system, the deafblind person follows the signs by placing his hands over those of the signer and feeling the signs formed. People with Usher syndrome may use this form of communication as their sight reduces.

the way of adaptation, and which may also use non-standard keyboard/mouse facilities.

The lack of privacy at public access points must also be considered when considering making transactions of a personal nature. Public access points do not have the privacy necessary to input credit card details or check online banking. There are of course arrangements made for this in some access points, especially in centres set up specifically for older people. The need for privacy can be accommodated by arranging a one to one session with a tutor or arranging a time to go and carry out private transactions. Furthermore, some centres of this type also ensure that no personal information is retained when a browser is shut down. There are various ways to do this, one being the use of Windows guest accounts. One sensible solution to ensure people can make more secure transactions would be to suggest all public access points that receive public funding should ensure that no information is retained once the browser is shut down. For this to be effective though the user has to be confident that this will happen. And for frequent visitors this may work against ease of use.

There are other issues that affect disabled people which would not affect a non-disabled person's use of public access points when making transactions of a personal nature. Blind people are unable to see if someone is looking over their shoulder when they input credit card details or check their bank account online. Deaf people would also not be able to hear if someone comes up behind them. These problems mean that access in a public environment would entail a potentially high level of anxiety for some people in these groups.

For some however, public access points are extremely important. We were told of the high importance for older people of the social interaction element that goes on in a library, community centre, or a computer centre set up purely for older people. These public access points can provide an often beneficial social interaction for older people who enjoy using computers next to others with whom they can discuss issues. Making public access points more friendly to older people with mild disabilities may be key in encouraging older people online. The installation of tracker ball mice or allowing older people to bring in specialist keyboards as mentioned previously would be one way of encouraging older people to use public access points, and making public access points more disability friendly.

The availability of public access points can vary depending on where one is based in the country. This should be considered if the Government tries to encourage disabled people to access the Internet through public access points. Disabled people, especially in rural areas may struggle to find accessible public access points which they can get to. This is compounded by the lack of adequate public transport for those groups who may not have private transport. And we should not forget that public access points are not open 24 hours, in contrast to a broadband connection at home which can be used at any time.

For those groups who are unable to use public access points feasibly, there are questions surrounding how to get the appropriate help and support at home. Is it feasible to ask this group to use a telephone helpline and can they set up their computer or laptop without assistance, or would someone need to come round to their home to do it for them? There are problems associated with setting up a computer for Internet access at home. Typically a computer is not something that works straight out of the box. Not all disabled people are able to install their Internet connection or their access technology software themselves, either because of their lack of previous computer experience or because of their specific disability. Some charities provide a service to overcome this problem, but not all disabled people would have access to it.

2.2 Access to training

Training is vital for computer users but very difficult to access, and many disabled people struggle to pay for it. Lack of access to training and support can be a particular barrier for those who are not in employment, or who are retired. While in education, particularly in higher education, support is provided by the institution and various levels of training are also provided. There is a danger zone between the different transitions in life which make disabled people more vulnerable to becoming digitally excluded. And as well as costs of training, other barriers may be physical, for example can a blind person find the training centre, can a wheel chair user get access to it?

Higher education and the Disabled Students' Allowance provides support for disabled students to access technology. This allowance will also provide a couple of sessions on how to use the access technology. Training on access technology is typically also provided as part of Access to Work adjustments but for someone who has retired, or someone who is not in work, there is no statutory requirement to provide training. There is currently less provision for training at school age but nevertheless it is there in some form. Disabled people who have been trained in using access technology at school but then do not go into employment run the risk of losing their access to technology, either because they can't afford to buy the technology themselves, or because they lose the skills they acquired in education. The same can apply when people retire.

Training needs to be personalised and appropriate to the user. This training for disabled people needs to cover how to use a computer and the Internet, and also how to use their specific access technology or how to use the accessibility features built into standard computers. Just like public access is not suitable for all disabled people's needs, the same applies to training in a public setting. Training in group settings can work with suitable adjustments, for example when the layout of the training suite is considered for people who are deaf due to the need to communicate visually through lipreading and/or sign language. However for some disabled people one-to-one training is the preferred option. Deafblind people need trainers who can communicate in an appropriate way, for example through hands on signing or the deafblind

manual alphabet.²¹ Something which might work well for a person with dyslexia or dementia, such as visual training, might not work as well with an older disabled person with a mild visual impairment. Less confident disabled people might appreciate one to one training. Most groups told the CEG that how long the training should last is dependant on the user - it can take a few hours, a few weeks or a few months to become a confident access technology user. Extra training also needs to be provided when more up to date access technology software is released in order to keep pace with mainstream developments in the web. In addition, any change in a disabled person's needs over time, can also change requirements for access technology.

Memorising and retaining information can often be a problem for people with cognitive impairments. Regular use of a computer is necessary to substantiate the learnt memory process and is another reason why some people will need training at home, rather than at a public access point.

Training Case Study:

T attended introductory IT training provided by his local college when he lost his sight. He was often frustrated by the fact that the class consisted of an 8:1 pupil to teacher ratio. Often the students were using different access technology software and out-of-date software packages. All of the people with visual impairments were trained in the same class, regardless of the access technology packages they were using – some were using screen readers and voice recognition speech packages, and some were using magnification software. Trevor believes that the 1:1 training which was offered by his tutor after the introductory course had finished is responsible for his current proficiency in access technology. He is now part of an online troubleshooting network for blind and partially sighted computer users providing advice and support for other access technology users.

2.3. Other ways of getting online

The CEG recognises that access to the Internet via non-computer devices such as mobile phones, game consoles or media players is increasing. Access to the Internet via a mobile phone is often seen as being a good way to encourage people online, especially those on low incomes because it can be cheaper and 'pay as you go' phones don't incur ongoing contract costs. However, the CEG believes that there are specific issues for disabled people if the Government decides that encouraging people to access the Internet on their mobile phones is the answer to this problem. We can't assume that everyone has a mobile phone, in the same way as we can't assume everyone has a fixed land line and is therefore able to get fixed line broadband.

²¹ More detailed information about the communication methods used by deafblind people and be found on http://www.sense.org.uk/what_is_deafblindness/communicating_with_deafblind_people/main_methods_of_communication/

Accessing the Internet on a mobile phone is not a suitable alternative for everyone. Access technology mobile phones are currently available but they are significantly more expensive than standard mobile phones and do not cover all disability requirements.

For deaf and hard of hearing people, using mobiles access the Internet has drawbacks as well as benefits. The Internet can be used for video relay services, but video relay on a mobile phone rather than on a computer with webcam raises problems with screen size and positioning of the device while signing²². The mobile bandwidth and coverage is also insufficient across much of the UK, although other countries in Europe have managed to run trial services. Internet through a mobile might not give a deaf or hard of hearing user the network speeds necessary. Generally speaking, current mobile phones are not older or disabled people friendly. There are however benefits which can come from mobile use: younger deaf and hard of hearing people may enjoy using SMS as an alternative to textphones and this creates an opportunity for direct access to services rather than relying on Text Relay,. Considering this, we would encourage the Government to think about how access to the Internet through mobile might develop and how it can become fully accessible for all people. At this point however, it is not a suitable alternative for most disabled people.

For people with dexterity problems, surfing the web on a mobile is often more difficult than using the internet on a computer. The small keypad on a mobile phone, the space in between buttons and the button design (i.e. no concave buttons) make it often impossible to navigate to and from websites.

For blind and partially sighted people, even more problems arise: the colour contrast on standard mobile phone screens and keypads is often poor, not all phones have a raised nib on the five to allow the user to easily find his/her way around the keypad, and letters on keys are often not legible. Some i-phones can 'speak back to you' when you touch screen commands which enables a very technically savvy partially sighted person to use some of its functionality. However, generally, when the user gets to the actual website on a mobile phone screen, the access technology that is available for computers is not there. There are specialist mobile phones that incorporate some text to speech facility and some models also have options to enlarge information on the screen, but these facilities are much more basic than anything that can be run on computers.

Another alternative to computer use for getting online that is often quoted is access via a television. Besides the fact that not very many devices have been developed that have this capability, they pose the typical access problems that digital TV poses for disabled people, both when it comes to

²² BSL needs both hands to sign properly and often the phone would be at arms length in order to fit all of the signer in the picture. Placing the phone on a surface and then stepping back from it could be a theft risk when all of your attention is on trying to read the signing off a small screen.

remote control design and on-screen interface design. The CEG has published a substantive analysis of these issues in a previous report "digital TV equipment: vulnerable consumer requirements".²³ In addition, for easy navigation, internet-enabled televisions would need an external keyboard whereas most current systems rely on the user typing with either keys displayed on the screen or small keys on a remote control.

3. Continuing the journey

3.1 Website design and usability

The CEG heard much about the problems of website design and inaccessibility.

The nature of the web makes it hard for it to be truly accessible. The rapid change in web technology means that access technology software is constantly playing catch-up. The web itself is seen by developers as an exciting place of innovation and technological change.

Access technology has real problems working with software like Flash and AJAX – a screen reader can't read Flash as the text is not presented in a way that the screen reader can access. Accessibility is not embedded as a first principle in the development of these new technologies. As the interface between the user and the web gets steadily more complex, this problem gets worse. Without considering accessibility as a first principle in developing applications and web design, access technology software will always lag behind and will always have to find ways around the problems. Even simple changes that can make a website more accessible are often not implemented; the simple lack of space on online forms for a Text Relay phone number prefix means a deaf person cannot use online forms.

The CEG was told that only around 20% of websites reach a single 'A' designation as laid down by the Web Content Accessibility Guidelines 1 (WCAG 1) and a very small number are rated 'AAA'. The WCAG 2 are much more comprehensive and try to address issues such as using Flash and AJAX in website design, and address a wider range of different disabilities. However, the WCAG 2 are still hugely complex and can be problematic for web designers to know how best to implement them. Websites should also be device independent and designed so they can operate on devices other than computers, such as mobile phones or media players, and they should be able to work with the access technology software used on those. Without this, Internet access via alternative, potentially cheaper devices such as mobile phones may prove inaccessible for disabled people.

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http://www.digitaltelevision.gov.uk/pdf_documents/publications/digtv_equipment-march06.pdf

At the moment there is no accreditation of organisations which carry out website audits. Any organisation can set itself up to offer accessibility audits and can offer misleading or inaccurate advice to companies regarding their website's accessibility and their legal obligations. Or they may focus only on one area of accessibility for a specific group of disabled people, in which they are expert, whilst failing to check the site for pan-disability access.

The CEG heard evidence of numerous problems with inaccessibility and usability. For example, a blind person was trying to renew his Disabled Persons Railcard online. The website specifically providing services to disabled people wouldn't allow access through a screen reader. Eventually, the sighted helper supporting the Internet user was forced to access the website himself and carry out the transaction on behalf of the actual owner of the Disabled Persons Railcard. This makes a mockery of the provisions for disabled access to rail services.

There appears to be a disconnect between the web designers who try to incorporate accessibility into their website design, and what the disabled user might use the Internet for. The designers don't really know how disabled people might use the Internet, or how incorporating accessibility into the website might make a huge practical difference for users. For example, they might not realise the implications for a blind person who navigates a website via the keyboard, instead of with a mouse.

The availability of Content Management Systems (CMS) exacerbates this problem. With a CMS it is easy for a non-technical owner of a website to create a site which looks good but which doesn't address issues of accessibility. If accessibility features are not built-in to the CMS itself, the website won't necessarily be accessible to a disabled person using access technology software. The W3C (World Wide Web Consortium) has produced advice on selecting and using authoring tools for web accessibility but were at the time unaware of any one single authoring tool which supports accessibility.²⁴

The answer does not just lie in following web accessibility guidelines. Users must also be asked to conduct user testing of a website with a variety of access technology. Often, even when a website designer has followed accessibility guidelines, user testing shows up problems with its actual usability. Designers need feedback from users when developing websites. And designers themselves operate within tight budgets and timescales which makes building accessibility into websites much more complex for them.

There is a lack of education amongst those who upload content onto the Internet about why they are being asked to provide basic information such as Alt tags. If the awareness of the issues faced by disabled people were of higher profile, Internet users could build accessible features into their own

²⁴ W3C Web Accessibility Initiative (WAI) - <http://www.w3.org/WAI/impl/software>

blogging and UGC. In return, they would get a benefit in terms of higher rating in the search index and greater hit rates on their websites.

Consistently, CAPTCHAs²⁵ were raised as a huge barrier to disabled peoples' use of the Internet. Almost from the start, they are barred from entering a website because of the use of CAPTCHAs. CAPTCHAs are becoming more and more common on websites including sites for web based email, shopping, newsletter sites, forums and blogs. Although attempts have been made at making CAPTCHAs more accessible – for example by including audio with the visual format – many users still face barriers from the use of CAPTCHAs. CAPTCHAs can often be a barrier to getting onto an accessible website. The rest of the website might be very accessible but the CAPTCHA on the loading page makes the site completely inaccessible.

Industry should be encouraged to think of inclusive design and develop greater adherence to existing standards and protocols. There's still much work to be done with industry to encourage greater accessibility in operating systems and new applications.

The development of accessible websites is complex for web designers. A well designed and properly accessible website should make access easier, not just for disabled people, but for non-disabled people as well. At all times though it is necessary to take account of the range of disabilities; someone with dyslexia may welcome the inclusion of audio-visual format on a website but this would cause problems for a blind person if it is not provided in another format, and for someone who is deaf if subtitling is needed on any material that is only provided in audio. It might also cause problems for someone with dementia or someone in the autistic spectrum, for whom less 'clutter' on a website may be beneficial. To counter this, an alternative text based version should also be provided. To make a site accessible to a deaf-blind audience or for users with older, less powerful computers, all of the information contained in it should be available in text. To facilitate customisation of the layout, content and presentation should be properly separated. The default for a website should be a simple structure that can be selected by the end user rather than just a complex structure which would have to be simplified to work well with access technology. This allows a layout which is cleaner and more accessible to people in the autistic spectrum or those with dementia and enables others to use the enriched layers. This makes the website accessible by everyone, regardless of their disability.

As well as web designers thinking about accessibility in website design, the creators and owners of websites need also to think about the language that they use. Use of plain English helps dyslexic people, people with cognitive impairments, and those who do not have English as a first language, including

²⁵ (Completely Automated Public Turing test to tell Computers and Humans Apart – or in other words, a challenge, often in graphic format which the Internet user must enter to differentiate themselves from a computer and is generally the security code that appears as distorted letters or numbers and which a user must be able to identify.

deaf BSL users. Ideally BSL clips should be available containing the most important information. Most people who use the Internet would benefit from the use of plain English, whether or not they have a disability.

Finally, the responsibility of government in procuring accessible and usable websites is important. Since December 2006, all Government, public authorities etc, have been subject to the Disability Equality Duty. There is a general duty that applies to all government/public authorities. There are also specific duties that certain listed authorities have to carry out to support them in achieving the outcomes required by the general duty. The main focus of the specific duties is the production of a Disability Equality Scheme. The Disability Discrimination Act (DDA) places a duty on the public sector to promote equality of opportunity for disabled people and to eliminate discrimination. This duty is anticipatory, meaning that government/public authorities will have to review all their policies, practices, procedures and services, including their websites, to make sure they do not discriminate against disabled people and ensure that all their services are planned with disabled people's needs fully considered in advance.

Website Accessibility Case Study:

One user of the Internet in the autistic spectrum finds that 'clutter' on a website is hugely problematic in using the Internet. He made it clear that interactive aspects of new websites are going in the wrong direction for some people in the autistic spectrum. It adds to sensory overload. Providing a text only version can help, but few websites are properly laid out in alternative text based format. For him, being able to choose a specific colour and font style facilitates his use of the Internet but these options are rarely available. Only one website he knows of includes a full range of autism friendly colour schemes.

He was also very clear that there is a whole range of needs within the autistic spectrum and something which works for one person, may not work for another. This makes providing an alternative text-based format in which content and presentation is properly separated, of key importance to facilitate customisation of layout for a range of different users with different needs.

3.2 Ongoing support

Ongoing support was also a key theme in CEG discussions with other organisations.

Typically, a computer needs maintenance during its lifespan, and the occasional repair. Without support, some people can find it hard to maintain and repair a computer, and the use of access technology software can make the machine more prone to crashing. Some charities provide home visits to deal with these problems, but there is not enough provision to help everyone who needs assistance. In addition, there is not necessarily the option to buy suitable and appropriate assistance from service providers that are aware of disabilities.

Is telephone support when someone encounters an unexpected problem on their computer a viable option for some disabled people? And if so, what kind of demand might there be for this? Some deaf or hard of hearing people, as well as people with a speech impairment, may need to access telephone support through Text Relay (formerly Type Talk). They may also prefer other alternatives to telephones, such as face to face support with communication support. People who use sign language to communicate, and whose first language is BSL, not English, may need specialist support through video relay. Video relay is not affordable to a home user without some sort of financial support and requires higher upload speeds than are generally available. There are also possible uses of remote support for some, and support from forums and blogs for more experienced users.

Even in public access points there is often a problem getting ongoing support. Some groups have suggested that libraries train volunteers to provide this support but this is not a library's prime function and this support would need to take account of all disabilities and be accessible for all. For the home, there are numerous schemes which now carry out home visits to fix a computer or set up a broadband connection like Talk Talk's 'Geek Squad' or the BT Home IT Support but you need to be able to afford to pay for them. Staff on these programmes are unlikely to have been trained in disability awareness and are even less likely to know about access technology software. This needs to change.

With funding, the ongoing support issue could be solved to offer a range of support channels for different people, including for home visits. So work with industry, the third sector and the public sector will be necessary to find a flexible solution to this issue.

3.3 The changing nature of Internet technology

The constantly evolving nature of Internet technology is often a problem. Access technology manufacturers are generally small companies who are constantly trying to keep pace with the changes in interface between the computer and the user. Numerous changes to the operating system, with system updates and newer versions of Windows, or new web applications and programmes can create problems with access technology software settings and cause problems for the user.

Web 2.0 is still constantly evolving; the very things which make the web more interactive for most users, actually make it less accessible for a disabled user if the access technology can't keep pace with these developments. It is sometimes said that there is an inherent tension between the Internet, which developers see as primarily about innovation and speed, and accessibility. This is yet another reason to embed an awareness of accessibility and usability within computer programme development, and why websites should

provide a simple structure that can be selected by the end user rather than just a complex structure which would have to be simplified to work well with access technology.

4. Enjoying the benefits and dealing with the dangers and risks of using the Internet.

Whilst many disabled people emphasise the increased independence they gain from using the Internet, others also highlight how new services on the Internet are less accessible than their off-line alternatives.

Two particular areas that were highlighted are IPTV and VOIP:

IPTV providers are not under the same obligations to provide accessible solutions for its disabled audience because it is not broadcast TV. For example, IPTV providers do not have to provide subtitling or audio description for the programmes they transmit. The implementation of the AVMS Directive lays new obligations on Ofcom to encourage the provision of access services on Video On Demand (VOD), but does not lay down any requirements of the kind that apply to traditional broadcast services. Therefore provision of access services such as subtitling and audio description that are regulated for traditional broadcasting will remain voluntary for IPTV providers. As these services grow in importance this could lead to exclusion.

VoIP is, as yet, inaccessible for deaf and hard of hearing people. There is no regulatory requirement on VoIP providers to make their services accessible to disabled people, e.g. by providing access to a relay service; therefore currently any access for disabled people depends on VoIP providers including access measures voluntarily. While it is technically possible to create a gateway between a VoIP provider and Text Relay it only works at present with some equipment and some providers, so for the majority of users VoIP services are currently inaccessible, whereas the provision of text relay services for traditional telephony services is regulated²⁶.

On top of all of this, we believe we must also be aware of the dangers that might be faced by disabled people online and whether there is anymore risk to them than to non-disabled people.

Several organisations have suggested that, where cognitive impairments are present someone's vulnerability to scams or fraud is higher. This could be anything from not being aware of the implications of a phishing email, or being unaware of the danger of false friends online, to knowing how to ensure that personal data and financial data is kept secure. Sighted people often use

²⁶ In addition, VoIP services often have worse sound quality which can create a problem for hard of hearing people. And, Textphones will not work over VoIP so replacing an analogue phone line with a VoIP service means a textphone can no longer be used.

visual perception as part of the way in which they assess whether a website is trust worthy or not. Those with cognitive impairments are less likely to be able to judge whether someone online is who they say they are, and may be less circumspect about who they give their details to.

That being said, non-disabled people face the same dangers, and in both cases, continuing education is key. It is important for both disabled people and their supporters to be educated in the dangers of the online world, in the same way as they face dangers in the real world. People are taught not to allow strangers into their home without identification. They must also be taught not to give information to those whose identity cannot be confirmed. When consumers are targeted with information about frauds/ scams it is important that disabled people get the same access to these messages.

Another example of where the Internet can be a danger is in the inaccessibility of some small print for disabled people. For dyslexic people and for people with cognitive impairments, 'small print' or the 'Terms and Conditions' when signing up to contracts can be inaccessible due to their lengthy nature and complicated use of English and 'legalese'. The question of what to do when someone has signed up to do something without reading the small print is an important one. There is an inability to get redress when something goes wrong which may represent a greater risk to disabled people.

All of the groups we consulted were concerned that a push to get disabled people online meant that services in other formats would be withdrawn. To some extent this can be seen already as a push to externalise costs. For example, a popular airline offering budget air fares' online check-in procedure might take someone online 10 minutes and yet check-in at a desk would be done in a couple of minutes. This push to externalise costs puts the burden on the consumer, rather than the company. It becomes a major concern when talking about public services provided by the Government, both central and local.

Conclusion

Disabled people can gain huge benefits by going online in terms of their growing independence and quality of life. These benefits shouldn't be denied to them because of lack of money and access to support. Talking about 'disabled people' as a group can be misleading as this is a diverse group of people with a wide-range of different needs. A flexible approach to finding solutions is necessary if we are to truly engage disabled people with the Internet. That said however, there are those for whom going online will be impossible and they shouldn't be overlooked in terms of service provision.

1. Motivation

Disabled people are often unable to afford a basic computer and broadband connection which makes accessing the Internet prohibitive for some, especially if they are part of the group that can't use public access facilities. The CEG believes that if the Government is truly serious about getting disabled people online, there must be appropriate financial support to allow them to overcome the often prohibitive costs of access technology. Many disabled people choose not to classify themselves as 'disabled', meaning that linking financial support to any benefit for disabled people such as the Disability Living Allowance would exclude some of those who really need this type of support. Financial support would also need to be appropriate to the individual and cover their training on access technology.

Awareness of access technology is insufficient amongst disabled people, their carers and organisations offering support and training. This means many don't know what technology is available to support them in accessing the Internet. There is no one uniform organisation which can provide information about training and access technology across all disabilities. Awareness is necessary if disabled people are to start out on the road to Internet access.

2. Starting Out and Getting Online

Training is a key step in getting disabled people, not only to access the Internet for the first time, but also to have a meaningful and interesting experience of the technology as the user progresses. Training must be on both Internet use and on the use of any specific access technology.

Unfortunately, as with equipment, disabled people are often barred from accessing appropriate training because of its high cost.

A shortage of trainers who are properly qualified in training people on access technology compounds this problem.

Training also needs to be carried out in a manner suitable for the participant, which, in many cases may mean one to one training.

3. Continuing the Journey: Making the Internet Work for Me

Website accessibility continues to be a real problem for disabled people who are accessing the Internet. Until accessibility and usability are embedded as a first principle into website design and programming, access technology software will always be playing catch up to the new technologies, such as AJAX and Flash, used online. Furthermore, the usability of a website still needs to be tested with disabled users in its trial phase, even if it appears by all technical standards to be accessible.

Government has a role to play in leading by example to ensure that all its websites, at all levels including local government, are fully accessible. This includes all blogs and forums which up until now have often been inaccessible. Government has legal obligations and should take the lead and embed accessibility into its procurement process for website design.

It is vital that the Government's response to the needs of disabled people's potential use of the Internet also takes full account of the rise in Internet access via mobile phone and TV technology. Failure to make these alternatives more accessible will, we believe, leave a huge potential gap in provision and mean that measures to make Digital Britain accessible to all run the risk of excluding disabled people.

4. Enjoying the Benefits and Dealing with the Dangers/Risks of using the Internet

All training for disabled people should include training about the possible risks of the Internet and how to deal with them. Although some disabled people may well be more vulnerable to some of the negative aspects of the Internet, continuing education is key to ensuring more vulnerable disabled people are aware of the dangers of the online world. This in itself shouldn't be a reason disabled people don't go online or fail to have access to the benefits of the Internet.

The CEG strongly believe however that other forms of service provision should not be withdrawn. It is vital to retain diversity in service provision and communication channels. Online services are not always appropriate, even for those who do use the Internet. Whether intentionally, or unintentionally, withdrawing properly resourced forms of provision that act as an alternative to the Internet has the potential to create new barriers to access. A withdrawal of this nature could cause real detriment to those who need service provision in alternative formats.

Glossary

'A' – 'AAA' – Designation in WCAG1 about how accessible a website is.

AJAX – A group of technologies used together to dynamically create web-pages

Alt Tags – Alternative Tags – added to graphics as a description of what is included in the graphic to allow screen readers to access them

Access Technology - 'access technology' in this document is used to mean any technology or device that is required to meet the specific needs of a disabled person and allow him or her to use the internet independently, and that is different from, or additional to, the technology or devices used by non-disabled people. It can be software such as a screen reader or voice input software, but also equipment and hardware such as a specialist keyboard, rollerball mouse or screen .

BSL – British Sign Language – This is not similar to English in structure or grammar and is a fully separate language in its own right.

CAPTCHA – Completely Automated Public Turing test to tell Computers and Humans Apart – is a challenge-response test, often a graphic, to tell humans from computers and is used to prevent automated responses on blogs, forums etc or degradation in service through depleted resources.

Champion for Digital Inclusion – The Champion for Digital Inclusion was announced in the Digital Britain Report and will focus of the 6 million socially and digitally excluded people.

CMS – Content Management System – template in which a user can create their own website and upload content

Consortium for the Promotion of Digital Participation (Consortium) – is a 'consortium of stakeholders' headed by Ofcom and will deliver the 'National Plan for Digital Participation'. It will all raise the benefits of being online and take forward a programme of targeted outreach, and was announced in the Digital Britain Report.

Flash – A multimedia content delivery platform used on the web

IP – Internet Protocol – The standard method by which information is delivered over networks and especially the Internet.

IPTV – Internet Protocol TV – TV delivered over the Internet

Open source – Open source programmes are provided free to use and modify and are often licensed in such a way that any derivative programme must also

be provided free to use and modify under the same license. Making a profit off this or any derivative then becomes a breach of the licensing agreement.

Screen Magnifier – Magnification software for visually impaired people

Screen Reader – Software which reads out the text on a page to a user

Textphone – A communication device with a keyboard and screen which enables the user to have a conversation in text over the standard phone system.

Text Relay (formerly Type Talk) - Text Relay is a national telephone relay service for deaf, deafened, hard of hearing, deafblind and speech-impaired people. Text Relay provides a link between any textphone user and a hearing person. The link is a highly trained Text Relay relay assistant who relays the conversation between voice and text.

UGC – User Generated Content – content which users upload and create themselves

VOD – Video on Demand

VoIP – Voice over Internet Protocol – Voice calls delivered over the Internet e.g. Skype

WCAG 2 – Web Content Accessibility Guidelines 2

Web 2.0 – A website which instead of providing content itself provides a framework for users to upload their own content to.

Annex A

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Annex B

List of External Organisations

Evidence was sought from and provided by the following organisations in addition to the permanent membership of the Consumer Expert Group found at Annex A: In addition, evidence on the specific issues for people with a wide range of learning disabilities and mental health problems was sought, but the organisations concerned were unable to attend the evidence sessions or provide written evidence within the short the timeframe for completion of this report.

AbilityNet

- Focuses on finding practical solutions to disabled peoples' use of the Internet and carries out assessments of disabled peoples' needs.

Age Concern Hackney

- Developed Hackney Silver Surfers and provides training for people over 50 in the area. ACH believes that technology is key to making them feel comfortable in the world that's changing all around them. ACH have a centre with 24 computers, open 5 days a week. 1200 people have accessed the centre in the last 5 years.

Becta

- Becta is the government Agency which leads in technology in education. Its remit is to coordinate strategy around the Government's policy paper 'Harnessing Technology'. Becta leads on the Home Access Programme.

British Computer Association for the Blind

- BCAB was set up in 1969 as a self help group for blind people who were working in the computer sector. It switched its focus in the early 90s following the spread of computers into the home and focused on home access. They run workshops throughout the country, 'IT for All', and provide support and advice for blind and partially sighted people.

British Standards Institution

- The BSI is the National Standards Body of the UK.

IanSyst

- IanSyst was set up in 1995. Most of its work is done with computer systems for higher education. It provides complete computer systems for any disability but with a particular bias on dyslexia.

Innovations in Dementia CIC

- Innovations in Dementia Community Interest Company is a national organisation which provides consultancy, advice and training to

organisations to help them think creatively about how they can support and involve people with dementia. It aims to enable people with dementia to live life to the fullest, promoting a more positive view of dementia.

IT Can Help

- IT Can Help is a UK wide network of volunteers which provide support and advice about computers to disabled people. It is a programme of the British Computer Society and works in partnership with Abilitynet.

National Autistic Society

- The National Autistic Society was founded in 1962 and provides support for individuals with autistic spectrum disorders and their families.

Open Age

- Open Age was set up in 1993 to work with older residents in Kensington and Chelsea to help keep older people active in society. They have around 150 activities in Kensington and Chelsea but members come from all over London. In 2000, Open Age set up a computer project with UK online and LSE money and provide 20 sessions a week, reaching 400 people a year over 50.

UK Online Centres

- UK online provides support and training to get online. There are 6000 UK online centres throughout England and 2000 member centres have support. ¼ of their users classify themselves as disabled and 150 centres specialise in those with a physical disability, 80 centres specialise in those with a hearing impairment, 300 centres specialise in those with cognitive impairments and 300 centres specialise in older people.

