# Digital Accessibility:
## A brief landscaping

A report for Citizens Online
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*"The power of the web is in its universality.*

*Access by everyone regardless of disability is an essential aspect"*

*Tim Berners-Lee*

*Inventor of the World Wide Web*

*"States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others... to information and communications technologies and systems"*

*The UN Convention on the Rights of Persons with Disabilities, Article 9*

## Executive summary

This report summarises the state of play regarding digital accessibility. The first part looks at trends in demographics and technology; the second part reports on the policy and standards landscape; the final part brings up to date the case for digital accessibility for businesses and other organisations.

- There is a large section of the population that is disabled in some way: at least 11 million people - over 15% of the population - in the UK. When ageing-related disability is included, this rises to 20% or more. These disabilities significantly affect the level of online task success and satisfaction experienced by disabled people.

- New technologies, in particular rich internet applications, multimedia sites, mobile devices, cloud computing and social networks, present new accessibility challenges for developers and users. There are still many accessibility problems, but equally many examples of good practice that can be shared, such as Facebook's recent accessibility improvements.

- Accessibility criteria such as WCAG 2.0 provide useful minimum standards, but are not sufficient in themselves to ensure that web sites and online resources are fully accessible. Thorough user experience research and engagement with disabled users is required to ensure the *usability* of sites.

- Companies that make their websites and apps accessible increase their potential market or audience by up to 20%, increase user satisfaction and usability to the general public, decrease ongoing maintenance costs and help themselves meet the requirements of current and future legislation.

- Accessibility standards, guidelines, technologies and policies are all well-established and available for use in North America and the EU. The main barriers now are *education* and *encouragement* of developers and users, and the level of *enforcement* of law and policy, which is currently very low. The UK's Equality Act sets a high standard, in principle, for accessibility, and the European Commission is aiming to increase the accessibility of all EU public sector websites by the end of 2015. But it remains to be seen how much political appetite there is for enforcement of standards compliance.

# 1. Accessibility: definitions, demographics and technological change

Digital Accessibility is defined as the ability for all individuals to easily use information technology products and services regardless of any physical or mental impairment they may be affected by[1]. More specifically, digital accessibility means that disabled people can perceive, understand, navigate, and interact with the Web, with apps, with software programs and with document formats such as e-books, PDFs and so on, and that they can contribute to the Web. Digital accessibility also benefits others, including older people with changing abilities due to ageing.

There appears to be no up to date, comprehensive survey of the state of digital accessibility - a worrying fact in itself. Reviewing various measures of web and software accessibility over the last decade suggests a figure of at least 80% of sites failing to meet minimum requirements for accessibility[2], while a 2006 UN audit found only 3 of 100 sites in a global sample met basic accessibility requirements[3]. Only one-third of 761,000 EU public-sector and government websites are accessible[4]. The W3C Web Accessibility Initiative puts it simply: "most Web sites and Web software [browsers and so on] have accessibility barriers"[5].

## Demographics

Digital accessibility has often been assumed to be something that is provided for those with better-known disabilities, such as blind or deaf people, or people with reduced mobility. But, while it is still vitally important to ensure that these groups can access as much of the web as is practical, current discussions about accessibility also highlight its application to a much wider proportion of the population.

Two current trends exemplify this, in slightly different ways. The concept of **reverse inclusion** draws attention to examples where designers who begin by considering how to assist disabled people often end up generating better and more popular designs for everyone[6,7]. The **ubiquity of disability** emphasises that society is not divided into two clear groups, disabled and non-disabled people; rather, everyone is likely to journey from relative disability in childhood, through periods of greater ability and then in later life back to relative disability again, as functions such as eyesight, memory and dexterity deteriorate.

The 'standard web user' – adult, fully-able-bodied, literate – can now be seen as the minority group; we are all, at the very least, *not-yet-disabled*.

There are **11 million disabled people in the UK**, 76 million across the EU[8] and more than 550 million worldwide[9]. There are many reasons why a person might be disabled, some permanent, some temporary[10]. But particular groups within society are particularly likely to struggle with low-accessibility web resources:

- Mobile device users: a very high percentage of the general UK population, and very significant globally. Disabled people are more likely than average to browse using a smartphone, rather than a laptop or desktop computer[11].

- People aged 60 and over. Over-65s will become well over 10% of the EU population by 2025[12]. While many might not think of themselves as disabled, they are likely to experience gradual deterioration of their abilities across many modalities, for example, eyesight and/or dexterity. These can combine to make web navigation and participation difficult.

- 2.2 million people in the UK have difficulty with memory, concentration or learning, and 2 million people in the UK have dyslexia. Many more have low levels of literacy or numeracy.

- 1.8 million people in the UK have a vision impairment, of which 180,000 are registered blind.

- Almost 2 million people in the UK have a hearing impairment, of which 50,000 use British Sign Language to communicate.

- 2.6 million people have difficulties using their hands, which may impact their use of keyboards, screens and mice.

- Over 1 million have a progressive, cyclical or fluctuating condition such as multiple sclerosis, which will periodically affect their ability to use the web[13].

In the UK, only 41% of disabled people use the Internet, compared to 75% of non-disabled people[14]; 82% of blind or partially sighted people not online cite their sight loss as the reason[15]. Impairments are a reason to use digital technologies, and in principle impairment should not get in the way as modern adaptive technologies are advanced. Fewer disabled people are online partly because they face multiple social exclusions (disabled people have *on average* lower income and lower quality internet connections, to name but two factors[16]). However, even once they are online, many disabled users face accessibility frustrations due to the way in which websites and software are built. In a detailed study of 100 blind web users, they reported losing on average 30.4% of their time online due to web access issues[17].

## Technological changes and accessibility

Key current issues are around rich internet applications, multimedia content, social networking, cloud computing, and mobile device usage[18]. Social networks such as Facebook and Twitter have not been very accessible in the past[19], but have made improvements. A small team at Facebook recently championed accessibility for the site, and their accessibility support is now extensive[20]. Skype is generally very accessible. Twitter and YouTube are less so, but third-party tools exist to enable better access. The blog creation tool WordPress[21] is highly rated for accessibility[22].

YouTube provides an **automatic video captioning service** when a new video is uploaded but this is unreliable. In response to campaigning pressure the company has improved the captioning process and is now experimenting with crowdsourcing captions from fans of a limited number of channels[23]. The growth of captioning has increased the availability of audio material to deaf people. Using **ARIA** (the Accessible Rich Internet Applications specification) markup for rich content (forms, media, images, interactive elements) helps those using screen readers and other assistive technologies. Even previously notorious **Flash animations and PDF documents** can be fully accessible now[24], if authors are aware of requirements. This PDF, for instance, has been marked up to make it accessible, by Dig Inclusion[25].

The rapid rise in popularity of **Cloud computing**, such as iCloud (Apple), OneDrive (Microsoft), Google Drive and Dropbox, has raised accessibility issues, but again, progress is being made[26],[27]. Indeed, Google has recently launched a range of accessibility improvements to its Drive suite, enabling screen reader and Braille device users to author documents and collaborate with other authors in real time[28]. Accessibility support such as text-to-speech and screen magnification is now available for all major browsers and operating systems, but the obstacle is education: informing users of their options.

57% of all computer users (aged 18-64) are likely or very likely to benefit from the use of Assistive Technology (AT) to help their computer use[29], but only 6-8% of web users use AT to access the Internet[30]. Apple is leading the way on their mobile devices with mature and popular technologies such as **VoiceOver** (text to speech) and **Siri** (voice control)[31]. These provide an accessible experience for blind and partially sighted people *as well as those* with impaired dexterity or reading ability. Support for Braille displays in Apple's iOS is seamless[32], but accessibility support in other mobile operating systems (Android, Windows Mobile, BlackBerry) has further to go to catch up. As the general public increasingly habituate to touchscreen paradigms like *pinch-to-zoom*, the use of "accessibility features" becomes normalised. User empowerment through learning that one's computer experience can be **personalised** (for example, by zooming for greater legibility) will also reduce accessibility problems[33].

## 2. Accessibility law, policy and standards

In the UK, digital accessibility is covered by the Equality Act (2010) and the associated Code of Practice (2011), though direct reference to it in the Act is minimal. The Equality Act superseded previous relevant legislation, and created the Equality and Human Rights Commission (incorporating the old Disability Rights Commission) whose role is to oversee the implementation of the Act. The Act creates a duty on both public and private service providers to make *anticipatory adjustments* to their services to ensure that people are not discriminated against.

There are two significant industry standards relating to web accessibility. The **WCAG** (Web Content Accessibility Guidelines) version 2.0 are global accessibility standards that may be adopted by any developer. **British Standard BS 8878**[34] is a guide to good practice for all organisations, providing an organisation-level, process-based framework for increasing the accessibility of information resources[35].

AA or Double-A compliance with WCAG is a commonly used standard, forming the basis of a European Commission proposal (2012) for an EU-wide standard for public sector websites[36]. The WCAG specification has also been adopted by the New Zealand government[37] and is likely to provide the basis for relevant parts of the forthcoming "refreshed" Section 508 (accessibility) legislation in the USA.

However, research suggests that fully-WCAG-compliant sites are still not necessarily very usable – or to put it another way, about half of the problems blind users actually encounter on websites are already covered by the WCAG 2.0 criteria[38]. Focusing on WCAG 2.0 compliance is potentially problematic in the UK, where the Equality Act requirements relate to the real-world effectiveness of action to promote access and equality, rather than conformance to technical standards[39].

### EU Policy

While there has been some improvement in accessibility policy-making across the EU in recent years, the landscape is still very uneven between different member states. The implementation of national policy tends to fall far short of the WCAG standards, creating an "e-accessibility deficit" across the EU[40]. A proposed European Commission directive aims to rectify this by enforcing an improved EU standard of accessibility for all public sector websites by late 2015[41]. However, the European Blind Union has expressed concerns "that the European Commission is arguing for the removal of apps from the scope of the proposed directive" and that it may not "cover websites published by private entities providing essential services, such as utilities, transport, banking and so on[42].

## 3. The business case for accessibility

There are three common arguments for implementing greater accessibility: the legal case, the ethical case and the financial case. While a few high-profile **legal** claims using accessibility legislation have been pursued in various countries by individuals and advocacy groups, this has not yet resulted in widespread pressure on other companies or organisations to comply, though anecdotal evidence from North America suggests legal cases are of value in increasing the number of good practice sites.

The social responsibility or **ethical case** for accessibility - it's the right thing to do - is not likely to be particularly persuasive for most companies, but the **financial case** is more powerful. There are in most cases clear potential financial advantages in making sites, apps and other digital resources fully accessible and usable: they are easier and hence cheaper to maintain; and the easier they are to use, the more likely people are to buy products from them. The overall user experience is more satisfying, creating customer satisfaction and potentially loyalty.

Companies can increase the size of their audience or market by making their websites accessible. Disabled people in the UK have an estimated spending power of £120 billion[43]; 73% are heads of households while 48% are principal shoppers[44]. An accessibility overhaul of insurance firm Legal & General's web presence in 2005/6 resulted in a 50% increase in search engine traffic, £200k per annum savings in maintenance, and a 135% increase in completed product applications[45].

However, making sites accessible is not always cheap to implement. Where accessibility concerns have not been considered during the development process, retrofitting features can be expensive work, and sometimes for relatively little return. For example, YouTube and similar user-generated video sites are faced with considerable accessibility problems, due to the practical and cost implications of providing video captions on a massive scale[46]. But as auto-captioning improves the problem will decrease; crowd-sourcing of captioning is another possible solution.

Current legislation centres on the notion of "reasonableness"; companies do not have to take every conceivable action to increase accessibility, no matter the cost. A more pragmatic, cost-benefit approach is acceptable, as Jonathan Hassell comments: *"If it costs you millions of pounds to make something that works well for 10 users, that doesn't sound too reasonable, but if it costs you £20,000 to make something work better for a million users then you really should be doing it*[47]*."*

## Conclusions

The UK's Equality Act is one of the furthest-reaching pieces of legislation in the world regarding accessibility. The policy intentions are there, the standards, frameworks and technologies are there, the business case – compelling though not always totally straightforward – has been made. So why are accessibility levels so low? There seems to be little in the way of "teeth" to this issue, no case law precedent yet on web accessibility in the UK[48], and no significant pressure from government on service providers who do not make their sites or apps accessible.

Though the Equality Act is ambitious, it perhaps needs further elucidation to make clear what is and is not expected of companies and service providers in terms of compliance with standards and law. The presumption of making "reasonable adjustments" to services is fair in many ways, but is open to interpretation, meaning that any legal challenge to a service provider would have to be based on a very thorough prior assessment of the validity of the case.

The constantly changing nature of technology, and the interpretive nature of compliance to standards means that there will always be grey areas. Accessibility is better thought of as a journey of improvement and refinement, rather than a fixed state. Ideally, developers would combine conformance to WCAG standards with thorough user research to establish what is and is not accessible and useable on a case-by-case basis. However, user research is expensive and many clients are unwilling to pay for it. So accessibility problems are often only flagged up when disabled users encounter them, after the site has been published.

Campaigner Sandi Wassmer suggests that the primary current obstacle to greater accessibility is a lack of political will and drive to enforce legislation:

"*Legislation and regulation aren't working ... little action has actually been taken. The legislation that is in place is woolly at best and at present there is no official regulator... Accessibility remains the domain of disability advocates and the third sector who, after a ridiculously long recession, do not have the resources to make any real inroads*[49]."

Citizens Online will be launching the release version of their pilot project Fix the Web in 2015 which is based on real user feedback. The project aims to crowd-source digital accessibility fixes and raise awareness with developers and commissioners of digital products by challenging inaccessible products and sites and looking for opportunities to fix issues that have an impact across the web.

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