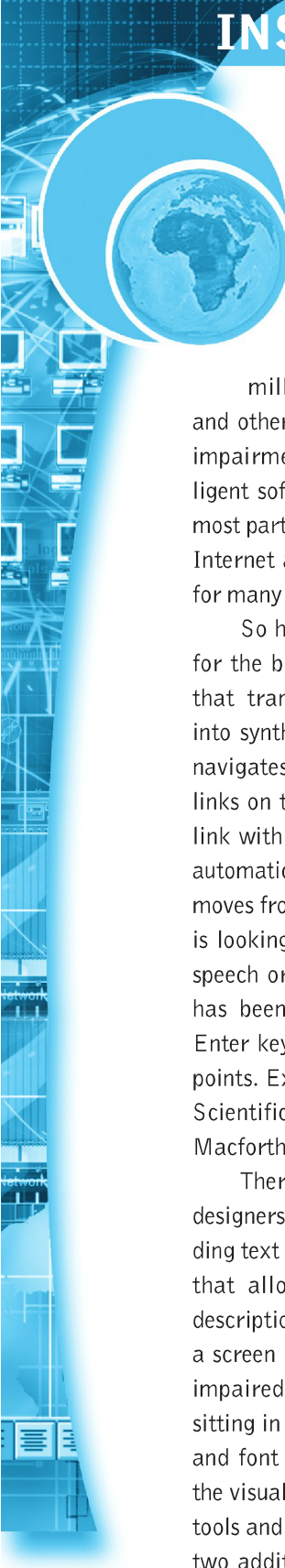


INSIGHT ON SOCIETY

DESIGNING FOR ACCESSIBILITY



About 10% of the population worldwide has a disability that affects their ability to use the Internet. There are approximately 360 million people worldwide with hearing loss and 285 million with significant vision loss. These and other disabilities, such as motor and mobility impairments, often can be addressed with intelligent software and hardware design. But, for the most part, this has not yet occurred. As a result, the Internet and mobile devices are unfriendly places for many disabled.

So how should designers build in accessibility for the blind? One tool is screen-reader software that translates text information on the screen into synthesized speech or Braille. A blind person navigates a Web page by checking the hypertext links on the page, usually by jumping from link to link with the Tab key; the screen-reader software automatically reads the highlighted text as the focus moves from link to link. The screen-reader software is looking for ASCII text, which it can convert to speech or Braille. Once the desired hypertext link has been located, the blind person presses the Enter key (clicks on the link) to go where the link points. Examples of such software include Freedom Scientific's Job Access with Speech (JAWS) and Macfortheblind's VoiceOver.

There are also several simple strategies Web designers can use to improve accessibility. Embedding text descriptions behind images is one example that allows screen readers to announce those descriptions. So instead of hearing "Image," when a screen reader passes over an image, the visually impaired user can hear "Photo of a cruise ship sitting in a harbor." Allowing users to set the color and font schemes also can make a difference for the visually impaired. Adding screen magnification tools and sound labels where hyperlinks appear are two additional ways to increase accessibility. For

those who are hearing impaired, access to close-captioned video with subtitles, as mandated by the United States' 21st Century Communications and Video Accessibility Act, can also be helpful.

These are examples of "equivalent alternatives" that disability advocates suggest should be required, both for visual and auditory content, to ensure individuals with disabilities have equal access to information that appears on-screen. Guidelines for creating accessible Web pages include ensuring that text and graphics are understandable when viewed without color, using features that enable activation of page elements via a variety of input devices (such as keyboard, head wand, or Braille reader), and providing clear navigation mechanisms (such as navigation bars or a site map) to aid users.

The World Wide Web Consortium (W3C) issued Web Content Accessibility Guidelines (WCAG) 2.0 in June 2010 (final draft form) that provide all organizations with strategies in Web design for accommodating people with many different kinds of disabilities.

Ensuring accessibility of mobile devices has its own set of issues, in many instances ones that are even more challenging than those associated with the Web. There is only a limited selection of mobile devices with built-in accessibility features. The small size of the device, screen, and keypad presents its own problems. Third-party applications, such as text-to-speech/screen readers and screen magnifiers, are starting to become available, but much work still needs to be done. For instance, many mobile devices come equipped with voice control capabilities and audio alerts, which could be helpful to those with vision or motor difficulties, but in most cases, these are still limited to simple tasks, and do not provide access to the full functionality of the device. In addition, the deaf community cannot rely on audio content or alerts, so developers need to provide text

with impaired motor functionality also face great challenges in dealing with input to mobile devices. To deal with these challenges, the WC3 recommends that mobile content developers follow WCAG 2.0 and its guidelines on mobile Web best practices.

Web accessibility is not just a concern for Web developers or a question of technical Web standards. It is also a matter of government policy. Article 9 of the United Nations' *Convention on the Rights of Persons with Disabilities* requires that as a matter of basic human rights, appropriate measures must be taken to ensure access to information and communications technologies for persons with disabilities on an equal basis with others. Despite this, actual accessibility of both government and private Web sites remains quite low. For instance, the most recent European Commission report on monitoring accessibility found that only one-third of the content generated by public authorities was accessible. In December 2012, the European Commission adopted a proposal for a directive on the accessibility of public sector bodies' Web sites, as a forerunner of a planned European Accessibility Act that the Commission is considering. In March 2014, members of the European Parliament voted to strengthen the proposed directive, requiring EU member states to ensure that not only all public Web and mobile sites are fully accessible, but also Web and mobile sites run by entities performing public tasks such as utility, health care, and transportation companies.

Various countries have also implemented accessibility legislation. In many cases, standards apply only to government agency Web sites and not private Web sites. For example French law requires all French public Web sites to comply with its standard, RGAA 2.2.1, which is based on WCAG2. In Germany, all government Web sites must comply with BITV 2 (also based on WCAG 2). One

exception is Australia, which requires non-government, as well as government Web sites to comply with WCAG 2. In the U.K., service providers must make reasonable adjustments to ensure their Web sites are accessible to all users. In determining what is reasonable, the Statutory Code of Practice indicates that factors to be taken into account include the service provider's financial and other resources, the amount of resources already spent on making adjustments, and the extent of any disruption that it would cause the service provider. Large companies will clearly have a more difficult time justifying any failure to make their Web sites accessible. In the United States, several statutes, including the Rehabilitation Act (Section 508), the Americans with Disabilities Act (the ADA), and the 21st Century Communications and Video Accessibility Act, impose various obligations with respect to accessibility.

Disability advocates are also using lawsuits as a way to move the ball forward. In January 2012, the Royal National Institute of the Blind (RNIB) brought a court case in the U.K. against BMI Baby, a British travel agency. In April 2012, BMI Baby agreed to make changes to its Web site to enable the blind to book flights. In the United States, the National Association of the Deaf sued Netflix, charging that its "Watch Instantly" feature does not provide equal access, which it must do as a "place of exhibition or entertainment" under the ADA. In 2012, a U.S. federal district court ruled that Web sites can be considered "public accommodation," and as such do fall under the jurisdiction of the ADA. In October 2012, Netflix settled the case, agreeing to caption all of its streaming videos by 2014. Despite these successes, however, much remains to be done to make Web sites, mobile sites, and apps fully accessible to the disabled.

SOURCES: "Digital Agenda for Europe: A Europe 2020 Initiative/Web Accessibility," European Commission, accessed December 1, 2014; "Tough new EU Public Sector Web Accessibility Rules Take Shape," by Dan Jellinek, UKAuthority.com, March 4, 2014; "Disabled Consumers' Ownership of Communications Services," Ofcom, September 25, 2013; "Digital Britain 2: Putting Users at the Heart of Government's Digital Services," National Audit Office, March 28, 2013; "Government Accessibility Standards and WCAG 2.0," by Mark Rodgers, Blog.powemapper.com, November 13, 2012; "Mobile Web Accessibility," by Tim Shelton, Accessibletech.com, July 2011; "For the Disabled, Just Getting Online is a Struggle," by Wilson Rotham, Technology.msnbc.msn.com, January 21, 2011; "W3C Web Accessibility Initiative [Final Draft]," WC3.org, June 2010; "Web Accessibility: Making Your Site Accessible to the Blind," by Curtis Chong, National Federation of the Blind, accessed August 14, 2009.