

# U.S. Disabilities Legislation Affecting Electronic and Information Technology

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## INTRODUCTION

The Americans with Disabilities Act (ADA) is the cornerstone legislation to address the civil rights of people with disabilities, including making products, services, and physical environments accessible to them. Almost everyone in the U.S. is familiar with the ADA, but designers of technology products and services need to be aware of accessibility standards that go beyond the ADA: specifically, Section 508 of the Rehabilitation Act and Section 255 of the Communications Act. These laws define accessibility standards and guidelines that impact the design of electronic, information, and telecommunication technologies, and they are intended to promote products and services that are as accessible to persons with disabilities as those without (Section 508, 1998). Furthermore, with the aging of the U.S. and world populations (Forrester, 2004), the number of people who want to use technology but cannot, because of disabilities, is on the rise. Designers of technology need to understand how modifications in traditional design will make products more marketable and usable by a wider range of customers. This article reviews important aspects of Sections 508 and 255, assistive technology and accessible design, and additional sources of information and training.

## BACKGROUND

### Key Implications of the Legislation

*Section 508 of the Rehabilitation Act* states that “each Federal department or agency, including the United States Postal Service...when developing, procuring, maintaining, or using electronic and information technology (EIT)...shall ensure...that individuals with disabilities...have comparable access” (Section 508, 1998).

Section 508 required the Architectural and Transportation Barriers Compliance Board (also known as the Access Board) to develop accessibility standards for EIT, and it stipulated that the law applied to procurements after June 25, 2001 (Federal Acquisition Regulations, 2001).

The technology addressed in the Section 508 technical standards cover: “software applications; operating systems; Web-based intranet and Internet information and applications; telecommunications products; video and multimedia products; self-contained, closed products; and desktop and portable computers” (Federal Acquisition Regulations, 2001). The standards also address information and documentation including “product support in alternative formats, descriptions of accessibility and compatibility features in alternative formats, and product support services in alternative communications modes” (Access Board, 2001). Federal departments and agencies can be exempt from compliance only if they can show that compliance is an “undue burden” as a result of “significant difficulty or expense.” Prior to the Section 508 amendments, Section 501 (federal employment) and Section 504 (federally funded programs and activities) of the Rehabilitation Act addressed accommodation of individuals. The amendments to Section 508 addressed the technology itself, that is, making it accessible to everyone right “out of the box” (although this does not necessarily eliminate the need for individual accommodation). It was thought that by making accessibility requirements a part of the federal procurement process, there would be financial incentives for companies to design products that meet these standards.

The Section 508 standards apply specifically to the United States government when purchasing, developing, maintaining, or using electronic and information technology. In addition, an increasing number of states purchase electronic products and services that conform to the Section 508 standards (or similar state-developed regulations or standards). Due to the complexity of the regula-

tions and range of requirements, creators and vendors of technology products need information and training to ensure their products and services adhere to the 508 standards.

The Telecommunications Act of 1996, which was the first major overhaul of American telecommunications policy in nearly 62 years, added *Section 255* to the Communications Act of 1934. Section 255 requires telecommunications manufacturers and providers of telecommunications services to make their products and services accessible to and usable by people with disabilities if “readily achievable.” The Federal Communications Commission (FCC) makes readily achievable determinations on a case-by-case basis, but generally, companies with more resources need to do more to make their products and services accessible to people with disabilities. When it is not possible to provide direct access, Section 255 requires manufacturers and providers to make their devices and services compatible with peripheral devices and specialized customer premises equipment (CPE) that are commonly used by people with disabilities, if readily achievable. Examples of specialized CPE include teletype-writers (TTYs) and assistive listening devices.

Section 255 also requires companies that develop telecommunications products and services to include the following activities as business practices:

- When the company conducts market research, product design, testing, pilot demonstrations, and product trials, it should include individuals with disabilities in target populations of such activities.
- Companies should work cooperatively with disability-related organizations.
- Companies should undertake reasonable efforts to test access solutions with people with disabilities. (Federal Communications Commission, 2002)

Unlike Section 508, Section 255 is not restricted to just the federal marketplace; it applies to telecommunications products and services purchased by anyone in the U.S. Section 508 covers a wide variety of disabilities: people who are deaf or hard of hearing, who have mobility or dexterity impairments, who have speech impairments, and those who have low vision or who are blind. Section 255 includes all of these impairments as well as cognitive disabilities. While the standards, guidelines, and directives associated with Section 508 and Section 255 may appear to complicate the product design process, often these challenges bring about innovation and new product ideas. In most cases, these innovations lead to product features that are desired by a customer market that is much larger than the disability community.

## **Disabilities and Applications**

People with disabilities need different product and service features so they can access information and communicate with others at a level that is equal to those without disabilities. Often an assistive technology is needed by someone with a disability to overcome access barriers. For example, a text-to-speech software program, commonly called a “screen reader,” is an assistive technology that allows someone who is blind to access electronic information, such as Web pages on the Internet. Designers of Web sites and software applications need to understand accessibility requirements so they can make their content accessible to users of screen readers. For example, Web sites and other software programs need to have text “tags” that describe every non-trivial image used in their applications. The screen reader reads these descriptions aloud so the user with low or no vision can understand the information being conveyed. These tags benefit sighted people too because the tag’s text appears whenever they “mouse over” the image, which can help the users identify the function of an icon.

People who are deaf need visual assistance to access information that is typically delivered aurally. As a result of the Television Decoder Circuitry Act of 1990, televisions must now be manufactured with the circuitry necessary to show captioning. In this case, the viewer requires no assistive technology, and these caption-ready TVs are examples of making technology accessible “out of the box.” Continuing the example related to Web site design, when sound is used to communicate information, there should be text to notify the user of the presence of sound and to describe the sound itself. Often the solution is as simple as a caption that says “music.”

Another assistive technology is voice-to-text software, commonly called “voice recognition software,” which assists those with motor or dexterity limitations to transmit information through speech. While this assistive technology was initially developed for people with disabilities, voice recognition is a popular feature for many technology products and is in high demand by the mass market.

## **Training for Accessible Design**

Accessibility training is available to designers in several places around the country, and there is a wealth of information on the Internet. Web sites listed in the resources section of this article provide contacts for online training, courses, and conferences. Many of these courses are “hands on” so designers and information specialists can see the assistive technology software packages in action. Online training sessions are available through the

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