

Accessibility and the Cloud



Key Points

- For people with disabilities—including visual, dexterity, cognitive, and speech impairments—access to computing and the Internet starts with a personal device that offers accessibility settings and can customize the user experience.
- Microsoft envisions a world of accessible, connected devices that can understand and interpret users' needs, preferences, and immediate surroundings. This fully adaptive experience, in combination with cloud-based services, will allow preferences to follow users wherever they go and on whatever device they use.
- When it comes to accessibility and the cloud, policymakers should support existing standards that encourage a vibrant, market-driven ecosystem of accessible devices, software, and services.

BACKGROUND

Technology is playing an increasingly vital role in people's lives at work, at school, and at home. For people who live with disabilities—more than 1 billion people worldwide, according to a [World Health Organization report](#)—the ability to use computers and access the Internet can be crucial to being an active part of the workforce and of society as a whole.

At the same time, it has become common for people to own multiple devices and to move among them throughout the day. A 2013 [Pew Research Center study](#) found that more than half of American adults have a smartphone and more than a third own a tablet computer. For users with impairments, it is important to have a uniformly accessible experience across all the devices they use.

The cloud can be helpful in this respect by serving as a repository of user preferences and settings and providing that information to cloud-connected devices. It can also provide a way to sync devices when those settings change. However, the physical device remains the key to delivering a personalized user experience. The device is where technological advances such as machine learning and natural user interfaces that respond to touch, voice, vision, and gestures are revolutionizing accessibility by adapting to and even anticipating users' needs.

As the population ages, and as assistive technologies and services become more sophisticated, technology companies must be allowed to continuously innovate and integrate machine learning, natural user interaction, and cloud services to advance digital inclusion.

MICROSOFT APPROACH

For more than 25 years, Microsoft has been introducing accessibility features into software products. These include options in the Windows operating system and other Microsoft products that help users personalize the computer display, mouse, keyboard, sound settings, and speech settings. During this time, Microsoft has worked closely with companies that specialize in accessibility products—such as screen readers, magnifiers, and specialty keyboards.

Built-in accessibility features in personal computing devices include those that read text aloud, add captions to video, and allow hands-free entry of information using speech. For example, Microsoft first introduced Windows Speech Recognition in 2006 in Windows Vista. More recently, Microsoft added speech recognition technology to the Kinect motion-sensing device for Xbox. These tools make possible hands-free, voice-activated commands for users, including those who have temporary injuries, permanent disabilities, or situational limitations that prevent them from using the keyboard or mouse.

These and other “building blocks” in mobile devices and personal computers foster the growth of a vibrant accessible technology ecosystem. They will also lead to increasingly intuitive and adaptive user interfaces as well as complex capabilities such as data visualization and real-time simulation of 3-D environments.

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The key characteristics of these next-generation accessible devices include multi-modal interaction (including speech, touch, gesture, and eye gaze), contextual awareness (sensing factors such as ambient noise, lighting level, whether the user is in a car, and the user’s mood), and the ability to be personalized for each individual.

In some scenarios, cloud-based tools can be helpful by adapting content, translating between languages, or using crowd-sourced services to improve the accessibility of photos, graphics, or entire web pages. But there will continue to be a need for powerful assistive technology within each device to provide a consistent experience of the device and all its capabilities.

POLICY CONSIDERATIONS

Microsoft believes that a healthy, market-driven ecosystem of many products, business models, and development approaches is the best environment for encouraging greater accessibility for all users. Policymakers can help in this effort by supporting existing accessibility standards—such as ISO/IEC 40500 (W3C Web Content Accessibility Guidelines 2.0), which covers all web-based user interfaces—rather than crafting new standards in response to the growth of cloud-based computing.

Specifically, policymakers should focus on the following priorities:

- **Globally harmonized standards.** The speed of innovation in the technology sector can outpace legislative measures that are meant to encourage accessibility and promote cloud services. Microsoft believes that globally harmonized standards are the best way to encourage a broad array of interoperable products—not laws that prescribe specific features or services and exclude others.
- **Market incentives.** Policymakers should strive to reduce the cost of developing accessible technologies by promoting market incentives and a broad ecosystem of interoperable solutions. Policies that favor user choice, technology neutrality, and interoperability will leave room in the ecosystem for older technologies while spurring the development of new ones.
- **Public-private partnerships.** Microsoft believes that governments, industry, and consumer advocacy organizations can deliver the greatest benefits to users of all abilities by collaboratively exploring new ways that devices and cloud services can help users with accessibility needs.



Helpful Resources

Microsoft Accessibility website
www.microsoft.com/enable

Assistive Technology Industry Association
www.atia.org