

SHRM Research

Workplace Visions explores developments in society, economics, science and technology, politics and government, and the law to stimulate thought and discussion on new issues and trends affecting the human resource profession. Material for the newsletter is gathered through contacting experts in the field and conducting extensive literature reviews.

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**Disability in a Technology-Driven Workplace**

New Internet and Web-based technology applications have meant significant cost and time efficiencies to many American businesses. However, many employers have not yet fully grasped the impact of these new information and communication technologies on applicants and employees with certain disabilities such as vision impairments, hearing problems or limited dexterity. Although not all applicants and employees who have a disability may experience IT-access problems, to select groups it can pose a needless barrier. The increasing dominance of IT in the workplace presents both a challenge and an opportunity for workers with disabilities and their employers. It will be up to HR professionals to ensure that Web-based HR processes and workplace technologies are accessible to their employees with disabilities.

INSIDE THIS ISSUE**A Growing Digital Divide for Workers With Disabilities**

The employment rate of individuals with disabilities has not shown improvement over the last decade and could continue to stagnate unless steps are taken to harness the power of technology to enable participation in the workforce. Research shows a sharp digital divide between individuals with and without disabilities and this divide will only grow worse if employers do not move quickly to address the barriers technology can present.

A Potential Rise in the Number of Workers With Disabilities Due to an Aging Workforce

Addressing barriers for individuals with disabilities will take on added significance as the workforce ages. Because the risk of disability rises with age, the aging workforce is likely to mean an increase in workers with disabilities. This will give employers further incentive to make sure that technology is accessible to all employees.

HR's Role in Bridging the Divide

HR will play an absolutely critical role in increasing access to technology for workers and job applicants with disabilities. Enabling full participation in a technology-driven workplace will be critical for maintaining a diverse workforce, making efficient use of human capital and complying with antidiscrimination legislation.

Barriers to Access

A key barrier to access for employees with disabilities is a false perception among some employers that accessibility problems are too difficult to address, together with a lack of awareness of technologies and resources that make access possible.

Preparing for Tomorrow by Promoting Accessibility Today

It will continue to be up to HR practitioners to ensure that their organizations comply with the Americans With Disabilities Act of 1990 (ADA) requirement to make reasonable accommodations for applicants and employees with disabilities. As enabling technology changes, so too will the perception of what is and is not a reasonable accommodation and employers are likely to be held to a higher standard than they are today. The good news is that many of the most common adjustments required are easier to implement than many HR practitioners may currently believe.

A Growing Digital Divide for Workers With Disabilities

In the fall of 1998, there were about 3 million World Wide Web sites available to Internet users; by early 2002, there were nearly 40 million (Zakon, 2003). In addition, Web applications have grown enormously in HR functions, particularly recruiting. In a January 2001 SHRM poll, 88 percent of the HR managers surveyed reported using Internet job postings, just slightly lower than the proportion using personal contact/networking (95 percent), newspaper advertisements (96 percent) and employee referrals (91 percent).

However, this increase in the use of technology for recruitment and in the workplace represents a major new barrier for persons with disabilities because this rapid growth in computer and Internet use has not provided the same access to individuals with disabilities. A report by the U.S. Department of Commerce (2002) found that 63.1 percent of people aged 25-60 without disabilities had used the Internet, while people with disabilities in that age range were much less likely to have accessed the Internet (ranging from 30.3 percent of those with multiple disabilities to 54.8 percent of those who were deaf or had a severe hearing impairment).

Compounding this lack of access to technology is the fact that many Internet sites themselves are not accessible to those with vision impairments, hearing problems or limited dexterity. A recent Cornell University review of e-recruiting sites found that only a third of the job boards and a quarter of the corporate e-recruiting sites were accessible throughout the entire application process (Erickson, 2002).

Though the employment rates of the persons with disabilities have always been lower than those of individuals without disabilities, there has been little change in these rates even as technology has developed that enables many people with disabilities to work. Ironically, technology could represent a new barrier for individuals with disabilities even though more and more technology is concurrently being developed that enables them to carry out work tasks more easily.

A Potential Rise in the Number of Workers With Disabilities Due to an Aging Workforce

To try to understand this apparent contradiction and its potential impact on people with disabilities, Cornell University, in collaboration with SHRM, recently designed and implemented a study (Bruyère, Erickson, & VanLooy, 2003) that examined employers' perceptions of technology and disability in the workplace. The results from this research underscore the pivotal role HR plays in ensuring that an increasingly technology-driven workplace is accessible to employees with disabilities. The findings

also provide insight for the general workforce. Due to the aging of the population, the number of people with disabilities is expected to rise, as the risk of disability grows with age. According to U.S. Census projections, those portions of the U.S. population between the ages of 45 and 64 are projected to account for nearly half (44 percent) of the working-age population (aged 20-64) by the year 2010. As the workforce ages, work limitations due to disabilities also increase. According to the 2000 March Current Population Survey (CPS), 6.7 percent of those aged 25-34 reported a work limitation. For ages 45-54, the proportion of those reporting work limitations increased to nearly one out of 10 (9.8 percent) and to 16.1 percent of those aged 55-61 (Burkhauser & Houtenville, 2001).

Though the increase in work limitations, coupled with a rapidly growing population of older workers, greatly increases the population that may require workplace accommodation assistance, particularly in the computer and IT areas, there are many options for increasing accessibility. By addressing these issues today, HR professionals can help their organizations prepare for this demographic shift.

HR's Role in Bridging the Divide

A vast number of HR transactions currently occur online, and according to all reports this number will continue to increase. It is vital to gain an understanding of the accessibility of e-HR to be prepared to cope with a Web-based revolution in the workplace, as the Web will become central to the essential functions of many jobs in the near future.

Given that so many HR functions and much of the employment process are increasingly being delivered by Web-based approaches, knowledge of how to access and navigate the Internet is essential for all job seekers and incumbents. The need to be able to access these online opportunities is equally important to people with disabilities. IT can offer people with disabilities a window on the world and access to jobs that previously have not been available to them. However, the inaccessibility of most Web sites, as well as the lack of adequate preparation offered to many youth and older individuals with disabilities to deal with this medium, may widen the already-existing disparity in employment opportunities for people with disabilities.

The HR function is the architect of workplace policies and practices governing the employment process. Also, HR professionals, working with supervisors, often play a critical role in responding to requests for workplace accommodations for employees with disabilities. HR professionals can create a more disability-friendly environment by putting in place policies and procedures that minimize, if not eliminate, needless discrimination against applicants and employees with disabilities. These disability-

nondiscrimination policies and practices must be applied to employment-process functions on the Internet. HR professionals can assist their workplace settings to fully realize the potential discriminatory impact of these e-HR applications, and work to make sure that they are equipped to proactively eliminate this needless barrier to the workplace and the employment process. They will have to do this not only to adjust to a changing working population and because it is the right thing to do, but also because employment-nondiscrimination laws require reasonable accommodation in all areas of the employment process.

The ADA requires employers to make reasonable accommodations for applicants and employees with disabilities, including providing accessible computer technology. The idea of what constitutes a reasonable accommodation is likely to shift as technology improves and makes it easier to make changes to computers, software and workstations. As these improvements are made, employers are likely to be held to a higher standard than they may be today. Therefore, employers need to start by being aware of barriers that computers can create and then become familiar with the types of assistive technologies available, receive training in Internet and computer accessibility, and know what resource organizations are available to provide technical assistance. Such proactive efforts toward removing technology barriers will go far to reduce the likelihood that claims of IT-accessibility discrimination will occur. Unfortunately, the Cornell/SHRM research revealed a worrying lack of awareness among HR practitioners of many of the key barriers and issues that could cause accessibility problems for applicants with disabilities and

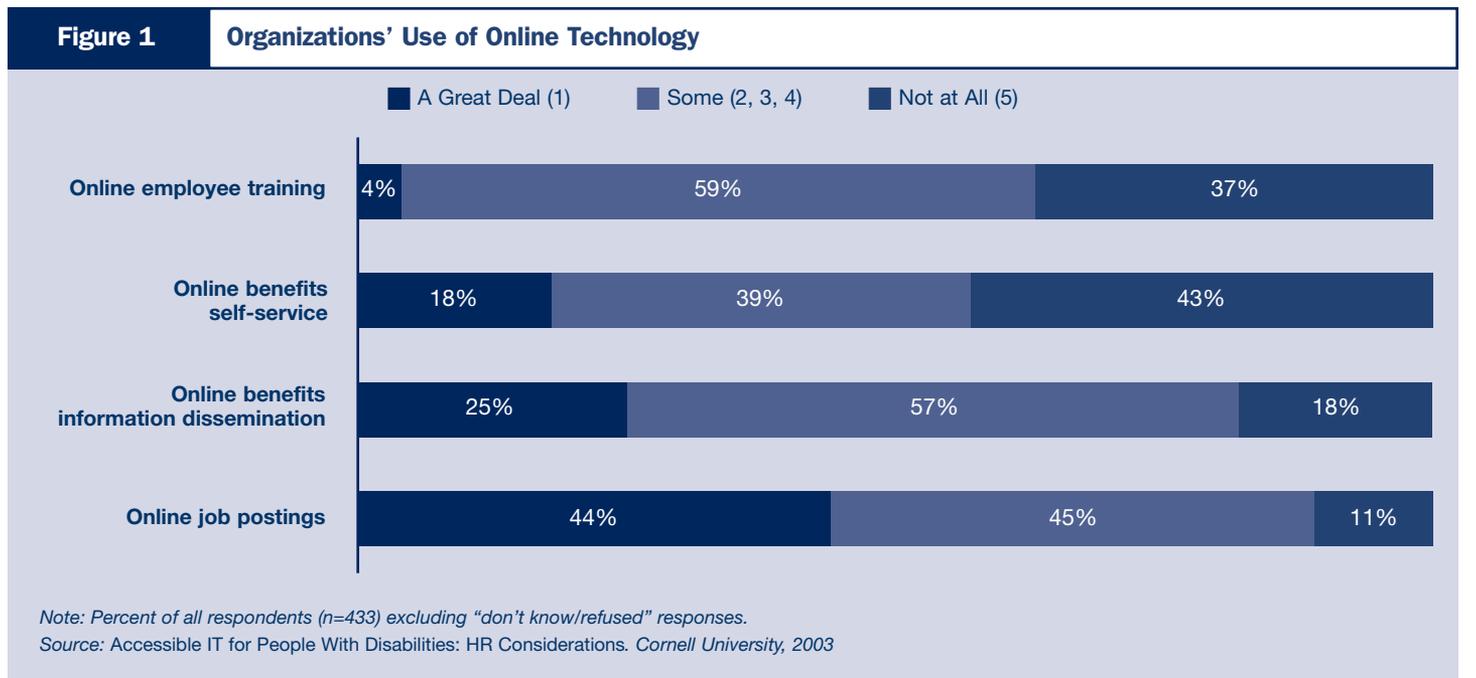
employees generally, and in particular of some of the most common technologies and resources that remove many of these barriers.

Barriers to Access

A lack of awareness means that in many cases, the real problem is not the technology itself—which frequently stands out as more of a solution than a cause of access problems—but rather inaction based on false perceptions of how difficult it is to make adjustments to ensure access. Significant education will be needed to overcome this problem.

One of the most important issues to emerge from the Cornell/SHRM research is the great extent of computer use by employees in all industries. Technology-based functions are such an integral part of today’s workplace that barriers to these will effectively shut out individuals with certain types of disabilities from the workplace. The majority of HR professionals in all of the industries reported that employees used computers at least part of the time. Fewer than one out of 10 employees in finance, insurance and high-tech/computer/telecommunications do not use computers at all, and fewer than one out of five do not use computers in the public administration and service industries. Actual time spent using computers is extensive in all industries. Even in the industries with the lowest computer use (transportation/utilities, manufacturing and retail/wholesale trade), two out of five employees spend at least half the workday on computers.

In the decades to come, technology will be even more pervasive in all work processes. HR processes are no exception. Today the HR function makes extensive use of IT for transactional processes and



here again barriers to access for persons with disabilities have a critical impact. HR technologies, such as online employee training, self-service benefits, benefits information dissemination and job postings, all rely on users having access to IT systems. (See Figure 1.)

Larger companies are significantly more likely to use these HR technologies than smaller companies, and to use them more heavily. This could change in the future as technological applications become more affordable and available—and indeed a sizable proportion of organizations in the survey that did not *currently* use such technologies expected to begin doing so within the next 12 months. This makes it even more imperative that organizations and the designers of these kinds of e-HR applications begin now to build accessibility into program design. The longer they wait to do this, the more vulnerable they are to the charge that they have allowed unnecessary and discriminatory barriers into their HR and recruitment processes.

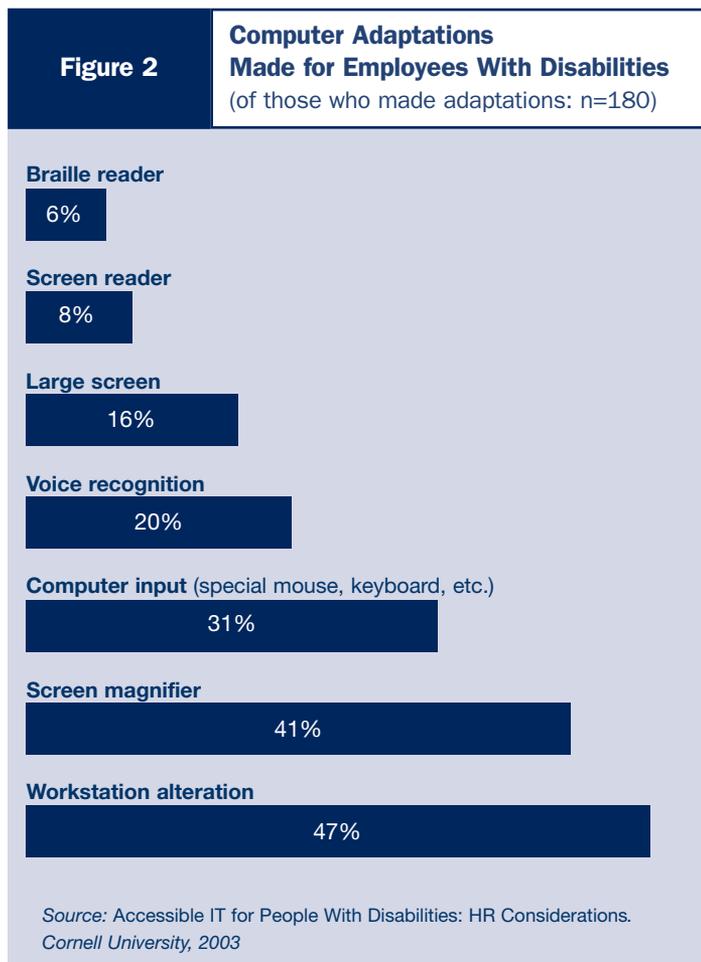
False Perceptions of the Difficulty in Adapting Technologies to Enable Access

As stated earlier, perhaps the biggest reason for inaction on this

issue, aside from an overall lack of awareness, is the perception that making such adjustments is too difficult and costly. Fortunately research indicates that in most cases this perception appears to be false. A recent SHRM survey on employer incentives for hiring individuals with disabilities revealed that the majority of accommodations cost less than \$1,000 with 38 percent of adjustments costing nothing at all. This is in line with the findings of the Cornell/SHRM study, which showed that most HR practitioners who reported making such changes were able to do so successfully. In making alterations to allow for computer use, only 1 percent reported being unable to accommodate! The most frequent adaptation appears to be the alteration of the workstation by making it accessible to wheelchair users or those with problems such as carpal tunnel syndrome, or adding items such as screen magnifiers, large screens, screen readers, Braille readers or special computer input apparatus such as mice, keyboards, pointing devices and voice-recognition software. (See Figure 2.)

Low Awareness of Assistive Technologies

With so many adaptive technologies available, it is not surprising that most people are not aware of all of them. But the ability to use technology effectively is one of the key HR competencies it will be essential to master in the coming years. An important part of this technological awareness includes knowledge of how technology interacts with a diverse workforce, including employees with disabilities. New technologies are continuously being developed to enable employees with disabilities to use IT, and it is essential that HR professionals increase their awareness of these kinds of technologies. A lack of awareness by many HR practitioners of even the most common assistive technologies used to adapt computers or IT applications is a significant part of the problem of the growing digital divide between workers with disabilities and other workers (see Figure 3). In the Cornell/SHRM research, less than half were familiar with screen magnifiers—software or equipment that allows enlarging an area of the screen for those with low vision—and only a third reported being familiar with speech-recognition software, which enables a user who cannot use a keyboard to control a computer with verbal commands. Video captioning, most often used to make media such as training videos accessible to individuals with hearing disabilities, was familiar to only one out of four respondents. Assistive technologies designed for blind individuals were unfamiliar to the majority of respondents. Braille readers, which use computer software to render text from the screen as Braille dots on a special display, were familiar to only one out of five respondents, while only 16 percent of respondents were familiar with screen readers (software that reads computer text aloud).



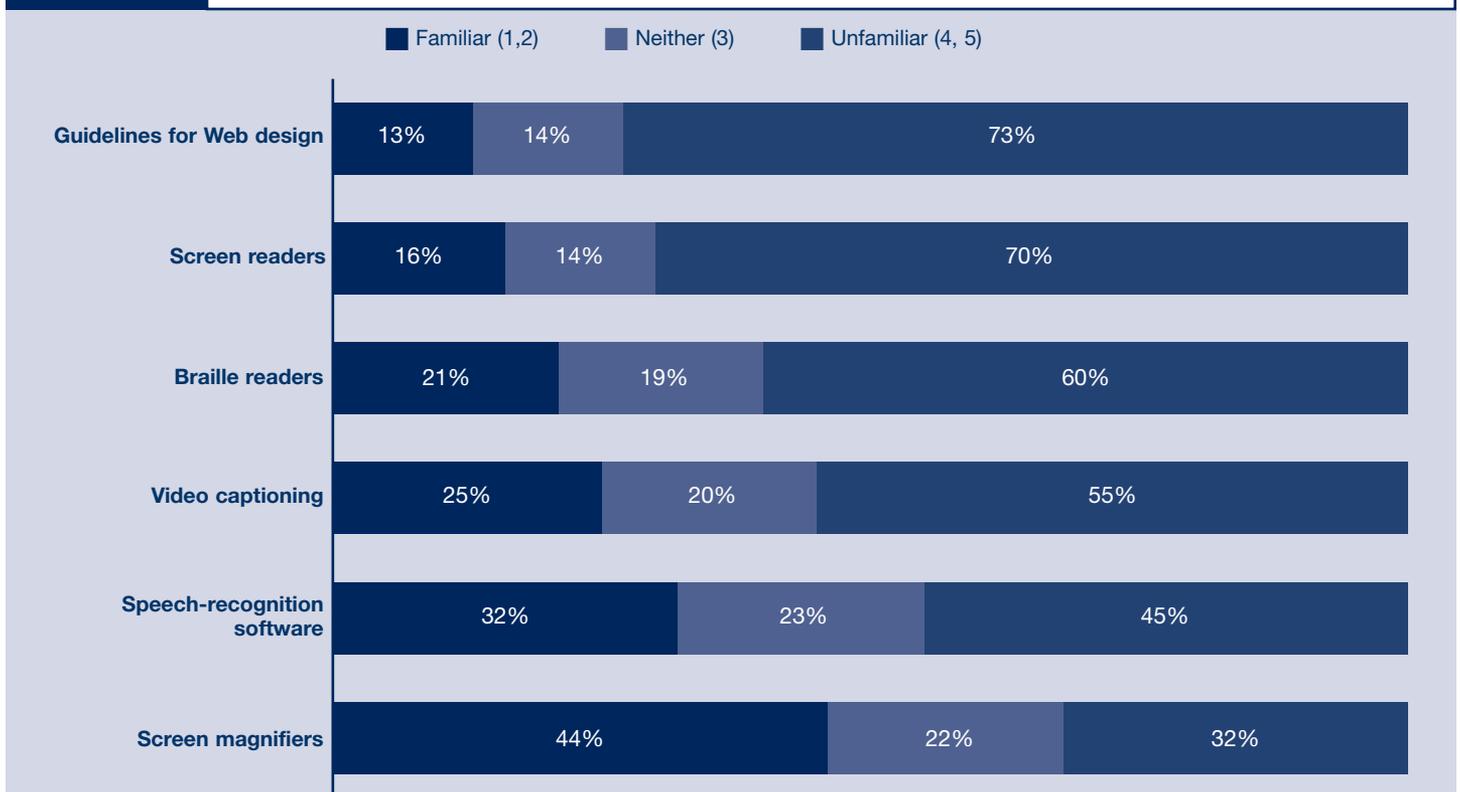
Considering the number of organizations utilizing Web-based HR processes, this low level of familiarity highlights an area of real concern. The good news is that experience in making adjustments seems to have a transformative effect on awareness and perceptions of difficulty, with positive results. HR professionals are most likely to be aware of barriers to access and new assistive technologies after having themselves made adaptations for employees with disabilities.

One issue that remains a problem for both those with and without experience in making adjustments is the company Web site. Most organizations have not evaluated their Web sites for accessibility, but there will be increasing pressure to do so. It is interesting to note that the public administration respondents were more likely to say their sites had been evaluated than those in other industries. This may reflect a greater awareness of governmental legislation regarding accessibility, mainly Section 508, which requires that IT and electronic technology developed, procured, maintained or used by the federal government be accessible to people with disabilities. This could soon begin to have a more widespread effect.

Most organizations will have internal resources that could be consulted to help address computer-/Web-accessibility issues for employees with disabilities. It will be crucial that these internal resources be aware of these issues and equipped to help. For example, health and safety/ergonomics staff may be more aware based on their prior experience in making IT accommodations for particular employees. In addition, awareness levels may grow in procurement and IT departments in the years to come, as so much of the equipment required for making adaptations will be obtained through these departments. But HR will lead the way through its recruitment and employment processes and in establishing training needs.

Employees with disabilities will themselves be one of the main sources of knowledge and will play a crucial role in educating their employers on what kinds of adjustments are needed and which new forms of technology can help them in their daily working lives. HR professionals are already aware of this, given that an employee is often the most knowledgeable about his or her situation and has a vested interest in ease of accessibility on the job. This kind of collaboration between HR and other departments

Figure 3 Familiarity With Assistive Technologies



Note: Percent of all respondents (n=433) excluding "don't know/refused" responses.
 Source: Accessible IT for People With Disabilities: HR Considerations. Cornell University, 2003

with employees with disabilities is the key to developing workable and successful solutions. As the workforce becomes more and more diverse, this kind of collaboration will be part of a greater trend toward creating individual solutions to a diverse range of unique employee needs.

Lack of Training in Web and Computer Accessibility

A big part of creating these solutions will involve training and education. The number of organizations not testing their Web sites for accessibility or making changes to their technology to allow for better access is not surprising, given that the vast majority do not train any staff in either Internet accessibility or in making computers accessible to persons with disabilities. In the Cornell/SHRM research only 15 percent of the respondents reported that any of their employees had received training in Internet accessibility for persons with disabilities though more reported that organizational staff had received training in making computers accessible for people with disabilities.

Here again it is those who had experience adapting computers for employees with disabilities who were nearly three times more likely to have staff trained in Internet accessibility and over five times more likely to have staff trained in making computers accessible for persons with disabilities. Those with experience have the double benefit of learning through doing and being more likely to be given training opportunities. This shows why raising awareness and rising to the challenge of adjusting for accessibility is so important. Each time adjustments are made, success builds on success, confidence is raised, knowledge is gained and the digital divide narrows.

Preparing for Tomorrow by Promoting Accessibility Today

Workplace policies and practices will need to focus attention on accessibility of businesses' technology and Web-based HR processes. There is also an overall need for greater preparation of people with disabilities for an increasingly computerized workplace. To meet these challenges it will be crucial to focus on the following five key areas:

1. Top-management commitment is necessary to assure that online/Web-based applications used in HR processes will be designed and implemented with accessibility in mind from initial concept through system maintenance.
2. The person with the disability should be a key resource in finding solutions to IT-accessibility concerns.
3. HR and selected personnel should be trained in IT-accessibility considerations.
4. Technology training for people with disabilities must be

emphasized as a critical component of national workforce development efforts.

5. Information about resources that can assist in addressing IT-access questions should be made readily available throughout the organization.

Organizational Commitment to Accessible Employment and HR Processes

The use of the Web for business purposes has expanded rapidly, but many easily addressed yet critical features that would make job-board and employer-recruiting sites accessible have not been built into most company Web sites' overall design, thereby precluding applicants with certain disabilities from being able to use these sites to submit job applications.

It is essential that there be an articulated commitment from top management regarding organizational accessibility for people with disabilities, including Web/IT accessibility. Such leadership is needed if all staff contributing to the design, implementation and maintenance of IT applications are to take accessibility considerations seriously. This includes technical and HR staff involved in the acquisition, design and implementation of applications used in HR processes, as well as supervisors and technical staff implementing new applications in work processes. Such policies and practices might include the development and promotion of specific accessibility guidelines, which can be used across the organization's computer and Web-based application designs and equipment procurement. Such guidelines are readily available including those promoted by Section 508 for the federal government and the World Wide Web Consortium.

Applicant/Employee With a Disability as Key IT-Accommodation Resource

It is important that HR professionals and others involved in the accommodation problem-solving process *interact directly with the individual with a disability*, as that person is often the most knowledgeable about his or her needs. Such an approach is also consistent with the intent of the ADA, which calls for the accommodation process to be an informal, interactive, problem-solving approach between the employer and the individual with a disability. Even in situations where the technology or process may also be new to the person with the disability, for best results it is still important that he or she is closely involved in the process.

Because organizations that have made IT accommodations in the past view barriers for employees with disabilities as more manageable and/or less significant than those that have never made such changes, greater exposure to available accommodation technologies could well lead to a more realistic assessment of the

required assistive technologies. The more people familiar with the requirements for making these changes, the more the digital divide will narrow.

Training in IT Accessibility

Training in IT accessibility needs to be extended to a wider variety of potentially affected groups within the organization. Along with IT staff and the employee with a disability, health and safety/ergonomics staff or disability case management staff can also be helpful in addressing computer and accessibility issues. Most accessibility training is aimed at IT staff even though accommodation requests often come to HR professionals and supervisors. Because of this, it is vital that these groups also have information on appropriate responses and resources. Some of the topics that might be covered in such training include:

- The general employment disability nondiscrimination requirements of the ADA.
- The reasonable accommodation process.
- Web/IT-accessibility guidelines.
- Computer workstation accommodations.
- Common computer and software accommodations for individuals with specific disabilities, such as visual or fine-motor disabilities.
- Available resources to find further information to respond to accommodation requests.

Employment Training Policy Implications

Computer-skills training for all Americans is a critical part of general workforce preparation planning. Few workplaces do not use computers at all. Even in “low-computer use” industries a majority of workers use a computer, many of whom use one throughout most of the working day. This applies to companies of all sizes, and is even more pronounced in small companies. This trend has significant implications for employees with disabilities.

As we move into a knowledge-based and technology-driven economy, a lack of requisite skills, experience and training will be the major barriers to employment and advancement for people with disabilities (Brannick & Bruyère, 1999). These barriers will become even more pronounced in an increasingly computerized

work environment, unless people with disabilities get the needed training to become and stay competitive.

For this reason, it is important that initiatives such as those in existence under the Workforce Investment Act include people with disabilities in their mandate and implementation; for example, training and technology initiatives targeting people with disabilities, and equipping one-stop career centers to accommodate job seekers with disabilities. Technology training is an appropriate part of the New Freedom Initiative for persons with disabilities. This also means making certain that implementation at the local level takes into account the unique training needs of local industries and the populations of persons with disabilities in a specific community. Local incentive programs for collaboration between employers, organizations promoting employment for persons with disabilities, and technology training programs will assist in promoting useful partnerships to address these issues in a meaningful and effective way.

Knowledge of External Resources

Knowledge of various assistive technologies for computer users with disabilities is currently low among HR professionals and employers, but this will hopefully begin to change as more organizations gain experience in making accommodations and enabling technology develops and is made more widely available. Getting the word out about the great number of existing IT resources, some of which are listed on the next page, and adaptations that can be made will improve the ability of employers to accommodate their existing employees with disabilities, as well as change their attitudes toward potential employees with disabilities, thereby increasing the likelihood of hiring.

This creates a positive cycle of individuals with disabilities being able to work leading to a better understanding of and response to accessibility issues, which in turn will remove barriers for even more individuals with disabilities. This is one area where HR professionals can, and no doubt will, not only make a huge difference to their organizations, but also to individuals with disabilities and society overall. The time to act is now, before the digital divide grows too wide.

Further information on the 2003 Cornell-SHRM collaborative study *Accessible IT for People With Disabilities: HR Considerations* by S. Bruyère, W. Erickson and S. VanLooy is available from the School of Industrial and Labor Relations Extension Division, Ithaca, NY 14853-3901; e-mail: smb23@cornell.edu; phone: (607) 255-9536; Web: www.ilr.cornell.edu/ped. This research was funded by a four-year grant from the U.S. Department of Education, National Institute on Disability and Rehabilitation Research to Cornell University (Grant No. H133A70005).

Resources

ADA Technical Assistance Program

The National Institute on Disability and Rehabilitation Research (NIDRR) has established 10 regional centers to provide information, training and technical assistance to employers, people with disabilities and other entities with responsibilities under the ADA. The centers also provide information on IT-accessible issues. Call (800) 949-4232, or go to www.adata.org.

The Job Accommodation Network (JAN)

The Job Accommodation Network (JAN) is a free consulting service that provides information about job accommodations, the ADA, and the employability of people with disabilities. Visit <http://janweb.icdi.wvu.edu/> or call (800) 526-7234 for more information.

The Center for Information Technology Accommodation (CITA) Section 508 Resources

The Center for Information Technology Accommodation (CITA), in the U.S. General Services Administration's Office of Government-Wide Policy, has a Web site where federal employees and the public can access resources for understanding and implementing the requirements of Section 508. Go to www.section508.gov for more information.

The World Wide Web Consortium (W3C)

The W3C develops interoperable technologies (specifications, guidelines, software and tools) to lead the Web to its full potential. See www.w3c.org/ for further information.

Hrtips.org

A Cornell University Web site to help HR professionals build inclusive workplaces.

U.S. Equal Employment Opportunity Commission

For more information, go to www.adata.org.

U.S. Department of Labor Office of Disability and Employment Policy

For more information, go to www.dol.gov/odep/programs/workforc.htm.

Workforce Investment Act

For more information, go to www.doleta.gov/usworkforce/wia.asp.

New Freedom Initiative

For more information, go to www.whitehouse.gov/news/freedominitiative/freedominitiative.html.

Brannick, A., & Bruyère, S. (1999). *The ADA at work: Implementation of the employment provisions of the Americans With Disabilities Act*. Alexandria, VA: Society for Human Resource Management.

Bruyère, S., Erickson, W., & VanLooy, S. (2003). *Accessible IT for people with disabilities: HR considerations*. Ithaca, NY: Cornell University, School of Industrial and Labor Relations Extension Division, Program on Employment and Disability.

Burkhauser, R. V., & Houtenville, A. J. (2001). Employment among working-age people with disabilities: What current data can tell us. In *Work and disability: Issues and strategies for career development and job placement* (2nd ed.), by Edna Mora Szymanski and Randall Parker (Eds.).

Census Population Survey (2000).

Collison, J., Gaunt, P., & Lengnick-Hall, M. (2003). *Employer incentives for hiring individuals with disabilities*. SHRM Research.

Erickson, W. (2002). *A review of selected e-recruiting websites: Disability accessibility considerations*. Ithaca, NY: Cornell University Program on Employment and Disability.

Society for Human Resource Management. (2001). *Search Tactics Poll*. Alexandria, VA, www.shrm.org/hrresources/surveys_published

U.S. Department of Commerce. (2002). *A nation online: How Americans are expanding their use of the Internet*. Washington, DC.

Zakon, R. (2003). Hobbes' Internet timeline. Available from www.zakon.org/robert/internet/timeline