Convergence of Technology, Aging & Employability
By Craig Spiezle, CEO AgeLight LLC

The world is encountering the convergence of three revolutions. First and foremost is how the United States has become a workforce of "Information Workers". Second are the effects and implications of America's aging workforce. And third is the reliance and role of technology equipping mature workers to lead productive, fulfilling and rewarding careers.

Our Nation is an "information society" and the definition of literacy has expanded from the three R's to now include computing skills and competencies. With our society increasing our dependence on a graying workforce, so is our reliance on them having the necessarily skills, training and tools that are required as they are faced the natural physiological changes of aging.

Information Workers

We have moved from a Nation of service workers to "information workers". Information workers include individuals who are active participants in the flow of business information and data and are prevalent in nearly every business sector and industry. Their occupations range from architects and call center operators to rental car agents, many factory workers and even the meter maids on the streets of many metropolitan cities throughout the United States.

Workplace computing has expanded to include a variety of devices, applications and occupations. Fueling this is the growth of wireless connectivity and more powerful mobile devices, making anytime and place computing a reality. Usage is no longer confined to a physical office, but in delivery vehicles, city streets and the corner Starbucks. But what do all of these occupations have in common? They all require the worker to have the ability to read displays and to have the dexterity to type, and control input devices to access and enter information.

Technology has proven to be an equalizer for people with a range of physical capabilities, and resulted in increased opportunities for employment and independent living while reducing social isolation for those who live in rural communities and for those who ambulatory. Accessible technology provides workers the ability to

personalize their computing environment and adapt it to meet their specific needs, allowing employees of all ages and abilities to realize their full potential.

Labor Force Changes

The profile of the US labor force is in the path of an age wave and in the midst of the most dramatic change ever recorded. This sea change is a result of the sheer magnitude of the numbers of aging baby boomers and the reduced birthrates of echo boomers and GenXers. Fueling this change is the record number of workers who are now continuing to work past the traditional retirement age. The economic recession that began in 2001 and its' impact on retirement savings and 401Ks, has caused thousands to re-evaluate their plans and lifestyles to accommodate employment. With longevity and the economic necessity, many will be working through their 70's and into their 80's.

Within the next five to 10 years, over 76 million baby boomers are scheduled to retire, with only 44 million GenX'ers joining the workforce. According to the Bureau of Labor Statistics, workers between the ages of 25 and 54 will only increase 5% between 2001-2010, yet at the same time workers over the age of 55 will increase over 45%.

As more workers reach the retirement age, the adverse impact of their retirements will have a significant impact on many industries and occupations. Those most affected include government employees, public administration, education and healthcare. Left unaddressed, these work-force shortages threaten to stifle economic growth while likely increasing wages in high-demand occupations.

Physiological Changes of Aging

Technology skills are playing an ever-increasing role in one's employability. As boomers work into their later years, they will need to embrace new skills and technologies to remain employable. To be employable one must not only have the skills, but computing and messaging devices must be usable, adaptable and customizable to compensate for the natural physiological changes of aging.

As our population lives and works longer, the likelihood of developing age-related vision, hearing and dexterity impairments increase as we approach 40. These changes directly affect the aging workers' ability to use computing devices. For some they may be an inconvenience, while for others they may become disabling.

Solutions

In a report published by the Society of Human Resource Management (SHRM), the largest obstacle citied to hiring older workers is that they do not keep up with current technology. The respondents overwhelming stated the best way for an employer to prepare for the approaching shortage of workers is to invest and increase in technical training of their pre-retirees. Clearly ongoing technology training needs to be mandatory.

Technology has proven to be a counter-balance for people with age-related limitations and the use and implementation of accessible and assistive technologies provides a significant benefit. To be accessible, technology must be flexible enough to meet the needs and preferences of users with varied experience and abilities. Often simple customization of the device interface can provide workers the ability to adapt their computing environment to their human factor requirements. Such personalization can benefit all users by offering increased usability, productivity, efficiency and comfort.

Hardware, software applications, web sites and user interfaces must be both functionally usable and technically accessible. Focusing on accessibility will enhance usability and improve the computing and Web experience for users of all ages. Employers need to implement accessible technology training programs and establish policies to ensure accessibility is a criterion in the selection and procurement of information technology.

Government, the private-sector and non-profit organizations must prepare for the impact this demographic tidal wave will have on the future makeup of the workforce. Business needs to institute training polices and accommodations to ensure maximum workforce productivity. This includes retooling their hiring, employee development, retention, and transition strategies to both attract and retain high-contributing employees irrespective of age. It also means ensuring that the workplace adapts to the ongoing physiological changes occurring in the workforce.

Proactively implementing accessible technology communicates that employability is not a function of age or physical abilities, but rather the employee's ability to make a contribution to business objectives. Planning for this inevitable population shift, and recognizing the importance of the graying

These features can accommodate a range of vision, hearing, and mobility needs. Examples include the ability for a user to increase font size, change font settings or choose different colors for their computer screen. Accessibility features built into standard operating systems include keyboard filters that help compensate for erratic motion, slow response time and similar conditions. One such example is Microsoft StickyKeys, which allow the user to enter key combinations sequentially without having to hold one key down while depressing another. Users can adjust mouse properties such as button configuration, pointer and cursor size, and how quickly the curser responds to movements of the mouse.

While these features are included in the majority of PC's sold today, the over-whelming majority of employees and employers are unaware of these options. Additionally, few of these options and alternatives exist today for PDA's, cell phones or other portable devices, whose use is increasing daily.

For computer users with more severe disabilities, there are over a 100 third party technology vendors who create products specifically to accommodate an individual's disability. Such products include speech recognition software, alternative keyboards and touch screens; to speech synthesizers, Braille embossers and screen readers.

Summary
In conclusion, the interaction with technology has rapidly become woven into our lives. Unless business and industry are proactive, they will miss the opportunity to tap the considerable value of aging workers, resulting in a decline of workplace productivity and a negative impact on economic growth.

To be successful we need to focus on five areas; 1) the workplace environment, 2) the employee, 3) the devices and tools required, 4) training programs and 5) the human factors and universal design of devices, web sites and user interfaces.

The workplace environment includes ergonomics; personalize work stations as well as room lighting and ventilation. The employee needs to participate in training and education for new technologies as well as practice healthy computing exercises to reduce muscle and eye strain. Font type, size and colors need to be optimized along with the use of ergonomic keyboards and pointing devices offering enhanced control and precision. CRT monitors need to be replaced with LCD displays, which dramatically reduce eye fatigue.

Employers need to consider a comprehensive strategy that includes training policies, retention and recruitment programs. It will slow this exodus from the work force and the knowledge and talent drain while maximizing older workers' productivity. Planning for this inevitable population shift and recognizing the importance of the aging work force will help employers achieve maximum productivity and commerce.

Unfortunately the technology industry has not been committed enough to the human factors usability and universal design needs of this increasing portion of our population. Hardware, software applications, web sites and user interfaces must be both functionally usable, yet are often designed for a target audience in their twenty's. As we become more reliant on email and forms of electronic messaging, we need to increase the focus on these requirements. Doing so will enhance usability and improve the computing and online experience for users of all ages.[1]

The recommendations reviewed are neither onerous nor expensive, but take commitment and participation by employers, employees and technology vendors. Technology can extend, enhance and enrich employability for all Americans, but business and industry must adopt a "generational perspective" so that we understand and integrate the aging baby boomers and mature Americans needs into tomorrow's technology. Doing so will insure this growing segment of our society's ability to continue their traditional of being positive role models while contributing to the nation's economy.

---

[1] See "Design Guidelines for "Designing for All Ages"
http://www.agelight.com/Resources/webdesign.htm