



# Building a 21st-Century Workforce

## Working Together to Meet Today's Skills Development Challenges

Our fast-changing knowledge-based economy has created unprecedented challenges for employers and workers alike. Employers increasingly need workers with a broad range of information technology (IT) skills. These skills will become even more important as we continue to retool major sectors of our economy, such as healthcare, transportation and energy. By 2014, more than three-quarters of all jobs in the United States will require some level of computing or technology skills, and the vast majority of newly created jobs will require post-secondary education or training.

Microsoft has long been committed to working with policymakers, industry leaders, educators and other stakeholders to ensure that every student, job seeker, and displaced or underemployed worker has access to education and training in basic technology and computing skills.

Some progress has been made, but much more needs to be done, especially at a time when millions of workers are seeking retraining or employment assistance. While the recent economic downturn has caused widespread hardship, it also has brought about new opportunities. For example, the federal stimulus package includes additional resources for education and workforce skills development. With proper planning and appropriate investments by government and the business community, we can help ensure that workers remain employable and employers remain competitive in the global economy.

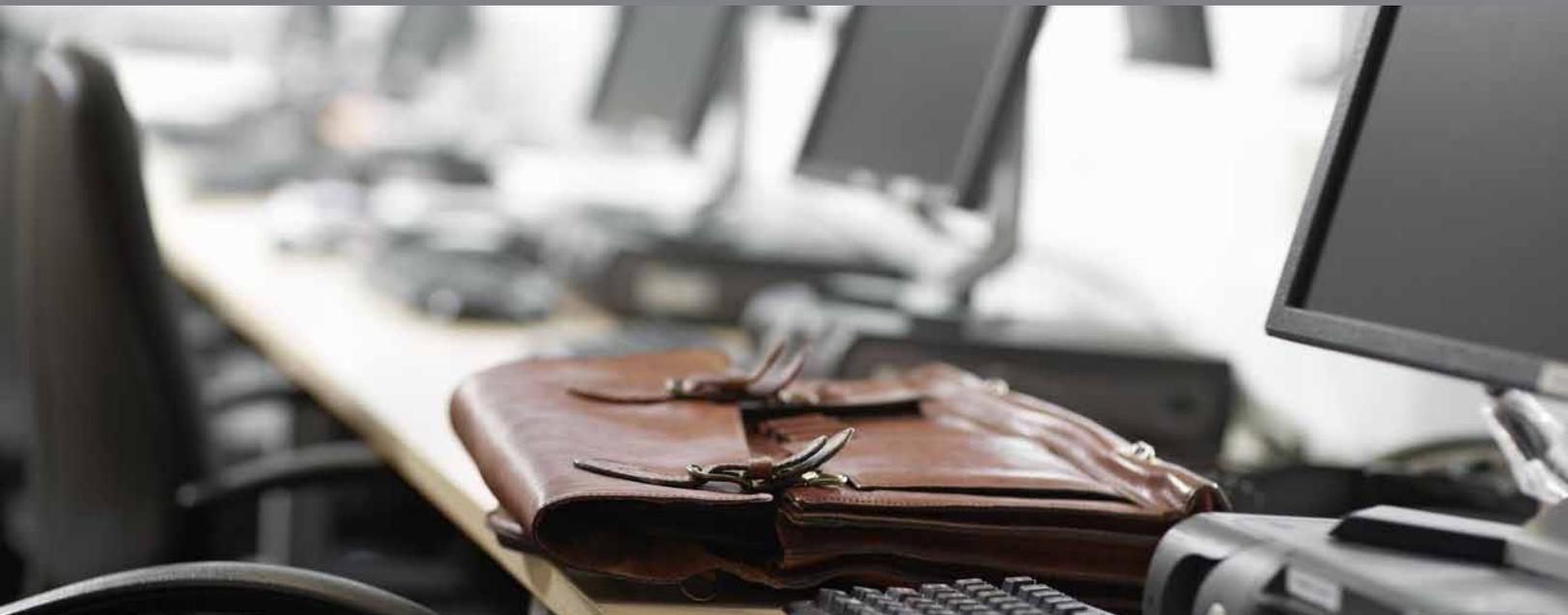
Policymakers, educators, nongovernmental organizations (NGOs), businesses and labor groups must come together through strong public-private partnerships to provide solutions that meet our workforce development needs. It is especially important that these efforts address regional differences in labor markets, taking into account local employer needs and worker education and technology skill levels.

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### **Policy Briefs from Microsoft**

A convergence of innovative software and intelligent devices, complemented by cloud-based services, will stimulate economic growth, make government more effective and benefit citizens in areas ranging from education to health-care to the environment. This policy brief is one in a series from Microsoft about next-generation computing.





We need to focus on strengthening our education system so students gain a solid foundation in science, technology, engineering, math and design—the STEM-D subjects—as well as in STEM-related disciplines such as computer science. We need to improve and expand workforce training systems to meet the needs of all workers—the underemployed, the unemployed and students who lack requisite skills. Everyone entering or already in the workforce should have access to the resources they need to become lifelong learners who can adapt to an ever-changing workplace.

Technology is only one piece of the puzzle, but it has a pivotal role to play in these efforts. It can offer students, workers and employers the training tools they need, and it can help to quickly and efficiently expand access to educational resources. IT also helps people develop other essential 21st-century skills such as collaboration and teamwork, finding and interpreting information, and using data to aid in decision making.

## The New World of Work: Emerging Trends

Today's workplace continues to undergo dramatic transformation, driven largely by shifting demographics, increased use of technology and globalization. IT skills are becoming increasingly important as we continue to shift from an industrial, manufacturing-based economy to an economy driven by information, knowledge and technological innovation.

In the past decade, however, hundreds of thousands of skilled IT jobs have gone unfilled because employers have not been able to find workers qualified to fill them. It's not only technology companies that are grappling with this challenge. In nearly every sector of the economy, technology skills are essential in the majority of jobs at all levels.

As the U.S. workforce ages, employers will face even more significant shortages of skilled workers. For example, more than half of all scientists and engineers in the workforce are nearing retirement age. An estimated 3 million Americans will turn 60 each year. In the coming years, we will have to replace millions of experienced, highly skilled workers.

In his recent book *Listening to the Future*, Microsoft futurist Daniel Rasmus notes, "Organizations of all sizes in all industries around the world are facing a near-term shortage of skilled workers, just at the moment when technology is becoming far more sophisticated and central to business processes. The skills shortage means that employers will need to cast a wider net to find the workers they need."

The U.S. is falling behind other developed nations and some developing countries in key areas such as STEM-D subjects and computer science. A 2006 survey of more than 400 U.S. employers



found significant deficiencies in the readiness of workers entering the workforce. “The future U.S. workforce is here—and it is woefully ill-prepared for the demands of today’s (and tomorrow’s) workplace,” the survey report concluded. Edward Gordon, author of *The 2010 Meltdown: Solving the Impending Job Crisis*, estimates that about half of working-age adults in this country are what he calls “techno-peasants”—people who lack basic technology skills.

Our workforce development system faces serious constraints at a time when more and more Americans are seeking help. Over the last year, some 6.1 million U.S. workers sought re-employment services, but only about 400,000 actually received training. Our state and federal unemployment programs largely focus on crisis intervention rather than career development and thus aren’t doing enough to help displaced workers gain essential job skills. We also lack adequate education and training resources for people already in the workforce.

As President Barack Obama noted recently in his call to reform the U.S. unemployment system, “The idea here is to fundamentally change our approach to unemployment in this country so that it’s no longer just a time to look for a new job but is also a time to prepare yourself for a better job. That’s what our unemployment system should be—not just a safety net, but a stepping-stone to a new future.”



## Microsoft’s Vision for Enabling the Workforce of Tomorrow

In the U.S. and around the world, the IT industry is a key driver of economic prosperity and job growth. Microsoft and its partners, which together account for more than 15 million jobs in the global IT sector (hardware, software and services), are keenly aware of the need for an education and workforce development system that can provide workers—from software engineers and computer scientists to operations managers and administrative staff—with a broad range of technology skills.

At Microsoft, our approach to addressing education and workforce development needs is built around partnerships. We are working with governments, businesses, educators, NGOs, and labor and local community leaders to develop scalable, sustainable solutions. These efforts focus on meeting the needs of people at all stages of the workforce continuum—students entering the workforce, unemployed and underemployed workers, and employed workers who need help gaining new skills to ensure their future employability. A number of our efforts are outlined below, along with ideas and recommendations that Microsoft encourages other stakeholders in the workforce development ecosystem to consider as we work together to build tomorrow’s workforce.

## Microsoft Programs That Support Students Entering the Workforce

**Microsoft Learning** offers a wide range of certification programs that allow business workers, IT professionals, developers, technology trainers and system architects to gain various levels of proficiency in most Microsoft technologies. Certifications offered by Microsoft and other providers help assure employers that the workers they hire have the skills needed to solve real-world problems. About 5 million IT professionals and information workers worldwide have earned Microsoft certifications.

**Students to Business (S2B)** connects Microsoft partners and customers in more than 65 countries with students who are qualified for entry-level and internship positions. The program encourages local businesses to communicate job requirements, evaluates the skills of young people entering the workforce, and encourages local education institutions to collaborate with Microsoft in providing the curriculum and training needed to ensure that students are adequately prepared. Since 2006, the program has provided more than 300,000 students with new career skills and has led to internships and jobs for 15,000 students.

**Microsoft DreamSpark** provides training and professional-level developer and designer tools to high school and college students at no charge. The program offers technical design, technology, math, science and engineering activities as well as e-learning courses and IT certifications. Since its launch in 2007, DreamSpark has had more than 2.3 million downloads by students in over 70 countries.

**Microsoft Live@edu** provides a suite of communication and collaboration tools for students, faculty, staff and alumni in K–12 schools and on college campuses worldwide. These tools enable students to use Microsoft products similar to those used in many workplaces, which helps them prepare for jobs after college. Thousands of schools in 86 countries currently use Live@edu.



## Students Entering the Workforce

It may come as a surprise that many students graduating from high school and college today do not have the digital literacy skills and aptitude for lifelong learning necessary to function successfully in the workplace. Employers, policymakers and educators must work together to ensure that our primary and secondary education systems are providing a solid foundation in technology and lifelong learning skills.

Likewise, employers have an important role to play, such as providing information that can help students choose careers that align with their interests and strengths and that will be viable into the future. Employers can also help make students more job-ready by providing opportunities for firsthand, real-world experience through internships and mentoring opportunities and by supporting strong training and industry-recognized certification programs.

Microsoft supports President Obama's effort to urge all Americans to "commit to at least one year or more of higher education or career training," whether through community college or a four-year program, vocational training, professional certification program or registered apprenticeship program.

At Microsoft, we believe technology will play a pivotal role in transforming education by ensuring that students have access to tools that enable personalized learning, enhance the capabilities of teachers and administrators, and strengthen learning in STEM subjects.

### Recommendations:

- Businesses—particularly those in IT-intensive sectors—are in the best position to help identify jobs and careers that will be in demand 5, 10 and 15 years down the road. The private sector should take the lead in identifying these trends and then



## Microsoft Programs That Support the Unemployed and Underemployed

**Elevate America** aims to provide up to 2 million people in the U.S. with essential technology skills over the next three years. In partnership with state and local governments, Elevate America will provide 1 million IT training and testing vouchers along with free access to other basic digital literacy resources.

**Unlimited Potential Community Technology Skills Program** has provided more than US\$350 million in cash and software grants to support the work of over 40,000 Community Technology Centers (CTCs) worldwide. In remote villages and major metropolitan areas in more than 100 countries, CTCs are providing free or low-cost access to people of all ages and abilities so they can learn about computers, further their education and develop job-related technology skills.

**Microsoft IT Academy** provides educators with tools to train students in Microsoft technologies and prepare them for the global economy. In addition to offering curricula, teacher support materials and online learning resources, the program enables students to earn industry-recognized IT certifications. More than 6,000 academic institutions worldwide have participated, reaching more than 360,000 students.

making that career information available to students, educators, school counselors, governments and others in the workforce ecosystem.

- Microsoft, our partners and other companies can work individually and together to expand internship and mentoring opportunities—both on site and through “virtual internships” via online labs and classrooms.
- The private sector, in collaboration with the education community and policymakers, can help expand IT skills development for educators and enhance academic curricula to include lifelong learning and other relevant 21st-century skills for students in high schools, vocational schools and community colleges.

## Unemployed and Underemployed Workers

In today’s challenging economic environment, a growing number of people are unable to secure or hold onto full-time, family-wage jobs. Their skills are either no longer relevant for existing job roles or insufficient for newly created positions. In many cases, these people have been laid off from old-economy jobs that will likely never come back.

People in this situation need immediate help. Like first-time job seekers, they need access to quality, up-to-date career information and guidance. Unfortunately, many of our public systems for helping people re-enter the workforce are outdated and overloaded.

The unemployed and underemployed need access to training in 21st-century skills, including IT-related capabilities such as collaboration, research and data analysis. We need to make “digital literacy” part of the workforce development nomenclature. Indeed, IT should be considered a core skill—in line with traditional literacy and numeracy.

### Recommendations:

- In the upcoming congressional reauthorization of the federal Workforce Investment Act, policymakers should draw on the experience of the private sector and build on their current investments in workforce training and development to create more effective workforce development solutions. In particular, the experience and involvement of business leaders on state and local workforce boards is essential.
- Policymakers should consider a streamlined approach to delivering re-employment services that consolidates local workforce development boards into a regional system and makes greater use of one-stop online portals to education and training resources.
- Employers, policymakers and other stakeholders need to work together to develop more robust career information systems that provide comprehensive, easy-to-access information about today’s job openings and tomorrow’s job opportunities and that match job seekers with local career coaches and mentors.



## Microsoft Programs That Support Workers Who Are Falling Behind the Skills Curve

**Microsoft Certified Partners for Learning Solutions** provides employer-recognized technical training in Microsoft technologies, which can lead to certifications that validate real-world IT skills. The program also offers consultation to help individuals plan their career path. The benefits include greater productivity and increased employee satisfaction and loyalty.

**Microsoft Digital Literacy Curriculum** is an online curriculum that teaches basic computer concepts and skills so people can use computer technology in their everyday lives to increase social and economic opportunities for themselves, their families, and their communities. Available in 30 languages, the Digital Literacy Curriculum reaches nearly 6 million people worldwide.

**Microsoft Thrive** offers a range of career advancement advice and other resources to IT professionals. Launched in early 2009, Thrive provides up-to-date information about industry trends and an abundance of online resources, including how-to information about personal marketing and IT certifications.

- Policymakers and educators should recognize and encourage private sector and other investments in IT curriculum libraries, free curriculum repositories and other high-quality, up-to-date training resources.
- Policymakers should consider adopting more flexible rules for the use of public funds for job-skills training—such as allowing wider use of training offered by private sector vendors or industry/business associations. Outcome-based measurements such as certifications and other competency measurements can ensure the validity of such offerings.
- IT industry leaders and other stakeholders can encourage entrepreneurship through programs that help business startups get off the ground. For example, Microsoft BizSpark offers startups and entrepreneurs easy access to software, marketing support and visibility that can help lead to business success. Other employers can similarly offer tools and resources to help new business owners develop business skills and management know-how.

## Workers Falling Behind the Skills Curve

In almost every sector of the economy, workers who are not learning new skills will become less employable and less able to advance in their careers. It is in the interest of employers as well as workers that on-the-job skills training be readily available to help employees master new skills.

There are many societal benefits to investing in on-the-job skills training to help workers learn and master new skills, including reduced spending on taxpayer-funded unemployment programs and social services, fewer home foreclosures and increased tax revenue.



**Recommendations:**

- Employers should invest more in ongoing training for their employees and make that training as effective and accessible as possible. By taking advantage of technology—such as online training services—employers can offer skills training that enables workers to learn anytime, anywhere. To help ensure that workers are getting relevant, up-to-date training, employers can help to identify core IT skill needs in the ever-changing workplace.
- Policymakers should consider providing tax incentives that encourage workers and employers to invest in skills training on an ongoing basis. Lifelong Learning Accounts (LiLAs) are one option. Similar in structure to 401(k) savings accounts, LiLAs allow employees and employers to receive tax credits on contributions they make into an account that can be used by the employee to pay for ongoing education or training. Several states have launched LiLA pilot projects.
- Policymakers should consider offering an earned-income training grant to encourage education or skills training for lower-income workers seeking to move up the economic ladder.
- To encourage investment by employers in ongoing skills training for workers, policymakers can provide financial support for certification and competency programs and encourage greater use of “degree equivalent” credentials. These efforts could be modeled on existing federal programs, such as U.S. Department of Defense programs that encourage completion of industry training and certification programs.

## Conclusion

In today's knowledge economy, almost all jobs require some level of computing or information technology skill. But our education and workforce development systems are in many ways antiquated and not equipped to meet the needs of the 21st-century economy. Policymakers, businesses, community leaders, educators and other stakeholders must work together to ensure that students and workers have access to the education and skills development they need to succeed and that the U.S. can compete in the dynamic global economy.

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