



# Digital Inclusion:

Empowering People Through Technology

**Microsoft**



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## Digital Inclusion: Microsoft's Vision

At its most fundamental level, digital inclusion is the idea that all people should have the opportunity and skills to use the power of technology to access information, to communicate and collaborate with others, and to achieve their personal and professional goals.

At Microsoft, digital inclusion is a core part of our business strategy and a cornerstone of our ongoing effort to empower people around the world through information and communications technology (ICT). In many parts of the world, ICT has transformed the way people and businesses share and use information, improved the way children and adults learn, and helped governments address social and economic issues in ways never before imagined. Before people can experience the benefits of ICT, however, they must have access to the technology and the skills to use it.

Our commitment to advancing digital inclusion revolves around a comprehensive, long-term effort to provide the ICT access, education, and skills training that will enable people to reach for and embrace new opportunities. Partners in Learning and Unlimited Potential are Microsoft's two flagship digital inclusion programs. The first focuses on students and educators in primary and secondary schools; the second on meeting the needs of underserved populations through community-based lifelong learning. However, our work on digital inclusion is much broader than these two programs. It incorporates the resources and active participation of Microsoft employees, business groups, research facilities, and suppliers in more than 80 countries, and it is designed to meet the needs of anyone who wants to learn more about technology—regardless of their age or level of technology proficiency.

Digital inclusion is a global initiative for Microsoft, but it is implemented locally, to meet the specific needs of each country or community, and in partnership with governments, non-governmental organizations (NGOs), intergovernmental organizations (IGOs) and other leading businesses. While many programs at Microsoft contribute to this effort, it is the unifying power of the vision behind our initiative that brings all of those contributions together into a single compelling strategy aimed at achieving true digital inclusion.

We believe that traditional barriers to economic and social opportunity such as poverty, age, disability, geographical location and lack of education must not be allowed to stand between people and their dreams of a better life. Through innovative technologies and partnerships, we are working to extend digital inclusion to a broader spectrum of people in every part of the world, and by 2010 to bring the benefits of ICT and technology skills training to a quarter billion people previously underserved by technology.

## Background on Digital Inclusion

Microsoft was founded on the belief that technology—if it is accessible, affordable and easy to use—can empower people to pursue their dreams and realize their full potential. Over the past three decades, we have seen that idea come to life for millions of people as information and communication technologies have become less expensive, more widely available, and a mainstay of personal and professional life in many parts of the world.

Worldwide, consumers and businesses have purchased more than a billion personal computers, and mobile phone users now outnumber those using traditional telephones.<sup>1</sup> Meanwhile, the Internet has become one of the most popular and fastest growing technologies in history. Since coming into widespread use in the mid-1990s, the Internet has evolved into a single global communications network that connects most of the world's personal computers, plus a growing number of "smart" phones, personal digital assistants (PDAs), and other computing devices.

Today, more than 800 million people worldwide—nearly 50 times the number of people who were online in 1995—routinely visit the Internet to search for information, earn college degrees and vocational certificates, manage their finances, purchase products and services, and communicate instantly with friends and professional colleagues from Chicago to Cairo.

Everywhere, it seems, the power of information and communication technologies is enabling enormous societal changes, increasing personal and business productivity, creating economic opportunities that were once out of reach, and redefining the way people work, communicate, and live their lives.

But the good news is not universal. Despite the rapid growth and widespread adoption of information and communications technologies, the disparity between people who are able to use and benefit from ICTs and those who are not is a problem that currently affects the vast majority of the global population.<sup>2</sup>

Some may argue that the inability of so many people to use ICT is a small problem compared to other things that are wrong in the world. After all, wars have created some 20 million refugees and internally displaced persons, nearly half the population of sub-Saharan Africa lives on less than US\$1 per day, and an estimated 115 million children worldwide are not receiving even primary education. What can technology do about such severe problems?

The true power of technology lies in its ability to empower people. Given the right tools, along with information and opportunity, people can accomplish almost anything. Something Microsoft has witnessed repeatedly and believes in strongly is the organic nature of technology. As people around the world adopt and use ICT, they soon begin to experiment and apply their knowledge in unexpected ways, and to create technology solutions that meet their own needs.

In today's knowledge economy, people without access to ICT and the skills they need to use it effectively are excluded from the kinds of educational and economic opportunities that can enable them not only to improve their own lives, but also to contribute to helping solve other pressing social problems.

Digital exclusion is a reality for millions of people in developing nations, inner cities and remote rural areas which – because of poverty or geographical remoteness – lack access to ICT. It also affects people with disabilities or impairments that may interfere with their ability to use technology, and people whose skills have not kept pace with recent technological advances. In fact, digital exclusion affects people of every age and in every culture and community around the world. A 2004 study by BT, the United Kingdom's largest telecommunications company, found that 51 percent of adults in the UK (24 million people) do not have access to a computer and the Internet at home.

At Microsoft, we believe the response must be as comprehensive as the problem. Through our digital inclusion programs, we are working in partnership with governments, NGOs, IGOs and industry leaders worldwide to eliminate the gaps in ICT access, implementation and usage, and to provide technology skills training to the broad spectrum of people who want to learn—from people who are encountering ICT for the first time to those who want to strengthen or expand their skills.

For Microsoft, promoting digital inclusion requires not just resources but resourcefulness, not just network infrastructure but economic incentives, not just good software but good public policy. Digital inclusion is about being sure we work independently, and in partnership with others, because we understand that at the heart of exclusion is the loss of “life chances, of missing out on opportunities to develop new understandings, contacts and competencies that can be used in other contexts.”

<sup>1</sup> Global growth in ICT use has been significant over the last decade. Most striking, mobile cellular subscribers numbered 16 million in 1991, and rose to 1,329 million (1.329 billion) by 2003. While computer users have increased steadily, from 130 million in 1991 to 650 million in 2003, Internet connectivity has grown much faster, from 4.4 million users in 1991 to 665 million in 2003. Source: International Telecommunications Union (ITU): World Telecommunication Indicators Database.

<sup>2</sup> The thirty advanced, industrialized countries (which excludes China and India), that make up the Organization for Economic Cooperation and Development (OECD) account for less than one-fifth of the world's population but more than 91 percent of ICT Source: United Nations Development Program (UNDP) Human Development Indicators 2004; ITU.



## Evolution of an Issue: From Digital Divide to Digital Inclusion

At Microsoft, our business model is to make our products readily available to the largest possible number of users. We provide a platform that attracts and inspires independent software developers to write new applications, which helps to strengthen communities by generating local business revenue and personal income. Because achieving widespread use of our products is such a fundamental part of our business model, promoting digital inclusion not only is the right thing for Microsoft to do as an industry leader and a responsible corporate citizen, it is also a core part of our business strategy.

Digital inclusion is not a new issue for Microsoft, but it took time and experience to develop the coordinated initiatives we have in place today. As early as the mid-1990s, articles began to appear in leading newspapers and magazines, warning that the rapid adoption of ICT by highly developed, industrialized countries threatened to leave the world's poor people and less developed nations on the wrong side of a “digital divide.” Governments and many private companies, including Microsoft, responded with programs designed to install personal computers and Internet access in schools, libraries, and community centers worldwide.

What we and others learned was that programs focused primarily on providing hardware and software, without also addressing skills training, did not enable people to use the new technology effectively.

Meanwhile, technology was having a profound effect on the global economy. Just as the first part of the 20th century saw a fundamental economic shift from agriculture to manufacturing, the advent of the PC and the Internet was rapidly moving developed nations away from factories and manufacturing and toward a knowledge economy based on technical skills, information exchange and communications skills. As a result, the digital divide appeared to be widening and the need for access to technology and skills training became more pronounced.

At about the same time, companies in many different industries started to notice a lack of qualified technology workers, and a call went out for workforce development programs to address that shortfall. Microsoft responded with two initiatives—the European Scholars program and Working Connections.

The European Scholars program, a forerunner of Microsoft's Unlimited Potential program, operated from the mid- to late-1990s, and was a collaboration between Microsoft, national governments in several European countries, local training partners, and established community centers. Each participating country operated its center according to the needs of local people and companies. In Belgium, for example, trainees were screened, prequalified, and then put through a rigorous training program leading to certification as a network administrator or another technical designation. In Ireland, the training focused on people who had little work experience, and included job search skills such as interviewing and resume preparation along with basic digital literacy and ICT skills training.

Working Connections, which began in the mid-1990s, involved partnerships between Microsoft and community colleges in the United States, and focused on assessing the workforce needs of various industries and then providing the resources to help disadvantaged students acquire the necessary skills to qualify for those jobs. Along with cash and software donations and curriculum development, Microsoft also provided extensive training for instructors who were teaching the courses. Working Connections was so successful that within a few years, community colleges no longer needed Microsoft's direct funding and support to continue the training programs it had fostered. Local companies began supporting the program to ensure that the skills being developed would meet their needs.

<sup>3</sup> Graham Murdock, (2002) Reader in Sociology of Culture at Loughborough University, Rethinking Communication Exclusion: Tackling the Digital Divide

## Microsoft: Advancing Digital Inclusion

Technology access and training are both essential for digital inclusion. Access to technology is the first step on the path to digital literacy, but a computer is of little value unless one has the skills to use it effectively. Skills training transform technology from an intriguing novelty into a powerful tool, but those skills are meaningless without some concrete way to apply them. By empowering a quarter billion people underserved by technology with ICT access and skills training by 2010, we and our partners are creating educational, economic, and societal opportunities that will strengthen local communities worldwide.

A 2004 economic impact study of 19 countries in Europe, the Middle East and Africa conducted by IDC, a leading global provider of market intelligence and advisory services for the ICT industry, found that information technology alone accounted for 9 million jobs and more than US\$200 billion in tax receipts. And the ICT industry's impact in the region is growing rapidly. By 2008, the ICT sector in these regions is expected to generate 2 million new jobs and another US\$160 billion in tax revenues. Yet, for businesses and governments in the region to take advantage of these opportunities and to realize economic gains, millions of individual workers will need ICT skills training to enable them to compete for and perform those new jobs.

Similar growth is taking place in nations and regions around the world, and the economy is not the only arena in which ICT is having significant impact. Governments everywhere are providing more and more information and assistance on the Web. Many have set new policies or passed legislation requiring most services to be offered online within the next few years. As a result, ICT access and skills training is quickly becoming not only an economic necessity, but a social imperative. As the Internet has grown in importance, it has become the launching pad for a broad array of e-government tools and solutions that foster citizen participation and community building.

For Microsoft, public/private partnership is not a buzzword, but a fundamental strategy for learning how to offer our technologies and solutions in new and emerging markets, and to extend digital inclusion to more people. A global network of government, industry and community partners supports our ongoing commitment to make technology more usable, available and accessible to more people. As we learn from our partners, we also work with them to develop concrete programs to address the needs we see in communities and countries worldwide.

## Technology Literacy for Tomorrow's Workforce

The global economy is increasingly driven and defined by the knowledge of individuals—from entrepreneurs to employees—and one key objective of Microsoft's digital inclusion efforts is to help educate students and prepare workers to compete and succeed in the knowledge economy.

Despite real improvements worldwide in digital literacy and access to ICT, the digital divide is continuing to widen between and within some countries. Many people continue to lack basic access to technology and training; others who have been trained at one level need opportunities to advance to the next.

Our digital inclusion strategy today for workforce development combines programs that promote digital literacy and ICT skills and provide education and training for students at primary and secondary schools, colleges and universities, and to mid-career professionals who need to sharpen or increase their skills. We also support university research programs and academic departments that teach and use technology, and we provide in-depth technical resources to a worldwide community of developers, which enables them to continue learning throughout their careers.

## Technology in the Classroom

At Microsoft, we believe that education can change lives and serve as a powerful catalyst to strengthen and improve families, communities and nations. We launched Partners in Learning to meet the needs of primary and secondary students, teachers, and school administrators worldwide. Through Partners in Learning, we work with local governments to empower primary and secondary school educators and students by providing greater access to the latest ICT along with the resources and training that will enable them to use it effectively in their classrooms and in their lives.

Partners in Learning is an important component of our workforce development efforts because students who learn as children to use technology as a tool to communicate, collaborate and gather information are better equipped to compete and succeed in the knowledge economy. The Partners in Learning ICT skills training curriculum, available in more than 20 languages, were developed with the help of leading organizations in the education community. Microsoft has committed to a five-year investment of US\$250 million in Partners in Learning to make technology an integral part of classroom instruction and learning in nearly 100 countries around the world.

## Ongoing Skills Development for Teachers

For technology to become an effective tool for learning, it must first be an effective tool for teaching. An important part of our digital inclusion work at Microsoft is providing teachers with the skills training, curriculum and other resources they need to make technology an integral part of their classroom instruction.

Through Partners in Learning, Microsoft provides teachers with curriculum that is optimized for classroom use, including lesson plans and materials for five courses that total 200 hours of instruction. The curriculum may be used as offered, or customized by ministries of education, school administrators or teachers to meet local education priorities. The courseware includes instruction guides and grading standards for teachers, and classroom materials for students. The five courses are:

- Integrating ICT Skills into Teaching and Learning;
- Deploying Student Technical Support Solutions;
- Using Microsoft Office XP for Learning Projects;
- Understanding and Building Basic Networks; and
- Developing Basic Applications Using Microsoft Visual Basic .NET.

To make these resources available to more teachers worldwide, Microsoft is establishing local Microsoft ICT Academy Centers through joint partnerships with community organizations, education institutions and training providers. Our plan is to support the day-to-day management of the facilities, and provide educators with access to software, hardware, trainers, and curriculum.

We continue to work with teachers around the world on how to customize the curriculum to meet local education needs and how to successfully use the

The Government Inter College (GIC) Dakpather in India is on the banks of the river Tons in the district of Dehradun. The school was started in 1972 to help educate economically disadvantaged students, and now serves 1,500 students with 31 teachers and 11 official staff. Classes are taught in Hindi. Though a computer lab, established in 2002, gave GIC Dakpather teachers and students access to technology, the school still faced the challenge of helping the faculty integrate information and communications technology into their teaching and transfer ICT skills to their students.

When the first Microsoft ICT Academy was launched in December 2003 as part of Project Shiksha, a Microsoft Partners in Learning initiative in India, two teachers from GIC Dakpather attended the accelerated training program, an in-depth 15-day course that focuses on project-based learning and training teachers to use technology effectively in the classroom. As a result of the training, teachers at GIC Dakpather are using PowerPoint presentations and other information technology in their classes, the school is creating a Cyber Library of educational CDs, and students are doing assignments by searching the Internet and resources such as Microsoft Encarta.

According to school administrators and Indian government officials, the results are remarkable. Student test scores have increased as their subject matter comprehension and retention have improved, and the entire learning process has become more vibrant. Instead of depending solely on their teachers for learning material, students now gather information independently, analyze it, and draw conclusions. In addition, enrollment has increased while absenteeism and drop-out rates have declined. The school also reports that the benefits of widespread computer use have extended beyond the classroom to help automate and streamline many administrative tasks, which has increased staff efficiency by reducing the time and effort required for administration.

courses in the classroom. For example, Microsoft conducts regional training conferences in different parts of the world. Attendees at the conferences include representatives from ministries of education, training organizations, and curriculum development agencies.

Microsoft is also creating School Technology Innovation Centers to test the latest technology and content solutions for schools. The first center opened in Jordan in February 2005, and five more centers are planned for Northern Ireland, the Czech Republic, South Africa, Belgium and Egypt. These centers will serve as demonstration and learning labs for schools in their regions, and will share innovative practices in the effective use of ICT in teaching and learning. They will also provide information, training and equipment for teachers to enhance their use of ICT in their classrooms and curriculum.

### Professional Training and Resources

Microsoft supports many ICT training options for adults as well. Working with government agencies, community colleges, and partner companies that offer professional training, we develop curriculum, courseware, and professional certification exams to provide individuals with the skills they need to get good jobs, or to advance in their careers.

To help businesses and governments develop a workforce with the right technology skills, we focus on developing training programs that meet the needs of specific industries. We also offer companies guidance about the kind of ICT roles they should create to support their businesses.

Our training is designed to help provide qualified workers for jobs across all sectors of the economy, not just the ICT sector. We offer training for incumbent workers as well as those wishing to enter the field of information and communications technology.

Our training follows a three-stage model: assess, learn, and apply. Prior to taking a course, people who are interested in training first go through a process to assess their current skill level and to determine what type of training would be most appropriate for them. After going through training to acquire the specific skills they want, we encourage them to take an exam for Microsoft certification, a highly respected credential which will assure any employer that they have the skills to do the job for which they were trained.

For people who are already working in the ICT industry, Microsoft offers a wealth of resources, tools, and guidance to help them do their jobs and learn about new technology. The Microsoft Developer Network (MSDN) and the Microsoft TechNet Program are two good examples.

MSDN is a set of online and offline services that help developers write applications using Microsoft products and technologies. Used by millions of software developers worldwide, MSDN includes technical articles, a reference library, downloads, and code samples.

TechNet provides technical resources – online and at local events – to help ICT professionals evaluate, deploy, and support Microsoft solutions. They may take advantage of free content on the TechNet site, attend local TechNet Events in their area, view webcasts, or sign up for the free TechNet Flash ICT newsletter. ICT professionals may also choose to purchase a TechNet Subscription, which provides a personal library of Microsoft Support Knowledge Base articles, service packs, how-to articles, security updates, resource kits, columns, tools, and utilities. Subscriptions include the monthly delivery of CD or DVD updates with the latest, authoritative technical information on Microsoft solutions.

### Academic Resources

The software industry depends on individual talent, creative ideas, and continuous innovation. The global academic community plays an essential role in cultivating the talent and advancing the science that make innovation possible. Microsoft Research (MSR), through its External Research & Programs (ERP) arm, nurtures collaboration between Microsoft and the academic community, and to be a catalyst for innovation in research and curriculum at leading academic institutions worldwide.

Like the research organization of which it is a part, this program is focused on the future of computing. It works closely with faculty to explore new areas of computer science and accelerate research in other disciplines through the use of technology.

For example, in mid-2005, Microsoft announced the Windows Academic Program, which supplies universities with concepts, code, and projects to help their faculty integrate core Windows operating system kernel technologies into teaching and research. The components provided by the Windows Academic Program illustrate real-world examples of the principles taught in class, and provide Windows source code and materials for academic purposes.

In Europe, Microsoft has launched the European Science Initiative, which is focused on research into novel technologies to accelerate advances in “new kinds” of science and computing. As part of this initiative Microsoft has established a new research institute in partnership with the University of Trento and the Italian Government, to bring together scientists and technologists to develop a new generation of tools to understand and predict complex processes in biological systems, which could accelerate insights into the etiology of disease and new therapies.

MSR engagement with universities includes a wide variety of activities such as an annual faculty summit at Microsoft headquarters, funding to support research and curriculum development, training and technical support for researchers, and sponsorship of academic conferences and professional organizations. Recognizing how difficult it is for university faculty to secure research funding early in their careers, Microsoft established the New Faculty Fellowship program, which awards competitive grants to support research undertaken by talented young faculty of outstanding promise.

Through ERP programs based in each of our research labs around the world, we focus our work with colleges and universities on initiatives of regional significance as well as those of global interest. As we solicit and respond to proposals from faculty, we strive to ensure the diversity of our funding recipients by encouraging women and minority applicants. We also actively engage with funding recipients in a collaborative effort to help ensure the success of projects we support.

One of the most important contributions that Microsoft Research makes to digital inclusion is through ongoing innovation, creating new technologies that are more accessible and easier to use. The list of innovative computer technologies MSR has helped to develop would fill many pages, but its scientists and researchers don't confine their explorations to work that may have direct application to Microsoft products. They also observe technology trends and anticipate new developments.

In the industrialized world, personal computers have been used in a number of ways to greatly enhance productivity. MSR's experience worldwide suggests that new approaches appropriate to specific economic and cultural contexts must complement existing efforts. This is a result of the wide variance from region to region in terms of technical literacy, approaches to implementation and concepts of usefulness.

In a recent definitive and comprehensive study, Eric Brewer, a professor of Computer Science at Berkeley, points out that “in developing regions ‘First World’ technology to date has been a poor fit for these areas, and that there is thus a need for specific technology research for developing regions”.<sup>4</sup> The best digital solutions must be affordable, accessible, and relevant. Because technologies developed for the industrialized world may not meet these criteria, the scope of these efforts is much broader than making the microcomputers of today less expensive for low-income, rural populations. In some cases, entirely new technological approaches may be required, some which may enable transformational change.

In many parts of the world, for example, lack of infrastructure is the biggest barrier to people gaining access to computer technology. There are many places where there is no near-term likelihood of dependable electrical power, and where traditional telephone lines probably never will be installed. As a result, people in those regions are turning to other types of technology, particularly mobile phones, which in turn is driving a new wave of innovation as governments and technology companies look for new ways to combine cellular technology and the Internet to bring education, information, and economic opportunities to people whose only link to the rest of the world is a mobile phone. Microsoft Research is on the leading edge of that trend, and the results of work that MSR and others are doing in this field also may expand digital inclusion, creating opportunities for millions of people who were previously excluded from full participation in the knowledge economy. MSR will be offering US\$1.2 million in awards in digital inclusion research this year to investigate the best approaches to these and other technologies with high potential.

Another valuable Microsoft resource for academic institutions is the MSDN Academic Alliance (MSDN AA), which helps university departments that teach and use technology obtain Microsoft developer tools, platforms, and servers for instructional and research purposes. MSDN AA is designed to keep academic labs, faculty, and students on the leading edge of technology and to share curriculum and other learning resources. MSDN AA is a global program that currently serves 10,000 academic institutions worldwide.

## Bringing Digital Opportunity to Community Learners

In September 2003, Microsoft launched Unlimited Potential, a global initiative focused on providing technology skills to disadvantaged people through community-based technology learning centers. Unlimited Potential provides hands-on ICT training to a diverse group of community learners through a combination of grants, software donations, specialized curriculum, and a technology support network that provides resources and services to community technology centers (CTCs) and training centers around the world.

This is a vital component of digital inclusion because there are millions of people around the world who need ICT skills to participate in the knowledge economy, yet would be unlikely to enter a traditional training program. Some may not qualify because of low income or lack of education. For others, community-based training may be the only option available because of where they live, or it simply may be the most affordable and convenient way to acquire the ICT skills they need.

CTCs may be found in remote villages and in the heart of major cities. Wherever they are located, CTCs are free or low-cost places where people of all ages and abilities can gather to learn about computers, use the Internet, explore new career possibilities, further their education, participate in community activities, or develop new

technology skills. Many CTCs are located in community centers, schools, libraries, housing facilities, or other convenient locations where people tend to gather.

Microsoft’s Unlimited Potential supports thousands of CTCs in 95 countries. The people served by these CTCs include seniors, at-risk youth, people left jobless because of changes in the economy, refugees and other displaced or homeless people, and many other non-traditional learners. Just a few examples will show the breadth of programs that Microsoft supports through Unlimited Potential:

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Microsoft joined forces with the United Nations High Commissioner for Refugees and the International Red Cross to open the first CTC focused on the special needs of refugees, in St. Petersburg, Russia. The center provides ICT skills training to thousands of refugees from Afghanistan and Africa, along with hundreds of Russian residents with disabilities.

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In Beijing, Microsoft worked with local libraries and youth leagues to establish a community technology that provides migrant workers, disadvantaged groups and the general public with access to information technology and basic computer training. Microsoft is also working with the China Foundation for Poverty Alleviation and PlaNet Finance China to establish CTCs in rural Chinese communities. These CTCs are linked to pre-existing microfinance institutions, enabling the centers to offer technology training to help reduce poverty and encourage entrepreneurship.

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In Peru, Microsoft provides support for La Fundacion para el Desarrollo Solidario (FUNDADES) to implement a technology training program that helps teen parents with no economic resources or computing skills find jobs to support their families.

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The Unlimited Potential Community Learning Curriculum provides quality training resources for community learners that focus on skills development in beginning information technology and computer literacy, and preliminary technical certification preparation. The training emphasizes real-world applications and may be modified or reproduced by CTCs, their instructors, and students to enhance local learning programs.

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For example, in Canada, Microsoft is partnering with the International Development Research Centre to create telecentre.org, a community-based technology support network. The center is one of the world’s leading institutions in generating and applying new technology to meet the challenges facing developing countries. The support network created by the partnership will deliver curriculum, research results, tools and services to build a virtual network of local CTCs worldwide.

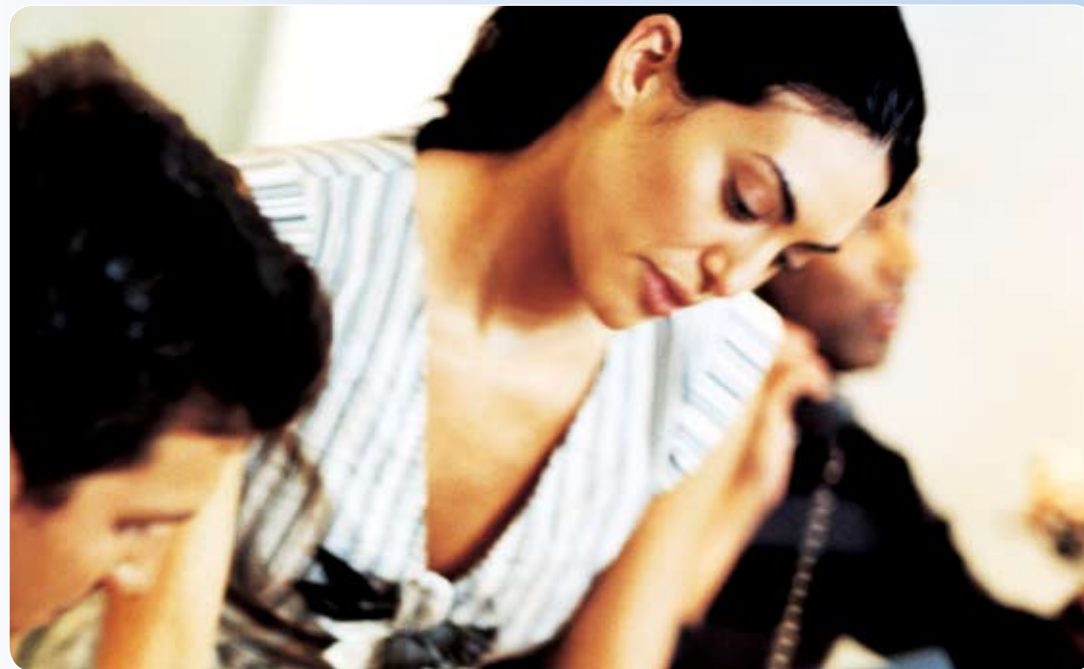


By offering skills training and other resources to students, entrepreneurs, and adult men and women at CTCs in developing countries, the collaboration between Microsoft and the United Nations Development Programme (UNDP) will benefit the world’s poor by helping communities cultivate the skills required for success in today’s information society, and encourage the exploration of creative, technology-based solutions to many of the world’s most pressing development challenges. For example, Microsoft teamed with the UNDP to equip 10 CTCs in Morocco, following a successful pilot project that is helping to build a pool of skilled ICT professionals in war-torn Afghanistan, providing technology access and skills training to 12,000 Afghan citizens annually at 16 regional centers.

<sup>4</sup> Brewer, E., Demmer, M., Du, B., Kam, M., Nedeveschi, S., Pal, J., Petra, R., Surana, S., and Fall, K. The Case for Technology in Developing Regions. Computer, 2005, IEEE. <http://tier.cs.berkeley.edu/docs/CFT-ieee.pdf>



Through Unlimited Potential, Microsoft supports a number of community-based training programs worldwide for people with disabilities. In Bulgaria, for example, Microsoft partnered with Foundation Horizonti, a Bulgarian NGO, to open a state-of-the-art ICT training center in Sofia for people with visual impairments. More than 18,000 people in Bulgaria are blind and unable to work, and 40,000 more have visual impairments that prevent easy mobility. A Bulgarian-language speech recognition tool was developed and made freely available to 19 local branches of the Union of the Blind in Bulgaria. In addition, a fully equipped community technology center was created to offer computer literacy skills, employment and business skills, and training tailored to real-life situations encountered by the visually impaired.



One good example of the Digital Pipeline in action is the Namibian National Refurbishment Center, a public-private partnership between the Namibian government and Microsoft. The center is responsible for preparing donated PCs for use within schools and community centers in Namibia and acting as a regional distribution hub for neighboring countries. This enables students in Namibia and other African countries supplied by the center to use the same software as their counterparts in more developed countries in Europe, Asia, and the Americas.

George Cook, chief executive of Charity Logistics, an NGO that manages donations in the Digital Pipeline program, sums it up this way: "The Digital Pipeline maximizes technology transfer to the developing world. Through PC refurbishment and delivery, we are able to create a wealth of opportunities for the recipient country. The possibilities and potential of the pipeline are limitless and include the generation of long-term employment, and the creation of an independent, sustainable local ICT and knowledge economy."

## Expanding Digital Inclusion to Underserved Populations

For Microsoft, digital inclusion also means making ICT and skills training available and accessible to historically underserved populations such as people with disabilities, those who speak languages for which technology has not yet been localized, and people in developing countries where the use of ICT is not widespread.

Because the availability and accessibility of technology is a major obstacle to digital inclusion, Microsoft works with partners to ensure hardware distribution at the lowest possible cost. We offer a range of software options—from entry-level software solutions to complete state-of-the-art software packages—and we make strategic software donations to help ensure widespread access to technology. Microsoft provides many products and services in users' local languages, and we are continually working to make technology more accessible to people regardless of their physical or cognitive abilities, or their economic, cultural, or educational backgrounds.

### Making Technology Accessible

Among the many innovations we continue to build into Microsoft products are a wide range of accessibility features that make it easier for anyone to use a computer and to customize their work environment—including people with physical or cognitive impairments or disabilities. We also work closely with companies that design and build assistive technology devices, such as screen readers that convert text to speech for people who are blind or visually impaired, which run on the Windows platform and enable people with disabilities to perform a wide range of PC-based tasks and to access information more easily.

Although accessible and assistive technologies are designed to help people with severe disabilities unlock their potential and optimize their abilities, accessibility features such as adjustable font settings, audible alerts, and screen magnification also benefit other users. In 2004, Microsoft launched an initiative to help aging workers,<sup>5</sup> employers, and government officials understand how accessible and assistive technology could be used to help older workers and businesses keep their competitive edge.

A research study, commissioned by Microsoft and conducted by Forrester Research<sup>6</sup>, found that 60 percent of U.S. working age adults (ages 18-64) could likely benefit from accessible and assistive technology due to mild-to-moderate difficulties or impairments that interfere with their ability to use a computer or perform routine tasks.

As the global population continues to grow older and the number of age-related impairments increases, so will the need for accessible and assistive technology. People today are living and working longer, and lower birth rates in developed nations over the past few decades mean that there are fewer younger workers in those countries to replace those who do retire. Japan's population is rapidly aging; by 2050, an estimated 60 percent of the working-age population in the European Union will be over age 60; and by 2020, one in five U.S. workers will be older than 55. Accessible and assistive technology can help businesses recruit and retain experienced employees, and help older workers remain at peak productivity for as long as they choose to work—but only if they have the technology and know how to use it.

<sup>5</sup> Aging and Accessible Technology, <http://www.microsoft.com/enable/aging/>

<sup>6</sup> The Wide Range of Abilities and Its Impact on Computer Use, <http://www.microsoft.com/enable/research/phase1.aspx>



The experience of Unchalee, an 18-year-old student in Bangkok, Thailand, illustrates how Windows XP Starter Edition is helping people in emerging markets gain ICT skills. Unchalee attends a school that has just one PC for every 30 students. The one hour she spent working on the computer at school each week was enough to help her learn basic computing skills, but after completing the initial computer course she had to make way for other students and was no longer able to use the school computer. Thanks to the Windows XP Starter Edition pilot program, sponsored by Microsoft in collaboration with the government of Thailand, Unchalee now has a computer at home and is able to spend several hours each day learning new skills and exploring the Internet, which has introduced her to a new world of information. Her older brother, who had never touched a computer keyboard before, is also learning to use the family's new home-based PC.



During a visit to the Ministry of Communications and Transport in Vietnam in 2002, Office team member Andy Abbar noticed that a receptionist had covered her PC with Post-it notes, each one bearing a handwritten message in Vietnamese. When Andy asked a colleague to translate, he discovered the receptionist's secret.

The note in the lower left corner of her computer screen translated as the word Start. In the upper left, there were notes bearing the Vietnamese words for File, Edit, and so on. When one receptionist left the office, another could benefit from the same notes. Andy realized these receptionists had found a way to work around the language barrier, and that discovery reinforced the need for Microsoft to develop local language glossaries and Language Interface Packs for Windows and Office.

## Ensuring Hardware and Software Availability

Technology upgrades and organizational changes at many companies are creating an enormous worldwide surplus of older but usable PCs. Yet only a small portion of these used PCs are redeployed to serve the educational and training needs of underserved communities in developed countries or in the developing world where technology is scarce. Millions of potentially useful PCs are literally going to waste, and with them, opportunities to expand digital inclusion are being lost.

The Microsoft Authorized Refurbisher (MAR) donation program operates in more than 100 countries worldwide and facilitates community ICT access and learning by enabling authorized PC refurbishers to install Windows operating systems provided by Microsoft into PCs destined for NGOs, community centers, and K-14 schools (including community colleges and vocational schools). Microsoft donates the software, certificates of authenticity, and end-user license agreements to the MAR program, and authorized NGOs manage distribution of the donations to qualified refurbishers. By reducing the refurbishers' costs, the MAR program makes the equipment more affordable and increases the availability of low-cost usable PCs.

Since its launch in 2003, the MAR program in the United States has supported more than 400 refurbishers and has supplied more than 60,000 licenses. Launched in 130 countries in 2004, the MAR program in Europe, the Middle East and Africa supports 70 refurbishers and has supplied approximately 13,000 licensed computers. Following the success of the MAR program in these two regions, Microsoft is now working to implement MAR globally.

In Europe, the Middle East and Africa, the MAR program is part of a larger initiative called the Digital Pipeline, which is supported by many different companies and organizations. The Digital Pipeline was established to transfer surplus PCs from developed nations in the region to developing countries where affordable high-quality technology is genuinely needed.

Microsoft also participates in several programs that enable NGOs to acquire Microsoft software at no charge, or at significantly discounted prices. For example, Microsoft partnered with TechSoup, which is operated by CompuMentor, one of the oldest and largest NGO technology assistance agencies in the United States. TechSoup.org is a Web site that offers NGOs a one-stop shop for their technology needs by providing free information, resources, and support. TechSoup Stock provides NGOs access to donated and discounted technology products, which have been provided by TechSoup partners.

Along with the MAR and Digital Pipeline programs, the Fresh Start for Donated PCs program is designed to help schools worldwide make the most of donated computers, and to promote increased student access to technology through wider deployment of PCs in classrooms. Through the Fresh Start for Donated PCs program, schools that receive donated machines that were originally licensed with Microsoft Windows operating systems can get a licensed copy of Windows 98 or Windows 2000, at no charge, for each donated PC (Pentium II or older). Partners in Learning also offers eligible primary and secondary schools academic pricing and price reductions on Microsoft Office 2003 Professional Edition and Windows XP Professional Upgrade licenses through the Microsoft School Agreement.

## Bringing Technology to New Users in Emerging Markets

Microsoft Windows XP Starter Edition is designed for first-time PC users in developing technology markets. It offers them an affordable, easy-to-use version of the Windows operating system installed on low-cost PCs and localized in their native language. The computers come with specialized instructions for first-time users, plus preconfigured settings to save time and ensure security. The Windows XP Starter Edition pilot program

began in 2004 with three markets—Thailand, Malaysia and Indonesia—and Microsoft continues to aggressively expand product availability to many developing markets including India, Brazil, and Spanish-speaking countries in Latin America.

Over the years, Microsoft has localized its Windows and Office products into more than 40 languages and dialects, but there are hundreds of other languages for which Microsoft has not localized its products. Some of these languages are spoken by only a small number of people, so creating a complete localized edition of Windows or Office in those languages is not economically feasible. Other languages are spoken by millions of people, but in emerging markets that are just beginning to expand their ICT infrastructure. Thus for millions of people language continues to be a barrier to the effective use of technology.

In March 2004, Microsoft launched the Local Language Program, a global initiative that enables governments, universities, and local language authorities to develop language localization resources for Windows XP Home, Windows XP Professional, and Office 2003. Using Web tools provided by Microsoft, sponsoring groups and volunteer translators can develop community glossaries of standardized technical terminology. These glossaries in turn provide the foundation for Language Interface Packs (LIPs), which enable computer users to adapt their copies of Windows and Office to display many commonly used features in their native languages.

After the first four Language Interface Packs for Windows were released in January 2002—in Romanian, Estonian, Latvian, and Lithuanian—Microsoft started to receive requests from many other regions. Customers were not only interested in LIPs for other languages, however, they also wanted similar localization for Microsoft Office. In response to these requests, an expanded team of representatives from the Windows and Office groups began discussions with customers, partners, and governments in many different communities to better understand their unique localization needs. To date, Microsoft has worked with governments, universities, and local language authorities to develop 30 Windows XP Language Interface Packs and 21 Office 2003 Standard Edition Language Interface Packs, with additional languages scheduled for release in 2005.

## Conclusion

Digital inclusion is a global issue of enormous proportion. It is not a static problem, not a fixed goal that we can keep working at until we get it right. Digital inclusion is a moving target, which changes constantly with fluctuations in the world economy and the evolving needs of people everywhere as they move along the continuum of ICT knowledge and experience. That is why we must have a cadre of comprehensive but flexible programs that enable people at every stage of their lives and careers to get the training they need to pursue their dreams and achieve their goals.

Besides creating unparalleled opportunities for people around the world and strengthening local communities, Microsoft recognizes that promoting digital inclusion is good business. The more people Microsoft can help train, the more accessible we can make our technology to our partners and customers, the more they will be able to use technology to create opportunities for people and nations worldwide. Our commitment to digital inclusion is integral to our business and will continue to be a company priority. Ultimately, however, that is not the vision that drives us.

At Microsoft, we believe that by providing technology training, and tools to people of all ages and abilities, no matter where they are on the ICT learning continuum, we can help to create social and economic opportunities that have the power to change lives and transform nations. That is the real purpose behind our work on digital inclusion and our mission as a company: to enable people to realize their full potential.



Empowering People Through Technology