



**A RESOURCE GUIDE**  
*for*  
**Community Action Agencies &  
Other Community-Based Organizations**

**Adapting to  
the Big Change:**  
*Providing  
Information Technology  
Access & Training*



# Adapting to the Big Change: ***Providing Information Technology Access & Training***

A Resource Guide for Community Action Agencies &  
Other Community-Based Organizations

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*This project and publication were made possible through grants from:*

The U.S. Department of Health and Human Services  
Office of Community Services  
&  
The Boston Foundation New Economy Initiative



*Revised & Expanded Edition:*  
**March 2005**

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This publication is an updated, revised, and expanded edition of the original that was published by MASSCAP in January 2005, through a grant from the U.S. Department of Health and Human Services Office of Community Services.

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## A Note on Sources

This publication both draws from a wide array of sources. It also lists many available resources on the topics it covers.

The sources cited or that contributed to the narrative as well as many of the boxed sections or sidebars are listed in the *Endnotes* that appear at the conclusion of each chapter, where applicable. Full citations for the endnotes can be found in the *Bibliography* that begins on page 147.

In Chapter 4, which contains brief descriptions of numerous IT access and training projects around the nation, the sources are noted by initials within each. The initials are explained in a key that appears at the conclusion of the chapter. Web sites for projects (if we found them) are noted at the end of each brief description.

In the cases of some of the boxed sections or sidebars, especially the *Mini-Profiles* of Massachusetts CAAs' IT access and training projects that appears in Chapter 4, and those of other organizations and projects that appear in Chapter 6, the sources are: meeting and interview notes, and internal reports in MASSCAP's possession; responses by these organizations to MASSCAP's surveys or follow-up phone interviews that MASSCAP conducted with them; or, in some cases, information that can be found on the Web sites of some of these organizations.

Chapter 7 is a *Resource Catalog* that lists many organizations, Web sites and resources, and in some cases, publications—many of which can be obtained online. The publications also are listed in the *Bibliography*.

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## Acknowledgements & Credits

MASSCAP would like to acknowledge and thank the following organizations and individuals whose contributions made both the project that produced this resource guide as well as the publication itself possible.

The project was funded in part through a grant from the U.S. Office of Health and Services Office of Community Services. This publication also drew in part from sessions of a special MASSCAP Task Force on the New Economy and New Technology that was supported by the Boston Foundation's New Economy Initiative. MASSCAP especially wishes to thank: Geeta Pradhan, the Director of the Boston Foundation New Economy Initiative; those staff from Massachusetts community action agencies (CAAs) that participated in the task force; and the following individuals whose presentations to the task force provided important information and insights to participants: Laura Breeden, Director of the America Connects Consortium; Shaw Rosen and Steve Quimby of the Merrimack Valley (Massachusetts) Workforce Investment Board; Peter O'Dowd, of Greater Lawrence Community Action Council and the Jobs in Finance project; Anne Serino, Acting Director of Adult and Community Learning Services, Massachusetts Department of Education; and Rose Dittmer, Assistant Dean of Northern Essex (Massachusetts) Community College. MASSCAP also wishes to thank the Information Technology (IT) Access and Training Projects at Massachusetts CAAs and their representatives who made presentations and participated in sessions.

MASSCAP would like to express its appreciation to the many CAAs and other organizations around the nation who participated in its surveys on IT access and training, and especially to those who took the time and effort to complete the longer online surveys. Also, it would like to thank those within some of these organizations who provided much additional information through follow-up interviews over the phone. The assistance of the National Community Action Foundation (NCAF) was instrumental in disseminating the preliminary survey nationally to CAAs. The help of the National Community Action Partnership (NCAP) in sending CAAs across the nation requests to participate in the comprehensive online survey was critical in generating a response.

This publication builds on the work in recent years of two MASSCAP committees: the IT Committee, and the Education, Training, and Workforce Development Committee. Without their work, this project never would have been possible. MASSCAP would like to thank the members of those committees for their contributions. In particular, MASSCAP would like to thank Alan Sax, who launched the association's IT Committee while serving as President of MASSCAP and then served as the Committee's first Chair, from 1998 to 2004. This project resulted in part from his inspiration.

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MASSCAP also wishes to thank the project team listed below for their efforts.

### **Credits**

**Alwin Schmidt:** project planning; Web resources search/literature search and review; participation in survey design, development, and analysis; follow-up interviews with survey respondents; task force session planning; narrative writing; publication design and layout.

**John Bergin and the Eastern Research Group (ERG):** participation in survey design and development; technical development, hosting, support, and tabulation of the online survey; notes of task force sessions; front cover design concept.

**Claudia Green:** literature search; participation in survey design, development, and analysis; follow-up interviews with survey respondents; text for sidebars on pages 110 and 126.

**Patricia Pelletier:** participation in survey design; identification of some of the online IT training resources; task force session planning and panelist recruitment.

**Bethany Sadlowski, Eastern Research Group:** proofreading and copy editing.

**Joe Diamond, MASSCAP Executive Director:** project planning, administration, and support; participation in survey design, dissemination, and analysis; task force session planning and logistics.

*Photos courtesy of: Eastern Research Group, front cover, pages 1, 71, 137; Community Teamwork, Inc., page 55, back cover; Citizens for Citizens, page 91; Action, Inc. (Gloucester, Massachusetts), page 105.*

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# Introduction

**W**e are living in times of big changes. As Martin Luther King, Jr. noted nearly 40 years ago in a sermon that he gave just days before he died, three major revolutions were underway in the world then—and they still are in progress. They are inter-related, but this publication focuses on one of them—the technological one that Dr. King spoke of—and its relationship to one of the others: what he called the “human rights” revolution. Of course, by the time he made these remarks, Dr. King had come to define the human rights revolution in broad terms. He and others were making plans for a poor people’s march on Washington, and an encampment that they called “Resurrection City,” at the base of the nation’s capitol.

The technological revolution that Martin Luther King and others saw unfolding in the 1960s has advanced since then in major ways. Over the past decade or so, it has played an increasing and pivotal role in reshaping America’s economy and in transforming many aspects of daily life for millions of Americans. As the new information technology (IT)—based on computers and the Internet—has penetrated institutions, businesses, workplaces, and homes, many Americans now take advantage of the many new applications and opportunities it offers. At the same time, they have had to grapple with some of its downsides as well as to keep up with its rapid changes.

An ever-increasing number of Americans confront the impacts of IT on the economy. The IT revolution has been a major factor driving the rising knowledge and skill requirements for jobs—at least for those jobs that pay a living wage or more. Yet many Americans lack the knowledge and skills—even basic technology skills—that more and more jobs in America now demand. For those with low incomes and lower educational levels, this reality presents new, stiff barriers. For many who are moving from welfare to work that will support them and their families, these obstacles can be difficult to surmount. In effect, during the decade since welfare reform was adopted, the goalposts that represent the skills that one typically must have to attain economic self-sufficiency, have moved further down the field.

These changes present new challenges for community action agencies (CAAs) and other community-based organizations (CBOs), many of which were formed in the 1960s—in part as a result of efforts by Dr. King and others involved in the civil rights and anti-poverty movements. If CAAs and other CBOs are to continue to effectively pursue their historical missions in helping low-income and other disadvantaged people attain economic self-sufficiency, then they must adapt their work to the changes that the IT revolution is bringing about.

As Dr. King said, “all too many people find themselves living amid a great period of social change, and yet they fail to develop the new attitudes, the new mental responses, that the new situation demands. They end up sleeping through a revolution.”

**I** am sure that most of you have read that arresting little story from the pen of Washington Irving entitled “Rip Van Winkle.” The one thing that we usually remember about the story is that Rip Van Winkle slept 20 years. But there is another point in that little story that is almost completely overlooked.... When Rip Van Winkle went up into the mountain, the sign had a picture of King George III of England. When he came down 20 years later the sign had a picture of George Washington, the first president of the United States.... He was completely lost...”

“And this reveals to us that the most striking thing about the story of Rip Van Winkle is not merely that Rip slept 20 years, but that he slept through a revolution.... One of the great liabilities of life is that all too many people find themselves living amid a great period of social change, and yet they fail to develop the new attitudes, the new mental responses, that the new situation demands. They end up sleeping through a revolution.

“There can be no gainsaying of the fact that a great revolution is taking place in the world today. In a sense it is a triple revolution: that is, a technological revolution, with the impact of automation and cybernation; then there is a revolution in weaponry, with the emergence of atomic and nuclear weapons of warfare; then there is a human rights revolution....”

—*Rev. Martin Luther King, Jr.,  
“Remaining Awake through a  
Great Revolution,” a sermon given  
at the National Cathedral,  
March 28, 1968*

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In the era of Washington Irving's character, the sleeping Rip Van Winkle, of whom Dr. King spoke, America largely was a nation of small farms, a few large seaport towns dotted with artisans' shops, and plantations where slaves toiled. To attain greater self-sufficiency, for many Americans, acquiring more land and employing better agricultural practices helped—even though many farmers largely were dependent, in many ways, on their neighbors. Or it meant learning a trade. From the early 1800s, with the rise of mills and manufacturing, to the apex of America's industrial economy in the mid-1900s, people needed other assets and skills to make a living. Now, we are in yet another era—that of the Information Economy. Knowledge and skills at some level are necessary for self-sufficiency—and they include IT skills. Many Americans need more education and training if they are to succeed in this “New Economy,” but many first need access to computers and the Internet. Without IT access, one will never acquire IT skills.

This Resource Guide focuses on the IT revolution and its impact on the economy, jobs, and daily life, along with the steps that CAAs and other CBOs should consider taking to better equip their clients and other disadvantaged people—to begin, travel, and complete the journey to economic self-sufficiency in this changing society. Of course, undertaking this work presents big challenges for many organizations. Yet if they are to effectively pursue their missions, they cannot afford to sleep through this revolution.

In this publication, we look at a range of issues that CAAs and other CBOs should examine in planning, developing, and providing effective IT access and training initiatives to people whom they serve. We begin with an overview of the impacts of IT on the American economy, jobs, and society in recent years. In Chapter 2, we look at new information and thinking on the “digital divide,” or the gaps that exist among Americans—along income, educational, racial/ethnic, and geographical lines—both in terms of access to computers and the Internet as well as skills needed to use the new technology. Many Americans have formed the impression that this divide has closed in recent years, but the evidence suggests that it has not—in fact, it may be more complicated to close than many once thought.

MASSCAP surveyed CAAs and other CBOs around the nation on their IT access and training efforts. We report our findings in Chapter 3. In Chapters 4 and 6, we offer descriptions and some short profiles of existing projects that are engaged in IT access and training—for workforce development and for other purposes, in a variety of specific areas, and serving a wide range of groups. These examples offer important ideas, insights, and lessons. In Chapters 5 and 6, we discuss a range of key issues that are involved in planning, building, and implementing IT access and training initiatives within CAAs and CBOs. Chapter 7 contains many more resources—that exist on the Web or in print—where you can find more on the issues involved as well as lessons and best practices in providing IT access and training. Finally, we have provided an extensive bibliography that contains many other sources of information on all the topics covered in this Guide.

# The Big Change:

## *Information Technology's Role in a Changing Economy & Society*

**I**n 1952, historian Frederick Lewis Allen published a book on the transformation of America that had taken place in the previous 50 years. In it he chronicled not only major events of that era, such as governmental reform, women's suffrage, two world wars, and the Great Depression, but broad themes, such as the growth of the federal government, the urbanization of the nation, changes in social conventions, the struggle to eradicate racial inequality, the rise of consumerism, and the persistence of poverty. He also noted the significant technological innovations of the time—mass production, electric power, the telephone, the airplane, the automobile, the radio, and such everyday appliances as the washing machine and the refrigerator. And, he discussed how these technologies became woven into the economy and the patterns of American life in that half-century. He titled his book *The Big Change*.

Certainly, a big change did unfold in America between 1900 and 1950. A nation that entered the 20<sup>th</sup> century more rural than urban was the opposite when the era ended. Manufacturing, which literally gained steam (power) during the 1800s and had outstripped farming to become the dominant sector of the economy, made the United States the world's leader in exported manufactured goods by 1950. The U.S. became a world power and was a decisive influence in two world wars. New information and communications technologies, made possible by the electrification of the nation, reshaped both industry and everyday life for a large majority of Americans, transforming the nation's culture.

Of course in earlier times, other societies and economies had undergone periods of significant change, and sometimes new technology had played a role. For example, the advent of movable type and the printing press had a major impact on European societies in the



late 1400s and 1500s. The resulting mass distribution of the printed word helped to reshape religion, politics, and economics, not to mention thinking. That transformation from Medieval to modern society took centuries; the change that Frederick Lewis Allen described took about 50 years.

Technological innovation certainly did not cease after 1950: America entered an age that brought forth television, an even more dazzling array of home appliances and consumer goods, the space program and its spin-off applications, innovations in medicine, and more. Just as in the first half of the 20<sup>th</sup> century, all these changes did not reach all Americans, but most Americans in some way felt their impacts.

Now we are living through another big change. The evidence of it increasingly is hard to ignore in daily life and, as in Frederick Lewis Allen's time, new technology is playing a large role in the transformation. Gradually over the past 30 or so years, but much more dramatically since the early 1990s, the new information technology (IT) has had increasing impacts on all of us—on our economy and in our everyday lives. "The digital economy and digital society are no longer 'emerging,'" a U.S. Department of Commerce report declared in June 2000, "they are here."<sup>1</sup>

So, what is this latest big change that is unfolding in our own lifetimes? By now, we surely must sense that new technology is playing a large role in it. How has it affected the economy, work, jobs, and livelihoods? And how has it altered everyday life for millions of Americans? What does it mean for the future?

## IT & the "New Economy"

Scholars, many in government and business, and individual citizens have come to recognize that something fundamental has changed in the American economy. In retrospect, the change has been unfolding since at least the mid-1970s, as manufacturing in America has declined and the service sector has grown. While observers have had difficulty in reaching a consensus on specifically what has changed, and some have questioned whether the economy is truly "new" or not, most agree that it is indeed different.

The change became more pronounced and visible as the 1990s unfolded and a number of observers speculated about these differences. They pointed to several characteristics such as: a shift from standardized mass production to the flexible production of goods and services; the increase of industries that manage and convey *information* rather than make things; a decline in the number of people working in factories and a rise in the number working in offices; increasing globalization of the economy; "churning"—the faster pace at which both firms and jobs are created and destroyed; higher productivity; increased competition; an increased emphasis on both innovation and

speed in getting new products and services to the market; and rising education and skill requirements in jobs. The list could go on.<sup>2</sup>

Yet one characteristic that virtually everyone agrees on is the key role that new information technology (IT)—particularly computer technology and the Internet—has played in transforming the economy. Some consider its role so central that they have come to refer to today's economy as the "Information Economy," or the "Digital Economy." The impacts of IT on the transformation of the U.S. economy go far beyond the media-hyped boom and later bust of the "dot-coms" in the late 1990s: they are deep, widespread, and varied.

One of these impacts has been IT's role in overall economic growth—including both the contribution of the IT-producing sector itself as well as that of new technology to increased rates of productivity in other industries.

"An economy that 20 years ago seemed to have seen its better days is displaying a remarkable run of economic growth that appears to have its roots in ongoing advances in technology," Federal Reserve Board Chairman Alan Greenspan observed in remarks before Congress in August 1999. "Innovations in information technology—so-called IT—have begun to alter the manner in which we do business and create value, often in ways that were not readily foreseeable even five years ago."<sup>3</sup>

The Federal Reserve Chairman was not the only one to point to IT innovations and applications as the critical factor in the increased rate of economic growth within the American economy in the late 1990s. In 2000, the U.S. Department of Commerce reported that over the last five years of the '90s, "while producers of computer hardware, software, and services accounted for less than 10% of the U.S. Gross Domestic Product (GDP), they contributed on average 30% of the nation's real economic growth." "The Internet burst onto the economic scene and began to change business strategy and investment," it also noted. "At the same time, the U.S. economy has enjoyed a remarkable resurgence. Productivity growth, one of the most important indicators of economic health, doubled its pace from a sluggish 1.4% average between 1973 and 1995, to a 2.8% rate from 1995 to 1999. Evidence is increasing that these two phenomena are not coincidental...."<sup>4</sup>

While some initially were skeptical about the impact of new technology on higher productivity figures within the economy as a whole, by 2000 economists were becoming more convinced of the role that it had played. "A consensus is building that the remarkable decline in information technology (IT) prices provides the key to the surge in U.S. economic growth," one of them wrote in 2001. "The investment boom of the later 1990s was not sustainable, because it depended on the growth in hours worked that was substantially in excess of growth

*The impacts of IT on the transformation of the U.S. economy go far beyond the media-hyped boom and later bust of the "dot-coms" in the late 1990s: they are deep, widespread, and varied.*

*"Innovations in information technology—so-called IT—have begun to alter the manner in which we do business and create value...."*

*—Alan Greenspan,  
Federal Reserve Chairman*

in the labor force. Nonetheless, growth prospects for the U.S. economy have improved considerably, due to enhanced productivity growth and rapid substitution of IT assets for non-IT assets in response to falling IT prices.” In fact, the drop in memory chip prices (by an average of 54% a year from 1985-1996, for example) has been dramatic, and has led to sharp declines in the prices of computers. This trend spurred spending on computers, software, and communications equipment within many industries, which helped to boost productivity.<sup>5</sup>

In 2001 the rising productivity growth of the previous six years peaked. At that time, the nation experienced a recession. Still, one economist noted, “although productivity growth slowed from its recent trend, it was substantially stronger than it had been around the peaks of previous expansions.... Recent productivity gains have been driven largely, but not exclusively, by new and more efficient equipment, especially in the information technology (IT) sector. More importantly, the nature of these drivers suggests they will lead to comparable, if not even greater gains, in the future.”<sup>6</sup> Some economists even have speculated that slower but still relatively robust productivity rates helped to shorten what otherwise might have been a longer, deeper recession.

Nonetheless, the economic slump that began in 2001 was marked by a drop off in business investment in IT, which led to diminished revenues and job losses in IT-producing industries. Yet in its 2002 *Digital Economy* report, the U.S. Department of Commerce suggested that “the plunge in IT producers’ revenues gives a very misleading picture of the role that IT still plays in the overall U.S. economy.... In sum, businesses have trimmed their spending on new IT equipment and software, but have not cut back on their use of IT capital.... Strength in IT-producing industries, however, is only one indicator of a new economy,” it pointed out. “A second measure is the diffusion and increasingly productive use of IT goods and services both inside and outside the IT-producing sector. Here, events of the last two years give reasons for optimism. While the rate of IT investment has fallen sharply, American businesses are still adding to the nation’s IT capital stock.... Moreover, in contrast to business investment, personal and government consumption of IT goods and services tend to be relatively constant.”<sup>7</sup>

*“The plunge in IT producers’ revenues gives a very misleading picture of the role that IT still plays in the overall U.S. economy.... American businesses are still adding to the nation’s IT capital stock....*

*Moreover, in contrast to business investment, personal and government consumption of IT goods and services tend to be relatively constant.”*

*—U.S. Department of Commerce, 2002*

Thus, the IT-producing sector encountered and survived a rough stretch of road and the “Digital Economy” lives. But are IT’s impacts on economic growth merely a passing phase, or will it continue over the years and decades ahead? While this question remains a topic of debate, many believe that information and communications technology will continue to have major and perhaps even increased effects over the long run.

Some have termed computers and the Internet as “general purpose technologies,” comparing them to electricity. They have noted

that once factories, offices, and homes became wired for electricity, a wave of new innovations and products followed—from new industrial processes and machinery to household appliances, such as refrigerators, toasters, and radios. These applications and devices had profound effects on the economy. “To the extent that [IT] is, indeed, a general purpose technology, the returns to innovation (whether managerial innovations or the development of new products and processes) are likely to remain high for some time to come,” two economists have predicted.<sup>8</sup> In fact, just within the past few years, more such products have emerged that growing numbers of consumers quickly have adopted—for example, digital cameras and DVD players.

Another reason why this latest IT revolution may have continuing—and perhaps increasing—impacts on the economy for the foreseeable future lies within the technology itself. In 1965, Richard Moore, who later would become a founder of Intel (the company that now produces the microprocessors that drive many computers), observed that each new memory chip contains roughly twice as many transistors as its predecessor, and is released 18-24 months later. From 1971 to 2000, the number of transistors per chip increased at 34% a year—just as he had noted years before. His fortuitous observation has become known as “Moore’s Law.” As long as computing power increases at this rate, it will continue to make computers—whether they are used in big industries, small businesses, government, other institutions, or the home—obsolete very quickly. Software producers are attuned to this cycle—typically, they produce new or updated products that not only take advantage of more and faster computing power, but require it. Increasingly, so do Web site developers. As a result, the utility and value of both hardware and software diminishes very quickly. Put another way by economists, “compared to the past, capital goods now get obsolete much more quickly and firms have less time to accumulate experience with their capital (the learning-by-doing effect). In effect, these firms scrap their old capital much more rapidly than before.”<sup>9</sup>

Others point to the role that increasing computing power and the Internet play in the expansion of markets. “The dynamics of global growth are changing at least as profoundly as they did with the advent of railroads or electricity,” one writer believes. “In the second half of the 1800s, the combination of railroads and the telegraph greatly reduced the cost of overland freight transportation and sped up the rate at which new ideas could diffuse across the industrialized world. The widespread use of telephones and air travel in the 20th century increased the rate of technological diffusion even more. And as the size of markets increased, so did the potential rewards for new ideas.... Now the global economy has speeded up to Internet time.” He notes how the Internet has opened up global markets for goods that can be shipped inexpensively and may make some services such as education and financial services exportable.<sup>10</sup>

Of course another impact of IT on the economy has been the advent of e-commerce. While online shopping has not exactly soared as some in the late 1990s had forecasted, it nonetheless has steadily increased. The U.S. Department of Commerce noted in 2002 that despite the collapse of many “dot-com” businesses, those that had survived had “adjusted to the realities of the markets in which they operate,” and that businesses in general were making increased use of the Internet.”<sup>11</sup> In addition to those “dot-coms” such as Amazon and e-Bay that survived and thrived, many traditional “brick and mortar” businesses also have entered the world of e-commerce. For some small businesses offering special or unique products and whose markets once had been confined to local areas, the Internet has allowed them to vastly expand their geographic reach. It seems likely that both businesses and individuals increasingly will purchase goods and services through the medium of the Internet.

*Study after study has documented the rising educational and skill requirements—IT and others—to obtain jobs in this economy that pay at least a living wage.*

*This trend is not confined to the “high-tech” sector—IT increasingly is penetrating much older industries as well.*

*Work that requires use of computers and the Internet is not confined to computer specialists. Several recent national surveys have revealed that at work, half or more of employed Americans use computers, and many also use the Internet.*

In the past decade or so, computer technology and the Internet have had impacts on the economy that stretch far beyond the IT-producing and IT services sector, productivity growth, and e-commerce. The infusion of IT has been felt across many sectors of the economy. The list is a long one, but here are some notable examples: banking and financial services; manufacturing (autos, aircraft, household appliances, machine tools, and many others); transportation and trucking; automobile and appliance repair; retail; energy; education; health care; pharmaceuticals; publishing and printing; and even agriculture. The new technology also has become embedded within a broad array of government operations and services. In short, few industries in the American economy have remained unaffected. That is why some observers have termed today’s economy a “New Economy”—IT and its effects are not confined to the IT sector, but have penetrated many older sectors and industries as well.

### IT’s Impacts on Work & Jobs

As IT has penetrated businesses and government as well as other institutions and organizations, it often has brought about fundamental changes in organization, the workplace, the nature of work, how work gets done, who does it, and jobs. Study after study has documented the rising educational and skill requirements—IT and others—to obtain jobs in this economy that pay at least a living wage. Virtually everyone in America today seems to be aware of these changes in the economy and jobs, and millions have been affected by them. A 2001 study found that a large majority of those sampled now think that to keep up or to get ahead in this economy, acquiring new skills involving computer technology and/or the Internet is necessary.<sup>12</sup>

The increasing demand for skills began unfolding well before the widespread use of computers and the Internet. In 1999, then-U.S. Labor Secretary Alexis Herman noted that in the 1950s, 60% of the workforce could be classified as unskilled, 20% as skilled, and the rest

as professional. By 1997, the numbers had flip-flopped: 60% of the jobs were skilled and just 20% were unskilled.<sup>13</sup>

“As the tools of each trade become more sophisticated, many more occupations will have ‘tech’ elements,” the U.S. Department of Labor noted in a 1999 report. Most workers will need basic computer skills to enter their chosen occupations and additional specialized training in field-specific applications to advance.... The workforce of the future will need to adapt to the rapid pace of technological change to upgrade their skills. The importance of lifelong learning cannot be overestimated.”<sup>14</sup>

Yet the advance of technology and its widespread infusion across industries not only has reduced unskilled jobs, but skilled ones as well, as the U.S. Department of Labor pointed out in a 2003 report. “Occupational employment declines usually are caused by technology (thus reducing the need for labor), or a transfer of duties to different occupations.... The use of computer technology is expected to reduce demand for word processors and typists, tellers, loan interviewers and clerks, secretaries (except legal, medical and executive), switchboard operators (including answering services), and other office and administrative support occupations.”<sup>15</sup>

On the other hand, the federal government has projected that by 2012, seven of the 30 fastest-growing occupations will be directly computer related, second only to those in health care. “The increasing demand for computer-related occupations reflects the rapid advances in computer technology and the continuing development of new computer applications, including the Internet and Intranets.”<sup>16</sup>

Of course, work that requires use of computers and the Internet is not confined to computer specialists. Several recent national surveys have revealed that at work, half or more of employed Americans use computers and many also use the Internet. A federal government survey found that in 2001, 53.5% of the workforce used computers on the job and about 40% used the Internet. Some 65% of respondents in a 2001 national survey by Kent State University researchers said they used a computer at work and 45% reported that they used the Internet there as well. In addition, a study by the Annenberg School Center for the Digital Future in 2003 found that 57.5% of those with jobs used the Internet at work outside the home—up from 42.3% in the Center’s 2000 survey.<sup>17</sup>

Both how and how often individuals use computers and the Internet in the workplace ranges greatly—from the simplest to the most complex applications. Obviously, the frequency of use and the skills involved depend on one’s job, knowledge, and abilities. Nonetheless, these surveys confirm that computer and Internet usage is increasingly becoming a part of many workers’ jobs.

## Expansion in IT Jobs

**T**he U.S. Department of Labor’s Bureau of Labor Statistics has estimated that between 2002 and 2012, computer and mathematical occupations will “add 1.1 million jobs, and grow the fastest among the eight subgroups [of job areas].”<sup>1</sup>

“The demand for computer-related occupations should increase, despite the recent downturn as a result of rapid advances in computer technology and the demand for new computer applications, including those for the Internet and Intranets,” BLS concluded.

“Growth will not be as rapid as during the previous decade, however, as the software industry begins to mature and as routine work is increasingly outsourced overseas.

“More than a third of new jobs will be in computer systems design and related services, and one-fifth will be in the information industry, primarily in software publishers, data processing and related, and Internet-related industries. In both groups, projected growth for these occupations exceeds 50%.

“In addition, in many industries, employment of these workers is projected to grow faster than the average for all occupations. Self-employed computer and mathematical workers are expected to increase 39.8%.”

Of course, IT jobs do not exist only within the IT industry. Statistics show that since 2000, they have been growing at a more rapid pace in other industries.

*“Despite describing it as a digital phenomenon, the [digital] divide is really about the effective utilization of human resources.... The supply of appropriately skilled workers is inadequate to meet present and anticipated future demands....”*

—Texas Workforce  
Commission Report, 2002

*“Today, to secure a secure middle-class job, workers must be able to solve complex problems, think critically, communicate effectively, and use computers and other technology.”*

—Massachusetts Institute for a  
New Commonwealth, 2001

*The American economy is in a period of transition, and while many factors are involved, the rapidly-developing information and communications technologies that have emerged over the past 20 years are a major force driving the change.*

The national surveys are confirmed by the new realities regarding the economy, IT infusion, jobs, and skills that state and local-level observers report. The following are findings that come from three geographic regions, but they echo other reports from across the nation.

“The skills requirement has changed over the last two decades,” the Massachusetts Institute for a New Commonwealth declared in a 2001 report. “What is considered ‘basic’ has also changed. Today, to secure a secure middle-class job, workers must be able to solve complex problems, think critically, communicate effectively, and use computers and other technology.” In that same report, the Institute estimated that one-third of the Massachusetts workforce—over a million workers—lacked the skills and education needed in the “New Economy.”<sup>18</sup>

This observation also has been made by others elsewhere: “The new Texas economy is knowledge-based,” an analyst for the Texas Workforce Commission wrote in 2002. “Despite describing it as a digital phenomenon, the divide is really about the effective utilization of human resources.... The supply of appropriately skilled workers is inadequate to meet present and anticipated future demands....”<sup>19</sup>

And in California, where many believe trends are set for the rest of the nation, the Contra Costa County Workforce Investment Board noted in a 2002 report:

What became evident from the beginning of this research project was that the problem of a skills gap between what employers need and what employees have is a national and international problem. The research demonstrates that: 1. A gap exists between the skills of employers and the needs of employers; 2. There are multiple and conflicting causes for this gap; 3. There is an ever changing status between what employers need and the skills employees possess....

Over the past two decades, businesses have invested heavily to up-grade the technologies they use to produce their goods and services. It is no longer accurate to distinguish between high and low technology firms. To remain profitable and competitive in virtually every industry, it is necessary to take advantage of the greater efficiencies and effectiveness implicit in the new technologies....<sup>20</sup>

The American economy is in a period of transition, and while many factors are involved, the rapidly-developing information and communications technologies that have emerged over the past 20 years are a major force driving the change. IT innovations and their applications have spurred economic growth and productivity in the United States have fueled “globalism,” and have changed investment, the production and distribution of goods and services, and workplaces. IT is changing the nature of work, jobs, and the knowledge and skill levels required for jobs. And some have suggested that it may be redistribut-

ing income. Just as in the first half of the 20<sup>th</sup> century—the period that heralded the arrival of electricity, interchangeable parts, mass production techniques, telephones, radios, and automobiles—the recent infusion of computer-based technology and electronic connectivity via the Internet is producing another big change in the American economy.

## IT's Effects on Society & Everyday Life

If computer technology and the Internet significantly have changed many aspects of the American economy and work in a relatively short time, they also have had major and likely lasting impacts on how many Americans live the rest of their lives—provided, of course, that they have access to and can use these new technologies. Computers and the Internet increasingly affect the way many Americans communicate with one another, learn things, produce things, buy things, plan things, and interact with government and other institutions.

Of course, the best known and most popular uses of the Internet include: e-mail, which the U.S. Department of Commerce has reported is “the most prevalent online activity,” involving 88% of Internet users; getting maps and directions, finding addresses and phone numbers, conducting searches for information, getting news and weather reports, buying tickets, and playing games. Among the fastest growing activities are online banking and e-commerce, which grew by 10.4% and 8% respectively between 2001 and 2003. Large numbers of Americans also use computers and the Internet to: acquire and listen to music, pursue hobbies, schedule appointments, obtain health information, take educational courses, print and exchange photos, research family history, make and send greeting cards, search for jobs, send resumes, trade stock, renew vehicle registrations, file tax returns, download videos, renew library books, get sports scores, make travel reservations, and much more.<sup>21</sup>

While e-commerce has not skyrocketed as some had predicted a few years ago, the Internet nonetheless has changed the way in which many Americans purchase things—especially big-ticket items. For example, many check online reviews and inventory listings for dealer's lots before buying cars. They read online product information and opinions posted by consumers about appliances before they buy them. They scan real estate listings on the Internet before viewing homes and apartments. And they even peruse reviews of books and music before making purchases, either on-line or in a local store.

The Internet increasingly is becoming a forum for social interaction beyond the exchange of e-mail messages. Americans use chat rooms to discuss issues of common interest, and they are using the medium to find people for dating and romantic purposes, just as during the big change of Frederick Lewis Allen's time, the automobile altered the ways in which people interacted.

### *Our Changing Culture:*

#### **How Americans Use the Internet in Daily Life**

**T**he Pew Internet Project did a survey in late 2003 of Americans who use the Internet. It asked them what they used it for. The results, given in percentages of those they surveyed, appear below.<sup>1</sup>

#### **Percent & Activity**

- 87 Get maps or directions
- 79 Communicate with family and friends
- 69 check the weather
- 63 check the news
- 55 check sports
- 55 buy tickets
- 52 send cards
- 50 get addresses and phone numbers
- 46 play games
- 44 pay bills and do banking
- 34 pursue hobbies
- 33 buy daily items
- 26 find new people and
- 23 listen to music
- 22 schedule appointments
- 18 read for fun
- 16 watch videos

New uses of computers and the Internet pop up constantly in the news. In early 2004, the use of the Internet to successfully raise money for political candidates made the headlines. More recently, the Internet's role in quickly generating massive financial aid from the public for victims of the natural disaster in Asia has attested to its power and reach. And lately some have come to view the new technology as a means by which low-income people and others with disadvantages potentially can more easily find, assess, choose, and obtain the social, education, and health services that they need.

Thus, computers and the Internet are reshaping the way many Americans conduct their lives on a daily basis, including how they communicate with others. By now it is clear that the new technology is changing some activities in significant ways, and others in more subtle ones. Some think that the new technology has provided new conveniences and new opportunities, and others believe that it has quickened the pace of life for those who use it, and for everyone in general. Many argue over its benefits and drawbacks. But it is changing American life, and that process is still unfolding.

*The new IT revolution—computers and the Internet—is changing the economy, the way growing numbers of Americans work, and their prospects for both economic advancement as well as economic self-sufficiency. It is altering the way many Americans go about the activities of daily life.*

*Can today's new technologies help to expand economic opportunity, bring poor Americans up to at least a level of self-sufficiency, and reduce social inequalities? Or will they contribute to or reinforce existing inequities?*

### Implications of the New Big Change

The new IT revolution—based on computers and the Internet—is changing the economy, the way growing numbers of Americans work, and their prospects for both economic advancement as well as economic self-sufficiency. It is altering the way many Americans go about the activities of daily life—communicating and interacting with others, managing their affairs, playing their roles as consumers and citizens, entertaining themselves, and learning about the world around them. Computers and the Internet differ from some popular, earlier forms of media in which most people could only act as passive receivers of information. The new technologies offer channels for two-way communication over global distances. They also provide a relatively inexpensive way for individuals and groups to record and/or create as well as produce their own information in a wide variety of forms—from text to graphical, sound and video—and to transmit it to large numbers around the world in a matter of minutes.

We barely are beginning to fathom the implications of this new big change. Yet we are beginning to understand that technological advances are a, if not *the*, critical underpinning of it. In Frederick Lewis Allen's times, new technologies helped transform economic realities and patterns of life for Americans. In turn, these effects also led to other changes, many for the better. Can today's new technologies help expand economic opportunity, bring poor Americans up to at least a level of self-sufficiency, and reduce social inequalities? Or will they contribute to or reinforce existing inequities?

Increasingly, IT access and IT skills are becoming more essential to thrive, and possibly even to stay afloat, in the New Economy. Mean-

while, they are becoming increasingly important for Americans to function effectively in the social environment that surrounds them. Many of the activities of everyday life that we have grown accustomed to doing in real encounters at so-called “brick and mortar” places down the street or in the next town, or through the mailbox, have moved—to the Internet. These activities are not necessarily recreational or ones that many of us typically really want to do, but ones we *have* to do—simply to manage aspects of our lives outside work. In some ways this shift has made life easier, but in other ways not, given the expense and complexities of the constantly changing technology.

Given IT's increasing penetration of our economy and society, expansion of IT access and the acquisition of IT skills by Americans increasingly are becoming important in our society, if the nation is to widen economic opportunity and “social inclusion.” But this is a task that remains a work in progress and which faces several significant obstacles.

“The story that I propose to tell has deep shadows in it,” Frederick Lewis Allen wrote just after the end of World War II and at the dawn of the nuclear age, in introducing his chronicle of the big change in America between 1900 and 1950. “Some of those shadows are dark today,” he said. “It is emphatically not a story of paradise gained.” But he added this: “In these anxious times we can at least take satisfaction in recalling that the good old days for which some have always yearned were not so good; that we live, despite the wails of the pessimists, in an age of progress....”<sup>22</sup>

The next chapter focuses on the current state of a “digital divide” in our nation and covers recent perspectives on it. It reveals both some “deep shadows” as well as some bright spots of this new big change. And it offers some insights on the issues involved in enabling more Americans to access and effectively use the new technology to improve their lives.



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# The Digital Divide:

## *Revealed, Reconfirmed & Reassessed*

### A “Divide” Revealed

**F**rom 1995 to 2000, the U.S. Department of Commerce (U.S. DOC) National Telecommunications and Information Administration (NTIA) issued several reports drawn from Census Bureau data that it called the *Falling through the Net* series. As computer use in workplaces and homes was expanding, and increasing numbers of Americans each year were connecting to the Internet, the reports measured these trends. They also tracked the characteristics of those who had computers and Internet access at home and those who did not. They revealed that those *without* computers and Internet access disproportionately were those with lower incomes, lower educational levels, those living in rural areas and in some inner city areas, as well as those with disabilities, African Americans, Hispanics, and Native Americans. The findings of the *Falling through the Net* reports were echoed by those of non-governmental studies that showed increasing access by Americans to IT but that also revealed gaps along the same demographic lines.

These gaps soon became popularly known as “the digital divide.” Many observers saw alarming implications in both the gaps and the rising skill requirements for emerging new jobs. A 1998 report by the Benton Foundation and the National Urban League put it this way: “Indeed, even as digital technologies are bringing an exciting array of new opportunities to many Americans, they are actually aggravating the poverty and isolation that plague some rural areas and inner cities.” “We are witnessing the wholesale disappearance of work accessible to the urban poor,” declared Milton J. Little, Jr., the Urban League’s Executive Vice President. “The information poor will become more impoverished because government bodies, community organizations, and corporations are displacing resources from their ordinary channels of communication into the Internet,” researcher James Katz predicted.<sup>1</sup> Lack of access to computers and the Internet, many pointed out, severely reduced one’s chances of gaining the new skills necessary to succeed in the changing labor market.

The U.S. DOC issued its fourth *Falling through the Net* report in late 2000. It revealed that both computer ownership and use of the Internet were continuing to increase across demographic groups—including low-income people, those with less education, and minorities. It noted that 51% of all households then had computers, up from 42.1% in December 1998, and that the household Internet access had jumped from 26.2% to 45.1% in the same period. Black households with Internet connections had risen from 11.2% to 23.5%; Hispanic households with access to the Internet also had approximately doubled, from 12.6% to 23.5%. And Internet usage differences between men and women had nearly disappeared. “Digital inclusion is rapidly increasing,” the Department announced.

But besides the news that home computers and Internet use had



increased within virtually all segments of American society, the report contained other information that painted a picture not very different from that portrayed in the previous reports. Large gaps along the same lines remained.

Although the number of households at all income levels with computers had risen since 1998, a wide gulf in computer ownership still existed across income lines. Some 86.3% of households with annual incomes of \$75,000 and up had computers, as did 73.2% of those with incomes in the \$50,000 to \$75,000 bracket. In contrast, just 19.2% of households earning below \$15,000 had computers, and 30.1% of those with incomes between \$15,000 and \$25,000. The income gap among households with Internet access was not much different: 77.7% of homes in the top income bracket had access, but just 12.7% in the lowest income bracket did.

While home computers and household Internet access had increased between 1998 and 2000 for those at all education levels, big differences remained. In 2000, 69.9% of those with a post-graduate degree had home Internet access as did 64% of those with a bachelor's degree and 49% of those with some college education. But only 29.9% of those with a high school diploma and just 11.7% of those who had not completed high school had Internet access at home.

Moreover, in 2000 the divide between Internet access rates for Black households and the national average was 18 percentage points—three points wider than it was in 1998—and for Hispanics, four points wider. The percentages of Black (32.6%) and Hispanic (33.7%) households with computers were 18 and 17 points below the national average respectively, remaining unchanged since 1998. Two parent families were nearly twice as likely to have Internet access as single parent households (60.6% for dual parents, 35.7% for male-headed households, and 30% for female headed households). In central cities, just 22.8% of female-headed households had Internet access.<sup>2</sup>

### Debate over the Divide

The fourth *Falling through the Net* report continued to stir the debate over the digital divide and what to do about it. If there really still was a divide, was it quickly closing? The report's findings—that increasing numbers of Americans across all income, education, gender, and racial/ethnic lines were continuing to acquire home computers and Internet access—served to reinforce the views of those who had been skeptical that the gaps either would last long or were of major importance. So did rapidly falling computer prices, and the speed at which public schools had acquired Internet connections since the mid-1990s, due at least in part to the federal E-Rate program.

Few challenged the numbers that still showed a digital divide. But some believed that the digital divide had been overplayed as a public

issue, that it did not merit high priority in public policy, and/or that it was closing and through “natural” or market forces, it would largely disappear before long. Some thought that the media had hyped the divide and had ignored data showing that it was closing. At least one observer pointed out that the federal study either had not collected or included data about Internet access and utilization *away* from home by African Americans and other groups. Others noted how quickly some earlier applications of information and communications technology—particularly radio and television—had penetrated nearly all American households, and concluded that it was just a matter of time before computers and Internet access did, too. A few suggested that computers and Internet access chiefly were luxury items or entertainment media.<sup>3</sup>

In a piece entitled “Declare the War Won,” Benjamin Compaine concluded that “the digital divide is less a crisis than a temporary and normal process....” He went on to say that:

A society that has more important issues, such as feeding and housing its people, providing for safety and security, and creating general well-being would place access to entertainment and information well down on the list of priorities.... Let there be no misunderstanding of this conclusion. There are those households and institutions that are disadvantaged, in information access and in other arenas.... American society has tried various policies to take the hardest edge off these gaps. But where goods or services are truly important to people history demonstrates that here has been great success in minimizing differences among groups....

He also suggested that “by allowing the self-evident forces of declining cost, natural acculturation, and growing availability to take their course” the gaps largely would be closed. “At some point before the end of this decade—likely sooner than later—the adoption curve will flatten,” he predicted. “Perhaps it is fair to propose that the digital divide is disappearing on its own. Public policy in a few years can then turn its attention to the much smaller skirmishes that may be needed to help out with the digital crevices left at the fringes.”<sup>4</sup>

Others took a different view of the information contained in the 2000 U.S. DOC report as well as that included in its next report on the topic, entitled *A Nation Online: How Americans Are Expanding Their Use of the Internet*, released in early 2002. “While some of the data clearly show that there are increasing numbers of Americans connected to the Internet and computers, the same data also shows how specific segments of society—particularly underserved communities—continue to significantly lag behind and that the digital divide remains a persistent problem,” the Benton Foundation and the Leadership Conference on Civil Rights Education Fund declared in response to the 2002 report. “Significant divides still exist between high and low income households, among different racial groups, between northern and southern states, and rural and urban households. For people

in these communities, the enormous social, civic, educational and economic opportunities offered by rapid advances in information technology remain out of reach.”

These groups pointed out that 75% of those in households with income less than \$15,000 and 66% with incomes between \$15,000 and \$35,000 were not yet using the Internet. Yet 67.3% of Americans earning between \$50,000 and \$75,000 and 78.9% of people making over \$75,000 were using the Internet. They added that large gaps in home computers and home Internet access existed: African-Americans and Hispanics still lagged far behind Whites and Asian-Americans. They also declared that blue collar and unskilled workers had little access and few opportunities to develop technological skills, citing the concentration of computers in white collar jobs at work, and computer/Internet access at home for people in these occupations. In short, they did not disagree that computer and Internet use both at home and work was expanding among all income groups. But they focused on the gaps that existed between those who had computers and Internet access at home or at work, and found that they still were large when measured by income, education level, and race/ethnicity.<sup>5</sup>

“Because our society is not a ‘café’ culture, most personal business is conducted from the home. Searching for information, looking for a job, and entertainment activities (especially TV viewing) are typically done in the privacy of the residence,” Mark Cooper pointed out in response to the fact that the 2002 U.S. Department of Commerce report had emphasized statistics on growing Internet access from any location—not just from home. He added that:

For this reason, we have measured the digital divide, as we have measured universal telephone service, by the availability of the means of communications... in the home. Stopping by the library to use the Internet or using it at work, may be transitional steps useful for creating skills in the population, or carrying out specific tasks associated with the activities of those locations, but they are not a replacement for its availability in the home.

By this measure, a sharp divide still exists between those who have computers and access to the Internet at home and those who do not. It can be said that we have finally reached the halfway point in residential Internet availability. Half the population has the Internet at home. Of course, that means that half the population does not.... It is far too soon to declare victory.<sup>6</sup>

Stephen Martin, another researcher, examined the data presented in the 2002 U.S. DOC report and concluded that it showed “no evidence for a decrease in the unequal diffusion of computer ownership or Internet use over time.” He determined that “individuals with the lowest family incomes have a much lower chance of using the Internet in either time period (14% in 1998, 25% in 2001) than individuals with the highest family incomes (59% in 1998, 79% in 2001).” He

noted that the largest leaps in Internet use between 1998 and 2001 were for those with middle incomes. He calculated that, at the rate at which the lowest income groups had gained Internet connections from 1998 to 2001, it would take another decade or more before a large majority of the poor had acquired home computers and Internet access.<sup>7</sup>

Two economists who looked at the federal data from 1997 to 2001 concluded that a digital divide in the U.S. did persist and that “college education is the key determinant of computer use, although substantial gaps are evident across income categories and, to a lesser extent, racial/ethnic groups as well.” They added that “additional tabulations with 1997 data... indicate that, in percentage point differences, these gaps have been relatively stable over time (although they are likely to shrink as computer prices fall further and usage rates for some groups approach the limit of 100%).”<sup>8</sup>

### Recent Findings on Computer & Internet Access & Use

Since 2001 several national studies have been conducted on computer and Internet access and use. Some have presented an overall view of the issue while others have focused on particular aspects of it. Of course, since nothing remains static—especially in the current IT revolution—it is important to look at the more recent findings. By assessing the digital divide today, these findings are important in helping to design or refine efforts to widen IT access and to effectively provide appropriate IT training to more Americans.

Three recent national surveys provide important information about computer and Internet access, Internet users, and use of the technologies. In late 2004, the U.S. DOC released another report on the topic, *A Nation Online: Entering the Broadband Age*, which like its predecessors, draws from the Census Bureau’s Current Population Survey (CPS) and contains statistics from October 2003. Since 2000 the University of Southern California Annenberg School Center for the Digital Future has conducted four annual surveys on Internet use: the most recent one (*The Digital Future Report, Year Four*) contains 2003 data. The Pew Internet and American Life Project regularly surveys Internet use and has published a number of significant reports, including *The Ever-Shifting Internet Population: A New Look at Internet Access and the Digital Divide* (2003).

All these reports show that the percentage of Americans who have home computers and home Internet connections, and who use the Internet at some location, has continued to increase since 2000, and that these increases have taken place in virtually every demographic category. However, the rate of increase appears to have slowed significantly since 2001 (more on that below). They reveal that the gender gap has closed, and equal percentages of women and men now use

### The Divide in the Hi-Tech Workforce

The digital divide extends to the IT workforce. A study by the Information Technology Association of America (ITAA) based on U.S. Bureau of Labor Statistics data found that between 1996 and 2002 percentages of women and African Americans in the IT workforce actually dropped over that period. The percentage of women declined from 41% to 34.9% and the percentage of African Americans fell from 9.1% to 8.2%. In comparison, women made up some 46.6% of the overall U.S. workforce and African Americans accounted for 10.9% of the U.S. workforce in 2002.

In the same period, the percentage of Hispanics in the IT workforce edged up from 5.4% to 6.3% while that of Asian Americans rose from 8.9% to 11.8% and that of Native Americans increased from .2% to .6%.<sup>1</sup>

computers and the Internet. And they note a sharp increase since 2001 in the percentage of American households that have acquired high-speed Internet connections, although three studies conducted in 2003 and 2004 placed the total percentage of American household with high-speed access between 20% and 24%.<sup>9</sup>

What do these recent surveys tell us about where the digital divide now stands? Have access gaps along income, education, racial/ethnic, and geographic lines closed, and if so, by how much? The following are findings from these surveys in the areas where wide gaps in IT access appeared in previous studies.<sup>10</sup> They offer snapshots of computer and Internet access since 2001.

#### **Households with computers**

The two surveys that reported on this differed:

- U.S. DOC: in 2003, 61.8% of households had computers, up from 56.2% in 2001.
- *The Digital Future Report*: in 2003, 74% of homes had at least one working computer, up from 70.8% in 2002, and 30% of homes had more than one working computer.

#### **Households with home Internet access**

The two surveys also reported different results in this area.

- U.S. DOC: in 2003, 54.6%
- *The Digital Future Report*: in 2003, 65.1%.

#### **Americans with Internet access from any location**

Two of the surveys reported similar numbers.

- U.S. DOC: in 2003, 58.7%, up from 55.1% in 2001.
- *The Digital Future Report*: in 2003, 75.9, up from 72.3 in 2001.
- Pew Internet and American Life Project: in 2002, 58%, up from 49% in 2000.

#### **Internet Access by Race/Ethnicity, Income, and Education**

Surveys during first four years of this decade—two reported by U.S. DOC (using the Census Bureau's Current Population Surveys, or CPS) and two by the Pew Internet and American Life Project—show that significant gaps persist along lines of race/ethnicity, income and educational attainment. The results are summarized in the box on the next page.

#### **Americans who do not use the Internet**

U.S. DOC reported that in 2003 some 41.3% of Americans did not use the Internet, about 3.6 percentage points below the 2001 number. The Pew Internet Project reported that in 2002, 42% of American adults did not have Internet access, which was nine points lower than the 51% who did not have it in 2000.

## Americans who use the Internet— by Demographic Characteristics

### U.S. Department of Commerce Report Statistics

(Percentages of those age three (3) and above who use the Internet from any location)

	2001	2003
<i>Race/Ethnicity</i>		
White	61.3	65.1
Black	41.1	45.6
Asian Amer./Pac. Isl.	62.5	63.1
Hispanic (of any race)	33.4	37.2
<i>Family Income</i>		
Below \$15,000	25.9	31.2
\$15,000 - \$24,999	34.4	38.0
\$25,000 - \$34,999	45.3	48.9
\$35,000 - \$49,999	58.3	62.1
\$50,000 - \$74,999	68.9	71.8
\$75,000 & above	80.4	82.9
<i>Educational Attainment</i>		
Less Than HS	13.7	15.5
HS Diploma/GED	41.1	44.5
Some College	63.5	68.6
Bachelor's Degree	82.2	84.9
Beyond Bachelor's	85.0	88.0

### Pew Internet and American Life Project Statistics

(Percentages of those with Internet access)

	2000	2002
<i>Race/Ethnicity</i>		
White	50	60
Black	34	45
Asian Amer./Pac. Isl.	—	—
Hispanic	43	54
<i>Household Income</i>		
Below \$30,000	31	38
\$30,000-\$50,000	52	65
\$50,000-\$75,000	67	74
\$75,000 and above	78	86
<i>Educational Attainment</i>		
Less than HS	17	23
HS diploma/GED	34	45
Some college	63	72
College +	75	82

**Which demographic groups in the latest surveys are most likely not to have Internet access?**

*Studies since 2001 show that people with lower income and lower educational levels, African Americans and Hispanics, older people, those with disabilities, and those living in rural areas remain less likely than other groups to have Internet access.*

■ **Those with lower education levels.** The latest U.S. DOC report showed that 84.5% of those who did not graduate from high school and 55.5% of those with only a high school diploma did not use the Internet, compared with only 15.1% of those with a bachelor's degree. The percentages for all these groups dropped less than 3.5 percent between 2001 and 2003. The Pew Internet Project's 2002 survey showed a similar pattern: 77% of non-high school graduates did not have Internet access and neither did 55% of those with only a high school education, while just 18% of those with a bachelor's degree or higher lacked it.

■ **Those with lower incomes.** Both surveys report that higher percentages of people in all income brackets have gone online since 2000, but vast differences along income lines remain. U.S. DOC reported that in 2003 that 68.8% of those in families earning less than \$15,000 annually did not use the Internet nor did 62% of those in the \$15,000 to \$25,000 bracket. Pew found in 2002 that 62% in households with incomes under \$30,000 lacked Internet access. In comparison, Pew reported only 35% of those in households earning between \$30,000 and \$50,000 did not have Internet access, and both studies showed that less than 17% of households in the \$75,000 and higher income bracket lacked it.

■ **African Americans and Hispanics.** U.S. DOC reported that in 2003, that 54.8% of Blacks and 62.8% of Hispanics did not use the Internet, as opposed to 34.9% of whites and 37% of Asian Americans and Pacific Islanders. These numbers dropped from 2001 by about 4 percentage points respectively for Blacks, Hispanics, and Whites. Pew's 2002 survey had a similar number for Blacks, a slightly lower number for Whites, but reported a lower number than did U.S. DOC for Hispanics without Internet access—some 46%.

■ **Older People.** Pew reports that half of all who do not use the Internet are over age 50, and that in 2002, only 82% of those over 65 lacked Internet access. U.S. DOC found that 55% of those over age 50 did not use the Internet.

■ **Those with disabilities.** Both the U.S. DOC and Pew surveys reported that high percentages of those with disabilities do not use the Internet.

■ **People Living in Rural Areas.** The findings are mixed, but Pew reported in 2002 that the percentage of those in rural areas with home Internet access was about 50%—10 points lower than those living in urban and suburban communities. Rural areas also lag behind other areas in the availability of high-speed access.

For those Americans who don't use the Internet, why not?<sup>1</sup>

**Don't want it, don't need it, or not interested.** In the Pew survey, 52% of those who do not use the Internet said that the fact they didn't want it or need it was a main reason they didn't have it. U.S. DOC's report noted that 41.6% cited this as their reason for not connecting, and *The Digital Future Report* found that 24% of respondents who do not had no interest in it.<sup>1</sup>

**Don't have a computer.** *The Digital Future Report* found that 42% in their survey cited a lack of a computer as the reason for not going online and U.S. DOC placed the number at 22.5%. But just 11% of the Pew survey respondents named the lack of a computer.

**Cost.** Pew found that 30% of non-users said a major issue for them was that using the Internet was too expensive for them, and another 18% cited cost as a minor reason; the U.S. DOC reported that 22.9% of respondents cited expense as the reason. But just 9% of respondents to *The Digital Future Report* said that cost was their reason for not connecting. The Pew report noted that a "very high" number chose not to answer the cost question in 2000, and again in 2002. It also said that women, Hispanics, African American and low-income people were most likely to cite cost as the reason they had no Internet connection. The U.S. DOC study found that among those who had discontinued home Internet service, cost was the reason for 27.2%, lack of a capable computer was the reason for another 27.5%, and lack of interest of need for only 18.4%.

**Don't know how to use the Internet, or it's too complicated.** Pew found that 46% of those who do not use the Internet said that a major or minor reason why, was that it was too hard to understand. Some 18% of *The Digital Future Report* survey respondents said that they did not know how to use it. Another 2% acknowledged that they had a fear of technology.

**Fears about online content and interaction.** In the Pew survey, a majority (43% citing it as a major issue, and 14% as a minor one) said that they were not online because they were worried about the intrusion of pornography into their lives, and were concerned about credit card theft and fraud. The Pew study noted that women, parents, those over age 30, and those at lower education levels most often cited these issues as a reason. Yet only 2% of *The Digital Future Report* survey's respondents cited privacy and security concerns.

**The Internet will take up too much time.** In the Pew survey, 46% said that time was either a major or minor factor why they didn't use the Internet, but just 6% in *The Digital Future Report* study cited a lack of time.

**For those Americans who don't use the Internet, why not?**

Surveys by U.S. DOC, the Pew project, and *The Digital Future Report* asked respondents who did not have Internet access and/or use the Internet *why* they did not. They each asked many of the same questions, and the responses they received as to the reasons varied considerably in some cases. A summary of what the surveys found (Pew's data is from 2002; the U.S. DOC's and *The Digital Future Report's* is from 2003) appears in the box on the previous page.<sup>11</sup>

As is evident by reading the summaries in the box, these recent surveys of Americans who do not use the Internet, or lack Internet access, show different results. Some of the differences may be due to the samples of the population that were used, and some may be due to how the questions were asked.

Is it possible to sort out the seemingly conflicting information? What do these surveys tell us about the digital divide?

The surveys reveal that a significant percentage of those who do not use the Internet (Pew, 52%; *The Digital Future Report*, 24%) simply don't want it, have no use for it, or are not interested in it. Income, education, race/ethnicity, or other factors *may* be behind the disinterest, but these surveys did not explore possible underlying reasons.

Certainly, the fears regarding security of personal and financial information, the potential intrusion of pornography, spam, adware, and other unwelcome visitors into the home via the Internet concern non-users as well as users—and apparently deter some from going online. Obviously, many parents have become attuned to the potential dangers involved in having their children engaging in unsupervised online activities. Others who do not use the Internet primarily because they think it will consume too much time may well have little time in their lives to spare. The Pew researchers also found that those who do not use the Internet “are less likely than users to know many Internet users,” tend to have a more pessimistic and/or insecure outlook on the world, feel a lack of control over events in their lives, and may be more mistrustful of others.<sup>12</sup>

All these reasons for not connecting to the Internet involve people regardless of income, education, race/ethnicity, age, and location. They reflect personal preferences, priorities, and tendencies. Those who said that major or minor factors in not using the Internet involved the lack of computer, the expense of Internet access, that they do not know how to use the medium, or that they find it too complicated and too hard to understand, would seem to fall into a different category. Combined, these factors seem to represent a significant portion of the people surveyed in the studies who are not online.

## Home Internet Access & Use among Children in the U.S.

**S**urveys conducted through schools during 2003 and 2004 by the Henry J. Kaiser Family Foundation show gaps in home Internet access and daily use among children ages 8-18 along lines of family income, parents' educational levels, and race/ethnicity. Nearly all children surveyed (96%)—the percentages were roughly similar for all income groups, levels of parental education, and race/ethnicity—said that they had used the Internet at least once from some location. Some 74% of all children reported that they had home Internet access, and 61% indicated that they use the Internet on a “typical day.” However, when the children were asked about Internet access at home and how frequently they used the Internet, their answers fell into a familiar pattern—one based along lines of family income, parental education, and race/ethnicity.<sup>1</sup>

### How many of the children had Internet access at home?

#### By annual family income:

- 66% from families earning below \$35,000
- 72% from families earning from \$35,000 to \$50,000
- 84% from families earning above \$50,000

#### By their parents' education level

- 68% with parents who have a high school diploma or less
- 74% with parents who have some college education
- 82% with parents who have a BA or a higher degree

#### By race/ethnicity

- 80% of white children
- 61% of African American children
- 67% of Hispanic children

### How many children use the Internet on a typical day?

#### By annual family income:

- 54% from families earning below \$35,000
- 57% from families earning from \$35,000 to \$50,000
- 71% from families earning above \$50,000

#### By their parents' education level

- 57% with parents who have a high school diploma or less
- 52% with parents who have some college education
- 69% with parents who have a BA or a higher degree

#### By race/ethnicity

- 62% of white children
- 57% of African American children
- 57% of Hispanic children

*Divides within a divide...*

## The Digital Divide in Rural Areas

**H**istorically, rural areas have lagged behind other American communities in Internet penetration. In 2004, the Pew Internet Project noted that rural areas had typically remained 10 percentage points behind the national average each year since 2000. The project suggested that the gap may be due to several factors: rural Americans are older—those age 65 and above comprise 22% of rural populations, compared to just 14% of urban and 16% of suburban populations. Typically, older people are less apt to go online. Rural areas also tend to be poorer than urban and suburban communities: 47% of people in rural areas live in households that earn \$30,000 annually or less in contrast with 29% of people residing in the suburbs and 39% of those living in cities. Pew researchers also pointed out that rural residents have less choice in Internet service providers than do others.<sup>1</sup>

In 2003, another group of researchers conducted a study of Internet use in four rural towns—two in Nebraska and two in Wisconsin. In two of the towns, significant community-based efforts were underway to publicize and promote the use of computers and the Internet at public access sites.

The study found that nearly two-thirds of those whom they survey who had jobs used e-mail, the Web, or both. About two-thirds of those who used IT at home also used it at work. Most who had not yet used IT worked at places that did not use e-mail or the Internet. Those who had never attended college were more than twice as likely not to use e-mail or the Internet as those who had. In addition, the study reported that “non-users were found to be slightly older, to have lived in the community longer, to have more close friends who lived in the same community, and to have indicated that a greater proportion of their friends lived in the same community.” The researchers pointed out that policy-makers “need to recognize the diversity of rural America” when it comes to the adoption of new technology. “There are, in essence, divides within divides,” they concluded.

Another key finding from the study was that in all four towns, “even if the physical and technological infrastructure was in place, there existed a social infrastructure or social ecology that determined who benefited from information technologies and who did not.” The researchers learned that the efforts in two of the communities to promote IT use at public access sites seemed to have little impact in increasing utilization. They found that home and workplaces were “the preferred places.” They suggested that in promoting the adoption of IT, at least within these rural areas, it may be more effective to target small and large locally-owned businesses.<sup>2</sup>

## The IT Access Divide since 2001: Summing up

Thus, the recent evidence indicates that gaps in access to computers and the Internet still remain along lines of education, income, race/ethnicity, and geography (rural areas, in particular). Some studies, such as the 2003 Pew report, suggest that the population of Internet users is fluid, with some individuals dropping out for brief or extended periods while others adopt the new technology.<sup>13</sup> Yet none of these major surveys show that the gaps neither have closed nor—in most cases—shifted much in the past three years.

Moreover—contrary to some predictions made just a few years ago and to impressions held by many today—the rapid rate at which Americans had acquired home Internet connections between 1997 and 2001 apparently slowed considerably over the two years that followed. The U.S. DOC' 2004 report shows that home Internet access jumped from 18.6% of households in 1997 to 50.3% in 2001, but the number had climbed by only about four percentage points (to 54.6%) from 2001 to 2003. In that study, the Department acknowledged that “the growth of the percentage of overall home Internet connections slowed” in this period.<sup>14</sup>

In its 2003 report, the Pew Internet Project concluded that “the growth of the Internet user population has stalled since late 2001.” It noted that its tracking data “showed a flattening of the overall growth of the Internet population since late 2001” and added that “Internet penetration rates... [had] hovered between 57% and 61% since October 2001, rather than pursuing the steady climb that they had showed in prior years.” It speculated that the trend “might be caused by a static equilibrium: the same number of users are dropping offline as new users are going on.” It also cited the slump in the U.S. economy. But its authors wondered if the nation had “reached the peak of the adoption curve.”<sup>15</sup>

The reason for this slowdown, flattening, or stall—whether it was an effect of the economic slowdown, or the national mood after 9/11, or something else—has not been explained in these studies. Meanwhile, the prices of computer hardware have continued to drop.<sup>16</sup> Only time will tell if it was a temporary lag or not.

These numbers reveal that recently the IT access divide has not been closing as quickly as some had thought it might. And if this recent, slower rate at which Americans are gaining access to the Internet continues over the next few years, it would suggest that the access gaps along education, income, and racial/ethnic lines will persist in America for some time to come. If so, as early observers of the issue once feared, the divides between the digital “haves” and “have-nots” may become stratified. It also would suggest that cost, complexity, relevance, and other factors remain significant barriers to bringing

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most in the nation online, and that wide diffusion of computers and Internet use across our society will not unfold in the rapid way in which radios and televisions once entered most American homes.

Undoubtedly the debate over the digital divide—including its width and breadth, whether or not or how quickly it is closing, how important it is, or if the term “divide” still fits the issue—will go on. Yet many of the questions and issues it has raised merit consideration in the development of efforts to widen IT access and training. So do some of the more recent findings about computer and Internet access and use.

### New Perspectives on the Digital Divide, its Broader Dimensions & Implications

Since about 2000, a growing number of observers—including activists involved in widening access and utilization of IT as well as social scientists, policy analysts, educators, and IT experts—have begun to reassess the issue that most still call the digital divide, and have presented some new perspectives. Despite the fact that both society and technology are constantly and rapidly changing, it has been over 20 years since computer use among the public began to spread widely, and a decade since large numbers of people began to use the Internet at home, at work, and at school. Organized public, private, and community-based efforts to spread IT to more and more Americans also have taken place over the past quarter century. Now, both from those efforts and the continuing stream of survey statistics, the picture of how this latest big change in America is unfolding is becoming clearer.

*Many observers have concluded that the digital divide is not simply a problem of physical access to computers and the Internet, but one of education and training, knowledge and skills—as well as the Internet’s perceived relevance to those groups that do not use it*

Most of those who have offered new assessments and new perspectives on the digital divide do not question the fact that troubling inequalities in access to computers and the Internet—at home, at work, and elsewhere—still exist along income, education, racial/ethnic, and geographic lines—as well as for many with disabilities. Most of them believe that expanding access to computers and the Internet among Americans is essential, and that it should be a top priority for government and society. But they have taken close looks from different angles at the barriers to access and effective use of the new technology, and have found that the obstacles are more complex than some had believed not long ago.

“What do we mean by ‘access?’” one study asks. “If we mean the being able to get online in some fashion at some location, then inequality is much diminished. If ‘access’ means using graphically complex Web sites from one’s home, differences among groups remain substantial.”<sup>17</sup> Many observers have concluded that the issue is not simply a problem of physical access to computers and the Internet, but one of education and training, knowledge and skills—as well as the Internet’s perceived relevance to those groups that do not use it.<sup>18</sup> In addition, some have offered critiques of various efforts to close the

digital divide by government and other organizations, sizing up what has worked, what has not, and exploring why.

These observers do not agree on every aspect of the issue, or even if “digital divide” is still the most accurate term to describe the problem. But their research, observations, and analysis show that the digital divide is a complex issue, reflecting longstanding crevices and inequalities in American society, and that no simple, quick technological or other fix will close it. Most importantly, the recent analysis of the divide offer important information and insights for those working to widen IT access and to provide IT skills to those without them.

### **Emerging Insights into the Barriers to Access and Use**

Americans who use computers and the Internet do so from home, work, school, and other sites—such as friends’ homes, public libraries, community technology centers (CTCs), and other community-based organizations (CBOs), including community action agencies (CAAs). While libraries and CBO-based sites are critical avenues of computer and Internet access as well as basic IT training for millions, these places often have time limits on use and/or too few computers available to meet demand at various times. The vast majority of people who use computers and the Internet do so at home and/or work.<sup>19</sup> So, *optimal* access is having a computer and Internet connection at home, and secondarily, at work—if, as for many, time is critical in learning the technology through experience. In 2004, the U.S. DOC reported that “frequency of use and the number and type of online activities in which people engage vary substantially by whether they have Internet access at home and by the type of home Internet connection.” It added that of the one-third of Americans who access the Internet every day, 90% of them do so at home.<sup>20</sup>

In recent years, many who saw the steady decline in computer prices along with the sharp rise in those connecting to the Internet at home during the late 1990s concluded that the divide will narrow quickly. They compared computer and Internet adoption with the rapid, widespread entry of television sets into American households beginning in the late 1940s, and noted that it was less than 20 years before nearly all American homes had TV s.

Others recently have challenged this analogy between the earlier diffusion of television and that of computers and home Internet access today. They have acknowledged that the price drop for computers over the past decade or so has followed a similar pattern to that of TV sets from the late 1940s to the early 1960s. (In 1951, the average price for a TV was about \$300, equivalent to \$2,200 today, which also was roughly the average price of a computer in 1990.) But they also have pointed out some critical differences.

“Television involved a one-time purchase: once one bought a television receiver, programming was free,” Paul DiMaggio and Joseph

Cohen have noted.<sup>21</sup> “By contrast, Internet service requires an ongoing service charge, the price of which declined, but only modestly, in the early 2000s.” Mark Warschauer, another observer, has pointed out that “a computer’s price is only a small part of the total cost of ownership,” and that beyond the computer and Internet service, one must pay for software, peripherals (such as printers, surge protectors, scanners, etc.) and maintenance.<sup>22</sup> In fact, the cost of software, unlike that of computers, has fallen little since 2000.

Moreover, unlike TVs, computers and software become obsolete within just a few years. Users face the costs of regular hardware replacement and continual software upgrades, some of which are needed for continued Internet use. And recently computer owners have assumed the burden of buying ongoing subscriptions for anti-virus and other software to merely keep their systems safe and functional. So, in several respects, investment in computers and Internet access today differs from the purchase of TVs and radios in an earlier era.

*Some have challenged the analogy between the rapid diffusion of television into American homes and that of computers and home Internet access. They point out that unlike television in the 1950s, the new technology involves more than a one-time purchase—one must pay for not only for a computer, but also for software, upgrades, and monthly Internet access. They also note that using the new technology is much more complex than operating a TV set.*

DiMaggio and Cohen noted that data “suggests that the presence of ongoing expense is a greater economic impediment to diffusion [of communications technologies] than one-time purchase costs, even when prices are high. “Compare, for example,” they have suggested, “the rapid diffusion of radio to the slow and uneven progress of telephone service which, despite a federal policy of universal service, took half a century to reach 90 percent penetration; or compare the glacial progress of cable television service to the nearly instantaneous acceptance of VCRs.”<sup>23</sup>

Warschauer agrees that historically the diffusion of “conduits”—connections to supply lines that provide something on a regular basis and that require regular payments—has been slower than that of devices such as TVs or radios. He has suggested that it may be more accurate to compare the diffusion of IT with the the spread of electric power to American homes, farms, and businesses than with that of TV. Although in the early years of the 1900s electricity had penetrated large industry, cities, and wealthier households, by 1930 large parts of the nation (mainly rural areas)—including 90% of farms and many lower-income households still were without it. He notes that it was only after the passage of federal Rural Electrification Act of 1935 that electric power spread to most American homes and farms.<sup>24</sup>

The distinctions between television and IT that these observers have pointed out may help explain why the rate at which Americans are obtaining home Internet connections has slowed in the past few years despite falling computer prices. The differences also suggest that the penetration of IT into most American homes may take longer and be more uneven than many had imagined just a few years ago. Moreover, the advent of broadband may complicate the process and sharpen the access divide, given its cost, lack of penetration into many areas

(especially rural ones), and its impact on evolving Web site design and content, which likely will continue to require increasingly faster and more powerful computers and more capable software.

Yet these observers also have noted other differences between television and the Internet, including complexity of use. “Of the two media, the Internet is by far the more complex, requiring greater skill, experience, and assistance to use effectively than television,” DiMaggio and Cohen have written. “To be sure, the Internet has become more user-friendly over the years; and many Internet users restrict themselves to relatively easy-to-use services (for example, e-mail). Nonetheless, the difference is still very significant.”<sup>25</sup>

They and other observers increasingly have focused on the barriers that IT’s complexity presents—as well as on education, skills, and how individuals use the new medium in exploring and rethinking the issues and gaps that comprise the digital divide.

#### **Inequities in Education, Skills, and Use**

“The best computer access in the world won’t get you into [college] if you can’t read and write.”<sup>26</sup>

This reality, simply stated, points to one large dimension of the digital divide—wide differences in knowledge and skills that exist within American society. Obviously, to use a computer and the Internet effectively, one must have attained some degree of basic literacy. “But the barriers... extend beyond the issue of basic literacy,” Kenan Patrick Jarboe of the Athena Alliance has pointed out, as have others. “It goes beyond the ability to read and write to a basic understanding of the use of computers. And it goes even further. In this information-rich age, it involves not just being able to handle the data, but being able to interpret the data.”<sup>27</sup>

Some observers have come to see education and skill inequities as perhaps the most critical factor in whether or not people acquire and use the new technology and, if so, what they use it for. “Inequality by race, income, and educational attainment has diminished little, if at all: Americans with few years of education and low incomes were still less likely to be online in 2001 [than]... Americans with the most education and the highest incomes had been in 1994,” DiMaggio and others noted in another piece. “Moreover, one can discount those divides that *have* been bridged as special cases: place of residence became less important because networks were built out and the technology became more flexible; women and the elderly are usually slower technology adopters than men and the young, but both groups ordinarily catch up.”<sup>28</sup>

“Much has been written about the dramatic differences in access by income, including the assumption that lack of income is the most important factor in limiting access, because of the relatively

*While acknowledging that cost remains a barrier, some observers have come to see education and skill inequities as perhaps the most critical factor in whether or not people acquire and use the new technology and, if so, what they use it for.*

expensive technological equipment involved,” DiMaggio along with Eszter Hargittai and John Robinson wrote in another study. “Analysis of the NTIA data [used in the U.S. DOC 2002 report], however, demonstrates that education, not income, best predicts whether someone is online.” They concluded that while income level is important in predicting whether one uses the Internet, it is “secondary to the related factor of education.” They also found for those who do go online, those with college educations possessed “clear advantages” over those with only high school educations “in using the Internet to derive occupational, educational, other benefits.”<sup>29</sup>

Therefore, education level looms as a large factor in who uses IT and who does not, how people use it, and the purposes for which they use it, at least according to the above study and some others. This information helps to describe the situation today and the existing gaps. It also may tell us something about the future of IT diffusion and use in America. But how do we narrow those gaps? Just half of Americans have attended college—a percentage unlikely to dramatically increase in the near future. And perhaps a quarter of Americans have enough difficulty with literacy that it impedes them in carrying out many everyday tasks.<sup>30</sup> So, what are the literacy requirements to effectively use computers and the Internet—and what objectives should IT training efforts to close the knowledge and skills gaps aim for?

Obviously, there are no simple, straightforward answers to these questions. Computers and the Internet are multi-purpose technologies, and those purposes range from the simple to the complex. Being able to start programs or open files, save a file to a specific folder on the hard drive, log onto the Internet, and send an e-mail message require one set of skills. To effectively navigate the Internet, find appropriate information for a particular purpose, interact with others online, use the more sophisticated functions of spreadsheet and database software, work with graphics and multimedia, use page design software to produce a publication for print, or build a Web site, require other skills. The new information technology is like a big toolbox filled with many tools: it has many applications. No one person ever will use—let alone master—them all. So “training to do what?” is a critical question.

What about “basic IT training” or “basic IT literacy?” Many standards and skill sets have emerged in recent years regarding “basic IT literacy” and some of those are listed among the resources that appear in Chapter 7 of this publication. But these vary, and they often are geared to particular purposes. For example, is the purpose to simply learn how to get the machine running, into a file, or onto the Internet, retrieve information, and peruse it? Or is the purpose to organize and analyze information, or is it to produce it and distribute it to others?

Much recent analysis of the digital divide regarding knowledge and skill gaps notes that unlike other technological innovations such

as radio, TV, phonographs, CD-players, or VCRs, computers and the Internet are multi-purpose technologies—and they serve as two-way, interactive media. Warschauer has noted that before the printing press and movable type emerged in the mid-1400s, writing mainly “involved memorizing and transcribing oral speech.” But that began to change: by the 20<sup>th</sup> century, the definition of literacy had come to mean the ability to write *original* material as well as to gather, synthesize, and interpret information from many sources. Along with others, Warschauer has pointed out that there is not one type of literacy but many, and that it is a social practice that involves access not only to physical artifacts (such as computers or books) but also content, skills, and social support.<sup>31</sup>

Thus, what literacy has meant to people over time has shifted, and on occasion, major technological innovations have prompted the changes. How literacy is defined and used has much to do with the existing social context. With the emergence of computers and the Internet in American society and across the globe, the meaning of literacy is changing again. “Digital literacy” and “computer literacy” are the terms some have used to put a name on what is required to effectively use the new technology in work and in other aspects of American life. Yet while “digital literacy” involves new knowledge and skills related to technology itself and the experience of using it, it also requires other knowledge and skills that have little to do with IT.

Warschauer and others who recently have examined the knowledge and skills gap that contributes to digital inequality have realized that the problem has at least two aspects. Karen Mossberger and her colleagues at Ohio’s Kent State University have offered a way to look at the problem, noting that it has two main aspects.

- *Technical competence*, or the skills needed to use the hardware and software, is one.
- *Information literacy* is the other. Mossberger and her co-authors define it as “the ability to recognize when information is needed and to locate, evaluate, and use effectively the needed information.” They have pointed out that information literacy is necessary “to navigate the Internet for work, school, medical, news, political, other information,” and to “determine the nature and extent of the information needed, access needed information effectively and efficiently; evaluate the information and its sources critically and incorporate selected information into one’s knowledge base.”

Put another way, while technical competence involves the skills one needs to operate a computer, to move around the Internet, and to generally, to use the technology, information literacy is necessary to *effectively* use the technology to accomplish specific purposes.

In 2001, these Kent State researchers conducted a national study

*“Digital literacy” involves more than having “technical competence,” or the skills needed to use the hardware and software. One must also possess some degree of “information literacy,” or “the ability to recognize when information is needed and to locate, evaluate, and use effectively the needed information.”*

that examined the skills, attitudes, and experiences of those most likely to lack computer access and/or skills, surveying those living within high-poverty census tracts, and across racial/ethnic lines that mirrored national percentages. On access questions, the survey results were similar to the findings from federal data collected in 2001 and published in the U.S. DOC's 2002 report, *A Nation Online*. But the Kent State survey also asked questions that might reveal information about both technical competence and information literacy among those whom they polled.

As for technical competency, the survey found that:

- 22% needed help in using a mouse or keyboard;
- 31% needed help in using e-mail;
- 52% needed help using word processing and spreadsheet software programs.

Regarding information literacy, the survey discovered that:

- 37% needed help finding books in a library;
- 37% needed help in doing homework;
- 37% needed help in finding information on the Web

Who *most* needed help in both categories?

- Older people—52% for those age 61, versus 20% for people age 28;
- Less-educated people—43% for those with high school diplomas but just 25% for those with four-year college degrees;
- Lower-income people—42% for those with low incomes versus 30% for those who were affluent;
- Latinos (42%) and Blacks (45%), more so than Whites (34%).

The Kent State survey also asked those polled if they were willing to use computers and the Internet at public sites (where they might receive help). Some 93% were willing to go to public libraries and 74% to schools. Smaller majorities or respondents were open to the idea of visiting other public IT access sites at recreation centers, churches, government agencies, and senior centers. Those *most* willing to use public access sites were people who were affluent, better educated, and African American, the researchers discovered.

But ironically—in light of efforts to widen IT access among low-income people through public access sites—the survey also found that low-income people and those less educated (who were not African American) were *less* willing than most of the other groups to use these sites. And it revealed that “older and lower-income people were less willing to learn new skills, in whatever form.”

Still, the survey's results showed that a vast majority of its respondents believe that Internet use and learning new computer skills are essential to “keeping up with the times,” getting a job or acquiring a

*Ironically—in light of efforts to widen IT access among low-income people through public access sites—a national survey by Kent State University researchers in 2001 found that low-income people and those less educated (who were not African American) were less willing than most other groups to use these sites.*

better-paying one, or starting a small business. The large majorities appeared among nearly all demographic groups, but the highest percentages were among Hispanics, Blacks, and young people.<sup>32</sup>

Another recent study by a team at Michigan State University also helps to shed light on the knowledge and skills dimension of the digital divide in low-income communities and among those with lower educational levels. Yet some of the issues it presents regarding IT usage may extend to the population at large—including more affluent and better-educated computer and Internet users—and may point to problems with the technology itself.

This study in 2002 involved 123 participants from low-income families living in a medium-sized city in the Midwest. The participants averaged about 39 years in age, and a majority of them were low-income African American women. Nearly half of them had some college education, although only 13% had a degree. In agreeing to participate in the survey, they received home computers, Internet access, and technical support at home. And they permitted their computer and Internet activity to be tracked.

The project uncovered much information, but for purposes here, the most striking aspect is the problems that many reported about using the technology. Certainly the issues are related to both “technical competence” and to “information literacy.” Yet they are problems familiar to most of those who use computers and the Internet—including many who are affluent, highly educated, skilled, and experienced, but who at times are vexed by similar problems.

“The content of conversations with participants in their homes as they engaged in Internet activities revealed the difficulties they experienced in using the technology,” the researchers wrote. They added: Participants reported frustration with what they perceived as the faulty performance of the Internet—its slowness, unreliability and failure to provide the user with guidance. They were irritated by having to spend so much time waiting for images to load, and frustrated with the less than seamless access to the content they wanted, when they wanted it.

Participants experienced a gap between their current knowledge and the knowledge required to use the Internet.... Some viewed the Internet as alien and enigmatic. Its logic did not make sense to them. It seemed to be working in a foreign language. For most this signaled a need for high maintenance learning, hands-on instruction and other activities they viewed as too time consuming. In addition, many users found the Internet to be a source of apprehension.

In their article, the Michigan State researchers quoted some of their respondents’ comments about their difficulties. “Sometimes it freezes up and I can be in the middle of looking for something or

playing a game or something or reading,” one participant related. “I also don’t like when it says ‘you have a debug error, do you want to fix it now?’ And I hate that. No answer...then it redials on you,” said another. “We’ve been having problems... and it tells you what to do and how to test it and if you do what it tells you to do and it still doesn’t work, you’re stuck....” another person complained.<sup>33</sup>

This testimony says as much about computer technology and design as it does about those who have difficulty using it or those who do not use it because they perceive that it is too difficult. While advanced education, skill, and experience using the technology are strong assets that can help in solving problems such as those described above, sometimes they are not enough.

Nonetheless, the education and skills gap lies at the heart of the digital divide. If those with more education and skills have difficulties solving computer and Internet-related problems, those with less education and fewer skills face an even harder task—and perhaps one daunting enough to either severely limit their use of the technology, or to discourage them from using it at all.

*The education and skills gap lies at the heart of the digital divide. If those with more education and skills have difficulties solving computer and Internet-related problems, those with less education and fewer skills face an even harder task—perhaps one daunting enough to discourage them from even using the technology at all.*

“Children are not simply given a book in first grade and expected to read,” Eszter Hargittai pointed out in a recent article. “Nor are they given excerpts from Shakespeare on their first day of class. Instead, we invest in teaching students how to read gradually.... Similarly, it is too simplistic to assume that merely providing an Internet connection to people will obliterate all potential access differences among users. Rather, a more refined approach to the ‘digital divide,’ a more comprehensive understanding of digital inequality is necessary if we are to avoid increasing inequalities among different segments of the population due to disparities in effective access to all that the Internet has to offer....”<sup>34</sup>

As noted above, the knowledge and skills gaps can be separated into two parts: technical competency, and information literacy. They are related but different problems, and each requires different strategies and techniques in training. Some of these will be explored in the pages that follow. But beyond physical access, and the literacy and skills issues, there is another dimension to the digital divide.

### **New Technology: Purpose, Relevance, and Content**

Much of the recent literature on the digital divide and efforts to close it has examined issues involving the purposes for which new technology is used and its current relevance to those who lack access to it or have difficulties using it. “Beyond the issue of physical access to the technology is the question of access to what and for what,” Jarboe has noted. “To what’ means what content is available. ‘For what’ means the purposes of that access....”<sup>35</sup>

“Why did it take so long for information technology to give a noticeable boost to the economy and to the living standards of average workers?” the Morino Institute asked in a 2001 report. “Although companies found it was relatively easy to install new computer systems, they had a hard time melding the technology, processes, and people into solutions that produced tangible outcomes and clear benefits in their businesses.... Fundamental change required far more than plunking down a computer in front of every employee.”<sup>36</sup>

Some believe that the “tangible outcomes and clear benefits” that those in businesses have come to realize in the new technology either have not been widely obvious or yet been developed in poor communities or among those who do not use it. “Public policies and private initiatives to expand affordable connection to network technology for the poor via technology discounts and community technology centers are being discussed,” one critic noted, “but with relatively little attention to the conditions under which community-level interventions can benefit ethnic groups living in urban low-income communities.”<sup>37</sup>

“Social context, social purpose, and social organization are critical in efforts to provide meaningful... access,” Warschauer has pointed out. He suggests that application of technology must flow from an examination of those issues, rather than beginning “with an accounting of computer equipment and Internet lines.” He advocates the approach not only for addressing community issues and needs but also in IT training: “Technology assists the learners the most when it is not the sole or even main focus of teaching and learning.... by using the computer and the Internet to help learners enter new communities and cultures, tackle meaningful problems, and address situations of social inequality....” He believes that even when computers are the focus of instruction, community technology centers and other training providers are most effective when they conduct IT education in the context of broader purposes that have relevance and meaning to those being trained.<sup>38</sup>

Warschauer, Jarboe, and others writing about the digital divide also maintain that much of the content now found on the Web lacks relevance to low-income people, minorities, and others who do not use it (and who played no role in creating it). “When disadvantaged groups do log on, they often find that there is no content there,” Lisa Servon asserts. “The kind of information they seek—information that is directly related to their lives and cultures—does not exist. If and when it does, they often lack the skills to find it.”<sup>39</sup> She and others also have noted that much of the content is in English, which poses an obvious barrier for those who cannot read the language. Manuel Castells summed the issue up this way: “Technological systems are socially produced. Social production is culturally informed. The Internet is no exception. The culture of the producers of the Internet shaped the medium.”<sup>40</sup>

*Another dimension of the digital divide has to do with the purposes for which technology is used, and its relevance to those who use it or do not use it. After all, technology is a tool, not an end in itself. IT access and skills are of dubious value if the technology is not applied to purposes that mean something and offer benefits to those who use it.*

Social context plays a role in utilization of the Internet as a communications medium as well. As noted previously a Pew Internet Project study found that those who do not use the Internet are considerably less likely than users to know other people who do. And the Michigan State University study (cited above) discovered that those who received home computers and instruction used e-mail infrequently, leading the researchers to conclude that a major reason was that the participants had few friends or family members who had access to it.<sup>41</sup>

Thus, another dimension of the digital divide has to do with the purposes for which technology is used, and its relevance to those who use it or do not use it. After all, technology is a tool, not an end in itself. Having access and being able to make effective use of it increasingly are becoming important assets in our society and our economy. But IT access and skills are of dubious value if the technology is not applied to purposes that mean something and offer benefits to those who use it. Computers and the Internet can be powerful tools if used in a way that has relevance to people within the context of their lives and communities.

In efforts to widen access to the new technology and to train people how to use it, this dimension of the issue sometimes has been overlooked. As many of the observers cited above have noted, sometimes the focus has been almost exclusively on the technology itself, rather than on the purposes that will have meaning in the lives of those who are gaining access to it and the skills to use it. This aspect of the digital divide clearly needs to be a major consideration in planning, developing, and implementing IT access and training efforts and projects.

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# A National Overview:

## *IT Access & Training Efforts at Community Action Agencies & Other Organizations*

**W**hat is being done across the nation to widen access to new information technology, and to provide at least basic training in computer and Internet skills to those who want and need it—especially those with lower incomes and educational levels, those in rural areas and poorer urban areas, minorities, and others who most commonly lack them?

Many efforts are underway within a variety of organizations, institutions, and settings. For example, many public schools and community colleges offer training programs. So do many public libraries. Many workforce development and adult basic education providers have programs. An array of private for-profit groups have emerged in recent years that specialize in various levels of technology training. Some faith-based organizations offer it. And so do a wide range of community-based organizations (CBOs), often in settings that have come to be known as community technology centers, or CTCs. Some community action agencies also offer IT access and provide IT training to low-income people.

It would be very difficult to obtain a complete count or to take an accurate snapshot of *all* these efforts and programs underway across the nation, let alone sort them according to their various characteristics. They do not all belong to one big association, and sometimes they are projects that exist within larger organizations that have other programs. Many CTCs belong to a national network (CTCNet), but not all do. IT access and training efforts range from large organizations that provide free or low-cost public access as well a comprehensive array of training at various levels to small public libraries and public housing projects that have a few computers with Internet access. Some efforts do not take place in a “cyber center,” classroom, or computer lab—they widen access by providing computers to people at low cost and offering some basic training and support.

This overview primarily focuses on efforts within community action agencies. It also offers some brief information on efforts within other community-based organizations and a list of Web-based and other resources that provide much information about some of them.

**Community Action Agencies** (CAAs or CAPs) emerged across the nation in the mid-1960s as a result of the anti-poverty and civil rights movements and the federal effort launched under President Lyndon Johnson to eradicate poverty. Today about 1,000 of these agencies exist, covering all areas of the nation. Most are private, nonprofit organizations, but some are operated by counties or municipalities.



All have boards that by law must include representatives from the public and private sectors as well people with low-incomes. Their mission is to assist low-income people in attaining economic self-sufficiency and to provide them with an array of needed services.

CAAs vary considerably in size, but most have at least several programs that provide social, education, health and other services to low-income people. CAAs' programs and services range widely, and the mix differs among individual agencies, but often these agencies offer: child care and Head Start; home heating and weatherization assistance; housing-related services; workforce development and programs, adult basic education, and GED; emergency food; the federal women's, infants' and children's nutrition program (WIC); health care; transportation; information and referral telephone help lines; programs for the elderly; and youth programs, as well as other services.

Funding for CAAs' services comes from a wide range of sources, including federal, state, and local government programs as well as from private entities. For most CAAs, however, by far the largest share of support comes from government sources. Most CAAs receive funds through the federal Community Services Block Grant (CSBG), which is administered by the U.S. Department of Health and Human Services' Office of Community Services.

### IT Access & Training Efforts at CAAs: Overview of Recent National Surveys

Some CAAs have one or more efforts to widen access to computers and the Internet among low-income people and/or that provide some form of IT training. However, apparently only two national surveys have been conducted in attempts to determine how many CAAs have such efforts or programs or on their characteristics. One was a survey conducted in 2000 by the National Association of Community Action Agencies (since renamed the National Community Action Partnership, or NCAP). In 2004, the Massachusetts Association for Community Action (MASSCAP), which is comprised of Massachusetts' 25 CAAs, also surveyed CAAs across the nation on these questions.

#### **NCAP's 2000 Survey**

NCAP's survey had a broad scope: it covered computer use and related issues within CAAs as well as efforts by these organizations to provide IT access and training to low-income individuals. NCAP sent the survey to 980 CAAs and it received 169 responses from 45 states, with a mix of responses from private and public agencies that closely mirrored the national percentages. Among numerous other questions on internal use of IT at CAAs, the survey asked agencies if they offered IT training to low-income clients, and/or access to computers.

The survey found that in 2000, 16.9% of CAAs that responded had begun offering IT training to low-income clients more than a

year earlier, and that another 11.7% had begun doing so within the previous year. About 26% of CAAs responded that they had been offering IT access to low-income clients for more than a year and another 17% had begun to offer computer access to clients within the past year. Thus, of the 169 CAAs who responded in 2000, 28.6% of them were offering IT training to clients, and 43% of them were offering IT access in some form.<sup>1</sup>

### MASSCAP's 2004 Surveys

MASSCAP conducted two national surveys in 2004. One was a preliminary survey that involved CAAs. The second was a much more comprehensive survey to which CAAs as well as other organizations with IT access and/or IT training programs responded.

The purposes of the preliminary survey were to:

- Gauge the number of the nation's CAAs that offer low-income people free or low-cost access to computers and the Internet along with minimal computer training, and/or that provide either basic or more advanced/specialized training in computer or other new technology to low-income clients within their workforce development, adult basic education (ABE), or other programs;
- Identify those CAAs with such efforts to enlist their participation in the more comprehensive survey;
- Identify CAAs that have programs in which some form of training in computer and/or other new technology is a main purpose of those programs.

The *preliminary survey* was sent via FAX in March 2004 to approximately 900 of the nation's CAAs. Those CAAs that had one or more programs or initiatives as described above were asked to respond. Some 72 CAAs responded, 61 of them reporting that they had one or more such IT-related programs.

However, these numbers do *not* reflect the total number of CAAs with such programs for which MASSCAP collected data in 2004. Some CAAs that did not respond to the preliminary survey completed the second one. And the preliminary survey did not include seven Massachusetts CAAs with such programs for which MASSCAP already had much data. Thus, basic aggregate data on CAAs' efforts across the nation that MASSCAP obtained through both national surveys as well that which it had on Massachusetts programs appears below.

MASSCAP conducted a second, *comprehensive survey* in the summer of 2004. Its purposes were to obtain information on:

- the characteristics of IT access programs and initiatives at CAAs and other organizations;
- the characteristics of programs and initiatives that provide computer and/or other new technology training within CAAs and other organizations;
- the characteristics on the parent CAAs and organizations that have one or both of the above types of programs or initiatives;

- participation and outcomes in such programs;
- and to learn more about these programs and initiatives—such as how they were organized, their methods and models for access and training, how they are funded, how they link with other agency services and external organizations, barriers they face, and critical factors related to their successes—so that this information could offer lessons and possible models for similar efforts within CAAs and other organizations.

Through an initial request and follow-up reminders using e-mail, MASSCAP again contacted over 900 CAAs—including a special appeal to those that had responded to the preliminary survey.

MASSCAP also sent requests to a smaller list of other organizations that it believed had such programs or efforts. The primary reason for asking organizations that are not CAAs to complete the more comprehensive survey was to obtain information about their efforts that might offer lessons or models for CAAs and other groups. These organizations were drawn from lists MASSCAP had assembled for its 2002 “Digital Age” conference as well one that it developed for this project. They included CTCs, workforce development programs, adult basic education providers, and other organizations across the nation.

MASSCAP requested that respondents complete an online survey which had two parts. One was for organizations that have IT training efforts; the other was for those that have IT access efforts. It asked that participants complete the appropriate part(s) of the survey for each of their programs (or initiatives).<sup>2</sup>

Some 50 organizations from around the nation completed one or both sections of the comprehensive online survey: 27 were CAAs; 23 were other organizations. In a few cases, the same organization had programs or initiatives that fit both of the categories, and it completed a survey for each. The survey captured information on 58 different programs. Some 63% of those responding completed the survey on IT training programs, and about 37% reported on IT access efforts. Twelve of the CAAs that had responded to the preliminary survey completed the comprehensive one, and 15 other CAAs that did not respond to the preliminary one, did so to the second.

### **Overall Findings of MASSCAP’s 2004 National Surveys on CAAs’ IT Access & Training Efforts at CAAs**

MASSCAP found that at least 82 CAAs in 29 states have IT access and/or IT training efforts in place within one or more of their programs. These included CAAs that responded to either one or both surveys, and the Massachusetts CAAs for which MASSCAP already had recent data on such efforts.

Some of the CAAs have public open access sites and others provide IT training either in connection with these efforts or within another program. Many of these CAAs offer a combination of both types of efforts, sometimes within different agency programs.

- Some 65 offer some form of open computer and Internet access and minimal training to low-income people (of which several had computer distribution programs);
- 56 offer *both* open public computer and Internet access to low-income people as well as at least basic IT training in one or more of their programs;
- 21 have some form of open public computer and Internet access, usually with minimal training, to low-income people (and in a few cases had programs to distribute computers to low-income people at low cost), but did *not* have other programs in which basic and/or more advanced IT training either was offered or a was a main purpose;
- 13 offer basic IT training within one or more programs in which it was not a main program purpose, but did not offer open, unstructured IT access or distribute computers;
- 25 have a program in they said training in computers or other new technology was a *main purpose*, and a large majority of those CAAs also offered basic computer training and public IT access either within that program or elsewhere within their agencies.

About a third of the 82 CAAs which had IT access and/or IT training efforts or programs responded to MASSCAP's second survey and provided more detailed information about their agencies as well as their relevant programs. Their responses help paint a clearer picture of these efforts.

While IT access and IT training efforts sometimes overlap, in the second, more comprehensive survey MASSCAP placed them into separate categories. Put simply, MASSCAP defined *IT access* as widening overall access to computers and the Internet, through public access sites and or computer distribution. In such access efforts, participants may receive very minimal basic instruction on how to use the technology, either one-to-one, or in a class covering the basics of computer use.

MASSCAP defined *IT training* as either basic or more advanced and focused training, conducted in the context of another program or service with a purpose beyond IT access alone, or in programs that have a *primary* focus on some aspect of IT training.

The boxes that appear within the next three pages list the CAAs that responded to one or both of MASSCAP's 2004 surveys as well as several Massachusetts CAAs with such programs from which MASSCAP already had collected similar information.

## CAAs that Provided MASSCAP with Information on their IT Access & Training Efforts

### Key to letter codes:

**A**—has IT access efforts, “drop-in” or structured, with minimal or basic IT training. (A few have computer distribution projects.)

**T**—has IT training efforts, but no open “drop-in” access.

**B**—has both types of services described above.

### Alabama

Daphne Community Action Agency of Baldwin, Escambia, Clarke, Monroe, and Conecuh Counties **B**

### California

Garden Grove Community Action Partnership of Orange County **A**

Long Beach Long Beach Community Action Programs **B**

Oroville Community Action Agency of Butte County **B**

Riverside Community Action Partnership of Riverside County **B**

Watsonville Community Action of Santa Cruz County **A**

Willows Colusa, Glenn, Trinity Community Action Partners **B**

### Connecticut

Derby TEAM, Inc. **B**

### Florida

Miami Miami-Dade Community Action Agency **B**

N. Ft. Myers Lee County Dept. of Human Services **B**

### Georgia

Athens ACTION, Inc. **B**

Decatur Partnership for Community Action **B**

### Illinois

Decatur Decatur-Macon County Opportunity Corp. **B**

Edwardsville Madison County Community Development **B**

Greenup Embarrass River Basin Agency, Inc. **A**

### Indiana

Tell City Lincoln Hills Development Corp. **B**

### Kentucky

Bowl'g Green Community Action of Southern Kentucky **B**

Harlan Harlan County Community Action Agency **B**

Jeff LKLP Community Action Council, Inc. **B**

### Louisiana

Crowley Assist Agency, Inc. **B**

**Maryland**

Baltimore Community Assistance Network, Inc. **T**  
 Capitol Hts. United Communities Against Poverty **B**  
 Cumberland Allegany Co. Human Resources Development  
 Commission, Inc. **T**  
 Frederick Frederick Community Action Agency **A**  
 Westminster Human Services Progress of Carroll County **T**

**Massachusetts**

Boston Action for Boston Community Development **B**  
 Chicopee Valley Opportunity Council **B**  
 Fall River Citizens for Citizens, Inc. **A**  
 Fitchburg Montachusett Opportunity Council **B**  
 Greenfield Franklin Community Action Council **A**  
 Hampshire Co. Hampshire Community Action Commission\* **A**  
 Haverhill Community Action, Inc. **T**  
 Lawrence Greater Lawrence Community Action Council **T**  
 Malden Tri-Cities Community Action Programs **A**  
 Peabody North Shore Community Action Programs **B**  
 Quincy Quincy Community Action Programs, Inc., **B**  
 Worcester Worcester Community Action Council **T**

**Michigan**

Hillsdale Community Action Agency **A**

**Minnesota**

Bemidji Bi-County Community Action Program **T**  
 Mankato MVAC **B**  
 St. Paul Ramsey Action Programs **A**

**Missouri**

Marshall Missouri Valley Community Action **B**  
 St. Joseph Community Action Partnership of  
 Greater St. Joseph **T**  
 St. Louis Community Action Agency of St. Louis County **B**

**Mississippi**

Indianola Sunflower-Humphreys Community Action  
 Agency **B**  
 Moss Point Jackson County Civic Action **B**

**Montana**

Kalispell Northwest Montana Human Resources  
 Commission **B**  
 Lewiston District VI Human Resources Development  
 Commission **A**

**North Carolina**

Boone WAMY Community Action **A**  
 Pittsboro JOCCA **B**  
 Smithfield Johnson, Lee, Harnett Community Action **A**  
 Waynesville Mountain Projects, Inc. **T**



**Nebraska**

Chadron Northwest Community Action Partnership **B**  
 Lincoln Lincoln Action Program **B**

**New York**

Elizabethtown Adirondack Community Action **B**  
 Newburgh Newburgh Community Action Committee **A**  
 Rochester Action for a Better Community **B**

**Ohio**

Akron Akron Summit Community Action **B**  
 Dayton Community Action Partnership **B**  
 Lorain Lorain County Community Action Agency **B**  
 Steubenville Jefferson County Community Action Council **T**  
 Wash. Church Community Action of Fayette County **T**

**Pennsylvania**

Bethlehem Community Action of the Lehigh Valley **T**  
 Clearfield Central Pennsylvania Community Action **A**  
 Media CAA of Delaware County **T**  
 Norristown CADCOM **B**  
 Schuylkill Schuylkill Community Action **B**  
 Scranton Scranton Human Development Agency **B**  
 Washington Community Action Southwest **T**  
 York Community Progress Council **B**

**Rhode Island**

Warwick Westbay Community Action **T**

**South Dakota**

Rapid City Western South Dakota Community Action **B**  
 Sisseton Northeast South Dakota Community Action **A**

**Texas**

San Marcos Community Action, Inc. **T**

**Utah**

Ogden Ogden Weber Community Action Partnership **B**  
 Salt Lake City Salt Lake Community Action Program **T**

**Virginia**

Redford New River Community Action **B**

**Washington**

Federal Way Multi-Service Center **A**  
 Mt. Vernon Skagit County Community Action **T**  
 Tacoma Metropolitan Development Council **T**

**West Virginia**

Oceana Mountain Heart Community Services **B**  
 Teays Putnam County Community Action Council **T**

The following information on the characteristics of the programs and projects at CAAs that completed the comprehensive MASSCAP survey is divided into two categories: IT Access, and IT Training.

## CAA IT Access Efforts: Characteristics

From the CAAs that provided more comprehensive information on their IT access efforts and projects, the following emerged:

**Parent CAAs.** CAAs that gave detailed, descriptive information on their IT access initiatives ranged widely in size—in terms of budget, the total number of agency programs, and the total number of unduplicated clients served within all agency programs each year. Their annual agency budgets ranged from under \$2.5 million to up to \$49 million. However, a large majority had agency budgets between \$5 and \$20 million. Over half of these CAAs had child care and Head Start programs; 43% had fuel assistance programs and the same number had workforce development programs. However, less than a third of them had adult basic education (ABE) programs, fewer than the number that had housing services and youth programs. In short, the range of services offered by these agencies was similar to many other CAAs.

**Age of these IT Access Efforts and Projects.** Nearly two-thirds of them were less than three years old, and a fifth of them had been in existence for six or more years.

**Placement within parent CAA's organizational structure.** Two-thirds of these IT access efforts were stand-alone projects within their respective agencies, and were not part of another agency program.

**Project type.** Nearly 60% offered both open public access to computers and the Internet where participants could “drop-in” as well as some form of structured basic IT training, such as one-time or multi-session classes or workshops. Only about 14% offered open access only, and the same number offered structured training in the basics, but *not* “drop-in” access. Four of the projects involved distribution of computers to low-income people at a low cost along with some basic instruction.

**Populations served.** The majority of projects generally targeted low-income people and others without IT access and had minimal eligibility requirements. However, a few of them focused exclusively on one or more specific populations for particular purposes, such as teenagers, the unemployed, or seniors.

**Focus of the minimal or basic training** (if offered). The vast majority of these projects that provided some form of training covered very basic overviews of the hardware and the operating

system, and typically the basics of e-mail, Internet searching, and word processing (usually using *Microsoft Word*). Some, however, also offered basic training in other *Microsoft Office* applications such as the spreadsheet program, *Excel*. The projects that targeted specific populations for particular purposes sometimes offered instruction in other software, such as applications geared to children, job readiness, or graphics creation.

**Budget size.** The annual budgets of these initiatives ranged from \$7,500 to \$140,000, and half were \$50,000 or less. Thus, compared to many other programs commonly found at CAAs, these are relatively small projects in budgetary terms.

**Staffing.** Nearly two-thirds of these projects had two or fewer full-time (FTE) staff. Three of them, however, had 6 or more. Like many CTCs found outside CAAs, these projects rely heavily on volunteers. Over 70% of those that responded to the survey used volunteers, and one of the projects reported that it had no paid staff and relied entirely on volunteers.

**Funding sources.** Nearly all these projects have multiple sources of funding. Some 86% reported having financial support from one or more federal programs; 43% from state programs; and 43% from foundations and private sources. Just three projects received some form of support from local government.

**Links to other programs within CAAs.** Nearly all of the initiatives had links to other programs within their parent CAAs. In many cases, the projects routinely referred their participants to most or all other programs. In some cases, the projects either had linkages with certain other programs that were more tailored to specific purposes, or were based within in particular agency programs. For example, some were part of efforts to provide Head Start families with computer and Internet access and basic skills, or were connected with CAA programs to assist the unemployed generally, or workers displaced from particular industries.

**Links to external organizations.** Nearly two-thirds of these projects had collaborations or links with other organizations—typically, with a wide range of them. About a third said that they had none. Some 43% of the projects had links with local workforce development organizations, including Workforce Investment Boards (WIBs), workforce training providers, “One-Stop” Career Centers and other job placement organizations, and/or with some business and industry groups. About the same number reported having links with educational institutions and organizations, including public schools, community colleges, literacy groups, libraries, GED, ABE and ESOL programs. Half of them said that they had linkages with other CBOs, such as other human services agencies, community centers, and religious organi-

zations. Four of them had programmatic relationships with government agencies that went beyond funding support.

**Participation.** The annual number of unduplicated participants among the projects varied widely—from under 100 to more than 500. (Two projects were less than a year old, so they could not provide a number.) Yet all but two of these IT access and basic training projects reported that they had 250 participants or less.

**Evaluation.** Most of the projects track participation, and some, where structured training is offered, collect data on such measures as completion of the program, attendance, and participants' progress—using pre-testing and post-testing. Just a few collect data on how many participants go on to more advanced training or education, obtained jobs, etc. Yet since a primary function of the vast majority of these projects is to provide unstructured, open access to IT to those dropping in at their sites. Beyond collecting the number of participants, it is nearly impossible gain much more information about outcomes—given the nature of the settings, privacy rights of participants in using the technology, and the budgetary and staffing limitations of these projects.

**Barriers and challenges.** MASSCAP asked projects participating in the comprehensive survey to select from a pick-list the barriers and challenges they faced, and then to name the top two and elaborate on them. Nearly 75% of these projects cited “inadequate funding” as a problem. Placing a distant second (29%) was “maintaining consistent participation,” followed by “recruitment, retaining, and management of volunteers” (21%), which received about the same response as “placement of participants in more advanced training or education or in jobs” (which, of course, reflected responses from those minority of projects with those objectives). A few cited language/literacy challenges among participants, and “project staffing.” Two new projects said that building partnerships with external groups in the early stages was difficult.

**Keys to success.** MASSCAP also asked projects what they viewed as the key elements of any accomplishments and successes that they had enjoyed to date. It did not offer a pick-list, but asked respondents to name any factors and to elaborate. The answers varied considerably: no one or two dominant themes can be extracted from the responses. Some attributed their success to dedicated and patient staff and volunteers, or to one-on-one or small group instruction. Others cited factors relating to the locations, accessibility, atmosphere, and flexibility of their projects, and noted positive feedback from participants. A few said that they had tapped a high, unmet local demand for such services. Several emphasized their close collaborations with other organizations.

### Characteristics of Other Organizations that Responded to MASSCAP's IT Access Survey

Several organizations other than CAAs participated in MASSCAP's comprehensive survey. These mainly were small projects both in annual budget size and participation numbers.

In terms of project type—open “drop-in” access, structured learning, or both, or computer distribution—the mix was similar to that among CAA projects.

The majority of them were less than three years old. All were funded through state programs and/or private sources. Most had very small staffs and relied heavily on volunteers.

All but one reported links or collaborations with external organizations, such as workforce development, educational, business, and community groups.

The barriers they cited were similar to those named by the CAA projects and the key factors that they attributed to their successes varied.

## CAAs' IT Training Programs: Characteristics

Those CAAs that responded to the portion of MASSCAP's second, more comprehensive survey have IT training efforts that differ from the IT access and basic training efforts covered above. Admittedly, some overlap exists in the content of training offered in both types of initiatives. For example, some projects that are focused on IT access offer training in computer basics, word processing, e-mail, and Internet searching, as do some programs that are characterized here as "IT training." On the other hand, the "IT training" efforts tend to be embedded within other CAA programs—those primarily focused on workforce development, ABE, or some other purpose. These IT training efforts typically concentrate on IT instruction in pursuit of goals other than simply providing IT access and basic IT training for their own sake. In a few cases, some form of IT training is a main focus of the program.

From the CAAs that provided more comprehensive information on their IT access efforts and projects, MASSCAP obtained the information summarized below. Sidebars provide more details and examples on some of these aspects.

**Parent CAAs.** CAAs that provided detailed information on their IT training programs and efforts varied widely in size. Their annual agency budgets ranged from under \$2.5 million to over \$50 million, but about 60% of them fell between \$5 and \$20 million. In terms of agency-wide unduplicated clients, these CAAs also ran the gamut—from under to 2,500 to 50,000—but a large majority of them reported having between 5,000 and 25,000. Some 86% had fuel assistance and weatherization programs; two-thirds of them had Head Start and child care; 62% had housing services; and 57% had workforce development programs. Yet only 38% had ABE/ESL programs, fewer than those which had food programs and the same number that had youth services.

**Age of the IT Training efforts.** These programmatic efforts typically have been in place much longer than the IT access initiatives reported by CAAs. Nearly half have been in place six or more years, and over 70% longer than four years. On the other hand, four of these projects were less than a year old.

**Populations served.** Some of these projects targeted low-income people in general, but the majority focused more narrowly on one or more groups, for example: those receiving transitional assistance; various categories of young people; unemployed or dislocated workers; those with limited English language proficiency; and those over age 55 with low incomes. The specific populations served seem to reflect priorities of the larger programs in which they were based and/or those of program funding sources, and/or significant local needs.

**Focus and content of the training.** These aspects varied widely and largely seems geared to program purpose. The vast majority of the programs provide basic training in hardware and operating system basics, elementary word processing, e-mail, Internet searching, and sometimes in spreadsheet and data entry applications. A small number of CAAs reported that they offer training on other computer applications or on other new technology. Less than 20% of the CAAs that completed the comprehensive survey said that they had programs in which some form of IT training was a main purpose. These programs, varying in focus, reported that they were providing basic or more advanced training in such areas as computer repair, network administration, sound, video, graphic design, Web site development, and other software applications for use to meet specific purposes.

**Budget size.** The annual budgets of the CAA programs in which these IT training initiatives exist ranged from \$23,000 to \$2.1 million. Nearly two-thirds of the CAAs that completed the comprehensive survey reported that their budgets for programs that include IT training amount to \$100,000 or more. Generally, these IT training initiatives tend to be components of larger programs at CAAs and have more resources than do CAA initiatives primarily focused on IT.

**Staffing.** Three-quarters of these CAA programs had 5 or fewer (FTE) staff. The others had from 5 to 10 staff members.

**Funding Sources.** Like IT access projects at CAAs, virtually all IT training projects have multiple sources of funding: 79% reported having financial support from one or more federal programs; 68% from state programs; and 53% from foundations and private sources; and 32% from local government. But the public (federal, state, and local) funding sources—as well as private ones—varied considerably. (See the sidebar in Chapter 5 for examples of these funding sources.)

**Links to other programs within CAAs.** Nearly all of the initiatives had links to other programs within their parent CAAs. In many cases, the projects routinely referred their participants to most or all other programs. In some cases, the projects had linkages with certain other programs that were more tailored to their specific purposes. For example, some were parts of efforts to provide Head Start families with computer and Internet access and basic skills, or were connected with CAA programs to assist the unemployed or displaced workers.

**Links to external organizations.** Virtually all of these training efforts had collaborations or links with other organizations outside their agencies—typically, to a wide range of them. All the CAA projects that responded to this question had links with local

workforce development organizations such as Workforce Investment Boards (WIBs), workforce training providers, One-Stop Career Centers, and other job placement organizations. About 84% reported having links with educational institutions and organizations, including public schools, literacy groups, GED, ABE and ESOL providers, and vocational rehabilitation programs. Nearly a third of them had collaborations with community colleges or universities. Over two-thirds of them said that they had partnerships with other CBOs. Several worked with churches. About 80% worked with government agencies—several of them named county human services or county health departments. A smaller majority reported links with business and industry groups, for instance: Chambers of Commerce, a union apprentice program, the New England Institute of Banking, and a local association of auto repair shops.

**Participation.** The annual number of unduplicated participants among the programs varied widely—from fewer than 100 to more than 500. A slight majority of the programs that answered this question served fewer than 100 participants each year; about a quarter, between 100 and 250, and a fifth, 500 or more.

**Outcomes.** Besides participation levels, the vast majority of these programs track outcomes. Of those that do, 75% reported that 100 or fewer participants complete their programs each year, and about 25% placed that number at between 100 and 250. Roughly 60% of all programs place between 50 and 100 participants in jobs in each year, and 14% of them, from 100 to 500. Three programs, however, said that job placement was not applicable to their goals. Less than three-quarters of the programs track how many of their participants move on to other education or training elsewhere. Nearly all of these programs placed the annual number between 50 and 100—just one gave a higher figure.

**Barriers and challenges.** As it did with the IT access projects, MASSCAP asked the IT training projects participating in the comprehensive survey to select from a long pick-list all the barriers and challenges they faced. Once again, “inadequate funding” topped the list by a wide margin—it was cited by about 80% of respondents. “Maintaining consistent participation” and “difficulty in placing participants in jobs, other training programs or education courses” were named by about half of the projects. These complaints were followed by “staffing issues” and difficulties in “obtaining or keeping equipment and software updated,” which were mentioned by roughly 40%, and “burdensome or unrealistic requirements by program funding sources,” which was named by about a third.

Much smaller percentages of respondents cited difficulties such as: lack of communication or coordination with other rel-

## Characteristics of Other Organizations that Responded to MASSCAP's IT Training Survey

Organizations other than CAAs with IT training efforts also responded to MASSCAP's online survey. There were 14 in all and they included: a few workforce development organizations; a few urban-based IT training projects which are targeted to minorities; several adult education providers, some of them based in public school systems; a community development corporation (CDC); and a community health center's staff training program. Almost all of these projects had been around for six or more years.

The purpose in soliciting participation in the survey was to obtain information regarding potentially replicable program models and practices, not to draw comparisons among a small sample of diverse organizations or between them and CAA IT training projects.

Yet it is worth noting that for some questions, the responses by these programs were similar to those of CAA IT training projects. For example, only a small minority of them said that technology training was one of their primary purposes or that they offered more advanced or specialized IT training beyond the basics. Like the CAA programs, most reported an array of links to external organizations such as workforce development, education, business, and community organizations. The vast majority of them served fewer than 250 participants each year. Most had multiple funding sources, but unsurprisingly—given the nature of these organizations—higher percentages of them had state and local government funding than did the CAA projects.



evant internal agency programs; getting timely referrals from partnering groups; inadequate space; the program's lack of "soft skills" development for participants; and lack of incentives for participants. When asked to name the "top two" barriers, the responses varied widely and reflected the problems noted above, but again, "inadequate funding" was listed by more of the projects than any other issue.

**Keys to success.** MASSCAP requested respondents to provide a brief essay response to this question. The answers varied widely. Those mentioned most often, however, were: consumer satisfaction; case management and/or links to other services; effective partnerships with key external organizations; and dedicated and skilled staff.

### Other Organizations (non-CAAs) that Completed the MASSCAP Survey

- The Occupational Training Institute of the Foothill/De Anza Community College District, Cupertino, CA
- Urban Voice, Oakland, CA
- Yolo County Dept. of Employment & Social Services, Woodland, CA
- National Urban League, New York, NY
- Indianapolis Urban League, Indianapolis, IN
- Computers for Youth, New York, NY
- Women Employed, Chicago, IL
- Center for Employment Training (CET) San Jose, CA
- Boston Housing Authority - Community Services Dept., Roxbury, MA
- Oakhaven Community Development Corporation, Memphis, TN
- Center for Entrepreneurship and Business Development, Lawrence, MA
- Methuen Adult Learning Center, Methuen, MA
- New Bedford Public Schools Division of Adult Education, New Bedford, MA
- Massachusetts Career Development Institute, Springfield, MA
- Holyoke Public Schools/ HALO Center, Holyoke, MA
- Asian American Civic Association, Boston, MA
- Missouri Career Center, Springfield, MO
- The Immigrant Learning Center, Inc., Malden, MA
- Attleboro Adult Basic Education, Attleboro, MA
- Dimock Community Health Center, Dorchester, MA
- AFL-CIO LIFT, Evansville, IN
- El Centro del Cardenal, Boston, MA
- Jubilee Enterprise of Greater Washington, Washington, D.C.

### In Sum: CAAs' IT Access & Training Efforts

Thus, at least 82 CAAs across the nation have either IT access or IT training initiatives or both, either as stand-alone projects or based within one or more of their respective programs. Most of the efforts that offer technology training focus on the basics of computer and Internet use, not on more advanced instruction. In the majority of instances, IT training is *not* a primary purpose of the CAA program in which it is offered. Most of these efforts are relatively small, in terms of annual budget, participant numbers, and staff size. In fact, a large majority of CAA programs responding to MASSCAP's comprehensive survey said that "insufficient funding" was a significant obstacle. Funding for efforts typically comes from an array of sources. And a large majority of these initiatives involve collaborations with external organizations.

While the number of CAA IT access and training programs that completed MASSCAP's comprehensive survey was not a large sample, the information they provided helps to enlarge and refine the picture of what CAAs are doing in these areas. Some of the information they provided through the survey and/or in follow-up interviews conducted with some of them appears in the pages ahead.

### IT Access & Training Efforts within Other Organizations around the Nation

IT access and IT training efforts likely can be found within thousands of organizations and institutions, large and small, across the nation—including public as well as private for-profit and nonprofit ones. It seems unlikely that a comprehensive list of them ever has been assembled. However, there are a few places to look in order to find listings and to gain more information about these efforts. Many CTCs belong to an organization known as CTCNet. CTCNet has a membership of about 1,000. However, the members include other institutions and groups besides CTCs.<sup>3</sup> Many local chapters of the National Urban League have IT access and/or IT training programs, too. And there are other projects. Some models and examples of IT access and training projects around the nation appears in Chapter 4.

### Endnotes for Chapter 3:

1. National Association of Community Action Agencies [now the National Community Action Partnership], *Information Technology for Community Action Agencies and Their Low-Income Clients: Findings from a National Survey*, Summer 2000, pp. 13, 18-19.
2. The 2004 MASSCAP comprehensive survey on IT access and IT training can be viewed on MASSCAP's Web site, [www.masscap.org](http://www.masscap.org).
3. For an overview of the role of CTCs, see: Servon, *Bridging the Digital Divide: Technology, Community, and Public Policy* (2002), pp. 60-76; or consult CTCNet's Web site, <http://www.ctcnet.org/>

# Models & Examples

## *of IT Access & Training Projects*

**E**fforts to widen access to computers and the Internet and to provide training in new technology have taken many different approaches and forms. The result has been a wide array of models. For CAAs and other organizations that are either considering, planning, or developing IT access and/or training initiatives of their own, a look at existing models reveals many possibilities. These models can offer ideas and insights—as well as important lessons. This chapter will:

- Briefly summarize the different types of models, and offer numerous examples of how they have been adapted to meet specific needs, populations, and purposes by different organizations;
- Provide a list of resources where more information can be found on these and many more examples of IT access and training efforts around the nation.

### Types of Models

As pointed out in the previous chapter, the line between IT access and IT training often becomes blurred—both in concept *and* in practice—as the results from MASSCAP’s survey show, as do some of the models described below. For instance, some programs that primarily aim to provide open, “drop-in” access to computers and the Internet to those who lack it, also offer structured IT-related training—whether it is brief one-on-one instruction in very basic computer skills, or a mini-course in, say, word processing, Web searches, spreadsheet software, Web design, or desktop publishing. On the other hand, some programs that provide either basic or more advanced and specific IT training, often as part of a larger purpose such as workforce development or adult education, also offer open, also offer “drop-in” IT access to participants and others.

Given the blurred lines and overlaps, in many cases it is difficult to place efforts that focus primarily on IT access or on IT training initiatives neatly into separate categories. For example, some projects where the main purpose is to widen access to computers and the Internets through public “drop-in” sites involving unstructured use, also offer structured classes in either very basic or intermediate IT education. And other programs whose main purposes are workforce development, adult education, and/or literacy offer either basic or more advanced IT training as either a primary or secondary component, and may also offer unstructured, open IT access as well.

Of course, many sites that offer computer and Internet access with minimal supervision and very limited, if any, instruction exist through-



out much of the nation—within most public libraries, some public schools, public housing projects, and CBOs. But for other organizations and programs, IT access and training is either their main purpose, or it plays a key part in their efforts to reach larger or more specific objectives.

Many of these projects combine IT access and IT training, in one form or another. Yet the combinations vary widely. The settings and the target populations vary, although most of those targeted are poor and lack skills, computers, and Internet access. The purposes vary—from widening access and IT literacy, in a basic and general sense, to training for specific groups in particular skills and that match requirements for particular jobs or industries. Approaches to providing IT access and training differ as well.

The short descriptions that follow are a small sampling of these efforts underway around the nation—within CAAs and other organizations. We included them here to show a range of possibilities and how these different projects have combined different elements of access and training into their efforts to fit their goals and the needs of those whom they serve. Intentionally, we selected projects in both urban and rural settings from all regions of the nation and that have particular focuses on different groups in our society—youth, the unemployed, the poor, African-Americans, Hispanics, various immigrant groups, women, those displaced from work in old industries (such as coal mining, auto, steel, and textile manufacturing, and farming), those with literacy/linguistic challenges, and the disabled. We also picked some that are tackling the issues of the digital divide using new approaches. Hopefully, these examples offer ideas for new projects still on the drawing board as well as for those now in place.

Yet none of these examples represents either a perfect fit for other organizations with similar needs, goals, or interests. They all have tailored their projects to meet certain needs. Along with their successes, they also have struggled to overcome various shortcomings.

Much more information on most of these projects can be obtained either directly from them, or from other sources. (Note the capital letters—“(M)” for example—after each profile and then at the key provided at the end of the chapter for the source of information where in some instances, more detailed descriptions can be found, along with contact information. Some of these sources can be found on the Web. Also, many of these projects have their own Web sites. In some cases, information on them that appears in the following descriptions in part was drawn from those sources.

Many more projects such as these exist and much information about them can be found, too, via the Internet or other sources. A list of resources to locate information on many other projects that represent a range of models appears at the end of this chapter.

## Examples from around the Nation

The following 50 or so examples of IT access and training initiatives from around the nation reflect different models and combinations. As you will see from the brief descriptions, it is difficult to neatly group them. For example, some projects that focus on youth are access-oriented, but others are geared to workforce development. Some have public open-access, but also specific IT training programs for other purposes. Nonetheless, taken together, they offer a wide range of possibilities for other organizations to consider and from which they can learn. (Web addresses are given for projects for which we found them.) Some of these projects are profiled in Chapter 6.

### **Massachusetts CAAs' IT Access and Training Projects**

Some 12 Massachusetts CAAs have developed IT access and/or training projects in the low-income communities that they serve. Nearly all of these efforts have emerged since 2000, many of them aided through seed monies obtained by MASSCAP. Some are open drop-in access centers that typically also offer other basic IT training; some are projects that focus on structured training, sometimes targeted to particular populations and purposes. The CAAs that have launched such projects: ABCD (Boston); MOC (in northern Worcester County); Tri-CAP (Malden); Worcester Community Action Commission; Greater Lawrence Community Action Council; North Shore Community Action Programs (in Salem); Quincy Community Action; Citizens for Citizens (Fall River); Community Action, Inc. (Haverhill); Franklin Community Action Council (Greenfield); Valley Opportunity Council (Chicopee); and Hampshire (County) Community Action Commission. A summary describing some of these projects appears at the end of this chapter. The MASSCAP Web site ([www.masscap.org](http://www.masscap.org)) has links to some of them. **(M)**

### **Resource and Development Center, Washington Beech Public Housing Development (Massachusetts)**

Located in Boston's Roslindale neighborhood, the Community Services Department of the Boston Housing Authority has initiatives in this housing development of 250 families that involve both IT access and IT training. One is a service that involves ABE, ESOL, and GED preparation along with job readiness, job skills training and placement, and post-placement support. The other is a "drop-in" IT access center for residents that also offers structured basic IT training. **(M)**

### **Nine Star's "T-Up" Project (Alaska)**

This project focuses on economically depressed neighborhoods in Anchorage, Alaska. It has programs for youth, including computer repair. It offers basic IT training for the entire community as well as programs targeted toward specific population, including pregnant or parenting high school students, non-English speakers, and welfare recipients. **(DMF, p. 23)**

<http://www.ninestar.com/programs/programs.htm>

**Literacy Volunteers of Maricopa County (LVMC) (Arizona)**

This project in Phoenix, Arizona offers basic literacy/ESOL and basic computer training to residents of Maricopa County, with a focus on low-income Hispanics with low English literacy. Classes use software allowing students to acquire more advanced computer skills as they work on literacy and language skills. (DMF, p. 25)

**Legal Services Corporation of Iowa's Senior Citizens Internet Project**

This statewide organization has installed computer kiosks in 85 senior centers across Iowa. An online self-help site offers basic training for participants. Each computer easily links centers to the Corporation's legal aid Web site, the state's human services department, and local area agencies on aging. (DMF, p. 28)

**Fairfield Tech Center (Iowa)**

Originally known as "The Beatbox," this project in Fairfield, Iowa provides classes in Web design and digital film production to youth and adults as well as opportunities to participate in Cisco Systems Certified Network Professional, Microsoft Certified Systems Engineer, and other certification training programs. (DMF, p. 29)  
<http://fftechcenter.org/>

**INCITE (Louisiana)**

INCITE is a project of the Calcasieu Parish (Louisiana) School System, the local library, and local career center. It has two sites—one designed for seniors, and the other for youth and family counseling. Students who have left high school use educational software to make up lost school credits. The youth and family site also provides *Microsoft Office* User Specialist (MOUS) certifications, training for online job searches, Web design, and small business applications. (DMF, p. 33)

**Confederated Salish and Kootenai Tribes, Flathead Indian Reservation (Montana)**

The Department of Human Resources Development of the Confederated Tribes has a mobile computer lab serving rural communities and homes in Montana to provide them with computer access. It also offers IT training. (DMF, p. 41)

**ACTION, Inc. (Georgia)**

This CAA, based in Athens, Georgia and which serves 10 counties, has a new program for older youth who are not in school. It focuses on GED preparation, job readiness and placement, and follow-up support, and includes basic IT training. It utilizes a mobile computer lab that travels around the service area. (M)

**NO Walls (New Mexico)**

Serving the Albuquerque area, this organization focuses on making IT accessible to people with disabilities by offering computer classes designed to meet their needs. (DMF, p. 46)  
<http://cdd.unm.edu/iu/nowalls/>

**Appalachian Center for Economic Networks (ACENet) (Ohio)**

ACENet works to use the Internet to the advantage of people rural Ohio, both children and adults alike. It has several centers open to both youth and others. One of its programs is for youth entrepreneurs, and another trains volunteers to help provide IT instruction and workforce skills for adults. One center has a computer distribution program for TANF-eligible adults who complete a training program. Two other centers conduct ACENet's Jump Start program, that focuses on training unemployed individuals—including laid-off coal miners—in transferable technological skills and in job readiness. (DMF, p. 49) <http://www.acenetworks.org/>

**Center for Technology Innovation (Wisconsin)**

A joint project of the Northwest Side Community Development Corporation and University of Wisconsin-Milwaukee, this center focuses on enhancing the capacities of minority-owned businesses in Milwaukee's northwest side to compete in the global marketplace. The project also aims to assist area businesses in upgrading their IT systems and training, and to developed bundled access to the Internet and Web technology. (DMF, p. 64) <http://www.cti.sba.uwm.edu/>

**Technology Learning Center @ the Armory (New York)**

This CTC serves the Dominican neighborhood of the Washington Heights neighborhood in New York City. It utilizes a project-based approach to teaching basic IT skills to adults and youth. It offers GED and ABE classes, youth programs, and instruction in word processing, resume-writing, designing Web pages. It also has an early literacy program. (SRI, pp. 12, 24, 29) <http://www.armorynyc.org/techCenter.php>

**Fast Forward (United Way of the Midlands) (South Carolina)**

This CTC, located in a local middle school in Columbia, South Carolina, aims to increase IT literacy, develop job skills, and increase both individual self-sufficiency and sense of community. It offers a myriad of programs for preschoolers, middle-school students, and parents—as well as seniors—promoting the “intelligent use of computers” by allowing students to use IT in order to create, program, and design multimedia productions. (SRI, pp.12, 15, 21)

**The Great Lakes Baptist District Center, the Disability Network Center, and the Hispanic Community Center (Michigan)**

Mott Community College, with other partnering groups in Flint, Michigan, is building three technology centers designed to serve the African American, Hispanic, and disabled communities in Flint. These three centers will be tied to a larger center that will prepare former auto and other industrial workers for jobs in IT. (SRI, p.12)

**Digital Family Project, Desert Sands Unified School District, Indio, California**

This school-linked program serves a largely Hispanic population where many work in agricultural and hospitality industries. It offers

basic computer training with a primary focus on literacy and parent involvement. **(SRI, p.12)**

**Playing2Win (New York)**

Playing2Win began in 1983 in the Harlem district of New York City and may be the oldest CTC in the United States. It continues to offer basic IT training courses, but as it evolved it shifted its strategy in IT instruction. By 2002, half of its adult and youth classes focused on themes and projects that involve using computer and other IT applications. The topics were geared to participants' interests and life objectives, such as: the history of Harlem and family history; promoting and marketing products; developing Web sites for local businesses; a community effort focused on ecology and local parks; and artistic endeavors, involving multimedia. **(W, pp. 127-129.)**  
[www.playing2win.org/](http://www.playing2win.org/)

**Plugged-In (California)**

Before 2000, this inner-city project in East Palo Alto, California had three main services: public Internet access, training for individuals and groups, and support for CBOs in integrating new telecommunications technology into their programs. It has a teen Web design business, a drop-in access center; and a free after-school program focusing on IT and visual arts. While the project includes IT access and training, it also encourages participants to use the technology to create content relevant to both them and the community. It has programs for children and youth that allow them to be creative, by developing such things as online art, books and videos. It built in a drop-in digital production studio to serve adults and to promote collaboration and self-help, and entrepreneurial skills. **(PI)** [www.pluggedin.org/](http://www.pluggedin.org/)

**Puente Learning Centers (California)**

Begun as an after-school learning center in Los Angeles during the mid-1980s, this CBO's focus remains on ESOL, GED, Spanish literacy, typing, speech, business preparation. However, computer technology has been integrated into all the classes offered, and participants learn IT skills in the process. The centers also offer specific IT instruction. **(NTIA, 1999)** <http://www.puente.org/>

**Martin Luther King, Jr. Community Center of Dallas (Texas)**

The Center's emphasis is on keeping high school students in school, away from drugs, and involvement in crime. The program obtained a U.S. DOE CTC grant to work with at-risk high school students. The Center, which is located near a high school, provides facilities and access to remedial academic instruction. It teaches computer skills and includes online learning that allows students to learn at their own pace. **(M/ACC)**

**West Side Community Computer Center (Ohio)**

This center grew out of an effort by the Stockyard Area Development Association in Cleveland, a CDC that began a computer distribution program in 1995 along with Internet access, and basic skills

## IT Access/Training Projects: Possible Uses for Other Agency Purposes

**B**esides their potential roles in providing IT access, training, workforce development, and expanding educational opportunities for participants, IT access and training projects can play other roles that support or add to other agency services. In fact, some CAAs envisioned some of these possibilities when they originally invested in the IT and physical infrastructures for these projects.

Some CAAs are using their projects to offer new agency services, such as earned income tax assistance and help in tax preparation, help in financial planning, and online nutrition education for WIC clients. A few also have used their projects to provide IT training to staff members in other programs. This appears to be an area in which many other possibilities remain untapped and seem ripe for exploration over the next few years.

Another role for CAA IT access and training projects is to serve as a primary gateway or intake point to other agency services, or to social and support services offered by other organizations. It remains unclear if any CAAs have yet employed this approach to any significant extent. Obviously, the geographical setting and reach of a CAA (one whose territory is a compact urban area as opposed to one that covers a large region) would have much to do with whether this use of an IT center is even feasible. In any case, such a role for CAA IT access and training projects seems worth exploring.

Some IT access and training projects at CTCs as well as at a few CAAs and other CBOs have provided IT training to staff of other nearby CBOs and to small businesses. At least one CAA of which we are aware, Community Action of Jefferson County, Pennsylvania, has provided IT support and other IT services to other CBOs, local government agencies, and small businesses for a number of years. Some debate has emerged as to whether or not CTCs and other CBO-based IT access and training projects can develop the capacities to take on the role of an IT training or service provider for other organizations. However, for some projects, it is an option to examine.

Two publications that are listed in Chapter 7 of this publication, *A Resource Catalog*, discuss the issues to consider. They are:

- Kanter, Beth, *Community Technology Centers as Technology Assistance Providers to Nonprofit and Community Based Organizations: Emerging Practices, Opportunities and Challenges*;
- Hoffman, Rem, *Exploring New Roles for Community Technology Centers: Can CTCs Serve as Nonprofit Technology Assistance Providers?*

training as well as training in computer repair. (NTIA, 1999)  
[www.govtech.netmagazinestory.php?id=8067&issue=03:2002](http://www.govtech.netmagazinestory.php?id=8067&issue=03:2002)

**Women's Economic Agenda Project (WEAP) (California)**

Through partnerships with the city of Oakland, computer firms, and CBOs, WEAP established a community computer program in 1997. It offers IT access at a small membership fee, and classes for adults and children, including mothers and daughters together. In 2000, CISCO Systems had chosen WEAP as a regional training center under its "Networking Academy." (NTIA, 1999) [www.weap.org/ctsc/skills\\_center.html](http://www.weap.org/ctsc/skills_center.html)

**Women Employed's "Upgrade Your Future" Project (Illinois)**

This a relatively new project, based in Chicago. Its purpose is to move more women into jobs within the IT field, and its target group is lower-income women, especially minority women over age 25 in the Chicago area. Rather than directly providing IT access and training, the project has begun with a public education campaign to get women into training programs for IT careers. The second phase will involve mentoring efforts for women who choose to move along such a career path. (See the short *Profile* of this project in Chapter 6.) (M)  
[http://www.womenemployed.org/up\\_index.jsp?nav\\_id=2](http://www.womenemployed.org/up_index.jsp?nav_id=2)

**Asian-American Civic Association of Boston, Massachusetts**

The association serves immigrants and refugees and offers them training in basic computer skills as well as other services, such as housing, food and fuel assistance, tax preparation, and family counseling. Beyond basic computer skills, its IT training efforts are geared for jobs in banking, financial services, and health care.. (M)  
<http://www.aaca-boston.org/>

**The Immigrant Learning Center (Massachusetts)**

Located in Malden, within the metropolitan Boston area, the Center combines basic computer and Internet training to immigrants with GED preparation, ABE, and ESOL. (M)  
<http://www.alri.org/ltc/ilc/ilc.htm>

**Lincoln Action Program's Computer Learning Lab (Nebraska)**

This project at a CAA in Lincoln, Nebraska combines drop-in access, distribution of computers to low-income people, and structured training both at the introductory and intermediate levels in computers basics as well as in *Microsoft Access*, *Powerpoint*, and HTML. Participants include low-income adults who are unemployed or underemployed, but the project has a major focus on immigrants and refugees. (See the short *Profile* of this project in Chapter 6.) (M)  
[http://www.lincoln-action.org/index\\_html?page=content/adult\\_ed/computer\\_lab.html&help=true](http://www.lincoln-action.org/index_html?page=content/adult_ed/computer_lab.html&help=true)

**Computers for Youth's "Take IT Home New York" Program**

Over the last several years, this project has served several neighborhoods within New York City, and it has continued to expand to

others. It offers structured basic IT training along with distribution of computers at low cost to low income families as well as to teachers serving low-income students. It also provides technical support and tailored Web content for both participants and the larger community. The project targets the areas it serves by selecting middle schools that have more than 85% of students eligible for free lunches. (See the *Profile* of this project in Chapter 6.) **(CFY, M)** [www.cfy.org/](http://www.cfy.org/)

**Occupational Training Institute of the Foothill/De Anza Community College District, Cupertino, California**

The Occupational Training Institute's CompTechs/Computer Donations Programs is for community college students. Half of its participants are economically disadvantaged. It involves distribution of computers at low cost and also provides structured classroom instruction in up to A+ Certification and Customer Service for IT Professionals, training students in computer repair, IT help desk and desktop support. (See the short *Profile* of this project in Chapter 6.) **(M)**  
[http://198.94.223.134/original/services%20for%20job%20seekers/Occupational\\_Training\\_Inst.html](http://198.94.223.134/original/services%20for%20job%20seekers/Occupational_Training_Inst.html)

**Northeast South Dakota Community Action Program**

This CAA, based in Sisseton, South Dakota and which covers a large, mainly rural region, is working with a national nonprofit called One Economy on a new project to distribute computers at low cost to low-income people and provide basic training across 25 counties. This project got underway in 2004. **(M)**  
<http://www.nesdcap-nesdec.org/> (and) <http://www.one-economy.com/>

**AFL-CIO LIFT, Evansville, Indiana**

This labor union program has a new center that offers drop-in computer and Internet access as well as basic IT training and distribution of computers at low cost to union members and their families in the southwestern part of Indiana. **(M)**

**Community Action Committee of the Lehigh Valley's Fowler Children's Technology Center (Pennsylvania)**

Based in Bethlehem, Pennsylvania, this project focuses on children and teens referred by local teachers. It offers drop-in IT access and computer distribution to low-income families at low cost. It also provides structured learning in computer basics, robotics, digital photography, graphic design, and Web site design. **(M)**  
<http://www.caclv.org/home/didyouknow.htm>

**Miami-Dade Community Action Agency (Florida)**

This CAA has a program with six sites that involves both IT training for workforce development as well as open, drop-in IT access. IT training is a primary purpose of the program. Begun in 1991, the program now includes basic IT training as well as advanced training in computer repair and particular software applications. Its services include job readiness and occupational skills training for technical and clerical jobs, job placement, and post-placement support. (See the short

*Profile* of this project in Chapter 6.) **(M)**

<http://www.miamidade.gov/CAA/education.asp>

#### **LKLP Community Action (Kentucky)**

Located in Jeff, Kentucky, LKLP Community Action serves four counties in the southeastern part of the state. It has both an ABE/workforce development program that includes basic IT skills training as well as a project to widen IT access. The ABE/workforce development program is targeted to serve both older youth and adults with low incomes, and focuses on occupational training for jobs in the coal, service, retail, banking, and trucking/transport industries. LKLP's IT access project offers open drop-in access as well as structured training in IT basics at senior centers. The CAA also has a computer distribution program for those below the poverty level. **(M)**

<http://www.lklp.org/programs/wia/index.htm>

#### **Community Progress Council (Pennsylvania)**

This CAA in York, Pennsylvania has two workforce development programs that have important basic IT skills training components. One is for those making the transition from welfare to jobs; the other is for low-income people age 55 and above. These programs offer ABE, ESOL, GED preparation, as well as job readiness training, placement, and post-placement support. They also offer skills training for jobs as administrative, clerical, retail, health care, and intake workers, and as pressers and drivers. (See the short *Profile* of this project in Chapter 6.) **(M)** <http://www.yorkcpc.org/>

#### **Urban VOICE (California)**

The Oakland-based organization's Cypress Technology Center focuses on training for small businesses and post-placement support. Training is focused on computer technology and applications, including advanced skills, and is targeted to unemployed, poor urban residents with low education or histories of drug problems or incarceration. The programs combine teaching life skills with technology and work to move individuals into jobs or small businesses where they can apply their new skills. **(M, SRI)** <http://www.urbanvoice.org/>

#### **Community Action, Inc. of San Marcos, Texas**

This CAA has an ABE program that includes basic computer skills training. With recent immigration into rural areas covered by the CAA, a majority of the ABE program participants now are immigrants, and the program increasingly focuses on ESOL. With a large service and retail sector in the area, the project has done a project with the Retail Sales National Association, which provided funds to develop a curriculum for adults to gain necessary skills, including those in IT. **(M)** <http://www.communityaction.com/>

#### **Bresee Foundation (California)**

This project in Los Angeles targets youth and provides IT training geared to workforce development. It operates a Cyberhood Computing Center, holds computer classes, and runs an Integrated Train-

ing Academy. The Integrated Training Academy serves out-of-school youth who are 19-21 years old and takes place over a four-month period, providing education in GED preparation, life skills, and IT. (See the short *Profile* of this project in Chapter 6.) **(M/ACC)**  
<http://www.bresee.org>

#### **CitySkills (Massachusetts)**

CitySkills in Boston is a model worth examining for IT training projects that have a focus on workforce development. City Skills acts as an intermediary between urban job training programs and companies, especially those with entry-level IT jobs. (See the short *Profile* of this project in Chapter 6.) **(M)** <http://www.cityskills.org/>

#### **Cyberskills Vermont**

This organization in Burlington, Vermont focuses on community-wide workforce development involving IT training, involving the state's Workforce Investment Board and other partners. It began as an offshoot of community access television and developed into a project that offers IT training to individuals and IT services to nonprofits. A report on this organization's experiences is available at the America Connects Consortium's Web site. (See the short *Profile* of this project in Chapter 6.) **(M/ACC)**

[http://www.americconnects.net/resources/WIA\\_Lessons\\_Learned.asp](http://www.americconnects.net/resources/WIA_Lessons_Learned.asp)  
(and) <http://www.cyberskillsvt.org>

#### **Street Tech (California)**

Located in San Pablo, Street Tech focuses on at-risk youth ages 18-25, who have had problems achieving success in school and in life. It offers low-cost computer training, certification, and job placement. Street Tech also teaches soft skills needed for work readiness. Along with job placement, the organization also recently started a computer refurbishment business. (See the short *Profile* of this project in Chapter 6.) **(M/ACC)** <http://www.streettech.org>

#### **ACCEL (Ohio)**

The Appalachian Center for Collaborative and Engaged Learning (ACCEL) in Zanesville, Ohio focuses on rural youth, IT training, and workforce development. It formed a collaborative of schools and over 20 businesses to design more effective job training for their community. It conducted a survey to determine what kinds of training businesses were seeking for their employers and found that there was a need for both industrial and IT training. The focus of the ACCEL program is to pre-qualify workers for employers in the community, and it involves IT training. **(M/ACC)**

[www.americconnects.net/resourcesstartingayouthemploymentprogram.asp](http://www.americconnects.net/resourcesstartingayouthemploymentprogram.asp)  
(and) <http://www.accelearn.org>

#### **Technology for All (TFA) (Texas)**

TFA in Houston partners with corporations, foundations, technology providers and local and national organizations to bring IT to

low-income neighborhoods. The organization participates in a national program that enables TFA to provide affiliated CTCs access to over 2,000 online courses. The training provided helps underserved persons gain the skills they need to participate in the New Economy. TFA's program now is providing outsourcing services (e.g., data entry) to local employers. **(M/ACC)** <http://www.techforall.org/>

#### **Jobs in Finance Project (Massachusetts)**

Based in Lawrence, Massachusetts, Greater Lawrence Community Action Council's (GLCAC) IT Center, along with the Lower Merrimack Valley Workforce Investment Board (WIB), has developed a Jobs in Finance Project that has involved the New England Institute of Banking, various banks, financial services businesses, and ABE providers in a program which has provided training to those in training for jobs in financial services. GLCAC does the IT training at its facility. (See the short *Profile* of this project in Chapter 6.) **(M)**  
<http://www.glcac.org/Tech.htm> (and)  
[http://www.lmvwib.org/services\\_best.html](http://www.lmvwib.org/services_best.html)

### Summing Up

As these examples show, many organizations across the nation—CAAs and others—have developed a wide array of approaches and projects to provide IT access and/or IT training to various people and groups. These projects have demonstrated that the possibilities for work in this area are wide.

Often, the best way to learn about how to undertake an effort is to learn from others who have done something similar. The organizations listed above have experiences that can offer lessons for other groups building or developing projects. Of course, so do others.

#### **More Information about these Projects and Others**

- You can find out more about some of these projects by using the source list at the end of this chapter. It offers links to more detailed information--some of which has been published on the Internet. For a few of these projects, more detailed information appears later in this publication. Or, you can contact the projects themselves to find out more about them.
- Of course, these are not the *only* efforts within CAAs and other organizations in the nation providing IT access and training that merit interest. The *Resources* listed below will lead you to others.
- In searching the Internet, or even in exploring the region around you through other means, such as contacting organizations nearby, you likely will find still other IT access and training efforts worth investigating.

## Sources for Projects Described in this Chapter

**M:** Information drawn from MASSCAP's 2004 national surveys and interviews, its information on Massachusetts CAAs that have these projects; presentations in sessions of its New Economy/New Technology Task Force during 2004; and/or other research.

**M/ACC:** Information presented by Laura Breedon, director of the America Connects Consortium, at a MASSCAP New Economy/New Technology Task Force session in 2004.

**DMF:** Leslie Harris and Associates, *Bringing a Nation Online: The Importance of Federal Leadership* (Digital Media Forum: Benton Foundation & Leadership Conference on Civil Rights Education Fund, July 2002), <http://www.civilrights.org/publications/bringinganationonline>

**SRI:** Bill Penuel, Vera Michalchik, Deborah Y. Kim, and Linda Shear, "The Organization of Learning in Community Technology Centers: Learning with Technology in Six Communities" (SRI International: March 2001), [http://www.americconnects.netresearchSRI\\_case\\_study\\_report.pdf](http://www.americconnects.netresearchSRI_case_study_report.pdf)

**W:** Mark Warschauer, *Technology and Social Inclusion: Rethinking the Digital Divide* (Cambridge, MA: MIT Press, 2003), pp.127-129.

**PI:** Gordo, Blanca. "Overcoming Digital Deprivation," *IT & Society*, Vol. 1, No. 5, (Summer 2003), pp. 173-174, <http://www.stanford.edu/group/siqss/itandsociety/v01i05/v01i05a08.pdf>; U.S. Department of Commerce National Telecommunications and Information Administration, *Collected Case Study Evaluations: Issues in Rural Communities; Issues in Urban Communities; Issues in Sustainability* (Washington, D.C.: October 1999).

**CFY:** The MASSCAP 2004 survey response from Computers for Youth; Stock, Elisabeth, "Computers for Youth: Focusing Digital Divide Efforts on the Home" (Benton Foundation Digital Divide Network), <http://www.digitaldividenetwork.org>; and Computers for Youth's Web site, <http://www.cfy.org/>

**NTIA:** U.S. Department of Commerce National Telecommunications and Information Administration, *Collected Case Study Evaluations: Issues in Rural Communities; Issues in Urban Communities; Issues in Sustainability* (Washington, D.C.: October 1999).

## Other Resources to Explore for Examples

**CTCNet** is the national network of both community technology centers and organizations that have such projects. Its Web site is a repository of information about models of IT access and training that

exist around the nation, and membership allows one to obtain much more information via participation in ongoing e-mail communication among members. (<http://www.ctcnet.org/>)

**The National Urban League** was an early player in efforts to close the digital divide. It has many affiliates around the nation with projects that offer open IT access to inner-city residents, a range of IT training programs and activities, as well as related workforce development efforts. Its Digital Campus program provides entry-level information, Internet access, and technology skills to residents of low-income communities at CTCs. PowerUp, Ameritech, GTE, and Microsoft are corporate partners. The League's national website includes lists of affiliates with "Digital Campuses" and IT-related workforce development programs. <http://www.nul.org/>

**The U.S. Department of Commerce National Telecommunications and Information Administration (NTIA)** has provided grants since the mid-1990s to many organizations around the nation through what is now called the Technology Opportunities Program (TOP). It has extensive profiles of these state and local efforts as well as evaluations of them on the Web. Not all of these projects involved IT access and training, but many have. Much of the information in these profiles offers important ideas and insights for other organizations involved in efforts to develop or enhance IT access and training efforts. Some DOC NTIA resources are:

- Case Studies Reports from 1998 and 1999:  
[http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/case\\_studies.htm](http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/case_studies.htm)
- TOP Project Evaluations:  
[http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/evaluation\\_report.htm](http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/evaluation_report.htm)
- Case studies on selected TOP grantee programs:  
[http://www.ntia.doc.gov/top/research/EvaluationReport/case\\_studies.htm](http://www.ntia.doc.gov/top/research/EvaluationReport/case_studies.htm)
- TOP grant awards, 2004: [http://www.ntia.doc.gov/top/whatsnew/whatsnew.htm#FY2004\\_Awards](http://www.ntia.doc.gov/top/whatsnew/whatsnew.htm#FY2004_Awards)

**The U.S. Department of Education's Community Technology Center (CTC) Program** began in the late 1990s and also has provided grants to many local projects. It, too, has profiles of these efforts that are available on line through the **America Connects Consortium**, with which it has contracted to provide technical assistance to these grantees. (<http://www.americconnects.net/>)

**The Digital Divide Network.** Launched by the Benton Foundation, the Network's Web site not only offers news and resources on the issue, but also some profiles of initiatives around the nation. (<http://www.digitaldividenetwork.org/content/sections/index.cfm>)

**Mini-Profiles:**

## Massachusetts CAAs' IT Projects— Similarities & Differences

**B**efore 2000, only one Massachusetts CAA—Action for Boston Community Development (ABCD)—had a project to help close the digital divide. It was a computer distribution effort run out of one of the agency's neighborhood centers. But since 2000, another 11 CAAs have launched efforts of their own.

Among the first were two drop-in centers, which began as “cyber cafes,” where participants could gain free or very low-cost access to computers and the Internet along with some very basic instruction. At the same time, patrons could take advantage of the refreshments offered and the opportunity to interact with others at the sites.

The project at Montachusett Opportunity Council (MOC) in Fitchburg, an industrial city in the north central part of the state, began in early 2000. The other one, at Tri-CAP in Malden, a small city within the Boston metropolitan area, opened in 2001. Both were located on downtown main streets and immediately attracted large numbers of participants. The Malden project was especially popular: within two years or so it had attracted over 2,000 “members.” MOC soon created IT access sites in other communities. It had a program to which it sent Cyber Café participants who wanted to obtain basic or more advanced IT training, education, and other skills. Tri-CAP began providing IT training classes within its CyberCafé. (See the Café's Web site: <http://maldensquare.org/>)

Tri-CAP developed its project with a coalition that included: a local public cable television group, which helped with technical issues; a local chapter of “Youth Tech Entrepreneurs,” high school youth who offered technical support; AARP, which contributed senior volunteers; a local business; as well as a state legislator and the local One-Stop Career Center, which both set up part-time satellite offices within the café.

Another CAA, North Shore Community Action Programs studied the Tri-CAP model in building a project of its own, *Salem Cyberspace*, located in the coastal city of Salem. It also formed a community coalition to develop it, including Salem Access TV, the local CDC, the local One-Stop Career Center, a church, the Salem public schools, and the Salem Point Neighborhood Association, which covers a largely Hispanic part of the city near the site. Besides drop-in access, *Salem Cyberspace* offers a range of classes and workshops for adults and youth, including ones focused on workforce development, English instruction, Web design, and computer repair. (See its Web site: <http://www.salemcyberspace.org/>)



Other CAAs also began projects based on different models. For example, Worcester Community Action Council's efforts have focused on structured training, targeted to specific populations, including at-risk inner-city high school youth who need assistance in gaining the knowledge and skills to obtain diplomas. (See: <http://www.wcac.net/excel.htm>) Two projects of CAAs in the western part of the state experimented with models to provide computer and Internet access to people who live in rural areas.

The two most recent Massachusetts CAA IT projects, however, more closely resemble the projects in Malden and Salem. Quincy Community Action Programs (QCAP) has a new project, *Learning Links*. It combines open IT access and basic IT courses with other purposes: "Wired Homebuying" (using the Internet to find and purchase a home); a playgroup for children and their caregivers; and online food stamp applications. In 2004, QCAP was working to use the project for financial literacy training and tax assistance. It also views the site and as a potential gateway through which clients in the future will access agency services.

Realizing that it had a growing number of agency clients who are age 55 or older, Citizens for Citizens in Fall River developed a project for seniors that combines open access with courses in computer and Internet basics. It gears some of the training to basic IT skills needed for employment. The project also focuses its instruction on how older people can use computers and the Internet to meet other needs in conducting the business of everyday life, such as: finding information; dealing with finances; locating services or health care information; and communicating with family and friends. (See CFC's Web site: [http://www.cfcinc.org/spire\\_cyber.html](http://www.cfcinc.org/spire_cyber.html))

ABCD in Boston remains involved in IT access and training. It has a long history of integrating IT access/training with workforce development programs. Its Financial Services Academy (FSA) is one example. ABCD expects that the FSA model will work for other sectors, such as medical services and hospitals. The agency also currently has a grant to provide IT training support for small businesses, specifically day care providers. Other ABCD programs focus on IT training for youth. Another program provides an opportunity for youth with legal problems to do community service by getting some computer training and then helping with IT issues in CTCs within the city.

The IT efforts of another Massachusetts CAA, Greater Lawrence Community Action Council, are profiled in Chapter 6.

### *IT Access & Training Initiatives:*

# Questions To Consider in Planning & Development

**F**or a decade—or in some cases longer—organizations across the nation have worked in developing efforts to widen access to computers and the Internet as well as to provide training in the new technology. They have accumulated much experience in designing, building, and implementing these initiatives. This body of experience offers some important insights for other organizations that are planning or undertaking similar efforts.

Of course, IT access and training efforts vary in type, focus, and scale—as well as in the specific populations they serve, and the settings where they operate. Some projects have been very successful, others less so. Yet despite these differences, their collective experience offers key lessons for other organizations that are involved in the process of planning and developing IT access and training projects.

This chapter focus on issues to consider in planning and initial development of IT access and traing projects. It draws from a wide array of sources.

One source is the experience of Massachusetts CAAs that have such developed such projects as well as MASSCAP's work in this area over the past six years. Another is the information MASSCAP ob-



tained through its 2004 national survey of CAAs and other organizations with IT access and training initiatives as well as through follow-up interviews with some of these projects.

In this chapter, we have drawn from some of the material that CTCNet has accumulated and published on the work of CTCs—including its *Center Start-Up Manual*, which should be essential reading for any organization planning a project. We have consulted information that the America Connects Consortium has collected on projects funded through the U.S. Department of Education's CTC program. We also have examined case studies that the U.S. Department of Commerce's Technology Opportunities Program (TOP) has published on its grantees' projects. And we have looked at other material that has been written about IT access and training projects—by the projects themselves and by others—including academics.

This chapter has been written with CAAs in mind—although much of what it contains can be useful to other CBOs. We recognize that most CAAs have long track records in developing programs that effectively serve populations within their communities. Yet while some of the discussion below may cover ground familiar to some CAAs that have built other types of programs, we have attempted to keep the focus on issues that especially pertain to IT access and training initiatives—based on the experiences of organizations that have such projects.

*The experiences of organizations that have launched IT access and/or training initiatives—including CAAs, CTCs, and others—suggest that the planning process is very important.*

## The Importance of Planning

While it may seem obvious to most readers that some form of planning is essential in building any new project, the experiences of organizations that have launched IT access and/or training initiatives—including CAAs, CTCs, and others—suggest that the planning process is *very* important. In fact, the time invested and the number of bases covered in planning these projects seems to make a significant difference—and may determine if they succeed or fail.

Although still a significant issue, the digital divide recently has faded from the headlines. Yet just a few years ago it was prominent in the news. Many organizations—including some CAAs—recognized the problem and moved to address it. In doing so, some groups with the best of intentions (and in some cases because funding was available to do so) jumped to seize the moment, and they quickly established a project.

In more than a few instances, they spent a minimal amount of time planning their projects. Often, the projects soon encountered problems. They either had difficulties with technology or equipment, or with conducting outreach, developing external partnerships, attracting or keeping participants, and/or with staffing. In some cases, the original focus did not quite fit the need or prove sustainable, or

the choice of site proved to be a poor one. And once initial funding disappeared, they had no plan or effort in place to obtain more. Of course, many IT access and training efforts have experienced some or all of these problems. And the best planning process cannot prevent, anticipate, or overcome all barriers. But experience has shown that it can make a difference—often, a critical one.

What issues should a planning process consider? There are a number of major ones. They are listed in the sidebar on this page. Obviously, it is a long list. Some issues will take longer to address than others. Yet each organization is different and already has at least some assets in place, so based on those, it may find some aspects of building a project easier than others.

### Assessing the Need

Of course, the evidence shows that a digital divide still exists in America—low-income people, those with lower education levels, African-Americans and Hispanics are less likely to have computer or Internet access or IT skills than others. And the divide likely exists in most communities served by CAAs and other organizations that serve low-income people. But in planning a project each organization should examine the specifics involving the area or locality it intends to serve. For example, is there an unmet need for public IT access? Or is the greatest need for IT training that is required in particular jobs that are growing in the area? Is the need closely tied to other significant local issues—such as low literacy, high school drop-out rates, or retraining for large numbers of workers who are losing jobs in declining industries? Are other organizations addressing the specific needs, and if so, what are they doing?

CAAs typically know much about the needs of communities that they serve. They develop agency plans that often rely on local needs assessments and recent census data. They also have low-income board members and clients who articulate specific needs. All these sources of information can be useful in more clearly defining specific needs.

### The Target Population(s)

Is the planned target population for the project a general one—such as those in the area without computers, Internet access, or basic IT skills? As can be seen from the examples in the previous chapter, some organizations have projects that offer access and basic IT training to all, rather than focusing on particular groups. For example, two Massachusetts CAAs—in Fitchburg and Malden—have successful projects that open their doors to anyone who wants and needs computer and Internet access along with a little training to get started.

Or, based on specific community needs, is the focus a narrower one? Many organizations have identified specific needs in their com-

### Issues to Consider in Planning a Project

- The Need
- Target population(s)
- Purpose(s) of the project
- Programmatic focus of the project (initially and eventually)
- Other similar models and their experiences: *What lessons do they offer the project on the drawing board?*
- The parent organization's (and its leadership's) commitment to the project
- Placement within the organization's structure
- The project's linkages and relationships with other programs within the parent organization
- Involvement of external institutions and organizations (and strategies for building it) and defining their roles
- Outreach, marketing, and public relations to build and maintain both participation and community support
- Site and Location
- Infrastructure—technological and other
- Staffing and Volunteers
- Budgeting
- Timeline
- Evaluation: *How will the project measure success?*
- Funding (start-up and long-term)

munities among certain groups and have designed their projects accordingly. The CAA in Lawrence, Massachusetts, for instance, began its project with a focus on high school-age youth, in part because of the city's soaring high school drop-out rate. Some CAAs in states such as Pennsylvania and Ohio have IT training initiatives that target those who are making the transition from jobs in declining industries to other types of employment. The Center for Technology Innovation in Milwaukee's focus is on minority-owned small businesses. Other programs focus on seniors, or women, or recent immigrants. And some projects have multiple target populations, for example: morning drop-in hours for seniors; afternoon programs for school-age youth; and evening classes for adults. And some CAAs have focused their IT access and training efforts on groups that they already serve in existing programs—such as Head Start families, WIC participants, seniors, and those in ABE or workforce development programs.

Whether the target population envisioned for the project is either a general or more specific one, it is important to decide just *what* it will be—*early* in the planning process. Of course, it may be that your project will focus on one or a few groups in the first year or two, and eventually will broaden its scope to others. But your selection of the population that will be the initial focus of your efforts will have a major bearing on the design of your project.

### The Purpose(s)

What will be the purpose(s) of the project? Is it to provide access to IT for those who lack it, or IT training, or both? Or is it to provide training to meet specific objectives, such as basic IT literacy that is needed in a growing number of jobs, or skills in particular IT applications needed for certain kinds of jobs? Is it to use computers to upgrade, say, literacy, or English and math skills required to obtain a GED? Or, for example, is it to provide opportunities for young people to learn computer skills by working on their own projects that supplement schoolwork? Is a purpose of the project to serve as a gateway to more advanced IT training, other education, or jobs?

Of course, there are many possible purposes. And there are also others that might be secondary to the main ones, such as providing a place within the community where people can interact and perhaps collaborate. Another secondary purpose might be to add a new service that may attract people whom the agency has not served before—one which could serve as a “door” through which they might enter other agency programs.

Regardless of all the *possible* purposes, organizations should settle on the *main* ones as they move through the planning process, while realizing that in the future, it may be necessary or desirable to change them.

## Program

Once deciding on the main purposes, what is the strategy for achieving them? What activities will the project carry out to meet the needs you have identified and serve the population(s) that you have targeted?

If the purpose is to expand access to computers and the Internet among people in the community, then how will the project accomplish it? Will it be through a drop-in access center, or through distribution of computers to the targeted populations? Or both? Will basic IT training be available at the access center? Will technical support from some location be available for those who have gotten computers from the program? If the primary focus is basic IT training, what topics will it include? Will it be conducted one-on-one, or in classes? Will the program's focus include other potentially related issues, such as basic typing, literacy, or language skills, and how will it address them? If the purpose is on IT training for workforce development or adult education, will the program bundle this instruction with other types of training, such as in writing, soft-skills development, or English proficiency? How will it link participants with other services that your agency provides or which are available elsewhere? In short, *how* will the project pursue its objectives?

## Learning from Similar Models Elsewhere

As those involved in the planning process reach agreement on the specific needs to address, the particular populations to serve, and the main purposes of the project on the drawing board, they should look at similar efforts others have undertaken. Of course, every organization, community, and project has its own unique features. And much can be learned through experimentation. But after the proliferation of IT access and training initiatives over the past decade or more, it is highly likely that a group somewhere has tried or developed a project that is similar to that which your organization has in mind. A look at their experiences will not answer all the questions regarding feasibility, how to do it, and what to expect. But it may reveal some potential keys to success, suggest new possibilities, point out ways to avoid costly pitfalls, and raise new questions—or even suggest that basic idea of building such a project may not be such a good one after all.

In examining other projects, it is important to look at the *differences* as well as the similarities that they have with the project you are planning. For example, if the specific needs being addressed are similar, are the target populations or geographical settings? If these factors match, are the main purposes similar? Are there significant differences between the capacities of your organization and those of others with projects that you wish to emulate which could make a difference in whether the project you are planning will be successful?

*In examining other projects that may serve as models, it is important to look at the differences as well as the similarities that they have with the project which you are planning.*

Some IT access and training projects have important collaborations with other organizations in their communities that are critical to their success. Yet in other localities, such organizations either do not exist, or they may not be effective partners. In looking at other projects that might serve as a model for the one you have in mind, you should assess whether or not the key external collaborations that those projects have would be possible for you to build in your community.

In their planning, several Massachusetts CAAs that built IT access and training initiatives consulted other CAAs in the state that had done so. They have reported that the time and effort involved was worthwhile. Many organizations and projects that belong to CTCNet routinely share information and compare notes via e-mail and use it to their benefit. So, information about other efforts can be obtained from organizations nearby, or through national networks. Finally, do not be afraid to ask: most organizations with IT access and training projects like to talk about them with others.

*Sometimes good ideas and well thought-out plans that emerge within organizations—especially in larger ones with many programs—either go nowhere, or if they are actualized, they are handicapped, due to a lack of strong commitment from the parent organization and its leadership.*

### Commitment from the Parent Organization

Sometimes good ideas and well thought-out plans that emerge within organizations—especially in larger ones with many programs—either go nowhere, or if they are actualized, they are handicapped, due to a lack of strong commitment from the parent organization and its leadership. IT access and IT training projects are relative newcomers to the world of social, educational, and workforce development services. Despite the big change in our economy and society that technology has helped spurred and evidence of a digital divide, many—including some within CBOs—still do not see IT access and skills as key tools in attaining self-sufficiency. In fact, some shy away from addressing the problem due to their own mistrust of new technology, or because they think it is too complicated. Actually, building effective IT access and training projects probably does involve more complexities that does creating many other types of human and educational services programs. And the hurdles loom higher given the fact that no large federal, state, or private programs yet exist to provide funding—such as they do for other services. Thus, those within large multi-service organizations that are working to develop these projects often have some hurdles to overcome in selling their ideas and plans internally. And tackling that challenge must be part of the planning.

Lukewarm interest or lack of enthusiasm from an executive director, resistance from a board, and/or disinterest from other important programs and key staff within an organization may not sink a project before it gets underway, but low internal support and commitment sometimes proves to be fatal over time. We know of projects that were carefully developed with the support and enthusiasm of staff within organizations (and in some cases had strong involvement and backing from external organizations), but floundered because they were not among the executive director's or the board's priorities. On

the other hand, we have encountered initiatives which were enthusiastically promoted and launched from the top down, but met with disinterest or even resistance from managers and staff in other agency programs. Even though these projects usually came to fruition, they soon faced consequences that stemmed from the lack of agency-wide commitment.

### Placement within the Parent Organization's Structure & Relationships with Other Agency Programs

CTCs that are stand-alone organizations with a sole purpose do not have to be concerned about relationships and linkages with other internal agency programs. But for IT access and training initiatives that develop within CAAs and other multi-service organizations, this issue can either be very simple to resolve—or much more complex.

In some cases, the project's place within the larger organization is a not even a question. The new initiative may be planned as part of a particular agency program, such as ABE or workforce development. Thus, it will have a clearly-defined niche within the organization.

For a new project that does not fall neatly into one or another existing agency program, the issue of *where* to place it can be more complicated to resolve. But the decision can have a major bearing on how a project works—or even *if* it works. Internal placement can have implications over time on the project's focus, its participation and utilization levels, its effectiveness, its place on the parent organization's priority list, its relationships with other internal programs and external partners—and even on its sustainability. Some CBOs—including CAAs—have developed their IT access and training efforts within existing programs, and others have established them as stand-alone projects. There are benefits and drawbacks to both approaches, but organizations planning new initiatives should carefully consider this issue.

Planners also should spend some time and effort on another question: how will the new project interact with other programs within the agency? Of course, this large question really leads to a series of others. Will the new project routinely refer participants who seem to need other services to a central agency site or to specific programs? How will it do so? How will other agency programs promote the new project to their participants? Will there be some special arrangements developed between the new project and particular agency programs? What will they be, and how will they meet the needs of the new project and its participants?

Why are these questions important to address in the early stages? Within many multi-service CBOs, including CAAs, various programs have developed over the years and have done effective jobs. But in

*Planners also should spend some time and effort on another question: how will the new project interact with other programs within the agency?*

focusing on their particular goals and the needs of their own clients, in some cases they become insular. This can present some problems for multi-service organizations with goals that are wider than those of their various programs. CAAs and other CBOs sometimes find it a challenge to get all their programs to interact and collaborate to support each other's work in an effort to meet their overall goals as well as the range of needs that their clients have .

Thus, in CAAs and in other multi-service CBOs, walls between internal programs exist. In planning new IT access and training programs or other new projects, organizations need to devise ways to break down these walls. For new projects, developing specific relationships with different programs can be a first step, where no agency-wide case coordination exists. New IT projects will find potential participants in other programs. And new people that these projects bring into the agency likely will need at least some of the services that it offers in its other programs.

*Many of the more successful IT access and training initiatives among both CAAs in Massachusetts as well other organizations across the nation have been the products of collaborations involving several community partners. These collaborations can be important or even essential in several ways. Many of the organizations that MASSCAP surveyed believe that their partnerships with external organizations are critical to their success.*

### Involvement of External Organizations

Many of the more successful IT access and training initiatives among both CAAs in Massachusetts as well other organizations across the nation have been the products of collaborations involving several community partners. These include other CBOs, educational or government institutions, workforce development groups, small and large businesses, labor organizations, faith-based organizations, ad-hoc grassroots issue-oriented groups, public access media groups, philanthropic organizations, and others. Of course, the mix of these groups that have formed collaborations varies from place to place. Many of the organizations that MASSCAP surveyed believe that their partnerships with external organizations are critical to their success.

These collaborations can be important or even essential in several ways. Collaborating organizations can contribute services, expertise, and skills that single organizations lack. They can play a role in a project's program by providing staffing (including trainers), volunteers, and technical support. They can contribute equipment, space, and materials. In addition, they offer other services that project participants need but which neither the IT access/training project nor its parent organization can provide. They can serve as resources for more advanced IT training and other education, or for job training and placement. They can serve as mechanisms through which the project is publicized or marketed. They provide participants. And they often can be assets in efforts to build community and funding support.

Which organizations would be appropriate partners for collaboration in IT access and training efforts? The range of possibilities and combinations is wide. Most CAAs and many other CBOs already collaborate with other organizations for various purposes. Sometimes those collaborations or the relationships with such groups that have

emerged from them are transferable to IT access or training. In other instances, organizations that have begun IT access and training initiatives have “mapped” their community in building their projects—surveying the range of groups and resources in it to assess which might be appropriate partners for their undertaking. (For more on community “mapping” or “audits,” see Chapter 7.)

The issue of collaboration with external organizations should be part of the planning process. In fact, once partner groups have been identified, consulted, and have signed on, it may be useful to ask them to play a role in the planning. They usually can offer expertise, fresh insights, contacts that no one else in the planning group has, and other contributions. Yet as important as they are, in some cases relationships between different organizations also can be difficult to build and tricky to maintain. Including external partners in the early stages of project-building can serve to clarify roles and issues such as specific organizational contributions and commitments, and help prevent misunderstandings from arising later. And once the project is underway, an advisory board made up of partners as well as representatives of other groups and sectors within the community can play an important role in building support for the effort.

## Outreach & Marketing

Some IT access and training projects are built within existing programs that already serve many clients. Building participation may not be much of an issue, but it should not be taken for granted that existing program clients necessarily will know that new services are being offered.

On the other hand, some new IT access and training projects may either be stand-alone programs or located at stand-alone sites. In those cases, outreach and marketing are important topics for the planning process—even for organizations that are well-known in the community and have much experience in providing other services.

Through its surveys and interviews, MASSCAP found that when a few CAAs started new IT-related projects, they simply assumed that people would come—after all, these CAAs had other large programs for which they had never had to do much outreach and that were filled to capacity with clients. When turnout for their new IT access projects was low in the beginning, staff at a couple of these agencies wondered why. Was it because the new projects focused on *technology*? But then it dawned on them that all their other programs had been around for years—far longer than any of these staff had been at these organizations. They then discovered that decades ago, their predecessors had, in fact, done outreach for some of those programs. And they realized that they themselves never had undertaken an outreach or marketing effort before.

*New projects—even those based in CBOs that have other services for which the demand is high—should not assume that participants automatically will appear once the doors are opened. Planners should devise an outreach and marketing strategy to get the word out to members of their target populations.*

Of course, there are all kinds of ways to market and promote new services. It can be done through electronic media, coalitions of organizations, newspaper articles, flyers, and posters. The list of possibilities could go on. Some organizations have come up with creative techniques: for example, one CAA uses T-shirts as a way to promote its services; another has promoted its Web site by printing its address on the bags it hands out at its food pantry which clients typically re-use. Once participation builds, word of mouth is often how people hear about a new service. But whatever the media or methods are, outreach and marketing should be considered in the planning process.

### Location & Site

For some new initiatives, the location and site may not be an issue, since they are parts of existing programs that already have sites with the capacity and space to house them. But for new initiatives that do not have a pre-determined site, as they say in real estate, *location matters*. It especially is important for centers that offer IT access.

Two of the IT access centers run by Massachusetts CAAs have attributed their high participation rates in part to their locations and sites. Tri-CAP's Cyber Café in Malden is located on a busy main street near a popular chain restaurant, and from the beginning benefited from a steady stream of pedestrians dropping in. The first IT access site opened by Montachusett Opportunity Council is located on the main street of the city of Fitchburg and it, too, immediately drew participants from those passing by. Both are attractive, comfortable sites that offer coffee and other refreshments, all of which adds to their appeal. But the two sites have one big difference. Tri-CAP's Cyber Café, while it contains satellite offices of two project coalition partners, is at a separate location from the agency's other programs. On the other hand, MOC's Fitchburg IT access center is in a building that houses other agency services.

In CAAs and other multi-service organizations, placing a new IT access or training project in the same site with other agency services can have benefits for participants, the project, and other agency programs. Participants can access other services more easily and the project can more easily draw new participants who are clients of other programs. Other agency programs may be able to utilize the project's computers and equipment when open access hours or training sessions are not in progress for such purposes as training their own staff.

Yet we have learned that in some cases, potentially there can be downsides to placing IT drop-in access centers within agency facilities that house other services. One drawback may be—once again—location. Some agencies have multi-service facilities with long-established programs that no longer have to advertise themselves. These facilities may be perfectly accessible for clients of those services, with nearby public transportation stops, plenty of free parking, foot ramps

and elevators. But they are *not* located on major streets and do not get much pedestrian traffic. Some are a good distance away from downtowns and busy centers of low-income neighborhoods. Drop-in IT access centers in such locations may find it difficult to draw participants beyond those who use other agency services in the facility. They will have much more marketing and outreach to do than projects that have their locations working in their favor.

Transportation obviously is another important factor in choosing a location—whether it is for projects that focus on access or on training. It is an issue that several of the projects that MASSCAP surveyed raised. Where public transportation is available, it seems important that the site be located near it. In fact, some IT training projects offer free bus or subway passes to those they serve to encourage consistent class participation.

In areas that lack public transit—particularly in rural areas—transportation also looms as a big factor in deciding where to locate projects. Yet for people living in rural areas who have cars, the location of the site may be a big factor in project utilization. The following illustrations of two IT access projects help make this point. One agency opened a site in a former private school on the edge of a town that serves as the commercial center of a rural area. The agency was delighted that it had found low-rent space where high-speed Internet access was available—and in an attractive old building on a tree-lined campus to boot. It set up shop and conducted an extensive outreach effort. But few people came. Apparently, its location was too remote, or so the agency was told by a number of a number of potential users, who often drove long distances for other reasons.

*As real estate agents say, location matters—especially for stand-alone projects with a focus on providing IT access.*

The other agency opened an IT access center in a small town in another rural area in a building where it provided a few other services. The site was next to the post office, near the local general store, and just down the road from the elementary school. The agency put up a few flyers in the area and got an article in the local paper. Within a few weeks, people began trickling into the site and participation continued to grow over the next several months. Some of the participants used other agency services in the building, but others were people from outlying areas who regularly came to town to visit the store or post office. Parents and their children who attended the nearby school also began dropping in.

Of course, the distance from where people lived in relation to each of these sites and the effort making the drive was not the real issue why people in these rural areas used one of them, but not the other. It was that one site was located close to places that they visited for other purposes—the store, the post office, the school, and the social services in the building. They had at least one reason to drive into town, and over time, the IT access project became still another. The other project was located in nicer surroundings and just a mile or so

from town, but it was isolated from places that potential users frequented, making its location “too far away.”

As noted in Chapter 2, at least a few studies have found that those with lower incomes and lower education levels as well as many people in rural areas (African-Americans excepted) seem to be less willing than most other groups to use public sites for IT access or training, or to learn new skills, period. Thus, transportation aside, issues such as where projects are located can make a major difference in whether or not the populations for which they are intended use them.

The design of IT training and access sites themselves also can have an impact on participation levels, learning outcomes, and in creating an atmosphere conducive to interaction and collaboration. Some CAAs, CTCs, and other organizations have put a good deal of thinking and planning into designing the physical space that houses their projects to meet their purposes. As noted above, in Massachusetts, the CAAs in Malden and Fitchburg have built access centers with warm, user-friendly atmospheres that are designed to make participants comfortable. North Shore Community Action (also in Massachusetts) and its partners devoted much thought, time, and effort to designing the site for their *Salem Cyberspace* project—ensuring that space would be available for a range of activities, and considering such aesthetic details as the artwork that would hang on the walls.

For organizations that are planning new IT access or training projects that will be built within new sites, the best thing to do is to visit a few similar nearby projects. Almost certainly the experience will influence the plans on your drawing board. CTCs around the nation have a decade or so of collective experience in building projects and in designing and reconfiguring physical sites for access and training. CTCNet offers some guidance on building sites and has at least one article that offers ideas. (See Chapter 7, *A Resource Catalog*.)

### Infrastructure—Technological, Other & Rules for Participants

Part of the planning must focus on the infrastructure that will support it. Much of this will center on technological questions, but some of it will involve others. For new IT access and training initiatives that will be part of other programs already in place and will share the same physical space, issues regarding hardware, operating systems, networking, and peripherals may be moot—it just may be a matter of expanding existing capacity. However, another critical part of infrastructure to support the project is software. What software already is available that will be needed or useful, and what applications will have to be added to the mix?

For projects being built from scratch—and especially ones established within new sites and locations—technological infrastructure issues are major issues that need to be covered in the planning process. These questions involve choosing the operating system, the form of Internet access, local networking, hardware, peripherals (such as printers, scanners, etc.), basic software, and other software appropriate to the purposes of the program. How many work stations will the project need, based on projected use? How much rewiring and reconstruction of the site will be necessary to support the technology? Which software applications and licenses must be acquired to meet the project's objectives?

There are other considerations to weigh regarding the technology. What will be the policies and rules the project will put in place regarding its use? For example, will users be able to print materials they find on the Web at no charge? Will they be able to use the technology to download very large digital music and video files for viewing—either for personal use or in a project activity? Also there is the issue of content: many public libraries, schools and parents, for example, have installed filters to block out unseemly content found on the Internet. Some CTCs and CAAs with IT access or training programs targeted to youth now require parental permission for participation. System security is another issue that planners must address. Obviously, these examples suggest that from the start, projects need to set policies, procedures, and rules. As on other aspects of starting IT-related projects, CTCNet and other organizations have experience, ideas, and tips to offer. New projects should consult CTCNet's *Center Startup Manual*. Other resources are listed in Chapter 7 of this publication.

Infrastructure for a project involves more than technology, equipment, and wiring. Such simple fixtures as lighting, tables, desks, and chairs matter to many people who will come to your project. Whether your project focuses primarily on access or on training, think about your target population(s). Is it a broad one—and the project's purpose simply to accommodate whoever comes, to the best extent it can? Or is it a narrower one? If the project involves youth, then their interests may lie in using computers and the Internet for multimedia purposes, exploring new things, and finding dates via e-mail and Web sites. If it targets older people, they may want to use the new technology to search the Internet to find jobs or information on issues that interest them, or to connect with old friends in distant places via e-mail. Some older people have problems reading small text on a computer screen. We are not trying to generalize about younger and older people here, but simply to say this: the demands and needs of the target groups need to be considered in designing a project's infrastructure.

*The issue of developing the technological infrastructure necessary to meet the project's goals is a major one for planners. Yet they should keep in mind that infrastructure for a project involves more than equipment and wiring. Such simple fixtures as lighting, tables, desks, and chairs matter to many people who will come to your project. They should consider the needs of their target groups in designing the infrastructure.*

## Staffing

For the projects MASSCAP has surveyed or interviewed, staffing was a big issue. Many of the projects surveyed said that having dedicated, talented, and patient staff was a major factor in the success they had enjoyed. Yet some of the same projects—as well as others—cited staffing as a significant problem. They noted budgetary constraints that dictated low salaries which in turn led to high turnover rates. Some also pointed out the difficulties in finding individuals that have the mix of talents and skills to fill key roles in these projects.

What are the attributes, knowledge, and skills that project managers in smaller IT access and training projects need? They typically involve:

- a combination of administrative and financial know-how;
- technological savvy;
- communications skills;
- knowledge about and/or experience in techniques of teaching new skills;
- an understanding of the surrounding community and its key issues;
- connections with various players both inside the parent agency (if one exists) and within other organizations in the community;
- and the ability to bring in new resources.

*Many of the projects that MASSCAP surveyed said that having dedicated, talented, and patient staff was a major factor in the success they had enjoyed. Yet some of the same projects—as well as others—cited staffing as a significant problem.*

It is a tall order to fill for many projects that operate on limited resources. In some programs, several staff may carry out all these functions, but typically in stand-alone IT access and training projects, such as many CTCs, one person does the work. In larger agencies that have these projects, sometimes the functions are spread across other programs and departments.

There are other tasks that project managers may not be able to perform and will need to be covered by either other staff or volunteers. One major area is set up, maintenance, and troubleshooting of the technological infrastructure. People with the requisite IT knowledge and skills to perform these functions typically are expensive. Yet many CAAs and other multi-service organizations already have such people on staff or working as consultants. Some projects have acquired this expertise from other organizations. For example, Youth Tech Entrepreneurs is a growing organization with chapters in some locations. It consists of high school students with advanced IT skills. They helped build and service the IT infrastructure of Tri-CAP's access program in Malden, Massachusetts. The Occupational Training Institute for Foothill/De Anza Community College District in northern California has drawn staff and volunteers with expertise who lost jobs in nearby IT industries during the recent economic downturn.

Those who have IT skills and are effective teachers or trainers also can be difficult to find in some areas. However, projects that plan

to conduct IT training courses will need to find staff or volunteers to take on this role. (More on the topic of IT trainers appears in Chapter 6 of this publication.)

Staffing in these areas can be critical issues for IT access and training projects—as many of those that responded to MASSCAP’s survey explained. There are some ways to help solve the problem: for example, a recently-developed VISTA program for CTCs has emerged and it has provided many projects with skilled people at a low cost to cover their staffing needs. And in most communities, projects can find help through various networks in enlisting volunteers with various skills. In fact, many projects across the nation that offer IT access and training rely on volunteers in one way or another. Configuring the staffing of the project—as well as the roles volunteers will play—is another critical part of the planning process.

### Budgeting

Most CAAs and many other multi-service CBOs have experience in developing program budgets. The CTCNet *Center Start-Up Manual* offers a detailed and itemized guide to the areas that organizations should consider in budgeting for IT access and training projects. Consulting other organizations with such projects that have experience in creating budgets for them also is a good way to learn what to expect. A number of these organizations have pointed out that start-up costs have run higher than they originally had anticipated.

*The histories of many IT access and training projects suggest that planning and building a project takes longer than originally expected. So, planning groups should keep that lesson in mind when constructing timelines for their new projects.*

### Timeline

The planning process should develop a timeline for the project that includes the milestones to pass in order to get it up and running, and the ones that will measure its progress over the first few years. But in doing so, it is important to keep the following in mind. CTCNet has found that typically it will take a year for an IT access or training project to move from conception to actual implementation. Both the federal DOE CTC and DOC TOP programs, in doing reviews of projects that they have funded, have noted that in most cases it took more time to get these projects underway and to achieve results than originally had been projected. In its experience working with CAAs in Massachusetts, MASSCAP also has found this to be the case in most instances. In short, the histories of many projects suggest that planning and building a project takes longer than originally expected. So, planning groups should consider keep that lesson in mind when constructing timelines for their new projects.

### Evaluation

How will the project measure success? Developing ways to evaluate projects often comes as an afterthought, but it should be considered in the planning process. Besides creating systems to measure partici-

pation and characteristics of participants, projects that offer more than access and minimal instruction—such as training with a focus on workforce development—need to consider ways to track outcomes. In fact, funding sources typically require it. CAAs have evaluation systems in place within other programs that they may be able to adapt. And in recent years, other organizations that focus on IT access and training have developed evaluation tools. For example, the America Connects Consortium has developed methods to evaluate the projects of U.S. DOE CTC grantees. And other projects have created evaluation tools that can be helpful. (Some of these are listed in Chapter 7, *A Resources Catalog*.)

## Funding

*The issue of funding is a key one that the planning process must address—both for start-up purposes as well as the long run. Funding is a major issue for most organizations in any period, but it looms even larger today. Unlike for some other problems related to poverty, there are no large federal or state-funded programs dedicated to closing the digital divide.*

Last, but certainly not least, the issue of funding is a key one that the planning process must address—both for start-up purposes as well as the long run. Funding is a major issue for most organizations in any period, but it looms even larger today—given the state of the economy and the fiscal problems that confront both the federal government as well as many states and localities. CAAs and other organizations have experienced cutbacks in funding for at least some of their programs. Meanwhile, the public, corporate, private, and philanthropic dollars available for widening IT access and training do not appear to be as plentiful as they were only a few years ago. Unlike for some other problems related to poverty, there are no *large* federal or state-funded programs dedicated to closing the digital divide. Appropriations for two federal grant programs that address it—the Department of Commerce’s Technology Opportunities Program (TOP) and the Department of Education’s CTC Program—in the past few years have been from \$10-15 million *each*, or amounts comparable to the annual budget of a smaller-size CAA in Massachusetts.

Some IT access and training projects have been aided by these two federal programs as well as by support from other governmental entities. Others have been able to obtain large grants from major foundations or corporations for either start-up or major expansion purposes. But obtaining large grants is not easy. We have found that many existing IT access and training projects based within larger organizations as well as stand-alone CTCs that have done so have been able to do only once—and most projects, not at all. Thus, chronic inadequate funding and even long-term sustainability are significant issues for many projects.

So, where will the money come from to launch the project and sustain it over time? The special section that follows offers an overview of possible funding sources as well as a summary—based on MASSCAP’s national surveys and other research—of how many existing IT access and training projects currently find financial support.

## Funding Sources for IT Access & Training Efforts

**F**unding is a major issue for most IT access and training initiatives. Where will the money come from, if not to start the project, to sustain it over time? What are the existing federal programs that help support these efforts? What are the realistic prospects of obtaining grant funds from one of them? Do state programs dedicate funds for these purposes? Are large foundations still involved in this area? How do the various organizations with such efforts that now exist across the nation financially sustain themselves? This section addresses those questions.

### Federal Programs

**The U.S. Department of Commerce National Telecommunications and Information Administration's Technology Opportunities Program (TOP)** began in the mid-1990s. Since then it has awarded 610 grants nationwide, which have started or bolstered important, innovative, and replicable projects. Its aim is to provide funds "for model projects demonstrating innovative uses of network technologies." However, the program will *not* give grants to projects in which IT access or training is the primary goal, but it will fund access and training as part of a larger purpose in introducing technological innovation. Applying for a TOP grant for most CAAs, CBOs, and CTCs is a longshot—unless they have some new innovative solutions involving advanced technology to solve particular problems. Funding for the program while never large has diminished. The application process is complicated and very competitive—states, municipalities, and major institutions, such as universities and health care facilities, typically submit applications. The grants also require matching funds. Only a few of the organizations across the nation that MASSCAP surveyed either have been lead agencies or partners in successful applications for TOP funding.

**The U.S. Department of Education's Community Technology Center (DOE CTC) Program** came into being as a result of the community technology center movement. Like TOP, it has supported many noteworthy and valuable projects across the nation since the late 1990s. But it also has a very small appropriation, and receives far more applications than it can fund. Like TOP, these grants require matching funds or in-kind. And in the last few years, its focus has sharply narrowed: most recently, it has settled on giving grants only to projects that use IT to help at-risk secondary school students obtain the reading, writing, and math skills necessary to get high school diplomas. Certainly this purpose is an important one, but it is much narrower than what the architects of this federal program had in mind. So, for IT access and training efforts with broader or other purposes, obtaining a DOE CTC grant—at least for now—is not a realistic option unless the project matches the current requirements and its proposal seems better to

reviewers than those of hundreds of other applicants.

Other federal programs also offer grant programs, but they are not necessarily or directly related to IT access or training. *The U.S. Department of Housing and Urban Development (HUD)* has a program to assist HUD-supported housing developments in providing computer and Internet access to residents. *The U.S. Department of Health & Human Services* offers grants for pre-school and after-school activities that may involve IT access and education. And the *U.S. Department of Labor* funds employment and training that includes IT education, typically under WIA, the Workforce Investment Act, through which it sends funds to the states.

#### **The E-Rate**

The E-Rate was enacted by Congress in the late 1990s to provide discounts to educational institutions and organizations that serve disadvantaged communities in securing telecommunications services, Internet access, and in-house connections. The amount of the discounts range from 20% to 90%, depending on the economic status of the community. The act has had a big impact on widening Internet access among public schools and libraries. Technically, the federal law does not limit participation in the program to public schools and libraries, but instead leaves eligibility up to the states. Only California and Louisiana thus far have permitted CBO-based programs to receive these discounts. By 2000, public schools had received four-fifths of them. Even if more states allowed CBOs to participate, the funding of these discounts is not infinite. In recent years the requests from eligible applicants have exceeded the available resources.

#### **State and Local Government Programs**

In 2000, while doing research to support a state budget initiative in Massachusetts, MASSCAP did an extensive search to find other states with programs designed to close the digital divide through funding IT access and training efforts. We found a few. But our more limited search four years later in preparing to produce this publication yielded little or nothing. This may be because many states have experienced fiscal crises since 2000, and their funding for IT access and training efforts probably would be among the first items in their budgets to be cut or eliminated. Moreover, MASSCAP's national surveys of CAAs and other organizations turned up only scant evidence of state funding initiatives dedicated to IT access and training. Yet our surveys found that some projects receive support from county or city governments.

#### **Private Sources—Industry, Foundations, and Individual Donors**

Some projects have received large grants from major corporations or their foundations. Others have received smaller ones from such sources. Some of these donors are the giants in the IT/telecommunications sectors: Microsoft, Intel, AT&T, Cisco Systems,

Verizon, and others. Major national foundations also have provided grants to some of these projects for general support or specific purposes, such as the Ford Foundation, the Mott Foundation, the Surdna Foundation, the Annie E. Casey Foundation, the David and Lucille Packard Foundation, and others. So have a number of community foundations, such as The Boston Foundation.

Yet most IT access and training projects across the nation have not gotten funding from major corporations or foundations. And increasingly, national and larger foundations have set priorities on how they will spend their money. They have particular interests, which sometimes do change over time, but for many of them, IT access and training is not one of them at the moment. Large foundations also like to fund innovative projects that will have national impact and can be replicated elsewhere. But that hurdle eliminates many local efforts from the sweepstakes—especially those that are focused simply on addressing problems in their own communities. Lastly, major foundations typically are not sources for long-term sustainability—in fact, many will not provide monies to support direct services, except perhaps during the start-up phase of a project.

Local foundations are another matter. They often do make regular contributions to institutions and organizations in their areas that they deem worthwhile. Yet they tend to be conservative as to where they make their contributions: frequently they fund the same efforts year after year. Sometimes, they need to be convinced that a major change in local needs has taken place before they shift their funding patterns to place their money into newer projects—such as IT access and training.

#### **Where Do Existing Projects Get Their Funding?**

So, where do current IT access and training projects get the money to survive—or to expand? The answer is complicated. Funding sources vary from project to project. Nonetheless, many of them have been resourceful enough to find the means to survive and, in some cases, even to grow. Besides charging small user fees (in some cases), raising money through events, raffles, direct mail appeals, personal appeals to old supporters, and the like, IT access and training projects within CAAs, other CBOs, and at CTCs have drawn from other streams of funding. From what MASSCAP has found, the list of sources is long and varied. And some organizations have found ways to tailor some of the monies they get to meet other program objectives, to also help close the digital divide.

The Community Services Block Grant (CSBG), the Workforce Investment Act (WIA), and in some cases, TANF funds dedicated by states, provide part of the funding for some CAAs and other organizations with such projects. Some that have IT training efforts connected to ABE programs may utilize state department of education funds. Some CTCs—especially those that are part of local public access cable television groups—get revenues that come



from fees collected by cable TV providers. MASSCAP's survey revealed a varied list of funding sources that the projects which responded now draw from, for example: the Small Business Administration; the federal Office of Refugee Resettlement; United Ways; a state program for the elderly; HUD; Head Start; the National Retail Sales Organization; the National Council on Aging; various local private and community foundations. In sum, many organizations have been creative in building their IT access and training projects into other efforts that have either broader or specific purposes and for which there is funding.

One large expense for these projects is staffing. Some projects have reduced it by taking advantage of the CTC VISTA program. For more information, consult its Web site, which is listed in Chapter 7, *A Resource Catalog*.

Using the facilities and expertise of their IT access and training projects, some CAAs, CTCs, and other CBOs—as noted in Chapter 4 of this publication—provide IT training and other IT-related services to other CBOs, small businesses, and other groups within their areas for fees. In some cases, this entrepreneurship has helped sustain other project activities. But given the small scale and limited resources of many of these projects, doing so requires a maintaining a delicate balance: at what point does providing IT training and other IT services for the purpose of generating revenue outstrip the original purpose of the project—to provide low-cost or free IT access and/or training to people who would otherwise lack it? Staff time is finite, and so are the hours in which these facilities can be used—for either open access, structured training, or activities mainly designed to generate revenue.

Of course, the optimum solution to the funding problem would be a nationwide effort to address the digital divide in its various dimensions and to prepare more Americans to obtain gainful work in the New Economy. Such an effort necessarily would involve major investments by federal and state government, other institutions, and the private sector. Yet in this period of international and economic uncertainty as well as public sector fiscal crisis, such an effort does not seem to be on the horizon—at least for now.

Yet the obstacles of the present may not persist. The need exists and likely will increase. Over time, the need to upgrade the IT skills of Americans may assume a greater priority in the minds of public officials, other major decision-makers, and the voting public. And it may lead to action—as the Soviet Union's launching of its *Sputnik* satellite in 1957 prompted new U.S. investment in education. So, the goal of building such an effort—while it seems large today—should remain in our minds and on our drawing boards.

# IT Training for Workforce Development & Other Purposes

**J**ust as the Industrial Age brought forth a wide array of new machines, appliances, and other devices that transformed society and the economy, the Information Age already has produced a broad range of computer and other technological applications that serve many different purposes. It is easy to forget that only a quarter century ago, when computer technology first emerged from the confines of large industries, governmental institutions, and universities in the form of the personal computer (PC), its practical applications were very limited. In the 1980s those businesses and individuals who had PCs primarily used them for word processing, spreadsheet work, building databases, and playing games. With today's vastly more powerful and capable hardware together with the connectivity provided by the Internet, the ways in which the technology is being used in industries, institutions, and elsewhere are virtually countless.

Given the many uses of the technology, the term "IT training" covers a wide range of topics and applications at different levels of knowledge and skills. At minimum, it involves very basic instruction in using the hardware and the operating system interface and in tasks such as how to launch applications, save files, and connect to the Internet. It may also entail learning how to type, how to use a mouse or even improving literacy skills.

Beyond instruction in minimal computer and Internet skills, the universe of potential subjects for IT training is vast. For example, just some of the areas in which organizations that are profiled within this publication provide "IT training" are: database design and development; financial software; desktop publishing; Web design, development, and maintenance; network design and administration; digital photography and imaging; multimedia; PC construction and repair; and IT help desk support. Of course, IT covers many other areas, such as specific applications particular to different types of manufacturing as well as specialized software that is used in other industries.



### Basic Questions To Answer

**"Which *kind* of IT training? What is its *purpose*?"** So, for organizations that are considering or planning IT training efforts, the first question that they must consider is "Which *kind* of IT training?" As noted in the previous chapter, especially in cases where the goal is to provide more than instruction in the basics, answering the questions "What is the purpose of the training?" is critical in determining the topics, scope, and levels of the training to be offered. For instance, if the purpose is to provide participants with computer training that they will need to advance to other education and training, the content of the training should be geared to the skills that the institutions and

programs that you have in mind require. Or if the purpose is to impart clients with the IT skills that will enable them to find jobs, the training should be designed to focus on those skills that local employers need in their particular workplaces.

**“Who will participate in it and what are their current skills?”**

Answering these questions also should help determine the form in which the training takes place and the techniques that will be employed in making it successful. For example, some approaches that are effective in training adults do not always work well in instructing adolescents. Or if the intended participants are recent immigrants who have difficulties with English, the design of the computer training obviously should take that issue into account.

**Narrowing the focus.** CAAs, CTCs, and other CBOs can play an important role in meeting the need for IT training. But these organizations obviously are not large universities—their budgets and instructional capacities are limited. Thus, in developing training efforts, they need to be strategic and focused in defining the types of IT training that they will provide, the forms in which they will offer it, and the populations that they will serve.

*Basic Questions To Answer  
when developing IT Training  
Programs:*

*What is the purpose?*

*Which kind of IT training?*

*Who will participate in it?*

*What are their current skills?*

## Overall Considerations in IT Training

The wide range of applications for which IT is now utilized not only has greatly widened the definition of “IT training,” but it also has made it extremely difficult to make generalizations about what makes for an effective IT training program. Both the content of the training and the characteristics of participants are major variables. Over the past two decades as new information and communications technology has become increasingly widespread, so have efforts to train people in how to use it. The experience gained through those efforts has led to the proliferation of a vast array of resources—books, articles, Web sites, studies, curricula, and other tools.

It is far beyond the scope of this publication—or any single publication—to list and review all of the recent material on IT training. Today’s array of IT applications is far too broad. Attempting to compile such a work would be comparable to attempting half a century ago to produce one comprehensive manual that offered guidance for training in such areas as auto repair, radio assembly, aircraft design, telephone installation, home appliance troubleshooting, indoor plumbing, typing, and much more. Probably no one then ever produced such a voluminous work. People alive then did not view new technology of their times as a single entity. Neither should we.

But because computers play a central role in the new technology of our own period, at least initially we tended to focus on them rather

than their applications. And some continue to lump all IT-related activities together in their minds. For many CBOs and other nonprofits that have been relative latecomers to adopting new technology—and in some cases, reluctantly—this notion continues to dominate their thinking about IT. Some seem to view it as a gadget—something separate from much of the work they do.<sup>1</sup> While this attitude seems to be changing within many organizations, it still persists in places and it can affect how organizations view IT training.

Of course, computer technology is no longer a novelty or a separate appliance that exists off in its own compartment. It has become integrated into the way America conducts business and does its work as well as into the way growing numbers of people go about many of their routine personal activities. So, in developing IT training efforts, CAAs and other CBOs should remember that IT is *multifaceted*—its applications are many and are constantly multiplying.

While making generalizations about what comprises effective IT training is difficult, it is possible to note some of the lessons learned by organizations that operate successful training programs and which may be applicable to various types of IT instruction efforts.

### Technical Competence & Information Literacy

As noted in Chapter 2, “IT literacy” requires some level of *technical competence*, in other words, the skills necessary to effectively operate a computer such as typing, using a mouse, launching a software application, connecting to the Internet, saving a file, or sending an e-mail message. Yet as more than one observer has pointed out, while many 16 year-old high school students have become computer whizzes, some of them have no clue as to how to write an e-mail cover letter for a college or job application, or how to discern what is useful or even factual from all the information they find on the Web.

Thus, using the technology effectively not only requires technical competence, it also entails possessing some level of *information literacy*. Information literacy is necessary for basic tasks such as creating documents in a word processing application and effectively searching the Internet, let alone more advanced ones. Gaining the skills to operate the equipment, use the software, and access the Internet is one thing; knowing how to find, select, process, analyze, and use the information as well as to create it, is another. Information literacy is something typically acquired over time through education and experience.<sup>2</sup> Yet IT training programs should be designed to develop it as well as technical competence.

### Purpose & Relevance to Participants

As recent research and analysis of the digital divide has pointed out, people who invest time and effort in learning how to use com-

puters and the Internet typically do so not because they merely want to learn about technology. They do so to pursue one or more other purposes that are relevant in their lives and from which they believe they will benefit. For some, the prime purpose may be that they want to gain the skills to either get a job or qualify for a higher-paying one. For others, it may be that they want to be able to communicate with distant relatives and friends via e-mail. Or their primary reason may be that they are interested in a particular application of the technology, such as digital imaging or multimedia, doing online genealogy, or downloading music. Learning new technology for its own sake is of secondary importance.

An increasing number of IT training providers seem to have gotten this point and have tried to make the training relevant to the everyday activities, needs, and interests of their participants. And they have attempted to provide the training in such a context. Of course, interests and needs vary among individuals. So tailoring the skills training to match it with the interests and needs of particular participants requires some thought and experimentation.

*People who invest time and effort in learning how to use computers and the Internet typically do so not because they merely want to learn about technology. They do so to pursue one or more other purposes that are relevant in their lives and from which they believe they will benefit.*

Some interesting examples of this approach have emerged. For instance, Playing2Win in New York, the nation's oldest CTC, in recent years has offered not only traditional IT training classes but courses that involve projects relevant to participants in which they learn IT skills. One of these was for youth and it focused on Harlem, past and present. The students took pictures using digital cameras and scanned historical photos and images. They then learned graphics and imaging software and used it to design and produce posters and postcards. Another course, "Digital College Portfolio," involved high school students who learned several software applications while they created portfolios of their own drawings, writings, photos, music, and video clips. Playing2Win offered another course in which youth learned Web design and development by building sites for local businesses.<sup>3</sup>

The Bresee Foundation's CyberHood CyberCafé in Los Angeles runs an Arts and Multimedia Productions course during school vacations in which young people learn Web design and multimedia applications. And during its first year of operation, the Greater Lawrence Community Action Council's IT Center in Lawrence, Massachusetts conducted after-school workshops for inner city youth in which they learned various software packages by creating and publishing a booklet on the then-recent attacks and tragedy of 9/11.

Gearing the training to meet the needs and existing skill levels of participants is as important as covering all the content. This may involve tailoring either the curriculum, the pace, or the form of training so that those receiving it can derive the maximum benefits. Some organizations with IT training programs profiled in this publication offer examples of how they have customized the form and techniques they use to reflect the special needs and issues of their participants.

For instance, two CAAs that provide basic IT training to those over age 55 found that older people (to a greater extent than younger people) have a fear of using computers. Therefore, they initially concentrate on helping participants get over that barrier. On the other hand, a few organizations that provide IT training to youth, after noting the short attention spans of their participants, incorporated periods within their instructional sessions in which participants can use the computers for entertainment. Lincoln Action Program, a CAA in Nebraska, has an IT training program that serves many refugees from overseas who have English language difficulties. It offers courses that combine learning basic computer skills with learning English. Yet to make them effective, it has had to stretch these courses out over longer periods of time than its other basic computer training courses take.

In some instances, programs have found that providing other education or services to their participants is necessary if the IT training that they offer is to result in successful outcomes. For example, Street Tech is an organization that offers IT training, certification in IT areas, and job placement in the San Francisco Bay area. It serves at-risk, disadvantaged inner-city youth. It has found it necessary to combine the technological instruction with life skills education in order to bolster its participants' chances of completing the program, passing the certification tests, and retaining the jobs in which they are placed.

In an IT training course comprised of Sudanese women, Lincoln Action Program has learned that the childcare and transportation it provides have been critical factors in allowing these participants to attend the classes. Similarly, in Florida, Miami-Dade Community Action Agency's IT training program has found that free bus passes they give their low-income participants have led to more consistent attendance in classes.

CAAs and other CBOs with multiple programs have advantages over some other training providers in that they have other services which participants may need. In providing IT training, they should consider how they can use these assets to ensure that their participants both complete the program and succeed in meeting its educational and other objectives.

### Meeting Participants at Their Own Level

The America Connects Consortium offers some advice in its publication *Promising Practices* on providing IT training or IT-based education to adults. It suggests that trainers:

- Keep the training simple in the beginning and meet the participants on the level where they are;
- Help participants connect with their own life experiences as they take part in training;
- Encourage collaborative, peer learning, and use IT in projects that are based on participants' interests, relating to real-life tasks.<sup>4</sup>

Many people who have computer knowledge and skills at levels sufficient to instruct others in them sometimes fail to take into account their students' capabilities. For example, many CAAs and CBOs have attempted to use their staff who specialize in IT work to conduct computer trainings either for other employees or clients. In some cases, these organizations have discovered that while their IT specialists possess extensive IT skills and experience, they are ineffective teachers. IT workers sometimes have difficulty translating their knowledge into language that their students can understand. Moreover, at times their assumptions and expectations about their students' existing knowledge and skills do not match the reality, and as a result, they may become frustrated and impatient in dealing with students.

Yet people who are IT workers have formed their own opinions about what works best and least for them in formal training programs. A U.S. Department of Commerce study that surveyed IT workers reveals that what they want from an IT training course is:

- “Not cramming too much knowledge into too little time;”
- Programs that offer “hands-on experience working with machines and software” while being trained;
- Trainers that are knowledgeable, have “up-to-date real world experience,” and who have good teaching skills;
- A program that has “a focus on teaching in the context of a project or solving a business problem, rather than teaching in the context of the IT tool itself;”
- “Being able to put skills to work soon after they are learned”—before they are forgotten.<sup>5</sup>

Interestingly, if one compares the principles for training low-skilled adults in basic IT skills suggested by America Connects Consortium with the above preferences of IT workers, there are some striking similarities. While the content of IT basic training courses at CTCs certainly differs from that of advanced continuing education and certification classes for highly-trained IT workers, there seem to be some common approaches that are effective in both.

### IT Training Programs as Venues for Social Interaction & Personal Growth

IT training programs are about more than learning computer skills. Like other educational settings, they can offer opportunities for personal growth and self-expression—and help participants develop a sense of community.<sup>6</sup> They can help promote teamwork and the development of interpersonal and other “soft skills.” They also can help instill in participants a sense of purpose and of ethics, and they can expose them to new experiences, new ways of looking at the world, and new ideas. So while a program's specific IT training objectives may have a narrow focus, its overall impacts on participants can be broad and extend far beyond learning how to use the mouse, create a

spreadsheet, or search for information on the Internet. While keeping one eye on the prize of achieving specific training objectives, IT training programs should keep the other eye on the larger picture—with these potential impacts in mind.

## Measuring Levels of Skill & Advancement

Unlike most projects that primarily focus on IT access and basic IT instruction, more developed and structured IT training programs—even within CBOs—typically calibrate their courses and to varying levels of knowledge and skills, such as beginning, intermediate, and advanced. Yet the definitions of what constitutes a beginner’s course versus an intermediate or advanced one may become blurred in some cases where the training objectives are not specific to industry or other certifications. But it can be useful to have a way in which both programs and participants can measure their progress. For example, what does success in acquiring “beginners’ skills” mean? What are the skills?

A few years ago MASSCAP’s IT Committee was working to develop a set of minimal IT skills standards for staff within Massachusetts CAAs. In the process, it came across a model created by the Massachusetts Department of Education’s System for Adult Education Support (SABES) for assessing teacher competencies in IT. The model (which was revised in 2004) has five categories: hardware; application software; Internet software; management; and “getting help.” Each of these areas has sub-categories. For each, SABES has developed four levels of proficiency: “tin, bronze, silver, and gold.”

For example, picking out just one area, graphics software, this is how SABES defines the four levels of competency:

- Tin:* Can use basic paint tools in an open graphics program;
- Bronze:* Can use paint programs, basic tools; save files; print files;
- Silver:* Can use advanced paint tools (e.g. gradients), use basic drawing package and understand difference between bitmaps and objects, export graphics to word processing and other applications;
- Gold:* Can combine paint and drawing, import and export to different file formats (PICT, JPEG, GIF, TIFF, etc) dependent on destination and need (printing, Web pages, black and white/color).

In another area, “machine usage,” SABES has a similar scale:

- Tin:* Can sit down at a powered-up machine with pre-started application and enter or manipulate basic data (i.e., type, or play a game using mouse);
- Bronze:* Can turn it on and off safely; launch and quit applications; type, use mouse and interface (windows, menus);
- Silver:* Can connect / disconnect basic components (mouse, keyboard, monitor, printer); perform very basic maintenance;
- Gold:* Can install cards, drivers, perform intermediate maintenance/troubleshooting (e.g., examine cards for secure connections, test components & peripherals for functionality).<sup>7</sup>

SABES' model covers many other categories of IT skills. Of course, its specifics are geared to the skills expected of ABE teachers in Massachusetts. Nonetheless, the concept behind the model and the structure it provides offers ways for CAAs and other CBOs that provide IT training to think about how to adapt it for their purposes. Given your program's objectives—specifically what skills does earning a “tin” medal include, versus attaining a “silver” one?

A few of the IT training projects that MASSCAP interviewed have adopted similar standards and milestones for participant's achievements. Not only do these benchmarks help projects measure their effectiveness and the attainments of their participants, but they also offer participants a sense of satisfaction and reward for having achieved various levels, which helps boost their self-confidence. In fact, some programs hold regular graduation events when participants complete courses, programs, or attain other goals—ceremonies that help to confirm for participants that they indeed have advanced, and which also help to spur them on toward a new goal.

### Keeping Training Up to Date with IT Changes

IT is constantly and rapidly changing. Despite the fact that the IT industry experienced a recent economic slowdown, the pace of IT innovation has not slackened. New products continue to flood workplaces and consumer markets. IT training programs need to keep up to date with their equipment and software, and also in other aspects. Obviously, this presents an ongoing challenge.

Put simply, IT training programs that do not keep pace with the changes will lose their relevance and effectiveness before too long—and may not survive. Some basic elements of training are unlikely to change any time soon, but in this field significant aspects of the content are likely to change, sometimes radically—within a few years or perhaps, even within months. Having the flexibility to adapt content and curricula to rapidly-changing technological innovations seems to be a critical factor in determining whether IT training programs succeed and last, or fail and disappear.

### Trainers & Mentors

Most organizations involved in IT training that responded to MASSCAP's surveys either said that the quality and quantity of their staff was a key to their success, or that finding and retaining good staff presented a significant obstacle to their programs' success. The research conducted for this publication covering other sources revealed a similar pattern within other organizations. Finding staff with the requisite IT knowledge and skills, who also possess communication abilities, other “soft skills,” instructional talents, and the patience necessary to succeed as teachers in CBO-based IT training programs, is often not easy. For those in these jobs, the rewards may be high, but

so may the frustrations. And the pay may be low.

In addition, very few CAA, CTC, and CBO-based projects that responded to MASSCAP's surveys have made professional development opportunities available to their staff members. CTCNet and America Connects Consortium recently have focused some attention on this area, which suggests that they recognize that it is an issue within many CTCs. Yet if parent CAAs and other CBOs offered commitments and modest financial support to building networks with other groups that brought together IT training instructors on a regular basis, it might result in professional development opportunities for key staff, a venue for the exchange of information regarding best practices, and lead to longer staff retention.

Some organizations that provide IT training utilize volunteer "mentors" to assist participants and support them through training process—and in some instances after participants have gained jobs. Sometimes these mentors are community members; in other cases they are either peer group members or older people with backgrounds similar to project participants who have attained success in some aspect of IT work. The mentors model is employed by Street Tech in San Francisco, for example, as well as by Women Employed's "Upgrade Your Future" project in Chicago. It is a model that other IT training programs might find it worthwhile to explore and consider.

### Resources on Skill Sets, Standards, Curricula, Methods, Practices, Models & Other Aspects of IT Training

Much literature and information on "digital literacy" and IT training has appeared in the wake of the recent IT revolution. It focuses on different levels and aspects of it, and on training for different groups. Standards, skills sets, and curricula have been developed by international and national organizations, practitioners in the field, local CTCs, IT specialists, educators, and others. Materials exist on how to develop one's own training curricula. Other resources cover strategies and techniques of instruction.

Although we have examined some of these resources in our research, the amount of them and the range of topics that they cover are too vast to offer reviews of them within the confines of this publication. We have included some of the Web sites and materials on IT training and its various aspects that we think may be worthwhile for you to explore in Chapter 7, *A Resource Catalog*.

Another way to develop IT training programs is to talk with those in other organizations that have practical experience in providing it. Many of the examples summarized in Chapter 4 of this publication provide either basic or more advanced training in different forms to various groups. That chapter also lists Web sites that contain informa-

tion about still other organizations that provide IT training, and in some cases, link to their Web sites. Or you may know of nearby organizations that provide the service. If so, they may be sources of useful information.

A dozen CBO-based IT access and training programs are profiled within this chapter. They represent a range of different focuses and approaches. They also vary in the population groups that they serve. Several of them are involved in workforce development-related IT training. These mini-profiles provide some examples of what CBOs can do in the area of IT training. They also offer ideas and lessons for other organizations.

## Issues in IT Training for Workforce Development & Other Purposes



“If the U.S. workforce is to remain competitive in the world market, it... must offer value and productivity that keeps pace with its global competitors,” a 2003 study by the National Workforce Center for Emerging Technologies (NWCET) warned. “This means workers, educators, and employers must work together to establish an approachable and efficient system that supports lifelong learning, lifelong skill improvement, and lifelong refinement of practice and process.”<sup>8</sup>

It is now apparent that IT knowledge and skills must be part of the “lifelong learning” and “lifelong skills improvement” that NWCET referred to in its report. The IT revolution has generated the need for workers with varying levels of IT skills not only in industries that produce IT products and services, but in other, older industries as well. “Rapid advances in digital technologies and their widespread deployment throughout the economy have fueled explosive growth in the demand for workers skilled in the development and use of information technology (IT),” the U.S. Department of Commerce noted in a 2003 report. “A high rate of growth in IT professional occupations is expected to continue.”<sup>9</sup> It cited projections for occupational employment released by the U.S. Department of Labor’s Bureau of Labor Statistics (BLS) estimating that by 2010 some 2.5 million new jobs for IT professionals either will have been created or will need to be filled to replace retiring workers.

Of course, the rapid growth in jobs within the IT sector of the economy slowed considerably after 2000. In fact, layoffs occurred. Yet the demand for IT workers in other industries did *not* decline. The Information Technology Association of America has reported that over 90% of IT workers do *not* work in IT-producing and IT services companies.<sup>10</sup> Moreover, BLS has estimated that several IT jobs will be among the fastest growing of all occupations between 2002 and 2012.<sup>11</sup>

**Mini-Profiles:**

## Innovative Approaches to IT Access & Training

### **Lincoln Action Program, Lincoln, Nebraska**

**T**he Computer Learning Lab at Lincoln Action Program, the CAA for Lincoln, Nebraska, opened eight years ago when a company donated computers to the agency. Initially it functioned as a lab for teaching typing skills. Four years ago, Lincoln Action obtained a U.S. DOC Technology Opportunities Program (TOP) grant to build a Web portal that allowed the agency to significantly upgrade the lab. This grant also enabled the CAA to establish satellite mini-labs at community centers, churches, and a local One Stop jobs center.

At the main lab and mini-labs, Lincoln Action provides the unemployed and underemployed with structured IT training at both the beginning and intermediate levels. It offers courses in: *Windows*, the *Microsoft Office* applications, page layout software, HTML, e-mail, and Internet searching. The agency also provides instruction in resume-writing and job searches. In addition, the labs offer some open access hours and distribute computers to some of the families that participate in the training programs. In 2003, the labs served 1,200 individuals.

The project currently has a special focus on serving refugees from abroad—the agency has a federal Office of Refugee Resettlement grant. They accounted for 500 of the participants in 2003. The largest numbers of them are from the Middle East, Sudan, and Bosnia.

The project relies heavily on Americorps for staffing and instructors. Lincoln Action also has developed partnerships that contribute significantly to its work. For example, through a local community college lab participants can prepare online for the GED. The Lincoln Literacy Council provides one-on-one tutoring at the sites to participants who are non-native English speakers. The Literacy Council and the lab jointly conduct computer training classes to a Sudanese women's group and other programs at Lincoln Action provide support services for the participants, such as childcare and transportation.

According to Computer Learning Lab staff, the lack of transportation and childcare often presents barriers for many training program participants and leads to inconsistent class attendance. Since the agency is not able to provide these services to participants in all of its classes, the staff has tried to make the program more flexible. They have extended the time period during which participants must

complete the required classroom and lab hours, and have broken sessions into smaller time blocks. They also have offered participants incentives to complete the courses: for instance, after 30 hours of instruction, participants can qualify to obtain a free computer.

While the lab offers some classes in the native languages of the participants, it also has courses that combine ESOL instruction with computer basics. Staff report that this approach has worked well.

However, despite the successes of this multi-cultural program, Computer Learning Lab staff told MASSCAP that they have experienced a few difficulties. They noted, for example, that they have had to educate American-born participants to be more patient in dealing with people who speak English with an accent.

“One reason why people come to us is that we’re not just teaching computer skills,” a staff member said, “we’re also boosting their self-esteem. At Lincoln Action, we have food and clothing distribution programs to help people with immediate needs. But the Computer Learning Lab is making a real difference—it gives people something lasting that they can really use. It’s become a pillar of this agency.”

### **Bresee Foundation’s CyberHood Community Computing Center, Los Angeles, California**

**T**his center in Los Angeles offers access to IT and job training to low-income people. One of its projects is an IT training center open after school each day to youth. Students use self-paced educational software to learn basic through advanced computer skills for a wide range of applications as well as to complete their school homework. They also can take advantage of other educational software and entertainment programs through which they gain computer skills.

Another project is Bresee’s CyberHood CyberCafé, which is open to those age 16 and older weekdays from 11 am to 9 pm. All the computers are equipped with industry-standard business productivity and multimedia applications. Participants use the CyberCafé for Internet searches, (including job searches), learning English, and other projects. They also can use digital editing and multimedia applications. Both the training center and the cyber café are staffed with bilingual teachers and volunteers who provide one-to-one training and help.

The center also offers classes and workshops in both English and Spanish to youth and adults on industry-standard software applications that will increase their employment opportunities. It holds after-school workshops for youth in business and multimedia applications. During school vacations, the center conducts an Arts and Multimedia Productions program. Those who graduate from

the classes may be employed by Bresee Youth Design, the foundation's in-house multimedia business, which creates Web sites, flyers, brochures, and newsletters for local businesses and CBOs.

The center also has a workforce development component as well—with a special focus on 14-21 year olds. An employment coordinator does skills assessments and provides pre-employment training for participants while a job developer works with participants of all ages in finding job and internship opportunities. The center has workshops that cover job search techniques, resume writing, and interview skills. It also features field trips to area employers to learn about career opportunities.

### **Computers for Youth, New York City**

**A** nonprofit organization in New York City has taken an innovative approach to tackling the digital divide within low-income communities. Its focus is on families with children in public schools and their teachers. Begun in 1999, it now serves the neighborhoods of Washington Heights, East Harlem, Flatbush, East New York, Brownsville, and Canarsie. It has plans to expand to others.

Computers for Youth (CFY) "Take IT Home, NY" program provides inner-city public school students and their teachers with home computers. But it does more than simply distribute hardware. It offers basic training: each family and teacher that gets a home computer through the program must attend a short course covering computer and Internet basics. Once participants take the computer home, they will have three months of free Internet access and then can obtain it at a low monthly cost through CFY.

Ongoing technical support also is provided to participants through CFY. "Tech support is *very* important, and it should be on your list of critical items," CFY's director informed MASSCAP in responding to questions about computer distribution initiatives. Yet CFY's experience in its early years suggested that the call-in help desk approach may not work effectively for new computer users. As a result, it has experimented with other models. It recruited students from schools in the communities served and trained them to be "technical helpers." Through its partnerships with local public schools, CFY also is able to send its own technical support staff to the schools so that families with computer problems can obtain help in those settings. Occasionally, it has solved participants' computer problems through home visits.

In its first years, CFY began to notice that some participants began canceling their Internet accounts after a few months when they had to pay the \$8.50 monthly fee. It wondered if the reason was the cost—or if participants did not find that Internet access was worth it. As other studies conducted in the same time period have noted,

much of the content on the Web may not be relevant to many low-income people. Apparently, CFY came to a similar conclusion. They constructed a Web site called *Community Corner* that taps into the creativity and imagination of individuals within the communities they serve and also provides information that it believes that their participants can and will use.

While CFY does not deny that public access sites play an important role in IT access and education, it emphasizes IT access within homes. "The home is where family members can spend unlimited hours on the computer, something not possible at libraries or community centers," its director, Elizabeth Stock, wrote in an article that she contributed to the *Digital Divide Network*. CFY also believes that "home computers can motivate students to do their homework and encourage parents to become more involved in their children's education." While its focus is on the home, the organization uses public schools as the vehicle to reach households in New York City neighborhoods and builds its distribution, training and support network around these schools. It targets the areas it serves by selecting middle schools that have more than 85% of students eligible for publicly-subsidized free lunches.

In the past five years, CFY's efforts have shown positive impacts within both families and schools. After just the first year, an evaluation showed that in the schools where CFY had built partnerships "students [were] using their CFY computers for such meaningful activities as homework, word processing and finding information on the Internet." It also revealed that "overall the same percentage (90%) of CFY students were using their home computers as were other school-age children across the nation." And it also found that a much higher percentage of children with CFY computers were using their systems for word processing (80%) than were other lower-income students (24%).

"CFY's home computer program has also had a positive impact on the school," the study concluded. "In informal conversations, teachers report that their students' schoolwork has improved not just in presentation but also in quality." They say their students think "more clearly" when writing using a computer.

After more recent surveys, CFY reported to MASSCAP in 2004 that 71% of parents with CFY computers say that they use the machines to help their children with homework. And 75% of the students in these households report that they have put more effort into homework and that they are doing better in school.

Computers for Youth has partnerships not only with schools but also with many other local organizations within New York City as well as with city government. It also has some other major partners: Time Warner provides computers; Microsoft provides the *Windows* operating systems; and New York Cares sends volunteers.

Since ever-increasing numbers of jobs—not simply IT jobs—require IT skills at some level and in some form, IT training that will enable Americans to secure employment, to remain employed, and/or to advance their careers is becoming more important. CBOs that primarily serve people with lower income, educational, and skills levels can play a role. They can help individuals gain the IT skills necessary to obtain work that will lead to economic self-sufficiency, or that are prerequisites for obtaining more advanced education and training.

IT training can lead to IT-related jobs. Yet also can lead to other jobs. The next section focuses on IT training for IT-related jobs. Subsequent sections of this chapter look at issues involving IT training for other kinds of jobs, and at how organizations can combine IT training with workforce development efforts.

### Training for Jobs in the IT Field

The U.S. Department of Commerce issued a report in 2003 entitled *Education and Training for the Information Technology Workforce*, which contains much useful information for organizations involved in IT training for jobs in the IT field. It pointed out that IT jobs are:

varied, complex, and specialized, as are the knowledge, skills, and experience required to perform them. Employers seek workers who possess a specific combination of technical skills and experience, often coupled with a college degree, soft skills, and business or industry knowledge. Typically, employers prefer job candidates with the exact skill fit who require no additional training. There is no single path to prepare a worker for a professional IT job.<sup>12</sup>

There is no single path of preparation because the IT field contains a wide array of jobs: programming, engineering, Web site development, network design, installation, multimedia creation, systems analysis, database development, repair, administration, telecommunications, help desk support, and more.

Data from BLS reveal that in 2001 some 70% of IT workers had a BA or higher degree, but 16% had no degree—a number that appeared to be increasing. One study has noted that specialized certification and degree programs are the main ways that people obtain training for IT jobs. This is in part because employers had difficulty filling the rapidly growing number of IT jobs in the late 1990s and found that industry or other certification was a quicker and less costly way to fill them. Moreover, with the constant changes in technology, IT workers continually need to acquire new knowledge and new skills.<sup>13</sup>

Thus, there is wide range of specialized IT jobs and the use of computer technology throughout other occupations is expanding. In focusing on IT training for workforce development, CAAs and other CBOs that are considering providing it must answer the same questions which are posed previously in this chapter: “IT training for what



## IT Workforce Trends: 2004

**A** national survey of 500 IT and non-IT firms by the Information Technology Association of America (ITAA) found that between the first quarter of 2003 and the first quarter of 2004 IT employment grew by a modest 2% over the previous year.<sup>1</sup> The survey estimated the size of the IT workforce at 10.5 million jobs. It found that 89% of the new jobs were in non-IT firms and that industries such as banking, finance, manufacturing, transportation and food services now account for 79% of the total IT workforce.

Technical support and network system design were the two areas in which jobs increased the most. The survey found that information security appears to be the area with the largest job growth potential during the next several years.

ITAA also reported that the best background for IT jobs seems to be “previous experience in a related field” (46%) and a bachelor’s degree in a related field (41%). Employers surveyed also rated “soft skills,” particularly interpersonal skills, highly.

The survey found that employers remained cautious in hiring out of concerns over the general state of the economy. “This is still not the job market America’s IT workers have been hoping for,” commented ITAA President Harris N. Miller. “Instead, increased competition appears to be the rule for 2004 here and abroad.”

purpose?” and “What type of IT training?” And they also must address these questions: “Which IT jobs are we training people for, and what are the IT and other skills that those jobs require?”

In hiring people for jobs in the IT field, what do employers in the IT producing sector as well as those in other industries and institutions look for in candidates? The U.S. DOC report on training for the IT workforce found that the requirements for many jobs often include:

- **Formal Education.** This often means at least a four-year college degree, often in a technical area. In some cases, an associates’ degree in a technical specialty will suffice. (For some jobs, however, appropriate vendor or non-vendor certification may be enough.)
- **Technical Skills.** “A highly specialized technical skill set related to specific programming languages; database, networking, and operating systems; and other technologies. These technical skills can be combined in many ways.”
- **Experience.** “Hands-on, real-world experience in the application of the technical skill set; sometimes, experience related to the application of IT in a particular industry setting.”
- **Soft and Business Skills.** Employers increasingly view a mix of soft skills and business skills, such as oral and written communication skills, ability to work in teams, and project management skills as important. (See the sidebar on the next page.)<sup>14</sup>

Of course, these requirements vary among IT jobs, and in specific technical skills, they have a wide range. And it also should be noted that employers do not always find all the attributes that they are looking for in a single candidate, but may hire that person anyway.

U.S. DOC noted that IT jobs are becoming increasingly specialized—even down to the specific product that an employer uses. It cited an article by Brian Jaffee in *PC Week* to illustrate its point.

“For example, a database administrator is not simply a DBA,” Jaffee noted. “There are different database products—Oracle and Informix, for example. Each has several versions in widespread use and different versions of those offerings for different technology platforms and operating systems. If you prefer a DBA who has experience with other key technologies in your environment, your options are further reduced. Perhaps you want specific project experience, say, building a data warehouse. Throw in other parameters such as environment size, industry, years of experience, communication or supervisory skills, certification, and salary range, and the grains of sand quickly slip through your fingers.”<sup>15</sup>

The DOC report also lists typical knowledge, skills, and experience required for such fast-growing IT jobs as: hardware and soft-

ware engineers; programmers; systems administrators; systems analysts; database administrators; computer support specialists; information systems managers; and computer scientists.<sup>16</sup>

### **Brief Overview of Types of Training Programs for IT Jobs**

There has been a proliferation of training programs for IT workers and potential IT workers in recent years. They differ in focus, content, levels of complexity, approaches, methods, settings, and more. The U.S. DOC report placed them into categories that we have adapted for the overview that appears below.<sup>17</sup>

**Four-year College IT Degree Programs.** Many IT positions require at least a bachelor's degree, but others do not. Yet the report revealed that employers in the IT sector and IT-infused industries see some significant shortcomings in many university and college programs: many professors have little or no recent industry experience; some programs use outdated equipment and software; and the programs are expensive. Some employers in IT industries, where rapid change is constant, consider the length of these programs to be a detriment. Another complaint they have is that programs in academic institutions are slow in making changes to their curricula to meet ever-changing IT workforce needs. These among the reasons that employers increasingly are looking at credentials other than four-year degrees in hiring IT workers.

**Community Colleges.** On the other hand, the U.S. DOC research found that community colleges tend to be "more adroit at adapting their curricula to the changing IT environment." Moreover, it takes less time to produce graduates, and the financial costs to students are much less than they are at four-year institutions or in some private training schools.

**Private, for-Profit Education and Training Institutes.** The U.S. DOC survey revealed that these organizations offer a broad range of IT education at various levels, serving current as well as prospective IT workers. They typically are more workplace-focused in their curricula and more attuned to the IT and business skills that currently are in demand in the marketplace. And they are flexible in their schedules. But they also can be expensive.

**Vendor and Vendor-Neutral IT Certification.** Due to the shortage of skilled IT workers in the late 1990s and the slowness at which traditional educational institutions could produce qualified candidates for jobs in the field, the IT industry and related associations developed certification programs as a means to assess the competency of individuals working in specific areas. Certification has become increasingly popular.

Individuals typically earn certifications by passing one or more exams rather than by taking long courses. The focus of certification is on a person's level of expertise in a specific IT application

## What Do “Soft Skills” Mean— as IT Employers View Them?<sup>1</sup>

### Communication Skills

- The ability to communicate effectively with a wide range of people (executives, managers, customers, other IT workers) whose technical knowledge varies, translating complex concepts and technical ideas into plain English for those without IT backgrounds without resorting to “techno-lingo,” buzzwords, and acronyms;
- The ability to communicate well—clearly and concisely—in English, both orally and in writing, as well as to possess strong listening and reading comprehension skills;
- The skills to develop and deliver multimedia presentations that utilize graphics, video, sound, etc.;
- An understanding of how to gear the method and style of communication to reach across various racial/ethnic lines within the current international business and labor markets.

### Interpersonal/Team Skills

- The ability to work effectively and cooperatively toward a common goal with people from various technical, professional, and cultural backgrounds, with different skill sets and learning styles
- The ability to share one’s knowledge;
- An understanding of how to negotiate, build confidence, and manage conflicts.

### Business Skills/Systems Thinking

- The ability to understand the needs of end-users in designing, building, and supporting systems;
- The ability to see the “big picture,” to strategically envision the project from beginning to end, and to understand how it fits within the organization’s larger mission.

### Intellectual Skills

- The ability to transfer theoretical knowledge and apply IT to real-world situations, taking advantage of opportunities to solve problems;
- The ability to think critically and analytically—and to “think outside the box;”
- The ability to visualize and conceptualize;
- The ability to set up a process to solve a problem through investigation, diagnosis, logical and deductive reasoning.

### Flexibility

- The ability to learn quickly to keep up with the pace of change in IT;
- The ability to engage in self-directed learning;
- The ability to adapt in a constantly changing environment.

**Innovation and Initiative**

- The ability to identify, conceptualize, and implement improvements to existing processes and to create new processes, ideas, and products;
- The ability to take the initiative to propose them, develop them, and assume leadership in carrying the project through.

or process, not in what U.S. DOC terms “a multi-dimensional knowledge” that embraces not only narrow technical competence, but also soft skills, business skills, and broader experience. In short, the certificates reflect “a mastery of some specialized IT knowledge,” as the U.S. DOE report put it.

Major vendors who offer certification are Microsoft, Cisco, and Oracle. Examples of popular “vendor neutral” certifications (those not offered by product vendors but by other organizations) are Computer Technology Industry Association of America (CompTIA) A+ and CIW (Certified Internet Webmaster). These are just a few of at least scores of specific IT certifications now available.

Specific training for these certifications are offered by an array of groups—including industry groups, community colleges, for-profit training institutes, and even some CBOs (including a few of those profiled in this publication). Some providers offer the training in physical locations and others offer it online, typically for fees or through subscriptions.

**Other IT Training Offered for Certification and Other Purposes.** Many organizations (mostly for-profit ones) now offer IT training courses and material via the Internet, and in some cases they combine classes at physical sites with online instruction. For example, *Small Planet* offers online courses to prepare for certification in a number of IT areas. *Learning Tree International* has vendor-neutral courses for at least 42 IT certifications as well as courses on a wide range of other IT topics online and provides instruction at 26 centers in the U.S. *SkillSoft/SmartForce* has an online IT skills library with more than 2,800 course titles covering a broad array of topics offer preparation for over 40 IT certifications. And *Mind Leaders* offers nearly 800 IT and business courses via the Web, including certification preparation. There are many other organizations that now are involved in providing Web-based IT courses. However, most of these programs are not free, and for many people interested—especially those with low-incomes—the costs may be prohibitive. For instance, in 2003 the individual fee for a four-day course with *Learning Tree International* was \$2,345, according to the U.S. DOC report, and many similar programs carry price tags within the same range.

### Mini-Profiles:

#### Labor Union & Other Efforts Offering IT Training & Access

**B**oth the Communications Workers of America (CWA) and the International Brotherhood of Electrical Workers (IBEW) participate in multiple initiatives and programs offering training in telecommunications to their workers. For example, *Next Step* (based in New York and New England) provides training to CWA and IBEW Verizon employees. The National Coalition for Telecommunications Education and Learning offers on-line certificate and degree programs to employees of corporate partners including Verizon, Frontier/Citizens Communications, Qwest Communications, and SBC Communications. CWA also offers training through its National Education and Training Trust to its workers who are looking to update or upgrade their skills, as well as those wishing to enter the telecommunications field. CWA/NETT also offers employment referrals.

Service Employees International Union (SEIU) and some of its locals offer computer hardware discounts. New York City building service workers in Local 32BJ became the first in the country to win a contract settlement that provided not only home computers, but also printers, software, and computer training. Doormen, janitors, and other building service workers who participate in the program can receive the entire computer package for \$200.<sup>1</sup>

**CBO-based IT Training for IT-related Jobs.** Of course, these types of training programs, offered within CBOs, including many CTCs and some CAAs, are a focus of this publication. Their strengths and weaknesses as seen by several observers are discussed on the next page.

### IT Training for Non-IT Jobs

A majority of people who need or seek IT training for employment purposes are not IT workers or those who aspire to be. They are looking for a job or a better one. As noted elsewhere in this publication, some 57% of all U.S. workers age 25 and older now use computers on the job (while earning between 17% and 22% more than other workers), and 48% of low-skill jobs require at least some computer and Internet use. Computer and Internet use in the workplace has spread across many industries and many different types of jobs. This trend is likely to continue. Growing numbers of employers require at least basic computer proficiency from their workers and expect applicants for their jobs to possess it.

Of course, the range of settings where Americans who work in non-IT positions learn computer skills that they apply on the job includes schools, homes, libraries, CBOs, and other places—including workplaces themselves. Yet the fact remains that many Americans still lack even the basic IT skills to qualify for many of the jobs in today's economy—especially better-paying ones. Thus, a large training gap remains to be filled, especially among those who are not in school and who have low incomes and/or lower education levels. Largely, this need is not being addressed by most of the types of programs that focus their efforts on training individuals for IT jobs.

### CBO-based IT Training Programs—Strengths & Weaknesses

Studies on IT training programs within CBOs are not plentiful, but a few that have been done have reached similar findings. Some aspects of the critiques they offer apply to training that these organizations provide for jobs in the IT field; others apply to the IT training that they offer in preparation for employment in other areas. For CBOs that are planning, developing or operating such programs, some of the points this research raises are worth examining.

“Although IT training programs located in CTCs and community-based organizations have done some impressive work, it is unclear whether, in fact, they have ‘enormous potential for increasing the number of people who can participate in the knowledge-based economy,’” Lisa Servon noted in her book, *Bridging the Digital Divide*. “Even the largest of these programs is operating on a relatively small scale. Further work needs to be done to determine whether and how these programs can achieve greater scale.” She concluded that the more

successful programs in turning out graduates and placing them in jobs have “strong ties to industry,” post-placement services, and have shown an ability to quickly modify curriculum.<sup>18</sup>

“Many [CBO] programs provide trainees with a range of support services,” noted the U.S. DOC in its report on training for the IT workforce, citing this as a strength. “Several programs have established higher level training opportunities and other support services for their program graduates. These programs have varying levels of success in placing their graduates in IT-related jobs. Graduates who are placed in jobs often see a significant gain in their earnings.”<sup>19</sup>

In 2002, the Center for Social Policy and the Center for Community Economic Development within the University of Massachusetts (UMass) at Boston conducted a survey of employers, training providers, and consumers in the greater Boston area—which has a number of CTCs—as part of a study for one of those organizations. It pointed out some other advantages that CBO-based IT training programs have over for-profit ones. “For-profit training programs... have several disadvantages, from the perspective of offering training to lower-income residents.” One downside, the research team noted, is that the for-profit training programs “generally require a significant skill level prior to beginning the training,” which presents a major obstacle for people who lack significant computer skills. They also found that for-profit programs typically are “more attuned to people for whom self-pay or student loans are an option.” If the classes of for-profit training providers reach capacity, these providers “have no incentive to take on the additional administrative burdens associated with vouchers and obtaining government funding,” they concluded.<sup>20</sup>

On the other hand, the U.S. DOC and the UMass reports listed some significant shortcomings of many CBO-based training programs. They each noted that most of these programs focus on lower IT skills. “Graduates of these programs compete with many other job candidates who have acquired the same or similar skills through traditional academic providers, and all of them compete for the lower-end jobs that appear to constitute about a quarter of IT job openings,” U.S. DOC observed. “These program graduates would require additional education and training to move on to more advanced work in IT.”<sup>21</sup>

The UMass study went even further in its critique, based on its survey of employers. “Many employers rated the training of potential candidates they currently see [from CTC programs] as insufficient to meet the demands of their workplaces,” it reported. “A quality gap [exists] between the skills people acquire in lower-level training programs (such as *Microsoft Office* training) and the skills actually needed on the job. Employers cited insufficient skills in *Word* and *Excel*, lack of knowledge of the *Access* database, and inability to integrate the various programs in the *Office* suite as critical issues.”

“In the minds of employers, for-profit training programs appear to occupy a very different space from community-based programs,” the UMass report declared. “For-profit firms are generally the ones that employers reach out to for the provision of contracted, in-house training. Their reputation in providing high-quality training that meets employers’ needs is superior to that of most community-based training programs. This reputation provides a strong advantage for for-profit training programs in developing employer relationships and ensuring job placements for program participants.” It added that in contrast, many CTCs have not developed the relationships with employers necessary for placing their participants in jobs.

The UMass study also noted other significant advantages that for-profit training programs have over those based within CTCs and other CBOs. “Many [for-profits] have strong employer connections, operate in specific market niches for both clients and training programs, and offer training for positions potentially paying wages that approach or exceed [living wage] standards. For-profit training programs are much more likely to offer training programs specifically designed in a step-wise manner that parallels an industry career ladder.”<sup>22</sup>

Both the U.S. DOC report and Servon pointed to other problems that CBO-based IT training programs face, citing such difficulties as developing ongoing sources of revenue as well as finding and retaining qualified, effective instructors. The U.S. DOC report noted: “It can be a challenge to cobble together funding from government and non-government sources to develop the program and keep it running. Sometimes, requirements for government funding are not in line with the length and cost of the training required. Requirements for funding may target some groups for training but exclude others who would benefit from the training. Many of the programs operate with donated equipment and struggle to keep equipment up to date and relevant for job training. Programs also have difficulty recruiting and retaining qualified instructors.”<sup>23</sup>

The shortcomings of CBO-based IT training programs enumerated above should not be taken lightly—they point to weaknesses and obstacles that many existing such programs as well as new ones must overcome if they are to meet their workforce development objectives. On the other hand, it is important to remember that many of these programs are relatively new and still developing. Moreover, these studies were confined to a limited number of CBO-based programs: as Servon herself pointed out, no one yet has even found out how many such programs are out there, and “many important questions remain unanswered because the data simply do not exist.”<sup>24</sup> Finally, it should be underscored that CAAs and many CBOs serve and reach people who need training to find jobs or advance in employment beyond low-wage work, may have low educational levels, and cannot afford the costs of other IT training programs.

## Carving Out a Role for CAAs & CBOs in IT Training for Workforce Development

Despite the obstacles and shortcomings noted above, CAAs and other CBOs *can* play a key role in IT training for jobs and in opening career paths for their clients. They can carve out important niches within the workforce training continuum. Some of these organizations already have done so.

Certainly, for many of these organizations—given the resources they have and the education and skills levels of populations they serve—the universe of realistic possibilities is not as vast as it is for large institutions and organizations. Moreover, many CBOs with IT training programs probably lack the capacity to offer the type of training and certification that is required for many IT professional jobs.

But CAAs and other CBOs can serve as access points to IT, as basic and intermediate IT training providers, and as gateways to more advanced training, jobs, and support services. They can serve as stepping stones, for example, to community college and certification programs which increasingly are becoming pathways to good-paying IT jobs. CAAs and many other CBOs also can provide clients with the basic IT skills now required in many other jobs that pay living wages. After all, most individuals advance in skills and education—as well as in their employment and economic situations—not all at once, but through a series of steps. Many CAAs and CBOs are well-positioned to furnish their constituents with the first set of steps.

“CBOs can provide the entry point for building IT skills,” Lisa Servon noted in her study of the digital divide. “Because of their relationships with individuals and groups that are currently cut off from the information society, CBOs can both reach the people who need to be connected and play a pivotal role in the creation of local content geared toward the specific needs of the constituents.”<sup>25</sup>

Moreover, the primary mission of many CBOs—and all CAAs—is to assist low-income and other disadvantaged people in attaining economic self-sufficiency. To gain self-sufficiency through a living-wage job in today’s economy, one must have education and skills—including at least some IT skills. If CAAs and other CBOs with similar missions are to do more than provide support and crisis-oriented services to poor people—and to move their clients along the road to self-sufficiency—then they at least need to position themselves as an entry point to the workforce development system through which their constituents can pass.

In fact, as MASSCAP noted in its recently-published workforce development guide, CAAs *already* play a vital role in the workforce development system, “yet few recognize that their wrap-around ser-

*CAAs and other CBOs can serve as access points to IT, as basic and intermediate IT training providers, and as gateways to more advanced training, jobs, and support services. They can serve as stepping stones, for example, to community college and certification programs which increasingly are becoming pathways to good-paying IT jobs. They also can provide low-income people with other services that they likely will need during the process.*

vices are, in fact, part of a workforce development continuum.” The guide added that “CAAs often shy away from developing... workforce education programs, mainly due to their inexperience working with the private for-profit sector.”

Over the past 40 years, CAAs have accumulated numerous assets that they can use in serving as stepping stones for low-income and other disadvantaged Americans to acquire basic IT and other skills and to on to other educational and training opportunities—as well as jobs. They also can provide low-income people with other services that they likely will need in the process. As MASSCAP’s workforce development guide put it: “The vast majority of CAAs do, however, have expertise in other important areas that contribute to an individual’s or family’s success in attaining economic self-sufficiency. CAAs can be viewed as experts in crisis intervention, case management, support services, and basic skills development with their target customers being people living in poverty.”<sup>27</sup>

“Nonprofit organizations, including community-based ones, that house technology programs along with other training and social service endeavors, may offer some advantages over stand-alone community technology centers,” the UMass study of IT training within CTCs and other CBOs observed. “They are likely to have a more holistic mission and are therefore more likely to provide both basic access to technology and more advanced employment training.”<sup>28</sup>

Thus, CAA and other multi-service CBO-based training programs have these advantages—as well as others. They do not present cost barriers or skill prerequisites that people with low-incomes or low educational levels often cannot surmount. Some have experience in case management which can be an important asset for clients, since the workforce development system is complex and can be difficult to navigate. Many already have linkages with other organizations and institutions in their communities that provide education, training, job placement and other services that participants need. And many already have workforce development and/or ABE programs in place.

Building on these assets, CAAs can develop or enhance their capacities to provide types of IT training that can lead to other education and training, jobs at living wages, and support career path development. So, in developing IT training efforts, CAAs and other organizations need to assess their strengths and weaknesses as well as the needs in their communities and among their clients in determining the purposes for which they will provide the training, the types of training they will offer, and the role that they will play in the workforce development system. And in doing so, they should examine the various models for such training that other CAAs as well as CTCs and other CBOs have employed to see what might work for them.

## Workforce Development Basics for IT Training

Much has been published about workforce development and the characteristics of programs that have been successful in the field. As noted above, MASSCAP recently published a guide for CAAs and CBOs on establishing workforce development programs. It identifies some of the key elements that can make programs effective. Other sources—including some that focus on IT training for jobs—have pointed to many of the same factors. These elements also apply to CBO-based IT training programs involved in workforce development.

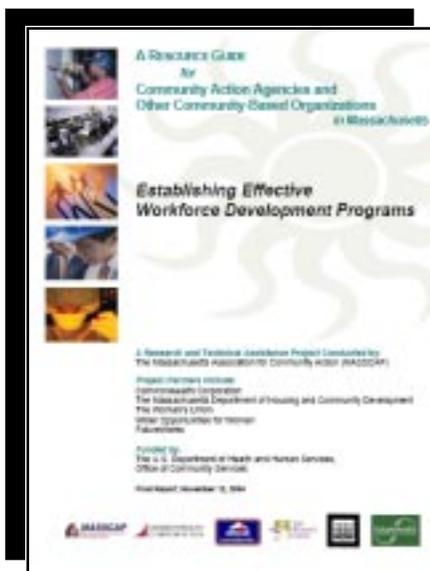
**What are the key elements of effective programs?** The following is a summary of some of the “promising practices” that the MASSCAP workforce development guide singled out as important ingredients that have made the most effective CAA and CBO workforce development programs work.<sup>29</sup>

**A dual focus on participants’ and employers’ needs, constraints, and challenges is critical to making workforce development programs work.** (The importance of placing an emphasis on employers as “clients” as well as on participants has been echoed in much other material that has been written on both workforce development programs in general, and on IT training for jobs, in particular.)

**Education and training programs should be carefully tailored to local labor market needs.** This is a point that is especially relevant to CBO-based IT training programs. As noted previously in this publication, one criticism of CTCs and other CBO-based programs has been that they are not as attuned to local labor market and employers’ needs as many for-profit IT and other training providers. (Suggestions on how to learn about local labor market needs appear in an upcoming section of this chapter.)

**A CBO should place itself in a strategic position within the public workforce development system** “by understanding how it works, and understanding as well as communicating the role(s) they can play in it and by becoming involved in it.” (This point also has been stressed in an America Connects Consortium case study on the development workforce development efforts by Cyberskills Vermont, an IT training organization, as well as in several other studies.<sup>30</sup>) The workforce development system involves state and area-based Workforce Investment Boards, One-Career Centers, employer and trade associations, labor organizations, training providers, educational institutions, and other groups.

**Participant recruitment, assessment, and case management should be tailored to the individual.** “Organizations use a variety of techniques to recruit participants, but the biggest challenge is that each one must ‘come with a funding stream’ in or-



MASSCAP's resource guide, **Establishing Effective Workforce Development Programs**, released in late 2004, offers much in-depth information on building effective workforce development projects within CAAs and other CBOs.

It is available at MASSCAP's Web site, [www.masscap.org](http://www.masscap.org), and can be downloaded at no cost as an Adobe Acrobat (.pdf) file.

der to pay for the program and services. Unfortunately, most low-income individuals cannot pay for programs and services out-of-pocket, so finding a funding stream to pay for their participation can be challenging. It also is important to assess clients accurately prior to offering programs and services in order to understand their priority challenges and goals. Further, case management should be tailored to client needs—some might need intensive involvement, whereas others need coaching. The bottom line is this: organizations must know their clients to best serve them.”

The U.S. Department of Housing and Urban Development (HUD) has published a workforce development guide that makes a similar point. It suggests that in planning programs, organizations should evaluate the employment characteristics of their likely participants. “An evaluation,” it noted, “provides the foundation for the employment program’s design. The employment characteristics should affect which industries and jobs an employment program pursues and how the program is structured.”<sup>31</sup>

**Programs should start *early* in the process of working with a participant and focus on the *longer-term strategies* required for her/his career advancement.** “The most effective programs started working with clients on career advancement education and strategies even before job placement activities were initiated. They also try to stick with a client as long as possible after they become employed in order to help him/her with career advancement. Of course, short-term funding streams often limit this work.”

**Wrap-around support services often are essential for low-income adults who participate in workforce development programs and even after they are placed in jobs.** Providing participants with these services and/or linking clients to them often determines whether or not individuals learn the material, complete the program, obtain a job, or hold it.

“Low-income people face many barriers to economic success, and they are not limited to inadequate basic skills and low skill levels. They include lack of childcare, secure housing, reliable transportation, and others. CBOs across the country know this, and most are working hard to help their clients with these challenges. One of the keys to success in this work is to partner with other organizations that can help provide these services. A second is to help clients learn how to access these resources on their own so that, when the funding runs out to serve this person, they can continue to deal with child care crises, housing problems, and other barriers to reaching self-sufficiency on their own.”

**Programs should set realistic goals and objectives and use them to regularly measure their performance.** It is critical for CAAs and other CBOs “to set goals around helping their clients move to self-sufficiency. Simply helping someone get a job (i.e., meeting a “job placement” goal) is not enough to reach self-suf-

iciency.” Workforce development is a continuum. The focus should be on career paths. “The job must be in a growing industry and must have a clear step to the next job with higher earnings in order for clients to climb out of poverty. Career ladder initiatives have allowed for the incubation of successful program designs that, over time, can favorably impact an individual’s ability to increase skills, credentials, work experience, and wages.”

There some other key elements that are especially important for IT training programs with a workforce development purpose. They have been raised in numerous studies.

**IT training programs are highly tailored to the participants’ needs and their level of education as well as to the industries where the prospective jobs lie.** The training should be contextualized, integrating materials from workplace situations in the real world into the training.<sup>32</sup>

**The training should involve “soft skills” as well as technical and other job-related skills.** “Soft skills,” as has been noted elsewhere in this chapter, increasingly are becoming important as a consideration in making hiring decisions both within the IT sector as well as in other workplaces.

**“Life skills.”** Some programs that train disadvantaged people have found that their participants lack other basic skills, which may present a barrier to their success in the training and/or to their employability. As a result, they have integrated “life skills” into their training curricula.

**Flexibility.** Programs should be flexible and be able to rapidly adapt the content of their training to the ever-changing technology and its applications in workplaces. Although this can be difficult at times, keeping up to date is critical if participants are to gain skills that are relevant to conditions that they will experience in the workplace.

**Building and maintaining partnerships with other organizations, institutions, and businesses is critical if IT training programs are to have any success.** External partnerships are essential for programs to carry out many of the activities necessary for them to work: participant recruitment; learning about where the jobs are and what skills they require; placing participants in jobs; linking participants to other services they need as well as to more advanced education and training opportunities; and for building community, financial, and other support to sustain the services. (The topic of identifying potential partners and developing collaborations with them will be covered in an upcoming section of this chapter.)

**For programs based at CAAs and CBOs that have other programs, it is important to develop and maintain close relationships with those other services.** While some might find it incredible, it is not uncommon—especially in larger organizations—to find situations in which various programs do not have good communications or strong relationships with one another. They may be located at different sites, have little contact with one another, or have different purposes, focuses, or cultures. Some programs may not even have a complete understanding of what other programs at the same agency do. For recruiting participants as well as developing links to social and support services that participants often need, IT training programs should not assume that simply because another program exists within the same agency, good communications and close relations automatically will develop—it may take some time and effort.

**A staff member who mainly focuses on job development is key to a workforce development program's success.** Having good trainers is not enough. While this should not be news to programs with experience in workforce development, job development is a critical function that some organizations which have moved from providing IT access and IT training to workforce development have underestimated and to which they have not dedicated sufficient staff time.

“A job placement coordinator, also referred to as a job developer, serves as the key link between your organization and employers,” the America Connects Consortium has pointed out. “Therefore, hiring a job developer is one of the most important decisions training providers can make.... In other words, the key to staffing is to create a position largely dedicated to job development.” It added that a job developer also can a conduit for critical feedback from employers to the program.<sup>33</sup>

### Where Are the Jobs?

### What IT & Other Skills Do they Require?

In developing the focus of its IT training program—if one of its purposes is employment and career advancement—an organization needs to return to that now-familiar question of “Training for what?” Where are the employment opportunities in the area? In which industries are jobs growing, and which jobs are they? What education, training, and skills do these jobs require? Which sets of IT skills typically are needed in these occupations? Of course, this probably will require doing some research. The answers may offer a few surprises.

There are a number of ways find the answers. Both the U.S. Department of Labor and state governments regularly issue reports showing occupational trends and forecast increases and decreases in particular fields and jobs. Often such reports list the typical education

## Becoming a Certified WIA (Workforce Investment Act) Provider—Pros & Cons

**T**he federal Workforce Investment Act (WIA) came into being in 1998, replacing the Job Training Partnership Act (JTPA). While JTPA contracted out training programs to training providers through a competitive grant process, WIA sends most training funds to individual participants through a voucher system. Some participants gain approval at One Stop Career Centers for training at a school or another organization that is certified as a WIA training provider. Most certified training providers must typically place a minimum of 75% of their WIA participants in jobs once they have completed the program as well as track them to ensure that they retain their jobs.<sup>1</sup>

“To pursue WIA vouchers, organizations must have significant capacity to recruit participants, provide training and participant support, and post-program monitoring and support,” the UMass study for a Boston CTC pointed out. Outreach efforts to both potential participants and to One-Stop Career Centers are needed as well as the capacity to provide the support services clients need.

Under WIA, the UMass study noted, “payment is only made for individuals enrolled in the program and there is no guarantee that a program will get any customers at all, producing fiscal uncertainty for the organization. Furthermore, training programs only receive 50 percent of the per-person payment up front. The remaining 50 percent of the payment is only paid after a participant has completed the program and entered employment. The WIA voucher system involves a substantial financial risk for participating programs,” it concluded. “To enter the system, programs must create a curriculum, build the required infrastructure, and develop employer linkages, all without guarantee of financial return.” It added that while these barriers may not be insurmountable ones for established workforce development providers, they place new training programs at a distinct disadvantage.<sup>2</sup>

and skill requirements for various occupations. Some of these publications are listed in Chapter 7, *A Resource Catalog*. These reports can be valuable in providing a national or state overview of which jobs are increasing and which are declining. But labor markets differ from region to region across the country, and from area to area within states. Obviously, trends in *your* local area may *not* mirror those nationally, or in some other parts of your state.

**Important Partners & Information Sources:**

## Workforce Investment Boards (WIBs)

**S**tate and regional Workforce Investment Boards (WIBs) exist all over the nation and they are responsible for workforce development policy and funding under the federal Workforce Investment Act. WIBs provide opportunities for links between the workplace, the workforce, and the community. They act as oversight and policy-making bodies for federally-funded employment and training services in regions they serve. They are made up of knowledgeable and influential business and community leaders. WIBs also address critical labor market issues and developing strategic partnerships with local leaders in economic development, the K-12 and higher education systems, government agencies, Chambers of Commerce, CBOs, and labor unions.

WIBs also develop state and regional blueprints to identify industries and sectors that employ or have the potential to employ large numbers of area residents. In some cases, they map the labor needs of private sector businesses in the area against both the existing skill-sets of residents and the current training capacity in the area. In some cases, these identify overarching issues for the area's business/labor environment: such as an aging workforce, the evolving definition of "basic skills," lack of appropriate skills training and certification programs, and insufficient career ladder opportunities.

The approach or methodology for development of a labor force blueprint varies by WIB and the particular area of the state studied. For instance, an area could have a single, large employer and so the blueprint might not need to assess labor market opportunities as broadly. It should be noted, however, that from state to state and region to region, the comprehensiveness of these blueprints varies. In the Resources section of this chapter, we have included links to a few examples. Two, for example, those developed by the Merrimack Valley, Massachusetts WIB and the one in Contra Costa County, California, are very comprehensive.<sup>1</sup> (The National Association of Workforce Investment Board's Web site has links to most state and regional WIBs' Web sites across the nation where often these plans and studies can be found.)

Some IT access and training projects involved in workforce development have built partnerships with WIBs in their areas. These partnerships often are key in providing ways that participants in these projects can move into more advanced training, education, and jobs.

One way to obtain information about jobs and the skills needed in your local area is to consult the Workforce Investment Board (WIB) that covers it. In a few small states, only statewide WIBs exist, but in most states, there are several regional ones. Most develop labor market surveys for their regions that describe job trends. (See sidebar on WIBs on the next page.) These reports vary among WIBs in the information they contain, but in some instances they are very comprehensive. One-Stop Career Centers also can be important sources of information. Local Chambers of Commerce are other groups to consult. Through this research you can learn not only about overall workforce trends and jobs in your area, but also about industry training programs that exist and their requirements for participation.

However, the best way to obtain the answers is to ask local employers themselves about their workforce needs and the skills—including the IT skills—that they require in various jobs. This can take time, but developing good relationships with employers also is essential for placing participants in your program into jobs. It is important to keep in mind that employers are likely to be less interested in your organization's social mission, than in finding needed, valuable, and reliable employees. But the support services that your organization can provide to participants once they are placed in jobs may prove to be critical in keeping them within those jobs—and that is an important asset to stress when you talk with employers.

Thus, building relationships with WIBs, One-Stop Career Centers, business and other associations—and especially, employers—not only is important in determining the focus and content of your organization's IT training efforts for workforce development, it also is critical for moving your program's participants into jobs.

### Building External Partnerships to Make IT Training Effective in Workforce Development

Of course, workforce development is a system that involves numerous organizations and institutions within the community. CAAs, CTCs, and other CBOs are unlikely to succeed in helping participants in their IT training efforts move into jobs or more advanced training and education unless they build relationships with other organizations. Moreover, external partnerships also are important to CBO-based IT access and training projects for other purposes besides workforce development—as many organizations have found.

So, in considering which organizations to approach about potential partnerships, one place to start is to consider the *needs of the participants* in the project—what will it take to get people in jobs at living wages? Here are some key elements:

- Skills training—including basic IT skills;
- Work readiness training;
- Literacy and English language skills;

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## Building Partnerships with Employers

Partnerships with employers are critical to the success of workforce development programs. Here are some tips from MASSCAP's guide for CAAs and CBOs on workforce development programs.<sup>1</sup>

In choosing an employer to partner with:

- Match their needs with your strengths;
- Seek employers with vision;
- Appraise the organizational structure;
- Look for employment practices that match your goals;
- Select companies with competitive advantages;
- Consider the appropriate number of employer partners;
- Find an employer who will dedicate resources.

Structure the relationship to create shared ownership:

- Engage employers in program design/development;
- Create feedback loops;
- Involve trainees and workers in program management;
- Involve employer in staff selection;
- Embed program staff within employer.

What employers want:

- To be heard and understood;
- Expertise;
- Flexibility, responsiveness;
- Streamlined fundraising and grant management;
- Demonstrated business benefits;
- Recognition and celebration of accomplishments.

- Life skills/financial basics training;
- Soft skills—especially, communications and interpersonal skills;
- Social services (for example, housing, food, childcare, health care, conflict resolution);
- Transportation;
- and, of course, placement in Jobs.

The next step is to identify those external organizations that offer such services by mapping your community (or conducting a “community audit”).<sup>34</sup> Below is a list of some typical examples.

- Employers
- Workforce Investment Boards
- Employer Associations (such as Chambers of Commerce)
- Hi-Tech and other business associations
- Professional Associations
- Labor unions
- Local welfare offices
- One-Stop Career Centers
- Adult basic education providers
- Community colleges/universities
- Vocational schools
- Community Development Councils/Economic Development Councils
- Community Action Agencies and other CBOs that provide social services, housing, food, etc.
- Health care organizations
- Religious and faith-based Organizations
- Federal, state and local government agencies
- Private training providers
- Industry training programs

Connecting the list of participants' needs with the organizations in your area will generate a list of potential partners for collaboration in your organization's workforce development efforts.

The next step will be to devise strategies and tactics to approach these groups and to carve out roles that they can play in assisting project participants. In making your case to potential partners, it will be important to emphasize the potential benefits for *them* that would result from the collaboration. You should consider each potential partner's needs and think about how the collaboration would help to meet them, before you make engage in the conversations. Having someone on staff whose job is to make the contacts and build the relationships is critical. Also, staff or board members who have personal contacts with these external groups can be effective in opening doors.

It is important to remember, however, that more is not always better. Developing effective partnerships sometimes takes time and

effort. And some collaborations are more important for purposes of the program than others. Thus, it is important to be strategic in selecting external groups on which to concentrate.

### IT Training for Other Social Purposes

Expanding IT access and training is not only important for purposes related to workforce development and employment. And while IT access and training can lead to educational advancement, which over time can lead to jobs at living wages or better, we should not become single-minded in our focus on workforce development as an important next step for these initiatives.

Computers and the Internet are spreading widely and deeply into more and more facets of American life. To function effectively in American society, increasingly it is becoming impossible to ignore it. As each year passes “IT literacy,” in some form or another, is becoming more essential to perform still more activities within our lives in ways that we might not have envisioned just a decade ago.

Those without access to computers and the Internet, or without the basic skills to use them, are aware of this shift. Recent national surveys show that they also realize that they are being left behind in this big change, and that the distance they face in catching up continues to widen. Of course, disproportionately, those who are being left behind are part of what Michael Harrington once termed “the Other America”—people with lower incomes and/or lower educational levels, African Americans, and Hispanics.

Closing the digital divide is important not just to get more people jobs, but also to attain “social inclusion” in America, as one scholar calls it. While much of the material on the Internet may be irrelevant or worthless to many Americans, the fact remains that some of it *is* valuable. So is e-mail—the ability to communicate regularly with family, friends, and neighbors in the community, or others far away. In 1954, the U.S. Supreme Court issued its landmark and controversial *Brown vs. Board of Education* decision, barring racial segregation in the nation’s public schools. The decision in the case was based in part on the fact that schools for whites and schools for blacks were then unequal in terms of facilities and resources. But it also was conceived on the premise that desegregation in the pursuit of equal rights and opportunities not only was a matter of unequal resources, but one of what now might be termed unequal “social inclusion.”

Today, IT access and training is important for Head Start children as they begin a process of lifelong learning as well as for the parents who will support them in the early phases of the process. It is important for teenagers and young adults as they try to learn about the world, make their way in it, select and embark on careers. It is important for some adults with low educational attainment, who may be stuck in

### Community Colleges & ABE/ESOL Providers

Community colleges increasingly are becoming important centers for more advanced IT skills training. As noted elsewhere in this chapter, many now provide their students with up-to-date IT skills for various jobs within the IT sector and other industries. Of course, they potentially also offer other educational opportunities for many participants within CAA and CBO IT access and training projects. Several organizations that MASSCAP surveyed have developed partnerships with community colleges in their areas that play integral roles in their projects.

However, in initially building relationships with community colleges, CBOs sometimes find it challenging to navigate their way to find the appropriate program, office, or person within the college. Some community colleges have been moving to make this easier by offering central points of contact for relations with CBOs in their areas. Nonetheless, collaboration with them can be important in offering project participants opportunities for more education and training.

For CBOs that do not have adult education programs, building links with ABE and ESOL providers as well as literacy groups also is important in widening educational opportunities for their participants. In some cases, IT access and training projects have become providers of IT training for ABE programs with which they collaborate.

low-wage jobs and have no immediate possibilities or plans for economic advancement—but who, as they think about their future, are searching for ways to move ahead. For recent immigrants, attaining IT skills may be a way to learn English and to connect with family members abroad, and may offer a first step or two in finding a path to to make a livelihood in America. For older people, IT access and basic training may offer a means to stay connected with loved ones far away, find needed services, stay engaged by learning something new, meet other kindred souls who also are isolated, or bolster diminishing self-esteem through the experience of learning and connecting.

*There are other reasons why individuals want to learn how to use computers and the Internet and they are not directly tied to the goal of economic self-sufficiency. They have more to do with cultural issues, pursuing individual growth, strengthening families, and building communities.*

*If all Americans are to have the opportunity to participate fully within this society, and to share in its benefits, in today's world they must have more than language literacy—they must also have at least some IT skills.*

These and other reasons why individuals want to learn how to use computers and the Internet are not directly tied to the goal of economic self-sufficiency. They have more to do with cultural issues, pursuing individual growth, strengthening families, and building communities. But for many Americans of all income levels and social backgrounds, these reasons for wanting to obtain IT training are just as legitimate as the goal of acquiring skills that will lead to gainful employment. In our society, having an adequate income through a job or other means in our society is essential. But whether one is rich or poor, has a doctoral degree or little formal education, everyone needs more in their lives than income. If all Americans are to have the opportunity to participate fully within this society, and to share in its benefits, in today's world they must have more than language literacy—they must also have at least some IT skills.

## Models, Examples & Other Resources

Many CBO-based IT training workforces development projects exist. Some can serve as models for other organizations. And their experiences can offer lessons for other organizations and projects. We have included brief profiles of several of these within this chapter. In Chapter 4, we briefly described many other IT training programs that have a workforce development focus. At the end of this chapter, we have included mini-profiles on several of them, based on our surveys, interviews with them, and other research. You may find that other such programs exist near you. If so, a call or visit to them can provide invaluable information and insights for your project.

Much material is available on workforce development in general. And an increasing amount of information is emerging on the IT training aspect of workforce development. We have included many of these sources in Chapter 7, *A Resource Catalog*.

## Endnotes for Chapter 6

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18. Servon, *Bridging the Digital Divide* (2002), pp. 161; 163.
19. U.S. Department of Commerce, *Education and Training for the Information Technology Workforce* (June 2003), p. 155.
20. Quimby and Werby, with Green, Center for Social Policy and the Center for Community Economic Development, University of Massachusetts/Boston, *Beyond Access: Putting Technology Training to Work for Boston Residents, Technology Centers and Employers* (Prepared for Virtually Wired: February 2002), pp. 17-18.
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23. U.S. Department of Commerce, *Education and Training for the Information Technology Workforce* (June 2003), p. 155; Servon, *Bridging the Digital Divide* (2002), p. 163.
24. Servon, *Bridging the Digital Divide* (2002), p. 161.
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**Sidebar: IT Workforce Trends, 2004**

1. Information Technology Association of America, "Recovery Slight for IT Job Market in 2004," Press Release, September 8, 2004.

**Sidebar: What Do "Soft Skills" Mean—as IT Employers View Them?**

1. U.S. Department of Commerce, *Education and Training for the Information Technology Workforce* (June 2003), pp.52-58.

**Sidebar: Labor Union & Other Efforts Offering IT Training & Access**

1. The sources are information on the Web sites of these unions and other organizations. The Web sites are listed in Chapter 7 of this publication.

**Sidebar: Becoming a Certified WIA (Workforce Investment Act) Provider—Pros and Cons**

1. America Connects Consortium. Ten Workforce Development Opportunities for CTCs; Quimby et al, *Beyond Access*, (June 2003), pp. 21-22.
2. Quimby et al, *Beyond Access*, (June 2003), pp. 21-22.

**Sidebar: Workforce Investment Boards and Labor Market Studies**

1. For a few examples of comprehensive state or area labor market studies including job growth projections, see: Quimby, *Merrimack Valley Workforce Investment Board Labor Force Blueprint* (Merrimack Valley [Massachusetts] Workforce Investment Board, October 2003); Anderberg, "The Digital Divide: Bridging the Job Opportunities Gap"(Labor Market Information Division, Texas Workforce Commission, July 12, 2002); Contra Costa County [California] Workforce Development Board, *Closing the Gap between Employment and the Workforce: Employer Needs in Contra Costa and Alameda Counties* (September 2002); Contra Costa County [California] Workforce Development Board, *Occupational Outlook: East Bay: Alameda and Contra Costa Counties, 2003-2004*. See Chapter 7 for more examples.

**Sidebar: Building Partnerships with Employers**

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**Mini-Profiles:**

CBO & CAA Models Combining  
IT Training with Workforce  
Development

**Miami-Dade Community Action Agency, Florida**

**M**iami-Dade Community Action Agency's Self-Help Institute's Computer Training and Employment Program began in 1991 with six participants learning data entry skills. Now it has six computer centers. Originally it was funded through the federal Job Training Partnership Act (JTPA) but currently it is supported through the CAA's foundation and through CSBG.

Participants enter the program through referrals from local Career Centers, unemployment offices, CBOs, and other CAA services. The IT training at all six centers covers typing, basics in word processing, spreadsheet software, *Microsoft Powerpoint*, e-mail, and using the Internet to search for jobs. One center now offers more advanced training in building computers, computer maintenance and repair, Local Area Network (LAN) set-up, and software installation. It prepares participants to gain certification in these areas which they obtain via the Internet. The program envisions expanding this more advanced pre-certification training to its other centers.

Every center has a job developer on its staff who provides training in employability skills in addition to one-to-one counseling. Both this training and the IT instruction offered are designed based on the job developers' contacts with local employers and their assessment of the participants' needs. Program staff told MASSCAP that they place many participants within local government agencies and other nonprofits—sometimes in jobs and in other cases in internships. They reported that about half of the internships translate into paying jobs.

The centers offer other services. One has a partnership with an after-school program in which students learn to use the Internet and practice reading skills. Another trains parents and their children in computer basics and provides them with computers when they complete the course. And one center has a program that prepares students for the state's high school achievement tests. The centers also serve seniors below 150% of poverty by instructing them in computer basics, and one center is mainly dedicated to providing basic IT training to AARP members.

Staff within the CAA benefit from the program, too. Many who cannot afford to acquire computer training elsewhere or take college courses have enrolled in classes. And the program has become

viewed as a resource by others in the community: local government agencies have requested it to train their employees, and some other CBOs and churches have asked for advice on curricula and budgeting in developing their own IT access and training efforts.

### **Community Progress Council, York, Pennsylvania**

**A**nother example of a CAA with workforce development programs that include IT training is the Community Progress Council (CPC) in York, Pennsylvania. The two programs serve different populations but both utilize the CAA's computer lab—which serves other community and agency purposes as well.

One of the workforce development programs is for older workers, age 55 and above. In many cases, these individuals lost their jobs in manufacturing firms that once were a mainstay of the economy of south central Pennsylvania, but in recent years have relocated or closed. CPC's seven year-old program for this population is funded through the National Council on Aging, local councils on aging, and the U.S. Department of Labor.

The program, which serves about 75 individuals at a time, places participants in work situations within CBOs, schools, churches, and other organizations as part of their training. In some cases, these placements lead to jobs. Besides instruction in employability skills, the program provides training geared to administrative/clerical jobs in all industries as well as work in health care, retail, trucking and shipping. Basic computer skills are part of the training: each participant gets 10-12 weeks of training for eight hours per week in CPC's computer lab. The areas covered are word processing and spreadsheet applications, e-mail, and using the Internet to search for information and jobs.

“The initial barrier with this older group is their fear of computers,” a CPC staff member told MASSCAP. “Once many of them get over their lack of confidence in using computers, they seem to stay in the lab forever.”

From the beginning, the program worked extensively to make contact with local employers. “Originally, employers were unaware of this program,” the program director told MASSCAP. “So, in the beginning, I was making 25 calls a day to employers to ask about their needs, openings, and the skills required. Now they're calling us.” Nonetheless, the program believes that face-to-face contact with employers will enhance placements, so it is moving beyond phone calls and e-mail messages to meet personally with employers in the area.

The other workforce development effort, CPC's Supported Work Program, focuses on those who are moving from welfare to work.

Its participants typically are younger women with children, many of whom have about a ninth-grade educational level. Many of them lack transportation. However, other participants have some college education but have been unable to find jobs. The program's director believes that the major obstacles in the training efforts are participants' lack of education or English language skills, or in some instances, motivation.

The program includes minimum computer basics in its training but mainly uses computer-based instruction to get participants to the point where they have sufficient language, social studies, and math skills to obtain a GED. It also teaches participants how to write resumes and cover letters for jobs. In addition, CPC's Computer Lab has just added ESOL instruction capabilities. Of the six to nine months that participants spend in the program, the computer training component takes from four to six weeks.

The Supported Work Program has a case manager to assist individual participants. Many participants go on to work in light manufacturing industries in the area. Others go into office work or enroll in community colleges.

The state government has provided all CAAs in Pennsylvania with free access to its online "Keystone Virtual University." This Web-based resource offers GED, ESOL, remedial English and math courses as well as other courses—all the way up to the college level. It is open to all CAA clients and staff and the two workforce development programs have begun to take advantage of it. However, after the first year of use, CPC and other Pennsylvania CAAs will have to find ways to pay for the service.

CPC's Computer Lab plays a central role in the two workforce development programs and also has other functions. "A few years ago," the lab's director told MASSCAP, "we could help agency clients write resumes, but that was about it." A few years ago, a state government digital divide initiative provided the funding to upgrade the facility to its current capabilities.

The Computer Lab offers open public access during after-school hours to parents, children, and others. It works with the York Literacy Council, which uses the facilities for its parent-children programs. The lab is starting a program in partnership with a local community center and area credit unions in which the federal IRS will train volunteers to help low-income people prepare their tax returns and to obtain the Earned Income Tax Credit. It also is offering an on-line financial skills program for low-income clients that covers such topics as household budgeting, managing a checking account, and getting credit. The Computer Lab now is funded through a combination of many small sources: parts of budgets for CPC's workforce development and other programs; the local

United Way; the Young Women's Club of York; a state legislator; and others.

Community Progress Council staff from the two workforce development programs and the Computer Lab told MASSCAP that the capacities the lab offers have changed the parent CAA. They noted that the lab's current services and potential uses have enhanced coordination among the agency's programs. They added that the lab has provided needed IT training for agency staff. And they also pointed out that the increased opportunities for agency clients have enabled CPC to more effectively pursue its mission.

### **Occupational Training Institute, Cupertino, California**

**T**he Foothill/De Anza Community College District's Occupational Training Institute is based in Cupertino, California, about midway between San Francisco and San Jose. The Institute began several years ago with a grant from the state's community college system to start an IT help desk and call center that would utilize student interns as staff and provide them with hands-on experience. The project succeeded in attracting student interns. But it did not generate the number of calls from other students seeking help with their computer problems that the planners originally had envisioned. So, with another state grant, the project expanded to serve people living in nearby senior citizen housing by providing them with hands-on training in computer, e-mail, and Internet basics as well as with ongoing support through the call center. However, soon after the Institute broadened its focus, California experienced a severe budget crisis and state funding for the new seniors program abruptly ended.

In 2003 the Institute obtained a grant from the David and Lucille Packard Foundation for another project. It involved repairing/refurbishing donated computers and distributing them to disadvantaged community college students. The Institute merged this project with its help desk and changed its approach to technical support. It then recruited community college students to work as interns in computer repair and rebuilding as well as software and operating system installation and troubleshooting. Through a program offered by Tech Soup (an online IT resource center), the Institute became an authorized Microsoft refurbishing center.

The donated computers come from industry. The Institute installs *Open Office*, a free *Microsoft Office* look-alike applications suite, on the machines after refurbishing them. It works closely with community college instructors to recruit student interns who are taking courses to obtain A+ certification and provides them with hands-on experience. Since the interns also spend time working at the Institute's help desk, they also gain customer service skills.

The Institute has been able to place a small number of community college students in industry internships. “The grant subsidizes 50% of the internships, so it’s a good deal for employers,” an Institute staff member pointed out. It has been able to place a few of the students who complete the program in full-time jobs, but the staff acknowledged that doing so has been difficult, given the economic situation within the area’s IT sector. Yet while downsizing has limited placement opportunities for students, it ironically has benefited the Institute in another sense: the Institute has attracted key staff members with long experience working in the IT industry who likely still would be there had it not been for the economic slump.

A number of important linkages and partnerships have strengthened the project. The Institute has developed relationships with professional associations such as the Help Desk Institute and the Association of Software Professionals. It offers technical support to people with disabilities through an organization called Transaccess. Two local WIBs refer people to the Institute for internships as do area social service agencies, ABE programs, and school-to-work programs for high school students. Since interns must be enrolled in the community college, the Institute helps to facilitate the admissions process.

The Institute now is exploring the possibility of starting a small business serving people who need to upgrade their home computers. Since the community college district has a total student population of 40,000, the Institute sees a large potential market for the service at its own doorstep.

### **Cyberskills Vermont, Burlington, Vermont**

**B**egun in 1995 by CCVT, Vermont’s government access television station, Cyberskills Vermont in Burlington’s initial mission was to deliver IT access and training to low-income people and thereby enhance their opportunities in the workforce. With funding from a federal HUD grant to the city of Burlington, it conducted an assessment of local communications and information needs and developed a number of computer access sites in city neighborhoods. In 1997, it obtained a Kellogg Foundation grant which enabled it hire administrative staff and instructors. However, when the grant ended in late 1999, Cyberskills faced financial difficulties. It then shifted its focus from open public IT access and informal training and to structured IT training for workforce development. Since then it has added other services.

Cyberskills Vermont now provides courses ranging from computer, Internet, and *Microsoft Office* application basics to intermediate and more advanced training in *Word, Excel, Access, Outlook,*

*QuickBooks*, HTML, *Macromedia Dreamweaver*, digital media, digital photography, and digital storytelling. It also offers technical training and certifications in PC maintenance, repair, and networking. Besides training, Cyberskills offers an array of services to nonprofit organizations and small businesses in the state including: Web site design, development and support; technology planning; scheduled and/or on-call IT systems support; network design, set-up and support; database planning, design, development, and support.

Cyberskills Vermont's move to become a player in Vermont's workforce development system served as a pilot project conducted in conjunction with the America Connects Consortium (ACC). The project resulted in an insightful study, *Workforce Development and CTCs: 10 Lessons Learned*, which is available at ACC's Web site. [www.americconnects.net/resources/WIA\\_Lessons\\_Learned.asp](http://www.americconnects.net/resources/WIA_Lessons_Learned.asp)

The following are the lessons that Cyberskills learned which are discussed in depth within the study:

1. Navigate your state's workforce development system
2. Become certified for WIA training
3. But... understand that WIA alone is not workforce development
4. Know your true costs of doing business
5. Be entrepreneurial
6. Identify your competitive edge
7. Know your local economy
8. Develop relationships with employers
9. Develop partnerships with other training providers
10. You're only as good as the staff you hire

### **The Jobs in Finance Project, Massachusetts**

(A joint effort of the Lower Merrimack Valley Workforce Investment Board and Greater Lawrence Community Action Council, Lawrence, Massachusetts, involving area banks and businesses)

**T**his project is a good example of a CAA's IT training project partnership with other groups in the area of workforce development. It also is a story of shifting gears—how IT access and training programs need to be flexible, without compromising their missions, in order to remain effective and to financially survive.

Greater Lawrence Community Action Council (GLCAC), located in Lawrence, Massachusetts—once a manufacturing center but now one of the state's poorer cities—developed an IT access and education project in 2001. Its focus was on high school-age youth, largely Hispanic, in a city where the school drop-out rate was among the highest in the state. It developed strong partnerships with a number of organizations serving youth, and enjoyed early success in both participation and learning outcomes. But within two years, the state's budget crisis had affected many of GLCAC's partnering organizations, which in turn meant that they could no

longer pay to send participants to GLCAC's IT Center. The IT Center needed to develop other programs and revenue to remain viable.

One opportunity that emerged was the Building Essential Skills through Training (BEST) Jobs in Finance project (JIF) which the Merrimack Valley Workforce Investment Board (MVWIB) was undertaking. JIF's goal was to produce a skilled labor force of bilingual workers to meet the high demand for employees in the area's financial services industry. The initiative combined two major strengths in the region—the bilingual capabilities of older youth between 18-24 in need of jobs, and the need for bilingual employees in that industry. The idea was to create a model that would be replicable in other industry clusters. The state's Commonwealth Corporation provided funding for the effort, and WIB along with GLCAC found key partners in the New England College of Finance's Financial Services Academy (FSA), several banks and other financial institutions, and some adult learning and other educational organizations.

The six-month project was carried out at three training sites, and GLCAC provided the IT training, using its IT Center and drawing upon its experience serving bilingual youth.

The project is an example of integrated training that includes ABE, ESOL, computer literacy, and screenings/referrals. The program worked with financial institutions in the region to focus workforce development on that industry's specific labor and skill needs. The WIB, GLCAC, and their partners developed a "contextualized" curriculum to prepare program participants for entry into the Financial Service Academy, which trains participants for entry level positions (for example, as tellers) at banks and other financial institutions. In the first class of the project there were 43 enrollees, and 37 of them graduated from FSA. Some 23 got jobs in financial services, and others went on to post-secondary education.

For workforce development programs such as this, many CAAs and CBOs offer the unique advantage of having IT access/skills training centers, computer skills instructors, and wrap-around support services for participants.

### **Street Tech, San Pablo, California**

**S**treet Tech is a nonprofit that offers low-cost IT training and job placement for those age 18 and up from disadvantaged communities in the San Francisco Bay Area. The program's participants undergo an intensive technical and life skills training program for 9 to 15 hours a week for three to six months. The goal is to train them for entry level IT jobs, such as computer technicians, help desk workers, and network administrators.

Participants get hands-on training in introductory PC repair and maintenance as well as in customer service skills. The work involves refurbishing computers and peripherals for distribution to local nonprofits and other organizations. They also provide the organizations that get the donated computers with technical support, repairs, and maintenance.

The training covers more than IT skills. “Class content,” according to Street Tech, “includes study skills, success on the job, career planning in the field of Information Technology, time and budget management, techniques in decision-making, interpersonal communication skills, critical thinking skills, and how to effectively handle various life challenges.”

The program also involves team-building projects, “mentorships” with IT professionals, and field trips to area IT firms. During the last stages of the program, the participants serve as interns in local businesses, take certification tests, and get help from Street Tech—which has developed relationships with local employers—in job placement. The program requires that graduates later come back as volunteers to assist new participants as either trainers or mentors. It offers A+ and Microsoft Professional certifications.

### **Women Employed: *Upgrade Your Future*, Chicago, Illinois**

**W**omen Employed’s new “Upgrade Your Future” project in Chicago represents a different and perhaps unique approach to addressing the digital divide, inequities in employment, and workforce development. Unlike the other projects profiled in this chapter, it does not provide IT training, directly refer individuals to IT training, or place them either in internships or jobs. It has undertaken a different strategy.

Women Employed has three broad goals. One is to create fair employment opportunities and fair workplaces. The second is to widen access to employment and training. And the third is to provide tools to low-income women so they can better navigate the labor market.

The “Upgrade Your Future” project was created in response to the fact that women, especially minority women, are vastly underrepresented in the IT workforce—both within IT-producing firms and IT professional positions in other industries. In recognizing this problem, Women Employed also saw that even entry-level IT jobs paid above \$25,000 per year—more than many lower-income working women in other fields earned.

Women Employed assembled a planning group and obtained a one-time grant from the Illinois Department of Commerce and Economic Opportunity. The group included, among others, representatives of IT employers, training organizations, the Chicago Workforce Board, and women who work in the IT sector or in IT positions elsewhere. (Many within this group have continued to remain involved with the project by serving on its advisory board.)

The planning group spent a year doing research. It surveyed the industry and looked at career paths, the numbers of women employed, the employers involved, and appropriate training programs. It also surveyed its target demographic groups to find out what they knew about the IT industry and IT professions as well as their perceptions of the field. This latter survey found that many women who were interviewed had a less than positive impression of the IT industry and little interest in pursuing an IT career. As some women who were surveyed put it, becoming “geeks” was not for them.

From the planning and the surveys the first stage of the project emerged: it was a public information campaign. The campaign involved developing an informational piece that was mailed to 36,000 women in paychecks. It led to the construction of a Web site, “Upgrade Your Future.” It also involved an outreach effort that utilized churches, community centers, beauty parlors, and workforce training programs. The project produced a booklet on IT careers to dispel the negative stereotypes. The booklet also listed the jobs and typical pay as well as the training, certifications, and degrees that they require. It included information on schools and training programs along with financial aid resources. And it profiled women who work in various areas of IT. One key message that Women Employed embedded in its outreach efforts was: “If you work in IT, you *don’t* have to work in an IT company.” It added other employment possibilities: health care providers, educational institutions, and more.

Project staff estimated that they by late 2004 they had reached 100,000 women in greater Chicago through their PR campaign. From data drawn from a short demographic survey that visitors to its Web site complete, the Project has found that most of those who explore the site are women in the groups that it intended to reach.

The second phase of the project was underway in late 2004 when MASSCAP interviewed a project representative. It was piloting an e-mentoring program, using 20 women who work within the IT field as mentors for other women who are considering entering the field, who are in IT training programs, or who have just begun IT jobs. The project had no difficulties in finding women willing to serve as mentors. Meanwhile, it has continued and expanded its outreach campaign by developing new partnerships with community colleges and workforce development programs.

“Sometimes people settle for any job because they need one,” a staff member told MASSCAP. “But awareness, career planning, and education can get people interested in pursuing higher-paying jobs. Adult education and workforce development programs should be more closely linked to IT career paths.”

### **CitySkills, Boston, Massachusetts**

**C**itySkills in Boston, Massachusetts is a model worth examining for IT training projects that have a focus on workforce development. CitySkills acts as an intermediary between urban job training programs and companies, especially those with entry-level IT jobs.

It assists companies in determining their hiring needs and in identifying qualified graduates of local training programs. CitySkills uses staff training, internships, mentoring and job shadowing as means to foster communication and good employment matches, and then supports new hire relationships with case management and support tools for supervisors and employees.

CitySkills’ work is valuable in helping training providers to understand and be responsive to employer hiring and skill needs, and helping employers to expand their use and knowledge of both a network of skilled training providers and an untapped, diverse labor pool. “CitySkills’ intermediary strategy is designed to build a ‘labor pipeline’ of talent from economically disadvantaged, often minority urban populations to fill mainstream, entry-level jobs that lead to economic self-sufficiency.”

CBOs might explore this model as they think about tracks that will lead their basic IT training participants to better-paying jobs.

# A Resource Catalog

## *Where To Find Much More Information on IT Access & Training*

**M**uch, much more information on IT access and training than this publication contains—or could possibly include, of course—exists elsewhere. A wide array of resources exist that examine the topic and the many issues involved in depth. One of MASSCAP's prime purposes in undertaking this project and producing this publication has been to search for resources, to examine as many of them as possible, and to compile a list of them—along with their Web links (if they exist)—so that you can investigate them yourself. In doing so, you can pick and choose what may be useful to your work.

We have organized these resources by topic. But in some cases, particular resources cover more than one aspect of IT access and training. In some instances, we have added some introductory comments about the resource listed. In other instances, the resource has been covered elsewhere in this publication.

In most instances, the resources below are available via the Internet. Some are links to organizational Web sites. Others are links to online publications or articles on the Web. By copying the Internet addresses from these sources and pasting them into your Web browser, you can reach these sources. Nearly all of these links were accessed successfully as of December 2004.

Some of these sources plus many others that we used in our research for this publication are in the *Bibliography* that follows this chapter. The *Bibliography* includes full references to all the sources that are cited in previous chapters. Among the materials that it lists are books, articles, and other sources that publically are available in print, or information that MASSCAP has collected through its work. We encourage you not only to explore the resources listed below, but also to use the other sources in the *Bibliography* that follows this chapter, depending on the topics in which you are interested.



## *Organizations, Web Sites, Reports, Other Publications & Articles:*

### Planning, Project-Building, & Implementation

*CTCNet* is not only a prime source for learning about models of IT access and training that exist around the nation, but it also has extensive information and material available on its Web site on planning, project-building, and implementation.

Its *Center Start-Up Manual* has been widely used as a guide by many organizations. First published in 1997, it was revised in 2003. It is available on the Web. CTC also has developed an *Operations Toolkit* that contains many templates, best practices, and forms and also can be found on its Web site. The site also has many other articles and

resource, some of which are listed elsewhere in the resource sections of this publication.

Links to the *Center Start-Up Manual* and the *Operations Toolkit* are: <http://www.ctcnet.org/ctc/toolkit/main.html> and <http://www.ctcnet.org/resources/toc.htm>

*America Connects Consortium*, which provides technical assistance to U.S. Department of Education CTC Program grantees, also is a rich source of resources on developing and implementing IT access and training initiatives. A number of these are listed in the resource sections of this publication related to the topics they cover. The Web site has much more: <http://www.americaconnects.net>

*The Digital Divide Network* is another Web site to check for useful information. <http://www.digitaldividenetwork.org/content/sections/index.cfm>

*One Economy* is a national non-profit organization created to be a catalyst for innovation and change. It helps bring access to technology into the homes of low-income people around the country. It uses that technology to connect low-income people to information and tools they can use to build assets and improve their lives. Its primary market is people living in government-supported affordable housing across the U.S. and its secondary market is people living in non-government supported affordable housing. It focuses on: access services, online consumer content, technology-related policy initiatives, and youth leadership. <http://www.one-economy.com/>

Fong, Albert and John Senyak. *Ten Lessons for your new CTC*. TechSoup: <http://www.techsoup.org/howtoarticlepage.cfm?ArticleId=163&topicid=12>

“Keys to Successful Planning, Implementation & Sustainability.” A Resource Paper prepared for: “TeleCommunity 2000,” 3rd Annual Community Network Technology Conference, December 11-12, 2000, Omni South Park Hotel, Austin, Texas. Presenters: Paul Lamb, founder, Street Tech, San Pablo, CA, <http://www.streettech.org> ; Michael Roberts, Director, Information Technology Initiative, United Neighborhood Houses of New York, New York, NY, <http://www.unhny.org> ; <http://www.ctcnet.org/resources/reports/telecommunity2000/planning.htm>

Ba, Harouna, Katie McMillan Culp, Linnie Green, Andres Henriquez, and Margaret Honey. *Effective Technology Use in Low-Income Communities: Research Review for the America Connects Consortium*. Center for Children and Technology, April 2001.

Computers In Our Future. *What Works in Closing the Technology Gap?* Summary and full report links: <http://www.ciof.org/policy/summary-report.html> (and) <http://www.ciof.org/policy/ciof-paper-whole.pdf>

Austin Free Net. “Who Uses Community Technology Centers? A Survey of Public Access Computer Users.” Austin, TX: February 2002, <http://www.austinfreenet.net/about/AFNClientSurvey.pdf>

Chow Clifton, Jan Ellis, Geoffrey Walker, and Bart Wise, CTCNet Research and Evaluation Team. *Who Goes There? Longitudinal Case Studies of Twelve Users of Community Technology Centers*. April 2000.

CTCNet. "Computer and Communications Use in Low-Income Communities, Models for the Neighborhood Transformation and Family Development Initiative." [www.ctcnet.org/casey/casey2.htm](http://www.ctcnet.org/casey/casey2.htm)

Penuel, Bill, Vera Michalchik, Deborah Y. Kim, and Linda Shear. "The Organization of Learning in Community Technology Centers: Learning with Technology in Six Communities." SRI International: March 2001, [http://www.americaconnects.net/research/SRI\\_case\\_study\\_report.pdf](http://www.americaconnects.net/research/SRI_case_study_report.pdf)

U.S. Department of Commerce National Telecommunications and Information Agency. *Collected Case Study Evaluations: Issues in Rural Communities; Issues in Urban Communities; Issues in Sustainability*. Washington, D.C.: October 1999.

U.S. Department of Commerce National Telecommunications and Information Agency. *Evaluation Report: Technology Opportunities Program, 1996 and 1997 Projects*. Fairfax, VA: Study conducted by Johnson and Johnson Associates, June 2001, [http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/evaluation\\_report.htm](http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/evaluation_report.htm)

America Connects Consortium. "Community Technology Centers—Program Effectiveness Report: FY 2002 Grantees." A report prepared for the U.S. Department of Education Office of Adult and Vocational Education, November 2003, [http://www.americaconnects.net/research/CTC\\_Program\\_Effectiveness\\_FY2002.pdf](http://www.americaconnects.net/research/CTC_Program_Effectiveness_FY2002.pdf)

Wilhelm, Tony, Delia Carmen and Megan Reynolds. "Connecting Kids to Technology: Challenges and Opportunities." Annie E. Casey Foundation *Kids Count Snapshot*, June 2002, [http://www.aecf.org/publications/pdfs/snapshot\\_june2002.pdf](http://www.aecf.org/publications/pdfs/snapshot_june2002.pdf)

Chan, Brian, Keane Nishimoto, and Roger Yeh, for CTCNet. "A report and related presentation concerning how to design the physical layout of a community technology center." <http://web.mit.edu/ryeh/21W.732/deliverable.pdf>

Kanter, Beth. *Community Technology Centers as Technology Assistance Providers to Nonprofit and Community Based Organizations: Emerging Practices, Opportunities and Challenges*. Prepared for CTCNet by Summit Collaborative, supported in part by SURDNA Foundation, August 2002. <http://www.ctcnet.org/resources/reports/ctctechprovreport.htm>

Hoffman, Rem. *Exploring New Roles for Community Technology Centers: Can CTCs Serve as Nonprofit Technology Assistance Providers?* A CompuMentor Report, November 2003, <http://www.compumentor.org/ctcstudy/CTCreport.pdf>

America Connects Consortium. "Keys to Sustainability." [In two parts] <http://www.americaconnects.net/field/F9sustain.asp> (and) <http://www.americaconnects.net/field/F9sustain2.asp>

Jacobs, Ellis, "Public Utility Commissions and Sustainable Funding for Community Technology." CTCNet (undated)  
<http://www.ctcnet.org/resources/reports/puco1.htm>

*N-TEN (The Nonprofit Technology Enterprise Network)*. N-TEN connects diverse constituents who share a common goal of helping nonprofits use technology more effectively. Its Web site features *TechFinder* (an online directory of technology service providers for nonprofits covering 1,400 different services); *501 Tech Clubs* (local nonprofit technology networking groups); and a wide array of online resources to help nonprofits make more effective use of technology. <http://www.nten.org/>

## Project Evaluation

America Connects Consortium. "Assessment Tools for CTCs."  
<http://www.americconnects.net/resources/CTCassessmt3.asp>

America Connects Consortium. "Evaluating Non-Academic Outcomes."  
[http://www.americconnects.net/research/PromPracticesEval\\_Nonacademic.doc](http://www.americconnects.net/research/PromPracticesEval_Nonacademic.doc)

America Connects Consortium. "Evaluation Resources."  
<http://www.americconnects.net/resources/default.asp?topicid=43>

Benton Foundation. "Evaluation—Think It Through."  
<http://www.benton.org/Practice/Toolkit/evaluation.html>

CTCNet. "Evaluation Toolkit." <http://www.ctcnet.org/evalkit.doc>

Managementhelp.org. "Evaluating Your Programs."  
[http://www.managementhelp.org/np\\_progs/evl\\_mod/evl\\_mod.htm](http://www.managementhelp.org/np_progs/evl_mod/evl_mod.htm)

U.S. Department of Commerce National Telecommunications and Information Agency. *TOP 2001 Evaluation Report*.  
[http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/evaluation\\_report.htm](http://www.ntia.doc.gov/otiahome/top/research/EvaluationReport/evaluation_report.htm)

## IT Training: Standards, Curricula, Strategies, Models & Other Resources

The *Global Digital Literacy Council* "serves as the preeminent advisory body and as an authoritative voice on issues driving the development and implementation of global digital literacy standards and systems."  
<http://www.gdlcouncil.org/>

International Information and Communication Technologies (ICT) Literacy Panel. *Digital transformation: A Framework for ICT Literacy*. Princeton, NJ: Educational Testing Services. 2002, <http://www.ets.org/research/icliteracy/ictreport.pdf>

Committee on Information Technology Literacy & National Research Council. *Being Fluent with Information Technology*. Washington, DC: National Academy Press. 1999,  
<http://www.nap.edu/html/beingfluent/notice.html>

North Central Regional Educational Laboratory and the Metiri Group. *enGauge 21st Century Skills: Literacy in the Digital Age*. 2003, [www.ncrel.org/engauge](http://www.ncrel.org/engauge)

*Center for Digital Literacy*, Syracuse University.  
<http://digital-literacy.syr.edu/resources/publications.htm>

*Information and Communications Technology (ICT) Literacy*. [This Web site contains many resources.] <http://www.ictliteracy.info/>

Benton Foundation. "Technology Literacy Benchmarks for Nonprofit Organizations." <http://www.benton.org/Library/Stratcom/TechLit.pdf>

*Tech Soup* has technology training resources. [www.techsoup.org](http://www.techsoup.org)

*Computers in Our Future*, Los Angeles, CA. <http://www.ciof.org/index.html>

America Connects Consortium. "Promising Practices for Educating Adults at CTCs." 2003,  
<http://www.americaconnects.net/research/Adult%20Ed.pdf>

America Connects Consortium. "Adult Education Transition Programs." [http://www.americaconnects.net/research/PromPractices/Transition\\_NP.doc](http://www.americaconnects.net/research/PromPractices/Transition_NP.doc)

America Connects Consortium. "Technology and Reading Instruction." <http://www.americaconnects.net/research/TechandRead.doc>

U.S. Department of Housing and Urban Development. *Engaging Education: Integrating Work, Technology, and Learning for Adults*. Washington, D.C., 2002, <http://www.hud.gov/offices/hsg/mfh/nnw/resourcesforcenters/nnwengaging.pdf>

*The Alliance for Technology Access*. A network of community-based centers, developers, and vendors working to provide information and support services to children and adults with disabilities to increase their use of standard, assistive, and information technologies.  
<http://www.ataccess.org/>

*The Finance Project* has a resource page that links to organizations, state and local programs, and general publications.  
[http://www.financeprojectinfo.org/DigitalDivide/digitaldivide\\_skills.asp](http://www.financeprojectinfo.org/DigitalDivide/digitaldivide_skills.asp)

*Educators' Web Site for Information Technology*. This site contains many resources, including national and state-by-state IT skills standards.  
<http://www2.edc.org/ewit/>

*The International Technology Education Association (ITEA)* is the professional organization of technology teachers. <http://www.iteawww.org/>

America Connects Consortium. "Staff Development for Adult Education Instructors."  
<http://www.americaconnects.net/research/PromPracticesStaffDevelop.doc>

*System for Adult Basic Education Support (SABES)*, Massachusetts

*Dept. of Education.* SABES promotes quality adult basic education services through training, support, and resources that improve the skills and knowledge of practitioners and strengthen programs. Its “ABE Teacher Competencies for Technology” (1999, revised in 2004) provides a useful model to assess various levels of IT skills for teachers as well as students and others. <http://www.sabes.org/resources/tcomps.htm>

Solomon, Gwen, Nancy J. Allen, and Paul Resta, eds. *Toward Digital Equity: Bridging the Divide in Education*. Boston: Allyn and Bacon, 2003.

*National Educational Technology Standards.* This site focuses on standards for children and teens, grades K-12. <http://cnets.iste.org/>

*YouthLearn.* This site by the Morino Institute addresses issues related to working with youth and technology, and includes lesson plans and developing curricula at CTCs. <http://www.morino.org>

## IT Training & Workforce Development

### Training for IT Jobs

U.S. Department of Commerce. *Education and Training for the Information Technology Workforce*. Washington, D.C.: A Report to Congress from the Secretary of Commerce, June 2003. (Available at U.S. DOC's Web site.)

Committee on Workforce Needs in Information Technology, Computer Science and Telecommunications Board, Board on Testing and Assessment, Board on Science, Technology, and Economic Policy, Office of Scientific and Engineering Personnel, National Research Council. *Building a Workforce for the Information Economy*. Washington, D.C.: National Academy Press, 2001, <http://books.nap.edu/html/buildingworkforce/>

National Council on Economic Education. *National Standards*. National Workforce Center for Emerging Technologies, 2003, <http://www.ncee.net/ea/program.php?pid=19>

*National Workforce Center for Emerging Technologies Web Site.* NWCET is a division of Bellevue Community College, and is partially funded by the National Science Foundation. <http://www.nwcet.org/>

Moncarz, Roger. “Training for Technies: Career Preparation in Information Technology,” *Occupational Outlook Quarterly*, Fall 2002. Washington, D.C.: U.S. Department of Labor Bureau of Labor Statistics.

*Information Technology Association of America's* Web site. [www.ita.org](http://www.ita.org)

*CompTIA's TechCareer Compass* provides useful information about IT jobs and training in a simple and easy-to-use format. The Web site has information on more than 100 jobs within six major IT career categories. Each description includes the essential functions, skills, and knowledge required for the particular job. The site also has links to training providers and certifications that might be required for each job. <http://tcc.comptia.org/>

### Workforce Development and Job Placement

*Workforce USA.* This is a “library portal,” a virtual library of workforce development resources, providing access to the best tools and materials available from hundreds of organizations. It uses a sophisticated database that supports easy resource entry, access to previously unpublished tools; and the creation of customized search fields. WorkforceUSA.net has been developed through a collaboration among workforce development organizations and professionals. This site can serve several useful purposes for CBOs, including:

- providing access to a variety of useful analyses, examples, tools, and other resources specific to workforce development planning and programming;
- reducing search time for information and materials for CBOs;
- providing a personalized space right on the site for CBO practitioners to store useful resources and to sign up for periodic electronic newsletters relevant to your work;
- facilitating peer-to-peer exchange.

The site is organized into 10 function areas which contain many useful resources: labor market analysis; labor market systems; program design; program management; labor exchange; assessment; training and education; career development; workplace practices; and other supports. <http://www.workforceusa.net/home/index.cfm>

*U.S. Department of Labor: Gateway to WIA.* This Web site focuses on the federal Workforce Investment Act. <http://www.usworkforce.org/>

*U.S. Department of Labor Employment & Training Administration's Web site.* <http://www.doleta.gov/>

*U.S. Department of Labor Employment & Training Administration Workforce Professionals.* Workforce Professionals assist businesses, workers, and job seekers to help build a better workforce system. The Web site offers tools and resources to assist professionals in workforce development. <http://www.doleta.gov/usworkforce/>

*National Association of Workforce Investment Boards.* This Web site also has a directory of links to state and local WIBs around the nation: <http://www.nawb.org/> (and) <http://www.nawb.org/asp/wibdir.asp>

*The Workforce Strategy Center* develops resources and models for successful workforce development. <http://www.workforcestrategy.org>

*Public Private Ventures* is a nonprofit policy research organization that offers services in workforce and youth development, as well as faith-community partnerships and replication/expansion of programs. [www.ppv.org](http://www.ppv.org)

U.S. Department of Housing and Urban Development. *How to Develop an Effective Career Placement Program.* <http://www.hud.gov/offices/hsg/mfh/nnw/resourcesforcenters/nnwguide032.pdf>

*Center for Workforce Preparation.* The Center is a non-profit affiliate of the U.S. Chamber of Commerce focused on workforce development

and quality education issues. Its mission is to develop workforce strategies for businesses, chambers of commerce, and communities to hire, train, retain, and advance skilled workers in the 21st century.  
<http://www.uschamber.com/cwp/default>

*AFL-CIO Working for America Institute.* The Institute is a union-sponsored, nonprofit organization dedicated to creating good jobs and building strong communities through partnerships.  
<http://www.workingforamerica.org/>

*The John J. Heldrich Center for Workforce Development* of the Edward J. Bloustein School of Planning and Public Policy, at Rutgers, the State University of New Jersey. It is a university-based research and policy center dedicated to raising the effectiveness of the American workplace by strengthening workforce education, placement and training programs and policies. <http://www.heldrich.rutgers.edu/>

*America Connects Consortium.* ACC's Web site has a section containing Resources on Workforce Development.  
<http://www.americconnects.net/resources/default.asp?topicid=30>

America Connects Consortium. *Workforce Development and CTCs: 10 Lessons Learned.* This online publication is the study of a CTC's (Cyberskills Vermont) transition into the workforce development area.  
[http://www.americconnects.net/resources/WIA\\_Lessons\\_Learned.asp](http://www.americconnects.net/resources/WIA_Lessons_Learned.asp)

America Connects Consortium. "10 Workforce Development Opportunities for CTCs."  
[www.americconnects.net/resources/10workforceopps.asp](http://www.americconnects.net/resources/10workforceopps.asp)

America Connects Consortium. "Workforce Development Essentials for CTCs: Job Placement 101."  
<http://www.americconnects.net/resources/default.asp?topicid=30>

America Connects Consortium. "Starting a Youth Employment Program."  
[www.americconnects.net/resources/startingayouthemploymentprogram.asp](http://www.americconnects.net/resources/startingayouthemploymentprogram.asp)

*Jobs for the Future.* A Boston-based non-profit research, consulting, and advocacy organization, JFF works to strengthen our society by creating educational and economic opportunity for those who need it most.  
<http://www.jff.org/jff/>

Massachusetts Association for Community Action (MASSCAP). *Establishing Effective Workforce Development Programs: A Resource Guide for Community Action Agencies and Other Community-Based Organizations in Massachusetts.* November 2004, [www.masscap.org](http://www.masscap.org)

Baran, Barbara and Suzanne Teegarden. *Conducting a Community Audit: Assessing the Workforce Development Needs and Resources of Your Community.* Workforce Learning Strategies: 2000,  
<http://www.workforceatm.org/sections/pdf/2003/condanaudit.pdf>

KnowledgeWorks Foundation. *Career Advancement for Low-Income Workers through Community College and Community-Based Organization Partnerships.* 2002,  
<http://www.kwfdn.org/Resources/publications.html>

Roberts, Brandon. *The Best of Both: Community Colleges & Community-Based Organizations Partner to Better Serve Low-Income Workers and Employers*. Public/Private Ventures: 2002, [http://www.ppv.org/ppv/publicationspublications\\_description.asp?search\\_id=6&publication\\_id=88](http://www.ppv.org/ppv/publicationspublications_description.asp?search_id=6&publication_id=88)

Workforce Strategy Center. *Building a Career Pathways System: Promising Practices in Community College-Centered Workforce Development*. August 2002, [http://www.workforcestrategy.org/6\\_1.html](http://www.workforcestrategy.org/6_1.html)

### **Resources on Employment Projections and Examples of National, State, and Regional Labor Market Research**

U.S. Department of Labor. *Occupational Outlook Handbook, 2002-2003*. [www.bls.gov/oco](http://www.bls.gov/oco)

“Occupational Employment.” *Occupational Outlook Quarterly*, Winter, 2003-2004. Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics.

Contra Costa County [CA] Workforce Development Board. *Closing the Gap between Employment and the Workforce: Employer Needs in Contra Costa and Alameda Counties*. Prepared by Terry Jones and Benjamin Bowser, Urban Institute, California State University, Hayward, September 2002. <http://www.wdbccc.com/uploads/Final%20Employer%20Needs%20Survey.pdf>

Contra Costa County [California] Workforce Development Board. *Occupational Outlook: East Bay: Alameda and Contra Costa Counties, 2003-2004*. <http://www.calmis.ca.gov/htmlfile/ccois/2003OOR/EastBay03.pdf>

Massachusetts Division of Employment and Training. *Massachusetts Employment Projections through 2008: A Focus on the Jobs, the Industries, and the Workforce*. Commonwealth of Massachusetts, 2003, <http://www.mass.gov/det>

Quimby, O. Steven. *Merrimack Valley Workforce Investment Board Labor Force Blueprint*. Merrimack Valley [Massachusetts] Workforce Investment Board, October 2003. [www.mvwib.org](http://www.mvwib.org)

Three Rivers Workforce Investment Board, Pittsburgh, PA. “Overview of Local Labor Market Information Sources.” March 3, 2004, <http://www.trwib.org/lmi.htm>

Tennessee Dept. of Labor and Workforce Development. “The Source.” <http://source.virtuallmi.com/>

Gattis, Dorothy. “Jobs in the 21st Century,” *Texas Labor Market Review*, December 2002. Texas Workforce Commission Labor Market Information Department, [http://www.tracer2.com/admin/uploadedPublications/136\\_tlmr0212art.pdf](http://www.tracer2.com/admin/uploadedPublications/136_tlmr0212art.pdf)

Wisconsin Council on Workforce Development. "Wisconsin Regional and County Labor Market Profiles."  
[http://www.dwd.state.wi.us/oea/wda\\_map.htm](http://www.dwd.state.wi.us/oea/wda_map.htm)

**Sample Industry, Labor Union, and Other IT Training/Workforce Development Efforts**

*National Coalition for Telecommunications Education and Learning's* Web site. [www.nactel.org](http://www.nactel.org)

*Next Step's* Web site. [www.aboutnextstep.com](http://www.aboutnextstep.com)

*Communications Workers of America (CWA)'s* Web site. [www.cwa-union.org](http://www.cwa-union.org) (and) [www.CWAnett.org](http://www.CWAnett.org)

*International Brotherhood of Electrical Workers (IBEW)'s* Web site. [www.ibew.org](http://www.ibew.org),

*Service Employees International Union (SEIU)'s* online information on its efforts to address the digital divide.  
[www.seiu.org/resources/bridging\\_the\\_digital\\_divide](http://www.seiu.org/resources/bridging_the_digital_divide)



*San Francisco Information Technology Consortium.* This is a group of organizations committed to providing low-income residents basic and advanced level training needed to begin a career in information technology. Trainings include office technology, technical support and Web development. The program has a focus on career ladder development. Consortium partners are Arriba Juntos, the Bay Area Video Coalition, City College of San Francisco, Glide Memorial, Goodwill Industries, Jewish Vocational Services and the San Francisco Housing Authority. The project is managed by the Private Industry Council of San Francisco.

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- Alvarez, Anthony Steven. "Behavioral and Environmental Correlates of Digital Inequality," *IT & Society*, Vol. 1, No. 5, (Summer 2003), pp. 97-140, <http://www.stanford.edu/group/siqss/itandsociety/v01i05/v01i05a06.pdf>
- America Connects Consortium. "Community Technology Centers Program Effectiveness Report: FY 2002 grantees." Prepared for the Office of Vocational and Adult Education, U.S. Department of Education, November 2003, [www.americconnects.net/research/CTC\\_Program\\_Effectiveness\\_FY2002.pdf](http://www.americconnects.net/research/CTC_Program_Effectiveness_FY2002.pdf)
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- America Connects Consortium. "Workforce Development and CTCs: 10 Lessons Learned." [http://www.americconnects.net/resources/WIA\\_Lessons\\_Learned.asp](http://www.americconnects.net/resources/WIA_Lessons_Learned.asp)
- America Connects Consortium. "Workforce Development Essentials for CTCs: Job Placement 101." <http://www.americconnects.net/resources/default.asp?topicid=30>
- America Connects Consortium. *Promising Practices for Educating Adults at CTCs: Meet Them Where They Are*. 2003, <http://www.americconnects.net/research/Adult%20Ed.pdf>
- America Connects Consortium. "Noteworthy Practices Brief: Staff Development for Adult Education Instructors." 2003, <http://www.americconnects.net/research/PromPractices/StaffDevelop.doc>
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- Atkinson, Robert and Randolph H. Court. *The New Economy Index: Understanding America's Economic Transformation*. Progressive Policy Institute Technology, Innovation, and New Economy Project, November 1998, <http://www.neweconomyindex.org/NewEconomy.pdf>
- Atkinson, Robert B. *The 2002 State New Economy Index*. Progressive Policy Institute Technology and New Economy Project, June 2002. [http://www.neweconomyindex.org/states/2002/PPI\\_State\\_Index\\_2002.pdf](http://www.neweconomyindex.org/states/2002/PPI_State_Index_2002.pdf)
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**MASSCAP's New Economy-New Technology Task Force.** Notes from the sessions (in 2004) that included representatives from Massachusetts' CAAs and featured expert panelists from other organizations. The topics covered were:

1. *A Review of Existing Massachusetts CAA IT Access and Education Efforts.* Panelists: representatives of eight CAA IT access and education projects.
2. *Community Technology Centers across the Nation: What can we learn from their experiences? How have they moved beyond offering IT access to providing participants with links to other education and training? Are there models we can replicate?*
3. *Workforce Development Groups.* How can CAAs more effectively tailor their workforce development and IT access and training efforts to help clients gain skills that match local labor market needs? How can CAAs expand their relationships with area Workforce Investment Boards (WIB), other workforce development groups, and local employers?
4. *A Look at the Building Essential Skills through Training (BEST) Jobs in Finance project (JIF).* This project was developed by the Merrimack Valley Workforce Investment Board (MVWIB) and Greater Lawrence Community Action Council. Funded by the Massachusetts' Commonwealth Corporation, and other partners included the New England College of Finance's Financial Services Academy (FSA), several banks and other financial institutions.
5. *How CAAs Can Build More Effective Partnerships with Community Colleges* to more effectively link their IT access and education project participants with for more advanced education and training?
6. *How CAAs Work More Effectively with the state's Adult Basic Education program and with other local ABE providers?*

**MASSCAP's National Surveys** of Technology Access and Training Efforts at CAAs and other CBOs (2004) and follow-up interviews with selected respondents.





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