

**CREATING AN INFORMATION DEMOCRACY:
THE ROLE OF COMMUNITY TECHNOLOGY PROGRAMS
AND THEIR RELATIONSHIP TO PUBLIC POLICY**

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SUBMITTED BY

LISA J. SERVON, PRINCIPAL INVESTIGATOR

Assistant Professor
Department of Urban Planning and Policy Development
Edward J. Bloustein School of Planning and Public Policy
and

Senior Scholar
Center for Urban Policy Research
Rutgers, The State University of New Jersey

with

MARLA NELSON, DOCTORAL CANDIDATE
Department of Urban Planning and Policy Development
Edward J. Bloustein School of Planning and Public Policy

CENTER FOR URBAN POLICY RESEARCH
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
CIVIC SQUARE • 33 LIVINGSTON AVENUE • SUITE 400
NEW BRUNSWICK, NEW JERSEY 08901-1982
(732) 932-3133 / FAX (732) 932-2363



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Chapter 1

INTRODUCTION TO THE PROBLEM

IDENTIFYING THE GAP IN ACCESS

Is lack of access to information technology leaving disenfranchised groups even further behind? Sophisticated information technology is no longer confined to the realm of Star Trek or affordable only to top-level executives. Anyone with a modem-equipped home computer can now hitchhike along the information superhighway relatively inexpensively. Computers are as much a part of an office workstation as a telephone, and ownership of home computers continues to increase. As prices for computers continue to drop, overall access to both computers and to the Internet continues to grow “for people in all demographic groups and geographic locations” (NTIA 1999, xiii). According to the U.S. Department of Commerce National Telecommunications and Information Administration (NTIA), “at the end of 1998, over 40 percent of American households owned computers, and one-quarter of all households had Internet access” (NTIA 1999, xiii). “The Internet,” say Novak and Hoffman, “is expected to do no less than virtually transform society” (1998, 1). But accessibility is far from universal.

Current patterns of access to information technology (IT) hint at a disturbing story in which information “haves” and information “have-nots” are separated along lines of race, socioeconomic status, education level, household type, and geographic location (NTIA 1999, Doctor 1994). Catchphrases such as “the digital divide,” “information apartheid,” and “information poverty” have been coined to capture the nature of this problem and to harness the attention of policymakers and community activists.

Falling through the Net: Defining the Digital Divide, the third in a series of reports published by the NTIA reports that “a digital divide still exists and, in many cases, is actually *widening* over time” (NTIA 1999, xii). According to the NTIA, “groups that were already connected (e.g., higher-income, more educated, White and Asian/Pacific Islander households) are now far more connected, while those with lower rates have increased less quickly” (NTIA 1999, 8). The report shows that, although overall access to IT is increasing at a rapid rate, particular kinds of households are gaining access while others are not. Specifically, “minorities, low-income persons, the less educated, and children of single-parent households, particularly when they reside in rural areas or central cities, are among the groups that lack access to information resources” (NTIA 1999, xii).

Graham and Marvin explain that “these inequalities in access to telecommunications networks are important because they influence the ability of people to participate in any meaningful fashion within modern information-based society” (1996: 190). A recent report published by the Benton Foundation states that although “kids in wealthier households may not take access to technology . . . for granted, the lack of access to up-to-date computers in low-income communities and to affordable Internet service in rural areas leaves many people cut off from good jobs and the chance to participate in the affairs of the broader society” (Goslee 1998, iv). The Office of Technology Assessment described the effect as “the concentration of poverty and deconcentration of opportunity” (cited in Goslee 1998, 3).

The following key findings are excerpted directly from the latest NTIA report (1999, xiii):

- Households with incomes of \$75,000 and higher are more than *twenty times* more likely to have access to the Internet than those at the lowest income levels, and more than *nine times* as likely to have a computer at home.
- Whites are more likely to have access to the Internet from home than Blacks or Hispanics have from *any* location.
- Black and Hispanic households are approximately *one-third* as likely to have home Internet access as households of Asian/Pacific Islander descent, and roughly *two-fifths* as likely as White households.
- The gaps between White and Hispanic households, and between White and Black households, are now more than six percentage points larger than they were in 1994.
- The digital divides based on education and income also have increased in the last year alone. Between 1997 and 1998, the divide between those at the highest and lowest education levels increased 25 percent, and the divide between those at the highest and lowest income levels grew 29 percent.

Practitioners and experts who participated in our fieldwork confirm that the digital divide is a real problem. They tend to recognize that an economic gap already exists between the groups of people who have access to IT and those who do not. Toni Williams (1999) of the Austin Learning Academy (ALA) says, “there is already a gap there. If we don’t want to widen it any more, we should try to give everybody equitable access”. Connie Seibert (1999), an ALA teacher, puts it this way: “If people don’t have access, then they aren’t even on the same playing field”.

Although students are more likely than any income or educational group to have used the Web in the past six months—presumably because they have access at school—the race gap in access is widest for students. Among high school and college students, 73 percent of white students own a home computer, but only 33 percent of African American students do (Novak and Hoffman 1998, 7). According to Novak and Hoffman (1998), the difference persists even when results are statistically adjusted for students’ reported household income—“household income does not explain race differences in home computer ownership” (Novak and Hoffman 1998, 7). A recent *Washington Post* story reported that “students with limited or no access to computers are falling behind in skills that educators and parents worry will cost them later” (Goslee 1998, 5).

Other recent studies show a troubling relationship between race and income. A 1998 study conducted at Vanderbilt University “indicates that racial inequities in computer ownership and Internet access jump significantly when household incomes drop below \$40,000. In such cases, African Americans were less than half as likely as Whites to own a home computer and about 60 percent as likely to have Internet access” (cited in Goslee 1998, 3). This gap diminishes when household income is \$75,000 and higher. For these Americans, the divide between Whites and Blacks has narrowed considerably in the last year but still exists (NTIA 1999, xiv).

Unfortunately, most studies—most notably the NTIA reports—neglect the gender aspect of the digital divide. Early research showed a wide gap between access by men

and women: a 1995 Guerrilla Girls poster claimed that, at that point, the Internet was “84.5 percent male and 82.3 percent white.” Several women’s groups, most notably Webgrrrls, have been created in response to this gap. With respect to teleworking and economic changes, Graham and Marvin note that “Those at the upper end of the teleworking experience—those in control—tend to be men, while those at the lower end—those who are being controlled—tend to be women” (1996, 200). Clearly, much more research needs to be done to determine why this gap exists and how men and women experience IT differently.

EXPLAINING THE GAP

Several factors help to explain the existence and persistence of the digital divide. These factors interact with each other to keep certain groups from having equal access to IT.

Money

One factor is money. People in low-income areas cannot afford computers and the monthly charges necessary to obtain Internet access. Computer prices have dropped steadily in recent years, but a savings of even \$500 still does not make computer ownership affordable for many poor families. Families also need money to maintain their computers and to purchase software and peripherals. In addition, the \$20 per month required for Internet access is out of the question for many. The NTIA study found that when those with computers at home were asked why they did not have Internet access, the most common response was that the household’s occupants didn’t want such access (25.7 percent) (1999, 38). The second most common response had to do with cost (16.8 percent). The lower a household’s income, the more likely the respondent was to cite cost as the reason for not having Internet access (NTIA 1999, 39).

In addition, the Internet is primarily oriented toward consumers, which means that the overwhelming majority of sites are geared to attract white men. Graham and Marvin state that “As information becomes a vital resource, it is being commodified and traded at a price, with access being determined by one’s ability to pay. Market-based mechanisms for allocating access to information services means inevitably stark ‘information inequality’” (1996, 202–3).

There is evidence that, as prices drop, more and more people purchase computers. Indeed, personal computer (PC) ownership in the United States is now at 42.1 percent, up from 24.1 percent in 1994 and 36.6 percent in 1997 (NTIA 1999, 5). However, although a growing sector of the society perceives computer ownership as a necessity, poor families have no choice but to see it as a luxury.

Unequal Investment in Infrastructure

Investment in critical infrastructure is much lower in poor urban areas and rural regions than it is in wealthier areas. According to Goslee, “all too often, telephone and cable companies have moved quickly to wire wealthier suburbs with advanced systems, while poor, inner-city neighborhoods aren’t upgraded” (1998, 2). This inequitable provision of infrastructure is a form of market failure; private companies will invest in infrastructure in areas where they are most likely to yield the highest returns on their investment. Although it may be unprofitable to invest in the infrastructure of low-income areas, failure to serve these areas creates an inequitable situation requiring government intervention. We return to this issue in our policy recommendations in chapter 8.

Indeed, although information technology is often thought of as something that transcends geographic boundaries, the same places that are characterized by economic poverty also tend to suffer from information poverty. Graham and Marvin note that “inequalities in physical and electronic spaces tend to be mutually reinforcing” (1996, 191).

Lack of Understanding of the Problems of Access

Existing public-sector attempts to address the problem of the digital divide, while welcome, demonstrate a failure to understand the complexity of the issue. For example, the e-rate, which is discussed at greater length in chapter 3, does not apply to community technology centers, where many low-income people prefer to use computers. And, although the Clinton administration’s highly publicized effort to wire public schools is commendable, it accomplishes little if not accompanied by funding for appropriate hardware, software, and training for teachers. Chapters 7 and 8, which discuss lessons from the case studies and policy recommendations, respectively, deal with this issue in much greater detail.

RATIONALE FOR CLOSING THE GAP

Community technology activists, and others who argue that the gap in access must be closed, maintain that equal access is important for political, economic, and social reasons. Mark Lloyd argues that “communications policy is of central importance to all Americans, that it touches on our fundamental rights, that communications policy is a civil rights issue” (1998, 1). Chapman and Rhodes (1997), scholar-activists, assert that “access to the Internet is as important a part of civic life as parks, public transit, libraries, and cultural centers.”

Most researchers claim that failure to address the current imbalances in IT access will lead to more deeply entrenched imbalances between historically privileged and historically disenfranchised groups. According to Doctor (1994), “The power associated with possession of knowledge is limited to those who have the economic resources to acquire access to information technologies and are in a social environment that enables them to use that access effectively.” A 1995 study conducted by Rand Corporation (Anderson et al. 1995) warns that “An information elite still exists, made up of those with

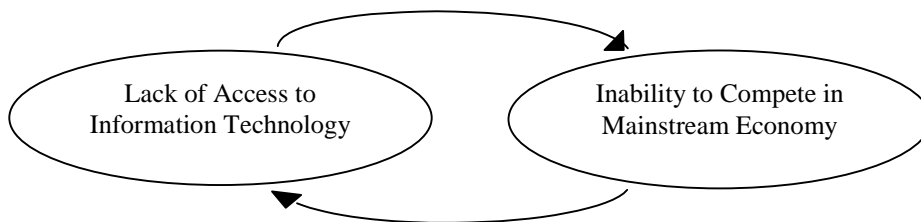
access to and knowledge about computers and e-mail. And as e-mail becomes more pervasive . . . those information haves may leave the have-nots further behind, unless we make concerted efforts today to provide all citizens with access to technology.” Claiming that “‘information poverty’ is no longer a slogan but an actual fact,” Blakely, Hadi, and Johnson (1995) argue that “the revolution in information technologies increases the already large gaps in education and access to opportunity within the social structures of all developed nations.” Goslee maintains that “even as digital technologies are bringing an exciting array of new opportunities to many Americans, they actually are aggravating the poverty and isolation that plague some rural areas and inner cities” (1998, iv).

Larry Irving of the NTIA calls the digital divide “one of America’s leading economic and civil rights issues” (NTIA 1999, xii). IT is a critical resource because it provides access to a broad spectrum of other resources, including education, job information, and networks. Increasingly, information ranging from public notices to available jobs to health-related issues is being posted on the Internet by private corporations, government agencies, and community-based organizations. People who have neither the skills nor the equipment to access this information are at a serious disadvantage.

Changes Wrought by the New Economy

Access to information technology is particularly important given the global economic shift away from manufacturing and toward services and other information-related industries. Current imbalances must therefore be addressed. A recent Census Bureau report cited “the increased reliance in industry on the use of computer and computer-assisted technology, which places a premium on higher skills and education,” as one explanation for the accelerating income gap between the richest and poorest Americans, which is at its widest since World War II (Holmes 1996, A10). A troubling cycle has begun to take shape, in which the lack of access to information technology and its requisite skills contributes to the widening of the income gap, which in turn creates additional barriers to the acquisition of IT. Figure 1 illustrates this cycle.

FIGURE 1
The Relationship between Access to IT and Economic Inclusion



Researchers cite two trends as characteristic of our current economy: globalization and information-reliance (Mandel 1999). According to Mandel, over the last three years, high technology alone has accounted for 25 percent of economic growth and added about 0.7 percentage points to the overall growth rate of the economy (Mandel

1999, 5). Negroponete (1995) states that our economy has shifted from one of atoms to one of bits. This shift has already hurt manufacturing-dependent regions and the people who live in them. Wilson (1987 and 1996) describes the connection between the movement from a manufacturing to an information economy and persistent, concentrated poverty in inner cities. Castells (1996) goes further, claiming that powerful information technologies and new organizational forms facilitated by new technological media enabled a redefinition of the relationship between capital and labor. As modes of production changed, Castells writes:

Productivity and profitability were enhanced, yet labor lost institutional protection and became increasingly dependent on individual bargaining conditions in a constantly changing labor market (1996; 278).

The lack of continued investment in infrastructure, already noted, also creates a problematic dynamic for residents in poor areas of the local labor markets. According to Goslee (1998):

While public attention is often focused on whether individuals can get a service, the equally important problem is that lack of adequate telecommunications facilities makes an area less attractive for businesses. This can feed a spiral where the lack of investment at the community level leads to fewer economic opportunities for people who live there. As a result, the poverty in the neighborhood makes it a less inviting target for investment, further aggravating the problem.

Therefore, jobs in these communities are less likely to train residents for employment opportunities in the new economy, which increasingly require the ability to manipulate information and use computers.

Coupled with the issue of individuals' skills is the problem of the movement of jobs away from the central cities. New technologies have made it easier for corporations to move many of their operations to the suburbs, resulting in a decrease in jobs—particularly low-skilled “back-office” jobs—in the central cities. Residents of low-income areas must then travel farther in order to obtain better jobs.

Opportunities Provided by IT

Other studies focus on the positive potential of information technology. Pitroda (1993) sees information technology as a “social leveler” with the power to “raze cultural barriers, overwhelm economic inequalities, even compensate for intellectual disparities.” Similarly, Builder (1993) claims that “unlike the technology era that preceded it, the information era is diffusing power more than it is concentrating it in the hands of elites.” Further, “the diffusion of power to individuals is eroding the relative power of all kinds of hierarchies structured on the control of information” (Builder 1993). A recent report distributed by the Morino Institute also emphasizes the potential of IT to level hierarchies and blur the lines of authority: “When people have greater access to information, and a much broader, instantaneous ability to communicate, it not only breaks down the lines of control within companies, institutions and governments, it weakens and potentially obliterates the boundaries.” Another report published by the Benton Foundation argues

that “Faster, cheaper, more diverse, and more interactive communications have shown great potential to increase citizen participation in the democratic process.” However, we agree with Graham and Marvin (1996, 193): “While some see telecommunications to be ‘technologies of freedom’ (Pool 1983), we would argue that they tend to offer freedom only to already powerful groups.”

CONCLUSION

Unfortunately, many of the benefits of living in a technology-rich age accrue primarily to those who can afford to learn about and gain access to new technology. Those who cannot are left further behind. Recent efforts at the grassroots level to narrow the gap in access look promising, however, and it is to these efforts that the next chapter turns.

Chapter 2

THE COMMUNITY TECHNOLOGY MOVEMENT

THE EMERGENCE OF COMMUNITY TECHNOLOGY PROGRAMS

The imbalances in access to information technology (IT) have given rise to concern among policymakers in the public sector and activists and community organizers in the private sector. As a result, public- and private-sector groups at the local and national levels have organized in recent years to try to remedy these imbalances. Community technology programs have emerged as key efforts to provide widespread access to information technology and to advance social goals in the process. These programs are locally based nonprofit organizations that link community residents to IT resources. Many community technology programs target either a particular neighborhood or a group (e.g., women or inner-city youth) that has lagged in terms of access to IT. Community technology programs are “intended to revitalize, strengthen, and expand existing people-based community networks” (Schuler 1996, 25). These programs work to advance social goals, such as building community awareness, encouraging involvement in local decision making, and developing economic opportunities in disadvantaged communities (Schuler 1996).

Two primary membership organizations/trade associations have been initiated to represent community technology centers (CTCs) and community networks: the Association for Community Networking (AFCN) and the Community Technology Centers Network (CTCNet). AFCN is an “educational nonprofit corporation dedicated to fostering and supporting . . . community-based creation and provision of appropriate technology services” (AFCN 1999). Its mission is “to improve the visibility, viability and vitality of Community Networking by assisting and connecting people and organizations, building public awareness, identifying best practices, encouraging research, influencing policy, and developing products and services” (AFCN 1999).

The Community Technology Centers Network (CTCNet) is a “national membership organization that promotes and nurtures nonprofit, community-based efforts to provide computer access to the general public and to disadvantaged populations” (Chow et al. 1998). These affiliates include “libraries, youth organizations, multiservice agencies, stand-alone computing centers, cable access centers, housing development centers, settlement houses, and various other nonprofit organizations” (Chow et al. 1998). CTCNet currently has 343 affiliates operating in 36 states, the District of Columbia, England, Ireland, Scotland, and Spain.

Although their development differs, community networks and community technology centers play key roles in the community technology movement. According to Peter Miller (1999), the development of these two responses to the digital divide “are now taking place in tandem.” Miller explains the mutual appeal as follows:

Those committed to community networking appreciate the value of center-based access as the key approach for providing technology to people who are generally without access, skills, and opportunities to use it. . . . Likewise, those involved with

center-based technology access and programming are appreciating more and more the importance of online communications and resources (1999, 1).

Although we began the research broadly looking at both networks and centers, in the end, we focused on centers. The place-based aspect of centers and their probability of being located in low-income areas make them more likely to pursue the kinds of community development goals in which we are interested. Therefore, we targeted centers for our survey. However, when conducting fieldwork in our three case study cities, we looked at both centers and networks. Indeed, at the local level, community technology activists often participate in both centers and networks, making it difficult to draw a clear line between the two. For example, the Austin Free-Net is a network that never embraced the typical network model but rather provided access through community locations. The Seattle Community Network operates more like a traditional network; however, its members collaborate with those who work in Seattle's community technology centers. Throughout this report, we use the terms "community technology programs" and "community technology" to refer to all nonprofit organizations that have a mission that includes providing access to information technology to historically disadvantaged populations, such as low-income people, women, and minorities.

PURPOSE OF COMMUNITY TECHNOLOGY EFFORTS

Community technology programs work to foster the potential positive benefits of the information revolution and the characteristics of the new economy while combating the associated problems, discussed in chapter 1 of this report (Hecht 1998, 3). Chapman and Rhodes (1997, 2) find that "community-based computer networking, accessible through public-access terminals, is a cost-effective way to introduce information technologies to low-income neighborhoods and to engage their citizens in using them."

Many community technology programs are not merely providing access to information technology; they are employing IT as a way to achieve other ends. In many programs, such as the Austin Learning Academy (which will be described in detail in chapter 4 of this report), existing CBOs use IT to do the work they have been doing for many years. Hecht (1998) lists eight general categories of work facilitated by community technology programs: government and democracy; health and human services; educational services; community involvement; quality-of-life information; discounted access to the information highway; economic development; and training. Goslee (1998, iv) asserts that although community technology programs are "no substitute for other anti-poverty efforts, they could be used to: facilitate the kind of networking and exchange of information vital to community building; enable social service agencies to operate much more efficiently and reach a broader public; empower individuals and groups who have been excluded from public discourse; provide data that communities can use to understand and attack problems." Schuler maintains that community networks can help to build the six "core values" that form the foundation of a new kind of community: conviviality and culture; education; strong democracy; health and human services;

economic equity, opportunity, and sustainability; and information and communication (1996, xii).

CLASSIFYING COMMUNITY TECHNOLOGY EFFORTS

The terminology concerning community-based computer networks has become confusing. The Morino Institute lists the following synonyms for community networks: “civic networking, community-based computer networks, community bulletin boards, community computing, community information systems, community tele-community systems, free-nets, public access networks, and tele-computing” (Morino Institute 1994, cited in Hecht 1998, 3).

Making Sense of Networks

Beamish (1995) categorizes four major kinds of community networks (see table 3.1, below). Beamish’s typology classifies community networks according to their focus, who initiates them, and who maintains them. These networks range from neighborhood-focused to citywide networks, and are initiated by a variety of actors ranging from community-based organizations to city governments.

Table 3.1: Typology of Community Networks

	<i>Free-Net</i>	<i>Bulletin Board</i>	<i>Government Network</i>	<i>Wired</i>
<i>Focus</i>	<ul style="list-style-type: none"> • Citywide • Community development • Access 	<ul style="list-style-type: none"> • Neighborhood -wide • Community development • Access 	<ul style="list-style-type: none"> • Citywide or statewide • City information 	<ul style="list-style-type: none"> • Citywide • Physical connection • Business
<i>Initiator/Maintainer</i>	<ul style="list-style-type: none"> • Small group with institutional support 	<ul style="list-style-type: none"> • Small group with limited support 	<ul style="list-style-type: none"> • City hall or state government 	<ul style="list-style-type: none"> • Private/public partnership

Source: Beamish 1995

Making Sense of Centers

Beamish’s typology helps to make sense of networks; Schroerlucke (1997) has categorized community technology centers (CTCs) in a parallel way. Schroerlucke (1997) defines three primary types of CTCs: public access centers; constituent-centered or program-centered CTCs; and multiservice agencies. As the name suggests, public-access centers are community technology programs organized around the primary purpose of providing public access to technology. Constituent-centered or program-

centered CTCs serve a specific population or offer a program with specific content of interest to a particular group. As Schroerlucke (1997, 11) notes, “integrating technology into these programs opens the door to unlimited program content and resources while also providing technology access to their constituents.” Constituent-centered CTCs often contain a public-access component and make their technology facilities open to the wider community at specific times; yet, public access is not their main goal or mission. The final category, multiservice agencies, refers to CBOs that offer a variety of services and programs to the community. “By integrating technology into the entire organization, they offer multiple access points for the community to engage in technology learning, while at the same time providing technical capabilities for the agency itself” (Schroerlucke 1997, 11). CTCs function within the larger multiservice agency.

In order to understand better what CTCs currently “look like,” we conducted a mail survey of CTCNet’s U.S. affiliates. It is important to note that CTCNet’s membership is not a comprehensive list of the CTC population. There are many CBOs that provide technology services and programs that have not yet joined CTCNet. Some may have opted not to join while others may not be aware of CTCNet. Thus, our sample frame represents an indeterminate portion of the CTC population. However, before setting out on the survey, we asked CTCNet staff whether they thought their membership was representative of the field in general; they believe that it is.

The survey consisted of 20 questions, most of which were closed-end questions concerning staff size, target population, services, programmatic uses of technology, and funding sources. We also asked a few open-ended questions about the mission of the organization, current challenges faced, and the type of data collected to evaluate technology programs. The survey and summary of results are included in the appendices (See appendix A and appendix B).

Although CTCNet collects basic information on affiliates and has conducted some very valuable research in the field, including a study of the impact of CTCNet affiliates (to be discussed below), no one has collected descriptive data from the group of CTCs we surveyed, rendering our data set particularly important.

The survey sample consisted of 336 affiliates.¹ Of the 336 surveys mailed, eight were returned by the postal service as undeliverable. We received a total of 128 responses, 123 of which were usable. The effective response rate was, therefore, 37.5 percent, based on 123 useable surveys received out of 328 surveys mailed and not returned as undeliverable. The relatively high response rate demonstrates the strong interest among CTCs in learning more about other organizations in their field. The results of the survey are summarized below.

Type of Organization

The community technology field is diverse. Our results indicate that CTCs are certainly no exception. Respondents included public libraries, YM and YWCAs, community TV and cable access centers, free-nets, community development corporations, church organizations, resident and tenant councils, community centers and stand-alone computing centers. Rather than categorize CTCs by organization type, we

¹ CTCNet has 338 U.S. affiliates. However, we excluded two individual members.

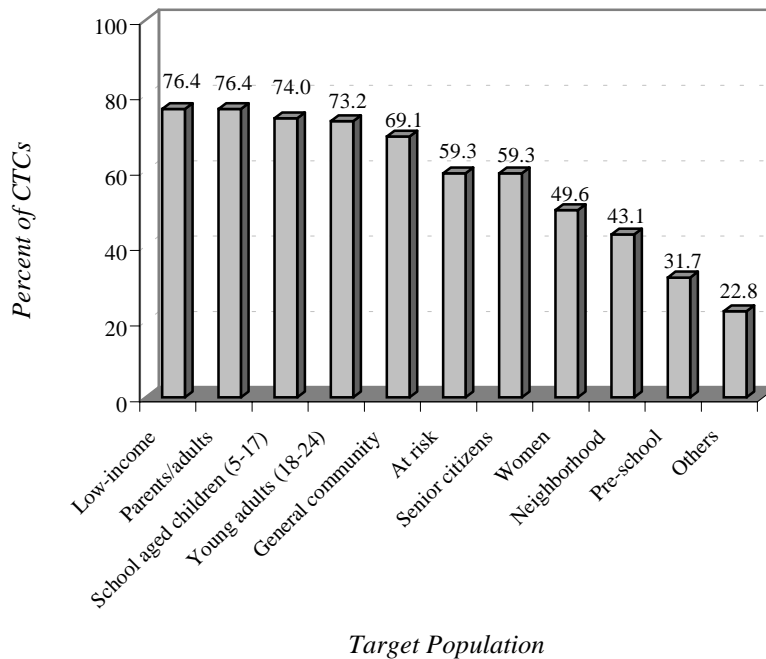
sought to describe them according to the populations they serve and the services (technology-based and others) they provide.

Target Population

More than three-quarters of respondents target low-income populations and parents/adults (Figure 2). Nearly equal percentages provide services and programs for school-age children (72.1 percent) and young adults (71.3 percent). More than half (59.3 percent) of CTCs offer programs for senior citizens and women.

Whereas 70 percent of CTCs serve the general community, 43.1 percent target geographically defined neighborhoods. Nearly a quarter (22.8 percent) of respondents serve other groups, including homeless and mentally ill populations, recent immigrants, artists, HIV-positive individuals and people with AIDS, and fathers who are seeking to get back on track in paying child support.

FIGURE 2
Target Populations Served by CTCs



Services Provided

CTCs provide a multitude of services and programs ranging from health services and counseling to transitional housing and library services. Despite the wide diversity amongst CTCs, our survey results indicated that overall there is a strong emphasis among CTCs on education and job preparedness. Over half of all respondents provide adult education and literacy (56.6 percent), general youth development (53.3 percent), and tutoring (51.6 percent). More than 40 percent of all CTCs focus on job training while

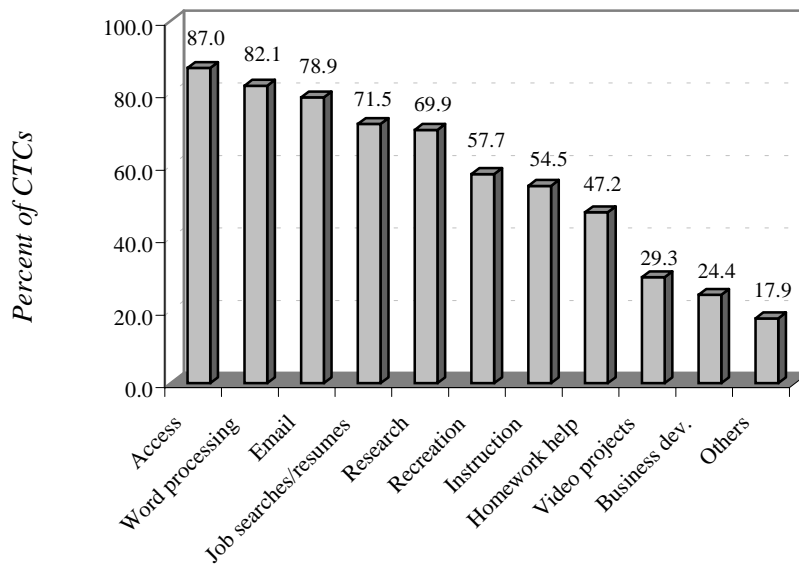
35.2 percent work on youth employment and school-to-career services. In addition to their emphasis on education and training, nearly half (46.7) of CTCs provide community development functions, 37.7 percent engage in advocacy and 41.8 percent provide other services.

Uses of Technology

In line with their emphasis on education and training, 82.1 percent of CTCs use technology to build word-processing and keyboarding skills (Figure 3). Over 70 percent use technology to conduct job searches and build resumes, more than half (54.5 percent) offer computer-based instruction, and 47.2 percent provide homework help.

The most common use of technology at CTCs, however, is to provide unstructured computer access. Eighty seven percent of CTCs offer general computer access and more than three-quarters (78.9 percent) use technology as a communication tool (i.e., offering access to e-mail). In addition, over half (57.7 percent) of CTCs indicated that technology is used in their programs for recreation and entertainment. Fewer, yet still significant, percentages of CTCs use technology for video projects (29.3 percent) and business development (24.4 percent).

FIGURE 3
Uses of Technology in CTC Programs



Uses of technology

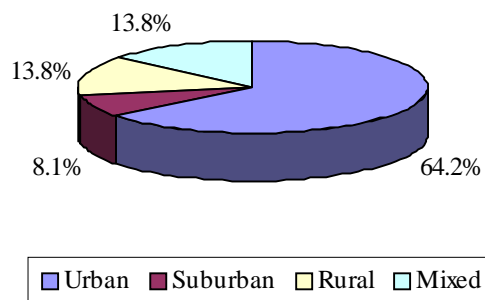
CTCs consider technology to be an integral tool in their programs and believe that technology has helped them to fulfill their organization’s goals, whether or not their programs and mission are technology-based. Less than 2 percent of respondents consider the integration of technology into their programs to be only “slightly important.” The overwhelming majority (83.7 percent) considers it to be “very important.” In addition, 60 percent of CTCs replied that technology has helped them to fulfill their mission “to a

great extent” while nearly a third (27.9 percent) replied that technology has helped them do so “considerably.”

Area Served and Location

In terms of geographic area, nearly two-thirds (64.2 percent) of CTCs are located in, and serve, urban areas (Figure 4). Trailing behind urban-based CTCs, are those which serve rural and mixed communities, each of which account for 13.9 percent of CTCs. Suburban-based CTCs had the lowest showing, representing only 8.1 percent of survey respondents.

FIGURE 4
Geographic Areas Served by CTCs



Most CTCs (57.4 percent) operate their technology programs within previously existing CBOs. Nearly a quarter (24.6 percent) are located in housing-project communities. Smaller shares of CTCs offer technology services and programs at schools (18.9 percent) and libraries (15.6 percent). Nearly two-fifths (38.5 percent) of CTCs indicated that they offer their technology services and programs at other locations, including stand-alone computing centers, mobile computer labs, public-access television centers, and a beauty salon. Many CTCs offer their services and programs at multiple locations.

Staff Size

CTCs vary dramatically in the size of paid staff (full-time and part-time).² Some CTCs rely entirely on volunteers while others are a part of large, well-staffed agencies. For instance, one multiservice CTC reported 560 employees. Our results indicate, however, that most CTCs have far fewer paid staff members. Overall, nearly three-quarters of CTCs have 25 or fewer paid staff persons. More than a quarter (28.6 percent) employ five or fewer staff members. Nearly all CTCs rely, to some extent, on volunteers.

Funding

² Staff size pertains to the entire organization, not only the technology component.

Our results indicate that CTCs rely on a patchwork of funding from local, state, and federal government; private foundations; corporate donors; individual contributions; church organizations; membership fees; and cable franchise fees. Private foundations are a particularly important funding source for CTCs. Over 70 percent of CTCs reported receiving some foundation support. Other sources, including individual contributions and membership fees, were the second most frequently named funding stream followed by local government, state government, private corporations and federal government.

Nearly a quarter (24.5 percent) of respondents receive the largest share of funding from private foundations. Slightly fewer respondents (22.5 percent) indicated that local government provides the largest share of their funding. A substantial share of CTCs (18.6 percent) relies on a funding source other than a government agency, foundation, or corporation as their primary source of support.³

Challenges

Overall, respondents reported an array of challenges. Although this question was asked in an open-ended format, we coded the responses so that they could be analyzed statistically. Nearly two-thirds of respondents explicitly mentioned obtaining adequate funding as a major challenge. Although private foundations are a major source of support for CTCs, grant-writing is a time consuming process. According to one respondent, “like many non-profits, we are constantly watching our budget. . . Grant-writing takes up much of the time we would like to spend actually doing the work these grants fund.” Another CTC noted, “it is very difficult to obtain additional funding for programs without taking away from our mission. We try to put our mission first and fundraising as a subsequent priority.”

More than a third (36.0 percent) of CTCs named inadequate staffing levels as a major challenge. This should come as no surprise given that CTCs tend to be small organizations with 25 or fewer employees. In addition to staffing levels, 7.9 percent of CTCs noted the need for staff development and 11.4 percent mentioned difficulties in meeting demand for their services and managing growth.

Over a fifth (21.9 percent) of respondents listed keeping up with changes in technology as a major challenge facing their organization. Just over 12 percent of CTCs noted difficulties in supporting technical assistance. In the words of one survey respondent, “the greatest challenges are finding people who can fix both software and hardware when it breaks. . . With a variety of both experienced and inexperienced users coming through our computer labs, settings get changed, people intentionally and unintentionally remove and add items to the desktop and generally clutter up the computer files and screens.” Other challenges facing CTCs include the need to: develop more relevant, technology based programming; increase outreach efforts; maintain a focus on the organization’s mission; develop sound evaluation processes; and convince the ‘powers that be’ of the value of CTCs.

³ Caution should be exercised when analyzing the funding data. Cable franchise fees are a main source of support for CTC initiatives. Respondents listed franchise fees in the “local government”, “other” and “private corporations” categories.

Measuring Success

Eighty-four percent of CTCs reported collecting data to evaluate their programs and services. They use a multitude of evaluation measures including program attendance records; records of the number of lab users; employment histories of students; student progress reports; school report cards; scores on externally administered tests; and surveys of program participants.

In addition to the measures noted, CTCs rely heavily on anecdotal data. As an indication of success, one CTC reported “we have teens coming back over and over to use our facility. They have told us how much they like being here and being able to take advantage of some of the opportunities we have to offer”. Despite the high proportion of CTCs that collect data to evaluate their programs many noted that inadequate staff resources make data collection a challenge.

Summary

Despite the diversity of organizations that fall under the CTC umbrella, our survey results indicate that there are some distinctive trends shared by CTCs. CTCs overwhelmingly serve low-income, parents, adults, young adults and school aged children in urban areas. Amongst CTCs, there is a strong emphasis on education and job preparedness. This emphasis is reflected in the technology programs and services CTCs offer. The most common use of technology at CTCs, however, is to provide computer access.

CTCs tend to be small organizations with 25 or fewer employees. Many have fewer than 5 full- and part-time staff members. Nearly all CTCs rely to some extent on volunteers. CTCs depend on funding from a number of sources. Private foundations were the most frequently stated funding sources and account for the largest portion of funding in one out of every four CTCs. Securing funding was the challenge most commonly cited by CTCs. Other obstacles include inadequate staffing levels and keeping up with technological change.

WHAT WE KNOW ABOUT IMPACTS

CTCNet has conducted some of the only empirical research on its affiliates and the populations they serve. A 1997 study of the impact of CTCNet affiliates identified impacts on users in the following eight areas: “increased job skills and access to employment opportunities, education and improved outlook on learning, technological literacy as a means to achieve individual goals, new skills and knowledge, personal efficacy and affective outcomes, changes in the use of time and resources, increased civic participation, and changes in social and community connections.” (Chow et al. 1998)

Building on this earlier, qualitative research, CTCNet conducted a survey of 817 users of the services of 44 community-based technology center affiliates (Chow et al. 1998). Major findings, excerpted directly from the 1998 report of this study, appear below:

- Community technology centers (CTCs) are an important resource for women and girls, people of all ages, and members of racial or ethnic communities.

- CTCs offer a range of opportunities to use computers and other technologies in classes as well as in self-directed activities.
- CTCs are a valuable resource for obtaining job skills and learning about employment opportunities.
- CTCs had a positive effect on participants' educational goals and experiences.
- CTCs fostered a sense of community and personal effectiveness.
- Participants' overall feelings about their CTCs were overwhelmingly supportive.

Although the relatively recent emergence of community technology efforts makes it difficult to evaluate their work, we do know that people are relying on community technology. The 1999 NTIA study documents who is using community centers and for what purposes. Community access centers (the term used by NTIA) tend to serve those who do not have access to IT at home or at work. According to this report, "households with incomes of less than \$20,000 and Black households . . . are twice as likely to get Internet access through a public library or community center than are households earning more than \$20,000 or White households" (NTIA 1999, 78). This report also shows that "the same households that are using community access centers at higher rates are also using the Internet more often than other groups to find jobs or for educational purposes" (NTIA 1999, 78).

CONCLUSION

The community technology movement is still at the steep part of the learning curve. Local responses to the problem of the digital divide have been multiple and wide-ranging. National organizations, such as AFCN and CTCNet, help greatly to share lessons learned in the field and to conduct and disseminate research. Many questions remain about how, specifically, these local organizations work and what policy can do to support their efforts. The next chapters begin to ask, and to answer, these questions.

Chapter 3

PUBLIC SUPPORT FOR BRIDGING THE GAP

THE EFFECTS OF DEREGULATION

Congress passed the Telecommunications Act of 1996 (the Act), the first major overhaul of telecommunications law in almost 62 years, to remove the legal and economic barriers to competition in the industry. Proponents of the legislation asserted that increased competition would drive down rates, increase consumer choice, and facilitate the development of advanced communication networks throughout the country. Although telecommunications reform was motivated by business interests rather than by the needs of the poor (Sanyal and Schon 1999), deregulation was supposed to make a wider array of services affordable to major segments of the population that had previously been denied access to telecommunication networks.

Contrary to the stated goals, deregulation has resulted in the rapid consolidation of the industry. This consolidation has dampened the competition that was expected to emerge and, as a result, many customers have experienced price increases in basic phone, cable, and Internet services. In the absence of competition and government regulation, telecommunication companies have little incentive to provide new, high-speed services to rural areas, inner cities, and other high-cost or low-revenue places (Wilhelm 1999b). According to Jenn Brandon, executive director of the Community Technology Institute, “it just seems that there is less concern for local communities the bigger these companies get” (Brandon as quoted in Breckheimer and Taglang 1999, 2).

An unfettered market environment cannot be relied upon to equitably allocate information technology services to all individuals and households. Government intervention is necessary to bridge the gap between the “haves” and the “have nots.” Without such safeguards, the digital divide described in chapter 1 is sure to widen. Community technology activists have made the following policy recommendations:

- Access to technology must expand beyond telephone service to include other kinds of technology.
- Access must include more than just hardware and connectivity costs.
- Policies that aim to make telecommunication services accessible to low-income individuals and households should not be viewed as handouts for the poor but as components of a responsible economic and social policy in the information age.

We expand on these recommendations and make some of our own in chapter 8. The next section examines policies and programs designed to ensure that all individuals have access to basic information networks.

THE TELECOMMUNICATIONS ACT OF 1996 AND FEDERAL UNIVERSAL SERVICE PROGRAMS

Universal service policies can help extend the potential benefits of telecommunications technologies to low-income and underserved communities (Mitchell 1999). In the past, commitment to universal service meant providing affordable person-to-person telephone service to rural and low-income consumers through a web of subsidies. Given that telephone service still is not universal, such subsidies remain necessary. However, today, telecommunications technology reaches beyond the telephone to include a wide array of voice, data, and video services provided by phone companies, cable operators, and Internet providers. In light of these changes, it has been necessary to redefine “universal service” to ensure that the nation’s commitment to access for all keeps pace with the rapid changes in technology.

As stated above, universal service policies that aim to make telecommunication services affordable for low-income individuals and households are not handouts for the poor but components of a responsible economic and social policy in the information age. Such policies connect citizens to education, health and safety services, employment opportunities, businesses, and government, and allow them to engage more fully in all aspects of political, social, and economic life. Moreover, by increasing subscribership to telecommunication services, universal service policies protect all ratepayers from paying for underused investments in telecommunication networks, reduce the financial burden of subscribership, and increase the value of the networks (Benton Foundation 1997).

For the first time in federal legislation, the Act sets forth principles and mechanisms designed to guarantee that a certain set of telecommunication services is available to all at affordable rates (Benton Foundation 1996). The universal service rules mandated by the Act seek to lower basic telephone rates in rural markets, where it is more expensive to provide service; reduce rates for low-income consumers who have difficulty maintaining their telecommunication services; provide rate parity for high-bandwidth urban and rural telemedicine connections; and provide schools and libraries with discounts for basic and advanced communication networks such as the Internet (Benton Foundation 1997). An examination of three federal universal service programs—Lifeline Assistance, LinkUp America, and the E-rate—follows.

Lifeline Assistance and LinkUp America

The Act has preserved and strengthened two programs that serve low-income consumers who have difficulty securing basic telecommunication service—the Lifeline Assistance Program and the LinkUp America Program. Instituted by the Federal Communications Commission (FCC) in the mid-1980s, Lifeline provides reductions in monthly telephone service charges for low-income consumers who have difficulty getting and maintaining basic telecommunication services. As of 1997, 44 states participated in the program. LinkUp provides federal support to reduce initial connection charges by up to one half for qualified low-income consumers. The FCC has expanded both programs to make them available in every state, territory, and commonwealth, and it has increased the federal contribution to Lifeline support. The FCC also has adopted changes that require all providers of interstate telecommunication services to contribute to universal funding mechanisms. Other new FCC rules allow all eligible telecommunications carriers to

receive support for offering Lifeline and LinkUp services, thereby expanding the base of companies that contribute to and provide offset communication service rates (Benton Foundation 1997).

Lifeline and Link Up are examples of universal service initiatives that benefit program participants and thereby increase the overall welfare of society. Low-income households that would otherwise “fall off” telephone networks, or be unable to join them, benefit by having access to essential services like emergency health care, and fire and police stations. From an economic perspective, affordable rates for low-income households generate more income than do unused lines. By helping households stay connected to telephone networks, universal service initiatives can make a contribution to fixed costs and lessen the burden on other ratepayers (Cooper 1996).

E-rate

The newest and perhaps most widely recognized universal funding mechanism is the E-rate program. The E-rate initiative attempts to address the inequalities that result from uneven access to computers and the Internet at public education institutions. While these institutions started to receive small levels of funding from the federal and state governments in the early 1990s, the Act, through the E-rate program, has substantially expanded that commitment by requiring discounts for universal service and the provision of advanced services. The E-rate program provides discounts of 20 to 90 percent on telecommunications services, Internet access, and internal connections for schools and libraries that serve poor and rural communities. The discount provided depends on the income level of the community.

The program is funded by fees collected from long-distance telecommunications providers who received relief from network access fees when the E-rate was created. It is administered by the Schools and Libraries Division of the Universal Service Administrative Company (USAC). Between November 1998 and February 1999, program commitments totaled \$1.66 billion: 67 percent of the funds were allocated to urban schools and 11 percent to rural schools. Just over half of the funds (54 percent) will help applicants pay for internal wiring of schools and libraries so that they can link local networks to the Internet. Another 40 percent will reduce the costs of telecommunication services (Benton Foundation 1999a). Earlier this year, the FCC voted to support the second year of funding for the program at \$2.25 billion.

Although a formal evaluation of the E-rate program has not yet been conducted, several preliminary studies suggest that the program has provided an incentive for states to promote and make investments in telecommunications technologies for schools and libraries. According to a study by the National Center for Education Statistics, Internet access nearly doubled from 27 percent of classrooms wired in 1997 to more than half (51 percent) wired in the first year of E-rate funding (Benton Foundation 1999b).

Certainly, the E-rate initiative has helped reduce the costs of telecommunications services for the neediest educational institutions, and it is likely to continue to do so in the coming year. However, the E-rate does not go far enough in addressing universal service needs. Some public interest advocates feel that by zeroing in on one aspect of the digital divide, mainly K–12 schools, the E-rate program diverts attention from the principle of universal service and divides the universal constituencies into “haves”

(schools with a high percentage of children eligible for the school lunch program, libraries, and rural health centers) and “have nots” (every other public interest group from nonprofits to community colleges and community technology centers) (Grunwald 1999b, 15). Other public interest advocates contend that the E-rate acts as a powerful disincentive for collaboration among community based organizations and institutions. The Act insists that all recipients of E-rate funds be libraries, schools, or rural health facilities; other groups cannot touch the funds. This restriction creates burdensome administrative chores for the libraries, schools, or rural health care facilities that may try to build community alliances (Schuler and McClelland 1999).

The FCC establishes what should be covered by universal service policies, yet state regulatory agencies and public utilities are free to broaden definitions outlined in the Act and to recognize community networks and centers as eligible for telecommunications discounts. Community technology activists are frustrated that most community computing efforts are not part of the FCC mandate and that each state must fight to authorize the E-rate for these groups. Thus far, California and Louisiana have authorized discounts for community groups (see section titled State Public Utility Commissions). In North Carolina, NCExChange, a program dedicated to promoting and supporting the effective use of electronic networking technologies by nonprofit organizations and low income communities throughout the state, has been working with the NC Nonprofit Users Group to redefine universal service.

FEDERAL COMMUNITY TECHNOLOGY INITIATIVES

Community Technology Center Program

The Community Technology Center (CTC) program is a federal initiative that acknowledges the role of community-based organizations and nonprofits in delivering access to basic and advanced telecommunication services. The aim of this grant program is to promote the development of CTCs that will provide access to information technology and related learning services to children and adults. Grants are targeted to public and private nonprofit or for-profit agencies and organizations, as well as state and local education agencies and institutions of higher education.

Congress set aside \$10 million in fiscal year 1999 to support CTCs as part of the budget for the Adult and Vocational Education Office of the U.S. Department of

Education. The Department is currently completing its review of applications for the FY 1999 competition. Award announcements are scheduled for the end of September 1999.

The Clinton administration has proposed a \$65 million budget for CTCs in fiscal year 2000. While the request is certainly encouraging, tight caps on discretionary spending will likely create a situation in which community technology advocates must fight to maintain existing funding levels. In the opinion of many citizens and political leaders, access to information and telecommunication technologies is not yet an economic, political, or social necessity. For this reason, proposals to use public funds to establish community access centers often encounter resistance (Goslee 1998).

Telecommunications and Information Infrastructure Assistance Program (TIIAP)

In 1994, the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA) initiated the Telecommunications and Information Infrastructure Assistance Program (TIIAP). As described by the NTIA, TIIAP is a program that

provides matching grants to nonprofit organizations such as schools, libraries, hospitals, public safety entities, and state and local governments. Grants are used to fund projects that improve the quality of, and the public's access to education, health care, public safety, and other community-based services. The grants are used to purchase equipment for connections to networks, including computers, video conferencing systems, network routers, and telephones; to buy software for organizing databases; to train staff, users, and others in the use of equipment and software; to purchase communications services, such as Internet access; to evaluate the projects; and to disseminate the project's findings.

Since its inception, TIIAP has awarded 378 grants in 50 states, the District of Columbia, and the U.S. Virgin Islands. Approximately \$118 million in federal grant funds has been matched by more than \$180 from local, state, and private-sector sources.

Despite the tremendous interest the TIIAP program has generated—more than 5,300 applications requesting \$2.1 billion—funding for TIIAP demonstration programs has actually decreased. The TIIAP program began in fiscal year 1994 with \$26 million in funding for competitive grant awards. For fiscal year 1999, \$17 million is available. Attempts by the Clinton administration to increase overall funding for the program have been met by congressional opposition.

HUD Neighborhood Networks

Neighborhood Networks is an unfunded initiative of the U.S. Department of Housing and Urban Development (HUD) that encourages the development of computer learning centers in HUD-insured and -assisted housing. The initiative began in September 1995, and there are now 500 learning centers in operation and 780 in the planning stage

(Famuliner 1999). Neighborhood Network centers offer a range of technical and nontechnical services including computer training, Internet access, job readiness support, microenterprise development, GED certification, health care, and social services. Services available through the centers help residents become more self-sufficient, employable, and economically self-reliant.

Although HUD encourages the creation of Neighborhood Networks centers it does not have sufficient funds to capitalize them. HUD resources are only intended to serve as “gap fillers.” Owners of HUD-insured and -assisted properties must seek support from state and local government, educational institutions, private foundations, and corporations. Owners may borrow funds from financial institutions for hardware, software, and start-up costs provided that the loan is not secured against the property, does not lead to unapproved rent increases, and does not interfere with the services that the property has agreed to provide.

Local HUD resident initiative specialists and asset managers assist owners and residents in developing their Neighborhood Network plans and help them to identify local resources and potential partners. HUD may allow owners to use certain portions of their HUD assistance (for example, budgeted rent increases and special rent adjustments) to cover the costs of establishing a center.

STATE PUBLIC UTILITY COMMISSIONS

Although the Telecommunications Act of 1996 limits local and state regulation in favor of a competitive market environment, devolution creates new opportunities for organization at the state and local levels (Kim and Muth 1999). In accordance with the Act, each state’s public utility commission (PUC) is responsible for designing its state’s technology plan. Community involvement in the development of these plans is necessary to protect the public interest. This section examines how public interest advocates in a number of states have advanced their universal service goals through regulatory processes approved by the state PUCs.

PUCs and the Public Interest

State PUCs in California and Louisiana have authorized E-rate discounts for community groups. In California, community-based organizations (CBOs) that provide health care, job training, job placement, or educational instruction are eligible for universal service discounts. Funding for these discounts comes from the California Teleconnect Fund surcharge of 0.41 percent on telephone bills. While efforts by the California Utilities Commission are important in expanding universal access to include CBOs, as Schofield (1998) notes, many community technology advocates believe that the strictly discount-focused approach is not enough to meet their universal service goals. Provisions should be made for capacity building, the training of CBO staff, and administrative costs. In addition to telecommunications discounts, the Louisiana model provides support for a centralized HelpDesk to be used by CBOs and funding for a development officer to raise additional funds from other sources. In Louisiana, state

funds, rather than surcharges, are used to provide universal service discounts to eligible CBOs.

The New York State Diffusion Fund is another example of a statewide funding pool made available through a state PUC. The \$50 million fund, established as part of the performance-based incentive regulatory plan for NYNEX, is administered by the Public Utility Law Project (PULP) through a five-year diffusion program. The purpose of the program is to bring advanced technology to economically disadvantaged areas of New York. Approximately 80 percent of the program funds have been earmarked for the NYNEX-installed network infrastructure necessary to support advanced telecommunication applications. The remaining 20 percent has been set aside for grantee equipment and project-related training. The program does not provide participants with assistance for monthly telecommunications services. Project participants have included educational, local government, and health care institutions; libraries; CBOs; and small businesses.

In Ohio, a coalition of community groups and consumer advocates formed in response to Ameritech Ohio's application to the Public Utilities Commission of Ohio (PUCO) to change the way in which the company was regulated by the state. The coalition pressed Ameritech for community computer centers; an educational technology fund; general rate reductions for all residential customers; and the establishment of a Universal Service Assistance (USA) program, which would allow low-income residents to get reduced-rate phone service without having to pay a deposit and connection charge (Jacobs 1998). All of these were included in the final agreement. The precedent-setting Ameritech case marked a major victory for public interest advocates. It also marked the first time that community technology centers were included in the settlement of a case by a state PUC.

Telecommunication Mergers

Local telecommunication mergers provide unique opportunities for local groups to press state PUCs to place conditions on mergers in order to improve community access to technology. State PUCs in Ohio and California have opened up the merger review processes to include a discussion of strategies for securing funds for community telecommunications services (Wilhelm 1999b). On the local level, the City of Seattle has been able to extract 500 cable drops from AT&T in exchange for approval of its recent takeover of TCI (see chapter 6).

The intended merger between SBC Communications and Ameritech will likely be another precedent-setting case for government and community technology advocates. The

consolidation would create the largest local telephone company in the United States, with a local calling area covering 13 states. On June 30, 1999, SBC and Ameritech submitted to the FCC a list of conditions to the merger, based on negotiations with FCC staff, that seek to address public interest concerns. Public interest advocates argue that the provisions do not go far enough in bridging the digital divide, but are meant merely to get the companies and the regulators through the merger process. For instance, although SBC has agreed to fund community technology centers and other projects aimed at helping low-income communities gain access to telecommunication technologies in prior settlements in California and Ohio, the FCC has not expanded those efforts throughout the SBC/Ameritech territory (Breckheimer and Taglang 1999).

The US Department of Justice has already approved the acquisition of Ameritech by SBC as have state regulators in Ohio and Illinois. In Ohio, parties involved with the merger case before the PUCO agreed to several important consumer protections including \$3.25 million to fund CTCs and other telecommunications projects in low-income communities and a commitment not to redline city neighborhoods when advanced and broadband services are introduced (Edgemont Neighborhood Coalition 1999). Although approval of the merger by the FCC is still pending, many feel that FCC approval will not be difficult to obtain. Final action by the FCC is expected in October of 1999.

When preparing their case for regulators to place conditions on prospective local mergers, community groups should consider the importance of funding for the following: capacity building and infrastructure development in underserved neighborhoods; new computer centers; assessments of community technology needs; and outreach and awareness of CTC programs (Wilhelm 1999b). Ellis Jacobs, who represented the Edgemont Neighborhood Coalition in the Ameritech Ohio case, suggests that public interest advocates and community-based organizations seeking to address the digital divide through regulatory bodies must keep in mind the following four steps (Wilhelm

1999b). First, it is necessary that public interest groups prove that the merger is not in the public interest because of the digital divide. Second, they must allocate resources wisely so that they can stay on top of the case. Third, they must educate regulators on the digital divide and be prepared to keep at it. A positive outcome may not be reached the first time around. Finally, it helps the credibility of the parties involved if they build alliances with community organizations, consumer advocacy groups, and civil rights organizations.

LOCAL GOVERNMENT AND FRANCHISE AGREEMENTS

Local government has the opportunity to promote the public interest and advance universal service goals in the negotiation of franchise agreements with telecommunications carriers. Franchise agreements are the arrangements by which telecommunications firms may provide services to a local area. Franchise agreements have historically had terms of 10 to 15 years. Long-term agreements were necessary for companies to recoup their investments. More recently, franchise agreements have been negotiated for shorter terms, generally around five years (Network Democracy 1999b). Telecommunications providers may seek a renewal agreement once original agreements expire.

Local authorities may place conditions on telecommunications carriers in the granting and renewing of franchise agreements. In Pittsburgh, for example, community technology activists have requested that the City require TCI to build an Institutional Network (I-Net) as a condition of renewing TCI's franchise agreement (see chapter 5). Franchise authorities may also exact fees from telecommunications providers. While some regard franchise fees as a tax, others view them as just compensation for the use of public property. As Schuler and McClelland (1999, 21) explain:

- The streets of your town are public property, managed by your local government. The poles on the side of the road and the conduits below the ground are also managed by your local government. These "rights-of way" and "pole attachments" are leased to cable TV and other telecommunications companies.

The City of Seattle has used a portion of revenues from cable franchise fees to support and implement community technology projects and employ a community technology planner (see chapter 6).

STATE INFRASTRUCTURE INVESTMENTS

Many states have used state, and sometimes federal (TIIAP), funding to add physical infrastructure to the nation's telecommunications infrastructure in the name of promoting access and connectivity. In 1996, Missouri's General Assembly appropriated \$6 million for Missouri Express, a three-year capital-improvement project to create community information networks (CINs) across the state. Part of the funding was allocated to increase backbone and bandwidth capabilities for diagnostic equipment. The rest of the funding has gone to help create and maintain CINs. Missouri Express is not a grant-funding mechanism. None of the funds were provided to the communities operating the CINs. Instead, the Missouri Express project: provides CINs with equipment and

general technical support; operates a reference desk; and covers connection costs to modem pools, local phone line charges, system administration fees and maintenance contract costs.

The state of Iowa has underwritten the construction of the Iowa Communications Network (ICN), a fiber-optic network that extends more than 3,400 miles across the state. The ICN, a \$350 million project nearing completion, provides the telecommunications infrastructure to make educational, medical, and government services more accessible to all Iowans. State ownership of the network has been a source of controversy, prompting some lawmakers to call for the sale of the network or the development of a public-private management partnership. Private telecommunication companies complain that the state-subsidized network unfairly competes for business (Roos 1998). Although investments in infrastructure provide a way to increase access and connectivity, some question the appropriateness of using state and federal funds to contribute to the privately owned telecommunications system (Pigg 1999).

Texas's Telecommunications Infrastructure Fund (TIF) is one of the most significant state-level telecommunications initiatives. Following federal policy, the TIF focuses on connecting schools, libraries, and not-for-profit health-care institutions. As of February 1999, the TIF Board has funded 2,732 projects amounting to \$202.67 million. The majority of TIF grants have been awarded to public school districts.

REDEFINING ACCESS

Access to telecommunication networks and the information transmitted or exchanged through them is not sufficient to narrow the digital divide. If the objective of public policy is to bridge the gap between "haves" and "have nots," then policy must address the barriers to access more comprehensively. In addition to the high cost of access and the information redlining of rural and low-income communities, the National Community Builders identify four barriers to access in their guide to telecommunication technology: cultural or linguistic inappropriateness of information technology; poor location of access points; lack of adequate training and follow-up support; and uses inconsistent with the needs of the community (NCBN 1997, 8). Rather than focusing primarily on investments in infrastructure/hardware, state and local governments should invest in the development of technology-based programs and information content, building awareness of the importance of technology; and training. Policymakers must understand the role of information in the community and the way in which it is accessed. Further, communities differ in the ways in which they use and access information, and these differences must be recognized and built into policy. We make more specific policy recommendations in chapter 8.

Chapter 4

CASE STUDY: AUSTIN, TEXAS

THE AUSTIN CONTEXT

Austin, Texas, is one of the nation's leading high-tech cities and was recently dubbed the second most wired city in the country, behind San Francisco. Those working in the community technology field in Austin debate the extent to which the high-tech atmosphere has fostered the creation and growth of organizations focused on providing widespread access to IT. However, both inside and outside the city, Austin is recognized as a leader in this area because of its cutting-edge and multiple approaches to the access issue.

The majority of Austin's community technology activists believe that Austin's position as a leader in this area has more to do with progressive government and the activism of its citizenry than with the fact that Austin is a high-tech city. The city government adopted an entrepreneurial approach to IT very early on. According to Lodis Rhodes, a professor at the University of Texas, "in dealing with issues of poverty and racism and a whole lot of other things, if you can't figure out a way to make it work in Austin, it won't work. People think it's bad, but relatively speaking it's not even close" (Rhodes 1999).

At the same time, concern about providing universal access is not simply altruistic. One reason the city and the state have prioritized access is that information industries form Texas's leading economic sector. Government has a vested interest in maintaining an environment that is conducive to the growth of this sector. Therefore, Austin needs a highly trained workforce that is capable of supporting its information industries. In fact, much of the support for widespread access to IT has been in the form of workforce development. When Austin competed three years ago with Portland, Oregon, to lure Samsung, a key issue was whether or not Austin had an adequately skilled workforce to staff the company—Austin won. Although this was considered a victory for Austin, existing high-tech companies expressed concern. David Doolittle, vice president of Motorola, said, "It was one more semiconductor company in town competing for the exact same people that everybody else is competing for" (Doolittle 1998).

HISTORY OF PUBLIC SUPPORT

State Initiatives

The Telecommunications Infrastructure Fund (TIF) is the most significant of Texas's information technology initiatives. The TIF was established as part of House Bill 2128, the 1995 legislation that reformed telecommunications regulation in Texas. The main objective of the legislation was to reduce the regulatory burden on local telephone companies—mainly Southwestern Bell, which serves over 75 percent of the state—and establish ground rules for the entry of new competitors into local telephone markets. At the same time, the legislation emphasized "protecting and maintaining the wide availability of high-quality, interoperable, standards-based telecommunications services

at affordable rates.” To further that objective, telecommunications carriers in the state were required to pay into the TIF at the rate of \$150 million per year for each of the ten years following the bill’s enactment. The TIF, whose administrative apparatus was established in late 1995, awards grants and loans, with priority given to projects and proposals that

- represent collaborative efforts of multiple schools, universities, or libraries;
- contribute matching funds from other sources;
- show promise of becoming self-sustaining;
- help users of information learn new ways to acquire and use information through telecommunications;
- extend specific educational information and knowledge services to groups not previously served, especially those in rural and remote areas;
- result in more efficient or effective learning than the learning gained through conventional teaching;
- improve the effectiveness and efficiency of health-care delivery; or
- take advantage of distance-learning opportunities in rural and urban school districts with disproportionate numbers of at-risk youths or high dropout rates.

Much like initiatives at the federal level, the focus of the TIF is to connect schools, libraries, hospitals, and other institutions. Some community technology activists in Austin expressed their dismay that the TIF does not fund community technology efforts, such as AFN and Austin Learning Academy (ALA). TIF officials are currently developing a request for proposals (RFP) that would allow such organizations to compete for funds; however, those who have been working on these issues for a long time noted that the TIF should have consulted them regarding the structure of the RFP.

Gene Crick (1999) of MAIN prefers to see the proverbial glass as half full:

TIF doesn’t build the whole community. But the other side of that is that you have to start somewhere, and the legislators in 1995 who approved the fund, it was easier to sell and quite defensible to start with kids and start with education and start with libraries. To me, it could be argued as a question of priorities. Let’s devote it to these, and make sure that those don’t get overlooked, and then perhaps we can grow from there.

Local Telecommunications Policy

Austin's local telecommunications policy has been driven by three goals:

1. Developing a broadband communications capability for businesses, residences, and institutions
2. Deploying broadband technologies within city government to improve efficiency
3. Promoting access to information technologies to the low-income population

The first goal is being pursued through a proposed franchise agreement with Central and South West Communications (CSWC or CSW Communications). The process began in 1994, when city officials began to consider ways to ensure widespread availability of broadband technologies to all residents of Austin. The city released a request for information (RFI) that asked interested vendors to submit general plans for how they might build a broadband network to every home, business, and institution in Austin. Approaches considered by the City included the following: a partial contribution to the network by the City through a city bond issue; a privately funded plan; and a privately funded plan that would include a contract between a provider of energy management services and the city-owned electric utility. The RFI was re-designated the Request for Strategic Partnership (RFSP). After the RFI elicited favorable responses, the City Council authorized further discussions with interested vendors, and the City released a Request for Strategic Partnership (RFSP). Eventually, the City settled on CSWC, since it was the only respondent that did not ask the City for a financial contribution to its plan. Moreover, since the Texas Legislature has made it illegal in (House Bill 2128) for any municipality to own or operate a communications utility, the City felt it was necessary to avoid any financial contribution that might be construed as giving the City operating authority over the network. Thus, the City settled on the traditional franchise approach in pursuing a broadband network: a private company (in this case CSWC) pays a 5 percent franchise fee as compensation for use of the public's right-of-way.

The second goal is being met through development of the Greater Austin Area Telecommunications Network (GAATN), an alliance of seven public entities in Austin that is building a broadband network for so-called "bureaucrat to bureaucrat" communication. The entities are the city of Austin, Travis County, Austin Community College, the Lower Colorado River Authority, the State of Texas, Austin Independent School District, and the University of Texas. The fiber-optic network is under construction by Southwestern Bell and will link all participating public institutions by the time it is completed.

The third goal is most relevant to this paper, but it is also connected to the other goals, especially the first. As city staff began to develop plans for providing broadband to the home, it occurred to them that making public information available electronically did not translate into equal access for all citizens. Those able to afford home computers and with the skills needed to use network services would be at a distinct advantage when compared with those without such equipment or skills. Recognition of these potential inequities led to the establishment of the Austin Free-Net, described in the next section.

AUSTIN'S COMMUNITY TECHNOLOGY PROGRAMS

The Austin Free-Net

The Austin Free-Net (AFN) is the focal point for community computing activities. AFN was initiated in 1995, after a group of city executives focusing on technology applications issued a report, in January of that year, recommending that the City look at the Internet from three different foci: 1) to have a Web site and provide interactive services; 2) to provide all city staff with access to the Internet in order to improve services; 3) to provide universal public access. The City created the Austin City Connection Web site in February 1995. Next, the city manager reassigned Sue Beckwith, who served on that initial panel, to create AFN to address the third focus. Beckwith served as AFN's first director. Beckwith (1999) says that this move was "really unusual. . . I would like to think that the city actually cared about the base premise that it's really important for everybody to have access. So the original rationale was probably part that, part political."

AFN's mission is to "provide Internet-connected computers and training in public spaces for the greater benefit of all residents. In looking at barriers to access to information, the AFN discovered that the main barriers in Austin are not related to cost per month for connectivity, but rather to equipment cost and training" (AFN 1999). With this orientation, AFN represents a departure from the traditional free-net approach, which had been advocated by the National Public Telecomputing Network (NPTN). NPTN was a nonprofit organization, founded in Cleveland, that assisted communities in organizing their own free-nets.⁴ It generally fostered dial-up connectivity for community users and began by using very basic software for e-mail access in order to encourage community interaction. In contrast, the AFN's orientation has been 1) to provide public access sites for Internet and World Wide Web access; and 2) to increase emphasis on training.

Compared with other free-nets, AFN pays little attention to the content of the server. Therefore, AFN fits better with the community technology center model than with the traditional free-net model, illustrating once again that the original categories derived to label and make sense of community technology organizations have begun to bleed into each other.

The Austin free-net's focus on training sets it somewhat apart from many other free-nets. This focus emanates from a philosophy that information technology, while daunting to many people initially, can easily become less intimidating—for young people and older people—as long as training takes place in a comfortable user environment. Thus the AFN's activities occur in community centers, job training sites, churches, and schools. One hoped-for outcome of conducting training in public spaces is that it will bring people together. Ana Sisnett (1999), the second and current director of AFN, explains:

We're able to teach our classes in public spaces without charging, able to provide a number of services without charging, and I think it's important to keep it that way. And the advantage is that by coming out to these public spaces, people are able to meet each other and find out other things that are going on in their community. So,

⁴ NPTN is now defunct and has been basically replaced by CTCNet.

you know, it is a part of community-building, and I think we made that spin an essential part of what Austin free-net does. You know, not so much the technology. But really doing community services, and really building.

Sisnett joined AFN in 1997 to help establish the East Austin Community Network (EACN), which targets IT needs in the low-income area of East Austin. Denise Guckert was the co-coordinator. EACN was established with a TIIAP grant. TIIAP is over, but the project continues. EACN currently operates nine locations and offers classes in the Internet and Web page creation in both English and Spanish. Community members also come to the main lab to write resumes, surf the Internet, and do word processing.

A final element of AFN's activities involves the great demand for its services. The summer computer camps for low-income children in East Austin serve about 80 kids, but could easily serve three times that number, according to Sue Beckwith. Similarly, an East Austin Internet fair, called "Nothin' but Free-Net" held in November 1996 (in conjunction with the AFN, Austin CableVision, Southwestern Bell, and the LBJ School of Public Affairs at the University of Texas) had a turnout of 200 people, well in excess of planners' expectations.

The Austin Free-Net is now a contractor for the city of Austin; it has a contract with the City for the library and community network piece, and a contract with the police department for providing Internet access at the community police stations. The combined budget is approximately \$130,000 per year. However, its efforts are constrained by its modest cash flow (which sometimes make equipment maintenance difficult) and strained by the community's desire to avail itself of AFN's services. As demand grows for AFN's services, managing its growth, or searching for alternative means to meet community needs, will be a challenge.

Austin Learning Academy

The Austin Learning Academy (ALA) focuses on literacy and education. ALA is a nonprofit organization that uses teachers from the Austin Independent School District (AISD) to develop curriculum and provide training for after-school and summer programs. It began to integrate technology into its programs in 1988. ALA began as an after-school program of learning centers in public housing developments, and later began to serve more adults with GED and ESL programs. Although its original activities targeted children, the ALA always intended to draw in adults.

The philosophy of ALA is one of empowerment and of providing the community with the tools it needs to do for itself. According to Tony Cherian (1999), Technology Support Specialist for ALA, "You see what needs to be done, then you learn how to do it yourself. . . . Once one person has the know-how, you share it amongst yourselves, you know? So you build up this bank of knowledge within your community."

ALA offers GED and ESL programs at seven schools and public housing developments in low-income neighborhoods. Programs for youth and for adults complement each other. Students often bring their children with them to class, and so the organizers realized that they had an opportunity to serve another important segment of the community, its youth.

ALA initiated its Family CARE (Computer Assembly Refurbishment and Enhancement) program two years ago for children aged 11 through 15. In this program,

young people learn how to build and maintain computers. The computers are then used in community computing centers. Last summer, participants in this program were paid through a city internship program; most used the money they earned to build their own computers. ALA has also initiated a college and career preparatory program for the same age group. A key component of both of these youth-centered programs is that the older children teach and mentor the younger ones. In order to participate in CARE, children are required to have a parent or other adult participate with them. ALA sees the family as the fundamental building block of the community, and it organizes its programs around this premise.

In addition to—and perhaps more important than—the skills CARE participants learn, ALA staff emphasize the confidence-building aspect of the program. Of working with technology in general, Toni Williams (1999) says: “Once you learn [computers]—overcoming that fear gives you confidence to go on and accomplish more.”

ALA views technology as a tool that facilitates the work it was already doing. ALA staff and volunteers are quick to point out the difference between organizations that were created in order to provide access to IT and others, like ALA, that already existed and use technology in order to promote community development and political organization. Lodis Rhodes, a University of Texas professor who works with ALA, says that “Computers are a hook. They get people interested. We’re trying to build social capital in [these neighborhoods] using the idea of technology as a way, kind of as an excuse for getting people together.” ALA teaches skills and provides material to individuals, but the emphasis on the community is always present. “Individual competence is not enough,” says Rhodes. “It’s community competence” (1999).

Although Rhodes and the ALA staff downplay the importance of computers to their program, ALA is the only organization in Austin that has integrated technology so completely into its curriculum. According to Belinda Rojas (1999), “A component of our family literacy is technology, and in the adult education classes, the technology takes on a form that is integrated with the learning that is going on in the classroom. It is not a separate kind of class where they go to learn keyboarding—no, it’s integrated with what’s going on in the classroom.”

ALA’s “whole family” concept also draws on technology. Toni Williams (1999) explains that “It’s become a situation where we have teens and children that are working on technology together. . . . And if you look at computers, they are something that’s going to be around forever.” “We’re going to take them from womb to tomb!” exclaims Belinda Rojas (1999).

Rhodes (1999) asserts that “Computers are a tool that helps ALA change the least common denominator of people gathered in a place ‘from race or neighborhood or something’ to ‘we want to learn about computers’ or ‘we want to start a business,’ and then it’s much more. It’s a better dynamic.” One way ALA uses this tool is to bring people together who do not normally come together or “who would not normally come together under the circumstances of equals.” ALA endeavors to create “bridging social capital”—social capital that creates connections between groups that were previously disconnected. This effort offers potential benefits for the entire community.

Metropolitan Austin Interactive Network

The Metropolitan Austin Interactive Network (MAIN) is a nonprofit organization whose mission is “to establish and operate efficiently a community-access computer network.” According to its Web site, MAIN’s purpose “is information sharing and communication among the people and governmental, educational, commercial, cultural, religious, and civic organizations, in order to enhance lives and make the best use of community resources.”

The founding president of MAIN was Sue Soy, a librarian who moved to Austin from Los Angeles in 1991 and was surprised to learn that there was no community network in the city. Soy established MAIN working with other librarians. Others soon joined in. MAIN delivers content to the community through the community-based organizations (CBOs) that MAIN links and hosts. Close to 500 CBOs participate in the network.

Since its inception, MAIN has been run almost completely by volunteers; it has, essentially, no budget. Soy (1999) explains, “When we need something, we ask for it and we always have a good case. We target very carefully whoever we’re going to ask for a donation, and we get it.” Sun Microsystems donated MAIN’s server and provides system administration, so the MAIN people never see their own server.

In 1998, a telecommunications ruling in the courts led to the creation of the Telecommunications Resource Center (TCRC), a spinoff of MAIN and the creation of current MAIN director, Gene Crick. Crick plans to use the \$250,000 from the ruling to fund efforts to provide statewide access to TCRC. The TCRC Web site states that “the fundamental TCRC objective is encouragement and support for locally directed Internet projects in Texas. . . especially those communities in rural and underserved areas.” The primary strategy is “using the many resources already available from public and private organizations, supplementing those existing resources, where needed, with planning and consulting services as well as financial support.” According to Soy (1999),

We’ve taken this windfall chunk of money that came our way and tried to leverage it to grow more money so that we could use it not to just buy equipment and one-time things but leverage it into education and training and spread it across the state so that others can just keep growing with it. Because that’s what seems to happen; you train one person and they train three more.

AIR Austin (Accessibility Internet Rally) is another project that grew out of MAIN and was supported by Knowbility, Inc. AIR Austin is based on the Web-raising concept, but occurs on a larger scale and for the specific purpose of making Austin “the most awake and aware web-design city when it comes to making Web design for people with disabilities happen” (Soy 1999). In 1999, AIR Austin’s second year, the goal was to get city government involved and, in fact, Mayor Watson and Congressman Lloyd Doggett shared the podium to launch the event. Mayor Watson connected the effort immediately with workforce development issues and the City’s priority to bring high technology and community together.

Telecommunity Partnership Initiative

In 1998, the city of Austin issued an RFP to create a technology-focused workforce development program. Both AFN and the Capital Area Training Foundation (CATF) responded and, although AFN had a much longer history of IT programming, CATF was awarded the contract. The Telecommunity Partnership Initiative (TPI) is a city-funded collaboration between CATF and AISD/Travis High School. TPI is “designed to provide free community access to computer technology, enhance employability and technology skills of individuals, promote community awareness of and comfort with emerging technology, and assist with job search and job placement” (Capital Areas Training Foundation 1999).

This initiative is in its first phase and currently targets East and South Austin. Course offerings range from introductory level (using a computer for the first time) to advanced level (database software, Java, etc). Although TPI is still very new, classes have begun to fill up and to draw a wide range of participants. In addition to computer training, TPI includes work-readiness training, and it matches graduates with unpaid internships.

PARTNERSHIPS

The community technology efforts (IT efforts) described in the preceding section partner with other actors—such as city government and the university—and with each other. This section groups the partnerships into these two categories.

Partnerships with Other Actors

City Government

City government has contributed to narrowing the digital divide in several ways, including the donation of a city employee to the Free-Net (AFN’s executive director) and support for the East Side Story initiative, a broad economic development effort, strongly supported by the City Council, that allows ALA director Toni Williams to lead training initiatives for the summer computer camp and other training programs. In addition, the City’s internship program pays advanced participants in the Family CARE program for the work they do to build and maintain public access computers. City money funds both AFN and TPI.

Public Libraries

AFN provides public access to all Austin and Cedar Park public libraries. As part of this project, which began in 1996, AFN installs and provides technical support for computers in library locations. AFN also conducts training sessions with library staff. As of May 1999, monthly usage of the library machines averaged 17,000 people. AFN has 150 computers, printers, and other equipment in the 21 libraries in which it works.

East Austin Community Network

In partnership with 10 nonprofit and city of Austin facilities, AFN provides Internet access, technical support, and training in East Austin. This project was

established in 1997 with TIAP funds. As of May 1999, AFN continues to support these locations with connectivity, equipment, technical support and training.

COPS

COPS was a pilot project to enhance Austin's community policing efforts and to engage citizens and Austin Police Department (APD) District Representatives at neighborhood stations. This partnership between AFN and APD was funded by the Department of Justice/COPS. It established public access sites and training in six APD locations and four police substations.

Southeast Austin Community Youth Development Project

AFN describes itself as "a small partner in this large-scale effort to reduce juvenile crime in the 78744 zip code." Four schools, wired by AFN, began after-school programs in September 1996.

Private Sector

AFN also has had a close working relationship with the private sector, working in cooperation with Austin CableVision, Southwestern Bell, Applied Materials, Advanced Micro Devices, and SEMATECH. OuterNet Internet Solutions, Inc. and several Internet service providers also provide technical support for the Free-Net and donate e-mail accounts for small public access sites and special functions.

MAIN works regularly with the Austin Multimedia Alliance (AMA) on Web-raising. MAIN's Web-raising pair nonprofit organizations with experts from AMA to create Web sites for the organizations. The nonprofit organizations are invited on a weekend day to bring their materials. MAIN supplies the site and the food, and the AMA experts donate their time and expertise.

High-tech corporations have provided support to the community technology efforts, but it has not been consistent. One interviewee said, "It's like, they gave you the stuff, now get out of here. And then they're on to the next thing that will get them in the newspaper, the next media splash."

The University of Texas at Austin

The university has been a very important partner for ALA. Lodis Rhodes and another professor, Gary Chapman, have taught several year-long studio classes on the issue of community computing at the LBJ School of Public Affairs. These classes have helped to funnel resources of professors' and students' time and expertise toward this issue. Chapman (1999) says, "We were trying to find ways to give our graduate students experience in developing community networking activities, but also to look at it from a researching standpoint, so that we could understand better what was the optimum way that technology buys into communities."

In 1996, the university established the Telecommunications and Information Policy Institute (TIPI) in response to telecommunications opportunities in Texas. TIPI provided a forum for university faculty conducting telecommunications-related research to come together and discuss their work. TIPI faculty also assist in the design and implementation of the policy analysis and research initiatives of the institute. The other goal, according to Sharon Strover (1999), a member of TIPI faculty, "is to try to bring some of the university-based expertise—what we do now—out to a user community, whether it's the policymakers, community groups, state agencies, or you name it."

Austin Independent School District (AISD)

ALA partners with the AISD for facilities and employs many AISD teachers to teach its classes. Offering adult classes brings parents into the schools and places them in closer contact with their children and with teachers and principals. ALA staff believe that their programs work in concert with the public school system's programs. Toni Williams (1999) explains:

We are enhancing their program because we do early childhood programming, preparing the children for [AISD's] kinder program. And our kids are coming in a whole lot more prepared for their programs. . . . So, I think the school district feels as if we are really important to them because we're doing some things as far as reaching community and parents that they could not reach otherwise.

TPI also partners with AISD: current programming takes place in AISD's Dawson High School.

Partnerships between IT Efforts

MAIN and AFN

MAIN and AFN worked together when each was seeking grant money given by the State Library. The two organizations submitted separate grant proposals, but each served on the other's team. Both received funding AFN placed 52 terminals in Austin public libraries and MAIN funded access points in 28 small rural libraries outside Austin. Together, the organization brought Internet access to 65% of the public libraries in central Texas. According to Sue Soy (1999), that partnership "was just, I think, visionary people trying to piece things together."

MAIN and ALA

MAIN and ALA are working together to train ALA volunteers from the University of Texas to conduct Web-raising. ALA staff and volunteers are learning this skill so that they can provide it to CBOs in ALA target neighborhoods.

AFN and ALA

AFN has worked with several community groups in East Austin (the low-income area of Austin) to implement the training program. The Free-Net provides computers and other equipment, while the Austin Learning Academy (ALA) and the Neighborhood Longhorns program provide teachers and trainers for the camp.

WHAT IS UNIQUE ABOUT THIS CASE?

Commitment from the Public Sector

In 1995, the city of Austin assigned a group of city executives to study technology issues. Compared with other cities, Austin got an early start in addressing these issues. In addition, the city is relatively wealthy and can afford to fund efforts that other cities consider a luxury. When the City reassigned Sue Beckwith to initiate AFN, there was very little city monitoring. Sue Beckwith (1999) describes her relationship with Betty Dunkerley, the city financial manager, as follows: “She trusts me enough, and trusts Ana enough to let us do whatever we feel is needed. You know, and her question to us is, ‘How much money do you need and “Can you find other funding sources?’”

This trust has enabled Beckwith and Sisnett to experiment without worrying too much about having their funding cut if they make a misstep. The City demonstrated its continued support for IT access initiatives with the funding of TPI, described earlier.

City Activism

Austin has a history of progressive government and an activist citizenry. Strover claims that “what makes Austin unique is that there are people who still move, act, feel from the heart. All communities have those people, really, but I think there’s a critical mass here.” Sisnett (1999) adds:

In Austin, people do have a sense of community. It’s always been the thing that’s struck me long before being involved with this, that we can go to any of the restaurants around here and there will be city council people having lunch, there will be city council people at any of the events that anybody would go to. You know them personally. And people do political work. They work on neighborhood issues, you know? I think that’s why it’s easy to sell. People are very supportive.

Importance of the High-Tech Sector

Although many of the community technology activists interviewed claimed that being in a high-tech city does not help them very much, it is clear that certain things happen because of the high-tech environment. For example, Sue Soy obtained MAIN's server partly because she happened to be on a panel with a vice-president from Sun Microsystems. In addition, because it is such a technology-driven place, the Austin citizenry understands why access to IT is important. People therefore support public efforts to fund such activities. They also donate their own time, which helps some of these organizations operate.

Cooperation between IT Efforts

Austin is a place that is large enough to support several community technology efforts, yet small enough so that people tend to know each other. The people who run and staff IT organizations have paths that tend to cross each other. Although some cities have organizations that compete with each other, Austin organizations tend to collaborate. Sisnett (1999) explains:

The organizations themselves have been finding themselves collaborating in ways they didn't expect to. Like in East Austin, that's happening a whole lot, and it really doesn't have a whole lot to do with the actual Internet and all of that, but with sharing resources, sharing spaces you know, making do better with what they have. So, one of the locations, for example, set out to be a media lab for young people; it's now housing a charter school for high schoolers. So they have computer access, and the charter school has more computers.

At the same time, getting to a place of mutual understanding and collaboration has not always been smooth. Gene Crick (1999) describes the early phase of MAIN's relationship with AFN as follows:

. . . We just sat down, we disagreed and puffed and pouted, and then agreed and sympathized and became damned good friends. . . Anyway, we sort of redirected our missions to be consistent. MAIN took emphasis on content for community organizations as our city mission. . . We donated our terminals in the city to the Austin Free-Net. And the Free-Net is a unified project focusing primarily but not exclusively on connectivity and training and some other things going on.

Austin is a big, small town—big enough to have sufficient resources to address access to IT, but small enough so that people are connected. These connections appear in story after story told by community technology activists. For example, Sue Beckwith describes how she located the EACN in a city facility that also houses the NAACP and an employment and training center: “That happened because I knew people who had control and authority over the physical space.”

FUTURE CHALLENGES

Funding

Funding stability is a problem common to CBOs, and Austin's community technology programs are no stranger to this concern. Although the city seems to be committed to AFN for the foreseeable future, it needs more money to accomplish its mission. ALA won a TIIAP grant in 1997, but now suffers from lack of funding. Asked about funding, Williams replied, "We pray that we have enough money to do it. And right now, our prayers aren't being answered." Connie Seibert (1999) agrees:

We have the recipe and it's working. We're reaching 150 to 200 families; we could just as easily, if we had the money, reach twice or three or four times that . . . Hey, you're bitching and moaning that you don't have enough skilled workers for these positions that are opening up. Give us the cash and we'll train them. We're doing it right now for nothing.

Integration of Efforts

Although cooperation is noted above as one of the unique strengths of the Austin community information technology effort, more could be accomplished in this area. The relatively small size and character of Austin have fostered significant collaboration and cooperation; however, community technology efforts are still somewhat fragmented. Staff between existing organizations believe that the City could do more to broker relationships and to help them find resources.

Meeting the Demand

Staff at all of the organizations described in this chapter discussed the challenge of serving those who lack access to information technology. As the Internet becomes even more important in the mainstream, and as familiarity with IT becomes a requirement for an even broader range of jobs, demands for services will undoubtedly increase. The challenge to meet this demand is clearly linked to the funding challenge noted above. Addressing these challenges will require strong and consistent will on the part of nonprofit organizations, policymakers, and corporations.

Chapter 5

CASE STUDY: PITTSBURGH, PENNSYLVANIA

THE PITTSBURGH CONTEXT

For more than a century, the steel industry powered the Pittsburgh regional economy. The decline of the steel industry in the 1970s and 1980s forced the city and the surrounding region to diversify its economy. As steel has become increasingly peripheral to the city's economic base, universities and high-tech firms have become viewed as engines of economic growth.

As a result of technology-led redevelopment strategies, Pittsburgh is now home to software, biomedical, and environmental services firms as well as the U.S. Department of Defense's Software Engineering Institute, the Pittsburgh Supercomputing Center, and the Pittsburgh Technology Center. According to local development officials the Pittsburgh metropolitan area ranks fifth in the nation in computer software employment behind the Silicon Valley, Boston, Austin-Dallas, and Seattle. Thanks to Carnegie Mellon University and the University of Pittsburgh, the city's two major institutions of higher education, Pittsburgh ranks tenth in university research and development spending (City of Pittsburgh 1999).

A number of community-based organizations have followed the city's redevelopment strategies and adapted technology to their programs. Pittsburgh's shift from a heavy manufacturing center to a high-tech service economy, coupled with the presence of major research universities, has certainly helped drive the multitude of community technology activities in the region. However, many of Pittsburgh's technology activists assert that the community technology movement has not yet sufficiently linked with and taken advantage of local industry and university resources. They point to leadership on the part of community members and local government, partnerships with well-established institutions, financial support from local foundations, and strong neighborhoods organizations as other important factors that have contributed to community technology initiatives.

HISTORY OF PUBLIC SUPPORT

Local Government Support

In 1994, city officials set out to help create and develop community technology centers for Pittsburgh citizens left unserved by more traditional purveyors of technology, namely schools and libraries. Facing a city deficit, officials had to turn to external sources of funding. Two years prior, Pittsburgh's historic center of African American culture and commerce, the Hill District, was named an Operation Weed and Seed site. Operation Weed and Seed, a U.S. Department of Justice initiative that seeks to "weed" violent offenders, drug traffickers, and other criminals out of target neighborhoods and to "seed" the areas with human services and neighborhood revitalization efforts, proved to be a flexible funding source for Pittsburgh's community technology initiatives.

At the time Common Knowledge: Pittsburgh (CK:P) (a joint effort of the Pittsburgh school district, the University of Pittsburgh, and the Pittsburgh Supercomputing Center) was working in the Hill District with the Hill House Association to help link the area public schools and community organizations to the Internet. Through Operation Weed and Seed, the Mayor's Office joined the alliance, and in 1995, the Hill House became the first recipient of Weed and Seed funds. The funding helped establish the server at the Hill House computer lab as the hub and the Internet service provider (ISP) for community centers and public schools in the Hill District.

The goals of the Operation Weed and Seed Community Technology program are fourfold: add computer and Internet technology components to existing after-school and summer activities; build on and learn from the programmatic and instructional successes of existing community sites; create a "wired community" among community groups, neighborhood organizations, schools, and libraries in the area, and suggest ways that Internet resources can be used to bridge the gaps between them; and build information technology/literacy skills and skills for workforce development.

To date, the City of Pittsburgh has used "seed" monies for community technology centers and networks in 33 sites in Weed-and-Seed-designated neighborhoods throughout the city and in the neighboring rustbelt municipalities of Homestead and West Homestead. The sites are in various stages of development and cover a range of community facilities including public schools, a public-housing facility, youth tutorial projects at local churches, YMCAs, a substance abuse treatment center, and a community development corporation (CDC). All of the Weed and Seed funding has gone to established organizations and agencies and has been used exclusively for the purchase of hardware and software.

Community Involvement in Cable Negotiations

Local community technology activists have proposed that the City of Pittsburgh require TCI of Pennsylvania, Inc., to build an Institutional Network (I-Net) as a condition of renewing TCI's franchise agreement. TCI's current franchise agreement expires on October 30, 1999.

An I-Net is a telecommunications network, provided in conjunction with a cable company's cable television network, that can serve the internal communication needs of, and provide Internet access for, state and local government, schools, libraries, and community groups. Recent renewals of franchise agreements have resulted in the creation or expansion of I-Nets in Austin; Boston; Portland, Oregon; and King County, Washington.

According to the Pittsburgh proposal, which was submitted by Carl Redwood, program director at the Kingsley Association, and approved by the Cable Communications Advisory Committee:

The City should require TCI to provide for the construction of a discrete, two-way Institutional Network (I-Net) that links city facilities, schools, libraries and community centers for communication, educational and Internet services. The I-NET should utilize fiber-optic cable to I-NET user locations. All available bandwidth on the I-NET would be allocated at the discretion of the City and could

include video programming and the Internet. At a minimum there should be provision for one I-NET distribution/drop point in each of Pittsburgh's 88 neighborhoods. All basic and expanded basic cable services and full Internet access should be provided over the I-NET without charge (Network Democracy 1999a).

Local activists have revised this proposal to include schools, libraries, museums and city facilities as the major community hubs from which other community based organizations can get on line.

The goal of the I-Net is to promote equity and affordability in the availability of new telecommunications technologies and services. Ideally, each of Pittsburgh's neighborhoods will have at least one computer/Internet lab to accompany the I-Net drop point, where residents and community groups can use computers, e-mail, and the Internet. In addition to providing community organizations with affordable access to the Internet, the I-Net can increase access to government and community information and provide a forum for residents and community groups to present input to government agencies. Negotiations between the City and TCI are ongoing and will be settled in the fall of 1999.

PITTSBURGH'S COMMUNITY TECHNOLOGY PROGRAMS

Many community technology initiatives exist in the greater Pittsburgh region; each program has unique goals and is at a different stage of development. While most initiatives focus in some way on community development, Pittsburgh's CTCs differ in their approach and orientation. Some centers focus on access, others are oriented toward literacy and training, and still others emphasize the content of community technology programs. This section is not an attempt to enumerate all of these efforts; such a task is beyond the nature and scope of this study. Instead, it briefly examines four initiatives and how they have used IT to encourage community development.

Hill House Community Access Network (HHCAN)

The Hill House Community Access Network (HHCAN) is a public-access computer network that helps link the students, parents, residents, organizations and businesses of the Hill District. The mission of the HHCAN is to "help meet personal and professional information needs of people; foster communication among individuals and the institutions that serve them; support community groups in their efforts at professional development outreach and community service; enhance opportunities for sustainable community-based economic development; create a favorable environment for business and employment growth; and serve as a working model to be replicated in other communities" (Hill House Association 1999).

As noted above, HHCAN grew out of a partnership between the Hill House Association (a multipurpose service agency serving the Hill District) CK:P, and Operation Weed and Seed in the mid-1990s. However, the Hill House Association's involvement in community technology dates back to 1980, when the former program director, Nate Johnson, started a community computer lab in the basement of a Hill district auditorium. The lab, which was available to anyone in the community, was up and running for more than 10 years when the Hill House developed the alliance with CK:P and Weed and Seed.

With the establishment of the HHCAN, the city's first community access network, the Hill House became the hub for a neighborhood network. The HHCAN originally brought together six public schools and three community centers in the Hill district: New Beginnings Learning Center; Wadsworth Hall Recreation Center; and Youth Fair Chance, a school-to-work program affiliated with Hill House. The HHCAN has since expanded to bring together a number of neighborhood-based organizations and agencies. Fourteen Hill District organizations and agencies provide information through the HHCAN.

In 1996, HHCAN membership exceeded 800, with approximately half of the members from the Hill District and the other half from other neighborhoods in Pittsburgh. For a one-time fee of \$35, members receive e-mail accounts and may take advantage of basic literacy, Internet, and e-mail training. The network is funded by financial and in-kind donations from members, grants, and private sponsors. HHCAN employs one full-time staff person who manages the lab, develops the training program, and coordinates a cadre of volunteers who assist users.

Although HHCAN offers some structured workshops, its emphasis is on providing access, not training. Some technology advocates emphasize the importance of open-access labs. For example, Carl Redwood (1999), former associate director of the Hill House Association and HHCAN states:

The free aspect of these centers, I think, is very important. I think there is a danger in the technology center movement, particularly as it relates to low-income communities, to assume that we're doing something for people. . . . I think what we have to do is just make resources available to the community and the community will figure out what, when and how to use them. And they may not use them the way the mayor's office or someone else thinks they should use them. . . . But I think it just needs to be open like that.

At HHCAN, users have the unrestricted access Redwood recommends. "At Hill House," he recalls, "sometimes there were classes but most of what happened was not programmed, it was free time where people could just come in and do things. People came in and they made business cards, worked on business plans, used software that they downloaded for free from some site. Preachers would come in and do their sermons for Sunday" (Redwood 1999).

Community organizations are currently adapting the HHCAN model to help make Internet technologies available to residents in the East Liberty, or the East End, section of Pittsburgh. The East End Community Access Network (EECAN) currently consists of three CBOs, all of which are recent Weed and Seed recipients: Bloomfield Garfield Corporation Youth Development Center; East End Cooperative Ministries; and Kingsley Association. Rather than follow the hub-and-spoke configuration of the HHCAN (the Hill House Association server acts as the hub for neighborhood schools and CBOs), the East Liberty activists are planning a slightly different approach in which they will have only a centralized e-mail server for the East Liberty community. Internet access is to be provided by the I-Net.

New Beginnings Learning Center

New Beginnings Learning Center (NBLC) is an active after-school program that provides academic tutoring to school-age children in two predominantly African American neighborhoods—West Oakland and the Terrace Village section of the Hill District. One of the most established CTCs in the city, NBLC was started in 1989 as a spin-off of the youth programs of the Friendship Community Church. Realizing that technology was going to be an integral part of the future, NBLC began developing a technology component for its tutoring programs in the spring of 1990. One of the primary objectives of NBLC is to provide a supportive learning environment and access to technology necessary “to help make the possibility of college or vocational training a reality for youth who are unlikely to consider such alternatives” (Pittsburgh Presbytery 1999).

NBLC upgraded and expanded its technical infrastructure in 1995 when it received two PCs, a printer, a scanner and an ISDN link to the HCCAN from the Weed and Seed Initiative. In 1996, NBLC won an award from Apple Computer Inc. that included five Macintosh Performas, a printer, a scanner and a digital camera. NBLC offers one-on-one and small-group tutoring and computer literacy projects for youth as well as basic computer training courses for adults. NBLC also has open-lab hours during which community residents have free access to e-mail and the Internet and a variety of software applications.

Since she became director of NBLC in 1997, Roxanne Epperson has sought to expand NBLC’s programs. For example, in 1998, NBLC offered a pilot project called “Seniors and Technology” or “Sen-Tech”, a five-week workshop designed to introduce seniors citizens to computer basics including keyboarding, Windows, the Internet, and e-mail. Twenty senior citizens participated in the workshop, which was offered free of charge to the residents of West Oakland and Terrace Village. Participants from other neighborhoods were charged a fee of \$10.

Realizing that NBLC is a “community technology center and more,” Epperson also expanded the center’s non-technology based programs to include nutritional programs for children and field trips for children and families (Epperson 1999). NBLC also has recently partnered with the Greater Pittsburgh Literacy Council to offer “ALMA,” (Adult Literacy Media Alliance), a video-based literacy program for adults.

NBLC currently receives support from two area foundations, the Pittsburgh Presbytery, Pittsburgh Presbyterian churches, private contributions, program registration fees and service fees from adult computer training classes. NBLC’s two full-time and one part-time staff members coordinate center activities, conduct fundraising activities, and teach courses. In addition, NBLC uses youth volunteers in two unstructured mentoring programs: Adolescents Aiding Adolescents, a program in which peers help each other improve reading, writing, and computer skills, and Adolescents Aiding Adults, a program in which kids assist adults in the computer lab. NBLC staff have found that adults are oftentimes intimidated by new technology. Having children as instructors and helpers often eases the situation creating a fun and comfortable learning atmosphere. It also offers a unique opportunity for students and adults to develop mutually empowering relationships through which they can both learn (Schroerlucke 1997).

To help meet its technical assistance needs, NBLC has hired work-study students from Carnegie Mellon as computer technicians. Epperson states that this partnership has been a true blessing to the center because NBLC only has to pay 25 percent of the

students' salary, which comes to roughly \$2 per hour. In addition, NBLC has recently developed a partnership with the University of Pittsburgh's America Reads Challenge. Through this relationship, work-study students will tutor students at NBLC at no cost to the center.

MCC/HACP Technology Learning Center

The MCC/HACP Technology Learning Center (established in September 1998) is a collaborative effort of the Manchester Citizens Corporation (MCC) and the Housing Authority of the City of Pittsburgh (HACP). Representative of many technology initiatives undertaken by housing authorities, the center focuses on skills training and workforce development. The mission of the center is to make computer and Internet access and skills available to all Manchester residents, especially those living in subsidized housing.

The center is funded entirely by HOPE VI monies. The U.S. Department of Housing and Urban Development's HOPE VI Program makes grants available to public housing authorities for demolition, planning, technical assistance, revitalization implementation, and planning and implementation of self-sufficiency programs. The MCC/HACP Technology Learning Center was created as part of the self-sufficiency component.

The center is equipped with 36 networked computers. Technical assistance and maintenance are provided by the HACP IT division. However, the lab's design enables the center's one full-time and two part-time staff members to perform most of the basic upkeep and maintenance tasks. The center offers a variety of computer literacy courses for all Manchester residents over three years of age. The center is also working with Manchester Works, a union apprenticeship program, to help provide basic computer skills to residents interested in the building trades.

The MCC/HACP Technology Learning Center is the first of several such initiatives planned for the city. While the center will certainly serve as a model for other HACP technology efforts, the HACP is determined to base each initiative on the particular needs of Pittsburgh's housing communities. This approach is necessary because the communities differ in composition. For example, Manchester is a mixed-income neighborhood on the North Side of Pittsburgh with a scattered-site housing community, other housing communities are largely campus-based.

Community Literacy Center

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The Community Literacy Center (CLC) is a community-university collaborative of the Community House, an 80-year-old settlement house on Pittsburgh's North Side, and the Center for the Study of Writing at Carnegie Mellon. CLC's projects lead with an educational vision and apply technology to help teenagers from Pittsburgh's inner-city schools build their problem-solving, collaboration, and strategic-thinking skills. The center fully integrates technology into its programs, but, as Kathy Schroerlucke (1999) (a community technology consultant and staff member at CLC) notes, "It's not about technology. The technology is a tool to really allow people to play with and to work with the substance of their lives."

At CLC, literacy means not just reading but writing as well. “Writing lets community members—like the teenagers you’ll see represented here—take action, build consensus, and be heard on a broad range of issues, including school reform, risk, and rebuilding neighborhoods” (CLC 1999). Initially, participants used computers as a means to write text. However, information technology and the World Wide Web provide other tools that open up new avenues for participants to communicate and publish their ideas. Advances in technology prompted the CLC leadership to rethink the direction of the organization. As Dr. Wayne Peck (1999), minister, Carnegie Mellon faculty member, and director of the Community House, explains:

We decided to focus in on being what we called . . . ‘a strategy-based, project-oriented, technologically attuned, community learning technology center’. We tried to go around to places like the Computer Clubhouse up at MIT, LEAPS around Yale, Plugged In out in Palo Alto. There was no similar type of community technology agency in Pittsburgh, and you had the University of Pittsburgh and Carnegie Mellon as leaders in the field, so we figured that we would kind of throw down the gauntlet down around there.

CLC’s programs are well supported by six major foundations in the Pittsburgh region. The church with which the Community House is affiliated also has positioned its resources behind the CLC. CLC’s programs are located at the Community House. Peck (1999) says:

The Community House has five floors of different clusters of computers. It’s really networked. It’s organized around people doing work around a particular issue and problem. It doesn’t look like a lab situation. In some cases, there would be teenagers doing entrepreneurial projects, building Web pages, using those kinds of resources to support teenagers solving their own problems. In other places you would find media labs in which people are constructing stories of their own lives. In other places you would find connections between public and charter schools, where both the public and charter schools can’t afford the kind of technology that we’ve put into this building.

PARTNERSHIPS

Pittsburgh has a long history of partnerships between institutional actors, made possible by the region’s wealth of established institutions in the public, private, and nonprofit sectors. According to Dave Farley, Weed and Seed project director for the City of Pittsburgh, “there’s a natural inclination for people [in Pittsburgh] to work together and align themselves” (Farley 1999b). This ‘culture of collaboration’ pervades many of the city’s community technology initiatives.

Partnerships among CTCs

Technology provides new mechanisms through which partnerships and collaboration can develop and information can be shared. The development of the HHCAN serves as a case in point. The collaborative efforts of the Hill House Association, CK:P, and Weed and Seed have been able to make Internet access available to the underserved residents of Pittsburgh's Hill District. The nature of the technology initiative—a community access network—has brought together numerous community organizations and entities and provided a forum through which they can easily communicate and exchange information. One such example is a listserve of staff persons at the CTCs affiliated with HHCAN. Through the Internet, participating organizations have been able to discuss issues related to their organizations and the problems they face.

Partnerships however, are not always easy to forge. As Gerry Balbier (1999), program officer of the Heinz Endowments, points out, “there’s a sense of competition . . . among different nonprofits that, you know, you want to develop your identity so that you attract funding.” Despite difficulties, local funders encourage collaboration and partnerships in community technology initiatives. According to Arleen Lipsman, manager of the Foundation Center at the Carnegie Library, “[foundations] feel their money would be best used if organizations worked together” (Lipsman as quoted in Tascarella 1998). For example, when funding community technology programs, the Heinz Endowments favor community leaders who are willing to partner with other organizations and agencies.

Carnegie Mellon University and Community Technology Initiatives

An undergraduate computer science course titled “Computer Science and the Community” has forged a unique partnership between Carnegie Mellon University and CTCs throughout the city. The partnership provides CTCs with much needed user support. The course, created and taught by community technology consultant Kathy Schroerlucke and Dr. Joe Mertz, associate director of the Center for University Outreach at Carnegie Mellon University, pairs computer science students with community-based organizations (CBOs). The course fosters the ideal type of interaction between universities and the community in that it involves students and CBOs as contributing partners; students learn from the expertise in the community while the community gains technical knowledge from the students. The course has been well received by students, community partners, and Carnegie Mellon administration, and it has served as a model for community-based courses on the Carnegie Mellon campus.

The role of the course, from the perspective of the CBO, is to develop the technical capability of the organization. For students, the course offers the opportunity to develop leadership and communication skills while providing a broader perspective of the meaning and role of computer science and information technology. Students take on the role of apprentice rather than of expert. It is essential, Mertz (1999) explains, “that students understand what their role is in the community and how to do that. . . . [They’re] not going out to solve a problem but to help the community partner identify and solve the problem.” CBOs and agencies throughout Pittsburgh and in neighboring municipalities have participated in the course since it was first offered in the spring of 1998. Many of the community partners have received hardware and software from the Weed and Seed initiative.

Students work with community partners to identify their technical needs and problems; discuss the options for meeting those needs and solving problems; and help integrate technology into the organization's programs. Throughout the semester, the students help community partners with minor technical problems. By making their troubleshooting techniques visible, the student's knowledge is transferred to the community partner, and by the end of the semester, the community partner is able to do much of the troubleshooting independently. Students aid community partners with a variety of projects: for example, building spreadsheets, planning networks, and installing labs. Although the completed projects may appear rather insignificant, Schroerlucke and Mertz emphasize that their course provides real value for students and community partners. "Sometimes they look like small projects," Mertz (1999) notes, "but from the community side they're really significant, scaffolding steps in understanding what the technology can do for [the community partner] more directly either in their job, in their program, or just kind of learning."

The experience of Helen McDonald, senior reading center manager at the Glen Hazel Recreation Center, adds testimony to the value of the course for community partners. The reading center she manages is part of a citywide initiative of the Carnegie library system and the Pittsburgh housing authority. Prior to her involvement in the Carnegie Mellon class, McDonald had no computer experience and the center's two Weed and Seed computers were rarely used.

I'm so proud of myself, I understand computers now. . . . Since I learned the computer I have added so much to the program. It's wonderful. I've designed forms, I know where things are. I can have my student list. I can update and locate everything. . . . It's a *whole new world* that makes my job easier, makes it more successful, and brings me into this way of life. I'm not way back there not understanding and not doing. Now I know the importance of it all. Now I can relate it to someone else. (emphasis in original) (McDonald 1999)

McDonald has improved and expanded the reading center's programs. The center is equipped with five computers and it offers computer courses for adults and children. Her enthusiasm has motivated residents of the Glen Hazel housing community to get involved in the computer classes and encouraged four other reading centers in the city to acquire computers for their offices. McDonald has been instrumental in helping her colleagues at other reading centers integrate technology into their jobs.

WHAT IS UNIQUE ABOUT THIS CASE?

Level of Community Technology Activity

Pittsburgh is unique in the level and diversity of its community technology initiatives. The city is home to a number of CTCs that range in age, size, target population, and goals. Most initiatives focus in some way on community development, yet Pittsburgh's CTCs differ in their approach and orientation. As explained above, some CTCs focus on access, others emphasize the content of community technology programs, and still others are oriented toward literacy and training.

When asked what accounts for the level of community technology activity in the Pittsburgh area, some of the community technology practitioners were surprised by the question. Many had not thought of Pittsburgh as unique. One interviewee attributed this reaction to the modesty of most Pittsburghers, “If there’s something good going on in Pittsburgh then we think it must be going on elsewhere.” After a moment of reflection community technology activists pointed to a host of factors that have driven community technology initiatives in the city: leadership on the part of community members and local government; partnerships with well-established institutions; financial support from local foundations; the university presence; and strong neighborhood organizations.

Commitment from the Public Sector

The level of community technology activity in Pittsburgh has been bolstered by city support. Few city governments have nurtured community technology initiatives as has Pittsburgh. Pittsburgh’s Weed and Seed community technology initiative is a flexible and creative use of external funds to promote community technology centers and networks. Other cities have followed Pittsburgh’s lead and have begun to sponsor similar Weed and Seed initiatives.

Many community technology activists assert that although the Weed and Seed program has made computers and software available to CBOs and agencies that would not otherwise have access to them, the city government has not gone far enough to ensure the sustainability of community technology programs. They suggest that city officials seek more resources to help CTCs with technical assistance, staffing, operating and maintenance costs, and program development. Although there had been a community technology consultant, whose role was to help Weed and Seed community technology sites troubleshoot some basic technical problems and integrate technology into their programs, the city did not have adequate funding to continue the position.

Farley (1999b) admits that the Weed and Seed funds are insufficient to effectively run CTCs:

Places where we made investments five years ago, some of them, you know, withered on the vine, some of them have developed in ways that we never suspected they would. And largely it’s attributable to the individuals. You get away from the technology. Technology doesn’t drive this, it’s who you’ve got on what you do.

In addition to strong leadership, a committed staff, well-developed technology programs, and technical assistance are necessary to ensure center success. Yet, Farley asserts that support and energy cannot be handed down from government but must come from the communities themselves if the technology programs are to be successful and sustainable. Success and sustainability further require that CTCs partner with institutional investors: for example, the housing authority, libraries, foundations, private industry, and other CBOs.

Foundation Support

Pittsburgh's wealth of locally based foundations sets the city apart from most other cities of its size. In 1997, the region's 25 largest foundations paid out a record \$290.2 million (Tascarella 1998). The foundation community has been particularly influential in the development of community technology initiatives and stands to greatly affect the field's future growth.

Responsible grant making requires that foundations understand and use technology. According to Mertz (1999):

A lot of foundations are slow to adapt technology. To understand what you're funding and really make leadership judgements you've got to at least use your e-mail regularly and surf the Web occasionally, know what these things are about. Not that you have to be expert in these things, but [you should] know what they're about so that you can make decisions about them.

In an effort to educate the funding community, Mertz, Peck, and Schroerlucke recently facilitated a professional development seminar for the Grantmakers of Western PA.

Area funders are becoming more attuned to the importance of technology and CBOs' needs, and, in the process, they have become more active in the community technology arena. Funders are likely to continue to do so in the future, particularly as more community technology programs mature and show results. As Balbier (1999) notes:

There's growing interest on the part of our funders [in community technology]. . . . But to their credit, they want to see what the goals are for using technology in some of these community-based organizations. It's not good enough to know that people are developing skills to use the mouse and keyboard. . . . [Funders] are beginning to see more [programs that are reaching their potential] and so I think there's definitely reason to be encouraged that more funders will be involved in this work.

Labor Market Restructuring

Although Pittsburgh's technology-led redevelopment strategies have helped this once smoky city prepare for the twenty-first century, the region's labor market has become increasingly polarized. For years, greater Pittsburgh boasted a solid, blue-collar middle class. Although unemployment in the region is rather low, many residents have had to substitute low-wage service positions for well-paying manufacturing alternatives.

The region's low-level of unemployment is due to out-migration of the workforce as well as the creation of new jobs. According to Census Bureau estimates, the Pittsburgh region led the nation in population loss from 1980 to 1988 (Sbragia 1990). Although the rate of decline has leveled off in recent years, Pittsburgh still faces an exodus of residents, particularly young people. Some fear that structural changes in the economy, underemployment, and the continued out-migration of young people from the region will only exacerbate this polarization. According to community technology consultant Kathy Schroerlucke (1999):

Young people are leaving [Pittsburgh] and we're bringing in the high-tech companies but we don't have a population who can get those jobs. So high-tech companies are going to be importing people and so the [policy] problem is . . . we're going to have a bigger divide here. How can we affect that? How could the local workforce get those jobs?

CHALLENGES

Although each of Pittsburgh's CTCs is unique, they face some common challenges: for example, securing funding and technical support and integrating technology into community development programs (all of which are discussed in chapter 7). Perhaps Pittsburgh's greatest challenge is the need for greater integration among community technology efforts.

Technology provides new mechanisms through which partnerships and collaboration can develop and information can be shared. Some technology advocates feel, however, that some of Pittsburgh's established institutions have not been able to break out of their traditional roles and take advantage of the collaborative possibilities that technology offers. Collaborative efforts sometimes get "muscle-bound" by the involvement of public, private and nonprofit elites, making it difficult for community groups or newcomers to enter into partnerships on an equal footing. A number of individuals interviewed for this research spoke of the need for individuals at the neighborhood level to drive the partnerships.

As Schroerlucke (1999) notes, "[the Pittsburgh area] is one of the most resource-rich areas I've been in—but they're not connected and people don't know how to use them. There's no coordinated effort so everybody's reinventing the wheel, everybody's doing the same research, everybody's doing the same digging, trying to figure out what to do." Gerry Balbier (1999) echoes Schroerlucke's frustration and calls for greater integration among community technology initiatives:

We're all craving information about how other groups are doing it because we're realizing that we have something to offer as far as our own experience, but we know that other groups are doing things that we haven't thought of or haven't experienced. How do you connect all those sources of knowledge? We've got to get a network going somehow.

Some of Pittsburgh's community technology practitioners have submitted a proposal to the U.S. Department of Education for grant funding for a project that would help create a regional community technology collaborative to address some of the issues raised by Schroerlucke and Balbier. The project would bring together a number of major institutional players, including the Carnegie Institute, the Electric Information Network (EIN), the Three Rivers Free-Net, and the Heinz Endowments. The collaborative would help coordinate community technology initiatives and make it easier for people to network, get the resources they need, and put some training and support staff and programs in place. The collaborative would also include a mini-grant pool from which centers could obtain small amounts of money.

Chapter 6

CASE STUDY: SEATTLE, WASHINGTON

THE SEATTLE CONTEXT

The Seattle region has become a leading center for advanced technology in computer software, biotechnology, electronics, medical equipment, and environmental engineering. Microsoft, the biggest personal computer software company in the world, is one of 2,200 computer development firms in the area. Boeing, the largest employer in the region, also has had a huge impact on the region's labor market, employing a large share of the region's high-tech labor pool of engineers, computer programmers, and software specialists.

Given Seattle's economic base, it would seem to come as little surprise that the region is also a hotbed of community technology activity. Certainly the presence of Boeing, Microsoft, and other high-tech firms in the region has been important in fueling support for community technology initiatives. The industry presence has provided a vast pool of skilled volunteers and has helped place issues of technology access on the agenda of many public officials and residents. However, as in Austin and Pittsburgh, many community technology activists believe that the high level of community technology activity is attributable to more than merely the presence of technology-related industries. In Seattle, activists point to the strong neighborhood-based approach to planning and service delivery as well as the passion on the part of community technology actors and community leaders.

The City of Seattle has taken a lead in narrowing the digital divide between rich and poor, Whites, and minorities. The City has set aside a portion of the revenues from cable franchise fees to support and implement community technology initiatives and employs a Community Technology Planner, the first such position in the nation. Despite the level of community technology activism and leadership on the part of local government, technology advocates assert that more must be done to ensure universal access to computers and information technology.

HISTORY OF PUBLIC SUPPORT

Local Government Support

In 1995, the City of Seattle established the Citizens Telecommunications and Technology Advisory Board (CTTAB) to study and make recommendations to the mayor and City Council on issues of community-wide interest relating to telecommunications and technology. The board consists of 15 members; with eight are appointed by the mayor and seven are appointed by the City Council. In addition to their advisory role, CTTAB members:

- encourage and promote affordable access to and use of telecommunications and technology;

- advocate, solicit, and facilitate citizen participation in telecommunications and technology decision making;
- measure and evaluate the effectiveness of telecommunications and technology policies and programs (CTTAB 1999).

Under the leadership of council member Tina Podlodowski the City established the Citizens Literacy and Access Fund in 1997, thereby boosting the City's commitment to narrowing the digital divide. CTTAB has used the fund, which is capitalized by a portion of the City's cable franchise revenue, to develop a number of Citizens Literacy and Access Projects designed to improve access to information technology in underserved communities, improve technology literacy, and build public awareness around information-age issues and planning. To implement the projects, the board used a portion of the money to create a position within the Executive Services Department (ESD), which is responsible for citywide information technology planning and implementation. In October 1997, David Keyes was hired to fill the post, making Seattle the first city in the nation to have a community technology planner.

The first Citizens Literacy and Access project was the development of a Technology Resource Map, a directory of technology initiatives in the city. Although there were a number of community labs in operation by the time the Citizens Access and Literacy Fund was established, these initiatives lacked visibility and coordination. The Technology Resource Map has helped publicize existing sites and has facilitated coordination between technology initiatives. Building on the Technology Resource Map, the ongoing Access for All Project seeks to increase the number of public access sites in the city, upgrade equipment and services at existing sites, encourage volunteering and mentoring at CTCs, and help foster open-lab time at sites, such as schools and businesses, that are not currently made available for public use.

Through the Seniors and Technology Literacy and Access Project, the City has conducted an assessment of technology needs in the senior community and developed a directory of senior access centers and programs. Based on the assessment, the City of Seattle and CTTAB are creating a Seniors Training Seniors Institute, which will provide training to enable and encourage senior citizens to teach basic computer literacy skills to their peers, and a Technology Procurement Cooperative Pilot Program, which is intended to facilitate lower-cost or free hardware, software, and Internet services for CTCs serving seniors and individual senior citizens. Other Citizens Literacy and Access Fund projects include Neighborhood Technology Forums focused on particular community needs and the Information Technology Impact Indicator Project, which seeks to develop a working definition of basic technology literacy and a set of technology impact indicators to measure the impact of information on the health and vitality of the Seattle region.

The largest portion of the Citizens Literacy and Access Fund has been allocated to the establishment of the Technology Matching Fund, which provides cash to Seattle's neighborhood-based and citywide organizations for citizen-driven technology literacy and access projects. Organizations are required to match the contribution of cash from the fund with volunteer labor, materials, professional services, or cash. To receive support projects are required to increase points of public access to computers and information technology; support information technology literacy education and training; and/or encourage information technology applications that support neighborhood planning and

action (City of Seattle 1999). Projects must also involve community members in the identification, planning, and execution of the project. Although all projects meeting these criteria are eligible for support, those which address the needs of technology underserved people are given greater priority.

The Technology Matching Fund was modeled after the City of Seattle's Department of Neighborhoods matching fund. Aki Namioka (1999b), a CTTAB board member and longtime community technology activist who has helped evaluate Matching Fund applicants, recalls that

The Department of Neighborhood's existing matching fund project wasn't funding a lot of technology projects. In addition, they were restricted to funding projects that were neighborhood based. However, we know that technology by its nature is not only creating communities in a physical geographic location, it's also creating communities on line. So we wanted to . . . fund technology-focused projects that were not necessarily neighborhood based.

However, many of the projects supported by the Technology Matching Fund have in fact been neighborhood based, facilitating a collaborative relationship between CTTAB and the Department of Neighborhoods and allowing neighborhood organizations that undertake technology initiatives to tap into two funding sources. Namioka (1999b) reports that:

Some of the projects were neighborhood based and so we would only partially fund the projects. The Department of Neighborhoods would fund for the rest of the amount that the project was asking for out of the larger pot that they had . . . [The Department of Neighborhoods] trusted our evaluation. If we gave a thumbs up to a project by funding it at least partially, it indicated to them that it was a good project and they felt more comfortable funding it. So there was a good synergy between us and the Department of Neighborhoods matching fund program.

The Technology Matching Fund consists of two categories. The first is for larger-capacity building projects that take up to 12 months to complete and require up to \$50,000 in matching funds from the City. CTTAB also has set aside a portion of the total matching funds so that organizations can also apply for \$10,000 or less in matching funds for small and simple projects. The Technology Matching Fund is not meant to provide ongoing support to CTCs; however, in addition to providing hardware and software, city funds can be used to support staff or to increase outreach. Staffing and operating costs are some of the biggest challenges facing CTCs. As Keyes (1999b) notes, the flexibility of the matching fund has been very important in helping CTCs to meet these challenges:

Our goal for [the Technology Matching Fund] was to increase infrastructure out in the community that helped programs develop greater sustainability, increase access and also provided literacy efforts. We haven't seen [it] as an ongoing supporting fund. . . . But we did make it clear that some of those funds didn't just have to be used for hardware, and that's been an important component working with community groups—work on getting somebody in place, work on helping do volunteer recruitment and so on and help the centers to run. The equipment's almost easier to come by.

Namioka (1999b) believes that the flexibility of the Technology Matching Fund adds to the creativity of community technology initiatives:

So, [the matching fund projects aren't just about] literacy, but trying to provide ways, and creative ways, for people to interact with technology and find a use for it. . . . It was a lot of fun to evaluate these projects and to read about them. One thing we found, was that if we tried to mandate things, for example if we said, "Well, you are going to get a certain amount of money," there [would be] a lot less enthusiasm or follow through than if we say to people, "Here's a pot of money but you have to show us that you already a project."

In the first two years of the Technology Matching Fund, the City allocated \$300,000 to community technology projects. The City has earmarked \$159,500 per year for the fund in 1999 and 2000.

Through the Citizens Literacy and Access Fund, CTTAB has been successful helping expand community technology initiatives in the city and has enabled existing programs develop greater sustainability. In addition, the Fund has also been very important in raising public awareness about the digital divide and expanding support for community technology initiatives. Through city initiated and supported projects and programs, local officials and community groups see first hand how technology can be used as a means to help reach community development ends.

Promoting Universal Access through Cable Franchise Agreements

In 1996 King County, Washington, which includes the City of Seattle and a number of other cities and unincorporated areas, signed a landmark franchise agreement with TCI. In accordance with the agreement, TCI was to rebuild its cable system within three years to increase its size, quality of service, and reliability. The rebuilt system would also allow TCI to offer new services, including high-speed Internet access. As part of the rebuilding project, TCI was to assist the county in building an I-Net for schools, libraries, and other public facilities and to provide those facilities with free cable service.

King County is the franchising authority for the unincorporated areas; cities and municipalities represent the incorporated areas. In the 1996 franchise agreement with the City of Seattle, TCI was to rebuild its system to allow for the provision of high-speed Internet access. The City did not, however, ask for assistance in building an I-Net. The City has an array of publicly owned fiber-optic infrastructure, and it did not want to rely

on TCI to maintain its private network. Moreover, the City did not want cable subscribers to pay the cost of the institutional network (Network Democracy 1999c).

TCI failed to meet the contractual deadline by which they had promised to provide the entire Seattle service area with an advanced cable infrastructure. This failure, coupled with AT&T's recent acquisition of TCI, provided a unique opportunity for local officials to leverage even further concessions than those negotiated in the 1996 franchise agreement.

CTTAB participated in the process, providing the City Council with recommendations developed from citizens' input, a review of the TCI franchise agreement, and briefings from the city cable office. CTTAB recommended that TCI provide a minimum of 1,500 cable drops that would provide free or subsidized cable and high-speed Internet access, including multiple connections for nonprofit and public sites (e.g., nonprofit health and human services organizations, community centers, libraries, and cable public access facilities).

CTTAB's request for cable drops was scaled back in the renegotiated franchise agreement. TCI will provide 500 cable drops throughout the city. TCI is nearing the completion of the build-out, and by the end of the year, the entire city is scheduled to be equipped with cable modem service. City officials have not yet determined the location of the cable drops. CTTAB may work with the city to help provide input regarding where they should be located.

While the cable drops represent a step forward in expanding access for Seattle's residents, many community technology advocates feel that the concessions made by TCI/AT&T have not gone far enough. As a condition of its approval of the transfer of TCI's control to AT&T, CTTAB also recommended to the City Council that TCI should be required to open access to its cable modem infrastructure to all Internet service providers (ISPs), including small, local commercial ISPs and nonprofits (e.g., the Seattle Community Network, a public-access computer network that supports 6,000 active users, provides email training and web space for community groups and individuals and serves as a community-based rather than commercial portal). Such a measure would require TCI to unbundle the price of Internet service and access to their cable infrastructure. Proponents of this position view open access as a means of spurring competition in the ISP market, thereby expanding choice and reducing prices for consumers.

The Seattle City Council did not follow CTTAB's suggestion regarding open access. In a related case, which CTTAB and the City Council had been following closely, AT&T had sued the City of Portland for including open and equal access to the cable infrastructure as a requirement for the transfer of control from TCI to AT&T. As Portland appeared to be heading toward a prolonged legal battle with the telecommunications giant, the Seattle City Council tried to negotiate an agreement that would not result in a similar lawsuit (Namioka 1999a).

The Transfer of Control legislation adopted by the Seattle City Council did however, include a clause that would empower the City to renegotiate franchise terms if changes in federal law allow the City to impose pricing unbundling on AT&T, or if AT&T captures more than two-thirds of the high-bandwidth market through cable modem or other high-bandwidth offerings. As Namioka notes (1999a): "These reopener provisions are unique to the City of Seattle and members of the Council consider these conditions to be a victory for public-interest. However, from another public-interest

perspective, very little benefit was obtained from these ‘concessions’”. The penalty consumers must pay if they choose an ISP other than AT&T is a formidable barrier to open and equal access.

SEATTLE’S COMMUNITY TECHNOLOGY PROGRAMS

Technology Access Foundation (TAF)

Realizing the importance of technology and the need to involve people of color in the technology revolution, Trish Millines, a Microsoft employee at the time, and Jill Hull, then a Seattle Mental Health employee, started the Technology Access Foundation (TAF) in 1996. The mission of TAF is to provide communities of color with equal access to technology. To fulfill this mission, TAF seeks to

- educate communities about the role of technology in their present and future;
- join families, schools, local businesses, and TAF in commitment to a common goal of access to technology for our children.
- build a consortium, with existing community organizations, focusing on education and technology;
- leverage existing resources through collaboration;
- become expert and successful enough to assist anyone who wants to form a community organization that focuses on technology for communities of color.

TAF runs two programs and there is a third in the planning stage. All of TAF’s programs focus on school-age children. The first is the Virtual Institute. Rather than open new centers, TAF works with Connecting Communities of Color (C³), a consortium of CBOs interested in narrowing the digital divide, to help them incorporate technology into their programs.

TAF offers classes to students at C³ member facilities. Because these courses are offered in more than one location and these locations are not strictly providers of computing facilities, TAF calls the project the Virtual Institute. TAF provides the curriculum, the instructors, and, in most cases, the equipment and maintenance on the equipment. The Virtual Institute allows students to receive everything from basic-level computer literacy training to training in specific technical fields such as networking, Web design and HTML.

TAF plans to expand the Virtual Institute program within the City of Seattle to meet its goal of helping 2,000 young adults complete a core group of computer literacy courses each year. TAF is also planning to expand the Virtual Institute beyond the city limits by partnering with community organizations in other cities and towns, including Renton, Tacoma, Yakima, and Spokane. TAF plans to continue its expansion throughout the state and hopes to have a nationwide presence with the Virtual Institute within the next three years.

The second TAF initiative is the Technical Teens Internship Program (TTIP), an after-school program for teenagers 13 to 18 years old who are interested in a career in computer engineering. Technical Teens is a four-year program that trains teenagers to be network engineers, programmers, Web developers, or media production professionals. Students take courses twice a week throughout the school year. During the summer, they participate in paid internships at area corporations. Students earn a minimum of \$9 an hour, with participants averaging \$11 an hour for jobs involving Web development, network installation and maintenance, and media production graphics. At the end of each summer, participants receive \$1,000 to help pay for higher education.

TAF launched TTIP in the fall of 1997. The TTIP is a competitive program. Each year, up to 40 new students can join the program. Last year, TAF accepted 38 out of 107 applicants. In 1999, the applicant pool increased to 150. TAF requires each student to achieve a 90 percent class attendance rate. Students must also maintain their grades.

Cofounder and executive director Trish Millines (1999) says:

It's a great program. It not only benefits kids, it benefits corporations. We're trying to get them to see that in order to solve the problem with the technology talent drought you've got to start earlier than college; you really need to work with high-school students. One could argue that you need technical education for younger kids. Really get them to understand that if you get a 14 or 15 year old and have them in every summer through high school, help pay for their college, have them every summer through college, you get them out and they're already halfway up the ladder by the time they become a full-time employee. . . . It's investing. The companies are also helping them to help their families. We have siblings coming in to this program now because they're seeing what their older siblings are doing; we have some kids making more money than their parents. So its really a benefit all the way around. Society as a whole obviously is going to benefit because you have one less kid that's potentially on public assistance. You know they're going to have a job, they're off the street 'cause they're here two days a week and doing their homework the other days because they have to maintain their grades while they're in this program. So everyone wins.

TTIP teaches teenagers more than technology skills; it prepares them for the workforce. Prior to starting an internship, students participate in a comprehensive month of job-readiness training. As Millines (1999) explains:

We do everything from the cover letter and the resume to how to do the interview. Once you get the job, how do you behave? How do you act as the only teenager on the job? Typically most of them are. How do you act as the only person of color on the job? Typically they are. How do you show the company that you're going to be a value to them? What do you do when you run out of work? Do you pick up the phone and call your friend? I don't think so. Do you go email? No, you go ask for something to do, you be proactive. . . . We talk about what to do with your money once you get your paycheck. We go over the whole thing about what gets taken out. We talk about their rights as minors in this country, so that if they're 15 years

old they're not asked to work overtime, and we talk about investment, we talk about the impact on the community. It's a pretty intense thing.

TAF also trains the employers. Employers participate in a three-hour training session on how to work with young adults. Students and employers participate in diversity training.

TAF is currently working on the design and implementation of a third program, TechStart. Geared toward children 5 through 12 years old, the goal of TechStart is to provide quality early education to children of color and low-income children by using the computer as a tool to encourage them to develop the problem-solving and critical-thinking skills necessary to excel in school. TAF hopes to use the TechStart program to identify candidates for the TTIP.

Project Compute

Project Compute is a nonprofit, community-based computer-training program sponsored by the Rainier Community Center Advisory Council. The program began in 1991 when two volunteers working a late-night program at the Rainier Beach Community Center brought in their computer and conducted stand-around sessions in the hallway. They eventually acquired surplus machines from the Boeing Corporation and space for the computers in the community center. Since those modest beginnings, Project Compute has expanded tremendously, operating five to six days a week, year-round, and offering free classes that support a quarterly enrollment of more than 100 students.

Project Compute focuses primarily on school-age children. It offers an after-school tutoring program, classes in computer basics and programming, and technology-based math and science courses. Program volunteers reach out to the broader Rainier community by offering adult and senior classes and open-lab time for all community members. Project Compute also sponsors personal computer repair and troubleshooting demonstrations and runs a family computing night that features contests and group projects centered on community building.

Project Compute volunteers have taken great strides to incorporate computers and information technology into their learning programs rather than simply training program participants on the technology. As Anthony Williams (1999), long-time volunteer and sponsor of Project Compute, stresses, "We don't want people to believe that a computer is a computer. We really want people to believe that a computer is a tool. . . . People need to understand, and particularly young people, how [technology] integrates into their lives."

The integration of technology into learning and community development activities is exemplified by the Project Compute Life-Web Journalist Project, the first phase of which was completed in March 1999. As part of the initiative, Project Compute loaned 25 handheld computers equipped with Windows, an audio recorder, and a digital camera to participants for a six-month period. Participants were to go out into the community, capture stories of interest, and create an Internet Website. The 25 participants included 19 youths, 3 adults and 3 senior citizens.

In addition to helping participants hone their journalism and computer skills, the Life-Web Project provides participants with the opportunity to tell their stories and to

create instead of simply consume information. When asked why they wanted to participate in the project, one young woman replied that she wanted to be heard.

With the exception of tutors and a quarter-time administrative staff person, Project Compute relies on a committed staff of 25 to 30 volunteers. Williams (1999) asserts that the program's reliance on volunteers attributes to its success and longevity and sets Project Compute apart from other technology programs in the city:

Some of the other programs have lots more staff, paid staff. A lot of the other programs rely less on volunteers. I believe that the ideal or optimum situation is to have a combination of both. What the paid staff bring is some stability and continuity to the program. But what the volunteers bring that the staff doesn't, and I truly believe this, is the passion. And I'm not saying that paid staff don't have the passion, but there's something different when people decide to come and give their own time.

Archdiocesan Housing Authority Computer Learning Centers

The Archdiocesan Housing Authority (AHA) is the largest provider of permanent low-income and emergency housing in the Puget Sound region. In addition to providing affordable housing, AHA is committed to helping residents achieve self-sufficiency so that they can lead fulfilling lives. To help meet these goals, AHA is in the process of developing Computer Learning Centers (CLCs) in seven of their low-income housing sites throughout King County. "The mission of the Computer Learning Centers is to ensure that all individuals, families and communities have an opportunity to participate and thrive in the new information age—regardless of economic, physical or cultural differences. Computer Learning Centers will help us meet this goal by providing free educational and economic opportunities to low-income families, senior citizens, and to the developmentally challenged" (Archdiocesan Housing Authority 1999).

Three CLCs have been up and running for the past year: the Josephinum, Chancery Place, and the Andy Polich Center at Renton Family Housing. The Josephinum and Chancery Place CLCs are located in housing communities in Seattle. The Andy Polich Center is located in downtown Renton. Four more centers are scheduled to open this year.

Through the Neighborhood Networks program, the AHA has been able to use reserve repair funds for the computer learning centers. AHA also has relied on funding from the Boeing Corporation and area foundations. The AHA received \$30,000 from the Technology Matching Fund and \$9,686 from the Department of Neighborhood's Neighborhood Matching Fund for the establishment of the Josephinum computer learning center.

Like Project Compute, the AHA learning centers rely heavily on volunteers. In fact, the Josephinum was able to more than match in volunteer time the city's contribution to the CLC. In addition to volunteers from Americorps VISTA, AHA solicits help from area companies and the community through monthly newsletters at the different housing programs. AHA also posts announcements through VolunteerMatch, an on-line database of volunteer opportunities. According to Greg McDonald (1999), program manager of AHA's Computer Learning Centers:

We've actually been very successful [in getting volunteers] so far. We started developing a volunteer program almost a year ago. . . . So in this past year we've probably gotten 20 really solid volunteers for three different sites. A lot of them have been coming from Microsoft, Boeing, some of the larger corporations that are closer in proximity to the centers or people who live nearby. . . .In the past week, we've gotten four people that have been interested through [VolunteerMatch]. So it comes in spurts. But it's been really exciting to get those phone calls. I think word is getting out. People are hearing from their friends that this is a good place to spend their time.

Each of the AHA Housing Programs serves a unique housing community. The Josephinum apartment building is home to working-class individuals and families; Chancery Place is made up of elderly and disabled residents; and the Renton Family Housing program provides affordable housing to low-income families with children. Given the diversity of AHA's housing communities, each of the learning centers offers open-lab time and a variety of classes, seminars and workshops tailored to meet the specific needs of residents. In efforts to identify these needs the AHA has held focus groups to learn what residents would like to see come out of the CLCs. At the Josephinum, there has been an emphasis on developing job skills and preparing for GED exams. The Chancery Place center has an intergenerational program where area high school students teach seniors Internet and email basics. Residents at Chancery Place have also expressed interest in developing a video telemedicine program. The Andy Polich learning center offers tutoring for the many resident children and basic computer classes that address job skill development and resume building for adults. The center is planning to join forces with TAF's Virtual Institute in the near future.

Although AHA is committed to serving the needs of the resident population, developing solid community-based programs and curricula has been difficult. As McDonald (1999) notes:

We've had some really great [volunteers] who've been able to reach out into the community, kind of talk to people and . . . see what they want to learn about computers. But. . . if they don't know what's possible, if they don't know what computers can teach them, sometimes its kind of hard in the beginning stages to get a good program going right off the bat unless you want to say "hey, this is what I think is best for this population." So we're still kind of trying to get a good core curriculum. . . . And so I think that's going to be something that we are really going to work on this year. It is definitely a question of what these folks want to learn versus what we think is best for them to learn right now.

AHA plans to create a "CLC Technical Tools Library" that will include the curricula, information on lessons learned, and CLC development and evaluation tools. This collection would be made available to other communities interested in establishing a community technology center.

PARTNERSHIPS

The Role of a Community Technology Planner

As in Austin and Pittsburgh, partnerships pervade many of Seattle's community technology initiatives. Collaboration is due to funders' emphasis on collaboration and partly to the combination of resources needed to establish and maintain community technology projects. Seattle, however, has had the benefit of a community technology planner to encourage and foster collaborative relationships among the city's community technology actors. According to Keyes (1999b), "the advantage of having a community technology planner is having somebody who can step back and have all of those feelers out in the different areas of the community and see what's out there and how we can bridge those things." This position has proven invaluable to many CTCs. As McDonald (1999) notes:

[Dave] is really out in the community getting to know the programs, looking for funding resources, looking for innovative ways to make these centers work. And back in January he held a meeting for all the umbrella organizations who are doing multiple centers. [It] was the first time that anybody came together. . .to talk about what their needs are. It was really helpful, just having that link. Having there be a place where people can come together to talk about what kind of training they would need, what kind of resources they need right now is really key.

Out of that initial meeting, AHA was able to establish a partnership with TAF. As noted above TAF will expanding its Virtual Institute program to include AHA's Andy Polich center in Renton. To further build a community technology alliance, Keyes is looking to broaden the dialogue to include individual centers as well.

Washington State Neighborhood Networks Consortium

The Washington State Neighborhood Networks Consortium (NNC) is an alliance of private- and public-sector groups that seeks to establish, maintain, and support CTCs in affordable housing developments throughout the state. NNC was established in 1997 as a consortium of Neighborhood Network centers.

In June 1998, then VISTA volunteer Tobi DeVito came on board to establish NNC as a nonprofit 501(c)(3) corporation with a board of directors. Realizing that there were many other actors serving the technology needs of Washington's low-income residents, NNC members broadened the mission of the consortium to allow non-FHA-financed properties and other CTCs to participate. To date, NNC has helped establish and/or sustain more than 50 Computer Learning Centers in Washington State.

NNC's long-term goals are fourfold to help provide every NNC center with Internet access; to form CTC/small business alliances to help center residents enter the workforce; to make all NNC centers accessible to the elderly and residents with disabilities; and to establish a software clearinghouse to complement the already existing hardware clearinghouse. NNC recently launched a citywide campaign, Connecting

Seattle, that seeks to provide computers, connect five sites to the Internet, train residents to be trainers and provide Internet training, and community forums at each site.

NNC received a \$17,000 Technology Matching Grant for its Connecting Seattle initiative. In addition, individual and organization donations and foundation and government grants help NNC cover the costs of equipment, administration fees, and other operating costs.

The U.S. Department of Housing and Urban Development (HUD) endorses the formation of Neighborhood Networks consortia because they have the potential to increase the impact of the limited amount of time HUD staff can allocate to the Neighborhood Networks program and leverage intellectual and organizational capital of consortium members. HUD has used NNC as a model for other organizations interested in establishing a community technology consortium. In 1999, NNC received HUD Top 100 Best Practices recognition. HUD also invited DeVito to speak about NNC's experiences at the 1999 HUD Neighborhood Networks Conference in Kansas City.

Despite the recognition that the NNC has received, it has a long way to go reach its full potential and meet its goals. Using a VISTA volunteer as a full-time staff member may not be the ideal model for other regions to follow. DeVito acknowledges that the support of Seattle's community technology activists was instrumental in getting the consortium off the ground. Such support might not be as readily available in other places. DeVito further asserts that relying on VISTA volunteers is not a long-term staffing solution. Continual and frequent turnover undermines the stability, continuity, and momentum of the consortium and its activities. For instance, DeVito notes that she had worked at NNC for nearly half of her assignment before any substantive progress in the establishment and operation of the consortium was made.

NNC also has had difficulties involving center staff in the consortium. Seattle's centers, like CTCs throughout the country, are often understaffed, leaving little time or energy for the center staff to devote to the consortium. To rectify this situation, NNC is trying to strengthen membership and to expand community involvement in the consortium.

WHAT IS UNIQUE ABOUT THIS CASE?

Seattle is notable for the level and diversity of activity in the community technology arena as well as the leadership role taken by local government in narrowing the digital divide. Given the presence of high-technology firms, the level of community technology activity in the Seattle metropolitan region would seem to come as little surprise. Yet, community technology activists are careful not to overstate the role of the industry in fueling the region's community technology activities. When asked about the role of industry presence in the development of community technology initiatives in Seattle, Keyes (1999a) replied:

One of the problems that I see, particularly from some of these technology companies, is that first they'll drop a single grant for a project or donate some software but that's not what's going to help the centers survive in the long run and really make them work. There's still a pretty big disconnect and a lot more room for investment from the companies. . . . I've seen some interest from professional

associations and employee groups volunteering and donating time and stuff. It seems more ripe on the individual employee level to get support for the community technology centers than it is company-wide. . . There are some companies that have sort of adopted schools. I don't know of any that have adopted community technology centers over the long haul. I sort of feel like that's the way to go—see if we can develop some longer-term relationships, partnerships. It's a tougher sell because people want to do a project and get out, you know and move onto the next project. It's a challenge but that's one of the places I think we need to go.

Many community technology activists attribute the level of community technology activity to Seattle's strong neighborhood-based approach to planning and service delivery and to commitment on the part of community technology actors and community leaders. Yet, it is hard to separate the city's economic base from neighborhood development. As Namioka (1999b) notes, "Boeing has been an integral part of the history of Seattle for so long that you can't disassociate Seattle neighborhoods from Boeing's presence. . . they go sort of hand in hand." In addition, the surge in computer development firms is transforming the urban landscape.

Certainly Boeing, Microsoft, and numerous other technology-related firms have provided a vast pool of skilled volunteers. Many community technology activists are themselves connected to Boeing or one of the region's computer development firms. Namioka (1999b) suggests that "It's employees of the company that are helpful. We have a lot of Boeing people working on the Seattle Community Network project. We have had a lot of Microsoft people donate money. It's not the companies, it's the people that work in those jobs that help." Anthony Williams (1999) of Project Compute echoes this sentiment: "There are a lot of people of color that understand what the implications of technology are, and I think if you look across you'll see a lot of people of color volunteering a lot of time to this, and mostly people who work in the industry or who have connections to the industry in some way."

The industry presence also has raised the level of public awareness around information technology issues and encouraged local government to play an active role in narrowing the gap between the "haves" and the "have nots." By creating CTTAB and the Citizen Literacy and Access Fund and employing a community technology planner, the City of Seattle is leading the way in local government responses to the digital divide.

CHALLENGES

Technology Impact Indicators

As noted above, Seattle's Citizens Literacy and Access Fund was established with the goal of improving access to information technology in underserved communities and improving technology literacy among the city's residents. Yet, CTTAB board members and other community technology advocates have long grappled with how to define access and technology literacy and how to measure the impact of Seattle's community technology programs. Keyes (1999b) touches upon the complexity of this issue:

We're still working on how we implement [a set of technology impact indicators].
Can we come up with some working definition of what technology literacy is or a

set of moving standards? . . . What's the basic set of survival skills that a citizen needs—the reading, writing, and arithmetic for technology? And then there's the next level of what people need—and that might include things like the ability to communicate with your neighbors or participate in your neighborhood organization or do life-long learning or access the library or those kinds of things. Then there's the second level of technology for a specific application—for a job or for basic office skills. And then there's kind of the community development component—getting technology jobs in the community. Is it part of what's needed for community development? There's a skill level and literacy level with that. . . . How do we measure both that literacy level and how do we look at [whether] the infrastructure [is] there to support it and support what communities need for technology as part of their community development?

CTTAB is currently working to develop a definition of basic technology literacy and a set of technology impact indicators to measure the impact of information technology on the health and vitality of the Seattle region over time.

Planning around Technology

Seattle is a city of neighborhoods. As such, the City tends to take a decentralized, neighborhood-based approach to planning and service delivery. Community technology advocates believe that technology needs to be incorporated into neighborhood plans. It has been difficult, however, for neighborhoods to do strategic planning around technology. As Keyes (1999b) explains:

We haven't been able to successfully facilitate and motivate groups to [come up with a technology plan for their neighborhood]. . . . It would be neat, it would be real powerful to see what that would look like. It's a concept that people just don't have. It's not on the map yet. So part of it is doing that work to get it there. In [one particular neighborhood] . . . there's a core group of folks that started and got motivated. They want to put in a computer center but they're not seeing that whole neighborhood strategy because its a hard one to grasp. There's not a good template out there.

- For the most part, technology planning remains relegated to the executive services department. Although efforts by CTTAB have certainly sought to elicit citizen regarding technology issues, more education is needed to help neighborhood organizations and local government make a direct connection between technology and service delivery.

Formalizing Partnerships and Collaboration

Community technology advocates are trying to formalize the network of partnerships and collaboration in the city through the creation of a community technology alliance. A number of actors and institutions recently joined forces to submit a grant proposal to the Department of Education CTC program for the formation of a community technology support structure. As Keyes (1999b) notes, “The Department of Education grant was really a nice opportunity to pull some players together and say, ‘I know you’re

doing this really well, and so what can we start to do together to build a larger support system?”“ The Seattle Public Library submitted the grant and will take on a coordination role. The partners include a number of organizations and agencies: Seattle’s community colleges, the Seattle Community Network, area CTCs, and nonprofits that provide services to CTCs. The alliance also has received commitments of in-kind services from corporate-sector actors, including SYSCO and TCI (now ATT Broadband).

The purpose of the alliance is to create more formal linkages between community technology actors and initiatives in an effort to share best practices and create the opportunity for learning exchanges. The grant proposal states alliance’s to be the goal enhancement of capacity in each of six identified CTCs. All of the sites selected currently operate a technology program but need assistance in making their centers sustainable. Centers were also chosen based on the level of community interest and support; all of the CTCs must be invested in and they must be committed to the process. All of the centers are located in low-income neighborhoods and serve low-income populations. Although all of the six initial CTCs are located within the City of Seattle, partners in the alliance have a long-range goal of extending the alliance to serve the greater Seattle region.

The partners in the community technology alliance take a multifaceted approach to capacity building that focuses on hardware and software capacity; technical support; staff training; and curriculum development. Each of the partners will bring some expertise to the alliance. For instance, the library offers Internet training and can act as a depository of community technology information including handbooks and curriculum.

While the alliance focuses on providing a “package” of support to CTCs, those within the alliance realize that there is not a single, cookie-cutter approach to building capacity in CTCs. According to Jim Liddell (1999) of Connect, “Each neighborhood and each community’s got it’s own dynamics and, interestingly enough, a different mix of players. And that always influences what number you’re going to put on the jukebox to start the dance.”

Chapter 7

LESSONS LEARNED AND CHALLENGES FACED

INTRODUCTION

The community technology field is diverse and growing, making it difficult to synthesize what is happening in the field. The cities and organizations studied for this project continue to grow and change, and they may be at different places by the time this report is printed. The evolution of the field is likely to continue for the foreseeable future. Although the field is dynamic, the oldest community technology providers have existed for five to ten years, making this a good time to step back and collect what we know. We did hear similar things from many of the people we interviewed, suggesting that there are some common lessons and challenges that exist across organizations. The purpose of this chapter is to present these common experiences.

LESSONS

As more cities begin to support community technology efforts, it is important that all parties involved—city governments, grassroots organizations that are providing access to IT, and funders who provide support—learn from those who have already traveled up the learning curve rather than trying to reinvent the wheel. In this section we present lessons for community technology organizations and funders. We present policy recommendations in the following chapter.

The Organization's Mission and Technology Program must be Linked

Given the popularity of technology programs, it would be tempting for existing community-based programs to initiate them without a clear understanding of the role technology might play. It is essential, however, for community organizations and funders to realize that technology is merely a tool to help organizations achieve larger goals; technology is means to an end, not an end in itself. Community-based organizations must move beyond technology itself and focus instead on how technology can be used to help fulfill organizational missions. Organizations should adopt technology initiatives after they have a specific plan in place to do so. Those efforts that are created around an IT-based mission should also be specific about how IT should be used, making it clear whether the effort exists to provide access, training, content, or some combination of these three.

Both the Austin Free Net (AFN) and Technology Access Foundation (TAF) are highly successful community technology organizations that were created around an IT-based mission. AFN's mission supports a wide array of programs for a broad audience; TAF takes a structured approach to reach very specific goals.

AFN's primary goal is to provide access to IT for the city's low-income populations. To fulfill this goal, AFN departed very early on from the traditional free-net model by moving beyond dial-up access and focusing on the establishment of community computing centers in low-income neighborhoods. Chapman (1999), referring to his work

with Rhodes in Austin, asserts that “In our experience, people in low-income communities need a reason to use this kind of technology, and that reason is one that they usually discover themselves or that they bring themselves, rather than being something that’s imposed on them by the people that are trying to make the project work.”

TAF’s programs have very specific goals and cater to a specific population—youth of color. The TTIP program, for instance, uses a structured curriculum to prepare minority youth for technology professions. Although Trish Millines (1999) realizes the importance of access, she feels that access is not enough: “Just because I might be on the Web and I’m an African American doesn’t mean that there’s a lot of stuff that’s relevant to me.” In the TTIP program, participants become more than users of technology, they become providers of content.

Technology Should Match Program Needs

Staff at community technology programs might believe that they should purchase the most advanced computers they can with the money they have. However, depending on how the machines will be used, it might not be necessary to own the fastest, biggest computers. In Pittsburgh, for example, a senior center planned to build a computer lab. The initial idea was to purchase as many top-of-the-line machines as they could afford. Given the center’s budget constraints they could afford only four top-end computers. The student partner (a member of the Carnegie Mellon course discussed in chapter 5) had discussions with the seniors about the tasks they wanted to perform on the computers. Next, the student researched the hardware and software requirements to support these activities. The student recommended that, instead of getting the top-end machines, the center buy less expensive computers that were more appropriate to the tasks the seniors wanted to undertake. As a result, the senior center was equipped with six machines instead of four.

Sharon Stover (1999) of the University of Texas, Austin, also offers this caution:

I think there’s a conspiracy to get all of us to own more information technology. I mean the vendors are just pushing it out, and they make us feel insecure if we don’t have stuff, if we don’t know how to use it, if we haven’t looked at the latest site, if we don’t have the best authoring tools or whatever.

- More technology is not always the answer. The most important thing is to define clear goals and then to implement a program—using appropriate technology—to achieve those goals (Schuler 1996).

Successful CT Programs Require Technical Leadership in the Organization

Although not every staff member in an organization needs to be fluent in technical language, it helps if the organizational culture supports technological literacy within the organization. According to Joseph Mertz of Carnegie Mellon University, “Leadership is a strong predictor of how well an organization can adapt technology to its programs. Technology can’t be ghettoized into a single program or under a single program director. If it is going to take hold and be sustainable the leadership must have

some literacy and appreciation for what technology can offer the organization.” The leadership of the organization should ensure that staff understand the positive potential of access to IT.

Computers Are Not One-Time Purchases

The hardware component of IT programs tends to get the most attention, especially when programs are first implemented. However, computers, printers, and monitors make up only one part of the IT picture. Community technology programs require not only hardware but also compatible software, technical support, upgrades and maintenance. One interviewee recounted a case in which an organization received a \$50,000 grant for a management information system. This organization spent the entire grant on computers and a network, leaving no reserve for technical support, the development of a management information system or upgrades, and maintenance of the existing equipment. The organization mistakenly believed that the computers and the network constituted a complete management information system.

Start with a Soft Opening

Several staffers at community technology programs told us that getting their centers up and running was a process, not a one-time event. It is impossible to foresee all of the potential technical problems and user demands that will arise after the initiation of a program. The primary staff person at one Seattle center told us that her center began with a “soft opening,” limited to a relatively small number of area residents. This soft opening allowed the center to work out problems before it could be besieged.

Put the Computers Where the People Are

Community technology centers seem to attract the most traffic when they are located in places that community members already use. We visited centers located in recreational facilities, housing projects, senior citizens’ centers, and multiuse office buildings. The location chosen should be convenient to the target population. Computers are already intimidating to many people who have limited access to them. Programs that place computers in surroundings familiar to residents increase the likelihood that a broad range of users will be attracted. Residents of the target community—the potential users—can be helpful in providing information on appropriate locations.

Outreach Efforts Must Be Creative

Even a great location will not guarantee success. Although some CTC staffers told stories of being inundated with traffic immediately upon opening their doors, other centers had problems in their efforts to attract people. We heard many stories about creative outreach efforts that often relied upon community members to spread the word about the programs. For example, the Austin Learning Academy’s adult literacy programs help to advertise the programs geared toward youth. Many of the participants in

ALA's CARE program learned about the program because their parents were taking GED or ESL classes there. The youth then get their friends involved, and the program grows through word of mouth.

Project Compute in Seattle has implemented innovative outreach techniques as well. For example, every Friday evening, they offer an open-lab family night to interest parents in technology and to facilitate intergenerational learning. In their Life-Web Journalist Project, Project Compute loaned 25 handheld computers to program participants. As Anthony Williams (1999) notes, the program was Project Compute's first attempt to spark interest in technology by releasing the technology into the community.

We said, you know, everyone's not going to walk through those doors and register for a class, so how can we begin to introduce the use of technology on a daily basis? The vision was . . . if a kid had this device at home or at a friend or relative's house and was using it in some way, that would create an interest for other people they came in contact with. That worked fairly well.

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Be Sure to Get Community Buy-In

Community technology efforts have a better chance of succeeding if community members have input throughout the process, from planning to implementation to programming. Lillie (1999, 1) hypothesizes that "it is doubtful that access projects can succeed without employing methodologies for achieving effective resident participation." Rather than take a cookie-cutter approach to community technology, Goslee (1998: 21) maintains that "efforts to encourage the spread of information technologies in low-income communities" must be "firmly rooted in the communities' own sense of their goals and needs." Jim Liddell (1999) of Connect in Seattle asserts:

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- It is really important to have the community feel vested [in a project] before they're ever going to make the commitment by ultimately taking ownership of the community asset that's created. . . I never want to think that you can create a complete [technology program] and provide it as a package and give somebody a key. That doesn't create the commitment and ownership. . . it doesn't require any community investment.

We visited CTCs that encourage community participation every step of the way and others that look for community "buy-in" after the program is implemented. It is important for those who plan programs to talk to community members about what they want and need.

The Archdiocesan Housing Authority has taken the community-participation approach with its computer learning centers in the Seattle region (see chapter 6). Each AHA center offers programs tailored to the specific needs of residents. AHA has reached out to the community to identify these needs. In some instances, planners may have to do some basic education about IT and why access might be useful and important to community members. Programs that are simply initiated without reaching out to the community are likely either to suffer from lack of users or to fail to attract those who are most cut off from IT resources.

Community Technology Efforts Require Champions

Like many community-based programs that provide access to resources, a community technology program requires initiative and determination. According to Gene Crick (1999), “You need people who are so immoderately wed to the notion of making it happen. I mean, it’s got to be an unreasonable and often unreasoning commitment to some project like that, because otherwise, like so much in public service, you’ll fall among the pressures of time and good intentions.” The many champions we interviewed in our case study cities told us of a range of challenges—from inconsistent technical support to lack of funding—that had to be surmounted in order for the programs to continue.

Community Technology Efforts Must Work within the Context in Which They Operate

As with any community-based program, it is critical that program planners have a deep understanding of the context in which they hope to initiate the program. With respect to low-income communities, Chapman and Rhodes (1997, 2) maintain that “the concept of geographic community is often much stronger and more tangible in low-income areas than in more affluent locales. Poor people spend more time in their own neighborhoods because they are less mobile, and the economic boundaries of such places are often their most distinctive feature.” The Internet best serves to cement bonds that already exist.

It is also important to recognize that not all low-income communities have the same needs. A program in East Austin, where residents speak either Spanish or English, will be different from one in South Seattle, where residents in one public housing facility speak 22 different languages. According to Gene Crick (1999), “It’s all fine and good to put public access terminals where people are computer literate in most of their homes. It’s quite another thing where that’s not the case—where they have economic or language or cultural challenges to overcome before they can even begin to make use of it. However, just because the challenge is large and we’re not going to level the playing field doesn’t mean that we can ignore it and do nothing, you know?” Some of the community technology activists with whom we spoke argue that low-income people are not very far down the learning curve; rather, they simply lack access. At the same time, it is always critical to consider the context within which a program operates.

The Funding Community Must Be Educated about IT

It is difficult to obtain funding for technology in poor communities from a potential funder who does not use and value IT and thus does not understand its potential. A community technology activist affiliated with the Seattle Community Network recalled these difficulties:

We did try to get funding, especially early on [in 1992 to 1993], from Microsoft and from Boeing and both of [them] rejected us. I think part of the problem for

Boeing at least is because they were not used to community-based technology projects. . . . They said, “are you health and human services?” Well, you know, kind of sort of. . . . “Are you arts?” Well, [we’re] sort of there too. . . . We can help just about any organization because what we’re doing is providing an infrastructure, an on-line service. And they told me frankly, “We don’t think you are a very good candidate for funding because we can’t put you in any category that we traditionally fund.”

Although the funding community has, overall, become more active in the community technology arena, according to Mertz (1999), “A lot of foundations are slow to adapt technology. To understand what you’re funding and really make leadership judgments, you’ve got to at least use your e-mail regularly and surf the Web occasionally, know what these things are about. Not that you have to be experts in these things but know what they’re about so that you can make decisions about them.” In Pittsburgh, community technology activists created a presentation for potential local funders both to demonstrate the importance of funding CT efforts and to educate funders about the characteristics of a solid CT program.

The success of Seattle’s Technology Matching Fund is partially attributable to the fact that those who evaluated the matching fund applications are knowledgeable about technology. As Aki Namioka (1999b) notes, “A lot of us [involved with the evaluation] knew something about technology or running technology projects, we could make some kind of judgment about the budgets that were being submitted.”

Fund Programs, Not Technology

Funding agencies also need to understand that technology itself is not a goal for most CT programs; rather, technology serves as a tool to help programs achieve their missions. Some funders believe that if they simply fund hardware, the program is funded. Therefore, it is important that funders understand the role that technology will play in the overall program and that hardware is only one component of what organizations need to run effective programs. Many funders in our case study cities have learned from past mistakes and have begun to fund programs in a more holistic way. This lesson will be particularly important for those cities in which programs are newer.

CHALLENGES

Although the field of community technology continues to grow and expand at a rapid rate, a range of challenges continues to confront program staff and other community technology activists. In this section, we discuss the most common of these challenges.

Keeping Programs Funded Is a Constant Struggle

As with most community-based organizations, long-run sustainability is a key problem facing community technology centers and networks. Ann Beamish (1995) emphasizes the importance of stable funding. Securing funds remains an issue even for organizations with an established track record. Staff at the Austin Learning Academy

claim that the demand for services has reached a level that is twice the amount for which they have funding. ALA won a TIIAP grant a few years ago, but it now suffers from lack of funding. Asked about funding, Toni Williams (1999) replied, “We pray that we have enough money to do it. And right now, our prayers aren’t being answered.” Connie Seibert (1999) agrees:

We have the recipe and it’s working. We’re reaching 150 to 200 families; we could just as easily if we had the money reach twice or three or four times that. . . . Hey, you’re bitching and moaning that you don’t have enough skilled workers for these positions that are opening up. Give us the cash and we’ll train them. We’re doing it right now for nothing.

- Roxanne Epperson (1999), director of NBLC in Pittsburgh explains: “Every year you’re trying to figure out sources of funding and it’s very stressful, it’s very stressful. . . . I submitted two grants. . . . If we don’t get them, then what are we supposed to do, are we going to close down in December?”

The AHA’s Computer Learning Centers in the Seattle region are facing similar challenges. As Greg McDonald (1999) notes:

I’m really kind of nervous. In the future, we want to continue to offer free classes, free access to low-income residents. How are we going to continue to do that? It seems like we need to come up with a real innovative way to bring in some other revenue. . . . It’s something we’re brainstorming right now. . . . A few years down the road, unless we get some incredible individual donors that want to help us out, how are we going to keep this place going?

- Just as CTCs are learning as the community technology movement matures, so too is the funding community. Epperson (1999) welcomes some of these changes:

One thing I’ve noticed, and I just found this out because of the last proposal I submitted, [foundations are] changing their focus and they’re starting to give operating costs now where they wouldn’t have before. So that is a blessing. . . . I went to meet with the funder, he gave me a whole list of about five or six other foundations for me to target and they all give operating costs. I’m like, “oh thank you,” because that’s critical. How the heck did we run the center without a staff? And we are short-staffed, you know, so we do rely heavily on volunteers.

- CTCs have also turned to other revenue sources. NBLC, for instance, has been designated as a community college satellite site. Not only will NBLC’s designation make community college courses more accessible to the community, but it will also act as an income generator, bringing in small, yet significant, amounts of money to the center each semester. AHA is planning to contact Seattle University and the University of Washington about conducting a feasibility study for a marketing plan that would generate more earned income. CTC program staff will likely need to continue to educate funders

about how access to IT connects to a range of other funding targets such as education, economic development, and social welfare.

It Is Difficult to Measure the Results and Outcomes of Community Technology Efforts

Thus far, what we know about CT programs is largely anecdotal. According to our survey, although 84 percent of programs collect data on their users, far fewer track those who use their programs and most acknowledge that they do not do enough. When asked what they see happening in the programs in which they work, staff members are likely to tell stories rather than to produce numbers. These stories are about connecting people who previously did not know each other; helping people stay in touch with faraway friends and relatives; watching people learn how to use new technology and create things with it. Ana Sisnett (1999) of the Austin FreeNet has observed the following:

Age groups working together that did not work together before. For awhile antagonistically—looking at each other suspiciously, but then over time they get familiar with each other and they're able to collaborate and help each other out, even if it's something as simple as helping to reload a page, you know? And I've seen people find out as they talk about what their interests are, as they do searches. For example, in a class—"oh, I didn't know that"—and then they might end up walking out of the class talking to each other about something.

Sue Beckwith (1999), the first director of the AFN, notes that in the libraries in Austin, people "have started talking to each other, and now a bunch of people come into libraries that didn't really come into libraries before." Roxanne Epperson (1999) from NBLC points to other evidence of success:

Kids won't leave. At 5:30 when it's time for them to go, you have to make sure there's none hidden in the basement. They hide under the desks. . . . I don't know how their little bodies can fold up, but down in the library there's an opening under one of the shelves, they're all up under there. So that tells me we're doing something right, you know.

- The kinds of outcomes described by Sisnett, Beckwith, and Epperson are linked to the concept of social capital—creating linkages between people and institutions that did not previously exist. Research in a wide range of fields demonstrates that social capital helps communities to cope with issues and problems. According to Goslee (1998, 6), "Communities without access to communications networks may find it more difficult to sustain the civic engagement that can lead to these improved outcomes."

In addition, many of the organizations that responded to our survey have added technology to what they already do. They do much more than simply broker access to IT. According to Michael Roberts of the United Neighborhood Houses of New York, "The

big question is not simply ‘how do you weave technology into existing programs, but once you have, how do you assess if it’s working?’” (Roberts quoted in Goslee 1998, 26).

A further obstacle to measuring the effectiveness of community technology initiatives is the cost of evaluations. CTCs often lack the staff and the skills to carry out evaluations of their programs. As one CTC director explained, “We can’t afford \$10,000 or whatever it is to pay someone to evaluate us.” To help reconcile this problem, researchers with CTCNet are currently working on an evaluation toolkit to guide its affiliates through self-evaluations.

Seattle is moving ahead on measuring the impact of IT and community technology programs on the regional front. As noted in chapter 6, CTTAB is working with other community technology activists, educators, and industry representatives to develop a working definition of basic technology literacy and a set of technology impact indicators to measure the impact of information technology on the health and vitality of the Seattle region over time. The first of their kind, CTTAB’s technology impact indicators stand to be a national model.

Support for Technical Assistance Is Difficult to Find

One of the largest problems facing CTCs throughout the country is how to support technical assistance. CTCs face an array of technical problems ranging from the simple—fixing paper jams, setting up printer configurations, and re-creating icons deleted from the window—to the more complex—managing disk space and access, configuring a network, disaster recovery of a server, or controlling viruses.

CTCs provide particularly challenging technical environments. CTCs tend to be understaffed and face high rates of turnover, making in-house technical assistance difficult. They often lack the funding resources to contract for expensive, “expert” technical assistance. Moreover, CTCs generally have a variety of equipment, which is a challenge to manage and support technically, and their computers are used for many activities by many different persons, which raises configuration and security issues (Schroerlucke 1997).

Community technology advocates in Pittsburgh have made a number of attempts to help CTC staff and volunteers develop a more self-supporting relationship with technology. The Carnegie Mellon course is one case in which CTC staff members have been empowered to perform more of their own problem solving. While the course has proved invaluable, it is not a long-term solution. CTCs need to create an organizational structure through which expertise can be transferred from one person into an infrastructure that serves to support the CTC over time, even through staff changes (Schroerlucke 1997).

Many CTCs Cannot Meet the Demand for Services

Just as doing the right kind of outreach is a lesson that programs need to learn, meeting the demand for access is a challenge programs need to face. Staff at nearly all of the organizations studied in our case study research discussed the challenge of serving all of those who lack access. Many staffers claim that their centers and classes are full, even without doing much outreach. Over eleven percent of survey respondents also list this

issue when asked about the main challenges they currently face. For example, the Technology Access Foundation would like to expand its TTIP program to bring in 100 new participants a year. They do not, however, have the capacity to serve more participants than they currently serve. They need a larger center, and they also need to determine the amount of interns the Seattle labor market can bear. A shortage of instructors and lack of a well-developed curriculum and computers hinder the capacity of other CTCs. As the Internet becomes even more mainstream, and as familiarity with IT becomes a requirement for an even broader range of jobs, demand for services, such as those provided by the CTCs will undoubtedly increase. The challenge to meet this demand is clearly linked to the funding challenge discussed above. Doing so will require a strong will and a consistent effort on the part of nonprofit organizations, policymakers, and corporations.

CT Efforts Would Benefit from Greater Integration

Technology provides new mechanisms through which partnerships and collaboration can develop and information can be shared. Community technology programs connect to an extremely wide array of other issues and areas, including education, economic development, civic participation, literacy, and equity. The natural relationship between access to IT and these other issues would seem to point to a great deal of collaboration between community technology efforts and other CBOs, government, and the private sector. Some technology advocates believe, however, that collaborative efforts sometimes get “muscle-bound” by the involvement of public, private, and nonprofit elites, making it difficult for community groups or newcomers to enter into partnerships on equal footing. A number of individuals interviewed for this research spoke of the need for individuals at the neighborhood level to drive the partnerships.

As Schroerlucke (1999) notes, “[the Pittsburgh area] is one of the most resource rich areas I’ve been in—but they’re not connected and people don’t know how to use them. There’s no coordinated effort, so everybody’s reinventing the wheel, everybody’s doing the same research, everybody’s doing the same digging trying to figure out what to do.” Gerry Balbier (1999), a program officer at the Heinz Endowments, echoes Schroerlucke’s frustration and calls for greater integration among community technology initiatives:

We’re all craving information about how other groups are doing it because we’re realizing that we have something to offer as far as our own experience, but we know that other groups are doing things that we haven’t thought of or haven’t experienced. How do you connect all those sources of knowledge? We’ve got to get a network going somehow.

- Some of Pittsburgh’s community technology centers have submitted a proposal to the U.S. Department of Education for grant funding for a project that would help create a regional community technology collaborative to address some of the issues raised by Schroerlucke and Balbier.

The project would bring together a number of major institutional players, including the Carnegie Institute, the Electric Information Network (EIN), the Three Rivers Free-Net, and the Heinz Endowments. The collaborative would help coordinate community technology initiatives and make it easier for people to network, get the resources they need, and put some training and support staff and programs in place. The collaborative would also include a mini-grant pool from which centers could obtain small amounts of money.

In Austin, where the relatively small size and the character of the city have fostered significant collaboration and cooperation, community technology efforts are still somewhat fragmented. Staff of existing organizations believe that the City could do more to broker relationships of existing organizations and to help find resources for existing organizations. Of our three case study cities, Seattle is probably furthest along in this area. By creating the position of community technology planner, Seattle began to institutionalize the importance of community technology.

CONCLUSION

The common lessons learned and the challenges faced by community technology efforts demonstrate that a great deal of learning has taken place in the field and that these common themes must be widely shared and discussed if the potential of this movement is to be realized. Conferences, such as those sponsored by CTCNet and AFCN, promote this kind of learning and information sharing. However, much research remains to be done, both about the inner workings of these organizations and the outcomes they produce for the people who use them.

Chapter 8

POLICY RECOMMENDATIONS

INTRODUCTION

A primary goal of this research has been to learn how the public sector could best support the mostly private nonprofit, community-based organizations that currently provide access to information technology (IT) for those who have little or no access elsewhere. Access to IT is a right, and government must help to ensure that that right is protected. According to Goslee (1998, v), “The design of the communications system through which we will talk to one another, learn from one another, and participate in political and economic life together is too important to be left to the free market alone.” Policymakers at all levels must therefore “play an active role . . . to ensure that the emerging networks meet the basic economic, social, political, and cultural needs of everyone, regardless of their ability to pay or where they live” (Goslee 1998, v). In short, people need access to information technology in order to

- work in today’s economy
- participate in democratic society
- communicate effectively with others
- obtain important information

This chapter makes specific recommendations about what government at the federal, state, and local levels can do.

FEDERAL-LEVEL RECOMMENDATIONS

Support Universal Access

As we discussed at length in the first chapter of this report, access to IT is becoming increasingly necessary for people to function as full citizens. According to Sue Beckwith (1999), “If government is going to be providing services on-line, then government by definition has a command to serve all people with some equal quality of service.” Toni Williams (1999) of the Austin Learning Academy frames the policy issue this way: “You need to decide: Do you want us to be equal? Or, don’t you want us to be equal? You need to make a decision, and it needs to be in the policy. Let’s talk about policies. Is it going to be a situation where this is what we want for everybody? Or, is this just for the elite?” Universal access serves democratic ideals.

The current conception of universal access needs to be broadened beyond the telephone and extended to computers and the Internet. Maxine Rockoff, founder of the IT Initiative at United Neighborhood Houses of New York, maintains that “our definition of universal service should be expanded to include at least three new components: access to a computer with a World Wide Web browser, a personal Internet e-mail address, and the

capability to make one's own information available via the Web" (Rockoff as quoted in Goslee 1998, 16). The most recent NTIA report states that "to be connected today increasingly means to have access to telephones, computers, and the Internet" (NTIA 1999, 77). Leadership for the creation of universal access to IT must come from the federal government. E-rate and TIIAP programs are a solid beginning, but these efforts must be greatly expanded upon if the goal of closing the gap between information "haves" and information "have-nots" is to be realized.

Support the Establishment of CTCs

Community technology centers are critical because they ensure access to new technology within low-income communities; they fill gaps left by other institutions and programs. Government programs already support schools and libraries. Many think that the public sector is therefore doing enough. However, just as the definition of technology must be expanded beyond the telephone, the definition of what kinds of organizations provide access must also be broadened. The advantages that are currently given to schools and libraries, such as the e-rate, must also be provided to CTCs. Data from the most recent NTIA survey show that "households with incomes of less than \$20,000 and Black households. . . are twice as likely to get Internet access through a public library or community center than are households earning more than \$20,000 or White households" (NTIA 1999, 78). Further, "the same households that are using community access centers at higher rates are also using the Internet more often than other groups to find jobs or for educational purposes" (NTIA 1999, 78). Continued support for the Department of Education CTC initiative is one way to broaden the federal definition to include community-based organizations. Support for CTCs will clearly be critical for narrowing the digital divide.

Educate Policymakers about the Importance of IT

Although the digital divide issue has benefited from increased publicity in Washington, overall awareness about the importance of this issue remains low. Few cities and states have thought about and implemented programs to the extent that our case study areas have. The federal government, and most likely the U.S. Department of Commerce NTIA, could play a central role in educating policymakers at the state and local levels about the importance of providing equal access to IT. Access is especially important because governments at all levels are increasingly putting information on the Internet. Candidates for public office also use the Internet as a way to reach voters. Hecht (1998, 7) states that "the provision of dense, useful information can increase community awareness and participation." Those who do not have access cannot be full participants in democratic society. Although we focus on government in this chapter, we cannot emphasize enough the extent to which grassroots organizations play a critical role in urging the public sector to become involved in closing the gaps in access to IT. At the national level, too, CTCNet has been instrumental in making the Department of Education's (DOE) CTC program a reality.

Create Realistic Expectations for IT Policy

Community technology activists told us stories about policymakers and funders who get excited about the potential of IT but apply their support in wrongheaded ways. In Texas, for example, there have been hearings and debates about whether to replace textbooks with laptop computers. University of Texas professor Sharon Strover (1999) claims that this is an illustration of “the way in which the romance with technology just overrides anything practical. What’s going to be on the computers? Do we have ports where students could hook up to the Internet? How are we going to get the software? What software?” The emphasis on technology is quite pervasive. Trish Millines (1999) from TAF echoes Strover’s sentiments:

Almost anybody can be wired for computers, but what are you going to do with them? It’s like with some schools. They’re bragging about how wired they are. What’s on the other end of the wire? Nothing. . . . For some places, there’s something on the end of the wire but there’s no curriculum attached to it.

Access to IT is important—and it will progress in other areas where equity is an issue, for example, education, the jobs/skills mismatch, and urban/rural imbalances—but it will not solve these problems on its own. Policymakers will set up programs for failure if they create unrealistic goals for them.

Support a Variety of Different Program Types

Sponsoring multiple and different efforts is critical at this early stage in the development of community technology when experimentation among programs abounds. Although TIIAP supports a wide range of efforts, these funds are extremely competitive. We heard, for example, that some organizations have been put off by TIIAP’s arduous application process. One director of a CTC told us that the application involved so much work and that the program was so competitive that she did not think it was worth her time to pursue it. To some degree, the DOE’s CTC grant program provides another source of money that is more flexible. Hence, the DOE CTC program should be sustained and expanded.

Support What Works

Community technology activists reported that policymakers have begun to frame support around policy areas that already enjoy support; for example, welfare reform and workforce development. Although these areas may be important, the problem, according to Sisnett (1999), is that

It changes the mission of a lot of organizations and then they end up not doing it well or as well as a group that has that as its central purpose. And so then it’s like, “Oh—see, that didn’t work.” So the monies are yanked and they take it elsewhere and they stop doing workforce development in the very communities that need it, you know what I’m saying? And then they think up something else. It forced

people to be grant-driven as opposed to really being able to focus on what their primary focus is.

Kathy Schroerlucke (1999) likewise urges CTCs not to lose their primary focus:

You get these big programs like welfare to work and the housing authority and, you know, the huge programs, and all they're looking at is how fast can you get somebody a job, and they don't even look at whether it's a good job, whether it's a job somebody's gonna keep. . . . So they want to fund and support what I would call the factories, the training factories. And what I keep saying to some of the community groups and collaborations that are going on is that there are people and organizations that do that well—let's let them do that well. Let's send business to them. And in all these other centers, let's let them be learning centers. Where people can find that point where they're interested in you know, moving beyond trying to fit into somebody else's box. But it's hard to sell.

Nearly all of the current CTCs began as grassroots projects or spinoffs of existing community-based organizations. These local organizations are best equipped to understand the particular needs of the communities in which they work. CTC funding on the national level, and the broadening of the federal definition to include CBOs as eligible for universal discounts, will bring CBOs into the mix of organizations that provide access. Policymakers must understand the role of information in the community and the way in which it is accessed. Further, communities differ in the ways in which they use and access information, and these differences must be recognized and built into policy. CBOs are therefore better equipped to understand the goals that communities want to reach through technology.

Promote Policies that Enhance Competition among Computer Manufacturers and Internet Providers

Nearly 17 percent of respondents to the latest NTIA survey reported that they lacked Internet access because it was too expensive (NTIA 1999, 77). Competition among manufacturers of PCs has contributed to the decreasing prices of machines. Lower prices are clearly partly responsible for the increasing percentage of households that own PCs and have access to the Internet. Expansion of competition is likely to further increase access and ownership. According to the NTIA report, "Expanding competition in rural areas and central cities is particularly significant, as these areas lag behind the national averages for PC-ownership and household Internet access" (NTIA 1999, 78).

The Telecommunications Act was supposed to increase competition, but many community technology activists believe that the opposite has happened. Increased competition must be coupled with appropriate safeguards. We encourage competition as a means to reduce prices for hardware, software, and Internet services, but we also believe that the issue of access is too important to be left to the free market alone.

STATE-LEVEL RECOMMENDATIONS

State Regulatory Commissions Must Play a Key Role

Given devolution and deregulation, the state and local policy arena is an especially important one in which to work. Public utility commissions (PUCs) are the key regulatory bodies and have considerable power to shape access at the state level. Chapter 3 describes cases in Ohio and California, for example, in which public interest advocates won significant victories for community technology programs in those states. Specifically, PUCs should do the following:

- Maintain and expand LinkUp and Lifeline programs; access to telephone service is still not universal.
- Include community-based organizations in universal service discounts; otherwise, the division in the universal service constituencies into “haves” and “have nots” is maintained.
- Ensure that benefits of universal service programs cover more than infrastructure investments and connectivity costs; PUCs should also support administrative costs, training, and capacity building.
- Place conditions on telecommunications companies seeking merger approval or renegotiate contracts that promote universal access. Such conditions could include capacity building and infrastructure development in underserved neighborhoods; new computer centers; assessments of community technology needs; and outreach and awareness of CTC programs.

LOCAL-LEVEL RECOMMENDATIONS

Make Access to IT a Part of the Government Mission

Local government needs to ensure, as part of its mission, that citizens have access to and are literate in technology skills. In Austin, Pittsburgh, and Seattle, local government has to some extent recognized the importance of ensuring access to computers and information technology for all of the regions’ residents. In most places, that level of sophistication and awareness does not exist among local government officials. Community activists in many places are working to educate local officials on the digital divide and the importance of providing universal access. One example of this kind of action is the Ohio case, described in chapter 3, in which neighborhood organizations influenced the decision of the Public Utilities Commission of Ohio (PUCO). Government officials must take some initiative to become proactive rather than simply reactive.

Use Franchise Fees to Fund Programs

Local government should use franchise fees from cable TV operators and other commercial telecommunications firms to support universal service programs and

community technology initiatives. Seattle has successfully used franchise fees from cable television revenues to fund Citizen Literacy and Access projects and to employ a community technology planner. In Austin, cable franchise fees fund the Telecommunity Partnership Initiative. The City of Pittsburgh is currently negotiating its franchise renewal with TCI. Franchise agreements have typically had terms of 10 to 15 years; thus, franchise fees are one way to ensure a steady stream of funds to universal access and community technology programs.

Broker Relationships

In many cities, community technology efforts are quite fragmented. Certainly at the local level, but also at the state and federal levels, policymakers could do more to broker relationships, match organizations with resources, and encourage collaboration among existing efforts. All three of the cities we studied have local governments that are ahead of the curve when it comes to support for community technology. However, only one—Seattle—has a community technology planner on staff. The creation of this position gives community technology greater legitimacy in the region, with other policymakers and with potential funders. Also, the fact that it is the planner's job to connect organizations to each other and to promote partnerships frees already overburdened organizations to pursue other important activities.

CONCLUSION

Great potential exists for government at all levels to help broker universal access to information technology. Important precedents for how government can do this have been set, both through public-sector initiatives and through advocacy work. Greater support is still needed. The digital divide remains wide, and some aspects of it are growing. Understanding universal access to IT as a civil right calls for a stepping-up of public-sector efforts.

