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

	Free-Net	*Bulletin Board*	*Government Network*	*Wired*
Focus	• Citywide • Community development • Access	• Neighborhood-wide • Community development • Access	• Citywide or statewide • City information	• Citywide • Physical connection • Business
Initiator/ Maintainer	• Small group with institutional support	• Small group with limited support	• City hall or state government	• 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,

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

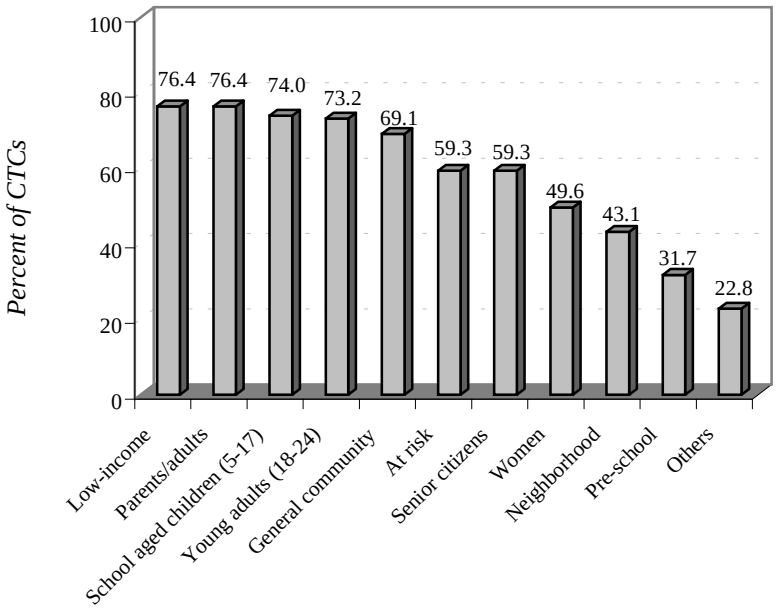
community TV and cable access centers, free-nets, community development corporations, church organizations, resident and tenant councils, community centers and stand-alone computing centers. Rather than categorize CTCs by organization type, we sought to describe them according to the populations they 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

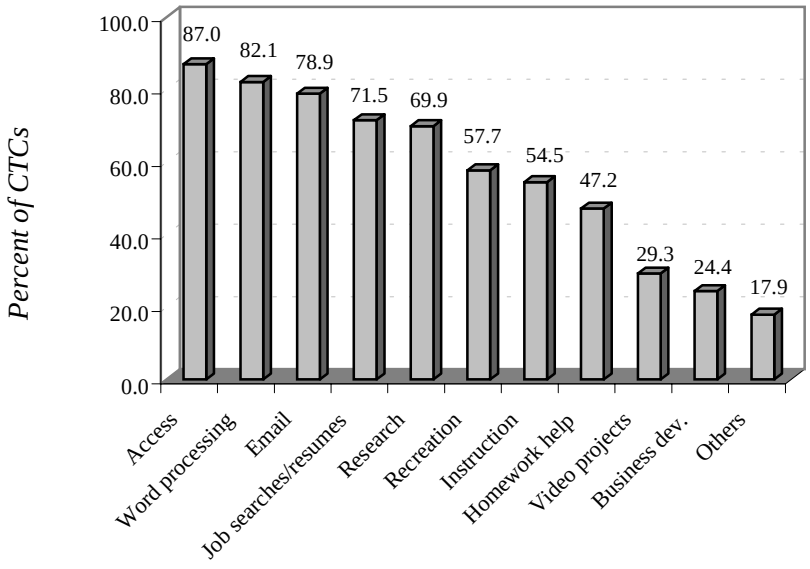
amongst CTCs, our survey results indicated that overall there is a strong emphasis among CTCs on education and job preparedness. Over half of all respondents provide adult education and literacy (56.6 percent), general youth development (53.3 percent), and tutoring (51.6 percent). More than 40 percent 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

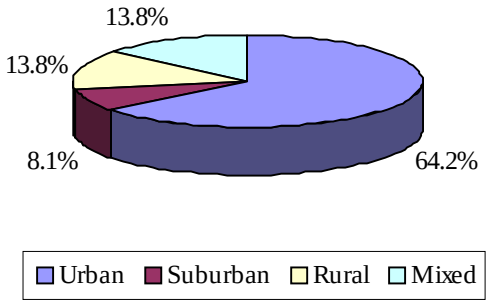


CTCs consider technology to be an integral tool in their programs and believe that technology has helped them to fulfill their organization's goals, whether or not their programs and mission are technology-based. Less than 2 percent of respondents consider the integration of technology into their programs 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.

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

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

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 employers. 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

[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.

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.

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.