

# **Memory and archives in community informatics: Assembling and using the records of the Technology Opportunities Program (USA), 1994-2005**

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*Community informatics as research and practice is fundamental to the informatization of society. How we remember this will inform research, policy, and practice, and memory depends on archives. A project is underway to build and use a major archive of community informatics practice in the US, the Technology Opportunities Program (TOP) at the Department of Commerce. TOP awarded USD 230 million to local communities during 1994-2005, and the archive contains physical and electronic information on most of the 600 projects, including a research-ready dataset. We explain the archiving process, with comparison to an earlier smaller archive.*

## **Introduction**

This paper connects the concepts of memory, archives, and community informatics by describing and analyzing the experience of constructing an archive of community informatics material. It thus reports the research work of creating a dataset which can be used by many scholars in our field and beyond. The primary purpose of the paper is to stimulate some new thinking about our shared community informatics research agenda.

The primary archive discussed here is a collection which includes both electronic and physical records. It consists of the records of the Technology Opportunities Program (TOP), one of the largest federal efforts in funding communities to experiment with using technology to address local problems. Operating within the US Department of Commerce, TOP awarded \$230 million in grants to 600-plus local organization between 1994 and 2004. As the archive was built, the team also added new data to the archive which make it more useful for more researchers. A second archive predates the TOP archive and is also discussed here for comparison purposes. This is a physical archive of the papers of the Murchison Community Center, a small community technology center in Toledo, Ohio.

The main and underlying argument in this paper is that archives can enable community informatics scholars to compare and contrast across a large number of case studies. Our data can then reflect a greater diversity of experience, and if the same questions can be asked across many cases—as in the large and familiar US dataset, the decennial population census—then we can 1) generalize and 2) increase the power behind our theory.

The primary aim here is to explain how and why the archiving was carried out and demonstrate what it enables community informatics scholars to do. Community informatics, like other fields before it and like so many fields in the digital age, can advance by multiple scholars examining the same large datasets, mining the practical experiences of community informatics for new knowledge which can in turn advance both theory and practice. While the TOP archive is not 100% digital, the possibilities for collaboration and for new approaches to community informatics can be helpfully informed by Ruhleder (1995), who analyzed the shift in scholarship when classics scholars digitized their texts and began to manipulate entire bodies of work, in multiple translations. In that field, new research methods and skills developed and new questions were posed and answered. In our field, where research links so closely to practical activity, such a repository can also be a tool for practitioners, and a meeting ground where practitioners and researchers can collaborate.

## **The single-case archive**

The Murchison Community Center, analyzed in Alkalimat and Williams 2001, is a three room facility in an urban African American neighborhood. It grew out of a church basement, into a facility that was also used as a beauty parlor, into the current small but new cinder-block building. It also grew through three stages of leadership. The church elders were the first leaders. Then local government took the lead by providing funds, which disciplined the center with stringent financial procedures and productivity measures. Next, local university types based in Africana Studies—faculty, staff, and students, including this author—joined in and began to set the pace according to their interests in community organizing via cybepower. By all accounts, this period saw a boom in terms of center activities, excitement, number of computers, numbers of people involved, press coverage, and so on. Presently the center is led by two of its founders, supported by a local network of Linux-savvy advocates. The center operates in Toledo, Ohio, and has intersected with the action research of Randy Stoecker, who studied the local community/IT environment (Stoecker and Stuber 1997, 1999) and helped to found

a citywide community technology association. The archive consists of 47 volumes of material, organized and duplicated and deposited at the center and at two local libraries, with an online finding aid (Williams 2002).

## **The national project archive: TOP**

In addition to grassroots or locally driven projects like the Murchison Center, the digital divide policy thrust of the 1990s launched large multi-site projects funded by public or private organizations. In the US, one of the largest of these was the Technology Opportunities Program, or TOP. Our archiving work has been to build what we call the TOP Data Archive.

TOP is a grants program run by the Office of Telecommunications and Information Applications within the National Telecommunications and Information Administration (NTIA) at the US Department of Commerce. NTIA describes itself as “the President's principal adviser on telecommunications and information policy issues.”<sup>1</sup> Grant dollars were first awarded in 1994, when TOP was called the Telecommunications and Information Infrastructure Assistance Program (TIAAP). This was a time when the information superhighway was a new idea—the World Wide Web was first publicly available in 1993—and the Clinton administration approached the digital divide as a fetter on the national economy and US society generally, something to be understood and overcome. As TIAAP (TOP) got underway, the 50,000-household Current Population Surveys began to ask questions regarding computer and later internet use (US NTIA 1995, 1998, 1999, 2000, and 2002).

The administration engaged this initiative for a number of years. For instance, in a May 29 1996 speech, describing a mobile computer lab that had been built inside a truck, our then-Vice President made this comment: “It’s rolling into communities, connecting schools in our poorest neighborhoods and paving over the digital divide.” Mobile computer labs were just one example of the wide variety of local projects that TOP funded.

From 1994 to 2005, TOP awarded grants to 606 public and non-profit organizations, as can be seen in table 1 below. The projects were located in every one of the 50 states as well as Puerto Rico and the Virgin Islands. Each project

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<sup>1</sup> National Telecommunications and Information Administration website, accessed 1 August 2006 at <http://www.ntia.doc.gov/ntiahome/aboutntia/aboutntia.htm>

generally represented a local network of organizations, and services were often delivered at multiple sites, even statewide. In 2004, after three years of fighting for its existence under the Bush administration, it was defunded. A few staff were retained to work with the projects which were funded into 2006 and 2007.

	Grants	Grant dollars, millions	Population, millions	Grants per million people	Grant dollars per person
West	173	60.0	63.2	2.74	0.95
Northeast	116	45.3	53.6	2.16	0.85
Midwest	137	53.5	64.4	2.13	0.83
South	178	72.4	100.2	1.78	0.72
Puerto Rico, Virgin Islands	2	0.4	3.9	0.51	0.11
Total	606	231.6	285.3	2.12	0.81

**Table 1. Total number of grants and grant dollars awarded 1994-2005 by the Technology Opportunities Program, by region. The last two columns present population-adjusted figures for each region.**

## **Adding to the TOP Data Archive and launching a research project**

As the archive began, additional data was also gathered to make the material more useful for research and to begin an analysis. First, searches of government documents and newspaper databases resulted in a collection of legislative deliberations and press clippings relating to TOP. Second, the 606 project abstracts, available on the website, were coded according to both descriptive and analytical codes. Preliminary findings from this coding are in Table 2 below.

<b>606 TOP projects</b>	
Led by...	
Community based organizations	26%
Colleges or universities	25%
Local governments	21%
Health providers	8%
Schools	5%
Foundations	4%
Libraries	3%
Other	8%
Technology as...	
Applications provided, used or developed	46%
Equipment	42%
Training	12%
Involving...	
Computing in public	64%
Computing in workplaces	25%
Computing at home	11%
Serving rural populations	40%

**Table 2. Preliminary analysis of TOP projects, from one page abstracts written by the projects themselves.**

The statistics in Table 2 give a picture of the TOP projects. In each case the TOP project was a partnership of organizations funded by TOP for roughly three years, and coding was done on the lead agencies. Three quarters of them are community based organizations (for instance local social service agencies or local heritage groups), institutions of higher education, or units of local government, which includes tribal governments.

As TOP staff explained, the key to TOP was that the grant's purpose was to use IT to solve a social problem. In doing so, three basic questions were always asked: what community are you going to serve? what is the problem you'll address? how are you going to use technology to solve that problem? The sense was that the community knew the problem better than the federal government. In addressing the problem, the project either provided equipment or developed and

implemented new applications, with a small percentage focused primarily on training. Two-thirds of them enabled computing in public places, such as libraries, community centers, schools, and so on, with the rest concerned with computers in workplaces or in homes.<sup>2</sup> And 40% of the projects have served rural populations, which experience a particular form of digital inequality due to a combination of geographic remoteness and poverty.

Perhaps the most significant augmentation to the TOP Data Archive was the spatialization of the data. By identifying the longitude and latitude for each project, we made it possible to import and associate other spatial data with the TOP data. Having imported TOP data into GIS, we were able to enrich the dataset by bringing in other data. We brought in two other datasets which we will discuss below. One of these was the US Census Bureau, where we obtained demographic data from the 2000 Census and the Current Population Study. The other was from FEMA, the Federal Emergency Management Agency, where we extracted data on hurricane paths.

## **Next steps: Future research and a call for collaboration**

We have plans for a great deal more work on our TOP Data Archive, by us and by other researchers. Where is this all going? First, one question we want to investigate is this: how can a national effort generate local transformation? Community informatics has established that digital transformation really works when it is locally driven, answering real needs in local communities, yet in the case of TOP, and many similar countrywide efforts, we see national prioritizing and federally-determined objectives. So how and where was TOP able to effectively reach from the federal level to excite—or galvanize or get behind—movers and shakers in local communities?

In community informatics this is known as the problem of social change that is top-down versus bottom-up. It looks like TOP solved this problem and we want to understand how and why. So we need to examine these projects more closely and the census data will help us find out where TOP made inroads and where it did not.

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<sup>2</sup> A count of several hundred TOP projects involving public computing is a biopsy of a much broader phenomenon; Williams 2003 provides an estimate of between 85,000 and 144,000 public computing sites nationwide, before the advent of wireless access points.

A second key question in community informatics, with communities generally experiencing shrinking local budgets and shrinking support from federal, state, and private entities, is the question of sustainability: Where and how are local communities able to muster their own resources to participate in the digital age, however they define that? Can pulling on your own bootstraps—or more precisely your own networks—help you move into the information age?

Our other next step is to help others make use of the TOP Data Archive. In June 2007, the entire archive is expected to be assembled and available and introduced in a workshop at the Third International conference on Communities and Technologies.

## **Other shared datasets: proposing a community informatics research agenda**

The archives or datasets discussed here are or will be available for researchers to use. Two more possibilities for shared datasets come to mind and the CIRN conference is an opportunity to discuss them. First, we in community informatics—by that name or otherwise—have produced many case studies done all over the world. Could we combine these case studies and any data from them and do meta-analysis, increasing the power of our research findings?

Second, TOP is unique, but it is not the only national or regional initiative that can be archived. What other national or regional initiatives, whether public or private, generated paper trails or data trails that we can repurpose and draw new knowledge from, either by themselves or in multi-country comparative research?

Thus, two sorts of possibilities come to mind. First, creating archives concerning particular cases, especially early leaders such as Playing to Win; special locales such as Seattle Community Network; university partnerships such as Prairienet; or serving particular populations such the Computer Clubhouse (youth). Second, the coordinated design and construction of national datasets based on projects such as TOP, the UK Online Centers, and others in many countries. For both, some kind of research commission might be needed to explore possibilities, including funding.

## **Why is this important for memory?**

Archivists know that they cannot predict how their collections will be used. What is unique about these collections is that they are being used immediately upon assembly. This will put them into the research literature and encourage their future use.

What makes these archives very special, and what calls for more such from community informatics work worldwide, is that they tell the stories of people and communities who are often not in the archives. Money and power has always been well represented in the world's archives. The communities we study need to be represented there as well. Remembering the information revolution from the bottom up depends on what we do today.

We as community informatics scholars, together with practitioners, are ancient to the future and can use the tools of the digital age to supply the future with the most complete record, accessible to everyone. At the same time, the paper and certainly the electronic records are vulnerable. The Murchison Center's records were hard copy; TOP's records were a mix of physical and electronic; in the hurricane recovery, the internet and the community data center played a central role. These format questions must have our attention in practice and in research.

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