



Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

**Ulster County
Department of Social Services
District Profile**

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Introduction

Demonstration Project

The New York State (NYS) Mobile Technology Demonstration Project is an initiative to assess the use of mobile technologies in child protective services work in New York State. The project, a collaborative effort among the NYS Office of Children and Family Services (OCFS), 23 NYS County Departments of Social Services (DSS), and the Center for Technology in Government (CTG), focused on two core questions – how is mobile technology used in the work setting and did the technology impact the work itself?

In this project, OCFS was responsible for the selection, procurement, and deployment of mobile technologies. The County DSS was also responsible for the deployment of mobile technologies, in addition to the coordination and procurement of wireless connectivity, training, and the selection of Child Protective Services (CPS) staff to participate in the demonstration. CTG was responsible for the independent assessment of the use of the technology.

The *Demonstration Project in 23 Local Social Service Districts* produced profiles for each of the participating districts as well as a summary report. It may be useful to read through the summary report before reading the local district profile as the summary report explains the variability in the CPS environment across the state as well as describes the many policies and practices developed and implemented by districts. The report is available at:

<http://www.ctg.albany.edu/publications/reports/demonstration2008>.

This profile presents findings for the Ulster County DSS. Findings are based on data collected through online surveys, teleconferences, district questionnaires, and analysis of CONNECTIONS data (data collection methodology and timeframe can be found in Appendix A). The field test lasted for 51 days from 11/19/07- 1/9/08 (please note that the pilot period took place during holiday and vacation periods).

District Deployment

Ulster County DSS has 31 CPS staff responsible for child protective services. Ulster County is a rural area in Southern New York with approximately 184,000 residents. The Ulster County DSS participated in the demonstration project to learn if mobile technologies can provide caseworkers with the means necessary to make more efficient use of their time in the field by providing more opportunities to access and enter information.

The Ulster County DSS deployed 31 Dell Latitude D620 laptops to 22 CPS caseworkers and one supervisor between the dates of 10/17/07 and 11/19/07 (see Appendix B for device specifications). Participants received individual training as needed and, in addition, security procedures were discussed at the time of deployment.

All caseworkers received their own device and docking stations with keyboards and monitors. Each device was deployed with district-provided external broadband cards. Regardless of the network connections used, all access to the State network was through a virtual private network (VPN) that

secures the transmission to and from the portable device and the network. In addition, PointSec encryption software was installed on each device before deployment.

Finally, no policies were changed to support the introduction of mobile technologies during the pilot period.

Characteristics of Respondents

A total of 22 CPS caseworkers participated in this study: 12 took the baseline survey (response rate 55%); 14 took the post-pilot survey (response rate 64%); and 10 took both the baseline and post-pilot surveys (response rate 45%).

The length of experience in CPS work, amount of overtime accrued weekly, the number of court days and estimated court waiting time are all important to understanding the overall context of the work environment. The Ulster County DSS respondents¹ were new to CPS field work, with an average of 2.9 years of experience; 58% reported CPS experience of two years or less. Respondents were working more overtime hours during the pilot period. The percentage of respondents reporting overtime of three hours or less in a week decreased from 90% in the pre-pilot period to 44% in the pilot period. As a result, the average overtime hours increased from 2.1 hours in the pre-pilot period to 3.2 hours in the pilot period. Fifty percent of respondents reported a typical court waiting time of forty-five minutes or less and 75% reported spending one or fewer days in court per month.

Mobility

The laptops provided caseworkers with opportunities to work outside the office environment in new ways. This section reports on how the participants used those opportunities in terms of the type of work done, locations, and issues that influence use. Survey questions inquired about use at home, in court houses, and in the field. Issue questions focused on using the laptop outside of the office, such as: (1) difficulty establishing connection, (2) loss of connection, (3) the speed of connection, (4) level of privacy (or personal work space and ability to ensure confidentiality of information), (5) personal safety, and (6) amount of time available to use the laptop. How information was accessed and entered by participants was also examined.

Use

Ulster County DSS respondents reported using the laptop during normal work hours, after work hours, and when working overtime. Ulster County DSS desktops were removed and docking

¹ Participant(s) refers to those CPS caseworkers who tested the technology. Respondent(s) refers to the total number of participants who answered specific questions in either the baseline or post-pilot surveys or participated in the district teleconferences.

stations installed. Therefore, the full range of CPS-related work was completed using the laptops. The laptop was used in case investigation and interventions, documentation and reporting, and court-related activities. Case documentation was the most frequent use, including inputting and updating notes, reading and reviewing case histories, opening new cases, completing safety assessments, checking client histories, email, checking the Welfare Management System (WMS), sex offender registry, and doing word processing. Overall, 92% of respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, 92% of respondents accessed email once a day or more, while 77% of respondents reported using their laptop at least once a day or more to access map directions.

The extent to which caseworkers can access information while out of the office has a big influence on what kinds of mobile work are possible. Respondents reported returning to the office to access case information less frequently during the pilot period. Fifty percent reported never returning to the office to access case information during the test period, compared to only 22% before the test. Respondents were in the field approximately the same number of days per week (average 2.5 days) in the pre- and pilot periods.

Several respondents commented on some of the often overlooked changes in mobility and communication patterns. Various situations can affect caseworkers in very similar, but also different ways. One respondent commented: "My territory is about an hour away from the office. Having the laptop also allows me to see if new cases have been obtained, in order to plan my day accordingly, and to search for history without having to be in the office." Another stated, "It allows me to record information for other caseworkers without returning to the office (on our in-days), and allows me the flexibility to enter information in a timely manner when details are of great importance (especially on a Friday afternoon/night). It is especially helpful for after-hours work, as it allows me to view details of a family's CPS history from the field."

However, if caseworkers cannot get connectivity, its value decreases, one respondent stated, "I would like to be able to use the laptop while in the field and or at home. I am unable to use the laptop at home and in the field because I do not get a signal to get on-line. Less traveling helps the miles and gas on my car and the time factor. It takes less time to be able to use the laptop at home or in the field then to travel back to the office."

Ulster County DSS had district-provided external broadband cards during the pilot period. Survey respondents reported several obstacles to mobile use including the inability to establish a connection mostly at home and while in the field, slow speed problems in all locations, and unreliable connections mostly while in the field. Minor problems, however, were found in all locations. Several expressed a lack of privacy to be problematic while in the field, others did not. Small blocks of time were perceived as problematic in court and while in the field. One respondent described: "The uncertainty of not knowing how long my wait time will be in court is frustrating because of the time it takes to establish a connection; in addition, other social service workers wanting to use my equipment is frustrating."

Participants were also asked about ease of logging-onto the device. Overall, 31% said it was "Easy" to "Extremely Easy," 54% rated it as "Neither difficult nor Easy," and another 15% of respondents rated the log-on process as "Difficult."

Location

Table 1 below details the percentage of respondents using the laptop at different locations, as well as the average length of time the laptop was used. Aside from in the office, respondents reported using the laptop most frequently at home (50%) for an average of about three hours per week, and in the field (43%) for over seven hours per week. Thirty-six percent of respondents used the laptop in the court house for less than one hour per week.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	43% (6)	7.36 Hours
Court	36% (5)	0.55 Hours
Home	50% (7)	3.09 Hours
Do not use at all	7% (1)	--

** Based on survey respondents who took the post survey n=14. Total number of testers n=22.*

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work. During the teleconferences, respondents noted that caseworkers have a dedicated waiting room at court they can use, in addition the court house was wireless. Ulster County DSS respondents spend on average one day a month at court and spend on average 1.77 hours during a court visit. Caseworkers may not be using the laptop in the court house because of other competing interests that may limit the amount and type of work they can do.

Caseworkers could work from home using the laptop for overtime reasons and received flex time. However, there is no formal policy in place regarding overtime hours using the laptop or working from home. Respondents expressed that working from home was now more efficient because of the increased flexibility in where work was completed and the time they have to do different tasks. One respondent described the following situation: “at the end of the day, instead of going back to the office, I can go home to do work. I do this about 1-2 times in a week and I believe this situation increases my efficiency, saves time, gas, and my personal life.”

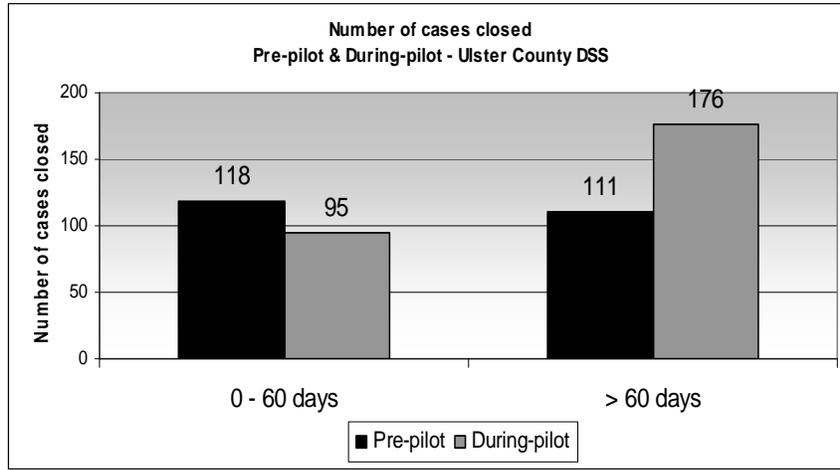
Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Ulster County DSS: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

Case closing is one way to assess any changes in efficiency and productivity. Figure 1 below shows the rate of timely closing of cases (in 60 days or less) decreased somewhat from the pre-test period (118) to the test period (95). However, the number of cases closed in over 60 days increased from 111 in the pre-pilot period to 176 in the pilot period. This is a marked increase in productivity during the test period; the total number of cases closed increased during the pilot period from 229 in the pre-pilot period to 271 during the pilot period – an 18% increase. It is important to note that in

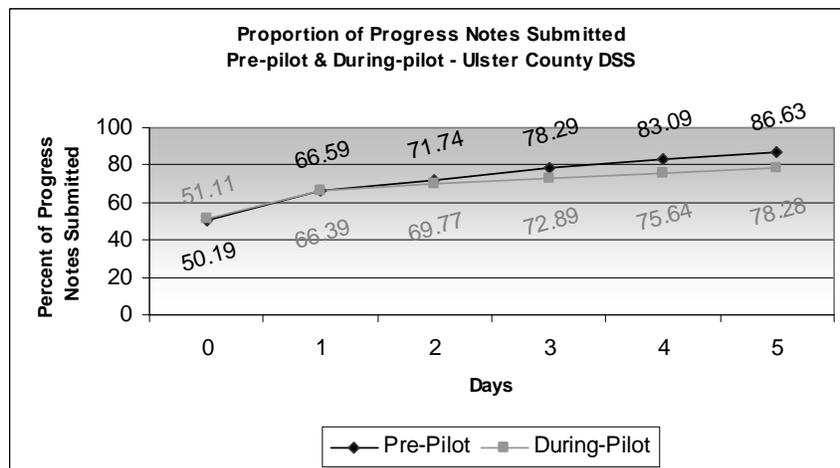
this county the total number of cases available to be worked on² increased slightly from 645 in the pre-pilot period to 651 during the pilot period – about a 1% increase.

Figure 1 - Number of Ulster County DSS Cases Closed Pre-Pilot and During Pilot



Another indicator of timeliness is elapsed time – or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During both the pre-pilot and pilot periods, roughly two-thirds of all progress notes were entered by the day after the event. By the fifth day following the event, over 86% of the notes were entered for the pre-pilot period and during the pilot period 78% were entered. Contrary to expectations, the overall proportion of progress notes entered in each time period during the pilot was slightly, but consistently, below that of the pre-pilot period. By this measure, timeliness decreased very slightly during the pilot, but was high overall.

Figure 2 - Proportion of Progress Notes Entered by Days Following Event



There may be multiple reasons for this small decrease in the timeliness of note entry. The overall increase in case closings during the test may have changed the usual pattern of progress note entry.

² The number of cases available to be worked on is the total of investigation stages that were open at any time during each of the pre-or pilot periods.

There was clearly an effort put into closing cases during the pilot period that could have had this effect.

The use of new technology also requires a period of adjustment. In Ulster County DSS, a total of 31 laptops with docking stations and 30 external broadband cards were deployed as desktop replacements. This kind of equipment change can require extra effort in the short run and require a period of adjustment. In this case, a few survey respondents reported slow sign-on processes along with difficulties in maintaining a connection away from the office or slow response while connected. One respondent noted: “It takes a long time to log on in the docking station but takes even longer in the field and has gotten ‘jammed’ on me several times.” Another reported, “I have difficulty accessing local drives (H and/or I-drive).” It is not clear, however, how common these problems were.

Some additional adjustments to these deployment and work processes may be necessary to take full advantage of the laptops for use in the field. Adjusting to these issues can be part of the learning process in adapting to the new technologies.

Participants were asked to what extent using a laptop made a difference in CPS work compared to not having the laptop. Five different areas were examined: (1) timeliness of documentation, (2) ability to do work in court, (3) ability to access case information, (4) communication with supervisors, and (5) service to clients. Respondents were asked to rate the difference on a five-point scale where 1 = “Much worse,” 3 = “About the same,” and 5 = “Much better.”

The Ulster County DSS respondents reported some positive impacts on their work resulting from laptop use, shown in Table 2 below. For documentation, 38% of respondents reported improvements in timeliness of documentation and 75% reported improved ability to access case information. Reported ability to work in court also improved for 45% of respondents, while 16% reported improvements in ability to communicate with supervisors. Thirty-three percent reported improvements in service to clients. There were no reported negative impacts.

Table 2 - Perceived Change Timeliness and Work Impacts – Ulster County DSS

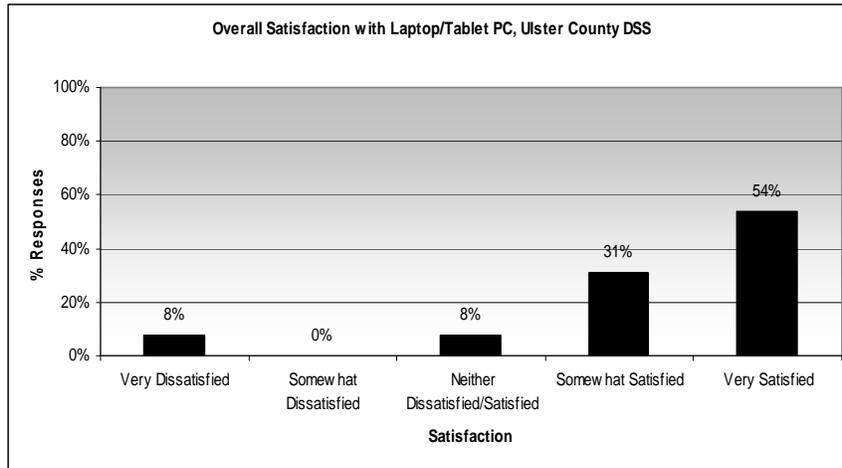
	Much worse (n)	Somewhat worse (n)	About the same (n)	Somewhat better (n)	Much better (n)
Timeliness of documentation	0%(0)	0%(0)	62%(8)	23%(3)	15%(2)
Ability to do work in court	0%(0)	0%(0)	55%(6)	18%(2)	27%(3)
Ability to access case information	0%(0)	0%(0)	25%(3)	33%(4)	42%(5)
Communication with supervisors	0%(0)	0%(0)	83%(10)	8%(1)	8%(1)
Service to clients	0%(0)	0%(0)	67%(8)	25%(3)	8%(1)

The lack of reported negative impacts on timeliness and other work activities is somewhat consistent with the timeliness of documentation results obtained from the central database because the decrease in timeliness was very small.

Satisfaction

The overall level of satisfaction with the laptops was high. Figure 3 below shows that 85% of respondents expressed being “Somewhat satisfied” or “Very satisfied,” compared to only 8% being “Very dissatisfied.” An additional 8% indicated that they were “Neither dissatisfied/satisfied.”

Figure 3 - Overall User Satisfaction with the Laptops



** Based on survey respondents who took the post survey n = 14. Total number of testers n = 22.*

Despite these overall high levels of satisfaction, respondents reported technical difficulties such as lengthy boot-up times, trouble accessing CONNECTIONS and local drives (H and/or I drives), and slow connection speeds. Some areas of the county were described as having poor wireless coverage. One respondent described the process:

One time I couldn't get a connection and had to wait until later to try again. The only issue, it's really not a problem, I have with using the laptop in the field in that it takes about five minutes to connect and I don't like to go through the set-up process unless I know I'll have at least 15 or 20 minutes to use it once it's connected and in the field I don't always have that luxury.

Laptop use was generally seen as contributing to lower job-related stress; 64% of respondents said that it did reduce stress, while 36% said it did not. Those who reported a reduction in stress attributed it to their ability to catch up on their work, just knowing the laptop is available, the increased access to information, and having the flexibility of working on documentation outside of the office. One respondent said, “Work can be completed whenever I feel like doing it, thereby decreasing my stress level immediately. If I am in the field I can access information to more thoroughly assess new families I am involved with. I like knowing that my work is done, so once I type it into the laptop I can relax for my evening at home with my family with no work-related stress.”

Overall, all of the respondents would recommend the use of the laptops to colleagues. One respondent said, “I am very excited about the use of the laptops in the field. I feel that it will make my time more efficient. While doing removals or informal relative arrangements, background checks can be done immediately and thoroughly while with the family. It will make the completion

of the FASP a more interactive process with the family as well, and therefore make the information more reliable and effective for casework practices.”

APPENDIX A – Methodology, Data Collection, and Timeline

There were three streams of data collection throughout the project. Two online surveys, as well as data from the central OCFS CONNECTIONS database, provided quantitative data to assess various productivity, satisfaction, and timeliness measures. In addition, the different uses and locations of use were documented. This data was supplemented by qualitative data gathered from ten district teleconferences. Each method is described in greater detail below.

Online Surveys

Two separate surveys, a baseline and post-pilot survey, were administered. The surveys collected data about respondents' perceptions and attitudes using the laptop or tablet PC within several areas of CPS work – work practice, work time, demographic information, mobility/location, skill and stress levels, technology acceptance, training, and use of technology. The surveys were developed over a period of several months and a pre-survey was tested. The surveys were modified based on the pilot survey results and the project team's knowledge and understanding of CPS work. The online surveys were developed and administered through commercial software (Survey Monkey).

The names, email addresses, and titles of participating CPS caseworkers were collected from each of the participating County DSS. Personalized survey invitations were emailed to participants. The baseline survey was administered prior the deployment of laptops or tablet PCs to participating caseworkers. The baseline survey was open for three weeks starting on 9/21/07 and ending on 10/5/07.

The post-pilot survey was administered three months following the deployment of laptops. The survey was open for one week; starting on 1/3/08 and ending on 1/10/08. Data was collected from three new thematic categories: the impact of laptops on caseworkers' daily activities, mobility-related issues, and technical difficulties experienced during the pilot. Data quality checks were performed and the data was recoded as needed.

Teleconferences

During the week of December 10 – 14, 2007, CTG held separate teleconferences with project participants in 10 County DSS in NYS to learn more about how they were using the laptops and tablets deployed for CPS work. Participating County DSS were chosen by CTG and the NYS OCFS liaisons. Criteria for choosing the districts included (1) how long they had the technologies in use, and (2) districts that provided a full range of geographical representation across the state, in terms of rural and urban settings and overall size.

Each district participated in one teleconference with CTG interviewers. All participants were given sample questions before the teleconferences that dealt with deployment, connectivity, use and location, changes in work, issues/concerns, policy implications, and overall benefits of laptop use. The following table shows the districts interviewed and the number of participants in each call.

Table 3 – Teleconference time and participant information

County DSS	Date of Teleconference Interview	# of Caseworkers	#of Supervisors	Other(s) Participating
Albany	12/10/07	6	0	LAN Administrator
Chemung	12/11/07	6	1	-
Clinton	12/10/07	7	1	-
Nassau	12/13/07	13	0	Assistant Director
Niagara	12/10/07	2	2	Staff Development Coordinator; IT Representative
Onondaga	12/11/07	8	0	IT Representative
Orleans	12/11/07	3	0	LAN Administrator
Putnam	12/13/07	3	1	-
Ulster	12/15/07	4	3	-
Washington	12/12/07	4	0	-

CONNECTIONS Data

The overall objective for using CONNECTIONS data was to measure the effect of the use of mobile technologies on CPS work practices by using data from the central database. The CONNECTIONS dataset (i.e., the central database) contained information on case records and caseworkers’ progress notes. The information contained within each of these records included: Stage ID, Person ID, time-related information about the *investigation stage* (Intake Start Date, Investigation Stage Start Date, Investigation Stage End Date); *progress notes information* (Progress Notes ID, Progress Notes Event Date, Progress Notes Time, Progress Notes Entry Date, Progress Notes Types, Progress Notes Purposes); *safety assessments* (Safety Submit Date, Safety Approval Date) logged by caseworkers in each County DSS. The CONNECTIONS data was pulled by the date a progress note was entered by participants during two timeframes, the pre- and during-pilot phases (09/28/07 – 11/18/07 and 11/19/07 – 01/09/08 respectively). A total of 7,252 progress note entries and 880 unique investigation stages made up the dataset from 22 caseworkers.

Appendix B – Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS.

Laptop

Latitude D620, Intel Core 2 Duo T5500, 1.66GHz, 667Mhz, 2ML2 Cache, Dual Core, 14.1 inch Wide Screen WXGA LCD for Latitude D620, 1.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, Intel Integrated Graphics Media Accelerator 950 Latitude D620, 60GB Hard Drive 9.5MM, 5400RPMfor Dell Latitude DX20, Standard Touchpad for LatitudeD620, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Professional, SP2 with media, for Latitude English, Factory Installed, Dell Black USB 2 Button Optical Mouse with Scroll for Latitude.

Tablet

HP Compaq tc4400 Tablet PC 26 EN376AV Product - HP Compaq tc4400 Tablet PC, Operating system - Genuine Windows® Vista Business, VISTA label - Microsoft® Vista Ready Label, Form Ultramobile form factor, Intel® Core™2 Duo Processor T5600, (1.83GHz, 2MB cache, 667MHz FSB), Intel® Centrino® Duo Label, 1024MB (667MHz, DDRII memory, 1 DIMM), 80GB Hard drive (5400 rpm), 12.1-inch TFT XGA WVA Display with Fingerprint Reader, 56K Modem, 10/100/1000 NIC, 6-cell high capacity Lithium Ion internal battery, Digital Eraser Pen with tether and clip, Keyboard with Enhanced Dual Pointing, Intel® Pro Wireless 3945ABG, security - Embedded TPM 1.2 security chip, and three year worldwide limited warranty.

Appendix C – The Center for Technology in Government (CTG)

The Center for Technology in Government (CTG) is an applied research center committed to improving government and public services through policy, management, and technology innovation. Through its program of partnership, research, and innovation, the Center provides government organizations and individuals with an array of tools and resources designed to support the development of a digital government. The goal of every CTG partnership project is to build knowledge that improves the way government works. CTG projects have helped state, local, and federal agencies increase productivity and coordination, reduce costs, enhance quality, and deliver better services to citizens and businesses. The results generated by each project add to a growing knowledge base designed to support the work of both government professionals and academic researchers. CTG receives funding through the University at Albany's state allocation, as well through grants and awards from foundations and federal agencies such as the National Science Foundation.

Since its creation in 1993, the Center has:

- conducted almost 50 partnership projects, which produced outcomes that have helped state, local, and federal government agencies improve services and operations;
- collaborated with nearly 100 government agencies, 42 private companies, and 14 academic institutions and research organizations;
- issued over 100 guides, reports, and online resources designed to support the work of government professionals, and over 300 scholarly articles that have contributed to the field of research on IT innovation in government organizations;
- developed and evaluated 12 prototype systems that answered critical policy, management, organizational, and technology questions;
- obtained 37 research grants and fee-for-service contracts for over \$10 million;
- been honored with 16 state and national awards such as the Ford Foundation's Innovations in American Government award;
- given over 250 trainings, workshops, and conference presentations provided data; and
- support to more than 20 doctoral dissertations and masters projects.

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