



Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

**Onondaga 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 Onondaga 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 51 days from 11/19/07-1/9/08.

District Deployment

Onondaga County DSS has 47 CPS staff responsible for child protective services. Onondaga County is located in Central New York and has approximately 450,000 residents. The Onondaga County DSS participated in the demonstration project to learn if mobile technologies can create an environment where caseworkers can stay in the field while completing documentation and better utilize existing wait times (for example in court, hospitals, or schools).

The Onondaga County DSS deployed 56 Dell Latitude D620 laptops to 69 caseworkers and one supervisor on 11/19/07 (see Appendix B for device specifications). Forty caseworkers received their own device and the remaining six laptops were shared on a rotating basis among night service staff. Ten supervisors received their own device and docking stations with keyboards and monitors. All 56 laptops were 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.

Caseworkers were selected for this pilot test based on their level of seniority. All staff using laptops received small group training which lasted approximately one hour and fifteen minutes and covered the following: (1) orientation to the project, (2) orientation to the equipment, (3) local guidelines, (4) initialization of individual IDs, setup of broadband and VPN access. Each person received a small training packet at the end of the session for later reference.

Finally, no policies were changed to support the introduction of mobile technologies before or during the pilot period. In both periods, caseworkers were allowed, with pre-approval, compensatory time (up to four hours a week) for work done at home after normal work hours.

Characteristics of Respondents

A total of 69 CPS caseworkers participated in this study: 48 took the baseline survey (response rate 70%); 41 took the post-pilot survey (response rate 59%); and 32 took both the baseline and post-pilot surveys (response rate of 46%).

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 Onondaga County DSS respondents¹ were moderately experienced in CPS field work, with an average of 6.6 years of experience; 62% reported CPS experience of four years or more. Respondents worked about the same number of overtime hours in the pre-pilot and pilot period. The percentage of respondents reporting overtime of three hours or less in a week slightly increased from 84% in the pre-pilot period to 88% in the pilot period. Similarly, the average overtime hours slightly increased from 1.7 hours in the pre-pilot period to 1.9 hours in the pilot period. Eighty-five percent of respondents reported a typical court waiting time of two hours or less and 77% reported on average spending two or fewer days in court per month.

Mobility

The laptops provided caseworkers 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.

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.

Use

Onondaga County DSS respondents reported using the laptop during normal work hours, after work hours, during commute times, and when working overtime. 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. Other work included reading and reviewing case histories, opening new cases, closing cases, clearances, safety assessments, checking client histories, court petitions, using the Welfare Management System (WMS), and email. Approximately 58% of respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, 74% of survey respondents accessed email once a day or more, while 64% of respondents reported using their laptop at least once a day or more to access map directions.

The extent to which caseworkers could 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-two percent reported returning to the office once a week or less to access case information during the pilot period, compared to only 13% in the pre-pilot period. Respondents were in the field approximately the same number of days per week (average of 3 days) during the pre- and pilot periods. One caseworker stated, “It gives you more flexibility in when you enter your notes and you don't have to call anyone else or go back to the office if you need to look up information you may need in the field.”

Onondaga County DSS had district-provided external broadband cards during the pilot period. While many respondents reported encountering relatively few overall problems, several reported obstacles to mobile use including the inability to establish a connection, slow speed or unreliable connections while in the field and at home. During the teleconference, respondents noted that there did not seem to be any major coverage ‘dead zones’ in their area, and that they generally have excellent connectivity in the court house. The most often noted issues were slow connections, and being kicked-off. Most respondents expressed that privacy was not problematic at the court house or while in the field, although, again, some did experience privacy problems. While caseworkers are able to use a room reserved for lawyers, some still found themselves hiding their laptop screens from onlookers. Several respondents noted the small blocks of time available to use the laptop in the field or court house were an issue. One respondent stated, “[The] blocks of time are too small because connecting takes a while and although the note could have been typed in that time, it was not enough time to connect and type.”

Participants were also asked about ease of logging-on to the device. Overall, 39% said it was “Easy,” 50% rated it as “Neither difficult nor Easy,” and another 11% of survey 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 (63%), for an average of three hours per week, and 24 % reported using it in the field for less than one hour per week, and 17% used it at the court house for less than one-half hour per week.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	24% (10)	0.70 Hours
Court	17% (7)	0.19 Hours
Home	63% (26)	3.07 Hours
Do not use at all	0% (0)	--

** Based on survey respondents who took the post survey n = 41. Total number of testers n = 69.*

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in many districts. However, respondents in Onondaga County DSS spend on average just under two days a month at court and wait on average 1.5 hours during a court visit.

Caseworkers may not be using the laptop in the court house or in the field because of other competing interests that may limit the amount and type of work they can do. Many respondents stated in open-ended survey comments that they just do not connect the laptop while in the court house, while others expressed that the changes in work habits were impacting use. Another did not see how the laptop fit with field work stating, “I have not felt the need to keep the laptop with me as of yet. I usually just use it at home at night. That way I can focus on the visits during the day and documentation at night.” Another stated, “I do not want to be lugging the computer, along with everything else I need, around in the hopes I might use it. I will put it back in my car when it warms up so that I can use it more in the field.” Others are anticipating a change in work behavior stating, “I can enter case notes into CONNECTIONS at home, if I choose to do so, especially after Friday visits, or after visits at the end of the day. I anticipate using the laptop more in the field in the future, especially when the weather is better and I go from house to house more.”

Caseworkers could work from home if they get prior approval and are allowed up to four hours a week of compensatory time. One caseworker described the situation as, “It's easier to work at home and catch-up on documentation even though we can't get the overtime compensation (since we are only allotted 4 hours a week and they must be pre-approved). [The] administration doesn't realize to do the job effectively and keep up on deadlines, more time is needed.” Several respondents stated that working from home was now more efficient because there were less interruptions, it increased flexibility, and gave respondents more time to do different tasks.

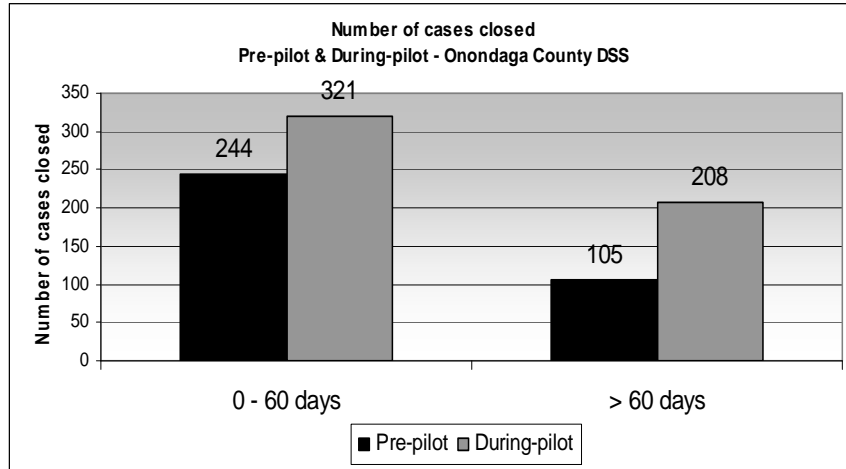
Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Onondaga 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) increased substantially during the test period, up from 244 in the pre-test period to 321 during the test. The number of cases closed (over 60 days) increased markedly from 105 in the pre-pilot period to 208 in the pilot period. This is a marked increase in productivity; the total number of cases closed increased from 349 in the pre-pilot period

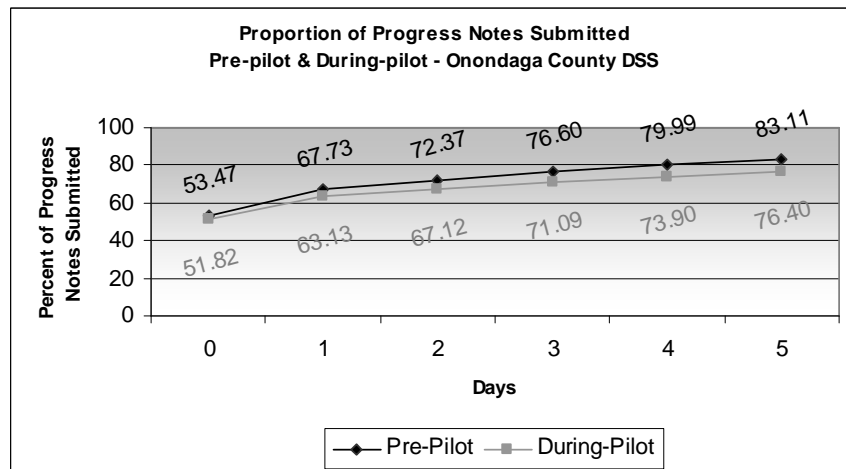
to 529 during the pilot period – over a 50% increase. It is important to note that in this county the total number of cases available to be worked on² increased from 1048 in the pre-pilot period to 1118 in the pilot period – a 6.7% increase.

Figure 1 - Number of Onondaga 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 periods, the majority of all progress notes were entered by the first day following the event. But contrary to expectations, the proportion of progress notes entered in each time period during the pilot is marginally, but consistently below that of the pre-pilot period. By the fifth day, over 83% of all notes were entered for the pre-pilot period, compared to just over 75% for the pilot period. By this measure, timeliness decreased slightly during the pilot, but is high overall.

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



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 may be multiple reasons for this decrease in the timeliness of note entry. The overall increase in case closings during the pilot period may have changed the usual pattern of progress note entry. There was clearly an effort put into case closing during the pilot period that could have had this effect. In Onondaga County DSS, a total of 56 laptops and wireless access cards, ten of which included docking stations as desktop replacements, were deployed. These changes in equipment and related work processes may account for a decreased workflow of progress notes during the test period. Several survey respondents reported password difficulties in logging-on, maintaining a connection, and slow responses in the field. One respondent remarked on the limited places to use the laptops in the field stating, “I would not use the laptop in the field, as it is not safe to use in a client’s home, and the time is not long enough. I may use it in the car during the warmer months between visits.” Others were not able to use the laptops in court due to the lack of suitable spaces to do confidential work. As one said, “It does not seem appropriate to bring confidential information to court as there are no real private places to type.”

Onondaga County DSS respondents were not allowed overtime pay for work on the laptops at home, but could receive compensatory time if pre-approved. Two respondents reported they were able to use the laptops during commuting time to look up information, addresses, or type notes into the central system. 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.”

Almost 90% reported improvements in timeliness of documentation and 92% in ability to access case information. There were smaller proportions of respondents reporting improvements in ability to work in court (25%), communicating with supervisors (23%) and providing service to clients (31%). None reported a negative impact.

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

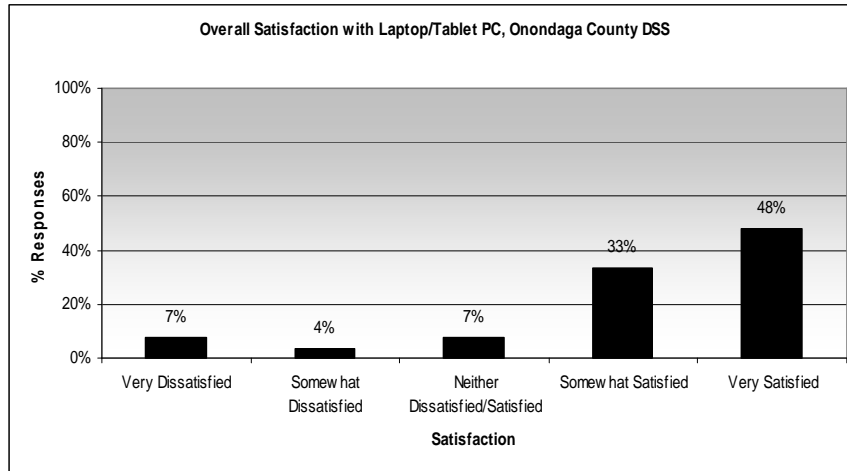
	Much worse (n)	Somewhat worse (n)	About the same (n)	Somewhat better (n)	Much better (n)
Timeliness of documentation	0%(0)	0%(0)	11% (3)	52% (14)	37% (10)
Ability to do work in court	0%(0)	0%(0)	75% (18)	17% (4)	8% (2)
Ability to access case information	0%(0)	0%(0)	7% (2)	44% (12)	48% (13)
Communication with supervisors	0%(0)	0%(0)	77% (20)	23% (6)	0% (0)
Service to clients	0%(0)	0%(0)	69% (18)	27% (7)	4% (1)

The lack of reported negative impacts on timeliness is somewhat inconsistent with the timeliness of documentation results obtained from the central database. It is possible that the reduction in timeliness seen in progress note entry was too small to be noticed by the caseworkers and overshadowed by the increase in rate of case closing.

Satisfaction

The overall level of satisfaction with the laptops was high. Figure 3 below shows that 81% of respondents expressed being “Somewhat satisfied” or “Very satisfied,” compared to 11% being “Somewhat dissatisfied” or “Very dissatisfied.” Additionally, 7% 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 = 41. Total number of testers n = 69.*

Despite these overall high levels of satisfaction, in teleconferences and survey responses, participants reported technical difficulties, inconsistent access to CONNECTIONS, lengthy boot-up times, and issues related to login passwords that may have influenced perceptions.

Laptop use generally was seen as contributing to lower job-related stress; roughly 89% of respondents said that it did reduce stress levels, while 11% said it did not. Those who reported a reduction in stress attributed this to their ability to catch up on their work, just knowing the laptop is available, and having the flexibility of working on documentation outside of the office in a timely manner. One respondent said, “It [the laptop] allows me to catch up on progress notes and related work while at home, at my own speed, instead of having to be pressured to come into the office. It also will be effective while on night service.” Several respondents did not feel as though laptops contributed to lower job-related stress and attributed this to the nature of the work and work-life balance. One respondent said, “It [the laptop] does not cut down on the amount of work I have to do and it is now making me a worker who is supposed to be available 24 hours a day – as I can ‘readily’ access my work. It does reduce some stress in the sense that if I have childcare or other issues I can readily work at home and receive my new reports without using ‘time-off’.”

Overall, all of the respondents would recommend the use of laptops to colleagues. The reasons mentioned recommending the laptop included increased flexibility in the ability to do work, the ability to work outside of the office on one’s own timetable, increased access to information, and increased timeliness of documentation. One caseworker pointed out, “The laptop allows you to do work from almost anywhere, so if you have time between appointments you do not need to return to the office to enter notes or check history.” Another caseworker highly recommended its use regardless of compensatory time, “...I suggest all co-workers take advantage of using the laptop as

it can reduce the stress of the job even if you can't get the actual compensation for its usage outside of work hours over the pre-approved 4 hours.”

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 20,453 progress note entries and 1,467 unique investigation stages made up the dataset from 69 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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