



Center for Technology in Government

Assessing Mobile Technologies in Child Protective Services

**Nassau 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 Nassau 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 54 days from 11/16/07- 1/9/08.

District Deployment

Nassau County DSS has 79 full time CPS staff and 39 part-time staff (on evenings and weekends) responsible for child protective services. Nassau County is a mix of suburban and urban areas, encompassing approximately 287 square miles of Long Island, and has approximately 1.3 million residents. The Nassau County DSS participated in the demonstration project to learn if mobile technologies can help staff use time more efficiently and effectively by accessing and entering data while in the field. Currently they use a dial-up connection that is slow.

The Nassau County DSS deployed 52 Dell Latitude D620 laptops and 3 HP Compaq tc4400 Tablets to 54 CPS caseworkers and one manager on 11/16/07 (see Appendix B for device specifications). All full-time caseworkers received their own device and docking stations with keyboards and monitors. No external broadband cards were provided for any of the devices during the pilot period. The cards were ordered, but not received during the pilot period. Therefore, the only wireless connectivity options were public wireless networks within the area and any home Internet Service Provider (ISP) access. 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. Each person attended a one-hour group training session on how to use the laptop, security precautions, and help desk instructions; each person also received a copy of the OCFS-generated wireless network instruction manual.

Finally, no policies were changed to support the introduction of mobile technologies before or during the pilot period. The guidelines or policies for overtime while using the laptop at home after regular work hours were not communicated during the pilot period.

Characteristics of Respondents

A total of 53 CPS caseworkers participated in this study: 31 took the baseline survey (response rate 58%); 24 took the post-pilot survey (response rate 45%); and 19 took both the baseline and post-pilot surveys (response rate 36%).

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 Nassau County DSS respondents¹ were relatively new to CPS field work, with an average of 3.8 years of experience; 55% reported CPS experience of three years or less. Respondents were working roughly the same amount of overtime hours during the pilot period as in the pre-pilot period. The percentage of respondents reporting overtime of five hours or less in a week increased from 79% in the pre-pilot period to 90% in the pilot period. However, the average overtime hours only slightly increased from 3.8 hours in the pre-pilot period to 4.1 hours in the pilot period. About 60% of respondents reported a typical court waiting time of four hours or less and 76% reported spending on average one 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

Nassau County DSS respondents reported using the laptop during normal work hours and after work hours. Nassau County DSS desktops were removed and docking 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. Other work included reading and reviewing case histories, doing person searches, checking client histories, and email. Sixty-four percent of respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, almost all (96%) of the respondents accessed email at least once a day or more, while 78% 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. Seventy-two percent reported returning to the office once a week or less to access case information during the test period, compared to 44% in the pre-pilot period. The respondents were in the field approximately the same number of days per week (average 3 days) during the pre- and pilot periods.

A few participants commented on some of the often overlooked changes in mobility and communication patterns. For example, one respondent described the following situation, “If there is a court report due the following morning and I am in the field the day before on that case, I can always put in the notes and write the report instead of skipping the report all together and then having an adjourned date.” Another wrote, “When I am away from the office I am able to respond to e-mail and do additional work at home, which gives me more time during the next work day to do other important tasks.”

Nassau County DSS did not have district-provided external broadband cards during the pilot period and did not have connection at the court house. Participants were instructed to use locations such as the library, and to avoid public wireless hotspots “like Starbucks” because of confidentiality and data issues. Some did use their home Internet Service Providers (ISPs) while at home.

The performance problem most frequently mentioned in open-ended comments was the slow speed of the connection while in the field and at home. Using the docking stations presented some initial challenges and adjustment; several respondents reported obstacles to mobile use such as the inability to establish a connection and unreliable connections while in the field. Many also noted these connection problems at home. One respondent described the difficulty attributed to relying on ‘hot spots,’ stating “It was really hard to get an Internet connection even if I had one prior at the same location with the same connection type.” Small blocks of time were an issue for some trying to use it in the field. One caseworker stated, “It helps when you have some more time to dedicate to typing, but often I do not have such gaps in between visits. Several others see the potential use if connected. One respondent stated, “If we had a wireless card we could type our notes while in the field right into CONNECTIONS. But at the moment, I have to type it in Word while in the field.” One respondent pointed out the need for additional training to overcome connection problems while using a home ISP.

Participants were also asked about ease of logging-on to the device. Overall, 37% said it was “Easy,” 50% rated it as “Neither difficult nor Easy,” and 13% 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 over three and half hours per week. Some reported using the laptop in the field (25%) for an average of two hours per week and one person used it at court.

Table 1 - Location and Hours of Laptop Use per Week

| | Use of Laptop (n) | Average length of use per week |
|-------------------|-------------------|--------------------------------|
| Field | 25% (6) | 2.33 Hours |
| Court | 4% (1) | 0.45 Hours |
| Home | 50% (12) | 3.61 Hours |
| Do not use at all | 0% (0) | -- |

** Based on survey respondents who took the post survey n=24. Total number of testers n=53.*

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in many districts. Respondents in Nassau County DSS spend on average one day a month at court and wait on average just under four hours during a court visit. However, 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 – for example, there is currently no connectivity available. Teleconference respondents stated that the court house is also generally crowded and that they prefer not to use their laptops there. They mentioned there is a liaison room, but CPS staff cannot use the liaison office or the computers in the office.

There is currently no policy in place concerning caseworkers’ ability to work from home using the laptop – although several reported using the laptop at home. One respondent said that she uses it all the time at home “even though we are not supposed to,” while another said she would not take it home at all because that is “time with family.”

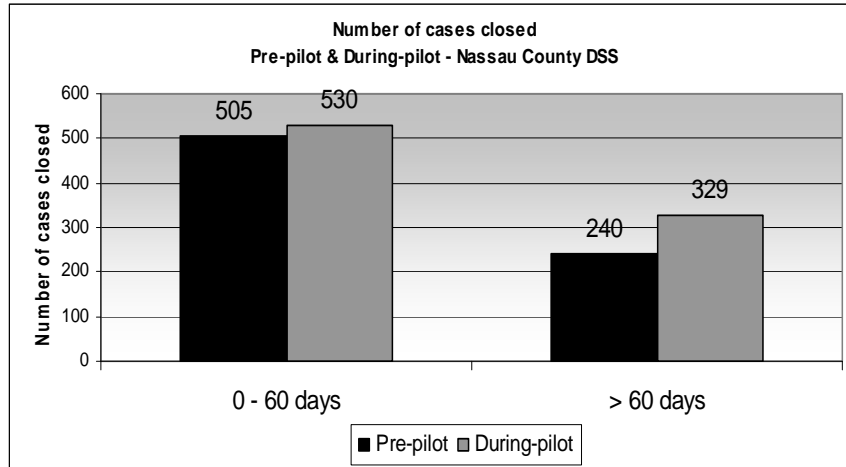
Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Nassau 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 slightly during the test period, up from 505 in the pre-pilot period to 530 during the pilot period. The number of cases closed in over 60 days increased somewhat from 240 in the pre-pilot period to 329 in the pilot period. This is a

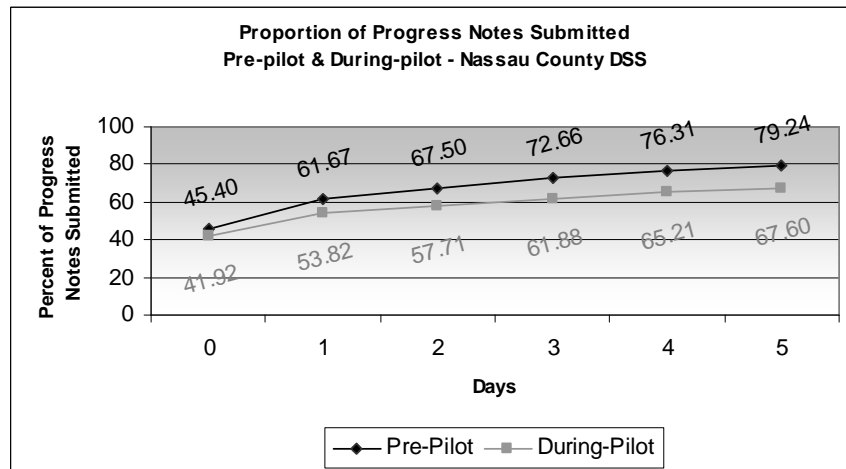
marked increase in productivity; the total number of cases closed increased from 745 in the pre-pilot period to 859 during the pilot period—a 15 % increase. It is important to note that in this county the total number of cases available to be worked on² decreased from 1,644 in the pre-pilot period to 1,568 during the pilot period – a 4.6% decrease.

Figure 1 - Number of Nassau 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 second day following the event. But contrary to expectations, the proportion of progress notes entered in each time period during the pilot period is marginally, but consistently, below that of the pre-pilot period. By the fifth day, close to 80 % of all notes were entered for the pre-pilot period, compared to 67% for the pilot. By this measure, timeliness decreased during the pilot period, 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 test may have changed the usual pattern of progress note entry. There was clearly an effort put into closing cases during the pilot period that could have had this effect. In the Nassau County DSS, a total of 52 laptops with docking stations were deployed as desktop replacements, along with three tablet PCs. Wireless internet access cards were not deployed during the test period. Several survey respondents who used the laptops at various wireless access points reported difficulties logging-on and maintaining a connection. Others were not able to use the laptops in the field because they lacked a wireless access card. Several respondents reported that they were instructed not to use the laptops in public places, with ‘hot spots,’ for network security reasons.

These changes in equipment and related work processes may account for a decreased workflow of progress notes during the test period. Some additional adjustments to deployment and work processes may be necessary to take full advantage of the laptops for use in the field.

The most frequent performance problems commented on by respondents were slow connection speed and difficulty of network access. Typical problems identified by respondents included: “Very slow connecting; sometimes difficult to log-on to VPN; problems with CONNECTIONS; and finding a location to connect computer.” 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.”

Over one-third of the caseworkers reported that the use of laptops improved their work in terms of timeliness of documentation and 50% for accessing information. Two respondents reported a negative impact on timeliness and working in court. One other reported a negative impact in communication with supervisors and general service to clients (Table 2 below).

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

| | Much worse (n) | Somewhat worse (n) | About the same (n) | Somewhat better (n) | Much better (n) |
|------------------------------------|-----------------------|---------------------------|---------------------------|----------------------------|------------------------|
| Timeliness of documentation | 10%(2) | 0%(0) | 52%(11) | 24%(5) | 14%(3) |
| Ability to do work in court | 6%(1) | 6%(1) | 78%(14) | 0%(0) | 11%(2) |
| Ability to access case information | 0%(0) | 0%(0) | 50%(10) | 30%(6) | 20%(4) |
| Communication with supervisors | 5%(1) | 0%(0) | 70%(14) | 20%(4) | 5%(1) |
| Service to clients | 5%(1) | 0%(0) | 71%(15) | 10%(2) | 14%(3) |

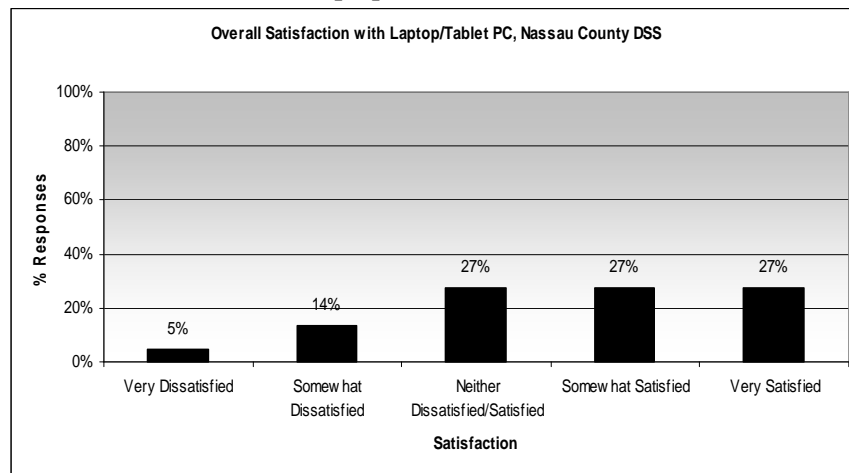
On the positive side, about one-fourth of the respondents (18 %) reported improvement in communicating with supervisors and service to clients, and two (11%) reported positive impacts in ability to work in court. However, most respondents were not able to connect or preferred not to use the laptops in court.

That few reported a negative impact on timeliness and other work activities 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.

Satisfaction

The overall level of satisfaction with the laptops was moderate. Figure 3 below shows that 54% of respondents expressed being “Somewhat satisfied” or “Very satisfied,” compared to 19% being “Somewhat dissatisfied” or “Very dissatisfied.” Additionally, 27% 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 = 24. Total number of testers n = 53.*

The lack of a district-provided wireless connection was the most substantial difficulty reported by participants in teleconferences and survey responses. It could be that having a laptop produced higher expectations for use at court and in the field and these expectations were not wholly met. One respondent reported, “It will be better once we get the air card to use. At home I use dial up, but out in the field I have not been able to get onto CONNECTIONS.”

Laptop use generally was not seen as contributing to lower job-related stress; roughly 55% of question respondents said that it did not reduce stress, while 46% said it did. Those who reported it did not lower job-related stress attributed this to the lack of wireless connectivity and being responsible for the device. One respondent stated, “It adds to the stress level. I am responsible for this laptop if I take it in the field. It is heavy and cannot be carried around easily. If it is left in my car and the car is broken into, the laptop is my responsibility. Wireless connections do not abound and I do not feel comfortable using my home network to access state applications. Court connections do not work. It is an inconvenience.” Those who reported a reduction in stress attributed this to their ability to catch up on their work, having the flexibility of working on documentation outside of the office, and increased access to information in CONNECTIONS.

Overall, 64% of respondents would recommend the use of laptops to colleagues, compared to 14% who reported they would not. The reasons mentioned for this positive recommendation included increased flexibility in the ability to do work while out of the office, the ability to use time more efficiently, increased access to information, and a reduction in interruptions when used at home. Many stated that their recommendations were contingent upon receiving wireless connectivity. One respondent pointed out, “When we have the wireless card we will be able to have access anywhere and that will make work much easier.”

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 District Offices. 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 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 1/10/08. Data was collected from three new thematic categories, namely 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, which 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 (09/22/07 – 11/15/07 and 11/16/07 – 01/09/08 respectively). A total of 2,566 progress note entries and 495 unique investigation stages made up the dataset from 28 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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