Assessing Mobile Technologies in Child Protective Services

Clinton County Department of Social Services District Profile

Meghan E. Cook
Anthony M. Cresswell
Natalie Helbig
Fawzi H. Mulki
Bahadir K. Akram
Jana L. Hrdinová

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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 polices 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 Clinton 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 63 days from 11/7/07 - 1/9/08.

District Deployment

Clinton County DSS has 18 CPS staff responsible for child protective services. Clinton County is a rural area in the Northern most region of New York State and has approximately 80,000 residents. The Clinton County DSS participated in the demonstration project to learn if mobile technologies can help staff save time by maximizing field time and by providing caseworkers with more opportunities to complete documentation. The county encompasses a large geographical area, over 1,100 square miles, and caseworkers spend a significant potion of their time traveling between home visits.

The Clinton County DSS deployed 16 Dell Latitude D620 laptops to 15 CPS caseworkers and one supervisor on 11/07/07 (see Appendix B for device specifications). All 16 caseworkers received their own device and docking stations with keyboards and monitors. Two additional laptops were delivered on 1/11/08 and were originally set to be paired with satellite boxes, but the satellite procurement through NYS was delayed and then later dropped (due to vendor issues). No external broadband cards were provided or procured for any of the devices during the pilot period. The procurement and contract approval process for broadband cards took longer than expected. Even after approval of the contract, several additional steps such as setting up the Verizon account and

fulfilling the order were not completed by the end of 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.

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 prior approval, overtime pay for work done at home after regular work hours.

Characteristics of Respondents

A total of 15 CPS caseworkers participated in this study: 15 took the baseline survey (response rate 100%); 15 took the post-pilot survey (response rate 100%); and 15 took both the baseline and post-pilot surveys (response rate 100%).

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 Clinton County DSS respondents[1] were very experienced in CPS field work, with an average of 9.3 years of experience; 73% reported CPS experience of six years or more. Respondents were working slightly more overtime hours during the pilot period. The percentage of respondents reporting overtime of seven hours or less in a week increased from 53% in the pre-pilot period to 64% in the pilot period. As a result, the average overtime hours slightly increased from 7.9 hours in the pre-pilot period to 8.1 hours in the pilot period. In both periods, all participants reported working at least four hours overtime a week. Eighty-six percent of the respondents reported a typical court waiting time of three hours or less and 57% 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.

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[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

Clinton County DSS respondents reported using the laptop during normal work hours, after work hours, on-call, and when working overtime. Clinton 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, opening new cases, doing person searches, checking client histories, email, and accessing the Welfare Management System (WMS). Approximately 80% of the respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, 93% of the respondents accessed email at least 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 can access information while out of the office has a big influence on what kinds of mobile work are possible. It was thought that mobile access would decrease the amount of times caseworkers need to return to the office from the field, however, respondents reported no change in the frequency of returning to the office to access case information during the pilot period. Seventy-one percent of respondents reported returning to the office two or more times a week to access case information in the pre- and pilot periods. The respondents were in the field approximately the same number of days per week (average about 4 days) during the pre- and pilot periods.

Clinton County DSS did not have district-provided external broadband cards during the pilot period and the court house does not have wireless capability (however, it was noted the local district is working on providing wireless). Some did use their home Internet Service Providers (ISPs) while at home. No connectivity problems were reported while in the field or court because they did not connect with the laptop in those locations. However, those who were able to connect from home reported obstacles to mobile use such as inability to establish a connection, slow speed, or unreliable connections. Respondents not able to connect described their frustration, one respondent stated, "All worked fine when my dial-up was working, but the state took this option away. So, since I only have dial-up at home, and the broadband cards are not available yet, I am limited."

Participants were also asked about ease of logging-on to the device. Overall, 64% said it was "Easy" to "Extremely easy," another 36% rated it as "Neither difficult nor Easy," and none of the respondents rated the log-on process as "Difficult" or "Extremely 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 (40%), for an average of just over four hours per week. Respondents did not use the laptop while in the field or at the court house.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	0% (0)	0.00 Hours
Court	0% (0)	0.00 Hours
Home	40% (6)	4.07 Hours
Do not use at all	7% (1)	--

* Based on survey respondents who took the post survey n=15. Total number of testers n=15.

Respondents expressed the importance of being connected and emphasized that having constant connectivity would enhance the benefits of using a laptop. One respondent stated, "Without the broadband cards, the laptop at this point in time is no different than a desktop computer" while another suggested, "When we get broadband I believe that it will make a huge difference to enter notes as things occur in the field."

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in most districts. Respondents in the Clinton County DSS spend on average three days a month at court and wait on average about 2.5 hours during a court visit. However, caseworkers may not be using the laptop in the court house because of other competing interests, as well as the lack of connectivity, that may limit the amount and type of work they can do. One respondent suggested there was currently no place for caseworkers to work in the court house stating, "[There is] no confidentiality at court. We are required to sit in the lobby which is often full of clients and others. Also, we need to prep for and stay focused on the case at hand. It is hard to balance the laptop on knees and type notes."

Caseworkers could work overtime from home if they got prior approval. Several respondents stated that working from home was now more efficient because they did not have to deal with the constant interruptions found in the office and it increased their flexibility. One respondent expressed the benefits stating, "There is little opportunity to complete paperwork during regular business hours due to the volume of reports our county receives in comparison to the amount of staff our county has. The ability to work from home after hours and on weekends allows some of this backlog of paperwork to be caught up."

Productivity and Efficiency

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

Case closings are 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 80 in the pre-pilot period to 90 during the pilot period. The number of cases closed in more than 60 days increased from 90 in the pre-pilot period to 125 during the pilot period. This is a marked increase in productivity; the total number of cases closed increased substantially from 141 in the pre-pilot to 215 during the pilot period—a 52% increase. It is important to note that in this

county the total number of cases available to be worked on[2] increased from 399 in the pre-pilot period to 426 during the pilot period – a 6.7% increase.

Figure 1 - Number of Clinton County DSS Cases Closed Pre-Pilot and During Pilot
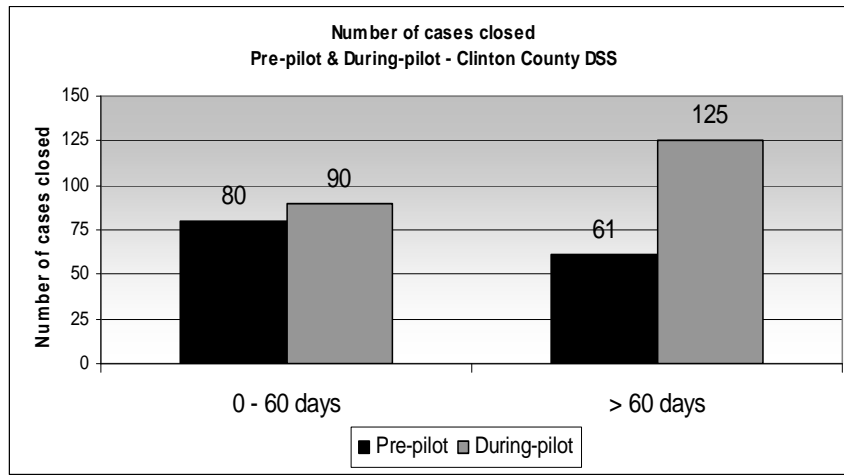
Another indicator of timeliness is elapsed time – or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During both periods, the majority 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, over 80% of all notes were entered for the pre-pilot period, compared to 68% for the pilot. By this measure, timeliness decreased somewhat during the pilot period.

Figure 2 - Proportion of Progress Notes Entered by Days Following Event
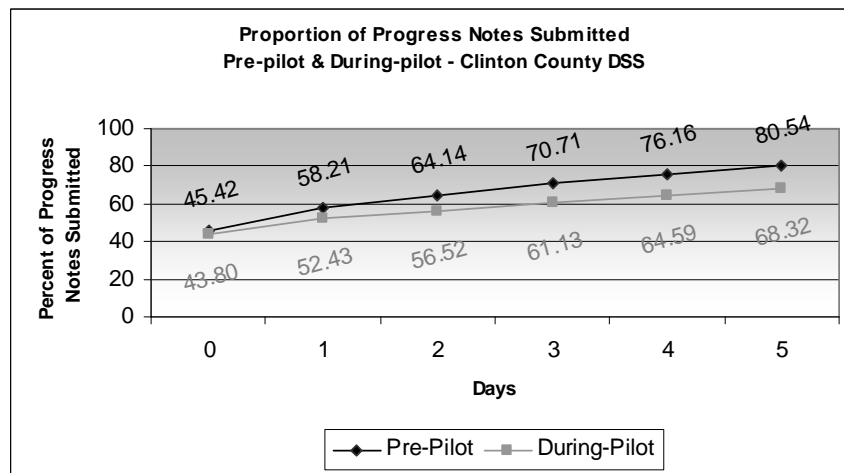
There may be multiple reasons for this decrease in the timeliness of note entry. The overall increase in case closings during the pilot period may have changed the usual pattern of progress note entry. There was clearly an effort put into closing cases during the pilot period that could have had this

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[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.

effect. A total of 18 devices were deployed, with docking stations as desktop replacements. Wireless access cards were not deployed during the test period, which limited the use of the laptops in the field. The change in equipment and related work processes may account for a decreased workflow during the pilot period.

Some additional adjustments to deployment and work processes may be necessary to take full advantage of the laptops. Adjusting to these issues can be part of the learning process in adapting to the new technologies. One respondent commented on several issues: "[The] impracticality of sitting in a car on rural roads in winter trying to balance the computer on a lap or seat to enter notes. And there is not often time in between visits to sit in car to enter notes."

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."

Only 21% of respondents reported that the use of laptops improved their work in terms of timeliness and only 28% for accessing information. None reported a negative impact (Table 2 below).

Table 2 - Perceived Change Timeliness and Work Impacts – Clinton 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)	79%(11)	14%(2)	7%(1)
Ability to do work in court	0%(0)	0%(0)	100%(11)	0%(0)	0%(0)
Ability to access case information	0%(0)	0%(0)	71%(10)	21%(3)	7%(1)
Communication with supervisors	0%(0)	0%(0)	92%(12)	0%(0)	8%(1)
Service to clients	0%(0)	0%(0)	92%(12)	8%(1)	0%(0)

One respondent reported improvement in communicating with supervisors and one (8%) reported positive impacts in providing service to clients. Ability to work in court did not improve for any of these respondents.

Issues with working in the court house or while in the field may influence respondents' perceived impacts. Some caseworkers reported problems with slow speed or erratic behavior of the system while connected to the central database and others had trouble connecting at home using their personal ISP. These kinds of problems could account for these modest levels of reported improvement in productivity. That none reported a negative impact 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.

Satisfaction

The overall level of satisfaction with the laptops was moderate. Figure 3 below shows that 50% of all respondents expressed being "Somewhat satisfied" or "Very satisfied." However, 50% indicated that they were "Neither dissatisfied/Satisfied." None of the question respondents expressed being "Somewhat dissatisfied" or "Very dissatisfied."

Figure 3 - Overall User Satisfaction with the Laptops
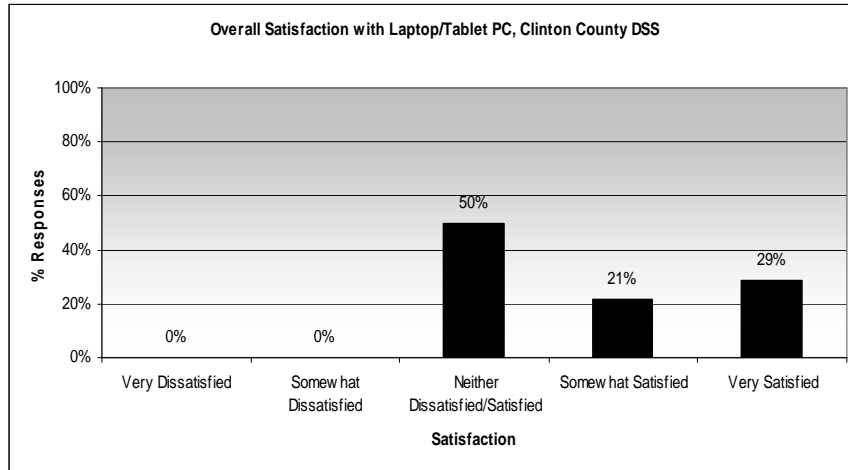
* Based on survey respondents who took the post survey n = 15. Total number of testers n = 15.

Difficulties associated with no wireless cards, the learning curve and technical specifications of the new laptops (such as the sensitivity of the touch pad), the lack of privacy while working in the field, and the absence of a dedicated working space in courts were reported and may account for a split in satisfaction.

Laptop use generally was not seen as contributing to lower job-related stress; 57% of respondents said that it did not reduce stress, while 43% said it did. 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. Several respondents did not feel as though laptops were contributing to lower job-related stress and attributed this to the lack of wireless connectivity. One respondent stated, "Without the broadband cards from Verizon, which they are holding up, the laptop at this point in time is no different than a desktop computer. Another caseworker mentioned, "It does not reduce the workload. There is no where in our Court available for us to use a laptop. In the field, I do field work. Attempting data entry in my car would be more inefficient than returning to the office to do it. My home is where my real life is. Working at home would increase stress."

Overall, 64% of respondents would recommend the use of laptops to colleagues, although 29% said they were unsure. This is compared to 7% who would not recommend the use of laptops to colleagues. The reasons attributed to why they would recommend the laptop included increased flexibility in ability to do work and the ability to do work outside of the office on one's own timetable. Several other respondents expressed this similar sentiment: "I think the laptops are a very good tool if you have all the pieces that make them work." As for respondents unsure or those that would not recommend the laptop, they attributed this to the lack of wireless connectivity.

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 a 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	12/1107	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 (09/04/07 – 11/06/07 and 11/07/07 – 01/09/08 respectively). A total of 7,173 progress note entries and 567 unique investigation stages made up the dataset from 15 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; and
- given over 250 trainings, workshops, and conference presentations provided data and
- support to more than 20 doctoral dissertations and masters projects.

For more information about CTG or this report please contact:

Meghan Cook, Program Manager
Center for Technology in Government
University at Albany, State University of New York
187 Wolf Road, Suite 301
Albany, NY 12205
Phone 518-442-3892