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Assessing Mobile Technologies in Child Protective Services

Schenectady 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 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 Schenectady 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 75 days from 10/26/07-1/9/08.

District Deployment

Schenectady County DSS has over 40 CPS staff responsible for child protective services. Schenectady County is mostly urban with some rural areas and has approximately 150,000 residents. The Schenectady County DSS participated in the demonstration project to learn if mobile technologies can help staff maximize field and court time, as well as increase opportunities to do data entry while away from the office.

The Schenectady County DSS deployed 20 Dell Latitude D620 laptops to 19 caseworkers, eight supervisors and one manager on 10/26/07 (see Appendix B for device specifications). All caseworkers received their own device and docking stations with keyboards and monitors; supervisors and managers shared one laptop.   All 19 laptops were supplied with district-provided external broadband cards approximately three weeks after caseworkers received the laptops. 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 caseworker participated in group training that covered how to complete the entire connection process (from power-up to power-down) and how to use the laptop accessories. Caseworkers were selected to participate in the demonstration so that they represented a range of technical skills and experience in managing caseloads.

Finally, no policies were changed to support the introduction of mobile technologies before or during the pilot period. In both periods, caseworkers were not compensated for documentation work done at home after normal work hours.

Characteristics of Respondents

A total of 19 CPS caseworkers participated in this study: 18 took the baseline survey (response rate 95%); 15 took the post-pilot survey (response rate 79%); and 15 took both the baseline and post-pilot surveys (response rate 79%).

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 Schenectady County DSS respondents[1] were moderately experienced in CPS field work, with an average of six years of experience; 56% 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 did not change (staying at 57% for both the pre- and pilot periods). However, the average overtime hours did decreased slightly from 6.1 hours in the pre-pilot period to 5.3 hours in the pilot period. In both periods, all respondents reported working at least two hours overtime in an average week. Sixty-three percent of respondents reported a typical court waiting time of two hours or less and spend on average 4.25 days month in court..

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

Schenectady County DSS respondents reported using the laptop during normal work hours, after work hours, on-call, and when working overtime. Schenectady 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, completing safety assessments, checking client histories, email, and accessing documents and forms. Several looked up criminal history information or accessed the sex offender registry and the Welfare Management System (WMS). Seventy-one percent the respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, 79% of respondents accessed email once a day or more, and 71% of respondents reported using their laptop once a day 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. Thirty-one percent reported never returning to the office to access case information during the pilot period, compared to only 15% 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.

Schenectady County DSS had district-provided external broadband cards during the pilot period. While many respondents encountered few difficulties, several respondents reported obstacles to mobile use; such as the inability to establish a connection and slow speed or unreliable connections, mostly at court and in the field. Some recounted the difficulty of getting and maintaining connections, while others simply stated, "connection has been great." At the court house, many reported that the lack of privacy was problematic. One respondent described the situation: "[It takes] too long to start up and shut down and [it] is too temperamental if not shut down properly, so it is not worth taking a chance on dragging it around (it is heavy) and we have a plethora of other things to bring out in the field. I tried using it while waiting at court, but if you get called into the court room you do not have enough time to shut down the computer and it would not be safe to leave it out."

Participants were also asked about ease of logging-on to the device. Overall, 39% said it was "Easy" to "Extremely Easy," 38% rated it as "Neither difficult nor Easy," and 23% 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 (67%) for an average of 3.50 hours per week. Forty percent used it at court for about two hours per week, and 33% used it in the field for an average of two hours per week. One caseworker stated, "I'm able to complete work at home that I had been unable to finish during work hours."

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	33% (5)	2.00 Hours
Court	40% (6)	2.00 Hours
Home	67% (10)	3.50 Hours
Do not use at all	7% (1)	--

* Based on survey respondents who took the post survey n=15. Total number of testers n=19.

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work. Survey respondents spend an average of four days a month at court and wait on average just over two hours during a court visit. One caseworker reported, "In family court we sit in a frequently crowded waiting room, the laptop is too physically cumbersome to use on my lap while sitting with people on each side of me, also due to being in close proximity to many other people there are issues regarding confidentiality." However, another suggested, "I am able to take my computer to court and out in the field. Typically when I go to court I am there a minimum of 3 hours and can now get some work done."

Several respondents stated that working from home was more effective because of increased access to information, and increased flexibility in where and when work was done. But, many respondents were reluctant to expend large amounts of personal time working from home when they are not compensated. One caseworker expressed, "I find it very helpful to have a laptop because it allows me mobility and the option to do my work outside of the office. I find the laptop extremely helpful when I am on-call. I often take it home to do work. I feel I would actually do even more if there was some way to be compensated for my time. Even if I was only to receive 'comp' time, I have no problem with my work being monitored while I am at home to prove how productive I am." Another describes the situation: "We do not get compensated to bring the laptop home and work. I use it primarily while I am on-call. Initially, I found myself bringing it home to catch up on work but then I realized the amount of time I was working at home and how it was impacting my home life without any compensation or recognition. I still bring it home, but only to download notes and to edit notes."

Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Schenectady 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) remained essentially unchanged from the pre-pilot period (67) to the pilot period (66). The number of cases closed in over 60 days increased somewhat, from 154 in the pre-pilot period to 220 in the pilot period. This is a marked increase in productivity during the test period; the total number of cases closed increased from 221 in the pre-pilot period to 286 during the pilot – over a 29 % increase. It is important to note that in this county

the total number of cases available to be worked on[2] increased from 764 in the pre-pilot period to 812 during the pilot – a 6.2% increase.

Figure 1 - Number of Schenectady County DSS Cases Closed Pre-Pilot and During Pilot
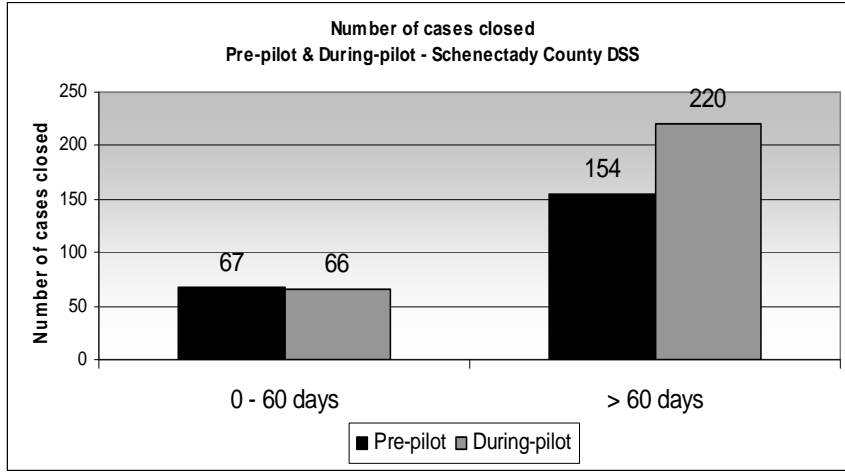
Another indicator of timeliness is elapsed time – or the number of days between an event and the posting of documentation regarding that event in the central database system. Figure 2 below shows trends in the elapsed time between progress note entry and the related event. During both periods, the majority 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 85% of all notes were entered for the pre-pilot period, compared to just over 74% for the pilot. By this measure, timeliness decreased slightly during the pilot, but is still high overall.

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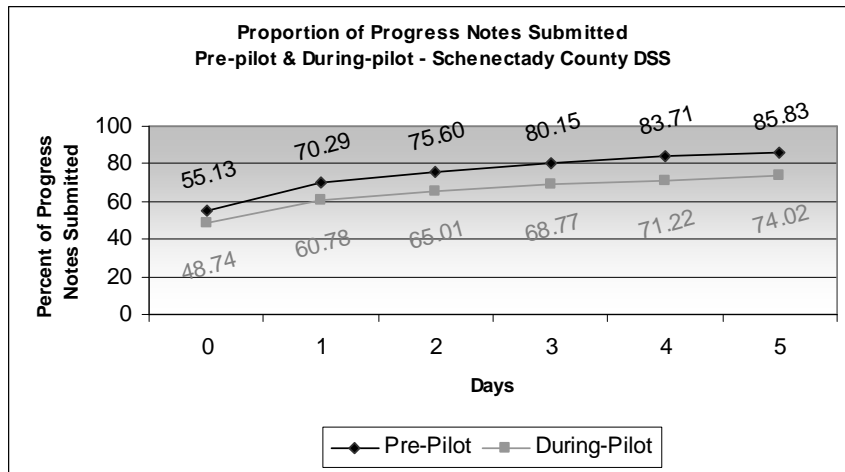
There may be multiple reasons for the decrease in the timeliness of note entry. The overall increase in case closings during the pilot may have changed the usual pattern of progress note entry. There was clearly an effort put into closing cases during the pilot period that could have had this effect.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

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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.

Schenectady County DSS, a total of 20 laptops with wireless access cards and docking stations were deployed as replacements for desktop PCs. This kind of equipment change can be disruptive in the short run and require a period of adjustment. Several survey respondents reported slow sign-on processes, difficulties in maintaining a connection away from the office and slow response while connected. One respondent remarked: "CONNECTIONS runs very slow while I am working from my home, and at times I find it easier to just type the notes in Word, and email them to myself." This sentiment was echoed by several other respondents.

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 Schenectady County DSS respondents reported consistently positive impacts on their work resulting from laptop use, shown in Table 2 below. Fifty percent reported improvements in timeliness of documentation, 78% in ability to access case information and 64% percent reported improvements in ability to work in court. Many respondents did not perceive changes when communicating with supervisors (93%) or providing service to clients (86%). None of the respondents reported negative impacts.

Table 2 - Perceived Change Timeliness and Work Impacts – Schenectady 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)	50%(7)	50%(7)	0%(0)
Ability to do work in court	0%(0)	0%(0)	36%(5)	50%(7)	14%(2)
Ability to access case information	0%(0)	0%(0)	21%(3)	64%(9)	14%(2)
Communication with supervisors	0%(0)	0%(0)	93%(13)	7%(1)	0%(0)
Service to clients	0%(0)	0%(0)	86%(12)	14%(2)	0%(0)

That lack of reported negative impacts 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 and overshadowed by the increase in rate of case closings.

Several respondents did recognize the overall potential value of laptop. One commented, "Having the laptop allows me more mobility. In cases where I feel I need it, I can bring it. While on call it is a wonderful resource to have at home to look up a history."

Satisfaction

The overall level of satisfaction with the laptops was relatively high. Figure 3 below shows that 65% of respondents expressed being "Somewhat satisfied" or "Very satisfied," compared to only 7% being "Somewhat dissatisfied." Additionally, 29% indicated that they were "Neither dissatisfied/Satisfied."

Figure 3 - Overall User Satisfaction with the Laptops
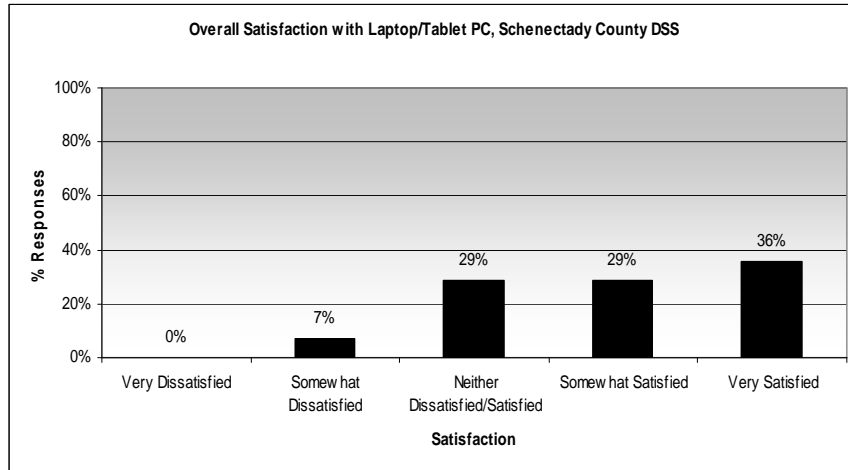
Based on survey respondents who took the post survey n = 15. Total number of testers n = 19. Percentages may not add to 100% due to rounding.

Despite these overall high levels of satisfaction, other factors may be influencing respondents' perceptions of laptop satisfaction. Many caseworkers may have had higher expectations for use at court and in the field and those expectations were not wholly met. One respondent reported, "The use of the laptop in the field is cumbersome, lacks privacy, [and is] time consuming. The Alpha Smart in the field is perfect."

Laptop use regarding job-related stress received mix results from respondents. Fifty percent indicated that it did reduce stress, while the other half felt as though laptops did not lower job-related stress. Those who reported a reduction in stress attributed this to their ability to catch up on work, increased flexibility in working outside of the office, and increased access to information.

The lack of compensation for overtime work was the main reason why respondents felt as though the use of laptop did not reduce their job-related stress. Several others expressed this similar sentiment: "Most of my stress is associated with having too much work and not enough time to do it in. The laptop would assist me in completing some of this work from home, but I am very reluctant to invest a significant amount of time in doing work from home when I am not compensated for it; when I'm home I'd rather spend time with my family than do work for free."

Overall, 79% of respondents would recommend the use of laptops to colleagues, compared to 7% that would not. Additionally, 14% were unsure. The reasons mentioned for this postive recommendation included increased flexibility in where work can be done, increased time efficiency (especially during down times in court), and increased access to information. One respondent pointed out that "the laptop is useful in that it offers flexibility in where and when you can do work and access information. I would recommend using the laptop to my colleagues, for

those willing to work for free from home; the laptop can greatly assist in catching up on documentation and processing case work."

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 (08/11/07 – 10/25/07 and 10/26/07 – 01/09/08 respectively). A total of 7,371 progress note entries and 1,033 unique investigation stages made up the dataset from 19 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.

For more information about CTG or this report please contact:

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