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Assessing Mobile Technologies in Child Protective Services

Chemung 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 were 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 Chemung 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 55 days from 11/15/07 – 1/9/08.

District Deployment

Chemung County is in Central New York and borders Pennsylvania and has a population of over 84,000 residents. The Chemung County DSS participated in the demonstration project to learn if mobile technologies can help staff with documentation, including progress notes, safety assessments, and investigation conclusions.

The Chemung County DSS deployed 13 Dell Latitude D620 laptops and two HP Compaq tc4400 Tablets to 23 caseworkers and two supervisors on 11/15/07 (see Appendix E for device specifications). Twelve caseworkers received their own laptop and two laptops were reserved for on-call staff; one laptop was shared between two supervisors. Twelve of the 13 laptops came with docking stations including keyboards and monitors. Five district-provided external broadband cards were shared on a first come, first served basis among the laptop and tablet users. 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 participating in the field test were selected from a pool of volunteers.

Finally, no policies were changed to support the introduction of mobile technologies before or during the pilot period. In both periods, caseworkers were given compensatory time for overtime hours worked while at home. Caseworkers who worked overtime outside of the office were asked to sign a confidentiality agreement asking that they not divulge client sensitive information.

Characteristics of Respondents

A total of 23 caseworkers participated in this study: 23 took the baseline survey (response rate 100%); 14 took the post-pilot survey (response rate 61%); and 14 took both the baseline and post-pilot surveys (response rate 61%).

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 Chemung County DSS respondents[1] were relatively new to CPS field work, with an average of 4.2 years of experience among the survey respondents; 57% reported CPS experience of three years or less. Respondents were working slightly more overtime hours during the pilot period. Ninety-three percent of respondents reported working five hours or less of overtime in the pre-pilot period, but this proportion decreased to 89% during the pilot. Therefore, the average overtime hours increased slightly from two hours in the pre-pilot period to 2.7 hours during the pilot period. In the pre-pilot period, almost 36% of the participants did not work overtime at all, during the pilot this proportion decreased to 22%. Eighty-six percent of respondents reported a typical court waiting time of forty-five minutes or less and 65% reported on average spending three 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.

Use
Chemung County DSS respondents reported using the laptop during normal work hours, after work hours, on-call, and when working overtime. Ten desktops were removed and docking stations

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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.

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. Case documentation was the most frequent use, including inputting and updating notes, and completing safety assessments. Other work included reading and reviewing case histories, opening new cases, doing person searches, checking client histories, email, and accessing documents and forms. Approximately 67% of the respondents reported using the laptop to access various forms of information from government Web sites while in the field at least once a day. Similarly, 78% of respondents accessed email at least once a day or more, while 67% of respondents reported using their laptop at least once a day or more to access map directions. One respondent stated they use the laptop for "everything my job requires, typing progress notes, legal documents, letters to court and looking up people named on reports. In my office we use the Internet to check clients on myspace.com (a very helpful tool) and we do research regarding 'explanations of injury' and fact checking. We also use the sex offender registry and the Department of Corrections Web site."

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 frequency during the pilot period. Twenty-nine percent reported having to return to the office to access information about once a week or less in the pre-pilot period and that proportion increased to 44% during the test. The respondents were in the field approximately the same number of days per week (average about 3 days) during the pre- and pilot periods.

Several respondents commented on some of the subtle changes in mobility and communication patterns, in particular the benefits for on-call workers. For example, one respondent described a situation where they used the laptop to enter progress notes on Saturday, notified the supervisor, and then asked the supervisor to approve it on Sunday – this worked so well that the caseworker did not have to work on the case on Monday. Another stated that if he had an appointment at 2 pm and it got canceled, but then had another scheduled for 3 pm, he could sit in his car and do some work without having to return to the office.

Chemung County DSS had five district-provided external broadband cards during the pilot period and rotated them on an "as needed basis," however the court house did not have wireless capability. Some did use their home Internet Service Providers (ISPs) while at home. The respondents reported the inability to establish a connection in all locations as an obstacle to mobile use. Several respondents noted that small blocks of time available to do work at court and in the field interfered with their use of the laptop. Several respondents expressed that the laptops tend to be slower than their desktops when used outside of the office, the cursor jumps around, and it takes longer to update the screen when in CONNECTIONS. Other device characteristics, such as battery life, were issues for some. One respondent stated, "It is difficult to use the laptop in the field because of privacy. The battery does not last long. For instance, my battery died while filing out this survey."

Participants were asked about the ease of logging-on to the device. Overall, 89% said it was "Easy" to "Extremely easy," 11% 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. Eight respondents reported using the laptop most frequently at home, for an average of over four hours per week. One respondent reported using it in the field for less than a half hour a week.

Table 1 - Location and Hours of Laptop Use per Week

	Use of Laptop (n)	Average length of use per week
Field	7% (1)	0.13 Hours
Court	0% (0)	0.00 Hours
Home	57% (8)	4.22 Hours
Do not use at all	0% (0)	--

* Based on survey respondents who took the post survey n = 14. Total number of testers n = 23.

Respondents expressed the importance of being connected and emphasized that having constant connectivity would enhance the benefits of using a laptop. One respondent stated, "I do not have a laptop for use all day, only once per month for on-call work. I feel that having a laptop at all times for daily use would benefit my productivity. I spend a lot of time traveling to facilities and would be able to type notes between visits or during meetings." Another stated, "Although I do not have a laptop assigned to me, being able to sign-out a laptop and use it at home to complete case notes etc. is very helpful."

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in most districts. Respondents in the Chemung County DSS spent on average three days a month at court and wait approximately one hour or less during a court visit. Therefore, caseworkers may not be using the laptop in the court house or the field because, as mentioned, the court house is not wired and the laptops are used on a sign-out basis. The number of opportunities to use the laptop may be limited for some.

Caseworkers could work overtime from home if they got prior approval and there has been no problem with approvals (Chemung County DSS is currently experiencing high turnover). 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.
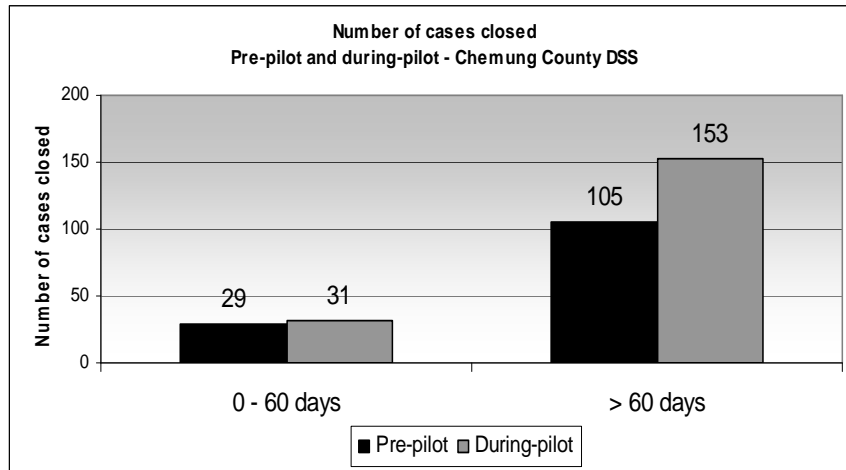
Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Chemung 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 very slightly during the pilot period, up from 29 in the pre-pilot period to 31 during the test period. The number of cases closed in over
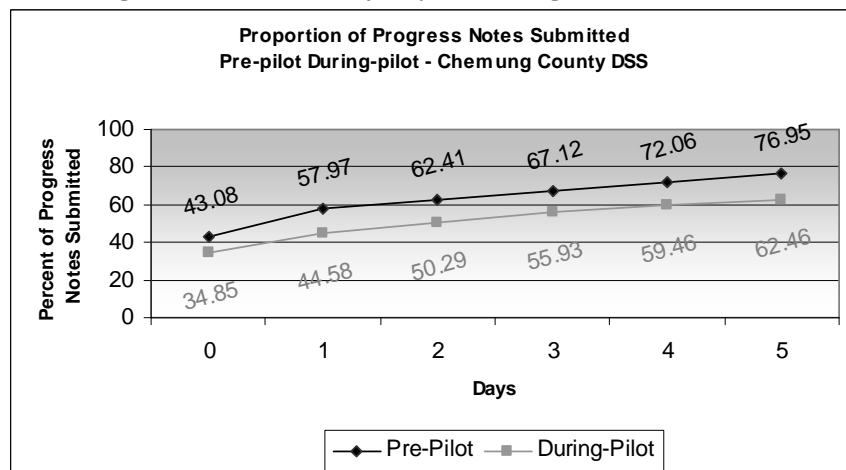
60 days increased from 105 in the pre-pilot period to 153 during the pilot period. This is a marked increase in productivity; the total number of cases closed increased substantially from 134 in the pre-test to 184 during the test period – a 37% increase. It is important to note that in this county the total number of cases available to be worked on[2] slightly decreased from 471 in the pre-pilot period to 466 during the pilot period – a 1.1% decrease.

Figure 1 - Number of Chemung 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 fifth day following the event. But contrary to expectations, the proportion of progress notes entered in each time period during the pilot period is consistently below that of the pre-pilot period. By the fifth day, over 75% of all notes were entered for the pre-pilot period, compared to 62% during the pilot. By this measure, timeliness decreased somewhat during the pilot period.

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

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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.

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. A total of 15 devices were deployed (13 laptops and two tablet PCs). Of these, seven were desktop replacements and three were used for on-call work and by a supervisor. 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. One respondent reported:

> My office is off site from the main building, as we are a CAC. We have experienced problems with the routing system. Currently I cannot log on to CONNECTIONS while I am using the docking station. This has been ongoing for about two weeks. We have experienced numerous problems of this nature since receiving the laptops

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."

Most respondents reported the use of laptops improved their work in terms of timeliness and accessing information, with none reporting a negative impact (Table 2 below).

Table 2 - Perceived Change Timeliness and Work Impacts – Chemung 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)	44%(4)	33%(3)	22%(2)
Ability to do work in court	0%(0)	0%(0)	100%(9)	0%(0)	0%(0)
Ability to access case information	0%(0)	0%(0)	11%(1)	67%(6)	22%(2)
Communication with supervisors	0%(0)	0%(0)	44%(4)	44%(4)	11%(1)
Service to clients	0%(0)	0%(0)	67%(6)	22%(2)	11%(1)

Overall, 55% of respondents reported timeliness of documentation was "Somewhat better" or "Much better" using the laptop. And 89% of respondents reported the ability to access case information as being "Somewhat better" or "Much better" using the laptop. Over one-half of the survey respondents reported improvement in communicating with supervisors and 33% reported positive impacts in providing service to clients. Ability to work in court did not improve for any of these respondents. The problems in court were described by one respondent:

> Our court set up does not allow a private waiting area for caseworkers. Therefore typing has to be done in a room full of people waiting for their court appearance. I have been able to use my laptop on limited occasions, only if it was at a time I knew I would be waiting for a length of time before I was called.
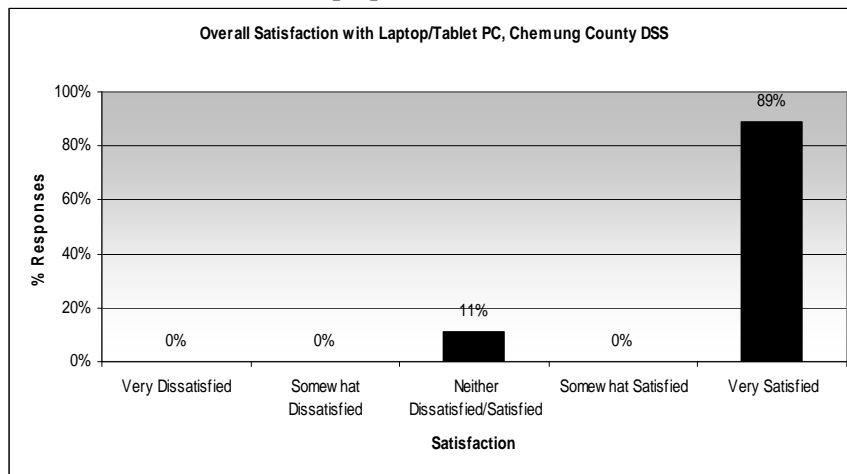
Some caseworkers reported problems with slow speed or erratic behavior of the system while connected to CONNECTIONS and another had trouble connecting at home using their personal ISP. These kinds of problems could account for these modest levels of reported improvement in productivity. None, however, reported a negative impact on timeliness, which is somewhat inconsistent with the timeliness of documentation results obtained from the central data base. 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 high.
Figure 3 below shows that 89% of respondents expressed being "Very satisfied." None of the respondents reported being "Somewhat dissatisfied" or "Very dissatisfied" with the laptops, while only 11% indicated that they were "Neither Dissatisfied/Satisfied."

Figure 3 - Overall User Satisfaction with the Laptops

Overall Satisfaction with Laptop/Tablet PC, Chemung County DSS

* Based on survey respondents who took the post survey n = 14. Total number of testers n = 23.

Laptop use generally was seen as contributing to lower job-related stress; 67% of respondents said that it did reduce stress, while one-third said it did not. Those who reported a reduction in stress attributed this to their ability to catch up on their work, being able to meet deadlines, just knowing the laptop was available, and cutting down on travel time to and from the office on weekends. One respondent said, "The laptop at least gives me the feeling that I can type notes when at home to reduce stress …. The laptop has helped out greatly with on-call work and has overall reduced my caseload because of the overtime from home." Several other respondents did not see the laptop reducing their job-related stress. One respondent stated, "My stress is related to the amount of work that I must conduct regarding these cases, which the laptop has no bearing over the regulations I must follow."

Overall, 100% of respondents would recommend the use of laptops to colleagues. The reasons mentioned included the ability to use time more efficiently, increased flexibility in respondents' ability to do CPS work, the ability to do work outside of the office, and increased access to

information. One caseworker pointed out, "I would recommend the laptop to colleagues because it allows for more availability of information during on-call shifts, as well as ease in documentation after 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 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 (09/20/07 – 11/14/07 and 11/15/07 – 01/09/08 respectively). A total of 7,643 progress note entries and 600 unique investigation stages made up the dataset from 23 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:

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