



Center for Technology in Government

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## **Assessing Mobile Technologies in Child Protective Services**

**Jefferson 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 Jefferson County DSS. Findings are based on data collected through online surveys, district questionnaires, and analysis of CONNECTIONS data (data collection methodology and timeframe can be found in Appendix A). The field test lasted 68 days from 11/02/07 – 01/09/08.

## District Deployment

Jefferson County DSS has 21 CPS staff responsible for child protective services. Jefferson County, a mostly rural county in Northern New York that houses Fort Drum military base, has approximately 117,000 residents. The county encompasses a large geographical areas, almost 1,300 square miles, making it the ninth largest county in the State. Jefferson County DSS participated in the demonstration project to learn if mobile technologies will allow caseworkers to use their time in court and in the field more effectively and eventually reduce overtime hours.

The Jefferson County DSS deployed 20 Dell Latitude D620 laptops to 18 caseworkers and two supervisors (see Appendix B for device specifications). All caseworkers received their own device and docking stations with keyboards and monitors. Two laptops were deployed on 10/23/07 to two caseworkers and the remaining laptops were deployed on 11/2/07. All 20 laptops were deployed with district-provided external Verizon broadband cards. Regardless of the network connections used, all access to the State network was through a virtual private network (VPN) that secures the transmission to and from the portable device and the network. In addition, PointSec encryption software was installed on each device before deployment. Each participant received individual training and written security procedures.

Finally, one policy changed as a result of the introduction of mobile technologies. During the pilot period, it was decided that participants were not allowed to work overtime or receive compensation for work completed with the laptop after regular work hours while at home.

## Characteristics of Respondents

A total of 18 CPS caseworkers participated in this study: 16 took the baseline survey (response rate 89%); 13 took the post-pilot survey (response rate 72%); and 12 took both the baseline and post-pilot surveys (response rate 67%).

The length of experience in CPS work, amount of overtime accrued weekly, the number of court days and estimated waiting time during a visit are all important to understanding the overall context of the work environment. The Jefferson County DSS respondents<sup>1</sup> were moderately experienced in CPS field work with an average of 5.8 years of experience; 56% reported CPS experience of three years or less. Respondents were working slightly more overtime hours during the pilot period. Ninety-one percent of respondents reported working five hours or less in a week in the pre-pilot period and the proportion decreased to 64% in the pilot period. Therefore, the average overtime hours increased from 3.1 hours in the pre-pilot period to 4.3 hours in the pilot period. Seventy-seven percent of respondents reported a typical court waiting time of one and a half hours or less and 73% reported on average spending 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.

## Use

Jefferson County DSS respondents reported using the laptop during normal work hours, after work hours, and when working overtime. Jefferson 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

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<sup>1</sup> 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.

court-related activities. Case documentation was the most frequent use, including inputting and updating notes, completing safety assessments, and email. Overall, 82% of the respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Similarly, approximately 91% of respondents accessed email once a day or more, while 55% 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 number of times caseworkers needed to return to the office from the field, however, respondents reported returning to the office to access case information more frequently during the pilot period. Eighty-three percent reported returning to the office once a week or less to access case information in the pre-pilot period, which went down to 55 percent in the pilot period. The respondents were in the field on average less frequently during the pilot than in the pre-pilot period (2.27 and 3.12 average field days, respectively).

Jefferson County DSS had district-provided external broadband cards during the pilot period. Some respondents did use personal Internet Service Providers (ISPs) while at home. Survey respondents reported obstacles to mobile use, including the inability to establish a connection, slow speed or unreliable connections, in all locations. One respondent stated, “[It’s] frustrating... I'm sure it's the guy behind the keyboard but the laptop certainly intensifies the learning curve delays due to the technical stuff needed to effectively use the equipment.” The performance problem most frequently mentioned in open-ended comments was the slow speed of the connection. One respondent pointed out the need for additional training to overcome connection problems using their home ISP.

Participants were also asked about ease of logging-on to the device. Overall, 36% said it was “Easy,” 36% rated it as “Neither difficult nor Easy,” and another 27% of respondents rated the log-on process as “Difficult” to “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 (62%), for an average of just over five hours per week, compared to other locations (15% in the court house and field for between one-half hour and two hours per week).

**Table 1 - Location and Hours of Laptop Use per Week**

	<b>Use of Laptop (n)</b>	<b>Average length of use per week</b>
Field	15% (2)	0.09 Hours
Court	15% (2)	1.73 Hours
Home	62% (8)	5.27 Hours
Do not use at all	8% (1)	--

*\* Based on survey respondents who took the post survey n=13. Total number of testers n=18.*

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in most districts. However, respondents in Jefferson County DSS only spend on average 1.5 days a month at court and wait on average 1.5 hours during a court visit. Therefore, caseworkers may not be using the laptop in the court house or the field because of other competing interests that may limit the amount and type of work they can do. Many stated in open-ended survey

comments that they do not connect with the laptop while in the court house, and have a lot of difficulty at home. As mentioned before, connectivity problems have influenced their desire to use the laptop in the field. One respondent said, “In my opinion, the major drawback to using the laptops for field work is the delay in getting up and running. We need something smaller, lighter, and with near instant-on capabilities. Also, I can effectively use a quickpad in the field while standing up. I can’t do that with a laptop.” Another suggested, “I do like being able to work on the CONNECTIONS system from home every once in a while. I was typing notes at home on the quickpad before the laptops came along, so I don't see any advantage to bringing the cumbersome laptop home just to type progress notes.”

Caseworkers cannot work from home for overtime reasons, but many find value in working extra hours from home voluntarily. One caseworker described this experience: “We were excited about the laptops, but they did not really make a big difference when taking it home to work on. Besides, they [management] could not decide if we were to get paid for the work done at home.” However, several respondents stated that working from home was somewhat more efficient because it increased their flexibility and the time they have to do different tasks. One respondent stated, “I live quite a distance from work and do not want to drive in on the weekends to catch-up on work. It's been great to be able to bring my laptop home and catch-up on work. It prevents me from getting behind on my cases.”

## Productivity and Efficiency

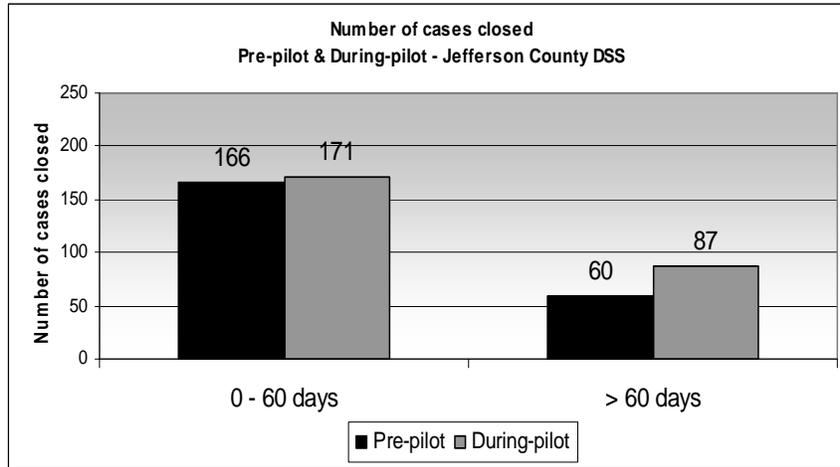
This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Jefferson County DSS: (1) Are workers more productive with respect to case closings and progress note reporting? and (2) Does timeliness of reporting change?

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 166 in the pre-pilot period to 171 during the pilot period. The number of cases closed in over 60 days increased somewhat from 60 in the pre-pilot period to 87 during the pilot period. This is a marked increase in productivity; the total number of cases closed increased from 226 in the pre-pilot period to 258 during the pilot period—a 14% increase. It is important to note that in this county the total number of cases available to be worked on<sup>2</sup> decreased from 415 in the pre-pilot period to 322 during the pilot period – a 22.4% decrease.

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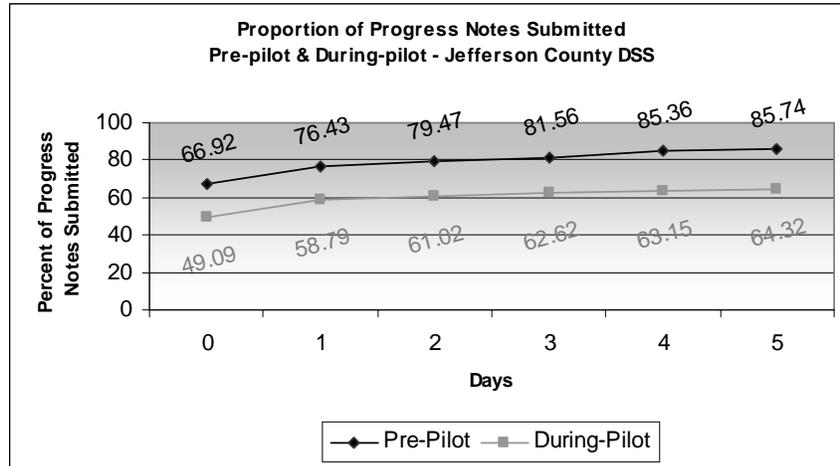
<sup>2</sup> The number of cases available to be worked on is the total of investigation stages that were open at any time during each of the pre-or pilot periods.

**Figure 1 - Number of Jefferson 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 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 64% 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**



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 Jefferson County DSS, a total of 20 laptops were deployed with docking stations, as replacements for desktops, plus 19 wireless access cards were given out. Many respondents reported that because of slow connection speeds the laptops were used most of the time in the office connected to their docking stations. One caseworker noted, “CONNECTIONS is hard to connect to when at home. Microsoft Word has not responded and locked up while typing notes at home and made the process frustrating and took over 2 hours when it should have only taken about 30 minutes.”

The change in equipment and related work processes may account for a decreased workflow of progress notes during the test period. In this county, workers were not allowed overtime compensation for work done at home. Some additional adjustments to 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.”

Many respondents perceived the use of the laptop to be about the same with respect to the ability to do work in court, communication with supervisors, and service to clients. Over one-third of the respondents reported that using the laptops improved their work in terms of timeliness and for accessing information. None reported a negative impact (Table 2 below).

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

	<b>Much worse (n)</b>	<b>Somewhat worse (n)</b>	<b>About the same (n)</b>	<b>Somewhat better (n)</b>	<b>Much better (n)</b>
Timeliness of documentation	0% (0)	0% (0)	64% (7)	27% (3)	9% (1)
Ability to do work in court	0% (0)	0% (0)	82% (9)	9% (1)	9% (1)
Ability to access case information	0% (0)	0% (0)	64% (7)	27% (3)	9% (1)
Communication with supervisors	0% (0)	0% (0)	82% (9)	9% (1)	9% (1)
Service to clients	0% (0)	0% (0)	91% (10)	9% (1)	0% (0)

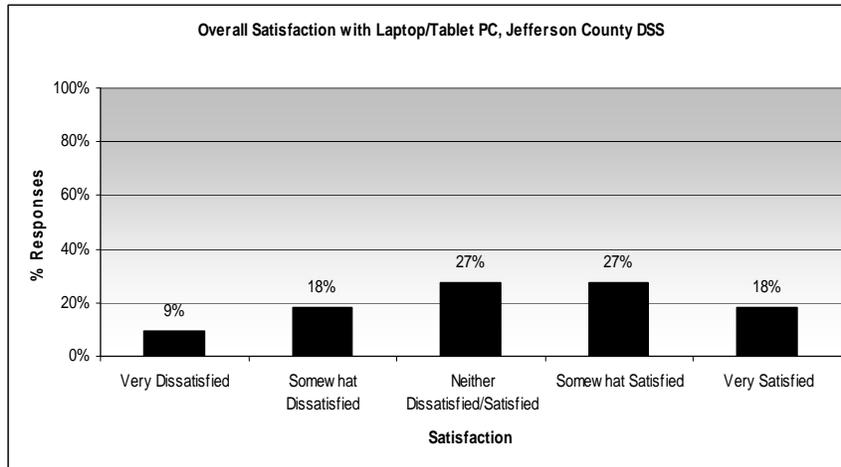
In addition, two of the survey respondents (18 %) reported improvement in communicating with supervisors and one (9%) reported positive impacts in providing service to clients. Ability to work in court also improved for two respondents (18%).

That none of the respondents 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 45% of all respondents expressed being “Somewhat satisfied” or “Very satisfied,” compared to 27% being “Somewhat dissatisfied” or “Very dissatisfied.” An additional 27% indicated that they were “Neither satisfied/Dissatisfied.”

**Figure 3 - Overall User Satisfaction with the Laptops**



*\* Based on survey respondents who took the post survey n = 13. Total number of testers n = 18. May not add to 100% due to rounding.*

It could also be the case that having a laptop produced higher expectations for use at court, in the field, and at home, and these expectations that were not wholly met. One respondent reported, “I am not at all thrilled with needing to work at home in the first place. In the little extra time I do have available to get something done there, I certainly don't feel like wasting the majority of it simply trying to establish a connection and then, dealing with the remarkable delay thereafter.” However, others saw these problems as early glitches stating, “Once the kinks are worked out, this will be great. Everything new needs to have fine tuning.”

Laptop use generally was not seen as contributing to lower job-related stress; 58% of respondents said that it did not reduce stress levels, while 41% said it did. Those who reported a reduction in stress attributed this to increased flexibility and the ability to work on documentation outside of the office, the ability to catch up on their work, and just knowing the laptop was available. Several respondents did not feel as though the laptops reduced stress and attributed this to connectivity issues and work-life balance issues. One respondent said, “Although my laptop has the potential to reduce my stress level, issues with computer connections from home have led to increased frustration and affected my decision to use the laptop in the field.” Another stated, “all it [the laptop] does is imply that I should be doing this job at all hours of the day.”

Overall, 46% of respondents would recommend the use of laptops to colleagues. One respondent stated, “I would recommend using the laptop for CPS work to colleagues because it allows workers to access information either in the field or at home.” Eighteen percent reported that they would not recommend use of the laptop to colleagues and another 36% of respondents were unsure whether or not they would recommend the use of the laptops. One respondent noted, “It depends on what they [the colleague] is looking for – I mean if they have time in the field or at home – then it would be fine. But for me, in this area, it just doesn't work. Keeping it on my desk works just fine.”

# 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 (08/25/07 – 11/01/07 and 11/02/07 – 01/09/08 respectively). A total of 1,465 progress note entries and 548 unique investigation stages made up the dataset from 18 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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