



Center for Technology in Government

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

**Niagara 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 Niagara 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 23 days from 12/17/07 -1/9/08.

## District Deployment

Niagara County DSS has 34 CPS staff responsible for child protective services. Niagara County is a suburban and urban area with three major cities, 12 towns, and four villages. Approximately half of the 210,000 residents are situated in the city centers. The Niagara County DSS participated in the demonstration project to learn if mobile technologies can make better use of caseworkers' time while in the field in order to help reduce the number of open cases and overdue safety assessments.

The Niagara County DSS deployed 35 Dell Latitude D620 laptops and four HP Compaq tc4400 tablets to 28 caseworkers, four supervisors, and one manager (see Appendix B for device specifications). Devices were deployed in three installments (11/21/07, 12/13/07, 12/20/07). Each caseworker and supervisor were given their own device with docking stations including keyboards and monitors. No external broadband connection cards were procured or provided for any of the devices during the pilot period and while their three court houses are fully wireless, participants were unable to connect in the court house (Niagara County DSS technical staff were looking into this problem). 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, participants were not allowed to work from home unless they were on-call.

## Characteristics of Respondents

A total of 28 caseworkers participated in this study: 13 took the baseline survey (response rate 46%); 13 took the post-pilot survey (response rate 46%); and nine took both the baseline and post-pilot surveys (response rate 32%).

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 Niagara County DSS respondents<sup>1</sup> were experienced in CPS field work, with an average of 9.2 years of experience; 58% reported CPS experience of five years or more. Respondents were working slightly more overtime hours during the pilot period. The percentage of respondents reporting overtime of one hour or less in a week decreased from 89% in the pre-pilot period to 57% in the pilot period. As a result, the average overtime hours slightly increased from 0.8 hours in the pre-pilot period to 1.1 hours in the pilot period. Eighty-four percent of respondents reported a typical court waiting time of three hours or less and 83% 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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<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.

## Use

Niagara County DSS respondents reported using the laptop during normal work hours, after work hours, and on-call. Niagara 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, reading and reviewing case histories, doing person searches, checking client histories, email, and word processing. Approximately 64% of the respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Seventy-three percent of respondents accessed email at least once a day or more, while 73% of respondents reported using their laptop at least once a day or more to access map directions.

The extent to which caseworkers could access information while out of the office has a big influence on what kinds of mobile work are possible. Very few of the Niagara County DSS participants responded to the questions regarding changes in accessing information. However, for those that did, laptop use did not change (at this point in time) the frequency of respondents returning to the office during the work day to access information. Four respondents reported returning to the office four or more times a week to access case information in the pre-pilot and during the pilot period.

Several respondents noted that work practices remained the same. For example, one respondent describe their situation, “We still have to share cell phones and often have to return to the office to ask questions or prepare notes.” Several respondents did recognize the potential value of the portable PCs, one commented, “While in the field and unable to access office computer (CONNECTIONS) the laptop ideally will be invaluable to casework (especially for fieldwork while on pager).” The respondents were in the field approximately the same number of days per week (average 3 days) during the pre- and during-pilot periods.

Niagara County DSS did not have district-provided wireless cards during the pilot period. Some did use their home Internet Service Providers (ISPs) while at home. Teleconference respondents noted that their area does not have a lot of ‘hot spots’ and that they are generally in tourist areas and not in the areas where they work. The three court houses are fully wireless, but there was difficulty establishing a connection to CONNECTIONS (as mentioned, the problem is being looked into). Those respondents who were able to connect reported encountering some obstacles to mobile use such as the inability to establish a connection, slow speed, or unreliable connections in all locations. One respondent wrote, “We have not been able to access CONNECTIONS in the field, we do not have aircards. In addition, there are issues accessing connections where WiFi is available. It must be an issue with the settings.” Several noted that the time it takes to boot-up the computer is also very slow.

Participants were also asked about ease of logging-on to the device. Overall, 40% of survey respondents rated the log-on process as “Difficult” to “Extremely Difficult,” 30% rated it as “Easy,” and another 30% said it was “Neither difficult nor Easy.” A few respondents commented on the need for training on log-on tips for ‘hot spots’ and how to overcome connection problems while using personal (home) ISPs.

## 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, two respondents reported using the laptop at home for an average of less than one hour per week. One person tried to use it in the field for on less than one hour a 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	7% (1)	0.38 Hours
Court	0% (0)	0.29 Hours
Home	15% (2)	1.13 Hours
Do not use at all	15% (2)	--

*\* Based on survey respondents who took the post survey n=13. Total number of testers n=28.*

Respondents expressed the importance of being connected and emphasized that having constant connectivity would enhance the benefits of using a laptop. One respondent stated, “The laptops are just as easy to work with as a desktop PC. Once wireless internet access is more available it will provide the option of doing casework when out of the office.” Another suggested, “The future hope of being able to access work sites at home, on the road, and at court is exciting. This initial period when we cannot yet connect out of the office allows me to become familiar with the equipment.”

The amount of time caseworkers spend in court suggests that it is an unexploited location for mobile work in many districts. Respondents in Niagara County DSS spend on average two days a month at court and wait about two hours during a court visit. Caseworkers may not be using the laptop in the court house because of other competing interests that may limit the amount and type of work they can do. Also, as mentioned earlier, participants reported difficulty connecting while at court and this could be limiting the opportunities to use it. Several described the court houses as crowded saying, “We can not establish a connection at court. We are required to stay in the hallway outside of the court room. Often times there are not enough seats and we must stand with our clients.”

Caseworkers cannot work from home unless they are on-call. Teleconference respondents stated that on-call workers generally work from the office. Many noted that they have not had a sufficient amount of time to learn how to use the laptop and this may be impacting the amount of use. One respondent said, “Having only had the laptop less than a month, I still need to make some changes in the way I do CONNECTIONS work on a laptop. Also, I need to become more comfortable in taking the laptop in the field with me.”

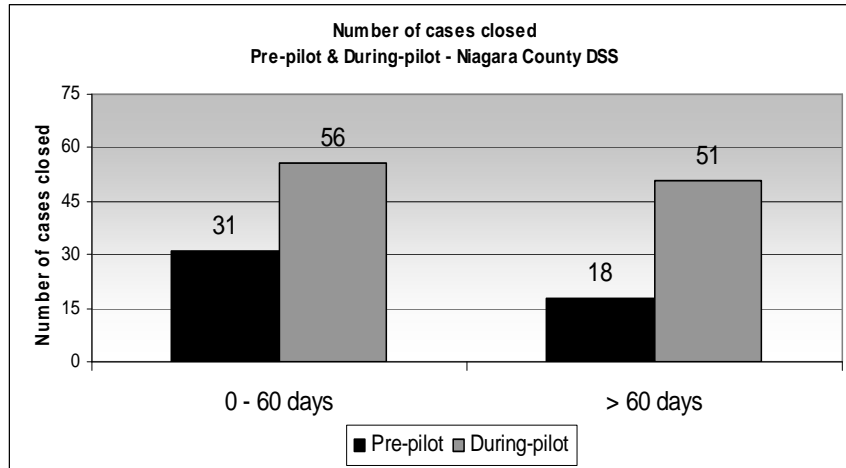
## Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Niagara 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 substantially during the test period,

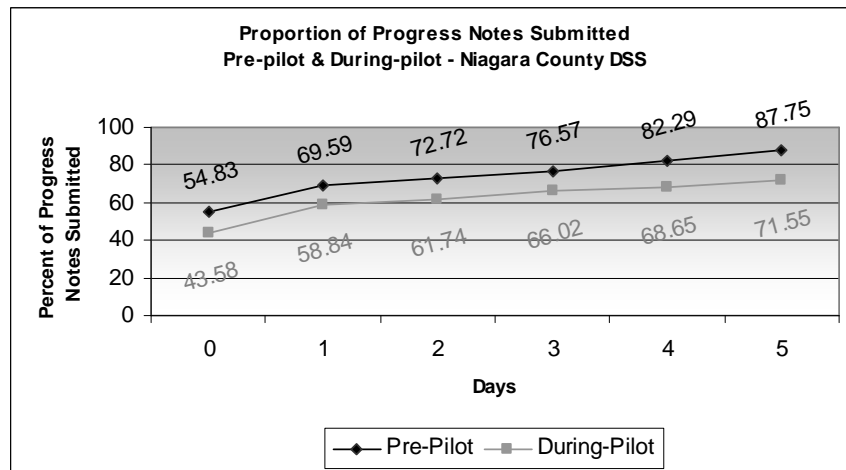
up from 31 in the pre-test period to 56 during the test period. The number of cases closed in over 60 days increased markedly from 18 in the pre-pilot period to 51 in the pilot period. This is a marked increase in productivity; the total number of cases closed increased from 49 in the pre-pilot period to 107 during the pilot period – over a 100% increase. It is important to note that in this county the total number of cases available to be worked on<sup>2</sup> increased from 417 in the pre-pilot period to 446 during the pilot period – a 7.0% increase.

**Figure 1 - Number of Niagara 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 for the pilot is marginally, but consistently below that of the pre-pilot period. By the fifth day, close to 90% of all notes were entered for the pre-pilot period, compared to just over 70% for the pilot. By this measure, timeliness decreased slightly during the pilot period, but is high overall.

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



<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.

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 Niagara County DSS, a total of 35 laptops with docking stations were deployed as desktop replacements, along with four tablet PCs. Some also reported lack of suitable space in court to do confidential work. In this county, workers were not allowed overtime for work on the laptops at home unless they were on-call. The most frequent performance problems commented on by respondents were inability to access the network outside the office due to the lack of a wireless card. They also mentioned slow connection speed. A mix of issues interfered with effective use for at least one respondent, who reported:

- 1) fear of losing, having stolen, breaking the laptop results in not taking the laptop in the field with me; 2) having the time to connect/ and type notes while in the field. It's cold here now, so sitting in my car typing notes in the laptop isn't my first choice. In other locations that have Wifi, I feel that it would be viewed as abusing county time; and 3) privacy issues.

These changes in equipment and related work processes can account for a decreased workflow of progress notes during the test period. 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.”

Very few of the Niagara County DSS participants responded to the questions regarding work impacts of laptop use. The great majority of these reported no impact. Only one or two respondents reported positive impacts in the work areas shown in Table 2 below. Two reported improvements in ability to work in court. Others reported some positive impact in communication with supervisors and general service to clients. Two respondents reported a negative impact on timeliness of documentation.

**Table 2 - Perceived Change Timeliness and Work Impacts – Niagara 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)	20%(2)	70%(7)	10%(1)	0%(0)
Ability to do work in court	0%(0)	0%(0)	80%(8)	20%(2)	0%(0)
Ability to access case information	0%(0)	0%(0)	80%(8)	10%(1)	10%(1)
Communication with supervisors	0%(0)	0%(0)	90%(9)	10%(1)	0%(0)
Service to clients	0%(0)	0%(0)	80%(8)	10%(1)	10%(1)

That few reported a negative impact on timeliness and other work activities is somewhat inconsistent with the timeliness of documentation results obtained from the central database. It is

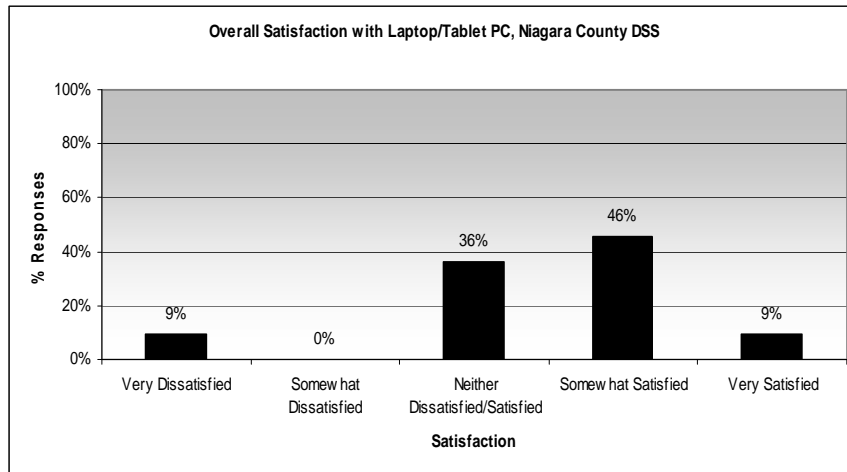


possible that the reduction in timeliness seen in progress note entry was too small to be noticed by the caseworkers.

## Satisfaction

The overall level of satisfaction with the laptops was moderate. Figure 3 below shows that 55% of respondents expressed being “Somewhat satisfied” or “Very satisfied,” compared to 9% being “Very dissatisfied.” Additionally, 36% 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 = 13. Total number of testers n = 28.*

The lack of a district-provided wireless connection was the most substantial difficulty reported by respondents in teleconferences and survey responses. Additionally, issues related to the lack of formal training and technical difficulties, such as lengthy boot-up times and trouble finding locations to establish a connection may be contributing to the overall levels of satisfaction.

Laptop use generally was not seen as contributing to lower job-related stress; roughly 73% of respondents said that it did not reduce stress, while 27% said it did. Those respondents who did not feel the laptops contributed to stress reduction attributed this to the newness of the technology and the lack of wireless connectivity outside of the office. Those who reported a reduction in stress attributed this to having the flexibility of working on documentation outside of the office.

Overall, 46% of respondents would recommend the use of laptops to colleagues; however an equal percentage were unsure. Additionally, 9% of respondents indicated that they would not recommend the use of laptops.

# 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 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	12/11/07	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 (11/23/07 – 12/16/07 and 12/17/07 – 01/09/08 respectively). A total of 2,566 progress note entries and 495 unique investigation stages made up the dataset from 28 caseworkers.

# Appendix B – Device Specifications

All devices were selected, procured, imaged, and delivered to the County DSS by OCFS.

## Laptop

Latitude D620, Intel Core 2 Duo T5500, 1.66GHz, 667Mhz, 2ML2 Cache, Dual Core, 14.1 inch Wide Screen WXGA LCD for Latitude D620, 1.0GB, DDR2-667 SDRAM, 1 DIMM for Dell Latitude Notebooks, Internal English Keyboard for Latitude Notebooks, Intel Integrated Graphics Media Accelerator 950 Latitude D620, 60GB Hard Drive 9.5MM, 5400RPMfor Dell Latitude DX20, Standard Touchpad for LatitudeD620, No Floppy Drive for Latitude D-Family Notebooks, Windows XP Professional, SP2 with media, for Latitude English, Factory Installed, Dell Black USB 2 Button Optical Mouse with Scroll for Latitude.

## Tablet

HP Compaq tc4400 Tablet PC 26 EN376AV Product - HP Compaq tc4400 Tablet PC, Operating system - Genuine Windows® Vista Business, VISTA label - Microsoft® Vista Ready Label, Form Ultramobile form factor, Intel® Core™2 Duo Processor T5600, (1.83GHz, 2MB cache, 667MHz FSB), Intel® Centrino® Duo Label, 1024MB (667MHz, DDRII memory, 1 DIMM), 80GB Hard drive (5400 rpm), 12.1-inch TFT XGA WVA Display with Fingerprint Reader, 56K Modem, 10/100/1000 NIC, 6-cell high capacity Lithium Ion internal battery, Digital Eraser Pen with tether and clip, Keyboard with Enhanced Dual Pointing, Intel® Pro Wireless 3945ABG, security - Embedded TPM 1.2 security chip, and three year worldwide limited warranty.

# Appendix C – The Center for Technology in Government (CTG)

The Center for Technology in Government (CTG) is an applied research center committed to improving government and public services through policy, management, and technology innovation. Through its program of partnership, research, and innovation, the Center provides government organizations and individuals with an array of tools and resources designed to support the development of a digital government. The goal of every CTG partnership project is to build knowledge that improves the way government works. CTG projects have helped state, local, and federal agencies increase productivity and coordination, reduce costs, enhance quality, and deliver better services to citizens and businesses. The results generated by each project add to a growing knowledge base designed to support the work of both government professionals and academic researchers. CTG receives funding through the University at Albany's state allocation, as well through grants and awards from foundations and federal agencies such as the National Science Foundation.

Since its creation in 1993, the Center has:

- conducted almost 50 partnership projects, which produced outcomes that have helped state, local, and federal government agencies improve services and operations;
- collaborated with nearly 100 government agencies, 42 private companies, and 14 academic institutions and research organizations;
- issued over 100 guides, reports, and online resources designed to support the work of government professionals, and over 300 scholarly articles that have contributed to the field of research on IT innovation in government organizations;
- developed and evaluated 12 prototype systems that answered critical policy, management, organizational, and technology questions;
- obtained 37 research grants and fee-for-service contracts for over \$10 million;
- been honored with 16 state and national awards such as the Ford Foundation's Innovations in American Government award;
- given over 250 trainings, workshops, and conference presentations provided data; and
- support to more than 20 doctoral dissertations and masters projects.

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