Center for Technology in Government

# Assessing Mobile Technologies in Child Protective Services

## Rockland 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 Rockland 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 34 days from 12/6/07-1/9/08.

## District Deployment

Rockland County DSS has 23 CPS staff responsible for child protective services. Rockland County, a bedroom community just outside of New York City, has approximately 275,000 residents. The Rockland County DSS participated in the demonstration project to learn if mobile technologies positively impact caseworker job satisfaction and ultimately improve employee morale and retention. The hope is that mobile devices will enable caseworkers to comply with state reporting requirements and increase their ability to do work while out of the office.

Rockland County DSS deployed 25 Compaq tc4400 tablets to 19 caseworkers, three supervisors, and three managers. Laptops were deployed to groups of eight participants between 12/3/07 – 12/6/07 (see Appendix B for device specifications). Each person received their own device. All 25 tablets were deployed with district-provided external 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.

Caseworkers received training in small groups that followed the tutorial provided on the tablet; each person practiced using the pen and connecting to all applications. The Rockland County DSS "Internet Use Policy" and "Laptop Guide" were distributed to each person prior to users signing for the device.

Finally, no policies were changed to support the introduction of mobile technolgies before or during the pilot period. In both periods, caseworkers were allowed, at the discretion of supervisors, compensatory time for work done at home after regular work hours.

# Characteristics of Respondents

A total of 19 caseworkers participated in this study: 14 took the baseline survey (response rate 74%); 15 took the post-pilot survey (response rate 79%); and 11 took both the baseline and post-pilot surveys (response rate of 58%).

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 field environment. The Rockland County DSS respondents[1] were moderately experienced in CPS field work, with an average of 6.6 years of experience; 57% reported CPS experience of four years or more. Respondents were working slightly less overtime hours during the pilot period. Seventy-eight percent of respondents reported working overtime for five hours or less in a week in the pre-pilot period compared to 91% in the pilot period. Therefore, the average overtime hours slightly decreased from 4.7 hours in the pre-pilot period to 4.2 hours in the pilot period. In both periods, all participants worked on average at least two hours of overtime in week. Ninty-two percent of respondents reported a typical court waiting time of three hours or less and 73% reported spending on average 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.

[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

Rockland County DSS respondents reported using the laptop during normal work hours, after work hours, and when working overtime. Rockland County DSS desktops were removed and docking stations were 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, opening and closing cases, completing safety assessments, email, and word processing. Overall, 27% of respondents reported using the laptop to access various forms of information from government Web sites at least once a day. Approximately 60% of respondents accessed email once a day or more, while 40% 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. Respondents reported returning to the office to access case information less frequently during the pilot period. Sixty percent reported returning to the office once a week or less to access case information during the pilot period, compared to 22% in the pre-pilot period. The respondents were in the field approximately the same number of days per week (average 3.5 days) during the pre- and pilot periods.

Rockland County DSS had district-provided external broadband cards during the pilot period. Respondents reported several obstacles to mobile use, including the inability to establish a connection and slow speed or unreliable connections, in all locations. At the court house, the lack of privacy was most problematic. The most mentioned connectivity problem was slowness. One respondent described their situation: "It takes a long time to log-on the network when I am at home. CONNECTIONS, most of the time, is really slow and I find myself writing notes in Word and then e-mailing them to the office and putting them in CONNECTIONS."

Participants were also asked about ease of logging-on to the device. Overall, 47% of respondents rated the log-on process as "Difficult" to "Extremely difficult," 27% rated it as "Neither difficult nor Easy," and another 26% said it was "Easy" to "Extremely Easy."

## 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 (87%), for an average of over four and a half hours per week. Twenty-seven percent used it while in the field for approximately one-half hour per week, compared to 13% using it in the court house for less than 1 hour per week.

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

| | Use of Laptop (n) | Average length of use per week |
|---|---|---|
| Field | 27% (4) | 1.43 Hours |
| Court | 13% (2) | 0.43 Hours |
| Home | 87% (13) | 4.67 Hours |
| Do not use at all | 6% (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 in most districts. Respondents spend on average 2.5 days a month at court and on average wait just over 2 hours during a court visit. However, 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. The Rockland County DSS test period was 34 days, and open-ended comments in the survey noted that respondents did not have many opportunities to use it in court during this time period.

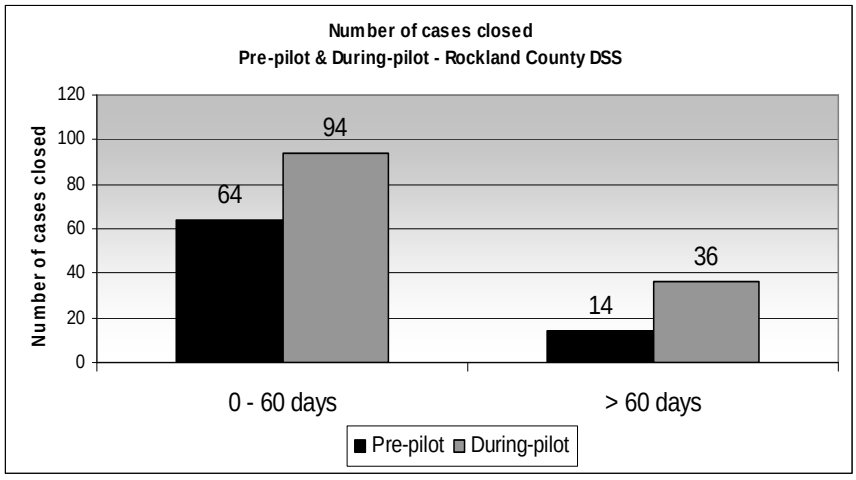
Caseworkers can work from home for overtime reasons and receive compensatory time at the discretion of supervisors. Similarly, respondents stated that working from home was now more efficient because it allowed them to get caught up, added peace of mind, and increased their flexibility and the time they have to do different tasks.

# Productivity and Efficiency

This analysis uses central database data and survey responses to examine two core questions about possible technology impacts within the Rockland 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 pilot period, up from 64 in the pre-pilot period to 94 during the pilot period. The number of cases closed in over 60 days increased somewhat from 14 in the pre-pilot period to 36 in the pilot period. This is a marked increase in productivity; the total number of cases closed increased from 78 in the pre-pilot period to 130 during the pilot – over a 66% increase. It is important to note that in this county the total number of cases available to be worked on[2] increased from 270 in the pre-pilot period to 300 in the pilot period – a 11.1% increase.

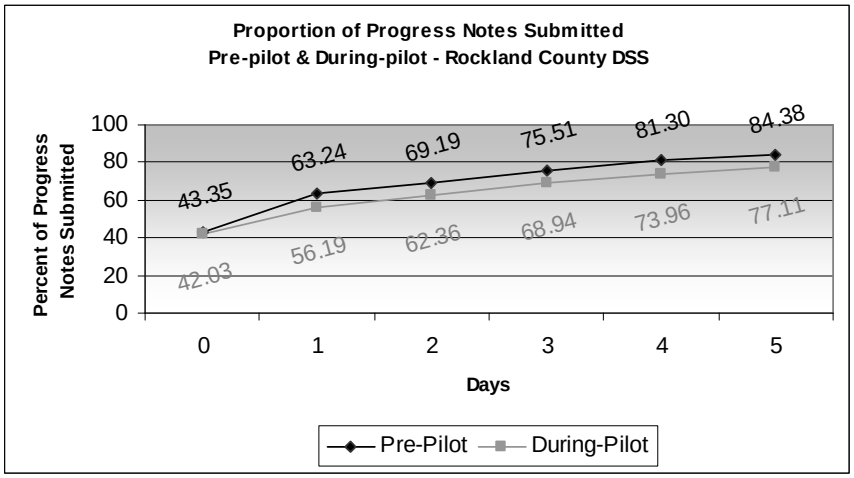
**Figure 1 - Number of Rockland CountyDSS Cases Closed Pre-Pilot and During Pilot**




[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.

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 84% of all notes were entered for the pre-pilot period, compared to just over 77% for the pilot period. By this measure, timeliness decreased slightly during the test, 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 Rockland County DSS, a total of 25 laptops with wireless access were deployed. Several respondents reported 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 Rockland County DSS respondents reported consistently positive impacts on their work resulting from laptop use, shown in Table 2 below. Over three-fourths reported improvements in timeliness of documentation and 85% in ability to access case information. There were smaller proportions reporting improvements in ability to work in court (33%), communicating with

supervisors (31%), and providing service to clients (54%). Only one respondent reported a negative impact on any of the work categories.

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

| | Much worse (n) | Somewhat worse (n) | About the same (n) | Somewhat better (n) | Much better (n) |
|---|---|---|---|---|---|
| Timeliness of documentation | 0%(0) | 7%(1) | 7%(1) | 71%(10) | 14%(2) |
| Ability to do work in court | 0%(0) | 0%(0) | 67%(8) | 25%(3) | 8%(1) |
| Ability to access case information | 0%(0) | 0%(0) | 14%(2) | 64%(9) | 21%(3) |
| Communication with supervisors | 0%(0) | 0%(0) | 69%(9) | 8%(1) | 23%(3) |
| Service to clients | 0%(0) | 0%(0) | 46%(6) | 31%(4) | 23%(3) |

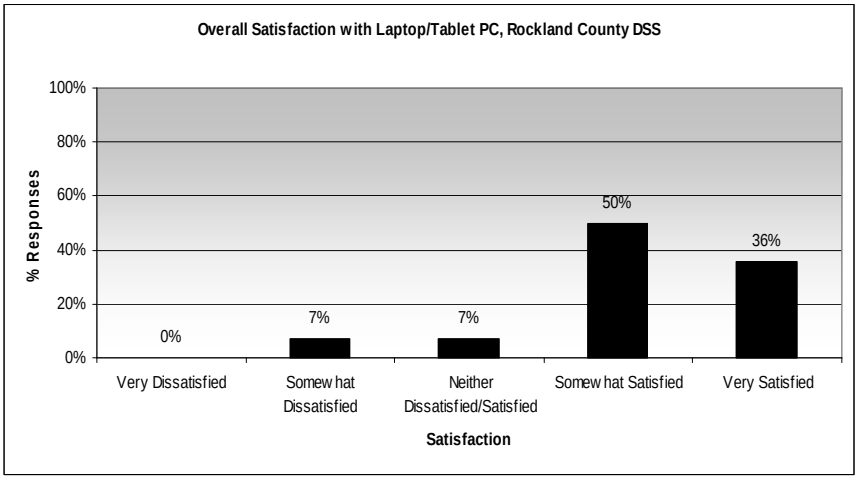
That lack of reported negative impacts on timeliness is somewhat inconsistent with the timeliness of documentation results obtained from the central database. It is possible that the reduction in timeliness seen in progress note entry was too small to be noticed by the caseworkers and overshadowed by the increase in rate of case closings.

Several respondents did recognize the overall potential value of the laptop's mobility. One commented, "If the weather permits, I stop at outdoor parks or any convenient place (libraries, etc.). As long as I have time between stops it is very helpful to not have to return to the office. The phone is not ringing and there are less distractions, so it's a good place to focus."

# Satisfaction

The overall level of satisfaction with the laptops was high. Figure 3 below shows that 86% of respondents expressed being "Somewhat satisfied" or "Very satisfied," compared to only 7% being "Neither dissatisfied/Satisfied" or "Somewhat dissatisfied."

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




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

Laptop use was generally \seen as contributing to lower job-related stress; 86% of respondents said that it did reduce stress, while roughly 14% said it did not. Those who reported a reduction in stress attributed this to their ability to catch up on their work, just knowing the laptop is available, and having the flexibility of working on documentation outside of the office. One respondent said, “I have the option of working anytime and almost anywhere. This reduces some work stress though it can be problematic for the home life.” Several others expressed a similar sentiment: “Because I do a lot of work at home now, I do not get paid or have any free or down time.”

Overall, 93% of respondents would recommend the use of laptops to colleagues, while only 7% were unsure. The reasons mentioned for this positive recommendation included increaseed flexibility to do work outside of the office, the ability to use time more efficiently, and increased access to information. One respondent pointed out, “Having the laptop allows a worker to meet deadlines immediately instead of having to stay at work later or come in earlier to complete them.”

# 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 (11/01/07 – 12/05/07 and 12/06/07 – 01/09/08 respectively). A total of 4,039 progress note entries and 378 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.

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