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EVALUATION OF THE EVANS COUNTY SMART POLICING INITIATIVE

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TABLE OF CONTENTS

TABLE OF TABLES

EVALUATION OF THE EVANS COUNTY SMART POLICING INITIATIVE

EXECUTIVE SUMMARY

Most of our knowledge regarding the effectiveness of police practices derives from studies on large metropolitan police departments, which only comprise 0.4% of all law enforcement agencies in the United States, rather than the 90 percent of agencies that have fewer than 50 officers. Since scholarly research on rural law enforcement is scant, it is difficult to assess how rural law enforcement agencies are implementing evidence-based strategies. In addition, we have little evidence on how strengthening technological capabilities in rural law enforcement agencies could improve communication within and among law enforcement agencies, increase the amount and quality of information sharing between agencies, and alter officer perceptions regarding their agency's capabilities in investigating and preventing crime. *The purpose of this evaluation was to examine the impact of implemented communication technologies on agency communication and information sharing within three rural law enforcement agencies.*

Evans County Sheriff's Office (ECSO) serves a county of 12,000 residents with only two municipalities – Claxton and Hagan – that have small police departments. The purpose of the grant was to build upon Evans County's already running Intelligence Operations Center by providing new smartphones to officers and deputies in all three agencies so they could receive e-roll calls (i.e. daily information sent through an e-mail) and intelligence products. In addition, all three sites were to use the same analytical RMS to allow for improved data collection and intelligence creation. Although new smartphones were administered to all officers, allowing

them to receive the materials, the syncing of the RMS between the three agencies unfortunately never materialized because of technical and cooperative reasons.

The analytical strategy consisted of two stages. First, the three treatment sites were surveyed pre- and post-implementation of the technology. Second, the research team interviewed officers and deputies of the three treatment sites and four comparison agencies – two county Sheriff's Departments and two municipal departments. The comparison agencies were chosen based on county size, demographic composition, being within the same region of the state, and technological capabilities (one comparison area had lower technological capabilities and the other had higher). The interviews focused on: (1) the adequacy of communication within and among their agency and others; (2) value placed on information generally and from the OPS Center specifically; (3) the adequacy of their technology; (4) implementation obstacles; and (5) the perceived impact of the implemented technology on crime.

The findings indicate that the primary means of information sharing from one shift to the next within rural law enforcement agencies is via informal conversations. The treatment sites perceived the adequacy of their methods of sharing information between shifts as equal to or lower than that of the comparison sites. Overall, the treatment county agency perceived its communication within the agency to be poorer than that of the two comparison counties, but the two treatment municipal agencies considered their communication to be better than the two comparison agencies. The treatment sites also viewed their communication with surrounding agencies to be less adequate than that of the comparison sites. Information sent from the crime analyst, however, was seen as having large impacts on communication by all three treatment agencies, including knowing what was occurring in other agencies. The treatment sites reported

higher levels of collaboration with other criminal justice agencies and the schools in the county than did the comparison sites.

All three county agencies expressed more satisfaction with their technology than the municipal agencies. At the treatment sites, the dissatisfaction focused more on the implementation of the technology than the technology itself. The two primary obstacles discussed by all sites in implementing technology was funding and the training of older and less tech savvy officers. The ease of use of the technology was considered by all agencies to be important in implementing technology. The treatment sites found that the smartphones were relatively easy to use with their biggest problem being the inability to open large attachments.

The evidence did not support a conclusion that ECSO deputies perceived their patrols to be more purposeful than the comparison sites. The treatment agencies were also not more likely than the comparison agencies to agree that their agencies were doing a good job of investigating crime. ECSO was as likely to agree as the less technologically capable county agency, but more likely than the advanced technologically capable agency, that they were doing a good job of preventing crime. ECSO deputies who thought they were doing a good job of preventing crime discussed the intelligence products they received via their smartphones as a reason for patrolling in the right spots. Both comparison municipal agencies were more likely than the treatment municipal agencies to believe they were doing a good job of preventing crime. The primary way officers and deputies suggested to improve crime prevention focused more on increasing manpower and more proactive directed patrol, not increasing technological capabilities. Finally, the three treatment agencies all agreed that the two types of alerts had a high impact on reducing crime, although only ECSO valued e-roll call as having a crime reduction impact.

This report concludes with a section summarizing the many lessons and recommendations for other agencies, particularly rural or smaller law enforcement agencies, in either implementing intelligence-led policing or increasing their technological capabilities. These recommendations are based on both the successes and challenges related to this project. They include: (1) *e-roll call*: agencies should consider sending e-roll call to their officers and surrounding agencies, but it should include more details and be sent out on a more formalized schedule; (2) *planning*: agencies need to carefully plan, including clearly stating goals and objectives, having all leaders fully on board, having signed MOUs, creating a technology interoperability plan, surveying officers, and examining how the dispatch system will affect the implementation; (3) *technology needs*: agencies need to acquire the technology that is right for them; rural agencies need to carefully examine the possibilities of improving their radio systems and installing computer terminals in squad cars; (4) *training*: agencies need to survey their officers' technological capabilities and provide effective training on the implemented technology; (5) *crime analyst*: agencies need to consider whether they need a full-time, non-sworn crime analyst rather than delegating some responsibilities to an investigator; the work schedule of the crime analyst needs to match that of the needs of the department; and (6) *the future of helping rural law enforcement*: there is need for both increased grants for and research on rural law enforcement agencies.

TARGETED PROBLEM

Large metropolitan police departments dominate both our perceptions of what constitutes "policing" and "law enforcement" as well as our knowledge of what works, what doesn't, and what's promising regarding effective policing practices. Most police departments and law enforcement agencies, however, are actually quite small and serve less populated area.[1] Of the roughly 18,000 law enforcement agencies in the United States, most state and local law enforcement agencies – 86.9 percent -- have fewer than 50 officers.[2] In fact, the most common local law enforcement agency size has between 10-24 officers (23.6%); the next most common size are agencies that have 5-9 officers (19.7%), followed by another 18.4 percent of agencies that only have 2-4 officers. In addition, a little over 3,000 of these 18,000 law enforcement agencies are Sheriff departments. However, most of our information on policing comes from large metropolitan departments that have over 1,000 officers, even though they make up less than 0.4% of all agencies. Thus, little is known about the effectiveness of both Sheriff and small, particularly rural, police departments, even though they comprise the majority of law enforcement agencies in the country and our scant research indicates that smaller departments are more efficient and effective than their urban counterparts.[3]

Included in our limited knowledge on the practices of rural law enforcement is how intelligence-led policing operates in a rural setting. Intelligence-led policing is a proactive crime

[1] "Small town" and "rural" are defined by the United States Census Bureau as areas with populations smaller than 50,000 and density no more than 1,000 per square mile. United States Census Bureau. (1995). *Urban and Rural Definitions.* Accessed on April 7, 2011, at http://www.ccensus/gov/population/censusdata/urdef.txt.

[2] Walker, S., and Katz, C.M. (2011). *The Police in America: An Introduction.* 7th ed. McGraw Hill: New York.

[3] Walker and Katz, (2011); Weisheit, R. A., Falcone, D. N., & Wells, L. E. (2006). *Crime and policing in rural and small-town America (2nd ed.)*. Prospect Heights, IL: Waveland Press.

strategy that involves making decisions on where and how to use police resources based on criminal intelligence derived from accurate and reliable information rather than anecdotal evidence.[4] Unfortunately, there are wide gaps in the intelligence-led policing research and robust evaluations are scarce. Since scholarly research on rural law enforcement is limited, it is difficult to assess how rural law enforcement has adopted evidence-based policing strategies.

In many cases, the social isolation and economic conditions of rural counties have generally led to funding problems.[5] Additional funding is often not available for the necessary increases in manpower or technological improvements. In fact, the recent recession has led agencies to implement a number of tactics to decrease budgets; many of these affect manpower, including but not limited to: hiring freezes, furloughs, layoffs, salary cuts, and inducing retirements.[6] Reducing manpower to cover the budget is problematic for all agencies, but particularly for Sheriff's Offices, since they are responsible for covering large geographical areas. Sheriff's Offices need to have "adequate" staffing in order to allow for appropriate coverage of their county while also ensuring that deputies feel safe and secure during their shifts by having appropriate levels of back-up. Many rural police leaders' concerns about funding may lead them to primarily focus on ensuring appropriate staffing rather than increasing technological capabilities. Intelligence-led policing may be a strategy that allows local law enforcement administrations to allocate their resources in a proactive manner.[7]

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[4] Ratcliffe, J. (2008). *Intelligence-Led Policing.* Portland, Oregon: Willan Publishing.

[5] Weisheit, R. A., Falcone, D. N., & Wells, L. E. (1994). *Rural crime and rural policing*. National Institute of Justice. Research in Action. Retrieved from https://www.ncjrs.gov/pdffiles/rcrp.pdf

[6] Wilson, J. M. and Weiss, A. (2013). *Staffing the 'Small' Department: Taking Stock of Existing Benchmarks and Promising Approaches*. The Police Chief 80.

[7] Carter, D.L. (2009). Law Enforcement Intelligence: A Guide for State, Local, and Tribal Agencies, 2nd edition. United States Department of Justice.

Rural agencies may also generally deal with crime or disorder in the same fashion as they have done in the past. Generally, there has been no formal roll call. These officers or deputies may generally only receive training when mandated and their officers or deputies may only meet state minimal requirements. There is normally no systematic effort to collect and utilize real-time information and formal intelligence analyst positions are rare, if not nonexistent, in these agencies. It is also unclear what percentage of rural law enforcement agencies provide their officers and deputies laptops and agency-provided cell phones. In addition, there is often limited communication between local agencies with either adjacent or overlapping jurisdictions. In the end, the agency will often utilize a simple records management system (RMS) to mostly keep track of tickets and financials, have no crime analyst, and not create intelligence.[8]

Another issue that hampers law enforcement in more effectively implementing intelligence-led policing is their tardiness in adopting new technologies. The police, who depend heavily upon having access to timely information in accessible and affordable mobile formats, has left the potential benefits of new technologies largely underutilized in many cases. For example, communication through cell phones, e-mail, and various social networking sites creates almost instantaneous information sharing. In addition, the advent and improvement to smartphones over the last decade has been a major technological improvement, basically placing a mini computer in the hands of millions of individuals. Rural policing agencies with limited funding, however, often work with outdated communication equipment.[9] Their communication

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[8] Edwards, John B. (2012, June). Intelligence-led policing: Connecting urban and rural operations. FBI Law Enforcement Bulletin, 81(6), 19-24.

[9] Deck, E. (2014). *Law enforcement in small and rural communities.* Retrieved from http://www.nami.org/Template.cfm?Section=CIT&Template=/ContentManagement/ContentDisplay.cfm&ContentID=156202

devices often run into "dead spots" where no contact with other officers can be made. These issues are all affected by the size of the county which varies greatly throughout the country. These issues may improve with the rollout and federal funding of FirstNet (http://firstnet/gov/). In addition, their radio systems are often incompatible with surrounding agencies. The inability to communicate with a neighboring county and, on occasion, with their fellow officers causes substantial information sharing problems and may cause anxiety and distress for officers as their safety and security is threatened.[10]

Rural law enforcement leaders must therefore face the challenge of determining the level of technology that is appropriate or "adequate" for their department. Rural agencies simply do not have the same data gathering and processing needs as larger departments because of their crime levels. Rural police leaders therefore need to keep in mind when acquiring technology what their goals are in terms of desired style of policing, resource allocation, criminal investigation, and prevention strategies.[11,12] Unfortunately, we have little knowledge on how improving technological capabilities in rural law enforcement agencies could improve communication within and among law enforcement agencies, increase the amount and quality of information sharing between agencies, and alter officer perceptions regarding their agencies' capabilities in investigating and preventing crime.

A problem with implementing any new initiative, including intelligence-led policing, or adding new technologies in any agency, is officer buy-in. Many officers may be wary of

[10] Collins, P. A. and Gibbs, A. C. C. (2003). *Stress in police officers: a study of the origins, prevalence and severity of stress-related symptoms within a county police force.* Occupational Medicine; 53:256–264.
[11] Colton, K. W. (1979). *The impact and use of computer technology by the police*. Communications of the ACM, 22(1); 10-20.

[12] Chan, J. B. L. (2001). *The technological game: How information technology is transforming police practice.* Criminology and Criminal Justice, 1(2); 139-159.

dramatic changes to either policing philosophies or technology, particularly more seasoned officers. Older officers may carry an antagonistic attitude toward technology in which they are not familiar. They may also carry steep learning curves when adjusting to these new technologies. In order to maximize officer buy-in, agencies must first explain the importance of the change and how it relates to their jobs. They must also focus on four factors: (1) the ease of use of the technology; (2) its usefulness; (3) how it leads to higher information quality; and (4) timeliness. Previous findings suggest that information quality and timeliness were the most important components when predicting technology acceptance by patrol officers.[13]

The Evans County Sheriff's Department is similar to that of numerous small and rural agencies in the country. They are one of the 90 percent of law enforcement agencies with less than 50 officers or deputies. The county in which they service has a population of 11,000 and the county only has four municipalities. Only two – Claxton and Hagan – have small police departments. A major difference, however, between that of Evans County and that of most rural agencies was their use of an Intelligence Operations Center which housed a crime analyst (discussed more in the program section).

No specific event led to either a problem or the awareness of a problem for Evans County. Rather, the issues facing law enforcement agencies in Evans County are similar to the issues discussed above regarding obstacles that face rural law enforcement in general. All three agencies have the normal funding restrictions. In addition, the two municipal police departments did not have technologies that allowed them to communicate and receive intelligence in real-time from other departments or the Sheriff's Office. For example, officers in the Claxton Police

[13] Colvin and Goh (2005), Validation of the technology acceptance model for police. Journal of Criminal Justice, 33, 89-95.

Department did not have access to computers in their squad cars or cell phones and were thus unable to receive real-time intelligence from the Evans County crime analyst except through the radio.

The purpose of this evaluation was to examine the impact of implemented communication technologies on agency communication and information sharing within three rural law enforcement agencies. Specifically, it examined the experiences of officers and deputies who were provided grant-funded smartphones in order to receive e-roll call (i.e. roll call that occurs through e-mail rather than through traditional in-person roll call) and intelligence products from the Sheriff's crime analyst. The goal was not to evaluate their already existing intelligence-led policing strategy. Instead, questions focused on the officers' and deputies' experiences with the new technology, including both their personal difficulties as well as their perceptions regarding the impact of the technologies on both agency and officer capabilities, including but not limited to: communication, information sharing, criminal investigations, and crime prevention. In order to explore these issues, the research team interviewed the police leaders and officers and deputies of the three treatment sites as well as four comparison sites (two county sheriff departments and two municipal police departments). The interview responses of these police leaders and officers and deputies from all seven sites provided insights that will help law enforcement agencies, particularly smaller rural agencies, implement communication technologies to improve agency communication and information sharing. The responses should provide everyone, including those in law enforcement, government, and academia, a much needed insight into rural law enforcement.

PROGRAM DESCRIPTION

This section of the report is broken into four sections: (1) backgrounds of the three treatment agencies; (2) pre-grant intelligence-led policing; (3) grant goals; and (4) implementation.

Backgrounds of the Three Treatment Agencies

Evans County is a rural county located 52 miles southwest off the coast of Savannah, GA. It is 182 square miles and has a population of approximately 11,000 residents, two-thirds (66.8%) of which are White (see Table 1). Thirty percent of Evans County residents are African-American and 11.9 percent are Hispanic. Evans County has four municipalities, only two of which have small municipal police departments – Claxton and Hagan. During the grant, the Evans County Sheriff's Agency had 11 sworn deputies (8 road deputies, investigator, jail administrator, and deputy sheriff) and one non-sworn crime analyst housed in the Intelligence Operations Center. Their mission statement is, "To provide quality intelligence information in a professional and responsible manner to all local, state, and federal law enforcement."

Claxton, Georgia is Evans County's largest municipality and the county seat. It has a population slightly less than 3,000 residents. Although its Hispanic population is rather similar to that of the county, it has a larger African-American population. The Claxton Police Department has eight sworn officers.

Hagan, Georgia is the other municipality in Evans County that has a police force. It has a population of less than 1,000 residents. Its racial composition is: 61.6 percent White; 25.9 percent Black; and 12.7 percent Hispanic. At the beginning of the grant, it had only three sworn officers, including the Chief.

These agencies are similar to that of many rural agencies across the county; they have few resources which limit the amount of personnel, technology, and communications. As will be discussed throughout the report repeatedly, these agencies have problems with their radio system. For the Sheriff's Department, they have problems with dead spots throughout the county. For all three agencies, they have difficulties listening to other departments because other agencies are using different frequencies and systems. In addition, they are not large enough to have a formal roll call briefing before each shift.

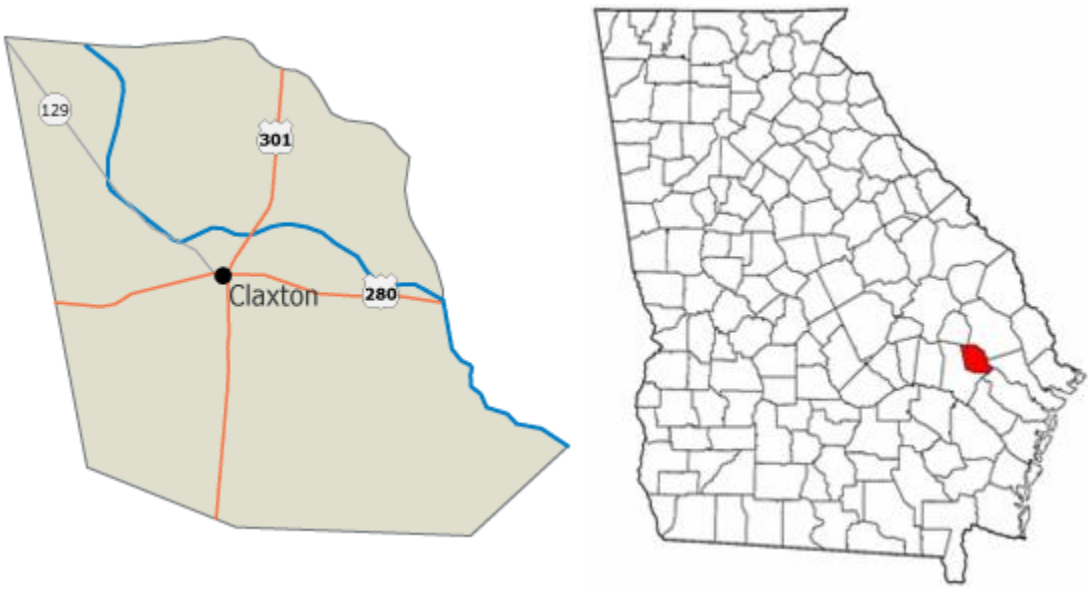

Table 1. Demographics of Treatment Sites

		Size (sq. miles)	Population	White (%)	Black (%)	Hispanic (%)	# Sworn
Treatment	**Evans Co.**	182	11,000	66.8	30.4	11.9	11
	Claxton	1.6	2,746	57	39.6	9.6	8
	Hagan	2.2	996	61.6	25.9	12.7	3

Pre-Grant Intelligence Led Policing

> According to Policy 2.22 "Procedures for the Intelligence Led Policing Operations,"
>
> "The mission of the Evans County ILP initiative is to make police patrol more purposeful and enhance criminal investigative efforts, thus providing exemplary results in public safety responsibilities. The ECSO ILP Operation will develop intelligence products, promote communication, cooperation, and coordination among all local, state, and federal law enforcement. The ECSO ILP Operation will create a culture of awareness focused upon crime and other potential threats to the public….."

The hub of intelligence-led policing in Evans County is the Sheriff's Department Intelligence Operations Center located in the basement of the courthouse annex. The Intelligence Operations Center used an analytical RMS that allowed for the documentation of cases, incident reports, and interview reports, among other functions. The Intelligence Operations Center housed the chief deputy, investigator, and the intelligence analyst in order to communicate better with Sheriff's Office operations. The Sheriff, deputy sheriff, investigator, and crime analyst had all received intelligence training.

The analyst was tasked with serving all agencies within the county. His primary responsibilities before the grant was similar to that during the grant -- to produce and send out various intelligence products to deputies and officers within the Sheriff's department and other agencies. Before this current grant, the deputies of ECSO already carried department provided smartphones in which deputies could receive, read, and store these products. The primary products that the crime analyst sent out consisted of e-roll call, patrol alerts, BOLOs, Open Case Alerts, and Open Source Bulletins. An *e-roll call* is a list of short narratives of calls from the three agencies from the previous night that is e-mailed to officers. *Patrol Alerts* consist of any corroborated criminal intelligence within the jurisdiction. *BOLOs* are for wanted individuals

with active arrest warrants. *Open Case Alerts* consist of information on open investigations that are sent out to deputies in a strict need-to-know basis. All officers who receive these products have been 28 CFR 23 trained and have read the ECSO privacy policy. Finally, *open source bulletins* consist of information regarding crime, wanted criminals, and crime patterns in Evans County and neighboring communities, and are not law enforcement sensitive; this information may be sent to all public and private sector partners.

These types of products were also sent to both policing and non-policing agencies at the local, state, and federal levels. At the federal levels, examples included the FBI, ATF and ICE who could all monitor individuals or incidents that may interest them. At the state level, state troopers and DNR rangers who were interested in receiving information received it, which the ECSO felt made them become "functionally equivalent" of additional sheriff deputies patrolling. In addition, the regional GBI intelligence analyst who had direct connections to the State Fusion Center in Atlanta also received the e-roll call. At the local level, the local drug task force was able to use e-roll call as a way to monitor drug information and corroborate criminal relationships with their information derived from informants and wiretaps.

The following is a more complete list of products and activities, provided by Edwards (2012),[14] that the Intelligence Operations Center created or participated in:

Table 2. Products and Activities of ECSO ILP

System	Process	Result
E-Roll Call	Intelligence Analyst emails all local, state, and federal police officers that work Evans County a list of all	All law enforcement becomes aware of all incidents and events. (information)

[14] Edwards, John B. (2012, June). Intelligence-led policing: Connecting urban and rural operations. *FBI Law Enforcement Bulletin, 81*(6), 19-24.

	calls from the night before to their blackberries.	
Shift Report CAD 30	All deputies, dispatchers, and jailors are required to read and initial the calls for service report since their last shift.	All staff knows what incidents and events have occurred previous to their shift. (They can connect the dots)
COPS/Problem Adoption	Deputies receive problems from citizens, adopt their problems, and then identify strategies for solutions and proceed with tactics.	Relationships are built that lead to trust and the production of intelligence information. A record of activity is documented in Crime Star that all deputies participate. (Deputies are armed with actionable intelligence.)
Web/Tips	Citizens can provide tips to ECSO website that are automatically emailed to the intelligence analyst and investigator.	Information analysis provides intelligence.
BOLO/Patrol Alerts/Open Case Alerts	Flyers produced and distributed by email then posted in the operations center.	Total situational awareness.
Inmate Information Collection Document (IICD)	Investigator regularly interviews local jail inmates regarding criminal information.	Provides corroborative intelligence, provides histories, trends, patterns, and methods of operation of criminals and their associates.
Deputies Information Binder	A 3-ring binder containing current intelligence, memos, and latest officer awareness and safety information.	Enhanced intelligence products and communication.
Issue Board	A white marker board that is used to highlight important communications for all.	Important information disseminated and shared.
Status Board	Gives status of pending investigations by federal, state, and local agencies.	Pending case knowledge

Project Board	Large 8 ft. x 12 ft. white board used for projection of presentations and real time collective data mining.	Enhanced intelligence products and communication among all law enforcement.
Geo-Call Mapping	County map with colored push pins representing the call type and location on the map. Color bar and pie charts correlating calls by day and time of day.	Awareness of crime locations and nexus to day and time for meaningful patrol, prevention, and disruption.
Deputies Resource Center	Professional magazines, intelligence pamphlets, and case law updates.	Creates a professional culture with efficient and effective law enforcement.
CCID System	An intelligence database	Web based for easy submission
All Hazards	Intelligence analyst emails the public safety community important information regarding potential public safety hazards.	Situational awareness among all public safety stakeholders
Open Source Alerts	Intelligence analyst emails public sector/private sector open source intelligence	Identification of criminals, crime prevention, disruption, and reduction
ECSO website alerts, news, and Twitter	Analyst uses website as a communication vehicle to the public.	Identification of criminals, crime prevention, disruption, and reduction
ILP Daily Meetings	Intelligence analyst, investigator, and chief deputy meet to identify crime patterns, trends, and situational topics for the sheriff	Focus on problems and problem areas to identify prolific offenders, arrest offenders, prevent, disrupt, and reduce crime.
Weekly NOAA Report	Analyst provides all deputies with weather forecast	Deputies possess environmental awareness for traffic and other public safety/law enforcement planning

Another major component of ECSO's intelligence-led policing initiative was their prolific offender meetings in which members from various law enforcement agencies, probation and parole, juvenile court, drug task force, and others met to discuss "the worst of the worst." This component has been considered quite effective. According to a memo from the Deputy Sheriff: "The Prolific Offender collaboration has worked well and been a huge success, again its simple premise of bringing adult probation, parole, juvenile justice, and the police to sit at one table at a set time with an analyst and identify potential problem offenders is of great benefit and utility toward proactive crime prevention and reduction."

It should also be emphasized that intelligence-led policing in Evans County heavily focused on the creation of policies and guidelines to guide deputies on how to conduct themselves, including their use of technology. The Operations Center has policy in place for all operational procedures in compliance with 28 CFR 23. They established model privacy policy in compliance with BJA and IACP for use and replication. In addition, the policies provide guidelines on who and how data will be collected on certain individuals and groups. For example, their Criminal Information and Intelligence Guidelines states, "This database is created to fulfill the ECSO mission to collect, evaluate, collate, analyze and disseminate information on individuals and groups who are suspected of being involved in criminal activity, and provide this information to the Sheriff for crime prevention and decision-making purposes and to sustain the intelligence led policing initiative at ECSO." The policy then provides definitions on the individuals and organizations or groups for which information may be collected and stored in the system.

Finally, many agencies from all over the nation have visited the Evans County ILP Center to observe both its structure and functions and to also collect policies and procedures to

start their own programs. On April 22, 2010, they were audited by the Regional Organized Crime Information Center (ROCIC) and were found to be superior in compliance. The author of the audit stated that their project was "innovative and meaningful." ECSO's intelligence-led initiative was recognized by the Bureau of Justice Assistance as a Best Practice for reducing crime in a rural area through intelligence-led policing.[15]

Grant Goals

At the time of ECSO applying for the grant, they had being using evidence-based policing practices for roughly one year and had received positive feedback from its deputies and other agencies. As the program grew, they wanted to increase information sharing in order to improve their intelligence-led policing initiative. Although ECSO had an analytical RMS, the only information they were receiving from Claxton Police Department was information on incident reports, not calls for service. In order to address this issue, the grant was to purchase the same RMS for Claxton PD and Hagan PD that ECSO was using to allow for synchronization of data. The crime analyst would be able to receive information on all calls for service and have improved data to create better and more detailed intelligence.

Secondly, they wanted to improve the efficiency in which information was sent from the ECSO Ops Center to officers in the two police departments. ECSO deputies were already receiving the information through department provided smartphones. In the Claxton Police Department, the information was usually sent to the main office who printed it and posted it. Officers were not receiving the information through department provided cell phones or via laptops in their squad cars since they did not have them at this time. The grant provided

[15] Bureau of Justice Assistance (2014). *Reducing Crime Through Intelligence-Led Policing.* Washington, DC: Government Printing Office.

smartphones to officers and deputies of the three agencies in order to allow officers of the two municipal agencies to receive the same e-roll call and timely information as the ECSO deputies. Thus, the grant attempted to improve communication and crime analysis between a rural county Sheriff's Office and two small municipal police departments through the use of technology in the forms of smartphones, computer analytic tools, and synchronized databases.

Implementation

When agencies plan to implement new technologies, they often underestimate the interoperability issues as well as the amount of time and effort it takes to address these issues. The experience with the implementation of the technology in this grant was no different. The following information is provided to illustrate the length of time and challenges that occurred with this grant over the first couple of years.

Under the original proposal (see Table 3), the Sheriff's Department had planned to have the following tasks completed by the end of the first quarter ending in December 2011: (1) analyst serving all three agencies; (2) RMS interoperable between all three agencies; and (3) smartphones issued to all officials. Within the first few months of 2012, the agencies would become more affiliated with evidence-based strategies and work toward having all three departments focus on problem-oriented policing together. One year later, they had planned to have a full year worth of accurate data to assist their analyses. Finally, by the end of September 2013, the goal was to evaluate whether the implemented technology had an impact on crime.

TABLE 3. Tentative Timelines

Year One	**Tasks**	**Milestones**
Quarter 1 (10/11 – 12/11)	(1) Analyst serving all three agencies (2) RMS interoperability with all three agencies (3) Smartphones issued to all officials	Total consolidation of all agencies information One database for all three agencies Total communication and coordination of all agencies
Quarter 2 (1/12 – 3/12)	(1) Affiliation of evidence-based strategies and tactics	Problem-oriented policing with SARA model
Year Two		
Quarter 2 (1/13 – 3/13)	(1) Full year of accurate data to fuel Intelligence Ops.	Complete data analysis for SARA model
Quarter 4 (7/13 – 9/13)	(1) Crime data evaluation of evidence-based operation	Prevention, disruption, and reductions of crime

In the end, however, the Sheriff's Department did not have its final budget approved until March 20th, 2012 because of budget difficulties. The Sheriff's Department initiated the start of the grant on April 10th, 2012 by holding a reception for all agencies and research partners to attend. At this meeting, all officers were introduced to the researchers, completed a pre-implementation survey, and were briefed about upcoming equipment and software. At the end of April 2012, the IT consultant from the company in which the RMS was purchased surveyed the Claxton and Hagan Police Departments and talked with all stakeholders. An early stumbling block in the implementation of the grant was that the Claxton Police Chief's administrative clerk was resistant to use the new RMS in any capacity other than the calls for service. Since she had the responsibility of keying in reports into the RMS that they used and were going to continue to

use for financial tracking of tickets, she did not want to have to enter the same data into a separate RMS as well.

The smartphones and policies regarding their use were administered to officers and deputies of all three agencies at a quick meeting on May 11, 2012 (see Appendix 1 for explanation of why ECSO chose the smartphone they did). Thus, after this point, all officers and deputies should have been able to receive e-roll call and the intelligence products that were sent from the Intelligence Operations Center. The crime analyst held individual training sessions with officers on the use of the smartphones from May 14th – May 18th. According to a memo written by the Deputy Sheriff: "Claxton and Hagan officers scheduled an individual meeting with the Analyst for training on the devices. The average training time per officer was about one hour. The components of the training were functions, e-mail use, phone use, and device usage. All officers were trained. Problems were encountered with data systems not being activated by the carrier… and the fact that SIMS cards were transferred that were not compatible. These problems were addressed quickly and solved."

The Sheriff's Department was provided an estimate for the RMS order by the IT consultant on June 5, 2012. The hardware and RMS were ordered July 27, 2012. According to a memo, "During this period of time the Evans County Administrators was in negotiations with a private contractor and [a company] regarding a Countywide IT contract to install fiber optic cables to join the main courthouse with the courthouse annex and other county buildings. Such required our consultant to delay ordering until the decision was made regarding a fiber optic versus wireless option." In summary, for the ordering part of the implementation, it took slightly less than two months for the smartphones to be purchased and handed out to the officers and deputies. It took four months for the computers and RMS to be ordered.

The IT consultant was not able to work on installing the hardware and RMS during the month of August because of other commitments. During the month of September in 2012, the IT consultant from the RMS company worked on configuring the RMS and installing hardware and software at the Claxton and Hagan Police Departments. On September 5th, the IT consultant "conducted remote programming and licensing issues required with all computer systems." On September 14th, all RMS hardware and software were installed at both Claxton and Hagan Police Departments. Although the software was active for use, the Operations Center could not access the other two agencies' data. On October 9, 2012, the crime analyst conducted training of all Claxton dispatchers regarding the RMS at the Operations Center. He used a projector to show the different data fields and data entry points for the RMS. According to a memo, "Dispatchers were able to ask questions and participate in the training. The training lasted two hours and all dispatchers advised they were ready to use the system." After this, Claxton dispatchers were entering calls for service into the new RMS.

On October 29, 2012, the Claxton police department had an interoperability problem placing their arrests records onto the RMS. By November 1, 2012, the problems were resolved and equipment was approved "in order to fix the operability issue where information can be entered into the data base real time" (memo). When the research team visited on November 19th, it was stated that the system was functioning in the Claxton Police Department, but that the information was still not accessible in the Evans County Sheriff's Office. They were waiting for the IT consultant "to flash the drives so all systems will be connected." A memo from December 3rd, 2012 stated: "IT Consultant …. completed the synchronization of the RMS with the police department and as a result can view each other's data. Thus, the analyst can apply the SARA model application in his evaluation of all agencies data." At this point, the agency had

concluded that "total interoperability with all three agency systems has begun." If correct, it would have meant that it took over eight months to move from the budget being approved to the RMS interoperability, and four months from the equipment and software being ordered; however, the interoperability did not occur for any period of time as synchronization problems continued.

During one of the visits by the ECSO IT consultant, the research team asked him how long it would normally take to set up the servers and RMS. He stated that it was much easier to start from scratch with all municipalities at the same time. Since ECSO already had the system, they had a lot of data and adding two areas to the design made it more difficult. He believed that it would only take 1-2 weeks to get all agencies interconnected with a full-time IT staff.

The crime analyst wrote in a memo on 2/11/13:

> "On Monday, January 11th, 2013, [the IT consultant] came and replaced the older server at the Sheriff's Office with the new server and installed [the RMS] on it. He then migrated databases from the older server to the new server. After that was completed, he had to go in and configure [the RMS] on the new server and had to configure the clients so they would be able to connect to the new server and have proper permissions. He then went into the new server and set up a VPN connection between Claxton PD and Evans County Sheriff's Officer to sync the systems. This will circumvent using a middle man server and buying another license. After the VPN connection was setup, it has to be configured so it would synch between Claxton PD and Evans County Sheriff's Office (over the VPN connection).
>
> Hagan PD has been problematic. As soon as we setup their computer their IT support deleted our account and reworked some of the settings of the computer to only let it operate on their internal domain network. We went into the computer and added an Administrator Account for [ECSO IT consultant] so he could access it remotely and do the setup. But it failed to work, because of the settings change. Officer [from Hagan PD] contacted the … City of Hagan's IT Solutions Contractor… and they are supposed to have the problem fixed. [ECSO IT consultant] tried to configure everything remotely this weekend Saturday, February 9th, 2013 and was unable to access the system remotely. He is currently in contact with [Hagan IT consultant] to try and figure out why nothing is working. [Hagan PD officer's] patrol car laptop has the RMS program on it, but is

> waiting to be setup to sync with the main computer at Hagan PD that we cannot currently access.
>
> Claxton PD officers, Hagan PD officers, and Evans County Sheriff's Deputies are all receiving e-roll call via their smartphones, but their RMS still cannot pull our reports and vice versa. After [ECSO IT consultant] was here, we had a successful sync, but now something has it holding and not displaying records even though it says it is syncing. [The ECSO IT consultant] is troubleshooting this problem and hopefully it will be resolved very soon."

Unfortunately, the RMS were never synced. In September 2013, the Claxton Fire Chief, who was in charge of dispatch in Claxton, informed the Claxton Police Chief and the ECSO Sheriff that he had told the dispatchers not to enter information into the new RMS since it had never worked (ECSO memo). For the rest of the grant, the program continued as is: the crime analyst was sending out e-roll call and intelligence products to the officers and deputies of the three agencies on their smartphones; however, the information being provided to the officers had not improved during the grant since the crime analyst was still receiving the same information from the other two agencies as was occurring pre-implementation of the grant. In November 2014 when the grant funds ended, the crime analyst's position ended as well.

ANALYSES

The analytical strategy to examine the impact of the implemented communication technologies on agency communication and information sharing within three rural law enforcement agencies was two-fold. First, police leaders and officers and deputies were surveyed pre-project implementation (April 2012) and post-implementation (in both May and October 2012) in order to examine how their perceptions of their agency's communication and technological capabilities increased over the first five months of the grant as a result of officers and deputies receiving intelligence products via their smartphones. Second, police leaders and officers and deputies of the three treatment sites and four comparison agencies were interviewed near the end of the grant (Spring 2014) in order to assess whether the treatment areas possessed better communication and technological capabilities than similar surrounding agencies.

Pre- and Post-Implementation Surveys

In April 2012, the Evans County Sheriff held a dinner to discuss the project with police administrators, officers, and deputies of the three treatment sites. After the Sheriff introduced the purpose of the grant, the researchers talked to the attendees who then completed a survey. These surveys were conducted before the project officially began in order to assess baseline information and to gather insights on possible concerns that officers and deputies may have. The surveys administered to the Claxton and Hagan Police Departments differed from that of the surveys completed by the Evans County Sheriff's Office because the new technology (e.g., the providing of smartphones; the new RMS) had not been implemented. Instead, these two sites completed a questionnaire consisting of open-ended question regarding their perceptions of the adequacy of communication and technology in their agency, items that could be improved upon,

and their current views on the information that was already being provided to them by the Evans County Sheriff's Office.

At the end of May 2012, or roughly three weeks after the phones were provided to all personnel, the three sites were surveyed in order to assess any initial impact the technology had on communication and information sharing as well as any early successes the agencies experienced or issues encountered (see Appendix 2). In mid-October 2012, right before the RMS was to be fully operations, the same survey was administered again. This provided a five month update on whether the phones by themselves had improved communication among the agencies as well as provide a baseline regarding how the program was operating before the RMS was implemented. The nine close-ended questions in the survey asked respondents whether they agreed (1 = strongly disagree to 5 = strongly agree) with the following items:

1) I am more aware of my environment when I patrol or respond to calls.
2) I am able to see things differently and "connect the dots" when I observe, hear, or receive information.
3) My patrols have become more "purposeful" due to my knowledge gained from previous shifts.
4) I am more efficient and effective as a police officer.
5) I feel safer and more secure during my shift.
6) I feel as if my agency is doing a better job of investigating crime due to the newly implemented technology.
7) I feel as if my agency is doing a better job of preventing crime due to the newly implemented technology.
8) I feel as if I have better collaboration of information with other county agencies (i.e., DFCAS, schools, etc.) due to the information-sharing system.
9) I feel as if I have better cooperation with other county agencies when it comes to providing information toward investigations

The results for these surveys are found in Tables 4 and 5. It should be pointed out that the sample sizes for each department (the n) is small. Therefore, only trends were examined;

small changes are of non-significance. In addition, even if the number of respondents remained the same from one time period to the next, it does not guarantee that it is the same six or seven individuals completing the surveys. In fact, it was not. Thus, changes in trends could simply be the result of a small n and different respondents taking the surveys. Caution should therefore be exercised.

The surveys indicated that only after a few weeks the Evans County Sheriff's Department deputies and the Hagan PD officers perceived the smartphones to have more benefits than did Claxton PD officers (see Table 4). The Hagan officers either strongly agreed or agreed that the technology improved all items examined. The Evans County deputies also agreed with many of the items. In fact, the Evans County deputies even saw increases in average scores on many of the categories from when they were surveyed in April to when they were surveyed in May. They perceived that they were more aware of their environment when they patrolled, saw things differently, were more efficient and effective, believed that their agency was doing a better job of both investigating and preventing crime, and had better collaboration and cooperation with other agencies. The scores seemed relatively the same for whether their patrols were any more purposeful and whether they felt any safer during their shift. Once again, it should be noted that the only changes for the Evans County deputies between the two surveys was updated phones for themselves and the other two agencies now having cell phones as well. No additional changes or improvements had been made. It is possible that some of the higher scores were simply due to the excitement of the new project and their perceptions that these things were going to improve rather than whether they already had. The Evans County personnel always seemed enthused about the project and possibly wanted to respond positively.

Table 4. Surveys of Treatment Sites

		4/10/2012		5/30/2012			10/12/2012	
		Evans[1]	Evans[1]	Claxton[2]	Hagan[3]	Evans[2]	Claxton[2]	Hagan[4]
(1)	Awareness of environment	4.17	4.60	3.71	4.50	4.00	3.00	5.00
(2)	Ability to "connect the dots"	4.17	4.40	3.89	4.50	4.00	3.57	5.00
(3)	Patrols have become more "purposeful"	4.17	4.20	3.43	4.50	4.43	3.29	5.00
(4)	Efficiency and effectiveness as police officer	3.83	4.20	3.29	4.50	4.14	3.29	5.00
(5)	Safety and security	3.33	3.40	3.43	4.50	3.30	3.00	5.00
(6)	Agency investigating crime	3.67	4.67	3.29	4.50	4.29	3.00	5.00
(7)	Agency preventing crime	3.17	4.40	3.29	4.50	3.43	3.29	5.00
(8)	Collaboration of information	3.83	4.20	3.43	5.00	3.43	3.00	5.00
(9)	Cooperation with other agencies	3.67	4.17	3.29	5.00	3.43	3.57	5.00

Note: [1] n = 6; [2] n = 7; [3] n = 2; [4] n = 3

The Claxton PD officers after only a couple of weeks either agreed or were unsure about the improvements that they saw. Officers did not generally disagree with the statements, but they also did not show the same support as the other agencies. This is sensible considering the project had just begun, the RMS was inoperable, the information they were receiving was the same, and the only difference was that they were receiving the E-roll call via their smartphone rather than a printout. The two items that scored the highest for the Claxton officers were being more aware of their environment ($\overline{x}$ = 3.71; agree = 5; neutral = 2) and being able to see things differently ($\overline{x}$ = 3.89; strongly agree = 1; agree = 4; neutral = 2). Beyond those two scores, the other scores indicate answers halfway between agreement and uncertainty. For example, three officers agreed that their patrols had become more purposeful, but four responded neutral. Only two officers agreed that their department was now doing a better job of investigating or preventing crime; the other five officers all responded neutral. Finally, it is clear that they did not perceive the same type of collaboration of information with other county agencies ($\overline{x}$ = 3.43) or better cooperation with other county agencies in investigating other crimes ($\overline{x}$ = 3.29). Although two or three officers agreed that it had, the others were all unsure and presumably waiting for the project to mature before making conclusions on its impact.

Similarly, the May 2012 surveys indicated that the Evans County deputies and Hagan officers viewed that the technologies and products had a larger impact on both improving communications and reducing crime than did Claxton officers (see Table 5). The Hagan officers viewed the different items as being highly impactful for helping both issues. They did not respond to the RMS item since the new RMS was not operable in their agency. Evans County deputies viewed the various items as generally being more impactful in improving communications than they did in reducing crime. They clearly saw the Information Depository

as having less current impact than the other items. The deputies also viewed the impact of the two types of alerts as having as large of an impact on reducing crime as they did in improving communications. Similar to the previous close-ended items, the Claxton officers were generally unsure about the impact of the various items on both improving communication and reducing crime at this early stage of the program, although they seemed slightly more positive regarding the E-roll call in improving communication.

Table 5. Post-Implementation Surveys of Treatment Sites: Effect on Improving Communication and Reducing Crime

On a scale of 1 to 5, with 1 being "low impact" and 5 being "high impact," how effective:

Improving Communication

		5/30/2012			10/12/2012	
	Evans	Claxton	Hagan	Evans	Claxton	Hagan
E-roll call	4.17	3.57	5.00	4.14	3.00	5.00
RMS	4.00	3.17	NA	3.86	3.14	NA
Information Depository	3.50	3.14	5.00	3.57	3.86	5.00
Patrol Alerts	4.50	3.14	5.00	4.57	2.86	5.00
Open Case Alerts	4.50	3.00	5.00	4.43	2.86	5.00

Reducing Crime

	Evans	Claxton	Hagan	Evans	Claxton	Hagan
E-roll call	3.83	3.14	5.00	3.57	2.86	5.00
RMS	3.67	3.17	NA	3.14	3.00	NA
Information Depository	3.17	3.00	4.50	3.43	3.86	5.00
Patrol Alerts	4.50	3.14	5.00	4.14	2.71	5.00
Open Case Alerts	4.33	3.14	5.00	4.29	2.86	5.00

As Table 4 indicates, one of the noticeable trends between the May and October 2012 surveys was a decrease in how Evans County deputies perceived the impact of the new technology on certain indicators. The deputies were not as likely to agree that the new

technology made them more aware of their environment when they patrolled. In addition, they were not more likely to see things differently. These scores generally went down to pre-implementation levels (4/30) rather than the initial post-implementation (5/30) survey. Somewhat incongruent with that finding was that there was a slight increase in deputies viewing their patrols as more purposeful. They still agreed that the technology made them more efficient and effective patrol deputies, but this was relatively stable from when asked five months earlier. Similarly, officers still did not really perceive the information as making them feel more safe and secure during the shift; this perception did not change over the five month period.

Overall, the deputies still agreed that the agency was doing a better job of investigating crime. However, their perceptions of whether the technology helped them prevent crime and whether it led to more cooperation and collaboration from other agencies, including other law enforcement agencies, did not increase; in fact, it decreased roughly to pre-implementation (4/30) levels. In general, Evans County deputies were not really seeing the positives of having the other two departments participate after five months.

As for the impact of the specific intelligence products, the Evans County deputies' views remained fairly stable (See Table 5). They viewed the E-roll call and the patrol and open case alerts as having significant impacts in improving communication. When it came to reducing crime, they still viewed patrol and open case alerts as being the more important products that helped them.

In October 2012, the Hagan Chief and officers were still satisfied with the project, although it should be noted that they were satisfied with how things were before the project began. In addition, they still viewed the various intelligence products as having a large impact in both improving communication and reducing crime. The Claxton officers' perceptions tended to

trend similarly to that of the Evans County deputies. Their support remained the same or decreased. It should be noted that the officers had already been receiving the E-roll call, but just in paper form. They did not agree that they were more aware of their environment ($\bar{x}$ = 3.0) and basically were still somewhere between being unsure or agreeing with whether it made them see things differently, had more purposeful shifts, or be more efficient and effective officers. Other items remained the same as well. The one possible improvement was a slight increase in whether they perceived there was better cooperation with other county agencies, but many officers still did not think so.

One clear trend is that Claxton officers still did not see the importance of the information from Evans County as being as helpful as Evans County deputies did. Evans County was proud of their system and their answers reflected that. Claxton officers only perceived a moderate impact of the various intelligence products in improving communication and reducing crime. Half of the scores for Claxton officers were below a 3. The highest scores were for the impact of the Information Depository on both communication and crime. However, personal conversations indicated that Claxton officers were not overly aware of what the Information Depository was.

Post-Implementation Interviews

Monthly or bi-monthly surveys were not conducted after October 2012 due to the RMS implementation issues. In order to examine whether the treatment areas experienced better technological and communication capacities than surrounding agencies at the end of the grant, we interviewed the police leaders and line officers and deputies of the three treatment sites and four comparison agencies in the Spring of 2014 (see Appendix 3 for copy of interview instrument for treatment sites and Appendix 4 for comparison sites).

Based on census data and in consultation with the leadership of the ECSO, comparison sites were chosen with which to compare the treatment areas. As with the choosing of any comparison sites, no perfect comparison site exists because of numerous variables. Rather, the comparison counties and cities were chosen based on: size; demographic composition; size of law enforcement agencies; being within the same region of the state; and technological capabilities.

When the comparison sites were chosen, it was believed that they both had less technological capabilities than that of the treatment sites. One would therefore expect that the treatment sites would fare better than the comparison sites on most factors. However, when comparison site two was being interviewed, it was discovered that they were more technologically advanced than that of the treatment area (details are provided below). Rather than being a problem, this led to the benefit of allowing a comparison between the treatment sites with agencies that were both less and more technologically advanced. In other words, it allowed the researchers to examine whether the treatment area's use of technology made it more similar to agencies with more or less technology.

Comparison Group 1

The first comparison area consisted of a county Sheriff's Department (County One) and a police department that serves the city that is the county seat (City One). County One is a larger geographical county of 352 square miles, almost twice that of Evans County (see Table 6). However, its overall county population – 8,340 -- is smaller than that of Evans County. County One has a racial composition of 54.6 percent White, 43.3 percent Black, and 5.4 percent Hispanic, giving County One a larger Black population than that of Evans County and smaller Hispanic population. County One Sheriff's Office has not provided any crime data to the UCR

since at least 2009; it is thus not possible to make direct crime statistics comparisons (see Table 7). Finally, the County One Sheriff's Agency has ten sworn officers, similar to that of Evans County.

The largest city in the county – City 1 – is a city of 3,120 individuals, which only makes it slightly larger than Claxton (see Table 6). Its racial composition consists of 35.5 percent White, 61.6 percent Black, and 2.4 percent Hispanic, making its Black population much larger than that of Claxton and its Hispanic population much lower. In recent years, City One's Police Department only provided its 2009 crime statistics to the UCR. That one year would make it appear that City One has more violent crime than Claxton. Its 38 aggravated assaults compared to Claxton's 3 - 9 annual aggravated assaults, however, would appear more likely to be differences in counting and reporting than actual crime (see Table 7). City One, however, reported significantly less property crime than Claxton. The City One Police Department has a total of 13 sworn officers.

County One Sheriff's Department and City One Police Department both have less technology and intelligence capabilities than do the treatment sites. In County One, they have UHF and VHF radios, Southern Links, computers in the office but not in the patrol cars, GCIC (Georgia Crime Information Center) on the computers, LiveScan fingerprint scanner, Breathalyzers, and personally owned cell phones. In City One, they stated they had portable handheld radios, Live Scan, personally owned cell phones, GCIC, NCIC, MDS, and radar. They do not have computers in the cars or department issued smartphones. Thus, in some instances, these agencies are similar to that of ECSO and the treatment municipal agencies. The major difference being, however, is that the treatment area has an inoperable RMS that could not sync up, a dedicated

crime analyst position, the issuing of e-roll call and other alerts, and the issuing of department owned cell phones rather than officers and deputies using personally owned ones.

In County One, the Sheriff and six deputies agreed to be interviewed. In City One, the Chief and seven officers were interviewed.

Comparison Group 2

The second comparison area consisted of County Two Sheriff's Department and City Two Police Department. County Two is also geographically larger than Evans County at 248 square miles (see Table 6). Its population size, however, is equal to that of Evans County at 11,000. Unlike County One, the racial composition of County Two is more comparable to that of Evans County, including its Hispanic make-up, except that it has a lower percentage of African-Americans. The racial composition of County Two is 77.5 percent White, 25 percent Black, and 10.9 percent Hispanic. County Two has not reported its crime statistics to the UCR since 2010. In 2010, however, they reported no violent crimes and only 54 property offenses. In 2009, they only reported 6 violent offenses but 100 property offenses (see Table 7). The Sheriff's Office only has seven sworn officers, compared to Evans County's eleven; both agencies have about the same total number of employees (18 or 19).

County Two's largest city is City Two, Georgia. City Two has a population of 4,130 citizens, making it larger than that of Claxton (see Table 6). Its racial composition, however, is similar to that of Claxton. City Two is 54.2 percent White, 38.1 percent Black, and 8.2 percent Hispanic. City Two reported its UCR crime statistics in 2012. It reported a higher number of aggravated assaults than Claxton, leading to a higher number of violent crimes (28). In addition, it reported a much higher number of property offenses than Claxton due to a higher number of

burglaries and theft (see Table 7). The City Two Police Department has ten sworn officers, two more than Claxton.

Based on information provided by the ECSO, it was believed that this comparison site was less technologically advanced than that of the treatment area, similar to that of County One and City One. However, when these respondents were interviewed in the Spring of 2014, it was discovered that this area was in fact more technologically advanced than that of the treatment area, primarily because of its operable RMS. Rather than being a problem for the analysis, however, this discovery was a benefit to the study as it allowed for the treatment area to be compared to areas that were both technologically less advanced (comparison area 1) and more advanced (comparison area 2).

In County Two, their various technologies included Motorola radios, radar, portable breathalyzer tests, personally owned cell phones, and Tasers. City Two had radios, a tag reader, body cameras, car cameras, digital cameras, Tasers, and personally owned cell phones. In addition, they were field testing new body cameras in order to improve upon the ones they already had. They had a new camera in their new squad car and hoped to switch over the older cameras in the other cars in the near future. With the cell phones, the officers took a lot of pictures. Much of this improvement (including the technologies that will be discussed in the paragraphs below) occurred over the previous two and a half years prior to the interviews. Previously, all they had were four personal computers.

More importantly than the technologies listed above, the Sheriff's Office and police department purchased a new software system as a joint venture. They had just switched over to this analytical RMS within the previous month before the interviews began. Previously to this RMS, they had been using the same RMS as that used by Claxton and Hagan. This working

RMS allowed the two agencies to share information on calls for service, cases, etc., similar to what the treatment area had planned to do as part of their grant. In addition, all officers of the City Two Police Department had access to the intel via their computers in their cars while County Two had four squad cars with accessible computers. Each officer had access to this data, including history relevant to addresses and arrest records. The information became immediately accessible to the officers once the information was entered into the RMS. Thus, officers were not only able to find out what was currently occurring (real time intelligence), they could also read for themselves what had occurred during the previous shift before their shift had occurred.

In addition, the City Two Chief elaborated with, "The Sheriff's Office is our primary dispatch point. They now have computer-aided dispatch, which we get directly into the cars." In addition, the chief went on to explain how their investigator was able to handle the system and kept it operating and improving. This appeared important in their success in making the system operable, including having the investigators being familiar with what was all occurring and allowing the officers to have the information at their disposal.

In County Two, the Sheriff and seven deputies were interviewed. In City Two, the Chief and nine officers were interviewed.

Table 6. Comparison Area Demographics

		Size (sq. miles)	Population	White (%)	Black (%)	Hispanic (%)	# Sworn
Treatment	**ECSO**	182	11,000	66.8	30.4	11.9	11
	Claxton		2,746	57	39.6	9.6	8
	Hagan		996	61.6	25.9	12.7	3
Comparison Area 1	**County 1**	352	8,340	54.6	43.3	5.4	10
	City 1		3,120	35.5	61.6	2.4	13
Comparison Area 2	**County 2**	248	10,998	77.5	25	10.9	7
	City 2		4,130	54.2	38.1	8.2	10

Note: Information on the number of sworn officers comes from either the Georgia Sheriff's Association or the agencies' websites

Table 7. UCR Statistics for all Sites

	Agency	Year	VC	Murder	Rape	Robbery	AA	PC	BG	Larceny
Treatment Area	ECSO	2013	--	--	--	--	--	--	--	--
		2012	9	0	0	2	7	36	18	11
		2011	13	0	1	1	11	86	46	35
		2010	54	1	0	3	50	112	77	29
	Claxton	2013	8	1	1	3	3	148	43	104
		2012	4	0	0	1	3	120	34	81
		2011	5	0	0	0	5	108	29	76
		2010	10	0	0	1	9	138	32	99
	Hagan	2013	--	--	--	--	--	--	--	--
		2012	0	0	0	0	0	4	1	3
		2011	2	0	0	0	2	15	6	9
		2010	--	--	--	--	--	--	--	--
Comp. Area 1	Co. 1		No UCR data from 2010-2013							
	City 1	2009	44	0	0	6	38	81	24	54
Comp. Area 2	Co. 2	2010	0	0	0	0	0	54	21	33
		2009	6	0	1	2	3	100	28	62
	City 2	2012	28	0	1	9	18	200	61	139

The interviewing of the respondents of the comparison sites occurred in the Spring 2014, during the same time period as the final interviews of the treatment sites. Each respondent was interviewed separately in a private room for a period of time ranging from 30-60 minutes. Each interview was recorded with the permission of the respondent and later transcribed. The questions asked of the respondents in the comparison sites matched that of the treatment sites with the exception that the comparison sites were not asked the specific questions regarding their experiences with the grant funded phones and their perceptions on how the intelligence products provided by the ECSO Ops Center affected the improvement of communication and the reduction of crime. Throughout the analyses section, instead of comparing an entire comparison group with the entire treatment area, the focus was primarily on comparing the two comparison county agencies with the treatment county agency (ECSO) and the two comparison municipal agencies with the two treatment municipal agencies with a focus more on Claxton PD than Hagan PD because of the sizes of the agencies.

The interviews focused on: (1) the adequacy of communication within and among their agency and others; (2) value placed on information generally and from the OPS Center; (3) the adequacy of their technology and implementation obstacles; and (4) their perceived impact of the implemented technology on crime.

Adequacy of Communication

The Sheriff, Chiefs, and all deputies and officers in the seven sites confirmed in their interviews that their agencies did not participate in a traditional, scheduled roll call. They were therefore asked questions regarding how they were informed of incidents that occurred before their shifts as well as incidents that occurred during shifts.

How Informed of Incidents Occurring Before Shift

Respondents were asked, "How are you informed of events that occurred or information that was gathered previously to your shift? Is that adequate?"

The ECSO considers the use of e-roll call as vital in keeping their officers informed, as the ECSO Sheriff and seven of the eight deputies mentioned it in their responses. For example, one deputy stated, "[The crime analyst] will send out e-roll call sometime during the morning and I can look at it and see if I missed anything." The Sheriff and two deputies also mentioned the log book and one deputy discussed informal conversations among deputies as the primary method of learning information from previous shifts. The Sheriff and five of the seven deputies found these techniques to be adequate in sharing information from one shift to the next. One deputy stated that, "I know what's going on while I'm not working. I know what problems to look out for, what houses had problems the previous shift, and if I have to go back there, I have to take further actions." Two of the deputies did not feel this way, however, indicating that it was information that they already knew because quite often it was about cases that they had responded to themselves the night before.

Claxton officers provided two primary ways that they were informed of events that occurred previously to their shift – word of mouth (mentioned by the Chief and three officers) and e-roll call (mentioned by four officers). An officer explained that the officers arrived 15 minutes before their shift started and that the officers getting off duty informed them of what occurred that day. This meeting could last between 5-15 minutes depending on what was occurring that day. In addition, the e-roll call sent by the Sheriff's Office seemed to be a vital component in keeping officers informed in the Claxton department as well. Other ways mentioned were: (1) weekly meetings and briefings, (2) monitoring radio traffic, and (3)

reviewing instant cards. Five of the six officers thought that these various methods were adequate in passing on information from one shift to the next.

The primary way that the Hagan Chief passed information to his deputies was leaving them a note or calling them, and vice versa, which he found adequate. Both deputies stated that they received information from e-roll call and listened to radio traffic.

County One

In order for information to be passed from one shift to the next in County One, several strategies were taken. Like other departments, particularly the treatment sites of Claxton and Hagan, information was exchanged informally from deputy to deputy between shift changes. The Sheriff and deputies of County One mentioned that they held occasional different types of meetings. Regarding how information was passed from one shift to the next, one deputy said that major events would definitely be told to the next deputy. And in the end, they can always revert back to the CAD system. The importance of the informal sharing of information between shifts cannot be overemphasized. Deputies counted on the previous shift to provide them as much accurate information as possible. It was considered a safety issue. Therefore, deputies took it seriously. The Sheriff and all deputies found these means to be adequate for an agency their size. They felt that they were informed of everything that they needed to know. If there was an issue with something, the Sheriff brought the issue up in a meeting and informed everyone what needed to be improved upon.

County Two

In the County Two Sheriff Department, the Sheriff and deputies stated that information was passed on informally from one shift to the next. The Sheriff did not think that a formal roll

call would be necessary considering that they were a small agency. This informal passing of the information occurred through various avenues, including talking in person, radio, phones, and e-mails. From the interviews, it appeared that this occurred more often via the phone than other methods because they found it to be more efficient. All deputies thought that this informal method was adequate and efficient. They felt that for the size of their agency and the little that occurred during some shifts, this was adequate.

City One

In City One, the Chief and officers primarily only discussed two ways in which information from previous shifts was passed from one shift to the next: (1) informal conversations between officers as they were changing shifts; and (2) dispatch. Two of the officers of City One also stated that on occasion the investigator may have a meeting with some of the officers and inform them of something serious that was occurring that they should know about. Six of the seven officers thought that this information sharing strategy was adequate because they felt informed on what was going on in a timely basis. Some noted improvements could be made. One officer stated, "It's worked, but you kind of have to the take initiative and ask, because they will slide out the door on you." Another officer stated, "Sometimes it is. Sometimes it isn't. It's worked out so far, it could be better." The Chief thought it was the best they could do since they don't have the personnel to support those kinds of meetings.

City Two

In City Two, the Chief and the officers primarily only discussed one way that they would hear about information that occurred during the previous shift – informal conversations between shift changes. The Chief and all officers discussed how this usually only took a few minutes. If

there was anything major that occurred, which could be made into a training session, the Chief would call for a mandatory meeting. The Chief and all patrolling officers who answered the question stated that this method was adequate. The Chief pointed out that they are a small department, the appropriate information is passed from one officer to the next, and that their new records management system captures this information and can inform officers of what occurred in the previous 24 hours. One officer pointed out that on a busy day there may only be 5 or 6 incident reports to pass on. Several pointed out, however, that they expected the new system to improve the information that was passed from one shift to the next.

Comparison between Treatment and Comparison Sites

The primary means that each of the four comparison sites shared information from one shift to the next is through informal conversations. This occurred in person in some locations and primarily via the phone in others. They also stated, however, that one could find out through dispatch, having periodic meetings, or a new RMS in one comparison site. Almost all of the deputies and officers at the four comparison sites thought that informal conversations and the other methods were adequate (only one officer at one of the comparison sites stated that it was inadequate). Overall, they believed that it was adequate because they were small agencies, few calls occurred, and fellow officers and deputies were trustworthy to pass on the most important information.

In the treatment sites, the police leaders and officers and deputies primarily discussed informal conversations and e-roll call as the two ways in which they received information regarding the previous shift. Thus, the three treatment sites clearly had an additional method than the comparison sites. All three treatment agencies stated that e-roll call was an important tool in passing information from one shift to the next, although its positives were more reserved

for individuals who had not worked the previous day. Agencies also examined the log books from the previous day in most cases before they started their shift. The two municipal police departments placed a much higher emphasis on officers informally sharing information between shift changes than did the ECSO. Their perception of the adequacy of these methods, however, was equal or lower than that of the comparison sites.

Based on the interviews, it is apparent that informal conversations between officers and deputies is the most common method of updating the next shift. E-roll call may provide an additional method for officers to examine what occurred the previous day, but it is in most cases unavailable to officers and deputies before they begin their next shift and provides little context for the incident. Details on the circumstances and other details are missing. It therefore cannot supplant the importance of short informal conversations or phone calls between shifts. A possible danger may be if officers or deputies assume that officers or deputies will learn everything that is necessary from e-roll call or a similar method instead of the brief conversation that summarizes the most pertinent details. At the same time, these short conversations may miss important information as well. Thus, e-roll call provided an additional method for officers and deputies to be aware of what occurred the previous day.

Finding Out Information During Shift

The respondents were then asked how they were informed of events or information that occurred during their shift.

Different ways that were mentioned in Evans County were e-roll calls, e-mails, radio/dispatch, phone calls/Links, word of mouth, and communications from other officers. For the Sheriff, it was important that he was notified of important events in a timely manner and

therefore created policies on when he should be notified for what events. Another deputy exemplified the different ways that a day shift officer can receive news: "If something comes up, [the crime analyst] will go ahead and link me up. He shoots me out a roll call or e-mail or if it's quicker, just tell me." In the end, the main ways were either the radio or dispatch.

In Claxton, the Chief found out what was going on if he was at the office when dispatch received the information. If off duty, his officers were supposed to call him. All seven officers said that the radio was instrumental in keeping them updated throughout the day. Three of the officers also mentioned the phone or link. Meetings and word of mouth were also mentioned. Officers and deputies who worked on the same shift also developed closer working ties, which helped information sharing.

In Hagan, the Chief and both officers discussed the radios and the Southern Links. Links was credited with being able to transfer information more securely than the radios if you didn't want citizens to listen to sensitive information on the scanners.

County 1

When asked how they were informed of events that occurred while they were on shift, County One deputies provided lists of options, including dispatch, radios, cell phones, Links, BOLOs, and faxes. The Sheriff and four of the deputies listed radios or dispatch; the Sheriff and three deputies listed cell phones.

County Two

In County Two, the Sheriff and all seven deputies mentioned their radios or dispatch regarding how they were kept informed. In many cases, it was the only method listed. One

deputy said that they were informed almost exclusively through dispatch. Two deputies stated that they were also updated via telephone and one officer also said through other officers.

City One

Similarly, City One officers reported similar ways in which they were informed of events that occurred while they were on shift. The Chief and six of the officers stated that they were generally informed by dispatch via their radios. Other avenues mentioned by one or two officers were cell phones, Bolos, and finding out first hand.

City Two

Similar to other agencies, the Chief and City Two officers listed a variety of ways that they were informed of information while on duty, including radio/dispatch, phone calls, Links, messaging software on the computers, BOLOs, e-mails, and information gained from viewing the records on the records management system.

Comparison between Treatment and Comparison Sites

There is little variation among most of the agencies. Officers were generally informed of what was occurring while they were on shift by dispatch or other officers via their radios. In many cases, the radio or dispatch was the only method that officers or deputies discussed. Overall, however, officers and deputies in the different sites also discussed word of mouth, phones/Link, and BOLOs regardless of the types of technology they possessed.

Communication Adequacy within Agency

In order to assess whether the above methods of communication were generally adequate, respondents were asked, "Is communication adequate within your agency?" (See Table 8).

Half of the ECSO deputies thought communication within their agency was adequate while the Sheriff and the other four deputies did not think it was. Deputies who were content felt that they were getting quality information in a timely fashion. Another deputy commented on the issues with the radio but stated that there were several forms of possible communication that formed a safety net – if one form of communication fails, they have other options. A deputy who had been in the agency for several years noted an improvement over the years with communication:

- "Prior to the new service that we're doing, you were limited on the information that you got from shift to shift, much less from rotation to rotation. It seems that the culture has changed to a point here that we've seen that officers and deputies are more willing to call up here on their days off just to pass the information onto a new group of officers that's on duty for that rotation."

Table 8. Communication Adequacy and Information Interest (%)

	Treatment Sites			**Comparison Sites**			
	Evans (n = 8)	**Claxton** (n = 7)	**Hagan** (n = 3)	**Co. 1** (n = 6)	**City 1** (n = 7)	**Co. 2** (n = 7)	**City 2** (n = 9)
Communication adequacy within agency	50.0	71.4	100.0	100.0	57.1	100.0	66.7
Communication adequacy between agencies	25.0	50.0	100.0	33.3	71.4	100.0	77.8
Interest in more information	100.0	83.3	100.0	100.0	71.4	71.4	100.0
OPS Center Intel helpful	100.0	100.0	100.0	--	--	--	--

Note: Chiefs and Sheriff answers not included in totals

The primary reason why the Sheriff and half of the deputies thought that communication was inadequate was because of their radio system. The Sheriff was one of the first ones to state that their radio system needed to be changed to the 800 system so they could talk to some of the other agencies, including a larger county and city that actually runs the 911 system for Evans County. The only way to contact some of these agencies with different frequencies was to call them on their cell phones or go through dispatch/911. He also acknowledged that there were places in the county where you could not use the radio. The deputies' concerns with the radio systems were much stronger than that of the Sheriff, as the quality of the radios affected their perceived safety. When asked what was the most important thing that could be done to improve communication within their agency, their suggestions were predictable based on their previous responses. Improvements to the radio system was recommended by the Sheriff and four of the deputies. One deputy mentioned meetings: "It takes monthly, bi-monthly, or quarterly some type of meeting to get everyone together to give them an opportunity to voice their concerns and opinions, so that they know that it still matters, that giving them reason to put information continuously into the system." Therefore, the improvements that were suggested were not more high-tech gadgets, new RMS, or other technological items; it was fixing the basic radio system and having more meetings.

The Claxton Chief and five of the seven officers (71.4%) believed that communication within their agency was adequate. The Chief perceived that the officers communicated well amongst themselves, but that there could be an issue with how the officers received information on calls (i.e. dispatch). The officers believed that their informal methods of passing information from

one officer to the next worked sufficiently. In addition to informal conversations between officers, an officer could inform dispatch and dispatch could then inform the next officer.

Two of the officers (28.6%) did not think that the communication was adequate. One officer thought that officers quickly seeing each other in passing was insufficient to pass information from one shift to the next. He had hoped that e-roll call could fill this gap but because of how sporadic the times were when e-roll came out, it was not succeeding. The other officer commented on the issue that plagued all three agencies – the radios. Ideas to improve communication within the department were: improvements to the radios; higher prioritization on communication; more meetings; more social events; and a scheduled e-roll call.

Within the Hagan Police Department, the Chief and both officers stated that their communication within their department was adequate. Since Hagan is a small police department, they considered it important to keep each other informed and for officers to be available. They also had no suggestions for how communication could be improved within their agency.

County One

The County One Sheriff and all six deputies (100%) believed that communication was adequate within their agency (See Table 8). The three reasons provided by the Sheriff and the deputies for why communication was adequate were: (1) ample means of communication (radio, Links, cell phones, frequent officer contact); (2) sense of family between deputies; and (3) reliable technology. When asked of ways to improve communication in the department, the Sheriff and deputies provided a variety of ways, not all of which were technological in nature.

The responses were more meetings, memos, implementing an integrated radio system, improved cell towers to improve cell coverage, and computers in the car.

County Two

In County Two, the Sheriff and all seven deputies (100.0%) believed that their communication within their agency was adequate. The three primary reasons for this belief were: (1) they felt they had good equipment; (2) they communicate and share information well; and (3) being a small, close-knit department. Although the county appeared to have some of the same problems with the radio system that the other counties experienced, they did not discuss it as much. When asked how to improve communication, the Sheriff and three deputies stated that the radio system and bandwidths for the radios needed to be improved, but that was beyond their responsibility and needed to be fixed by the federal government. One deputy thought that they could still get together more often, talk, and have meetings in order to voice their concerns and insights more often.

City One

In City One, slightly more than half of the officers (57.1%), or four of the seven officers, thought that communication was adequate within their department. The reasons for why officers viewed their communication as adequate varied from officer to officer, including that they were a small department and good friends, the occasional meeting the Chief ran, they were able officers, and their new radio system. The Chief and three of the seven officers did not think communication was adequate. Each of the four provided different reasons. First, one officer thought communication could always be better and seemed to have a high threshold for what adequate meant. Second, the Chief wanted his officers to be more proactive in their

communication regarding what was going on in the community and the types of crimes that were being committed. Third, an officer stated that communication at the end of the shift could be inconsistent on some days, which could lead some officers to not receive pertinent information from the previous shift. Finally, one of the officers did not like that they did not have radios in their cars anymore and have portable radios.

In order to improve communication within the department, a few ideas were provided. The Chief wanted the officers to talk more about problems that were occurring in the community and have them problem-solve. One officer suggested that officers that were coming off shift should be required to talk with officers who were coming on the shift to discuss what occurred. He also thought an intel meeting twice per month could be beneficial as well.

City Two

In City Two, the Chief and six of the nine officers (66.7%) thought communication was adequate. More than other departments, however, the officers in City Two who thought communication was adequate were more likely to condition their support with comments such as "sort of" or "somewhat." Most of them still commented that it could be improved. The Chief said it was adequate but not nearly where he wanted it to be but that it was getting better. He discussed how some of it was beyond his control since a different county handled their dispatch and relied on their radio system. Officers who thought it was adequate generally commented on the good information that was passed from one shift to the next or during traffic stops or other similar situations. Another officer credited the technology that they have with their adequate communication. Two officers commented that they received information from the Chief via consistent e-mails. When asked how communication could be improved, their specific answers focused on: (1) more face-to-face communication rather than e-mails; (2) information flowing

upward and downward through the chain of command better; (3) better comradery between the upper and lower levels; (4) improvements to the radios and bandwidths; and (5) implementing a shift e-mail in which officers send a brief e-mail informing the upcoming shift of what occurred.

Comparison between Treatment and Comparison Sites

Within both of the comparison counties, the Sheriffs and all deputies perceived their communication to be adequate. In County One, they discussed that there were multiple means of communication, they had reliable technology, and there was a sense of family between the deputies. Overall, it appeared that their familial feeling led to positive perceptions regarding their communications abilities even though their technological levels were lower than that of some of the other sites. The three primary reasons provided by County Two were that they had good equipment, they had the appropriate information, and they were a small department. In ECSO, however, only half of the deputies thought that communication was adequate. The primary reason why they thought it was adequate was because they were receiving good timely information. The Sheriff and the other half of the deputies thought it was inadequate primarily because of the radio system, namely that it did not work in certain parts of the county.

Within both of the comparison cities, their communication adequacy was perceived to be poorer than that of both treatment cities. In City One, the Chief and nearly half of the officers did not think it was adequate. For those who thought it was adequate, they discussed that they were a small department, were good friends, had occasional meetings, and they had a new radio system. Suggestions to improve communication focused on officers needing to be more proactive in sharing information and possibly having more meetings. In City Two, the Chief and 2/3 of the officers thought it was adequate. However, they appeared to condition their comments more than other sites. It was considered adequate because of the good information they received

from fellow officers and all the e-mails they received. They had many suggestions for improvement, including more face-to-face communication, better information flow going up and down the chain of command, and having a shift e-mail. As for the treatment cities, all of the officers of Hagan thought their communication within the department was adequate and almost ¾ of the Claxton officers believed the same. In Claxton, they stated that the informal passing along of information was working fine, although a couple of officers commented on needing improvements to the radios.

Thus, the two comparison counties perceived their within agency communication to be much higher than that of ECSO. Although all three counties had radio difficulties, this issue affected the ECSO deputies more than it did the other two counties. The two comparison cities, however, perceived their communication adequacy to be lower than that of the two treatment cities.

Communication Adequacy among Agencies

Respondents were asked whether communication was adequate between their agency and surrounding agencies. ("Is communication adequate between your agency and surrounding agencies?")

Only 25 percent of the ECSO deputies, or two of them, thought that communication between their agency and others was adequate (see Table 8). One deputy said "for the most part" because of E-roll call but that he personally talked with individuals in other agencies. The other commented that the communication was adequate; the problem was willingness to respond and act based on that information. All the other deputies thought it was inadequate with their primary response focusing on the inadequacy of the radios. Thus, for these deputies, they did not

interpret the question in an abstract way; they interpreted it literally because of their inability to talk with other agencies on the radios as part of their everyday routine.

The Claxton Chief and half of the officers answering this question believed that communication was adequate between themselves and other agencies; the other half of officers disagreed or thought it could be better (see Table 8). The general answer was that officers were good about having relationships with other individuals and sharing information. One officer specifically commented on the good relationship that his chief had with other agency and department heads. Although it may have appeared that they had good communication between themselves and Evans County, the officers did not see that they had good communication with other surrounding county agencies because of being on different radio frequencies. The only way they had contact was calling them but they could not monitor their radio chat.

The Hagan Police Department also considered communication between their agency and other agencies to be adequate as well (See Table 8). In fact, the one officer stated, "We pretty much keep in contact with other departments" and provided examples of how he was able to call individuals in surrounding counties and ask them information regarding warrants and other issues.

County One

The County One Sheriff and two of the deputies (33.3%) agreed that communication between their agency and surrounding agencies was adequate (See Table 8). The primary reason provided for why communication was adequate was because of personal relationships they had with individuals in other agencies. For example, the Sheriff stated that he had a one-on-one relationship with other sheriffs in the area and that they shared information when it was pertinent

to the other. One of the deputies stated that they worked closely with other agencies when they worked on similar things and relayed information back and forth, particularly between the police department and the Sheriff's Office. The reasons provided by the deputies on why communication was inadequate primarily dealt with a lack of familiarity with other counties and limited means of communication (e.g., radios). When asked how to improve this communication, the responses primarily focused on improving the radio system.

County Two

In County Two, only the Sheriff stated that communication was inadequate between his agency and other agencies. His reasoning was once again because of the radio system. All six deputies who were asked this question (one deputy was not asked the question) stated that their communication was adequate. Interestingly, two deputies thought there were issues with the radios preventing them from talking with two surrounding agencies but still viewed their communication as adequate. As in with any agency, there were other ways that surrounding counties informed them of information, such as BOLOs if anything major was occurring. Or if a specific crime type was occurring, such as copper theft, their investigator would inform their investigator. Another deputy stated that other counties may contact them via radio or phone. And since many of them were friends with deputies in other agencies, it was not difficult to pick up the phone and call. In addition, another deputy stated that his agency and other surrounding agencies were usually really good in mutual aid calls. This involved not only the local police department but surrounding counties as well. If they needed help, other agencies would show up and ask how they could help. Thus, when asked how improvements could be made, the obvious suggestion on what needed to be done to improve communication dealt with improving the radio systems. The Sheriff explained that they have the same radio frequency as three surrounding

counties, but not two others, including the largest county. The only other suggestion was to have the same records management software so all agencies could be tied to the same network to share the same information.

City One

The Chief and five of the seven officers (71.4%) thought it was adequate, more than twice that of the surrounding county agency. The Chief and officers felt that there was a good working relationship with other agencies and an ability to reach out to other agencies when the need arose. The other two officers did not think it was adequate because of incompatible radios and simple unawareness of what was occurring in neighboring counties. When asked how to improve communication between their agency and others, the City One officers provided answers that focused on effort, sending out information to other agencies in a more timely manner, and having radios that were compatible with other agencies. One officer specifically endorsed what Evans County does. "I like what Evans County does. They get a description of an item, and they send it out to everybody. It doesn't just stay between investigation departments… I think their system is actually fairly cheap and very resourceful in how they go about doing that."

City Two

In City Two, the Chief and seven of the nine officers (77.8%) thought that their communication was adequate between their agencies and surrounding agencies (See Table 8). This percentage was more similar to the other comparison municipal agency than the others. In addition, this is a higher percentage than the percentage of officers who thought that communication was adequate within their own department. The Chief commented that

communication was good for the most part. He gave an example that the state patrol had access to their radio frequencies, although other departments often don't. The primary reason for why they felt they had good communication with other agencies was because they exchanged information when necessary. Similar to the previous question, the officers in City Two appeared to have a lower level of what they considered "adequate" and considered adequate to only be "communication when necessary." The officers who felt that their communication was inadequate with other agencies were primarily referring to agencies outside of their county. They generally thought that things were acceptable within their county, but communication became problematic once one left the county lines. When asked how they could improve communication between agencies, some of them thought it was unnecessary since there was so little going on and the current system was acceptable. In addition to the common issue of improving the radio systems, officers also discussed sending out information similar to what Evans County does, a secure webpage for inter-agency communication, and more interactions between agencies.

Comparison between Treatment and Comparison Sites

Overall, the treatment sites viewed their communication with surrounding agencies to be less adequate than that of the comparison sites. Only ¼ of ECSO deputies and half of Claxton PD officers thought it was adequate. Officers who thought it was adequate focused on good relationships they have with other individuals in other agencies and willingness to share information. The primary reason why officers and deputies saw the communication as inadequate was the radio system. These perceptions were more similar to that of County One than that of the other three comparison sites. Only 1/3 of the County One deputies thought it was adequate. When deemed adequate, it was because of personal relationships. When considered

inadequate, it was due to the their lack of familiarity with other counties or individuals in other counties as well as having limited means of communication, such as having to call them. However, in the other comparison county, all deputies thought it was adequate because of personal relationships, various methods of sharing information with others, such as phones or Bolos, and the relationships that the Sheriffs had in their area. Roughly, ¾ of both comparison municipal officers believed it was adequate, higher than that of Claxton PD. For both agencies, however, it seemed that there was a lower threshold for "adequacy."

Three other noteworthy points should be noted. First, in many of the interviews, officers' and deputies' awareness of what was occurring in other agencies was heavily based on personal relationships with individuals in those agencies. Personal relationships with individuals in other agencies varied from officer to officer. In addition, personal relationships appeared to be more prevalent between county and city employees than between counties. Second, because of this, whether they thought communication was adequate depended on which agencies they considered. In general, if a city officer or county deputy was thinking of their relationship between their city and the county, they were more likely to think it was adequate than officers and deputies who were considering neighboring counties. Thus, both of these points show limitations of personal relationships being the primary source of information. They vary from officer to officer and they become less effective as physical distances increase. Finally, regardless of whether individuals considered the communication to be adequate or not, individuals in almost all of the sites discussed the problems that the radio system created in knowing what was occurring in neighboring counties. The average deputy and officer did not want a detailed report of what was occurring in other counties; they simply wanted to be able to listen to surrounding counties communicate on the radio in order to be able to provide or ask for

assistance. The incompatibility of radios between agencies in these areas has caused a great deal of concern with these sheriffs, chiefs, officers, and deputies. The officers seem to be far more comfortable within their jobs if they have the ability to scan department frequencies in neighboring counties.

Information Sharing

To dive deeper into these issues, the respondents were asked whether they regularly knew what crimes and calls were occurring with other agencies in their county and whether agencies in the county were sharing information on intelligence, crimes, and calls for service. Next, they were asked whether they felt that they had a good collaboration of information with other agencies within their county, such as probation and the schools. They were also asked whether they thought that additional information from either their agency or others would help them do their job better. In addition, they were also asked whether they found the information provided to them by the ECSO OPS Center to be helpful. Finally, they were asked questions to assess which specific intelligence products and technological improvements had the largest impacts on improving communication and information sharing.

Awareness of Incidents with Other County Agencies

The ECSO Sheriff and seven of the eight deputies (87.5%) reported that they were aware of crimes and calls for service being responded to by other agencies. Most noted that information sharing was occurring, things could be better, but that things were improving. Most of this success was considered as a result of e-roll call, although agitation existed about problems with the RMS. Several of the deputies, however, commented on the importance of word of

mouth and that it was important for officers and deputies of different agencies who work the same shift to have a talking dialogue and working relationship.

The Claxton Chief and all seven officers (100%) also agreed that they knew what crimes and calls for service were occurring with other agencies and that other law enforcement agencies in their county shared information with them regarding intelligence, crimes, and calls for service. The Chief and officers, however, placed qualifying remarks on some of their comments. The Chief usually heard things directly from the Sheriff. Other officers knew from talking with ECSO deputies that worked the same shift in person, talking with the crime analyst or investigator in Evans County, the Southern Link, listening to the radio, or via the e-roll call. Five of the seven officers mentioned personal contact or word of mouth and five of them also mentioned e-roll call. Personal contacts and the e-roll call seemed equally important to officer perceptions on sharing information. Some officers made it clear that they focused on one of these methods more than the other, but some deputies used all the sources to get a better picture of what was going on. The frequency with how often this sharing of information occurred varied according to officers. The Chief and some officers said, "sometimes." Other officers clearly indicated that they shared information on a daily basis with officers in other agencies.

In the Hagan Police department, the Chief and both deputies reported that they regularly knew what crimes and calls for service were going on in other agencies and that this occurred primarily through e-roll call. However, both deputies emphasized that there were other ways that they received information about crimes and calls for service from other agencies, such as word of mouth, the radio, or the Link. Thus, e-roll call is seen as valuable, especially by part-time officers to keep them up to date, but other means existed and were seen as valuable as well. The Chief also met monthly with the Evans County and Claxton investigators for fuller intel

meetings, but he stated that he tried to meet daily with both of them as well to find out if there was additional information that he needed to know that was not included in e-roll call. In the end, e-roll call was seen as valuable, but personal contact for such a small department seemed to have more value.

County One

In County One, the Sheriff and all six deputies stated that they regularly knew what crimes and calls for service were occurring in other agencies in the county. The way that they kept informed of this information is similar to that of the treatment sites except for e-roll call. They discussed that they monitored radio traffic, received phone calls or visited individuals in person, and kept open communication with other agencies. For example, they met with them on the side of the road and discussed what was occurring and kept in touch with investigators in surrounding counties.

County Two

In County Two, the Sheriff and the six deputies who answered the question all stated that they regularly knew what crimes and calls for service occurred in other agencies. Similar to County One deputies, County Two deputies also kept abreast of what was going on via the radio, either directly utilizing it or monitoring radio traffic, telephone calls, and open communication based on good relationships with other agencies. The use of the radio far outweighed other methods. One difference, however, was their installation of their new records management system that provided inter-agency software to allow information sharing between the Sheriff's Office and the local police department; this also included a messaging system.

City One

City One officers felt less aware of crimes and calls for service that were occurring in other agencies in their county. Five of the seven officers (71.4%) believed that they were aware while two officers (28.6%) were unsure. Both of these officers stated both "yes" and "no." The ways in which City One police officers became informed of crimes and calls for service from other agencies were mostly similar to that of County One, such as monitoring radio traffic, but with additional small ways that may differ from officer to officer. They also discussed learning information from dispatch or BOLOs, officers working part-time in other agencies, personal friendships, and investigators of different agencies working together.

City Two

In City Two, the chief and seven of the nine officers (77.8%) stated that they regularly knew what crimes and calls for service were occurring with other agencies in their county. The Chief and officers again, however, put qualifiers on their answers. The chief said that he was aware of what occurred in his city and County Two, but when it came to other agencies, that he was "aware of what's going around, but I'm not keenly aware." The Chief also commented that because of less resources it was important for agencies to work together to combine resources to be more productive. Officers used phrases like "sometimes" and "somewhat." In addition to monitoring radio traffic, they also discussed other ways that they were informed of this information, mostly through informal word of mouth conversations and personal connections. The two officers who did not agree thought that other agencies spent little effort to share information. They might hear information through a rare BOLO or if they caught it on the radio, but they felt that this was not satisfactory for information sharing between agencies.

Comparison of Treatment and Comparison Sites

Overall, almost all Sheriffs and deputies of the treatment site (one deputy disagreed) and comparison sites stated that they regularly knew what crimes and calls for service occurred in other agencies in their county. ECSO stated that things could be better but they were improving. They strongly credited e-roll call in this process, but they also discussed the importance of conversations between agencies. The two comparison counties did not have e-roll call, although one county discussed the use of e-mails and their new RMS. Instead, the comparison counties focused more on monitoring radio traffic, phone calls, and open communication. Although ECSO credited the e-roll call in information sharing, their overall perception on this item was not different from the two comparison sites. In general, the counties felt comfortable knowing what was occurring in their area.

A slight difference, however, existed between the municipal departments. In both comparison cities, ¼ of the officers (2 officers within each department) did not think that they regularly knew what was occurring in other agencies. In City Two, many of the officers, including the Chief, provided qualifying support. However, in both treatment cities, the chiefs and all officers stated that they were familiar. Claxton officers were more likely to also use qualifying statement, similar to that of City Two. But a majority of officers in both treatment cities listed e-roll call as one of the reasons with why they were familiar with what was going on in other agencies along with the importance of informal conversations, listening to the radio, and having conversations with the investigator or crime analyst. Although too strong of a conclusion should not be drawn from a few officers in the comparison cities, it appears that officers in Claxton and Hagan were more familiar with what was occurring in other agencies and that their receiving of e-roll call could be considered one of the reasons for this difference.

Value of Information

Respondents were asked, "Do you believe you could do your job better if you had more information from your agency or others?" See Table 8 for results.

The ECSO Sheriff and all deputies responded that they believed that they could do a better job if they were provided additional information from either their agency or others. The overall theme was that more information was always better. The Sheriff commented that gathering information is at the heart of law enforcement.

The Claxton Chief and five of the six officers (83.3%) who answered this question all agreed that they could do a better job if they were provided more information from their agency or others. In the end, the rationale for their responses were similar to that of the ECSO deputies – more information is always better; you can never have enough. Their rationale for wanting additional information was not only about investigating and preventing crime, but rather the improvement to officer safety. Additional information was seen as being able to provide officers with the ability to make decisions that could save their lives in a split second. The one officer who disagreed did not necessarily have a problem with more information but rather thought his agency was doing a good job based on public satisfaction. All three Hagan law enforcement personnel agreed that they could do a better job if they had more information for three reasons: (1) more information is always better; (2) information is at the heart of law enforcement; and (3) improvements to directed patrol/observations.

County One

The Sheriff of County One felt confident that they already had enough information for their officers to perform their jobs. All six deputies, however, stated that they could use more

information. The two reasons were that more information is always better and to provide deputies with specific information to know what they should be looking for.

County Two

In County Two, two of the deputies stated that they did not need additional information; they had enough information to do their jobs. One deputy stated that he had enough information for what was going on in his county and that what occurs in other counties did not affect him unless it was something major. The other deputy believed that he received adequate information via radio or dispatch if something was going on. The Sheriff and the other five deputies (71.4%), however, stated that they could use more information. The Sheriff and deputies overall did not provide specific reasons why more information would be helpful other than that more information was always better and it helps you do your job more effectively and efficiently.

City One

In City One, the Chief and five officers (71%) thought that they could do a better job if they had more information from either their agency or others. The Chief thought that they communicated well with other agencies if there were serious issues, but that at this point there was no critical information from other agencies that they did not have. The two primary reasons for believing that their jobs could improve with more information were: (1) more information was always better; and (2) preventing officers from going into situations blind. Two officers, however, did not believe that additional information would be beneficial. One officer believed that he already knew everything that was going on. The other officer said that his job would stay about the same but couldn't elaborate on why it would not make a difference.

City Two

In City Two, all officers agreed that additional information from either their agency or others would help them do a better job. In addition to the common answer that more information was always better, a couple officers also discussed how additional information from other agencies would be beneficial on subjects who crossed county lines to commit offenses.

Comparison between Treatment Sites and Comparison Sites

A comparison between the treatment and comparison sites regarding this item does not find consistent substantive differences. In the treatment sites, all the police leaders as well as all deputies and officers of ECSO and Hagan PD stated that they could do their job better if they had more information from their agency or others; almost all Claxton PD officers agreed as well (one officer disagreed). With the comparison sites, all the deputies of County One and officers of City Two PD stated that they could use more information; 71.4 percent of both County Two and City One agreed (two individuals at each site disagreed).

The reason provided by any officer who disagreed that they could use more information was that they were already doing a good job with the information that they were being provided. They didn't see a need for more. Most officers and deputies who stated that they could use more information did not provide complex or specific answers on what they would do with it as well. The primary reason provided by all seven sites was that "more information is always better." The likelihood of hearing specifics on why more information would be beneficial was possibly more likely to come from the comparison sites than the treatment sites.

Helpfulness of ECSO OPS Intelligence Center

The respondents of the treatment sites were next asked whether they thought the information that they received from the ECSO Intelligence Operation Center was helpful and to provide suggestions for improvement (See Table 8).

The ECSO Sheriff and all eight deputies responded that they found the information provided by the Ops Center to be helpful. The primary reasons provided by the deputies were: (1) it allowed officers a defined reason for their patrol; (2) it was accurate; (3) it allowed them to know what occurred in the previous shift; and (4) it was perceived to have increased officer safety by providing information on dangerous individuals. In general, ECSO did not provide many comments on how to improve the system. The Sheriff commented that the improvement would not necessarily be technological, but rather receiving additional information from surrounding counties on crime types such as burglaries. Two comments from Evans County deputies on how to improve the system focused on continual training and officer input as well as getting the crime analyst out on the streets for a deeper understanding of the area.

All seven Claxton officers stated that the ECSO Ops Center information was helpful for reasons similar to the previous question – more information is always helpful. Officers commented on how it provided them information that would let them know what to watch out for when on patrol. They also commented that it provided information on specific crimes types (e.g., burglaries) or individuals who needed to be watched or possibly arrested. Although the officers all valued the extra information they received, they had suggestions for improvement that centered on: (1) the timing of the e-roll call: they would like it more routine and before or when their shifts were beginning rather than halfway through the shift; (2) fixing the computer or software problems that have prevented the sharing of crime data; and (3) more information

disseminated in the e-roll call. All three officers from the Hagan Police Department found the information being disseminated from the ECSO Ops Center to be helpful. The primary reason was that it kept them informed of events regardless of whether they were on- or off-duty or full or part-time.

In summary, the police leaders of both ECSO and the Hagan PD, along with all officers and deputies of all three agencies, found the information provided to them by the ECSO Ops Center to be helpful. In addition to the answer that more information is always better, officers and deputies discussed how the information led to improved directed patrol, informed them of what they should be looking for, that it was accurate, and kept them informed of what occurred during previous shifts in the area. Some helpful comments on improvements to the system included fixing the interoperability issue with the RMS, making the e-roll call more timely, and adding more specific information in the e-roll call as well.

Collaboration of Information with Other County Agencies

Respondents were asked to assess the collaborative effort of information sharing between their agency and other county agencies.[16] Specifically, they were asked whether they agreed (1 = strongly disagree to 5 = strongly agree) with, "I feel as if I have good collaboration of information with other agencies, such as probation and schools, in my county."[17]

[16] For the Evans County Sheriff's Office, the question was missed for one deputy. Another deputy misinterpreted the question as whether agencies from other counties share information with them. This response was discarded. Therefore, only six deputy responses were included in these analyses.

[17] In the May and October 2012 surveys, respondents were asked whether the information sharing had improved because of the information sharing systems implemented: "I feel as if I have better collaboration of information with other county agencies (i.e. DFACS, schools, etc.) due to the information-sharing system."

The ECSO Sheriff strongly agreed that they had good collaboration with other county agencies. He argued that because of the technology, their ILP, and having a crime analyst, the schools and probation and parole have been more involved. The school superintendent would call the crime analyst and ask for him to work with the sheriff to deal with whatever issue the superintendent had called about. It had also helped the probation and parole officers transition better into becoming part of the group. The deputies' overall score ($\bar{x}$ = 3.67) (1 strongly agree; 3 agree; 1 neutral; 1 disagree) was more similar to that of the October 2012 survey ($\bar{x}$ = 3.43) than the May 2012 surveys ($\bar{x}$ = 4.2). This indicates that an improvement in collaborative efforts with other agencies had not occurred between the Fall of 2012 and the Spring of 2014 and that at the time of the interviews ECSO deputies perceived they had similar collaboration of information with other agencies as the Claxton PD. Four of the six deputies agreed that information sharing was working between county agencies in general, particularly with probation. Some of this information sharing occurred during formal meetings, but some of the information sharing simply occurred through informal conversations.

The Claxton Chief and four of the six officers who were asked this question either agreed or strongly agreed that they had good collaboration of other information with other agencies, such as probation and schools, in their county. The Chief and a few officers stated that they had better collaboration with the schools than with probation. One officer said that he personally knew individuals in both the school and probation departments. The officer who responded neutral commented that the relationship was not one of a partnership or close working relationship but rather that they were contacted when those other agencies did not want responsibility for certain incidents anymore. One officer simply disagreed with everyone else

and said that there was not much interaction between the department and the schools and probation.

The Hagan Chief and both officers agreed that they had a good collaboration with other agencies in their county. The Chief explained that he met monthly with the ECSO investigator, the Claxton PD investigator, the ECSO crime analyst, and probation/parole at the ECSO Ops Center and went over things that were occurring in the county. This helped knowing regarding who to call and work with when a problem occurred.

County One

The County One Sheriff's Department overall saw their collaboration with other county agencies in not as strong as light as did Evans County (County One $\bar{x}$ = 2.83; ECSO $\bar{x}$ = 3.67). In County One, the Sheriff and his deputies perceived their collaboration with other county agencies, such as the schools and the probation, differently. The Sheriff strongly agreed that they had good collaboration: "We go visit the schools two or three times a week while schools are in, and we work closely with probation and the faculty at the schools." Three other deputies agreed with him to some extent but possibly not as strongly, focusing on their working and personal relationships leading to close communication. Half of the deputies either disagreed (n = 1) or strongly disagreed (n = 2) with this statement. The deputies who did not think their agency had strong collaborations with these other agencies were deputies who personally did not work with those agencies and possibly may not be familiar with the type of relationships that exist.

County Two

In County Two, they viewed their collaboration ($\bar{x}$ = 3.57) with other agencies to be stronger than that of County One ($\bar{x}$ = 2.83), but similar to that of ECSO ($\bar{x}$ = 3.67). The Sheriff strongly

agreed that they had good collaboration based on the fact that they all work together, but that it occurred mostly whenever it was necessary. Overall, the five deputies who strongly agreed (n = 2) or agreed (n = 3) with this statement echoed that of the Sheriff. However, two officers who either disagreed or strongly disagreed stated that they did not have those regular lines of communication and that they did not regularly meet with the school.

City One

The Chief and City One officers did not see their collaboration with other agencies, such as probation and schools, in their county as solid as that of the two treatment municipal sites (City One $\bar{x}$ = 2.86; Claxton $\bar{x}$ = 3.83; Hagan $\bar{x}$ = 4.33). In fact, only two officers agreed (1 SA, 1 A) that they had good collaboration. The Chief disagreed and the majority of the officers remained neutral (n = 2) or disagreed (D = 2; SD =1) with this comment. They thought that the schools rarely called them and that the schools tried to handle everything internally. In addition, they questioned the working relationship between the probation office and their department.

City Two

The City Two police department reported the lowest level of collaboration with other agencies, specifically probation and schools, in their county ($\bar{x}$ = 2.5) than any of the seven sites. In fact, the Chief and one officer strongly agreed, one officer remained neutral, but six officers disagreed. The Chief stated that they worked well with both the school system and the probation and parole departments. The officer who also agreed discussed that the mentoring program of both teachers and students at the schools has made changes in the community. The six officers who disagreed indicated a strong lack of partnership and communication between these various agencies.

Comparison between Treatment and Comparison Sites

Overall, the treatment sites reported higher levels of collaboration with other county agencies, particularly schools and probation, than did the comparison sites. ECSO reported similar scores to one county comparison site but higher than the other. Both Claxton and Hagan Police Departments reported higher levels of collaboration than both comparison municipal sites. One of the common themes among the sites is that good personal relationships between the personnel of law enforcement, probation, and schools improved collaboration. This is similar to their comments regarding how the personal relationships between officers and deputies of various law enforcement agencies was important in knowing what was occurring in other agencies. For several of the sites, most of their knowledge was based on these personal relationships or on specific cases worked together.

A key difference between the treatment and comparison sites was the responses from the treatment sites indicating how intelligence-led policing, technology, and the crime analyst improved these relationships by bringing more agencies to the table and formalizing relationships and meetings. In the treatment sites, there was a heavier focus on sitting down with these other agencies and having discussions on the problems that were occurring and what could be done about them. Even with the higher scores indicating more collaboration, officers and deputies in the treatment sites still expressed dissatisfaction for various reasons with their working relationship with other agencies. Finally, these meetings also appeared to indicate to the line officers and deputies that communication was occurring between agencies even if they were not privy to the information. In some of the sites, the officers and deputies responded that there was no communication with these other agencies, but in fact there was at higher administrative levels.

Impact of Components on Improving Communication

In order to better assess which specific intelligence components or technological improvements possibly led to improvements in communication within and among agencies, respondents of all three treatment agencies were asked to assess how effective each of the following components – e-roll call; the new RMS; the Information Depository (web-based intel system); patrol alerts; and open case alerts -- had been in improving communication on a five-point scale, with 1 being "low impact" and 5 being "high impact." (See Table 9). The findings indicate that several of the intelligence products were perceived by all three agencies as having an impact on improving communications.

E-roll call was seen as having a strong impact by all three agencies; however, the ECSO and the Hagan PD viewed it as having a larger impact. Both the ECSO Sheriff and Hagan PD chief rated the impact as a 5; the Claxton PD chief rated it as a 4. All deputies in the ECSO rated it as a 5 (n = 5) or a 4 (n = 2) except for one deputy who rated it as a 3. Two of the Hagan PD officers rated it as a 5 while the other rated is a 4. In the Claxton PD, their responses were more varied (3 5s, 1 4, 13, 2 2s). In addition, the ECSO rating increased from 4.14 in October 2012 to a 4.50 in Spring 2014. The Claxton PD increased as well from a 3 to a 3.71. Hagan stayed relatively the same.

The ratings for the new RMS are suspect considering that they were never properly installed and synced. Therefore, it never provided additional information from one agency to the next. ECSO which had already been using this RMS was supportive of it. The Sheriff provided a rating of 5 while the deputies' scores averaged a 4.13, an increase from 3.86 in October 2012. The Hagan PD score of a 3 only indicates the response of one deputy since the Chief did not respond since it was not up and running and the other deputy stated that he did not know what it

was. In Claxton, three officers did not respond. The Chief gave it a 3 while the other officers' scores averaged a 4.75.

The Information Depository was only known to that of the ECSO. The Sheriff provided a score of a 2 and stated that "People are not using it like they should." The deputies' scores averaged a 2.38, a significant decrease from 3.57 in October 2012. The Hagan Chief gave no response and both officers did not know what it was. In Claxton, the Chief and all officers except for two had no response.

Patrol and open case alerts were seen as having large impacts by all three agencies. The ECSO sheriff and Hagan Chief provided both alerts a score of 5. The Claxton PD chief stated that he was not aware of receiving any patrol or open case alerts. All officers and deputies gave these two alerts a score of 5 or a 4 except for one Claxton officer who rated the patrol alert as having an impact of 2 and thereby decreasing the overall score. The ratings of these two alerts by the ECSO and the Hagan PD stayed relatively stable between October 2012 and February 2014 (ECSO actually saw a slight increase) as they always saw the value in these intelligence products. More importantly, the scores for the Claxton PD increased significantly from 2.86 in October 2012 to the low and mid 4s in February 2014, indicating that they experienced improved communication as a result of these two products.

Table 9. Impact of Intelligence Products on Improving Communication

	April 2012	May 2012			October 2012			February 2014		
	ECSO	ECSO	Claxton	Hagan	ECSO	Claxton	Hagan	ECSO	Claxton	Hagan
E-roll call	4.83	4.17	3.57	5.00	4.14	3.00	5.00	4.50	3.71	4.67
RMS	4.00	4.00	3.14	Na	3.86	3.14	Na	4.13	4.75	3.00
Information Depository	3.40	3.50	3.14	5.00	3.57	3.86	5.00	2.38	4.50	N/A
Patrol Alerts	4.50	4.50	3.14	5.00	4.57	2.86	5.00	4.63	4.14	4.67
Open Case Alerts	4.50	4.50	3.00	5.00	4.43	2.86	5.00	4.75	4.57	4.67

Technological Capabilities

In order to better assess if the implementation of the smartphones improved the technological capabilities of the treatment sites, respondents were asked whether they perceived their technology to be adequate and their experiences with the implementation of the technology under this grant.

Technology Adequacy

Respondents in the sites were first asked, "Do you feel that the technology within your agency is adequate?" See Table 10.

For ECSO, the Sheriff and seven of the eight deputies (87.5%) believed that their technology was adequate. The Sheriff believed that the only issue had been with the servers at the different agencies not syncing up. Some of the reasons provided by the deputies on why they considered their technology to be adequate were: (1) their current technology is better than it had been in the past; (2) officers receiving information in a timely manner; (3) having a good crime analyst; (4) having more technology than other departments of similar size; and (5) the new RMS

being a great asset. The one deputy who expressed displeasure with the technology considered it outdated, particularly the radios.

The additional types of technology that they thought would be helpful for their job were: (1) placing computers in the patrol cars; (2) upgrading radio communications; and (3) replacing the smartphone with a more capable smartphone. The most commonly wanted technology by the deputies – mentioned by four of the eight deputies – was placing computers in the patrol cars. The primary reasons provided was to have Internet access and to be able to get e-mails via the computer rather than through the smartphone, look up information in GCIC, run tags, and complete reports while in the car rather than having to come back to the Sheriff's Department to do so. Two deputies felt that this would help to not have to rely on other agencies to do their job since they now currently have to call Claxton since they are the ones who house the GCIC computer, not the intelligence operations center in Evans County.

When asked whether they felt that technology was adequate within their department, five of the seven Claxton officers – 71.4 percent - thought it was adequate. This is a lower percentage than that of ECSO deputies even though Claxton PD officers have the same poor radios, have smartphones from the grants, and had also installed computers in their cars near the end of the grant. Among the officers who approved the adequacy of technology in their department, they commented that having computers in squad cars allowed them to be more self-sufficient, such as running licenses and writing tickets. In addition, technology, including e-roll call, had improved communication within their department and kept them informed of events within their jurisdiction. The Chief and two of the officers, however, thought their technology was inadequate, referring back to radios again but also the issue of funding.

Within the Hagan Police Department, the chief and one of the deputies commented that the technology was adequate. They both commented on the positive benefits of receiving information via different communication technologies. The deputy who did not respond affirmatively said, "occasionally" and thought the computers in the patrol cars were slow.

Table 10. Technology Adequacy (%)

	Treatment Sites			**Comparison Sites**			
	Evans (n = 8)	**Claxton** (n = 7)	**Hagan** (n = 3)	**Co. 1** (n = 6)	**City 1** (n = 7)	**Co. 2** (n = 7)	**City 2** (n = 9)
Technology adequacy	87.5	71.4	66.7	83.3	71.4	100.0	100.0

County One

In review, County One was the comparison site that was less technologically advanced than the other two counties. Their basic technology consisted of their radios, Southern Links, computers in the office but not in the patrol cars, LiveScan fingerprint scanner, and GCIC on the computers. In some ways, they were similar to that of ECSO except that ECSO deputies used agency provided cell phones rather than personal cell phones, ECSO had a crime analyst, used an analytical RMS, and sent e-roll call to its deputies, but similar in their lack of laptops in their squad cars.

When asked whether this technology was adequate, the Sheriff and five of the six deputies (83.3%) agreed that it was, comparable to ECSO (87.5%). The Sheriff and the deputies' rationales focused mostly that they were doing well with what they have, considering the size of their community, and that they had not run into any problems. The Sheriff and three of the deputies, however, stated in their responses that they could use more technology. In general, they believed that improved technology could always be helpful. Unlike Evans County deputies

who focused primarily on improving the radio system and adding laptops to patrol cars, the responses for County One deputies were much more varied. The items that County One were interested in were items that Evans County did not have either. They discussed interest in video cameras, closed circuit tv monitoring, laptop computers in their cars in order to receive more timely intelligence and running license plate numbers and identifications, smartphone apps specific for their agency to help with reports, drug testing equipment, and a better 911 system.

County Two

County Two had an analytical RMS with which it shared with City Two, including their data on calls for service. Their computer software program allowed officers to easily access data from computer terminals located inside patrol cars of both the Sheriff's office and the PD. Their system acted much in the same way as the treatment site's Intelligence Operation Center with the added benefit of not having to rely on a crime analyst to process data and deliver it to the officers. Another significant difference between the treatment site and this comparison site is that the data were readily available for access by any officer as soon as it was put into the system. They had only just switched to this system within the previous month before we conducted the interviews. They had been using the same RMS as Claxton and Hagan.

In addition, County Two also had other various technologies such as Motorola radios, laptop computers in four of the police vehicles, radar, portable breathalyzer tests, personal portable cell phones, and Tasers. Although the agency had just started moving into this more technologically advanced direction, the Sheriff actually did not like having the computers in the car because of safety concerns. Not all the squad cars had computers in them, but this seemed to not be a problem depending on the deputy, since at least a couple of deputies were not interested in them.

In County Two, only the Sheriff believed that the technology was inadequate. His reasoning was based on the changes that had been made to the bandwidth of the radios which increased the need for using a phone in certain places. All the deputies, however, believed that their technology was adequate. A couple of deputies, however, were concerned with their department having too much technology and being too technology-reliant. Their concerns were specifically tied to their recent implementation of their RMS. The other deputies expressed more acceptance with the new wave of technology being implemented. When asked what type of technology they would find helpful, one deputy wanted direct access to GCIC (which they were getting shortly) and three deputies and the Sheriff wanted the radio system to be improved. They did not list a long range of technological gadgets, just improvement to the radio system. Therefore, this makes them similar to other sites, including Evans. However, County Two had computers in the squad cars, an item that Evans deputies wanted.

City One

City One had basic technology capabilities that included portable handheld radios, Live Scan, personal cell phones, GCIC, NCIC, and radar. They did not have computers in the cars or department issued smartphones. In City One, five of the seven officers (71.4%) felt that their technology was adequate. The Chief and two officers thought it was inadequate. The primary reasons provided by the officers who viewed their technology as adequate centered on the conclusion that there was not any current problems with the technology, it was good relative to the size of the department, and that it was currently the best that it had been.

The reasons provided by the Chief and the two officers on why the technology was inadequate focused on what they did not have, such as computers in the cars, department provided cell phones, etc. The Chief stated that having laptops in the cars would allow officers

to be more independent in running their own information rather than having to rely on dispatch. He went on to explain that they also did not have the appropriate equipment to download information from cell phones so they have to take that material to larger agencies for help. When asked what type of technology they could use to help with their job, they provided a solid list of possibilities although the majority had stated that their technology was adequate. Their list included: improvements to the radios; adding computer terminals in patrol cars; having an intelligence-led system similar to that of Evans County; having emergency notification software; and adding patrol cameras.

City Two

In City Two, the police department shared the inter-agency RMS with County Two. In addition, they had laptops in the squad cars, radios, a tag reader, body cameras, car cameras, digital cameras, and Tasers. They were also field testing new body cameras in order to improve upon the ones they already had. They had a new camera in their new squad car and hoped to switch the other cameras over in the near future. With their personal cell phones, the officers took a lot of pictures. Thus, they appeared to be more technologically advanced than the treatment sites. Much of this improvement occurred over the previous two and a half years. Previously, all they had were four computers. The new software system was purchased in a joint venture with the Sheriff's office, their data were combined, and they all had access to it. Each officer had access to these data, including history relevant to addresses and arrest records. The Chief explained how their investigator was able to handle the system and kept it improving. This appears important in their success.

- "We are very fortunate to have the investigator you spoke to with technology. He's a very good source for taking care of that and is highly motivated to keep our technology

> climbing, so he is running the servers. He's helped to put together this whole system. The records management software that we're using now is a nationally known, reputable company, and we're happy with that. The servers, just housing them here, just makes it easier, because he's doing most of the work on them, but we have that trust with the Sheriff's Office and the county to be able to do that and pool our resources so that they help pay for the equipment."

The Chief and all officers stated that their technology was adequate. This was more in line with that of the county agency than the other sites. The chief said that it was adequate and that he planned to stay on top of technology changes as much as possible. Some of the specific reasons why they believed it was adequate were that: (1) it's an improvement over what they had; (2) improved access to more intel; and (3) that the laptops in the squad cars allowed them to run necessary information on the side of the road. When asked what else they would like, most of them thought that their levels of technology was adequate and they were sure that they would continue to stay on top of technological changes. Some specific comments, however, were having more tag readers, fingerprint readers, having computer-aided dispatch rather than radio dispatch, and city-wide surveillance cameras.

Comparison between Treatment and Comparison Sites

The primary differences between the treatment sites and that of the lower technologically advanced agencies were that ECSO had the crime analyst, agency provided cell phones, E-roll call, and an analytical RMS, although the interoperability issues severely limited its utility. The primary difference between the treatment sites and the more technologically advanced comparison area was that the comparison area had a fully operational RMS that synced the municipal and county agencies and in which officers and deputies could pull up information immediately themselves on their laptops in their squad cars. They did not have a distinct crime

analyst position, although one of the investigators spent a substantial amount of time setting the system up and running reports.

Congruent with this comparison, the treatment sites' perceptions of their technology adequacy was more similar to that of the less technologically advanced comparison sites than the more advanced sites. Specifically, ECSO deputies perceived their technology to be adequate (87.5%), but this was comparable to that of County One (83.3%) and lower than that of County Two (100%). Similarly, the perceived adequacy of technology in Claxton (71.4%) and Hagan (66.7%) were more similar to that of City 1 (71.4%) than City Two (100.0%).

In general, agencies with less technology seemed fine with what they had because they were smaller agencies and no routine problems arose due to their limited technology. Some of the dissatisfaction with the technology at the treatment sites was focused more on the implementation problems that they experienced. In general, the only types of additional technologies that ECSO deputies discussed were improved radio systems and laptops in squad cars. County One, which had comparable or lower technology to that of ECSO, did not report how current technology was leading to any problems. They thought that more technology could always be helpful and provided a longer list of items that they wanted; all of these items, however, were items that ECSO did not have either. County Two, which was more technologically advanced, generally wanted the issues with the radio bandwidth addressed.

The technological needs and wants in the municipalities seemed to vary from officer to officer more than from department to department in many cases. In City One, which was less technologically advanced, they too had a long list of equipment they were interested in, including improved radios, computer terminals in the patrol cars, and cameras. City One viewed their technology adequacy similar to that of Claxton although Claxton had better technology. This

could be due to the technological problems associated with the implementation of the RMS and officer dissatisfaction with the timing of e-roll call. Finally, in City Two, which had the operable RMS and a trained investigator who handled the system, officers had access to timely intel from both the city and county within their squad cars. Some officers still suggested improvements such as Livescan fingerprint readers and more tag readers.

Implementing Technology

Respondents in the treatment sites were asked three questions regarding technological implementation issues that they viewed as concerning: (1) biggest obstacles in implementing new technology (such as smartphones, computers, new data system, etc.) in their agencies; (2) concerns that they personally had with using new technology (e.g., cell phones, computers, new data base systems); and (3) the factors that were important to them when implementing new technology.

Obstacles in Implementing Technology

When it came to obstacles in implementing technology in the ECSO, the Sheriff and deputies saw two related issues – officer resistance and familiarity/comfort with technology. Four deputies directly expressed concern with officer buy-in, particularly the older more seasoned officers "to understand that technology can play a vital role and make the job easier." Another deputy stated that older officers "are set in their ways" and "are not familiar with laptops and things of that nature enough to really understand it or try to understand it, so instead of wanting to learn, they typically turn to being negative towards it." Another commented that "some people don't like change. That's the only thing stopping it really."

The second obstacle, commented on by the Sherriff and five deputies, was the level of comfort that some officers have with different technologies. They may even be considered "computer illiterate." The Sheriff stated that there were several deputies who did not have a strong grasp on technology. Several commented on how "learning how it works and operates" would be an obstacle and therefore it was important to make "sure that everybody's familiar with how to use it." This could be accomplished by informally asking for help from those within the department who have better understandings of the specific technological device (such as the Crime Analyst) or more formal training that would not only help familiarize them with the technology but "give them a sense of ownership."

In Claxton, the two biggest perceived obstacles in implementing new technology was funding (mentioned by the Chief and three officers) and officer resistance (n = 3). Funding issues may lead to issues with keeping technology maintained and updated when purchased. Three officers also provided responses stating that there will be officer resistance and a period of time in which officers must become accustomed to new technology. Within the Hagan Police Department, they viewed the biggest obstacles as funding (discussed by the Chief and one officer) and officers getting training or becoming acclimated to the new technology (discussed by both officers).

County One

When asked about the biggest obstacles in implementing new technology in their agency, the County One Sheriff and the deputies' responses could be categorized into two groups – funding and training. These responses were quite similar to that of Evans County, Claxton, and Hagan, although Evans County did not address funding. In County One, four of the deputies, but

not the Sheriff, said the biggest obstacle was funding. The Sheriff focused on getting everyone trained, while one deputy focused on specific individuals who needed help with technology.

County Two

In County Two, when asked of the biggest obstacles, the Sheriff and the deputies did not discuss funding, in contrast to County One, but rather training. Four deputies discussed the importance of "training," "learning the system and different procedures," or "making sure that they're comfortable with the technology that's being put in place and that they can use it adequately." This was partially seen as being the result of the newer more complex system that was just recently installed. Although some could argue that training takes funding, these deputies were referring more to the time and energy to learn how to use new systems than additional funding.

City One

In City One, the same two categories were their main concerns regarding the obstacles of implementing technology: money and officer training. Only the Chief and one officer, however, discussed lack of money as the biggest obstacle in their agency implementing technology. The Chief discussed the costs of improving the short wave radio system to cover more ground and how that was expensive but more affordable than going with the 800 megahertz radio system. The officer who also responded with money stated that if they had it, the Chief would make sure they had more of what they needed. The other six officers stated that the biggest obstacle was training or getting used to the new technology. Of these six officers, five specifically expressed concerns about older officers who had been in the department for a long time who were not tech-

savvy and in fact did not use a computer at all. Clearly, these officers had doubts that certain officers would be able to utilize newer technology effectively or efficiently.

City Two

In City Two, the Chief and officers provided several major concerns about implementing technology in their department. Only the chief, however, directly discussed the costs of the technology. Another officer realized that an issue was not necessarily the cost itself, but getting individuals in charge of budgets to understand the importance of the technological improvements. The chief had commented that he had a supportive mayor, city council, and city manager who were willing to fund changes. One officer questioned the reliability of technology and was concerned what would happen if and when computers crashed and data were lost. At least three officers discussed the challenges of getting officers, particularly older officers, "on board" to understand the importance of the change, leading them to identify training as essential.

Comparison between Treatment and Comparison Sites

In summary, most agencies will be required to overcome at least two major obstacles: (1) funding to obtain the new technologies; and (2) getting the officers and deputies receptive of the technological changes and training them on how to use it. Funding, however, was mostly an issue discussed by police administrators rather than line officers (funding was not discussed by the sheriffs of either ECSO or County Two). The more common obstacle identified by all agencies, particularly by officers and deputies, was initial and possibly long-term officer resistance to technological changes. Officers and deputies were concerned that older officers who may be both resistant to change and possess lower technological skills may not see the importance of the technology and would possibly have difficulties using the technology

effectively and efficiently. Thus, the importance of training was emphasized throughout all agencies.

Personal Concerns in Implementing Technology

When it came to personal concerns with technology, the ECSO Sheriff and five of the eight deputies responded that they did not have any concerns. The Sheriff for example stated that he had no concerns and was happy that they moved from a RMS that was non-searchable to one that was. Although two deputies simply stated that they had no concerns, other deputies elaborated on why they did not have concerns and in fact why technological change was positive for law enforcement.

- "I don't see any problem with it. I think it's great. Anything that can help us…. Technology's great."
- "Very open to the idea. The world of law enforcement is a growing body. The only thing it's missing is being about to breathe. It grows and changes every day, so we have to be able to grow and change with it. In a world of technology, we must be able to take that technology and use it to the best of our advantage."
- "I don't have any concerns about it now. If it's a good thing, pro-law enforcement, I'm up for anything."

A few deputies, however, had concerns. Two of them commented on becoming familiar with the technology. As one deputy said, "New technology's good. It's just being able to learn what's going on with it." The other expressed a concern of too much reliance on technology: "You can't depend on the computer to get you through. You got to use smart sense, and I'm just afraid if you get too dependent on that information you're getting, and if something happens…..".

The Claxton Chief and all seven officers stated that they had no concerns personally with using new technology. In addition, no concerns were strongly expressed in the Hagan Police

Department. The Chief said that there were none, one officer referred to himself as a "gadget freak," and the other officer said, "Nothing really. As long as somebody can show us how to use it or we have some type of instruction on it, we're good to go."

County One

Similar to the few concerns expressed by the officers and deputies of Evans County, Claxton, and Hagan, the Sheriff and deputies of County One generally did not have any personal concerns about implementing technology. The Sheriff and four deputies had no reservations and eagerly invited it. The only concerns expressed from County One deputies were ensuring that deputies were shown how to use the new technology, that it was right for the agency, and whether it would end up being a distraction.

County Two

When asked about personal concerns in County Two, the Sheriff and three deputies expressed concerns about technology (50% of deputies; one deputy was not asked). The Sheriff expressed concerns about law enforcement becoming too dependent on technology, such as officers using laptops in the patrol cars. Officers wanted to make sure that they were trained, that the technology was easy to use and useful, and that possible security threats associated with storing data in computers were addressed (e.g., hackers).

City One

In City One Police Department, six of the seven officers (85.7%) had no personal concerns about using new technology. Some officers were quite supportive of technology as it was viewed as making the job easier and protecting the officer. Officers also commented about

whether officers would be able to learn how to use the new technology in a timely manner, but this concern was mostly reserved for other officers, not themselves.

City Two

Finally, in City Two Police Department, the Chief and three of the officers (33.3%) expressed some personal concerns with the implementation of technology in their agency. The concerns expressed by the respondents differed by whether it came from the Chief or the officers. The Chief was not concerned about the technology itself, but was concerned in ensuring that appropriate rules and policies were created, implemented, and followed. One officer was concerned that additional technology, such as writing e-tickets, was more of a distraction than completing a citation with pen and paper and therefore was a safety concern. The concern expressed by the other two officers was having enough training time to learn how to use it appropriately.

Comparison between Treatment and Comparison Sites

Overall, police administrators, officers, and deputies expressed few personal concerns. Most stated that they had none. The only consistent comment made throughout several of the agencies was their concern that there would not be sufficient training to either show themselves or the officers with less computer skill in the agency how to use the technology. A few deputies and officers also expressed concerns that technology was a distraction in that it took officers' attention away from the environment and that law enforcement may be becoming too reliant on technology, making it a safety issue.

Factors in Implementing Technology

Finally, the respondents of the sites were asked about the factors that were the most important to them when implementing new technology. Specifically, they were provided four factors -- ease of use, usefulness, information quality, and timeliness[18] – and were asked to identify the two most important factors and explain why. Several deputies pointed out that they were all important, but they were pressed to choose the top two, although some struggled with this still because of their views that they were all important and that some went hand-in-hand. See Table 11 for results.

Table 11. Factors in Implementing Technology (%)

	Info quality	Ease of Use	Timeliness	Usefulness
ECSO	75.0 (6/8)	62.5 (5/8)	37.5 (3/8)	12.5 (1/8)
Claxton PD	14.3 (1/7)	57.1 (4/7)	28.6 (2/7)	85.7 (6/7)
Hagan PD	66.7 (2/3)	66.7 (2/3)	33.3 (1/3)	33.3 (1/3)

ECSO

The most important factor for the ECSO in implementing new technology into their agency was the *quality of the information* that the new technology would offer. The Sheriff and six of the eight deputies (75.0%) included this factor as one of their top two factors (four deputies considered it their most important factor; two deputies and the Sheriff considered it their second most important factor). The Sheriff stated that sending bad information out to other agencies reflected poorly on the department. Therefore, they needed to be confident in the information that was being sent out and the procedures in place to ensure that it was accurate, including him reviewing the information. The deputies also commented that quality information helped

[18] Colvin and Goh (2005).

improve officer effectiveness by providing correct offender records and that it was important for them to know whether it was reliable or not.

Ease of use was considered the second most important factor as identified by five deputies (62.5%) in their top two factors (two for most important factor and three as second most important). Similar to personal concerns expressed with the implementation of technology, some deputies chose ease of use as a factor due to reluctant deputies being more willing to accept newer technology if it was easier to use. Additionally, officers may potentially overlook needed information if it was not easily accessible.

The third most important factor was *timeliness* (1 deputy reported this as top factor and two as second most important factor). Officers chose timeliness for two reasons: (1) o*fficer effectiveness*: "If you get it in a timely manner, and the person on the other end knows how to operate it just right, you're going to be ahead of the game."; and (2) o*fficers overlooking delayed information*: "The drawback is information is all well and good, but if the information is needed early and it's not there, people are going to overlook that information when it finally does come in."

Finally, *usefulness* was ranked fourth out of this group (1 deputy and the Sheriff as top factor and none as second most important factor). No deputy provided a specific reason why usefulness was important; rather their answers focused on the other factors.

Claxton PD

Within the Claxton Police Department, the two most important factors in implementing technology was the usefulness of the data and the ease of use. Overall, Claxton officers did not provide detailed responses to support their choices. Six of the seven officers, or 85.7 percent (3

most important and 3 second most important), considered the usefulness of the data as being an important factor. Only one of the six officers provided a rationale for why usefulness was important, but in the end, it appears to get right to the heart of the matter: "You're not going to want something that you're not going to be able to use." In addition, over half of the officers (57.1%; 2 most important and 2 second most important) considered ease of use in their top two factors. For ease of use, the rationale was that officers were not going to spend time working with technology that was not relatively intuitive to learn.

Timeliness and information quality were only included by a few officers. For one of the officers who chose timeliness, the priority was how quick the information could get from the dispatcher to the officer. The other officer stated that timely information was everything in law enforcement. For the one officer who chose information quality, he provided officer safety concerns: "Sometimes you get hurt because of something you didn't know."

Hagan PD

Within the Hagan Police Department, both *ease of use* and *quality of information* made the top two for two of the officers while only one individual included *usefulness* and *timeliness.* However, it should be noted that none of the three considered *ease of use* as their top factor. In fact, each of them chose a different factor for their top factor. Even though usefulness and timeliness was only mentioned by one individual, it was their top factor. The Chief commented that information quality was important because of "the sensitivity of the job" and that "you need to know exactly what's going on." Ease of use was important as well because officers had so much going on in both their minds and within their patrol cars. The deputy who chose usefulness as his top factor said that he only had time for information and items that were useful

to help him perform his job. The other deputy chose timeliness "because when you're out there, you're dealing with split second kind of things on occasion, and you need results back quickly."

County One

When asked which of the factors was most important in implementing technology, three of the respondents in County 1, including the Sheriff, were not asked what their second most important factor was or they did not respond. The most important factor according to the Sheriff and two of the deputies was information quality. Information quality was essential in knowing who the officer was dealing with, especially in possible life and death situations. One officer commented that information quality was also important to help detail incidents in reports. Two deputies chose timeliness and one deputy each chose ease of use and usefulness. Timeliness was discussed as being important in both instances referring to traffic stops. They stated that timeliness was important in knowing who they were dealing with before they approached the vehicle and also in order to not release a wanted individual. The officer who discussed ease of use talked about the importance of officers needing to be trained on this equipment. In order for the equipment to be effective, an officer will need to remember how to use the technology, especially if it is something rarely used, and use it in an expedition way. Finally, officers commented that the equipment or information would have to be useful for them to continue wanting to use it.

County Two

In County Two, when asked which factors were the most important in implementing technology, two of the deputies stated that all four were equally as important, went hand in hand, and could not rank them. In addition, one individual was not asked the question and two

individuals did not provide the second response. The other categories were relatively split amongst the other categories. Officers who discussed ease of use were concerned about time and whether it allowed them to complete something and move onto another task. They showed trepidation about recently upgraded technology that they felt was not easy to use. Information quality was considered important because of safety. Quality information lets officers know what they were dealing with in a situation as well as let dispatchers and other officers know what was going on and where they were at. Timeliness was important in that it saved officers time, which allowed them to get back on the road quicker and possibly got hem out of certain situations faster as well.

City One

In City One, the Chief and all seven officers provided the factors that were the most important to them when implementing new technology. The Chief stated that his primary factor was ease of use because he had to take into consideration "everybody's level of computer knowledge is different and you have to consider all of your employees." He went on to state that it is even more important than information quality because "if it's so difficult to use, what difference does it make what kind of information it is." He chose information quality as the second most important because "you want what you're getting out of it to be useful and of the highest quality available."

The seven officers' responses indicated that three of the four factors were seen as relatively similar in importance while one was considered lower. Ease of use (1 1st choice; 3 2nd choice), usefulness (2 1st choice, 2 2nd choice), and timeliness (2 1st choice; 2 2nd choice) were each chosen by four officers (57.1%) as being their top 2 factors in implementing technology. Information quality was only chosen by two officers (both as their primary factor however), or

28.6 percent, as being a top 2 factor in implementing technology. Reasons officers chose *ease of use* was because they wanted to help officers who weren't computer savvy and to save time. *Usefulness* was chosen because they were interested in technology that was going to be directly beneficial to helping their job duties. Officers chose *information quality* because they were interested in accurate and dependable information. Finally, *timeliness* was considered important for several reasons, including protecting officer safety, using officer time more effectively, and helping with investigations because of preserving evidence.

City Two

In City Two, the Chief and all nine officers were rather unanimous on what factors they considered the most important. (One officer did not provide their second most important factor). The Chief provided quality of information as his number one factor and the ease of use as his second. All nine officers included information quality as either their first or second choice, indicating how strongly they consider this factor (5 1st choice; 4 second choice). Following the chief, four officers also included the technology's ease of use as their primary choice. Finally, three officers also chose the usefulness of the information as their second most important factor. One officer considered timeliness in their top two.

Officers chose information quality because of the accuracy and integrity of information presented at trial, as well as that accurate information fosters safety, professionalism, and better information for officer use. Officers chose "ease of use" due to making officers feeling comfortable using the technology, making officer use of time more effective, and more likely to add information to the reports. Officers chose usefulness because they wanted the information to have a purpose. Timeliness was relevant because officers needed to make split-second decisions.

Comparison between Treatment and Comparison Sites

When respondents were asked about the importance of factors in implementing technology, it was not uncommon for officers and deputies to state that all four factors were important and that they were interdependent – one did not necessarily matter if the other factors did not exist. However, when pressed, most officers and deputies ranked order what they considered to be most significant. In the treatment area, all three agencies had chosen the ease of use of the technology in their top two factors. In the comparison areas, both Sheriff departments primarily considered all four factors relatively equal, making it difficult to prioritize the importance of certain factors. However, both municipal departments had ease of use in their top 2. Thus, in all agencies, they perceived officer resistance as a large obstacle to overcome in implementing technology. Thus, new technology, regardless of its effectiveness, needed to be easy to use for officers and deputies for successful implementation.

In the treatment areas, ECSO and Hagan PD had chosen the quality of information as the other important factor while Claxton PD focused more on the usefulness of the information. As stated, both comparison Sheriff departments generally considered all factors to be roughly equal. However, in County 1, the Sheriff and two deputies considered information quality to be in their top 2, congruent with that of ECSO and Hagan. The two comparison municipal departments differed from each other. The Chief and officers of City Two unanimously agreed that quality of information was the most important and considered usefulness as their third most important. In City One, they had considered ease of use, usefulness, and timeliness all about equal but had considered information quality less important.

Overall, the responses for why these four factors were important to law enforcement were generally similar among the sites. Ease of use was important to help officers who were not

computer savvy and in order to help officers use their time more efficiently. In addition, officers wanted accurate and dependable information. At the same time, they wanted the information they received to not only be accurate, but directly relevant to their jobs and to have a purpose. Finally, timeliness was important for various reasons, including increasing officer safety by getting them the information faster and using officer time more effectively.

Experiences with Phones

In order to better understand the experiences that the police leaders and officers and deputies had with the smartphones, they were asked questions that focused on the different features, possible beneficial applications, whether they felt they received enough training on how to use the phones, and finally how easy was it for them overall to use the smartphone for their job-related duties.

Different Functions Utilized

We asked respondents whether they used their phone for the following functions: (1) to check e-roll call; (2) to read other intelligence products; (3) to access the Internet and for other job-related duties; and (4) other. See Table 12 for results.

The ECSO Sheriff and all eight deputies used the smartphones for its specific intended purpose – to be able to receive and read e-roll calls and other intelligence products that were sent to them from the Intelligence Operations Center. They did not generally, however, use the smartphones for any other purposes (other than making phone calls) than these two basic functions. The Sheriff and two of the deputies (25.0%) accessed the Internet to help them with other job duties. The officers were not specifically trained on how to use the Internet for

different purposes to improve their job effectiveness. Therefore, deputies who were more tech-savvy appeared to already know how it may be useful while those who did not were never trained. One deputy, however, stated that bad Internet connection in the area disallowed for effectively using this feature. Finally, the Sheriff and only three of the deputies (37.5%) used it for other purposes. The Sheriff and two deputies responded that they used it to take pictures at crime scenes. Another deputy said that he used it for "facebook data mining."

In Claxton, the Chief and six of the seven officers used their smartphones to check e-roll call. The Chief and five officers used it to read other intelligence products. Only three of the officers used it to access the Internet for other job-related duties. Besides for making calls, only two of the officers used it for other purposes: (1) using the camera function when working accidents or responding to burglaries; and (2) checking weather alerts.

The Chief of Hagan used his smartphone to check e-roll call but did not use it for any of the other purposes. One of the deputies responded that they did not use their phone to check e-roll call (because he said he always has hid Link with him) or intelligence products (he read them on the computer). He used the Internet on the phone, however, to access an app which has all the offenses, including traffic, for the state of Georgia. The other deputy used his grant provided smartphone to check e-roll call and other intelligence products, but did not use it for other purposes. He used his personal cell phone, not the grant phone, to look for street addresses.

Table 12. Utilized Functions of the Smartphone

	ECSO (%)	Claxton PD (%)	Hagan PD (%)
E-roll call	100.0 (8/8)	85.7 (6/7)	66.7 (2/3)
Intelligence products	100.0 (8/8)	71.4 (5/7)	66.7 (2/3)
Access Internet	25.0 (2/8)	42.9 (3/7)	33.3 (1/3)
Other	37.5 (3/8)	28.6 (2/7)	0.0 (0/3)

Phone Feature Requests

Respondents were also asked whether there were other applications or features that they wished the phone had. The ECSO Sheriff and four of the eight deputies provided suggestions. This included having better cameras, the ability to run tags, having GPS maps, having faster Internet connection in order to better open larger attachments, and a crime map service so deputies could open up crime maps in real time. The Claxton officers could not think of any features that they wished the phone had. Since the Chief went to his personal cell, he wished that his personal cell had push-to-talk like the grant phone. The Hagan Chief commented that a bigger screen would be more beneficial while the deputy wanted an app that was available on the I-phone which provided a quick reference to Georgia law.

Spanish Translation Function

The respondents were specifically asked whether they would use a Spanish translation function if their phone had it. The ECSO Sheriff and six of the deputies responded that they would, might, or possibly would. Based on the interviews, it appeared that the Sheriff and none of the deputies could speak fluent or rough "functional" Spanish. Instead, they provided different ways that they dealt with non-English speaking Hispanics in their area. The Sheriff said that there were two people who they could call for translation help. He stated that a

translation app could be helpful in certain instances. Another deputy said that he would use the function in "certain cases at certain times," but only if it was something that he needed to know right then and there. Another deputy called a Hispanic friend on the phone who translated for him. Only two deputies said that they would not use it.

The Claxton Chief and all seven officers stated that a Spanish app on their phone would be beneficial because of the larger Hispanic population outside the city limits of Claxton. Similar to what Evans County deputies stated, Claxton officers provided alternative means that they used to help with translations other than having a Spanish app, such as calling for an interpreter, using the computers in the squad car, or talking with younger bilingual Hispanics. The Hagan Chief stated that he would use the app while the two officers differed to some extent. One officer said that he would since he has already used one – Google Translate – on his I-phone. The other officer at first stated that he has not had the need to have one yet because there were several translators that were pretty easy to locate, but went onto to state that he might use it during a traffic stop if the app were user friendly.

In summary, the ECSO Sheriff and all his deputies used the smartphones for their primary purposes, namely to receive and read e-roll call and other intelligence products. The Chiefs and most officers in the other two agencies did as well. Using the phones to access the Internet occurred less frequently with only a quarter of ECSO deputies, 40 percent of Claxton PD officers, and 1/3 of Hagan PD officers doing so. In general, they were not being used for other purposes (37.5% ECSO deputies, 28.6% Claxton PD, 0% Hagan PD). A couple of the other functions the phones were used for included taking pictures of crime scene or traffic accidents, "facebook" data mining, and checking weather alerts. The ECSO Sheriff and half of the deputies provided suggestions on how the cell phones could be better, including a better camera, faster

Internet, GPS maps, and being able to run tags with them. Besides for a larger screen, the other two treatment sites did not provide further suggestions. In addition, when asked, the police leaders and most if not all officers and deputies of the three agencies saw the need for a Spanish translation function and stated that they would use it, at least in certain cases, even though they have developed several methods of being able to converse with individuals who cannot speak English.

Training on the Phone

Respondents were asked whether they felt that they had received enough training on how to use the phone and its different functions. The ECSO Sheriff and seven of the eight deputies believed that they had received enough training on how to use the smartphone. The deputy who disagreed believed that they did not receive enough at first. This led him wanting additional, more formal, training on how to use some of the functions of the phone. Another deputy believed that they received enough training on at least the stuff that he needed to know, but he was unsure how to use some of the other capabilities. When asked whether he would use those extra capabilities if he received training on them, he said that he would not. In general, deputies responded that they "played" with their phones, went to the informal trainings with the crime analyst, and asked him if they had any questions or simply figured it out.

In Claxton, five of the six officers who answered this question stated that they had received enough training. The Chief stated that he did not receive any training. The officer who said that he did not receive adequate training was still unsure how to use basic functions of the phone at the end of the grant. The other officers, however, all felt comfortable with the phone either because they were familiar with smartphones already, the training they received from the crime analyst, or help from someone within their department. In the Hagan police department, the

Chief responded that he received enough training on the smartphone. Neither of the Hagan officers who were employed at the end of the grant had received training, but neither experienced difficulties with using it.

In summary, the majority of police leaders and officers and deputies at the three sites felt they received enough training. A part of this reason was that many of them were familiar with the basic functions of a smartphone already. For others who needed more help, they thought the initial training sessions, talking with the crime analyst, asking someone else, or playing around with it was sufficient.

Overall Easiness of Smartphones

Next, respondents were asked overall how easy was it for them to use their smartphone for their job-related duties (on a scale of 1 to 5 with 1 being extremely difficult and 5 being very easy) considering that use of ease had been demonstrated as being an important factor in technology implementation. Within Evans County, the Sheriff (score of 4) and deputies ($\overline{x}$ = 4.13; 5 = 4; 4 = 2; 3 = 1; 2 = 1; 1 = 0) considered the smartphone to be easy to use. The easiness to adapt to the technology varied, however, even for those who provided higher scores. Some of the younger deputies stated that they were more familiar with technology in general, grew up playing video games and messing with computers and that it had become second nature, had already owned a smartphone previously, and that they felt that they adapted easier to technology than others. Other deputies had issues at first because it was possibly their first smartphone. Some of these deputies therefore provided scores indicating that overall the process was easy, but that they had concerns at first.

The Claxton Chief and the officers ($\bar{x}$ = 4.0) viewed using the smartphone easy for their job-related duties (5 = 2; 4 = 3; 3 = 2; 2= 0; 1 = 0). It should be noted, however, that the Chief stated that he did not use the grant-funded phone but instead used his personal cell because of different functions and felt it simply worked better. Deputies who used the grant funded smart phone and expanded on their responses commented that it was easy to learn how to use, but they had issues with the small buttons. Within Hagan, the Chief gave it a score of 3 with both officers giving a score of 5. The Chief, similar to that of the Sheriff, indicated that for some it will take a little to get used to. The officers had an easy time with it because of both the limited functions they used it for and because of professional experience with smartphones.

Difficulties with Specific Functions of the Phone

Finally, considering the importance of some of the features in the decision-making process of choosing the specific smartphone, such as the push-to-talk function, the respondents were asked whether they had any difficulties with it. The sheriff, both chiefs, and all eight deputies in Evans County as well as the officers in Claxton and Hagan Police Departments responded that they had no issues with the push-to-talk function. In addition, they were asked whether they had any problems with opening attachments, zooming in, or reading the font size. Although the font size was small according to deputies, most of them were able to change it themselves. One deputy could not do it himself and had to rely on someone else to make changes to his phone. Two Claxton officers commented on the font size being too small; one of them had someone else help change the font size. In addition, the Sheriff, three deputies, and the Hagan Chief reported that there were problems with opening attachments.

In summary, the three agencies found the smartphone relatively easy to use. The police leaders and some of the officers and deputies, however, pointed out that there were some

difficulties at first. After that initial learning curve which most officers considered short and easy, most officers were fine using the basic functions of the phone. In fact, all the police leaders and officers and deputies had no problems with the push-to-talk function of the phone. Although some respondents found the font size too small, they or someone else was able to change it for them. The biggest problem, however, was the ability to open attachments, particularly larger ones, on these phones. Police leaders and officers and deputies therefore had to use their personal cell phones or computers in some cases to open these attachments.

Perceived Technological Impact on Crime

The final set of questions asked of the three treatment sites examined their perceptions of how the technological improvements affected the capabilities of the officers and deputies, as well as that of the agency, in reducing and preventing crime. In the first set of questions, the respondents were asked a series of questions examining how improvements in their technology and communication had improved various aspects of their jobs. Specifically, respondents were asked whether they agreed (1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree) with six statements regarding their patrolling, safety, the agency's ability to investigate and prevent crime, and whether additional technology would benefit their agency's capacity to investigate and prevent crime. Five of the questions were similar to questions asked of the respondents in May and October of 2012 to allow for comparison. See Table 13 for results.

Purposeful Patrolling

The first item asked the respondents whether they believed that their patrols were "purposeful" in that they knew what they were looking for while on patrol based on information received from their agency.[19] See Table 13.

In Evans County, the Sheriff strongly agreed that this was true. All eight deputies agreed as well ($\overline{x}$ = 4.0), leading to lower but similar scores than the May 2012 ($\overline{x}$ = 4.2) and October 2012 ($\overline{x}$ = 4.32) surveys. Although it is possible that the deputies over this time period felt that their patrols were less purposeful, it should be noted that: (1) the average indicates that they agreed that they believe that their patrols were purposeful (they just didn't strongly agree with it); (2) the methodology changed from a paper survey where they had to circle their responses to an oral interview, possibly leading them to more often use the terms "agree" and "disagree" than stronger terms; and (3) the wording of the question changed from the paper surveys to the oral interview.

Several deputies stated that the information provided specifics to know what to look for. Another specifically stated that the information may also provide information on problem areas and to look for specific occurrences. In addition, the information made their patrolling more proactive: "We have been able to utilize the information that the agency puts out to put people where we need to be to deter the activity to take something out of the criminal triangle to keep there from being a victim." One deputy pointed out that this directed patrol is beneficial for

[19] The specific interview question was: "My patrols are "purposeful" in that I know what I am looking for based on information received from my agency." In the May and October 2012 paper surveys, the question was: "My patrols have become more "purposeful" due to my knowledge gained from previous shifts."

investigations in that he is provided information on a case and what to look for and then they can relay that information back. Finally, one deputy agreed with the others that they had purposeful patrolling because of the information that they received, but pointed out that he would "strongly agree" if they received the information sooner in the day at the beginning of the shift rather than the middle of the shift.

In Claxton, the chief did not patrol and therefore did not answer this question. All seven officers, however, either strongly agreed (n = 3) or agreed (n = 4) that their patrols were purposeful because of information received from their agency ($\overline{x}$ = 4.43). This score was higher than that of the ECSO and also indicated a substantial increase over the time of the grant (October 2012: $\overline{x}$ = 3.29). The general consensus was that the information helped them look for specific things, knew where the problem spots were, and where they needed to patrol more. A couple of officers used qualifying comments such as "most of the time" or "sometimes," but overall felt that they were being provided adequate information to have purposeful patrolling. In Hagan, the Chief strongly agreed and the two officers agreed that their patrols were more purposeful because of information that they have received ($\overline{x}$ = 4.33). All three explained that they received information regarding subjects before they began or during patrol to know what to look for.

County One

The County One Sheriff and all officers either strongly agreed (n = 2) or agreed (n = 4) that their patrolling was purposeful because of information they received from their agency, leading to a mean average ($\overline{x}$ = 4.33) higher than that of Evans County ($\overline{x}$ = 4.00) but lower than that of the other comparison county ($\overline{x}$ = 4.57) (See Table 14). The reasons focused on having clear

department expectations and goals provided to them from the Sheriff and their experience as well as having informed officers which lead to either general preventative or directed patrol.

County Two

In County Two, the Sheriff and all seven deputies either strongly agreed (n = 4) or agreed (n = 3) that their patrols were purposeful because of information received from their agency ($\bar{x}$ = 4.57), leading to the highest score among all sites. The reasons provided for these high scores reflected that of County One – clear expectations and being well informed. However, only one deputy in County Two discussed clear expectations while the Sheriff and the other deputies (one deputy did not elaborate on his response) discussed the various ways in which they became informed (e.g., Sheriff, other deputies, dispatch, experience, etc.).

City One

In City One, six officers answered the question regarding whether their patrols were "purposeful" in that they knew what they were looking for based on information received from their agency (the Chief and one officer did not patrol). Five of the officers either strongly agreed (n = 3) or agreed (n = 2) that their patrols were purposeful; one officer remained neutral. Their overall score ($\bar{x}$ = 4.33) was comparable to that of the two municipal treatment sites and higher than that of ECSO. The officer who remained neutral expressed that he did not see strong proactive policing. The officers who believed that their patrols were purposeful did not explain any consistent information that was being provided to them in order to make their patrols purposeful. Rather, their answers focused on the fact that they patrolled based on observations, general effort, experience, and informally passing information from one shift to the next.

Table 13. Impact of Technology on Personnel and Agency Capabilities

	May 2012			October 2012			February 2014		
	Evans	**Claxton**	**Hagan**	**Evans**	**Claxton**	**Hagan**	**Evans**	**Claxton**	**Hagan**
(1) Patrols are "purposeful"	4.20	3.43	4.50	4.43	3.29	5.00	4.0	4.43	4.33
(2) Safety and security	3.40	3.43	4.50	3.30	3.00	5.00	3.63	4.14	4.00
(3) Agency investigating crime – good job	4.67	3.29	4.50	4.29	3.00	5.00	4.0	3.43	4.33
(4) Agency investigating crime could improve if technology improved	--	--	--	--	--	--	3.38	4.29	4.00
(5) Agency preventing crime – good job	4.40	3.29	4.50	3.43	3.29	5.00	4.25	3.71	4.00
(6) Agency preventing crime could improve if technology improved	--	--	--	--	--	--	3.25	3.71	3.67

Table 14. Comparison Sites: Patrolling, Safety, Investigation, and Prevention

	Treatment Sites			Comparison Sites			
	ECSO	Claxton	Hagan	Co. 1	City 1	Co. 2	City 2
(1)Patrols are "purposeful"	4.00	4.43	4.33	4.33	4.33	4.57	4.13
(2) Safety and security	3.63	4.14	4.00	4.00	4.43	4.43	4.22
(3)Agency investigating crime – good job	4.00	3.43	4.33	4.40	4.57	4.29	3.78
(4)Agency investigating crime could improve if technology improved	3.38	4.29	4.00	4.67	3.57	3.43	3.56
(5)Agency preventing crime – good job	4.25	3.71	4.00	4.17	4.00	3.71	4.22
(6)Agency preventing crime could improve if technology improved	3.25	3.71	3.67	4.00	3.43	3.43	3.78
(7)Good collaboration of information with other county agencies	3.67	3.83	4.33	2.83	2.86	3.57	2.50

City Two

In City Two, the police chief and the investigator did not patrol; thus eight officers answered this question. Seven of the eight officers either strongly agreed (n = 3) or agreed (n = 4) that their patrols were purposeful because of information they received; one officer, however, disagreed, decreasing the department's score ($\bar{x}$ = 4.125). Overall, the score was comparable but slightly lower than that of the two treatment municipal sites. The officer who disagreed stated that he may be looking for a specific thing that someone told him, but much of his 8-12 hour shift will be responding to calls and traffic accidents that he cannot predict. The other officers, however, felt that their patrols were purposeful primarily because of *receiving information during shift changes* and the *information from administration.* Thus, these officers specifically

discussed how information provided to them by either fellow officers or the upper brass directly affected how they patrolled.

Comparison between Treatment and Comparison Sites

Overall, all seven sites agreed that their patrols were purposeful because of information that they received from their agency. This information led them to know what specific individuals to look out for and what places needed additional patrolling. Although ECSO agreed that their patrols were purposeful ($\bar{x}$ = 4.0), their average was lower than any of the other six sites, indicating that the deputies did not perceive their patrols to be as purposeful as other sites. The overall scores for the two treatment municipal sites were equal to that of one comparison municipal site and slightly higher than the other. Over the time of the grant, the ECSO's perception of their purposeful patrolling remained stable if not decreased while Claxton PD experienced a substantial perceived improvement in their patrols being more purposeful.

Further Examination of Purposeful Patrolling

Respondents had been asked earlier in the interviews what they were looking for when on patrol during a normal shift in order to assess whether and how information provided to them affected their patrolling habits. In other words, the purpose of the question was to assess how much the technology and their focus of ILP led to "purposeful" or more directed patrol rather than other factors.

The ECSO Sheriff and six of the eight deputies discussed that they watched for criminal, suspicious, and unusual activities. In addition, they monitored schools and businesses. Deputies primarily based this off their prior years of experience, training, their familiarity with

the area, and previous calls. Although they stated that they of course used the patrol alerts if they came out, their answers generally did not focus on the alerts.

When asked what they looked for when patrolling on a normal shift, six of the seven Claxton officers discussed unlawful, unusual, or suspicious behavior similar to the same things that Evans County deputies looked for when on patrol. Interesting, only one Claxton officer described using specific information or intel (e.g., BOLOs) in their normal patrol habits rather than the general traditional view of looking for suspicious behavior based on their experience. For the Hagan Chief and the officers, their responses included anything out the ordinary, things out of place, traffic offenses, violators, and checking people's property. This strategy was based on familiarity of the area, experience, and by keeping informed on the current events. Although Hagan officers provided examples of information leading to some directed patrols, their examples were more of general patrol looking for things out of the ordinary and not necessarily intelligence from the Ops Center.

County One

In County One, deputies discussed how they had performed directed patrol at reducing burglaries against churches at night. But when asked directly what they were looking for when on patrol or driving around, deputies did not discuss specific directed patrol or patrolling based on intelligence. Like the treatment areas, their answers focused more on preventative patrol and looking for criminal acts or things that were out of the ordinary based on their experience, familiarity with the area, and politics.

County Two

Similar to County One, the Sheriff and deputies discussed preventative patrol and watching out for suspicious behavior or things that were out of the ordinary. No deputy mentioned using specific information provided by their administrative leaders, investigators, or their new system as their source for their patrol purposes. Rather, it appeared to be based more on their experience of patrolling the streets or their view of what or who belongs.

City One

In City One, officers also did not report performing directed patrol based mostly on intelligence and information provided to them. Instead, their answers were similar to that of County One in that when they were on patrol, they were talking to people, collecting intelligence themselves, deterring crime, watching for traffic violations, and watching for criminal and/or suspicious behavior. This patrol was based mostly from their experience, familiarity with the community, and "common sense."

City Two

Finally, in City Two, the patrolling officers did not discuss how their patrolling was based on specific information that they have received from other agencies or their own, including additional information provided from the system. Rather, they discussed how they looked for crimes in progress and kept an eye out for suspicious activities and public safety issues and to protect civilian property. These actions were based on their experiences and their familiarity with the community.

Comparison between Treatment and Comparison Sites

When respondents were asked an open-ended question regarding what they were looking for when patrolling, most respondents of all agencies, whether or not they used intelligence-led policing and had an analytical RMS, did not primarily discuss how specific information or intel from their agency was utilized for directed patrol. Rather, officers and deputies of all agencies discussed how they looked for criminal and suspicious behaviors based on their experience and familiarity with the area. The treatment sites did fare slightly better in discussing how they used intel for directed patrol. Some of the ECSO deputies mentioned the alerts that they received; however, only one Claxton officer did. Regarding the comparison areas, County Two deputies and City Two officers, who had ILP and the new RMS for only about a month, did not discuss how this new system affected patrol. In the comparison areas that were considered less technologically advanced, several deputies of County One discussed how they performed directed patrol as a result of information from their administration.

Safety and Security

Respondents were asked whether they agreed that they felt safe and secure during their shift.[20] See Table 13.

The ECSO Sheriff strongly agreed that he felt safe and secure during his shift. The deputies' answers varied from strongly agree to disagree ($\overline{x}$ = 3.63) (3 strongly agree; 1 agree; 2 neutral; 2 disagree). This perception was relatively similar to their responses in May 2012 ($\overline{x}$ = 3.40) and October 2012 ($\overline{x}$ = 3.30). The four deputies who either strongly agreed or agreed that they felt safe and secure did not believe they were safer because of the technology that was provided to

[20] They were specifically asked in the interview whether they agreed (1 = Strongly Disagree to 5 = Strongly Agree) with, "I feel safe and secure during my shift." In the paper surveys in February and October 2012, they were asked whether they agreed (1 = Strongly Disagree to 5 = Strongly Agree) with, "I feel safer and more secure during my shift."

them over the last several years. Rather, they felt safe because of their trust in their partners and others with whom they work, the familiarity of the area, and their training. Some of these deputies therefore felt safe even when technology was inadequate, such as the radio system. One deputy who discussed how his safety was based on his training rather than technology even argued that some of the newer technologies, including the smartphones, made them *less* safe. He argued that smartphones, and technology in general (e.g., laptops), diverts your attention away from what you need to be focused on, namely your surroundings. Thus, in a small agency, if one or a couple of deputies feel similarly, it illustrates some of the resistance that agencies may expect. Two deputies disagreed that they felt safe and secure during their shift. One deputy stated that it was because of the equipment while the other commented more on the general danger that is present in law enforcement.

In Claxton, the Chief (agreed) and almost all of the officers either agreed (n = 2) or strongly agreed (n = 4) that they felt safe and secure during their shifts ($\bar{x}$ = 4.14). The Claxton PD officers reported the highest level of safety and security of any of the three agencies. They also experienced a substantial increase in this perception from their May and October levels. Rather than technology, however, their trust in their fellow officers was vital to these officers feeling secure. The Chief added the reason of being confident in oneself and knowing the area and people. The one Claxton officer who strongly disagreed with feeling safe and secure during his shift commented that no police officer ever feels safe and secure when on shift. It appears, however, that his perception of how other officers felt was incorrect considering their responses. Within Hagan, the Chief and the two officers agreed that they felt safe and secure during their shifts ($\bar{x}$ = 4.00). The Chief stated that it was due to the information that was provided to him while a deputy commented that other agencies are nearby and will assist if there is trouble.

County One

The County One Sheriff and all six deputies agreed (the sheriff and one deputy strongly agreed) that they felt safe and secure during their shift ($\bar{x}$ = 4.0), comparable to that of the two treatment municipal sites but higher than that of Evans County (See Table 14). Officers still showed concern or hesitation simply because of the nature of law enforcement, but still agreed that they felt safe. The officers' responses for why they felt safe included the low crime rates in the area, having good back-up, and adequate equipment.

County Two

In County Two, the Sheriff and all seven deputies agreed (strongly agreed = 3; agreed = 4) that they felt safe and secure during their shift ($\bar{x}$ = 4.43); the mean score was higher than all three treatment areas. The most commonly provided reason for their perceived safety was their faith in their fellow officer; this was discussed by the Sheriff and four deputies in their responses. Their experience on the job and the good equipment and training they have received was also discussed by three deputies each. In no answer, however, did the respondents discuss how the information provided to them helped them perform their job in a safer way. Technology was only discussed in the form of bullet proof vests. Safety and security was thus the result of trust in their fellow officer and that of themselves.

City One

In City One, the Chief (strongly agree) and all seven officers either strongly agreed (n =3) or agreed (n = 4) that they felt safe and secure during their shifts. Their mean score ($\bar{x}$ = 4.43) was higher than all three treatment sites. The reasons provided were: *Low crime rate; back-up; training;* and *adequate equipment.* It should be pointed out that just because City One is a small

town doesn't mean bad things don't happen and that officers were never scared. The officers were talking about how they normally felt. A common sentiment held by many officers, whether spoken or not, in this department and others is that they felt safe *considering the job that they have*: "If it's your time, it's your time, I feel as secure as I can, I guess, in the job that I got."

City Two

In City Two, the Chief and eight of his officers either strongly agreed (n = 3) or agreed (n = 5) that they felt safe and secure during their shift; one officer responded with neutral, creating a score of 4.22. The mean score was comparable or slightly higher than that of the two treatment municipal sites. The officer who remained neutral and the Chief referred to the inherent dangers of the job and that things could always go wrong. However, the other officers referred to some of the reasons that the other sites discussed: *good back-up; confidence in their use of a gun; training;* and *familiarity with the community.* Interestingly, only one officer discussed how the information that was provided to him, in this case from the new system and dispatch, was partially why he felt safe and secure.

Comparison between Treatment and Comparison Sites

Overall, most of the respondents who were interviewed in the seven sites agreed that they felt safe and secure during their shifts. The site that had the lowest score was the treatment county agency, which had a score below a 4 (agree). Thus, both comparison counties had scores higher than ECSO. In addition, both comparison municipal departments had scores comparable or higher than that of the two treatment municipal agencies. The Claxton PD officers, however, were more likely to agree that they felt safe and secure at the end of the grant than they did at the beginning. When asked to explain why they felt safe and secure, agencies with improved

technology did not focus on the technology or the improved information as reasons why they felt safe. In fact, the Sheriff and one of the Chiefs discussed the information as being helpful in creating security, but this was not what the officers and deputies focused on. Rather, their answers were quite similar to the answers provided by the comparison areas: trust in their fellow officers and backup; familiarity with the area, and training.

Investigating Crime

Respondents were asked whether they agreed that their agency was doing a good job of investigating crime and whether they could do a better job of investigating crime if their technology improved.[21] See Table 13.

The ECSO Sheriff strongly agreed that their agency was doing a good job of investigating crime because of their current technological capabilities. Most of the deputies either strongly agreed (n = 2) or agreed (n = 4) with this statement; two were neutral. Their scores on this item decreased from a high of 4.67 in May 2012, possibly indicating that the deputies still believed that their agency was doing a good job of investigating crime, but that this belief was not as strong as when some of the newer technologies were being first implemented. It is also possible, however, that the changing in the wording of the question, from focusing on the role of technology in impacting crime investigations to a question on their success in crime investigations in general, could also be the cause for change in scores.

The two common themes that ran through their responses regarding why they perceived they were doing a good job in investigating crime was their strong faith in their investigator and

[21] In the February 2014 interview, respondents were asked whether they agreed (1 = strongly disagree to 5 = strongly agree) that, "My agency is doing a good job of investigating crime." In the May and October 2012 paper surveys, the question was: "I feel as if my agency is doing a better job of investigating crime due to the newly implemented technology."

that they were doing the best they could with the manpower they had. The deputies considered the investigator to be hard working and saw that he both investigated and solved cases. However, they thought that the one investigator had too many cases and that there were too few deputies on the road at any one time. It is not surprising then that the deputies generally did not see additional technology from what they currently had as being important in the investigation of crimes ($\overline{x}$ = 3.38). None of the three deputies who agreed that technology could improve investigations had specific technology-focused recommendations – mostly just the idea that there's probably something out there that would help. In several cases, deputies did not know the type of equipment that the investigator had and were not sure what really happened after they provided the information to him; therefore they remained neutral on this issue.

In the Claxton Police Department, five of the seven officers agreed that their agency was doing a good job of investigating crime ($\overline{x}$ = 3.43). The Chief was the only individual who responded with strongly agree. Their perception of their agency's ability to investigate crime was lower than that of the ECSO but it had increased slightly over the time of the grant. Their confidence in their agency's ability was similar to that of why Evans County felt confident in their investigative abilities -- their faith in their investigator's competence, his willingness to work with other agencies, and communicating information with officers. When asked whether their agency could do a better job of investigating crime if technology improved within their agency, the Chief and six of the seven officers strongly agreed (n = 3) or agreed (n = 3) ($\overline{x}$ = 4.29). Their answers generally stated that more and better technology would be beneficial without providing any specific recommendations.

In Hagan, all three officers agreed (1 strongly agreed and 2 agreed) that their agency was doing a good job of investigating crime. The officer who said strongly agreed saw his

department as tenacious in their investigations. The Chief commented that they had solved most of their crimes and this was due to their tri-agency approach of working together with the Sheriff's Office, Claxton Police Department, and Hagan Police Department in providing information and solving crimes. Although all three Hagan law enforcement personnel believed that their agency was doing a good job of investigating crime, all three also agreed that their agency could be doing a better job of investigating crime if technology within their agency improved.

County One

The County One Sheriff and the five deputies answering this question all agreed that their agency was doing a good job of investigating crime ($\bar{x}$ = 4.40) (Deputies = 2 strongly agree; 3 agree), higher than that of the treatment county (See Table 14). In addition to their faith in their one investigator, the responses from County One also included other factors, including faith in their leadership, the quality work of all officers, focusing on details and important issues, and that the results speak for themselves.

The County One Sheriff and most of the deputies strongly agreed ($\bar{x}$ = 4.67) (4 strongly agree; 2 agree) that their agency could do a better job of investigating crime if technology within their agency improved. This belief was stronger in County One than it was in Evans County, which might be a reflection that even though County One deputies thought they were doing a good of investigating crime, their realization that their department was not high-tech made them feel that more technology could make it even better. Some of the officers answered in generalities. Four different types of technologies were discussed by the Sheriff and the deputies – DNA analyses, surveillance equipment, improvements in fingerprinting, and faster computers.

County Two

In County Two, the Sheriff and six of the deputies either strongly agreed (n =3) or agreed (n = 3) (one officer remained neutral and did not elaborate) that their agency was doing a good job of investigating crime ($\bar{x}$ = 4.29), leading to a score slightly higher than that of ECSO. The Sheriff stated that it was because of good communication while the investigator agreed with the statement because cases got solved even though they may be understaffed. Almost all the positive responses from the deputies focused specifically on having a good investigator, including his communication ability, performance, and thoroughness. In County Two, they were less likely to believe that their agency could do a better job of investigating crime if their technology improved ($\bar{x}$ = 3.43) than County One. Their score, however, was similar to that of ECSO. (Deputies: 4 Agree; 2 Neutral; 1 Disagree). The four deputies who agreed with this statement were of the mindset that more technology could always help, but unlike County One, they did not provide specific examples other than that it would benefit information sharing.

City One

In City One, the Chief and all seven deputies agreed that their agency was doing a good job of investigating crime ($\bar{x}$ = 4.57; Chief: Strongly agree; Deputies = 4 strongly agree; 3 agree). This score was higher than that of Claxton PD but comparable to that of Hagan PD. Similar to other agencies, the primary reason provided was because of their faith in their investigator. One other officer mentioned that criminals and law breakers got punished in their area. Only the Chief mentioned the role of technology. He saw the technological abilities of his investigator as being important in investigating crimes in his city.

The officers in the City One Police Department varied in whether they thought that improved technology within their department could improve their investigation of crime. The Chief (agreed) and four officers agreed (n = 2) or strongly agreed (n = 2) while one officer remained neutral and two disagreed ($\overline{x}$ = 3.57). These two officers' responses led to an overall score lower than that of both treatment municipal sites. The Chief, the investigators, and some officers stated that additional equipment could help speed up time sensitive investigations by not having to outsource so much work to the GBI and other agencies. The two officers who disagreed thought that all their technology was up to date and they had everything that they needed. It's very possible that they were only coming from a patrol officer perspective and may not realize the technology that the investigator was lacking and would like to have if budget allowed.

City Two

In City Two, there was less faith in the quality of the investigations that their department was doing than the other comparison sites ($\overline{x}$ = 3.78); the score was still slightly higher than that of Claxton PD. The Chief and one officer disagreed and two officers remained neutral. However, two officers strongly agreed and four agreed. The reason for the Chief's disagreement and that of two officers concerns was the time and resources the new computer system was taking from one of the investigators. They therefore felt that the implementation and other technological issues currently compromised their investigative capabilities in the department. Similar to the other sites, the primary reason why officers had faith with their department's investigative capabilities was focused on their faith in the investigators themselves. One officer also thought that information was passed between the officers and these two investigators well. A couple of officers who agreed that they were doing a good job still admitted, however, that

they could be doing a better job, but that it depended on the information being provided, being under staffed, and being bogged down with other things.

In the City Two Police Department, the Chief and officers did not strongly believe that technology could improve their investigative capabilities ($\bar{x}$ = 3.56). Although five officers agreed (1 strongly agreed; 4 agreed), three officers remained neutral, and one officer and the Chief disagreed. The Chief's reason was similar to that of two of the officers who remained neutral, namely that they have made technological upgrades already and that either they didn't know what else was out there that they didn't already have or that they simply had enough. The officer who disagreed thought that good investigation doesn't boil down to technology.

Comparison between Treatment and Comparison Sites

The deputies and officers of the ECSO and Hagan PD were more likely to agree that their agencies were doing a good job of investigating crime than the Claxton PD. Claxton PD's average, however, could have been lowered by the displeasure of a couple of officers. Much of the three agencies' beliefs regarding their agency's capability in investigating crime was due to their faith in their investigator. Technology was not discussed as one of the primary reasons. When asked whether improvements in technology could improve their agency's ability to investigate crimes, the two municipal police departments were more likely than the Sheriff's Office to believe that it would.

The two comparison county agencies were more likely to strongly agree that their agency was doing a good job of investigating crime than the treatment county. Regarding the two municipal comparison sites, one site was slightly more likely to agree than Claxton PD that their agency was doing a good job of investigating crime while the other site was much more likely to

strongly agree that they were. Thus, the evidence does not support a conclusion that the treatment sites at the end of the grant perceived their agencies to be doing a better job of investigating crime than the comparison sites.

Regardless of the scores, the primary reason provided by officers and deputies in all sites for their approval of how their agency was investigating crime was their faith in the investigator(s). Technology was generally not discussed as one of the primary reasons why their agency was doing a good job of investigating crime. Interestingly, the two counties with more advanced levels of technology were less likely to believe that technology could improve their agency's investigative capabilities than the county with less technology. Thus, even though this county believed they were doing a good of investigating crime, their realization that their department was not high-tech made them feel that more technology could make it even better. However, both treatment municipal sites were more likely than the treatment county and both comparison municipal sites that more technology would improve their agency's investigative abilities. In general, most officers and deputies did not provide insights into why additional technology would be helpful more than the general idea that "the more, the better."

Preventing Crime

In addition to the above questions on investigating crime, respondents were also asked their perceptions of whether their agency was doing a good job of preventing crime as well as whether the prevention of crime could be improved upon if technology improved within their department or agency.[22] See Table 13.

[22] For the February 2014 interviews, the respondents were specifically asked whether they agreed (1 = strongly disagree to 5 = strongly agree) with, "My agency is doing a good job of preventing crime." In addition, they were asked whether they agreed with, "My agency could do a better job of preventing crime if technology within our department or agency improved." In the May and October 2012 paper surveys, respondents were asked whether

The ECSO Sheriff strongly agreed that their agency was doing a good job of preventing technology "by putting out alerts, by the information we gather through the departments, and [putting] out the lookouts and warnings." The Evans County Sheriff deputies agreed ($\bar{x}$ = 4.25) (3 strongly agree; 4 agree; 1 neutral) that their agency was doing a good job of preventing crime. Their score was higher than that of the other two treatment sites. This score was also higher than that of the October 2012 surveys ($\bar{x}$ = 3.34) and similar to that of May 2012 results ($\bar{x}$ = 4.40). A common belief among several of the deputies was that e-roll call and alerts provided them the information to focus on the right spots at the right times. There was a discrepancy among the deputies, however, regarding their perception of how proactive the agency was. Although some deputies commented on what they were doing proactively, such as patrolling hot spots, others wanted specific deputies to be more proactive and more engaged. Congruent with their satisfaction of how their agency was preventing crime, the deputies did not have strong reactions to whether their agency could do a better job of preventing crime if technology improved ($\bar{x}$ = 3.25; 1 strongly agree; 2 agree; 3 neutral; 2 disagree). They commented that it was not the technology per se that needed to be improved, but once again, it was the radios that could be improved, possibly better information provided to them in order to help them solve cases, and more manpower.

In the Claxton Police Department, officers felt similarly regarding their agency's ability to prevent crime as it did with their investigative abilities. The Chief (strongly agreed) and most of the officers either strongly agreed (n = 2) or agreed (n = 3) that their agency was successful in

they agreed (1 = strongly disagree to 5 = strongly agree) with, "I feel as if my agency is doing a better job of preventing crime due to the newly implemented technology." Therefore the focus went from whether the prevention of crime improved due to technology to the newer question which only focused on their perception of their agency's performance in preventing crime.

preventing crime ($\overline{x}$ = 3.71). Although their scores indicated that Claxton officers were less sure of their prevention capabilities than the other two agencies, their score increased over the time of the grant unlike the other two agencies. Officers commented that they tried the best they could, they had a preventative mindset, and that they got out into the community. As for whether improvements in technology could help their crime prevention, the chief and four of the seven officers remained neutral while only three officers agreed (2 strongly agreed; 1 agreed) that it would ($\overline{x}$ = 3.71). The officers that agreed generally did not provide any specifics, and in fact, thought that their agency was doing a good job of preventing crime, but that extra technology could always help.

In Hagan, all three officers agreed that their agency was doing a good job of preventing crime. The Chief stated that his officers were active on patrol and spent their patrols in the areas where there was the most crime. He commented that the computers in the cars allowed officers to park their cars in the hot spots and complete their reports. The officers commented that the public has expressed appreciation for the low crime in the area and that it is well known that they actively target speeding violations. The Hagan Chief agreed that improved technology could improve the prevention of crime but did not elaborate. Both officers thought that tag readers may help catch individuals who have already broken the law.

County One

The County One Sheriff and five of the six deputies agreed that their agency was doing a good job of preventing crime ($\overline{x}$ = 4.17), creating a comparable score to that of Evans County (See Table 14). The one deputy who did not agree, but remained neutral, felt they needed more officers, a common comment throughout many of the agencies. Although some deputies talked in generalities, the primary reason provided was their increased visibility, including directed

patrol. Deputies also thought that fast response time and paying attention to anything that came to their attention also helped their crime prevention efforts. In County One, the deputies overall agreed that improved technology could help them prevent more crime ($\bar{x}$ = 4.0), indicating a stronger belief than the deputies in Evans County. The Sheriff and one deputy thought more deputies was more important than improved technology. Another deputy thought that technology was more important in helping officers perform their jobs, but wasn't sure if it was directly related to crime prevention. As for why they thought that technology could help crime prevention, most of their answers were general in nature. One deputy, however, suggested that surveillance equipment could directly lead to crime prevention as it would allow them to have better information on specific places.

County Two

In County Two, the overall score ($\bar{x}$ = 3.71) indicated that the deputies did not believe that they were preventing crime as well as the other comparison county agency and that of ECSO**.** A reason for this lower overall score was because of the responses of two deputies. The two reasons provided by these deputies were that they felt that they were more reactive than proactive and that they don't have the appropriate resources allotted for crime prevention. The Sheriff and the other deputies, however, agreed (2 strongly agree; 2 agree) that they were doing a good job. The four specific reasons provided by the deputies for why they believed their agency was effective in preventing crime were their low crime results as evidence of their crime prevention efforts, their teamwork, staying informed, and aggressive law enforcement practices.

In County Two, the Sheriff and deputies were less likely to believe that technology could improve crime prevention in their agency ($\bar{x}$ = 3.43) than County One but comparable to that of Evans. For those four deputies who either strongly agreed (n = 1) or agreed (n = 3) that it would

help, their responses were that more technology is always better and improvements in information dissemination. The two deputies who remained neutral thought that improvements in technology could always be made, but that they currently had what they needed at the moment to do their jobs. The two deputies who disagreed differed on their reasoning. The one deputy already thought that there was too much technology in the agency and was not interested in additional technology being implemented. The other deputy did not see the role of technology in crime prevention but thought that officer presence was more important.

City One

The City One officers agreed that they were doing a good job of preventing crime ($\bar{x}$ = 4.0; 1 SA; 5 A; 1 N). This perception was slightly higher than that of Claxton PD and equal to that of Hagan PD. The Chief, however, remained neutral. He discussed how limited resources and manpower challenged proactive policing. The officers who agreed that they were doing a good job of preventing crime seemed to still agree with this sentiment. They therefore interpreted the question as not whether they were doing a good job in preventing crime but that they were doing a good job of preventing crime with the resources they had. Preventative patrol based on experience and effort was the sources of their crime prevention efforts. Technology or organized information being used in strategic ways was not discussed.

In City One, the Chief and five officers agreed that their department could do a better job of preventing crime if they had improved technology ($\bar{x}$ = 3.43). The three types of technology they felt that could help improve crime prevention in their city were: surveillance cameras; tag readers; and computers in the cars. No one mentioned computer software which would allow for the analyses and reporting of crime and the transmission of that information to officers in the area. The two officers that disagreed had two different reasons. The first officer felt that their

agency already had adequate updated technology and did not see that their agency needed any newer technology. The other officer had a negative view regarding the ability of the police to deter or prevent crime, even when they were present. He therefore did not think that technology would make a difference.

City Two

In City Two, the police chief and all nine officers either strongly agreed (n = 2) or agreed (n = 7) that their agency was doing a good job of preventing crime ($\bar{x}$ = 4.22). The score was slightly higher than that of both treatment municipal sites. Although the chief thought they were doing a good job, he thought that they were not where he wanted them to be regarding their goals and objectives. This was partially a funding issue as they had two vacancies and one of the positions, which would be the crime prevention officer, was frozen. The officers provided various reasons, but overall they felt that they were proactive in patrolling specific areas in which they had received information from previous shifts. Also, since they now had laptops in their cars, they did not have a reason to come to the station. They could instead spend more time out in the streets since they had the computer and forms at their disposal.

In City Two, the officers were as likely to believe that technology could help them improve crime prevention as the two treatment municipal sites ($\bar{x}$ = 3.78). The Chief and one officer, however, were the only ones in the department who disagreed that it could. He stated, "I think they got a good amount of technology at their fingertips right now." The officer stated that crime prevention was not about technology but rather about manpower. A couple of officers noted that they had already moved forward with the purchase of some technology and were fine.

Comparison between Treatment and Comparison Sites

The treatment county agency deputies were as likely to agree as one of the comparison county agencies, and more likely than the other, that their agency was doing a good job of preventing crime. In fact, the agency that they fared better against was the more technologically advanced county. The ECSO deputies who agreed that they were doing a good job often talked about how the intelligence products allowed them to patrol at the right spots and prevent crime. There was disagreement, however, among them regarding how proactive their practices were, but most deputies thought they were being proactive. Overall, the ECSO deputies were as likely as one county agency and less likely than the other to think that more technology would help them prevent more crime. The county agency with the highest score was the least technologically advanced of the three.

Claxton PD reported the lowest score of the three treatment sites regarding their belief in their prevention capabilities, but it was the only one of the three sites that saw an increase in this score over the period of the grant. Both comparison municipal sites were more likely than Claxton Police Department to believe that their agency was doing a good job of preventing crime. Although Claxton PD was dissatisfied with their technological capabilities, their perceptions of technology improving the prevention of crime was not very strong, comparable to one of the comparison agencies but higher than the other.

Overall, when respondents provided comments on how to prevent crime, their answers often focused more on manpower and patrol officers being more proactive, including directed patrol, than improvements in technological capabilities.

Perceived Impact of Technology on Reducing Crime

Similar to the survey questions in May and October 2012, respondents were asked to assess the impact of specific technological components on *reducing crime* on a five-point scale from 1 being "low impact" to 5 being "high impact." See Table 15. The overall findings indicated that the deputies believed that the various components had improved communication, but were less likely to believe in most cases that they were having the desired effect on reducing crime.

E-roll Call

E-roll call was perceived by ECSO deputies as a having a high impact on reducing crime, equivalent of the impact of the two types of alerts. Hagan PD provided it with the lowest impact score of 3. Although their chief gave it a score of 5, the two officers did not see it as such. The Claxton PD scores were diverse, ranging from a high of a 5 to a low of 1, averaging a 3.57, with the Chief giving it a score of a 2. According to the Chief, he said, "Most of e-roll call is things that we already handled. There's nothing coming up new that we should know about, so if the case has already been taken care of, it's not doing that much for me, other than letting me know that person is in jail." However, an officer stated that e-roll call provided insight to officers on the areas that needed more patrol. Although Claxton PD officers provided the e-roll call their lowest score, their perception of the impact of the e-roll call on crime increased over the period of the grant.

RMS

The ECSO Sheriff and deputies saw the RMS as having a large impact on crime reduction in their area. The Sheriff gave it a score of a 5 with the officers averaging a 4. This

score increased significantly over the period of the grant even though the servers never synced. The scores for the other two sites are not as reliable. For the Hagan PD, the chief did not respond since the computer was not synced. The two officers averaged a 3.5. The score for Claxton PD is misleading since only four of the officers answered the question. Of those that answered, they thought highly of it, but it is doubtful that they were aware of what the new RMS was doing since their police department and dispatch were not using the new RMS at the time of the interviews.

Information Depository

The scores for the Information Depository are unreliable for both the Claxton PD and Hagan PD sites. In general, most individuals in both of those sites did not know what it was and did not answer the question. In the ECSO, however, only two deputies did not respond. The Sheriff provided it a score of a 2 and the deputies averaged a 3. Clearly, this element of the program was not working at its desired level. This was the only element of the program that received a lower score at the end of the grant for ECSO than at the beginning.

Patrol and Open Case Alerts

The patrol and open case alerts were viewed by all three agencies as having a large impact on reducing crime, with the ECSO and Hagan PD perceiving it to have a larger impact than the Claxton PD. For the ECSO, the Sheriff provided a score of 5 for both. His deputies provided an average score ($\bar{x} = 4.88$) equivalent to that of the e-roll calls. This score also increased over the time of the grant. If one overlooks the scores for the Information Depository and the RMS for Claxton PD, since almost all officers were unaware of their existence or use, the patrol and open case alerts received the highest scores from Claxton PD officers regarding

what they perceived to have the largest impact on reducing crime. Finally, the Hagan PD considered these two alerts to have the largest impact on reducing crime of the possible options.

In summary, the three agencies were in agreement with the high impact that the two types of alerts had on reducing crime. All three agencies rated them as having the largest impact. Their appreciation for them appeared to grow as well over the length of the grant. The e-roll call was also valued as having an impact on crime by ECSO, but not the two municipalities, a value that increased over the time of the grant. The value of the RMS did not materialize for Hagan and Claxton PD as the servers were never synced. ECSO still saw the impact of the new RMS as being substantial. Finally, the two municipal agencies were not familiar with the Information Depository and ECSO considered it to have a substantially lower impact on crime than the intelligence products.

Sustainability

Ensuring sustainability of programs past the conclusion of a grant is difficult for any agency, but particularly difficult for smaller rural agencies with both limited budgets and manpower. In the case of the treatment sites, the Sheriff's Office had already implemented an Intelligence Operations Center prior to the start of this grant, employed a crime analyst, utilized analytical RMS, sent out intelligence products via smartphones, and ran prolific offender meetings. In order to improve upon what already existed, they wanted to be able to sync their data base with that of two municipal police departments by using the same RMS. In addition, they wanted to be able to put more intelligence in the hands of the municipal agencies by providing them smartphones. As already discussed, the program was never able to successfully sync the database with that of the two municipal agencies. It is doubtful that this issue will be

Table 15. Impact of Intelligence Products on Reducing Crime

	April 2012	May 2012			October 2012			February 2014		
	Evans	**Evans**	**Claxton**	**Hagan**	**Evans**	**Claxton**	**Hagan**	**Evans**	**Claxton**	**Hagan**
E-roll call	3.17	3.83	3.14	5.00	3.57	2.86	5.00	4.88	3.57	3.00
RMS	2.83	3.67	3.17	Na	3.14	3.00	Na	4.00	4.75	3.50
Information Depository	3.33	3.17	3.00	4.50	3.43	3.86	5.00	3.00	5.00	4.00
Patrol Alerts	4.50	4.50	3.14	5.00	4.14	2.71	5.00	4.88	4.29	4.67
Open Case Alerts	4.17	4.33	3.14	5.00	4.29	2.86	5.00	4.88	4.29	4.67

corrected in the near future because of technology interoperability issues and because of the preference of Claxton PD for a different RMS.

The sustainability of intelligence-led policing also appears problematic as a whole in ECSO as well. During the time of the grant, the crime analyst and the investigator stopped having a functioning working partnership. Since the RMS among the agencies were never synced, the amount and type of information flowing into ECSO did not change either. In addition, the crime analyst was let go when the grant ended. This was an important lesson in differentiating between rhetoric and practice. During the period of the grant, the importance of the crime analyst was emphasized. It had been stated that the crime analyst was essential to what they did that he would be kept on after the grant ended. And if they had to choose, they would rather lose a deputy over losing the crime analyst. However, when the grant ended, in combination with the county having budget problems because of a local hospital, the crime analyst was let go, not a deputy. Thus, when final decisions are made, it is difficult for small agencies to keep a non-sworn analyst over a deputy considering their lack of manpower.

E-roll call, however, is something that can be sustainable. At the end of the grant, e-roll call stopped for a period of time. However, the jail administrator was handed this extra responsibility since he always added the jail inmate information to the e-roll call. Although e-roll call has resumed, it is not as routine, particularly regarding the time of day. However, the sending of e-roll call was shown in this evaluation to be a helpful tool to keep officers within and among departments informed. In addition, it does not take a large amount of effort. Thus, it would appear that this element of the project is sustainable past the ending of the grant.

Another important element of intelligence-led policing that the county did before the grant started and plans to continue and sustain are the prolific offender meetings with other

agencies. As this evaluation indicated, it appeared that deputies in ECSO had a better relationship and knowledge of what was occurring in other criminal justice agencies. These meetings could be a reason for that.

SUMMARY AND CONCLUSIONS

Empirical research on rural law enforcement, particularly how they have implemented intelligence-led policing and technological innovations, is scant. ECSO wanted to expand its already existing intelligence-led operation by receiving a grant to provide funds to two municipal agencies to purchase analytical RMS and smartphones similar to that of ECSO. If all three agencies utilized the same RMS, they could share information on calls for service and cases, which would lead to better intel. In addition, the smartphones would allow ECSO to send its e-roll call and intelligence products to officers in these municipal agencies. Unfortunately, technology interoperability prevented the RMS from syncing up among the three agencies. This meant that the ECSO Intelligence Operations Center was not receiving any additional information from these two agencies at the end of the grant than they were before the grant began. The e-roll call was sent out to deputies and officers on a daily basis through most of the grant.

Sharing Information Between Shifts

The primary means of information sharing from one shift to the next within rural law enforcement agencies is informal conversations either in person or via a phone between officers or deputies going on and off shift. In addition, officers in the comparison sites mentioned dispatch, having periodic meetings, or a new RMS. Overall, they viewed these methods as adequate because of their size, low crime rate, and trustworthiness of their fellow officers. In the

treatment sites, they primarily discussed both informal conversations and e-roll call as ways to share information. However, the treatment sites perceived the adequacy of these methods as equal to or lower than that of the comparison sites. Based on the interviews, it is apparent that informal conversations between officers and deputies is the most common method of updating the next shift. E-roll call may provide an additional method for officers to examine what occurred the previous day, but it is in most cases unavailable to officers and deputies before they begin their next shift and provides little more detail than who, what, where, and when.

Communication Adequacy

ECSO perceived that their communication within their own agency was lower than that of the two comparison sites. It appeared that although radio difficulties were problematic for all three county agencies, this issue affected the ECSO deputies more. The two treatment municipal agencies, however, perceived their communication adequacy to be higher than that of the two comparison sites. The treatment sites viewed their communication with surrounding agencies to be less adequate than that of the comparison sites. In fact, only ¼ of ECSO deputies and half of Claxton PD officers thought it was adequate. Those officers who felt it was adequate stated that this was because of their relationships with individuals in other agencies and because agencies were willing to share information. The officers and deputies in the treatment area who did not believe that it was adequate focused on problems with the radios. When asked specifically regarding the impact of e-roll call, it was viewed as having a strong impact on improving communication by all three treatment agencies. In addition, patrol and open case alerts were also seen as having large impacts by all three agencies.

Information Sharing

ECSO's perception on whether they regularly knew what crimes and calls for service occurred in other agencies in their county was not different than that of the two comparison counties. The county-level law enforcement agencies generally felt comfortable knowing what was occurring in the county. ECSO deputies strongly credited e-roll call as part of this information process. The officers in the treatment municipal agencies, however, reported knowing what was occurring in surrounding agencies more than the comparison sites. Many officers who answered this question conditioned their remarks. However, a majority of officers in both treatment cities listed e-roll call as one of the reasons they were familiar with what was occurring in other agencies, in addition to the importance of informal conversations, listening to the radio, and having conversations with the other agency investigators.

In addition, officers and deputies of all seven agencies believed that they could do their job better if they received more information from their agency or others; this belief did not substantially differ between the treatment and comparison sites. Most officers and deputies who stated that they could use more information did not provide specific responses regarding the type of additional information in which they were interested.

When it came to information sharing and collaboration between law enforcement and other county agencies, such as schools and probation, the treatment sites reported higher levels of collaboration than did the comparison sites. ECSO reported scores similar to one county comparison agency but higher than the other. Both treatment municipal agencies reported higher levels of collaboration than did the comparison municipal agencies. For all seven sites, a common theme was the importance of good personal relationships between the personnel of various agencies. A key difference, however, between the treatment and comparison sites was

that the treatment sites also indicated that intelligence-led policing, technology, and the crime analyst improved these relationships by bringing more agencies to the table.

Technology Adequacy and Implementation

The technology capabilities of the three treatment sites was slightly higher than the one comparison site but lower than that of the other comparison site. Consistent with this observation, the treatment sites' perceptions of their technology adequacy was more similar to that of the less technologically advanced agencies than the more advanced sites. In addition, all three county agencies expressed more satisfaction with their technology than the municipal agencies. Smaller agencies with less technology often appeared fine with the technology they had because they were smaller agencies and they did not have specific problems related to their limited technology. At the treatment sites, the dissatisfaction focused more on implementation issues they had with the technology, not the technology itself.

In order to implement additional technologies within their agencies, the officers and deputies of the seven sites stated that agencies would be required to overcome two major obstacles: (1) funding to obtain the new technologies; and (2) training older and less tech savvy officers on the technology. Funding was mostly only discussed by police leaders as an issue. Officers and deputies more consistently discussed the strong resistance agencies may face from older officers who are resistant to change. Training was therefore emphasized as important in all agencies. Clearly, there will be a period of time in which agencies must focus on informing officers of the importance of the technological changes and training them how to best utilize the new technology.

In addition, when asked to choose the most important factors in implementing technology, many officers and deputies stated that all the factors were important and interdependent upon each other. When pressed, however, the ease of use of technology was considered by all agencies to be an important factor to focus upon when implementing new technology, particularly to help with the resistance of older officers. As the report indicates, the agencies differed on the remaining factors. The reasons why these four factors were important in implementing technology did not vary substantially among the seven agencies. Agencies considered ease of use to be important in order to help officers who were not computer savvy and to help all officers use their time more efficiently. Although officers also wanted accurate and dependable information, they were more inclined to prefer information that was directly relevant to their jobs. Finally, officers considered timeliness to be quite important because getting them information faster helped them use their time more effectively but it could also keep them safe in possibly dangerous situations.

The three treatment sites found that the smartphones were relatively easy to use. After a short and easy initial learning curve, most officers knew how to use the basic functions of the phone. The respondents had no problems with the push-to-talk function. Their biggest problem was the ability to open large attachments on the phones, leading some officers and police leaders to have to use their personal cell phones or a computer to open the attachments; in some cases, some officers never opened the attachments because of these problems. Some of the problems led individuals to simply use their personal cell phones rather than their grant funded phone. Finally, the majority of the police leaders and officers felt that they had received enough training on the phones.

Purposeful Patrolling

All seven sites agreed that their patrols were purposeful because of information received from their agency. The evidence did not support a conclusion that ECSO deputies perceived their patrols to be more purposeful than the comparison sites because of their intelligence-led policing or implemented technology. ECSO deputies in fact had a lower score than the other six sites. The two treatment municipal agencies had scores equal to that of one of the comparison municipal sites and slightly higher than the other.

The findings also indicated that when officers and deputies of all agencies, regardless of whether they followed intelligence-led policing or had analytical RMS, were asked what they were looking for when patrolling, they generally discussed how they searched for criminal and suspicious behaviors based on both their experience and familiarity with the area; they normally did not discuss the specific intel they received from their agency. Some of the ECSO deputies mentioned the alerts they received as being helpful; only one Claxton officer, however, did. In addition, in one of the comparison counties, the deputies discussed directed patrol based on information that they received from their Sheriff.

Safety and Security

Most of the respondents in all seven sites agreed that they felt safe and secure during their shifts. ECSO, however, had the lowest score of all sites. Both comparison municipal departments also had scores comparable or higher than the two treatment municipal agencies. The primary reason why officers and deputies stated that they felt safe was because of their trust in their fellow officers and backup, familiarity with the area, and training. Although the ECSO

Sheriff and one of the treatment municipal police department Chiefs discussed the intel as being helpful in increasing security, this was not what the officers and deputies focused upon.

Investigating and Preventing Crime

The treatment agencies were not more likely than the comparison agencies to agree that their agency was doing a good job of investigating crimes. The two comparison county agencies were in fact more likely to strongly agree that their agency was doing a good job of investigating crime. In addition, both comparison municipal agencies were also more likely to strongly agree than Claxton PD that they were doing a good job. The primary reason provided by officers in all sites for their agencies' capability in investigating crime was due to their faith in their investigator. The county with the least technological capabilities was more likely than the others to believe that additional technology could help them investigate crime better. However, both treatment municipal agencies were more likely than the treatment county and both comparison municipal agencies to believe that additional technology would help them do a better job of investigating crime. Although some officers provided specifics, the general answer was, "the more, the better."

ECSO, however, was as likely to agree as the less technologically capable county agency, but more likely than the more advanced technologically capable agency, that they were doing a good job of preventing crime. ECSO deputies who thought they were doing a good job of preventing crime discussed the intelligence products they received via their smartphones as a reason for them being able to patrol in the right spots to prevent crime. Once again, the county with the least technology was the agency that was the most likely to believe that additional technology could help them prevent crime. Both comparison municipal agencies were more likely than the treatment municipal agencies to believe they were doing a good job of preventing

crime. Although Claxton Police Department was dissatisfied with their technological capabilities, they did not feel strongly that improved technology would help them do a better job of preventing crime. The primary reasons provided by officers and deputies on how to do a better job of preventing crime centered more on increasing manpower and being more proactive, including directed patrol, rather than improvements to their agencies' technological capabilities.

SOME LESSONS LEARNED AND RECOMMENDATIONS FOR OTHER AGENCIES

Through this grant, there were many lessons that became apparent via both observations and from talking with the police leaders and officers and deputies of the various agencies regarding their *successes* and *challenges*. Below are some of the lessons learned and recommendations that may be helpful for other agencies, particularly rural or smaller law enforcement agencies, who are considering either implementing intelligence-led policing or increasing their technological capabilities.

E-Roll Call

- *Agencies should consider sending e-roll call to their officers/deputies and surrounding agencies:* Most small and rural agencies do not have formal roll calls each morning. Based on the interviews of the seven sites, it does not appear that formal in-person roll calls are necessary. Instead, information being passed from one shift to the next via informal means, such as talking or by way of e-mails, is sufficient in most cases. E-roll call, however, can be a positive addition to informing shifts or other agencies of what has recently occurred. Although officers and deputies provided comments on how to improve upon it, most respondents liked receiving e-roll call and the intelligence products on their smartphones. Since e-roll call is mostly a list of the calls for service that occurred the previous day, it is a relatively easy and quick way to provide information to others. Even departments that do not or cannot issue department cell phones can still send out e-roll calls to the personally owned cell phones of officers and deputies as a way to improve communication.

- *E-roll call may improve communication and relationships with non-law enforcement agencies as well:* E-roll call is also a good way to increase communication with non-police agencies, such as probation, probation, juvenile court, schools, etc., since it can be sent out to these agencies as well. The evidence indicated that ECSO had a better relationship with other criminal justice agencies in their area than other sites. This relationship could be explained by several factors, including ECSO's prolific offender meetings, but also its sending of e-roll call to other agencies. As the Sheriff of ECSO stated, "In the rural setting of intelligence-led policing, it is necessary to open up all avenues of information sharing both with those agencies inside the county jurisdictions and beyond. It is also crucial to include those sources outside normal law enforcement such as DFCS, Family Connections, Juvenile service, and parole/probation. An open funnel must be utilized to acquire information from every public service venue including fire service and EMS. These services are presented with and hear information that may never be utilized."

- *E-roll calls need to be sent out on a more formalized schedule:* In the treatment area, e-roll call was sent out Monday through Friday, meaning that incidents that occurred Friday, Saturday, and Sunday were included on the Monday e-roll call. Considering that most incidents happen on the weekends, agencies should consider making arrangements so e-roll call can be sent out seven days per week. If not possible, it would be better for it not to be sent out on two weekdays than the weekend. In addition, a major point of contention among officers and deputies, particularly officers in other agencies, was the lack of scheduled time it was sent out each day. Officers and deputies expected it to be sent out at roughly the same time. As the grant went on, the timing of e-roll call became later in the day and more sporadic. Also, there were stretches of time when the treatment area did not send out e-roll calls. These issues decreased the legitimacy of the program in the eyes of the line staff. More timely and scheduled dispersal of information is a necessity for officer satisfaction. Finally, the timing of the e-roll call needs to take into consideration shift changes. Since e-roll call is only sent out once every 24 hours, it is more beneficial to other agency officers and those officers who had not worked the previous day. In most cases, the information provided on e-roll call is regarding incidents on which the officer receiving e-roll call actually handled. E-roll call did not help with shift change because it was not sent out between shifts. An improvement could be having officers/deputies or the crime analyst quickly type up information needed to be transferred in an e-mail and send it to the officer's smartphone or laptop terminal before the next shift begins.

- *Providing more information on e-roll call:* Some officers and deputies commented that the information provided on e-roll call was basic and did not provide the detail they would prefer. Where possible, a paragraph should be included with each incident

describing the context of the situation and other information regarding the suspect, crime, and area that may be helpful to other officers.

Planning

- *Agencies need to have clear goals and objectives when implementing a program:* Before the decision to create or implement a program, agencies need to lay out clear goals, objectives, and measures on how they will assess whether those objectives have been met. In many cases, this will be a specific crime problem or group of individuals responsible for a disproportionate amount of crime in a specific area. In other words, agencies have to ask the question, "What are we trying to accomplish?" With small and rural agencies, they have to carefully assess how much crime and disorder they actually have and create responses that are proportionate in resources to that problem. Although small and rural agencies will benefit by adopting the principles and practices of intelligence-led policing, most small and rural agencies do not have enough crime and disorder to warrant a full-sized intelligence-based operations center. In fact, most small and rural agencies may not need a full-time, non-sworn, crime analyst because of their amount of crime.

- *All agency leaders have to be fully on board:* One of the toughest obstacles for any initiative is to get all pertinent agencies on board. Each agency has to see how their agency will directly be benefitted by the initiative as well as how their agency is adding to the initiative. The leaders need to embrace policy and the overall philosophy of the initiative and encourage their officers to participate and enforce when they do not. This overall issue does not stop during the planning and implementation stages, but must continue throughout the life of the program. As one police leader said, "There must be continuous and ongoing education of the leadership as to what specifically benefits them and why."

- *Signed MOU:* The responsibilities of each partnering agency should be clearly written in a MOU in which all partners sign. As one police leader stated, "The memorandum of agreement must be all inclusive and very specific as to expectation, with key roles and responsibilities."

- *Shared Costs between Departments:* Agencies may improve the implementation, partnership, and effectiveness of intelligence-led initiatives by sharing the costs. In the treatment site, the costs for the initiative was funded by the current and previous federal grants administered through ECSO, making the impression that it was an ECSO initiative. Since the initiative was primarily funded with grants, however, ECSO and the two municipal sites had little financial costs associated with the initiative. When the program was not implemented as planned, there was little financial incentive for Claxton PD to continue working with the implementation process. Rather, they spent their own money to upgrade their RMS and continued what they were currently doing. However, in

one of the comparison areas, the county sheriff's department and the municipal police department shared the costs of their new RMS, making them partners in their initiative. If there were problems, there was incentive to participate and to address the problem. Thus, when other agencies consider starting intelligence-led initiatives, having one agency burden the cost of the program may sound like a good selling point, but sharing the costs among agencies may increase agency participation, partnership, and ownership of the program.

- *Relationship between agencies:* Based on the interviews of all seven sites, the evidence supports that agencies have good relationships with each other based on personal relationships between police leaders and that of the officers and deputies. For an initiative to work, however, it requires more than a good friendly working relationship between the police leaders and some officers. Rather, for an intelligence-led initiative to work, crime analysts or individuals with intelligence-review responsibilities and investigators must have good working relationships with the agencies with which they are partnering, particularly if a position, such as the crime analyst, has the responsibilities for multiple agencies. Technology, such as synced RMS or e-mail, cannot substitute for partnerships or relationships with others or other agencies. Technology can only enhance these relationships.

- *Surveying officers:* Police leaders need to survey their line staff occasionally on strengths and weaknesses within the department. This is particularly important during the planning stages of a new initiative. The survey could focus on officer perceptions regarding whether the problem being addressed by the proposed initiative is important in relation to other issues they see, the strength of support within the ranks for the initiative, possible implementation obstacles, and whether the initiative may have effects on the daily routines of the officer. Sheriffs and Chiefs should not simply rely on their informal conversations they have with their line staff to gather information on these issues. This approach may lead police leaders to only receive information from a select few. In addition, only more vocal individuals may express their opinions in a focus group. An anonymous survey may allow all officers and deputies to express their opinions, particularly opinions that do not support the suggested initiative. In addition, surveying officers on the type of technology to invest in would allow officers to actively see their ideas and suggestions being implemented, leading to more buy-in and higher morale.

- *Holding social events:* Throughout all the interviews, the evidence clearly indicated the importance of personal relationships within and among small rural law enforcement agencies in better understanding what was occurring in the area. Although the survey did not specifically examine the strength of officer relationships, it seemed clear that some officers, as with all individuals, had wider and deeper social networks. Some officers suggested adding the number of social events between departments. Social events may increase the breadth and depth of social networks while also improving officers'

perceptions of other departments. These types of social events can also be held on a smaller level, such as among investigators of different agencies.

- *Technology Interoperability Plan:* The failure of creating a technology interoperability plan during the planning stages led to implementation problems that were never overcome. This was particularly true for the RMS, but also for the setting up of the smartphones. Agencies must create a specific and well researched interoperability plan with all subject matter experts and stakeholders before making decisions on what technology to purchase and implement.

- *Examination of how the dispatch system will affect the roll out of technology:* Most rural agencies do not have their own dispatch system because of their size and lack of calls. Several variations exist, including the county covering dispatch or even a region-wide dispatch system. In the treatment area, the Sheriff's office and Claxton Police Department were not covered by the same dispatch. ECSO is covered by a region-wide dispatch system centered in a neighboring county. Claxton PD's dispatch was covered by its fire department under the control of the fire chief, not the police chief. This arrangement led to problems as two different dispatch systems were involved and one was under the control of the fire department, who had not been consulted with during the planning stages. This evidence suggests that any agency implementing intelligence-led policing or implementing new technology in their agency needs to carefully consider how their dispatch system will affect the implementation process. Areas in which the same dispatch system covers the county agency and municipal police department should have easier times implementing changes to RMS. If fire departments are involved, fire chiefs need to be included at every stage of the process, including the creation of the original goals and objectives, and need to be signatories on the MOU.

- *Don't Forget the Basics:* Overall, officers and deputies in all sites were supportive of the implementation of technology in order to improve their jobs. However, they still understood the importance of fundamentals. In fact, some officers were concerned that improvements to technology indicated a decrease of what they considered basic law enforcement practices, such as "getting out there," "talking with people and hitting the streets," and simply using their training and experience. Thus, agencies need to be sure that they are not trying to substitute technology for performing the basics. In addition, police leadership needs to be aware of this issue within their department when implementing technology.

Technology Choices

- *Choosing the right smartphone:* ECSO created a prioritized list of criteria for what functions they needed and wanted in a smartphone. At the top of their list at the beginning of the grant was a push-to-talk function. The police leaders tested a smartphone with that feature and made their choice. Agencies who consider purchasing smartphones for their officers or deputies should similarly create a prioritized list of criteria before making decisions. If other agencies are involved, they too need to be consulted and partake in the testing process.

- *Change course if the technology or vendor does not meet expectations:* Considering the costs of technology, it is tempting to stay with the technology that an agency has, particularly if it was recently purchased. It appears, however, that more can be gained from making changes than sticking with technology that officers are not effectively using. During the grant, respondents had some problems with their smartphones, including opening large attachments. At the end of the grant, ECSO decided to move away from the more obsolete smartphone and purchase smartphones with DROID operating system platforms which should allow all attachments to be opened and e-mails not be truncated due to size. With this change, ECSO lost the push-to-talk function. This indicates that agencies need to continually re-evaluate the adequacy of their technology as well as the criteria they utilize to choose specific brands. As for RMS, the site did not change vendors or products and were never able to sync their systems.

- *Radio issues are a major problem for rural law enforcement:* As the interviews for all seven sites indicated, the radio systems caused major problems for rural law enforcement in communicating within and among law enforcement agencies. No other issue was as problematic for these agencies. In some cases, deputies were not able to communicate with each other because of poor service in the more rural areas. In other cases, deputies and officers were not able to communicate with officers and deputies of other agencies because of either the poor service or the fact that the agencies were on different bandwidths. Based on this information, rural agencies that are considering implementing new technology should either first consider spending their finite resources on addressing their problems with their radios or implement technology, such as cell phones, that may limit these problems. In addition, there should be much greater attention placed by the state and federal levels to fund the improvements of these systems, possibly by creating state-wide radio systems.

- *Adding computer terminals in squad cars:* Overall, most officers and deputies were interested in having computer terminals in their squad cars in order to run tag checks without having to call dispatch, issue printed tickets, and to write reports. In one of the comparison areas, the officers and deputies had access to the analytical RMS via

computer terminals in their patrol cars. Officers and deputies had instantaneous access to intel and calls for service from both the city and county agencies right after it was entered into the system. This allowed officers and deputies to have access to all information and incidents that occurred during the previous shift before their shift began as well. This is an advantage over e-roll call. During their shift, they had real-time access and could look up information on individuals, cars, and places.

- *Officer interest in other technologies:* Newer technologies that help with the apprehension of offenders as well as help officers use their time more efficiently were viewed with high regard. Two examples that were mentioned routinely through the sites were Livescan fingerprinting technology and tag readers. Officers enjoyed being able to process individuals rapidly with minimal time for incidences.

Training

- *Survey of officer capabilities:* Every agency interested in implementing technology in their agency needs to assess the capabilities of its officers and the challenges that they will have in implementing a specific piece of technology, including technology such as computers or smartphones that may seem basic to many.

- *Effective officer training on the implemented technology:* Most officers and deputies did not express concern with the implementation of technology. Evidence at several sites, however, indicated that officers were concerned that older and less tech savvy colleagues would be an obstacle in the implementation of technology within their department. For officers who are not familiar with newer technology, a full and inclusive training session is needed. This session must be provided by somebody who can relate these concepts to those who have had little to no contact with the new technology. Most officers do not need to know everything a specific device can do, but in the case of a smartphone, they need to be able to understand the basic functions, such as calling, sending texts, checking e-mail, opening attachments, taking pictures, retrieving images, and others. These training sessions need to include hands-on experiences. These training sessions should also be as close to implementation as possible. When training sessions predate the implementation of new technology by a lengthy amount of time, officers lose much of that knowledge and familiarity.

Crime Analyst

- *Role of the crime analyst:* Agencies that are considering intelligence-led policing need to evaluate whether their crime and disorder problem warrants the hiring of a full-time, non-sworn crime analyst. Most rural agencies do not have enough crime to warrant one. In

addition, a non-sworn crime analyst will generally have to report to the investigator or deputy sheriff and will not have direct formal access to the Sheriff.

- *Consider an investigator to be crime analyst:* If agencies are interested in having a crime analyst, agencies should consider delegating some of the responsibilities of a crime analyst to an investigator or other officer/deputy, similar to one of the comparison sites. This may lead to the need to hire an additional investigator considering that investigators are often overburdened already. But if the agency is interested in hiring a crime analyst, they may consider the hiring of an additional investigator instead to handle the crime analyst responsibilities and to decrease the workload of the other investigator.

- *Dual role of crime analyst within the county may lead to problems:* In order to help support the costs of the crime analyst in the treatment site, the county planned to have the crime analyst spend some of his time addressing IT issues within the court and other county buildings. This appeared at first to be a sound strategy to fiscally support the position past the end of the grant. However, over time, the crime analyst was spending roughly half his time, sometimes more depending on the issue, working on IT issues rather than his crime analyst responsibilities. Thus, agencies should be careful of using the crime analyst in a part-time capacity.

- *Work schedule of crime analyst:* The work schedule of the crime analyst should be based on their job responsibilities, when crime occurs, and the shift changes of the officers. It would seem that the work schedule should be based around when more crime occurs (Friday and Saturday, as well as the evenings) and that crime analysts should start their shift before the shift exchanges of the officers in order to help information flow between shifts.

- *Choosing the right crime analyst*: A crime analyst needs to be familiar with the area, have good personal relationships with officers within their agency and others, and be proactive. Considering that intelligence-led policing, particularly for rural law enforcement, will heavily depend on the sharing of information between smaller agencies, the crime analyst must have good relationships with police leaders, investigators, and officers in other departments or the initiative will fail.

- *Investigators must play a key role in intelligence-led policing:* The evidence from all sites indicated that the primary reason why officers and deputies believe that their agencies were doing good jobs of investigating crime was because of their faith in their investigators. Investigators must play a key role in intelligence gathering and information sharing for intelligence-led policing to work in a small department. An investigator and crime analyst must have a sound working relationship.

- *More trained officers:* A number of officers and police leaders expressed concerns about being understaffed. Officers often expressed their safety and security depended on officer backup and confidence in other officers. In addition, officers also mentioned that they could not be as proactive and focus on crime prevention as much as they would like because of not having enough officers. Thus, the evidence appears to suggest that many officers would rather see personnel increases than improvements to technology, other than addressing radio problems. As one officer stated, "Technology obviously is important, but the technology is useless if you don't have the manpower behind it. You can have the greatest software system in the world, but if you don't have the people to operate it, somebody who can actually go out there and do the footwork, what's the point of it?"

The Future

- *Increased grants for rural law enforcement*: Additional state and federal grants are needed to help support rural law enforcement implement intelligence-led policing, improve technology, and address their radio systems.

- *Need for more research on rural law enforcement agencies*: Rural law enforcement agencies are woefully understudied although smaller agencies comprise the bulk of American law enforcement. Most of our knowledge comes from large, urban, and thus unrepresentative police forces. Much more research needs to be conducted on rural law enforcement on a wide variety of topics, including intelligence-led policing and the implementation of technology. This initiative needs to be supported by increased federal grants.

Final Comment:

The goal of the project was to assess how the newly implemented technology affected the communication and technological capabilities of three rural law enforcement agencies -- one sheriff's agency and two small municipal agencies. By talking with respondents in four additional agencies, this project provided more voice for a desperately understudied and vital component of our criminal justice system – rural law enforcement. Although we tried to make comparisons and contrasts when the data allowed us to, it was not our goal to state that one

agency was doing a better job than the other. Rather, we hoped that the report would provide a glimpse on specific aspects of rural law enforcement.

These experiences and stories presumably represent that of many rural law enforcement agencies across the country. Many rural law enforcement agencies may read this report and see similarities between their agency and the agencies studied in this report, including but not limited to: poor resources, understaffing, inadequate radio systems, a familial setting among officers within and between agencies, and an attitude of simply doing the best that one can do with the resources that are available. Other rural law enforcement agencies may see their agencies as quite different, possibly because of crime levels or technological capability differences. Hopefully, however, any rural or small law enforcement agency can take away some lessons from this report – things that they can improve upon as well as things that they are doing well and should continue to do so.

Appendix 1: Rationale for Smartphone Choice

In explaining why ECSO chose the smartphone they did, the Deputy Sheriff wrote:

> The Sheriff's Office and Police departments have had "Southern linc" cell phones/push to talk radio as a device that they all carry on their person at all times. A culture has developed over the last 10 years among the deputies, city officers, fire, EMS, and public works where they all depend heavily upon the purpose and function of this device in their duties. The push to talk informal radio function is of great utility to all of these officers. Southern linc is a regional provider for these communications. The I-phone does not have a push-to-talk radio feature and Droid's only push to talk application was a Motorola product that had a poor application for opening intelligence products, zooming in and reading font size. We acquired and tested three of the Droids devices with the push to talk feature and all three officers were not satisfied with the device. The operation features in combination with the push to talk was problematic for those officers that tested the device.
>
> The only narrowly tailored requirement for any device was push to talk because of the inherit culture of the officers that depends upon that requirement. If the Droids or I-phones we wanted were issued, deputies and officers would retain their "southern linc" services and carry that device as a main device, thus leaving the Droid or I-phone in the vehicle. The effectiveness of the program depends upon the deputies/officers keeping the device on their person; such illustrates the importance of having one device that has the push to talk as a first priority than the other requirements such as Internet, cell, and GPS tracking.
>
> As a result we purchased the Motorola 8350 I Blackberry curve "Smartphone" with push to talk, Internet, cell, and GPS tracking. The applications for interpreting and other uses were sacrificed due to the functional and cultural requirements the Blackberry could accommodate. The model "smartphone" we wanted with the latest technologies did not meet the expectations we knew we had to provide in the context of the officers' work paradigm. We were able to acquire the blackberries at no charge based upon the vendor's service agreement.
>
> Once new technology and another product meets our needs we can upgrade into the Droid or I-phone with the additional applications we want. Lesson Learned: Like policy, technology issues should be planned from the bottom up instead of the top down.

Appendix 2: Post Implementation Surveys for Treatment Sites

Smart Policing Initiative

IMPORTANT: _____ (NAME OF AGENCY)

Please rate the following statements based on how your perception of your job duties has changed since implementing the process of receiving E-Roll call, patrol alerts, open case alerts, and BOLOs:

1) I am more aware of my environment when I patrol or respond to calls.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

2) I am able to see things differently and "connect the dots" when I observe, hear, or receive information.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

3) My patrols have become more "purposeful" due to my knowledge gained from previous shifts.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

4) I am more efficient and effective as a police officer.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

5) I feel safer and more secure during my shift.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

6) I feel as if my agency is doing a better job of investigating crime due to the newly implemented technology.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

7) I feel as if my agency is doing a better job of preventing crime due to the newly implemented technology.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

8) I feel as if I have better collaboration of information with other county agencies (i.e., DFACS, schools, etc.) due to the information-sharing system.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

9) I feel as I have better cooperation with other county agencies when it comes to providing information toward investigations.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

On a scale of 1 to 5, with 1 being “low impact” and 5 being “high impact,” how effective do you feel each of the following components has been in IMPROVING COMMUNICATION?

1) E-roll call	1	2	3	4	5
2) CrimeStar	1	2	3	4	5
3) The Information Depository (Web-based intel system)1	2	3	4	5	
4) Patrol alerts	1	2	3	4	5
5) Open case alerts	1	2	3	4	5

On a scale of 1 to 5, with 1 being “low impact” and 5 being “high impact,” how effective do you feel each of the following components has been in REDUCING CRIME?

1) E-roll call	1	2	3	4	5
2) CrimeStar	1	2	3	4	5
3) The Information Depository (Web-based intel system)	1	2	3	4	5
4) Patrol alerts	1	2	3	4	5
5) Open case alerts	1	2	3	4	5

Please answer the following questions as honestly as you possibly can in regard to the implementation of the process of receiving E-Roll call, patrol alerts, open case alerts, and BOLOs:

1) Please describe any positive outcomes that have occurred in the last 30 days that are a result of the new technology.

2) Please list any negative outcomes that have occurred in the last 30 days that are a result of the new technology.

3) How do you think that the technology could be used better?

Appendix 3: Treatment Sites Interview Instrument

Research Project: Comparison of Intelligence-Led Policing in Rural Departments and Agencies

Survey for: (1) Evans County Sheriff's Office; (2) Claxton Police Department; and (3) Hagan Police Department.

Name of Agency: _____ Date: _____

Thank you for participating in this study. I am going to read all questions to you and mark your answers. The interview is being recorded by a digital voice recorder.

Technology-issues

1) Do you feel that the technology within your agency is adequate?

    1) If yes, please explain why.
    2) If no, please explain why not.

2) What type of technology does your agency not have that you think would be helpful for your job?
    1) Why?

3) What concerns do <u>you personally</u> have about using new technology (ex. cell phones, computers, new data base systems)?
    1) Follow up question: How can those concerns be alleviated?

4) What do you see as the biggest obstacles in implementing new technology (such as blackberries, computers, new data system, etc.) in your agency?

5) When implementing new technology into your department or agency, which of the following four factors is the most important to you - ease of use, usefulness, information quality, timeliness?
    1) Why?
    2) Second most important?
    3) Why?

Communication-issues

6) Do you participate in any "roll Call" or "meeting" to discuss intelligence information, crimes or calls for service before your shift?
    1) If yes, please tell us a little about those meetings?
        1) How often?
        2) How long do they last?
        3) What do they cover?

3. Calls for service?
4. Intelligence?

4) Does it cover the information that you think is necessary for you to do your job?
5) How can it be improved?

2) If no, how are you informed of events that occurred or information that was gathered previously to your shift?
    1) Is this adequate?
        3. Why or why not?

7) Do you regularly know what crimes and calls for service are occurring with other agencies in your county?
    1) If yes, how are you informed?

8) Do other law enforcement agencies in your county share information with you regarding intelligence, crimes, and calls for service?
    1) If yes, how do they do so?

9) How are you informed of events that occur while you are on shift?

10) On a normal shift, what are you looking for when on patrol or driving around?
    1) What is this based on?

11) Is communication adequate within your agency?
    1) Why or why not?

12) What's the most important thing that can be done to improve communication within your agency? How?

13) Is communication adequate between your agency and surrounding agencies?
    1) Why or why not?
14) What's the most important thing that can be done to improve communication between your agency and others? How?

15) Do you believe you could do your job better if you had more information from your agency or others?
    1) Why or why not?

16) Do you think that the information that you receive from the Evans County Sheriff's Office's Intelligence Operation Center is helpful?

1) Why or why not?"

17) How could it be improved?

18) What **positive** things or outcomes have occurred over the last 12 months because you're able to use a **blackberry** within your job? PLEASE describe how this has helped you in your job.

19) Did you use your phone for the following functions?

1) To check e-roll call?
2) To read other Intelligence products?
3) To access Internet for other job related duties?
4) GPS tracking?
5) Other?

20) On a scale of 1 to 5, with 1 being extremely difficult and 5 being very easy, how easy was it for you to use your smartphone for your job-related duties?
    1) Why?
    2) Difficulties with the push to talk button?
    3) Opening attachments?
    4) Zooming in?
    5) Reading font size?

21) What technical problems did you have with your phones while using it for your job duties?

22) What other applications or features do you wish the phone had?
    1) Why?

23) If your phone had a Spanish translation function, would you actually use it?
    1) Why or why not?

24) Do you feel that you received enough training on how to use the phone and its different functions?
    1) Why or why not?

For the following questions, we are going to read statements. We are interested in whether you agree with that statement. The options are: strongly disagree, disagree, neutral, agree, and strongly agree.

25) My patrols are "purposeful" in that I know what I am looking for based on information received from my agency.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

26) I feel safe and secure during my shift.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

27) My agency is doing a good job of investigating crime.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

28) My agency could do a better job of investigating crime if technology within our department or agency improved.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

29) My agency is doing a good job of preventing crime.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

30) My agency could do a better job of preventing crime if technology within our department or agency improved.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

31) I feel as if I have good collaboration of information with other agencies, such as probation and schools, in my county.

Strongly Disagree Disagree Neutral Agree Strongly Agree

WHY?

32) On a scale of 1 to 5, with 1 being "low impact" and 5 being "high impact," how effective do you feel each of the following components has been in IMPROVING COMMUNICATION?

1) E-roll call	1	2	3	4	5
2) CrimeStar	1	2	3	4	5
3) The Information Depository (Web-based intel system)	1	2	3	4	5
4) Patrol alerts	1	2	3	4	5
5) Open case alerts	1	2	3	4	5

33) On a scale of 1 to 5, with 1 being "low impact" and 5 being "high impact," how effective do you feel each of the following components has been in REDUCING CRIME?

1) E-roll call	1	2	3	4	5
2) CrimeStar	1	2	3	4	5
3) The Information Depository (Web-based intel system)	1	2	3	4	5
4) Patrol alerts	1	2	3	4	5
5) Open case alerts	1	2	3	4	5

34) If your agency had a leadership change (i.e. different police chief or sheriff) in the near future, what changes would you expect to see?

35) Are there other positives, negatives, or possible suggestions for improvement regarding technology and communication in your agency or surrounding agencies that we have not asked?

Thank you for your time.

Appendix 4: Comparison Sites Interview Instrument

Survey for comparison sites

Name of Agency: _____ Date: _____

Thank you for participating in this study. I am going to read all questions to you and mark your answers. The interview is being recorded by a digital voice recorder.

Technology-issues

1) What type of technology does your department or agency have? (examples: smartphones, computers in cars, different type of communication, software, etc.)

2) Do you feel that the technology within your agency is adequate?

    1) If yes, please explain why.
    2) If no, please explain why not.
        3. If answered no, can you provide two examples in which the lack of good technology caused problems for your job?

3) What type of technology does your agency not have that you think would be helpful for your job?
    1) Why?

4) What concerns do <u>you personally</u> have about using new technology (ex. cell phones, computers, new data base systems)?
    1) Follow up question: How can those concerns be alleviated?

5) What do you see as the biggest obstacles or problems in implementing new technology (such as blackberries, computers, new data system, etc.) in your agency?

6) When implementing new technology into your department or agency, which of the following four factors is the most important to you - ease of use, usefulness, information quality, timeliness?
    1) Why?
    2) Second most important?
    3) Why?

Communication-issues

1) Do you participate in any "roll Call" or "meeting" to discuss intelligence information, crimes or calls for service before your shift?
    a. If yes, please tell us a little about those meetings?
        i. How often?
        ii. How long do they last?
        iii. What do they cover?
            1. Calls for service?
            2. Intelligence?
        iv. Does it cover the information that you think is necessary for you to do your job?
        v. How can it be improved?

    b. If no, how are you informed of events that occurred or information that was gathered previously to your shift?
        i. Is this adequate?
            1. Why or why not?

2) Do you regularly know what crimes and calls for service are occurring with other agencies in your county?
    a. If yes, how are you informed?

3) Do other law enforcement agencies in your county share information with you regarding intelligence, crimes, and calls for service?
    a. If yes, how do they do so?

4) How are you informed of events or warnings that occur while you are on shift?

5) On a normal shift, what are you looking for when on patrol or driving around?
    a. What is this based on?

6) Is communication adequate within your agency?
    a. Why or why not?

7) What's the most important thing that can be done to improve communication within your agency? How?

8) Is communication adequate between your agency and surrounding agencies?
    a. Why or why not?

9) What's the most important thing that can be done to improve communication between your agency and others? How?

10) Do you believe you could do your job better if you had more information from your agency or others?
    a. Why or why not?

For the following questions, we are going to read statements. We are interested in whether you agree with that statement. The options are: strongly disagree, disagree, neutral, agree, and strongly agree.

32) My patrols are "purposeful" in that I know what I am looking for based on information received from my agency.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

33) I feel safe and secure during my shift.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

34) My agency is doing a good job of investigating crime.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

35) My agency could do a better job of investigating crime if technology within our department or agency improved.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

36) My agency is doing a good job of preventing crime.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

37) My agency could do a better job of preventing crime if technology within our department or agency improved.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

38) I feel as if I have good collaboration of information with other agencies, such as probation and schools, in my county.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Please explain answer.

39) If your agency had a leadership change (i.e. different police chief or sheriff) in the near future, what changes would you expect to see?

40) Are there other positives, negatives, or possible suggestions for improvement regarding technology and communication in your agency or surrounding agencies that we have not asked?

Thank you for your time.