

Interoperable Communications Technology Program (ICTP) Assessment

**Best practices
and lessons
learned**

by
Barbara Webster
Tom McEwen



COPS

COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE



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U.S. DEPARTMENT OF JUSTICE
OFFICE OF COMMUNITY ORIENTED POLICING SERVICES
Office of the Director
145 N Street, N.E., Washington, DC 20530

COPS

Dear Colleagues,

From 2003 through 2006, the U.S. Department of Justice, Office of Community Oriented Policing Services (COPS Office) awarded 65 grants totaling \$250 million to local law enforcement agencies across the United States under its Interoperable Communications Technology Program (ICTP). The purpose of these grants was to fund projects that explored uses of equipment and technologies to increase interoperability and data information sharing among the law enforcement, fire service, and emergency medical service communities.

With thorough and rigorous planning, these projects helped to demonstrate how new technologies and operating methods could help communities achieve interoperability.

This report describes the findings of an ICTP assessment study conducted by the Institute for Law and Justice (ILJ), in which they examined the grant implementation process of the ICTP grantees. The report describes successful practices to improve interoperability and build stronger multiagency and multidisciplinary partnerships. It also highlights ten best practices that could help improve agencies in both critical incident and day-to-day operations.

I encourage you to review these best practices and identify areas for implementation in your own interoperability efforts. For more information on the COPS Office, and to access free publications on interoperable communications and other topics critical to law enforcement, visit us at www.cops.usdoj.gov.

Sincerely,

A handwritten signature in cursive script that reads "Bernard K. Melekian".

*Bernard K. Melekian, Director
Office of Community Oriented Policing Services*

Acknowledgments

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ILJ staff providing direction, management, research, and analytical support for the ICTP assessment were Ed Connors, president; Dr. Tom McEwen, director of research; Barbara Webster, senior writer/principal research associate; and Callie Long and Maggie Miller, project management assistants.

Introduction

After the September 11, 2001, terrorist attacks on the United States, the federal government greatly increased its funding for projects that focus on improving wireless communication among first responders. The U. S. Department of Justice, Office of Community Oriented Policing Services (COPS Office) is one of several federal agencies providing grants for that purpose. From 2003 through 2006, through its Interoperable Communications Technology Program (ICTP), the COPS Office awarded 65 grants totaling nearly \$250 million to local law enforcement agencies. This report reviews some of the successful practices and lessons learned from projects undertaken with ICTP grant support.

The COPS Office expected ICTP grantees to conduct multiagency, multidisciplinary projects to improve interoperability, defined as the ability of public safety personnel to talk with each other via voice and data on demand, in real time, when needed, and when authorized.¹

The COPS Office did not require ICTP grantees to implement state-of-the-art technologies; instead, its emphasis was on interagency partnerships, the selection of technologies that met regional needs, and sound planning and management practices. In line with this, this report focuses on governance, needs analysis and planning, and project management issues.

“As a region, our first responders should not be concerned with what system they are on or how they got there. They should be focused on doing their job independent of jurisdictional boundaries.”²

ICTP Grants

Law enforcement agencies representing Metropolitan Statistical Areas (MSA) from each state and U.S. territory were invited by the COPS Office to apply for ICTP grants, ensuring that both large cities and small towns had access to the program. Yet, while the COPS Office awarded ICTP grants to law enforcement agencies, the projects

were not intended to benefit the administering agency alone. Rather, the COPS Office sought to fund “projects that explore uses of equipment and technologies to increase interoperability and data information sharing among the law enforcement, fire service, and emergency medical service communities.”³

As the COPS Office explained in its invitations, ICTP grant funds could be used to purchase the following:⁴

- Interoperable communications equipment for multidisciplinary and multijurisdictional projects
- Equipment or services needed by local jurisdictions to participate on larger public safety, commercial, or other shared networks
- Portable gateway solutions
- Technologies to upgrade or enhance the ability of law enforcement systems to improve the timeliness, effectiveness, and accuracy of criminal justice information exchanges
- Any other technology that could be demonstrated to increase interoperability significantly within the public safety community

The ICTP grants supported projects in both large and small population centers in MSAs.⁵ The 14 grants awarded in 2003 went primarily to large jurisdictions and were in the \$2.5 to \$6 million range. Most of the 48 grants awarded in 2004 and 2005 were also in that range, although nine were for less than \$1 million.⁶

Grantees were required to provide a 25 percent local cash match. The grant amount often indicated the project’s technical complexity, but this was not always the case; for example, one \$6 million grant was used primarily to purchase radios for first responders in one jurisdiction.

The award period for 2003 and 2004 grantees was one year. The COPS Office increased the award period to three years for 2005 grantees.

1. DHS (U.S. Department of Homeland Security): About SAFECOM.

2. The callout quotes in this report were collected from ICTP assessment participants and are intentionally kept anonymous.

3. COPS Office. 2005. “Fact Sheet: COPS Interoperable Communications Technology.”

4. Ibid.

5. Large population centers were considered those that met the threshold of 150,000 or more. Small population centers were considered those under 150,000.

6. Only three grants were awarded in 2006 for a total of \$8 million. The federal cap per grant award for ICTP was \$6 million for larger jurisdictions and \$3 million for smaller jurisdictions.

Technical Assistance

The COPS Office selected the non-profit organization SEARCH⁷ to provide training and technical assistance (TA) to ICTP grantees. SEARCH produced detailed guidebooks,⁸ delivered initial training to all ICTP grantees, offered advanced training workshops, and provided TA to individual projects at grantees' requests. Some grantees requested onsite, individualized TA services during the startup or planning phases of their projects (i.e., before initiating the acquisition process), such as developing project planning documents and governance structures. Others requested TA from SEARCH in reviewing the responses they received to Request for Proposals (RFPs) from vendors who proposed to address the needs of the agencies' communications projects.

Grantees also benefited from kickoff conference training presentations by COPS Office staff on key grant administration requirements and processes. All training events were enhanced by structured and less formal opportunities for project managers to share information and solutions to common problems with their peers.

"It was extremely helpful to be able to meet with project managers from other jurisdictions through COPS [Office] training forums."

Assessment

The COPS Office selected the Institute for Law and Justice (ILJ) to conduct an assessment of the ICTP. Developed by ILJ in collaboration with the COPS Office, the assessment explored the processes the ICTP grantees employed, including governance, planning, needs analysis, project

management, procurement, implementation and testing, and training. The assessment work began in September 2006, with data collection ending in August 2009. Methods included detailed telephone surveys, document reviews, several site visits, and a focus group of ICTP project managers.

The greatest challenge to conducting the assessment was the amount of time grantees needed to implement their projects. Multimillion-dollar, multidisciplinary, multijurisdictional, wireless communications projects can take years to complete. Many projects involved complex technical solutions and new partners. While the majority of ICTP grant projects were implemented as planned, many grantees needed to request no-cost extensions from the COPS Office to complete their projects.⁹

By early 2009, it had become apparent that at least 12–15 ICTP grantees would be extending their projects into 2010. However, to ensure the assessment was completed, the COPS Office and ILJ set August 31, 2009, as the cut-off date for data collection. The net result was that the assessment team obtained complete or nearly complete information on 44 projects,¹⁰ which represented a valid cross-section of grantees with respect to agency size, geographic diversity, and technologies implemented.¹¹

Environment

Police began using two-way radios in the early 1930s, and for at least the next 50 years, police and fire/EMS agencies typically bought and managed their own equipment. This business model was destined to change as agencies learned hard lessons from responders' attempts to use incompatible communications systems during emergencies and disasters. By the time the ICTP began in 2003, many agencies had begun to set aside their unilateral approaches in favor of interagency cooperation and cost sharing. The ICTP planners understood, however, that overcoming barriers to collaboration could be as difficult as making decisions about technologies.

7. SEARCH Group, Inc., The National Consortium for Justice Information and Statistics, www.search.org.

8. Harris, Kelly J., and William H. Romesburg. 2002. *Law Enforcement Tech Guide: How to Plan, Purchase and Manage Technology (Successfully!)*, A Guide for Executives, Managers and Technologists (the first publication in the Tech Guide series and hereafter referred to as *Law Enforcement Tech Guide*); Hawkins, Dan M. 2006. *Law Enforcement Tech Guide for Communications Interoperability: A Guide for Interagency Communications Projects*; Roberts, David J. 2006. *Law Enforcement Tech Guide for Creating Performance Measures That Work: A Guide for Executives and Managers*; Harris, Kelly J., and Todd G. Shipley. 2006. *Law Enforcement Tech Guide for Information Technology Security: How to Assess Risk and Establish Effective Policies*.

9. In all years, grantees could and did request no-cost extensions of the grant award period.

10. By September 2009, 17 of the 65 ICTP projects had received no-cost grant extensions into 2010 (some of the 17 had been far enough along with implementation to participate in the telephone survey process).

11. The team obtained partial information on other grant projects, but this information was not included in the survey database of 44 grantees.

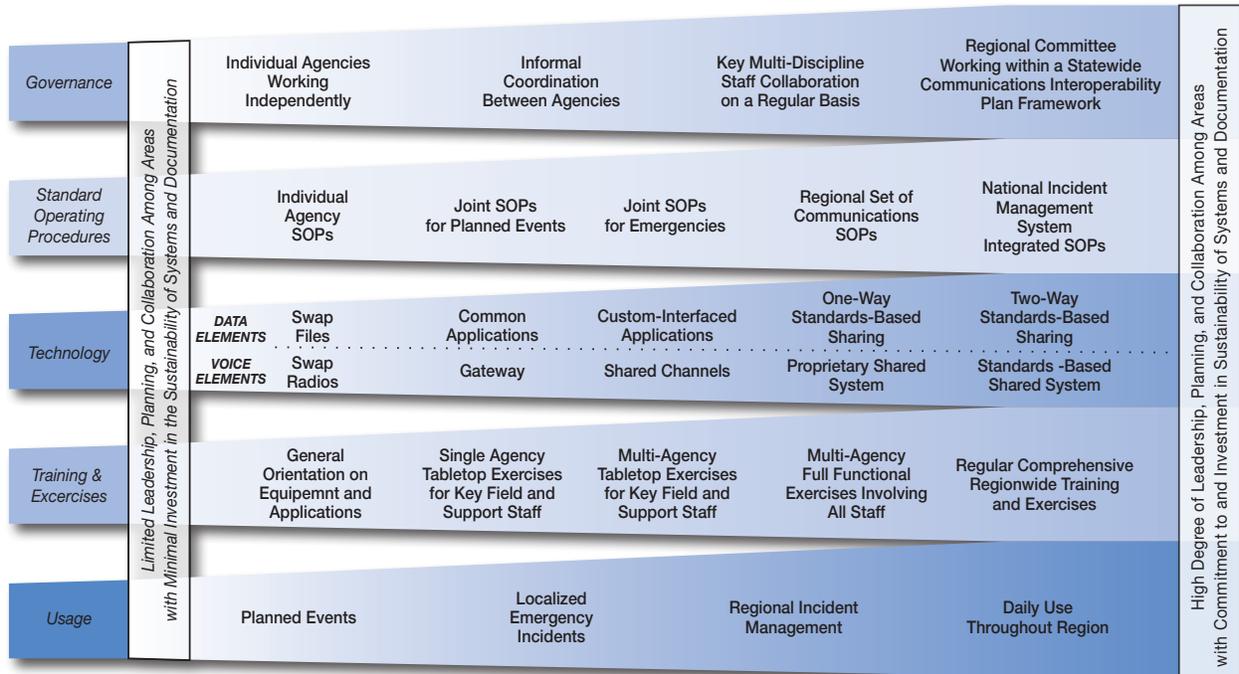


Figure 1. SAFECOM Interoperability Continuum. (See appendix for original, larger version.)

Source: U.S. Department of Homeland Security

“The 18 separate jurisdictions that will share [the system] have all had to give up some control. They normally would have developed their own local microwave systems, which may or may not have been able to interconnect with adjacent systems. By allowing this system to be installed at their local sites, they have supported a solution that is more than the sum of its individual parts.”

In 2003, the National Task Force on Interoperability (NTFI) identified five challenges to interoperability: incompatible and aging equipment; limited and fragmented radio spectrum; lack of coordination and cooperation; limited and fragmented planning; and limited and fragmented funding.¹²

In 2005, the National Association of State Chief Information Officers (NASCIO) pointed to three types of interoperability problems: technical (spectrum issues and proprietary technology); political (leadership issues and competition for limited funding); and cultural, described as “agencies’ natural reluctance to give up management and control of their communications systems.”¹³

Similarly, the U.S. Department of Homeland Security (DHS) SAFECOM program reinforces the message that resolving technical issues represents only one part of achieving interoperability. SAFECOM emphasizes a need for concurrent work in five areas: governance, standard operating procedures, technology, training and exercises, and usage. While ICTP projects were not formally evaluated against SAFECOM milestones, the SAFECOM Continuum (see Figure 1) provided a useful framework for assessing the projects’ starting points and progress.

12. National Task Force on Interoperability. 2005. “Why Can’t We Talk? Interoperability: Working Together to Bridge the Communications Gap to Save Lives.”

13. NASCIO. 2005. “We Need to Talk: Governance Models to Advance Communications Interoperability,” 1.

Assessment Results and Lessons from the Field

The intended ICTP results were to (1) improve interoperability and (2) build stronger partnerships. The ICTP assessment was not a formal evaluation, but the findings indicate that the ICTP accomplished both outcomes at nearly every participating site. ICTP funds helped achieve greater communications reliability, wider coverage, and/or a new capacity to communicate with various agencies.

“By belonging to the regional system, sharing resources is effective and in the long run better for the community. Having a reliable infrastructure, the officers don’t have to worry whether their radio is going to work or not; it just does.”

Of course, the ICTP often was not the sole reason for the communications and operational improvements grantees achieved. Depending on the site, other factors included having developed portions of their communications systems with support from other funding sources; however, the ICTP grants clearly contributed to making these improvements possible.

“The two big catalysts that cause agencies to work together toward common goals are disasters, or there is money available to encourage them to work together.”

Improved interoperability in turn improved public safety operations and first responders’ safety on the job. Completed projects achieved more efficient and effective responses to day-to-day events, planned events, and critical incidents. Examples included responding to officer-involved shootings; managing presidential candidate visits; controlling wildfires; handling hostage and escaped prisoner situations; conducting vehicle pursuits, investigations, and search and rescue missions; and responding to extreme weather events.

Just as important for the assessment, grantees shared lessons learned from working through planning and implementation challenges. The assessment identified examples of what recommended practices worked well, as well as problems encountered at various sites.

Most ICTP projects required no-cost extensions to complete their work. This was expected because many projects involved complex technical solutions and new partners. Continued reinforcement of known best practices, however, can help future projects avoid major delays and other difficulties. For this report, 10 recommended practices stood out as especially important for the ICTP projects. Highlighted below, these best practices are grouped accordingly under five categories: Governance, Project Staffing, Project Planning, Procurement Process, and Project Management.

Governance

The SAFECOM Continuum (see Figure 1 on page 3) shows four markers of progress in establishing a governance structure. Most grantees had reached at least the third marker—key multi-discipline staff collaboration on a regular basis—at the time their grants were awarded, but some had not yet executed formal agreements with their partners to establish a governing body of decision makers. In its training and materials, SEARCH encouraged grantees to strive for the fourth (highest) marker on the continuum—formal committees serving regional needs and working with statewide efforts.¹⁴

About 80 percent of grantees reported having project governance structures. Some governing bodies were active before the ICTP funding opportunity was announced, while others were formed at the time of grant application or during the project’s start-up phase. At least three-fourths of grantees with governance structures considered

14. Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 28.

them “very effective” in garnering political support for the ICTP project (84 percent), fostering communications (80 percent), launching the project (77 percent), and securing financial support (74 percent). The assessment confirmed that the following three governance practices worked best:

★ Best Practices

1. The governing body is formed proactively, before applying for a federal grant.

ICTP projects had an advantage when formal governing bodies were already in place and had provided oversight for earlier phases of a regional interoperability plan, with the ICTP project representing another component of the plan (see below sidebar). This saved time at startup that might otherwise have been spent ironing out differences, and it reduced the chances that solutions proposed for COPS Office ICTP funding would require major modifications later.



Governance Structure Development at Three ICTP Sites

Baltimore. The city of Baltimore, Maryland, on behalf of the Baltimore Urban Area Workgroup, created a sub-committee in 2001 that planned and implemented the Central Maryland Area Radio Communications (CMARC) system. Since that time, CMARC has operated as the governing body for interoperable communications. Baltimore’s 2003 ICTP grant represented Phase II of CMARC’s five-phase strategic plan to complete the region’s overall interoperability vision. CMARC’s regional planning capabilities, as well as demonstrated successes in Phase I, had a significant positive impact on the ICTP grant project. In presentations to newer ICTP grantees, COPS Office staff often included CMARC as an example of governance.

San Jose. The San Jose area Silicon Valley Regional Interoperability Project (SVRIP) received the highest rating of “advanced” for governance in a U.S. Department of Homeland Security process. SVRIP is grounded in earlier efforts to address interoperability issues: in 1998, Santa Clara County police chiefs, fire chiefs, and communications managers formed two working groups to develop a solution for voice radio and data communication. Each group included county representatives from law enforcement, fire, EMS, and emergency management, along with resources from the California Highway Patrol and California Department of Forestry.

When it was not possible or desirable for an existing governance structure to oversee the ICTP project, sites took other approaches to meet requirements for governance. San Diego, for example, developed a charter at the time of grant application for the Regional Command and Control Communications (3Cs) Council, which was created specifically for ICTP project governance. Most council members had worked together before in various capacities, and the 3C leaders made concerted efforts to coordinate with other technology and communications committees in the region.

Other sites were able to execute agreements in time to meet the application deadline because the partners had a history of cooperating on communications projects. As one project manager said, meeting the requirement “did not mean having to scurry to put something together.” Written commitments also paid off for smaller projects. In Ogden, Utah, for example (see sidebar on page 6), a formal approach that was at first labor-intensive proved key to completing the project on schedule.

These groups developed the Bay Area Mutual Aid Communication System (BayMACS) for interoperable communications, but this still required dispatcher intervention to program a temporary patch between disparate systems. In 2004, increased public safety concerns and BayMACS’ limitations spurred the formation of SVRIP, which contracted out for a data integration and radio interoperability needs assessment and design solution. SVRIP includes representatives of Pacific Gas and Electric, the San Jose Mayor’s Office, and federal agencies such as the FBI and ATF (Bureau of Alcohol, Tobacco, Firearms and Explosives), in addition to the groups named earlier.

Colorado Springs. The process for establishing the Pikes Peak Regional Communications Network (PPRCN) in 1999 illustrates another team approach to governance. After receipt of a consultant’s report prepared for Colorado Springs and El Paso County, a city and county team researched options for resolving communications issues affecting both jurisdictions. Management, technical, finance, and publicity teams were established under an executive board, which maintained oversight of the process. A system upgrade was successfully completed, and the PPRCN governing board made decisions regarding infrastructure and operations. The existence and experience of this group provided a stable structure for the ICTP project. The PPRCN also formed a users’ council.



Governance and Planning for a Smaller Project

The Ogden City Corporation received one of the smallest ICTP grants (less than \$350,000) but developed a 60-page, comprehensive project design document. Among other things, it detailed responsibilities and associated costs for each agency and was sanctioned by a seven-member steering committee. A technical committee was also formed to support the jurisdictions that had limited IT capabilities.

Project personnel offered these recommendations: develop a planning document that includes all program components; involve all stakeholders; form a steering committee that represents all partners and that meets regularly; and involve upper-level management to ensure funding and provide support.

2. The governing body is formally organized, as reflected in a project charter or similar written agreement, and members have decision-making authority.

About 20 percent of ICTP grantees did not have a governance structure for their projects, relying instead on day-to-day coordination among key staff and the management plan prepared for their grant application; and about one-fourth (26 percent) of projects that reported having a governance structure said that members' commitments were informal.

Complex IT projects, however, can be affected by political, organizational, legal, and technical issues. Multimillion-dollar, multiagency interoperability projects typically take several years to complete and project personnel cannot afford to rely on verbal agreements alone to keep their projects on track should they encounter changes in leadership or technical issues that affect project direction or costs. Project personnel need to execute a written agreement for governance, whether that agreement is contained in a project charter or another official document. This ensures the project has a decision-making structure in place and helps clarify the responsibilities of all participating agencies.

Furthermore, governing body members—e.g., police chiefs, sheriffs, fire chiefs, and city and county managers, or administrators with authority and ready access to those officials—must be decision makers, because their involvement is essential for breaking down political and resource barriers that may interfere with project comple-

tion. As one project manager said, “They have the power to get things done.”

“The system was going to use wireless transmission and wouldn't allow a wired connection between consoles and the main system. The team wanted a wired connection, which would cost the city an extra \$100,000. The police commissioner agreed and worked to obtain funding.”

“The various sheriffs and managers of public safety [from nine counties] were very involved and supportive. We are finding that maintenance is more expensive than anticipated, and management has supported us in dealing with that challenge.”

3. The governing body is representative of the involved jurisdictions and disciplines.

Nearly all ICTP governing bodies included representatives of local law enforcement, fire and EMS, and city and county government (typically the communications department), but some benefited from being more inclusive. For example, the city of Omaha and the Omaha Public Power District (OPPD) signed a historic agreement to share assets and begin cooperative development of a regional radio network. The cooperative network provided public safety units with voice coverage in all of the MSA's nine counties—six in Nebraska and three in Iowa—and served as the foundation for a regional mobile data network. In Columbus, Ohio, where ICTP personnel emphasized that “governance is key,” the Homeland Security Advisory Committee (HSAC) took on additional responsibilities, such as health emergencies and bomb squad operations, after experiencing success with ICTP project governance.

Depending on their ICTP objectives and operating environments, various governing bodies had members representing state and federal law enforcement, utility companies, tribal interests,

military facilities, hospitals, and other states. At some sites (about 17 percent), vendors participated in governing body meetings in a non-voting capacity.

★ Lessons Learned

Forming and solidifying partnerships takes time. Even projects that had laid the groundwork for governance experienced delays at startup if agreements had not been signed before applying for the grant. One project involved nine counties in a build-out of five mutual aid channels and was a model of cooperation: e.g., project implementation proceeded with no significant conflicts or scheduling delays. Still, time was needed after the grant award to solidify agreements. As one ICTP project representative explained, it took four or five months to complete the MOUs “because each county attorney wanted a little something different.”

This delay was relatively minor. Projects were subject to more serious problems when a governing body was never designated. Interoperability was improved in the end, but there was no formal group in place to help manage risks.



Lack of Formal Governance Structure

Although most ICTP projects had governance structures, important lessons can be learned from some that did not. For example, one jurisdiction essentially managed the ICTP grant as its own capital project. It did not form a governing body or create a project charter. The jurisdiction had a reasonable expectation that matching funds would be available, but unusual political events delayed approval and receipt of those funds for more than a year.

The first 18 months were impeded by a lack of project definition, inconsistent organizational support, and a change in the wireless communications department’s leadership. Once that leadership was stabilized, the new managers determined that changes in the system’s technical design were warranted. Other delays were caused by extreme weather and the unavailability of physical sites that had been promised to the project by other agencies.

Project Staffing

A highly qualified project manager and technical team are essential for any interoperable communications project. Best practices numbers four and five below clearly helped ICTP grantees keep their schedules on track, contain costs, and control the scope of work:

★ Best Practices

4. The project manager is a skilled, experienced member of the lead agency who can facilitate communication and decision making. The project manager is full time for major, multimillion-dollar projects.

SEARCH identifies more than 20 responsibilities of law enforcement IT project managers, along with skills and personal attributes needed for effectiveness,¹⁵ and emphasizes that project management experience is critical for interoperability projects.¹⁶

About 71 percent of ICTP project managers brought six or more years of related IT/communications management experience to the job. Whether or not key tasks were contracted out, projects also benefited from in-house project managers’ access to decision makers, such as executives on the governing body, legal counsel, and budget and finance personnel. As one assessment participant stated, advantages to communications project management experience included “a healthy skepticism and technical expertise that proved to be beneficial in implementation of the project.”

5. The project team includes technical subject matter experts—staff, consultants, or both—who can objectively evaluate vendor offerings.

The knowledge and experience of ICTP technical teams were critical in helping to ensure that projects were driven by operational needs, whether or not the project planned to issue an RFP for competitive bids or use a sole source contractor. As an Interoperability Summit participant observed, “The person across the table [at contract negotiations] is not your adversary, but they are there to make money for their company.”¹⁷ Although ICTP grantees overall were satisfied with vendor performance and experienced few significant delays after testing, some realized cost savings, in

15. Harris and Romesburg, *Law Enforcement Tech Guide*, 44–45.

16. “Assign inexperienced staff in larger projects at your own risk.” (Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 73.)

17. SEARCH. 2006. “2006 National Interoperability Summit Proceedings,” 33.

addition to other benefits, because of the technical team's expertise:

- The technical expertise of the Denver Electronics Engineering Bureau enabled the project team to negotiate significant involvement in system design and construction as well as customized maintenance agreements. As an added bonus, these contract provisions represented reduced pricing by the vendor.
- The San Diego project team, which also used a paid technical consultant, noted, "Our [in-house] technical team, especially for microwave, was critical. They saved us a lot of time and expensive redesign by finding and resolving issues early."
- In Colorado Springs, the tech team's experience "provided checks and balances, oversight, and patience. Experience in explaining technical projects to upper management was extremely helpful and helped validate the need for the upgrade."

★ Lessons Learned

ICTP project representatives consistently emphasized the importance of using experienced project managers and technical teams. Twenty percent of ICTP project managers had one year or less of related IT/communications experience, with about half of them managing projects in the \$3 to \$6 million range. Grantees recommended using highly qualified consultants for areas in which staff lacked the needed knowledge, experience, or availability.

SEARCH also strongly argues for assigning a project manager full time on projects costing more than a few hundred thousand dollars,¹⁸ but this is not always done. As one project manager said, "We are left to execute these large-scale regional initiatives while still performing our duties to local jurisdictions." Managers at various project sites also noted that technical personnel were "stretched thin" or that more administrative assistant support was needed.

Project Planning

Project planning includes creating a project charter, conducting a needs analysis, developing system requirements, making purchasing decisions, budgeting, and managing risks, among other responsibilities. Creating a charter early in the project provides an opportunity to clarify the

project scope, at least in general terms, such as the participating agencies, geographic areas affected, and capabilities to be replaced or provided.¹⁹ A more definitive scope statement would be developed as part of the project management plan and would include requirements based on a needs analysis, details from the conceptual design, and any grant requirements.²⁰

"The needs analysis determined the technological strategy that we would use. It set the scope and size of the project vis a vis matching grant fund limitations. It also helped us to figure out which neighboring jurisdictions would participate and how much they could contribute to the project."

Scope changes can and do occur. During the course of the project, technical barriers may arise, new opportunities may emerge, or agency needs may change. The practices below can help ensure that the proposed technical solution will be viable and that obstacles that can affect project schedule and scope are anticipated and managed:

★ Best Practices

6. Operational needs and technical analyses (not the funding program or vendor) drive the project plan and scope.

An advantage of the ICTP was that it allowed applicants to propose the technologies or equipment they deemed necessary, based on their analyses of local and regional interoperability needs. There was no pressure to implement a particular technical solution. Although communications grants can be structured to encourage innovation, most ICTP sites were not ready to take the risks associated with cutting-edge technologies; rather, they needed the flexibility to implement solutions in phases and address immediate needs with proven technologies.

18. "Don't make the mistake of figuring that project management is a sideline job for someone with other responsibilities." (Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 74.)

19. Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 76.

20. *Ibid.*, 118–120.

About 30 percent of ICTP grantees said they had conducted an operational needs analysis before submitting their ICTP grant application, and 27 percent reported they did so after launching the project. Some grantees said they did not conduct a post-award needs analysis had already completed one as part of a larger, comprehensive regional interoperability effort.

The ICTP did drive project planning and scope in some ways. Like any grant program, the ICTP had funding limits, and it required a local cash-match. More significant, however, was its positive influence on partnerships because of its clear expectation for cooperation across disciplines and agencies.

7. End users are involved in project planning.

In both the *Law Enforcement Tech Guide* and *Law Enforcement Tech Guide for Communications Interoperability*, SEARCH emphasizes the importance of obtaining information on operational needs from end users (and all stakeholders) as part of the needs analysis process, after documenting current business processes and technology systems.²¹ Many ICTP projects advocated for this approach and recommended designating a user group as an official subcommittee of the governing body.

In Virginia Beach, for example, the ICTP project's ORION Steering Committee created an advisory group of end users to address policies and procedures for the new technologies. End users could also view the project website to stay abreast of implementation progress. Another approach was seen in Denver, where in-house technical staff helped gain system acceptance through frequent interactions with users, including ride-alongs and meetings with a user group.

8. The project team anticipates problems and related delays and creates a risk management plan.

As SEARCH observes, “The term risk management is common enough [...] but the formal process of a plan to deal with risks in technology projects is unfortunately uncommon.”²² Both the *Law Enforcement Tech Guide* and *Law Enforcement Tech Guide for Communications Interoperability*,

ability discuss contingencies with which interoperability project teams need to be concerned when devising a risk management plan, including:²³

- Loss of key staff or participants (e.g., project manager)
- Loss of funding
- Bid protests
- Construction delays
- Vendors defaulting or going out of business
- Disputes or delays related to frequency licensing
- Public protests, particularly over radio tower locations

Experienced ICTP project managers and technical team members were familiar with risks to similar projects, as well as the timeframes typically required for planning, procurement, installation, testing, etc. What was often lacking was an effort to commit the collective knowledge about potential risks to writing.

This appears to be a long-standing issue. In its *Law Enforcement Tech Guide*, SEARCH concluded after “contact with hundreds of law enforcement agencies” that “most project managers simply don't know how to pull a risk management plan together” and provided specific steps for developing such a plan.²⁴ Briefly, the risk management plan should (1) be done during the early planning phase, (2) include potential “political” risks, and (3) be revisited periodically during the course of the project. The plan does not have to be complicated or lengthy. For example, San Diego submitted a seven-page “Project Plan/Project Charter” with its ICTP grant application that included a chart listing six risk areas: leadership, support and buy-in, staffing, cost, schedule, and scope. For each area, the chart noted whether the risks were considered low, medium, or high;²⁵ included a brief impact statement; and stated how the risk would be mitigated. (See Table 1 on page 10 for an excerpt.)

★ Lessons Learned

The ICTP offered the flexibility needed for sites to develop their interoperability project plans based on operational needs and technical analyses. In addition, ICTP's emphasis on collaboration resulted in new or stronger partnerships and

21. Harris and Romesburg, *Law Enforcement Tech Guide*, 79; Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 129.

22. Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 129.

23. Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 129; Harris and Romesburg, *Law Enforcement Tech Guide*, chapter 12.

24. Harris and Romesburg, *Law Enforcement Tech Guide*, 149.

25. Risks could be rated for likelihood of occurrence, severity of consequences, or both.

Risk Area	Assessment	Impact	Mitigation
Staffing	Medium	Success of project depends on ability to staff with credible experience in the technical areas.	This project will leverage knowledge and experience with existing microwave networks at the city and county. In addition, third-party vendors have been brought into the project to provide additional support for technical issues.
Cost	Low	Initial project costs have been estimated and funded via a federal grant and matching funds. However, long-term costs and cost recovery mechanisms have not been identified.	Develop maintenance cost estimates during the network design phase, and build cost recovery mechanisms into the long-term governance of the project.

Table 1. San Diego “Project Plan/Project Charter” Excerpt

related resource and cost-sharing agreements. The main lesson learned concerns the time it takes to conduct the needed analyses and to solidify agreements among agencies. ICTP grantees had only three to four weeks to prepare their applications, and 64 percent—including a number of highly experienced sites—reported they could have used more time to improve the quality of their proposals.

ICTP sites reported end users appreciated the interoperable communications improvements and expressed little resistance to the new technologies or equipment. Another purpose of user groups, though, is to help ensure that user expectations are realistic. For example, one project representative explained, “There were misunderstandings about the purpose of the system upgrade. Many users believed that upgrading to P-25 would solve all system problems, including problems related to coverage.” End users across the ICTP sites identified few drawbacks to the new technologies that could not be addressed through training, vendor adjustments, or additional experience with the equipment; but the lesson for future projects is to be sure end users are involved in planning and understand what to expect after system installation.

Future projects would also benefit from taking a more systematic approach to preparing risk assessments. ICTP grantees as a group experienced various problems, such as turnover in key personnel and governing body positions, protests, and licensing issues. Not every problem caused major scheduling setbacks, but some did. Delays of at

least 18 months occurred with two projects because matching funds were dependent on public bonds that did not pass as quickly as expected. Another project found that “the sophistication of the project turned out to be a hurdle that some of the smaller agencies just could not surmount.” Risks varied from one project to the next and included labor union issues, unforeseen site acceptance problems late in the installation phase, major hurricanes, severe flooding, bid protests, conflicts of interest, and needs for technologies that differed significantly from the solutions originally proposed.

Procurement Process

The SEARCH guides discuss numerous procurement steps, from laying the groundwork for RFP development, to managing the “art” of procurement, to handling contract negotiations. SEARCH encourages developing “a solid process of defining, designing, specifying, and buying the system”²⁶ whether the project team plans to sole-source the major components or evaluate competitive bids. Fewer than half of ICTP grantees (about 44 percent) selected their primary technology vendor through a competitive bidding process.

“The committee edited, and edited, and re-edited the RFP to address concerns from all [partner] counties.”

26. Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 138.

★ Best Practices

9. The project team gets help from top subject matter experts with RFP development, vendor selection, and contract negotiations.

SEARCH summarized this best practice quite simply: “There is a way to deal with the complexity: get help!”²⁷ About half of ICTP project managers reported obtaining outside TA to develop an RFP, and one-fourth said they received TA with vendor selection. About 36 percent visited other projects implemented by the vendor(s) they were considering.

ICTP projects took a range of approaches to acquire the TA they needed. For example, in Baltimore, Maryland, the strain on staff time for technology acquisition (which involved several local government procurement offices) was alleviated when a partnering county provided an experienced consultant to assist.

Several projects took advantage of SEARCH TA services to review vendor and consultant proposals. In Hennepin County, Minnesota, the vendor selection process was lengthy because of the emerging technologies being evaluated, and thus a consultant proved extremely beneficial. For RFP development in Virginia Beach (four separate RFPs were issued), the project retained an experienced systems engineering and consulting firm that specialized in telecommunications systems planning, design, and implementation. Virginia Beach offered the following advice during the ICTP assessment:

“Insist on line item detail on RFP responses in order [for a response] to be considered valid. . . . Spend the time to understand what each line item does/represents/requires. . . . Take the extra time to make sure all software licenses, passwords, and other miscellaneous line items are included in the RFP. It is much easier to require it as part of the contract than to try and get it added later.”

In addition, several project managers emphasized the importance of thoroughly reviewing vendors’ past performances.

★ Lessons Learned

A majority of grantees (80 percent) reported having no significant difficulties with contract negotiations. Among the grantees (20 percent) who did run into problems, one noted that, despite the project team’s extensive experience, finalizing the contracts took so long that it put the project behind schedule. Another grantee noted, “There were misunderstandings about the product capabilities, including ambiguous details and unclear product feature information. Additionally, some information was not readily supplied by the vendor.”

Overall, most grantees worked through the acquisition process without exceptional problems, and many advised others to do as they did and obtain expert TA when needed. About 36 percent of grantees who used an RFP process, however, said it took longer than expected. Thus another lesson learned is to budget sufficient time for the procurement process, including contract negotiations.

Project Management

One of the eight steps in SEARCH’s “roadmap” for project management involves developing a plan to guide acquisition, implementation, and management of the new technology and building specific performance measures into that plan (or a similar document). This was an essential aspect of project management for ICTP grantees.

★ Best Practices

10. The project team builds performance measures into the project plan and vendor contracts and routinely assesses progress.

Only 36 percent of ICTP grantees said they developed a project plan after being awarded a grant, and of those grantees about 46 percent said their project plan, charter, or other planning document included performance measures. Some who indicated they did not develop a post-award plan said they used the plans developed for their grant applications. Those grantees and others said they were also guided by the tasks and timelines incorporated into their vendor contracts.

A number of large projects provided copies of detailed contracts with major vendors, showing project tasks, roles and responsibilities, performance standards, milestones, etc. In fact, a majority of grantees (85 percent) made progress or milestone payments to the primary vendor. Grantees were not asked to rate vendor performance, but responses to an open-ended question indicated that most grantees felt the vendors they selected met their expectations. About one-third of projects experienced delays (usually minor) because modifications were needed after initial testing.

27. Ibid., 141.

Lessons Learned

SEARCH, the COPS Office, and ILJ did not expect ICTP grant project documents to always be done in the same manner or order as described in the SEARCH *Law Enforcement Tech Guides*. In addition, SEARCH recognizes that planning “is a painful word in some public safety circles” because of the number of planning documents agencies are asked to produce.²⁸ Still, the project plan that the COPS Office and SEARCH recommend is clearly not the same as a vendor contract; rather, it is developed in conjunction with conducting a needs analysis. The assessment findings suggest that future projects would be well served by reviewing the contents and purposes of the project plan that the *Law Enforcement Tech Guide for Communications Interoperability*²⁹ discusses to be sure all bases are covered.

Conclusion

Much of the difficult work in regional interoperability projects is done behind the scenes. Often, it goes unrecognized by the community, yet that same “invisibility” is also a sign of accomplishment. Ashley Strickland, an interoperable communications expert, did a good job making that point:

“I think that one of the most significant interoperability milestones we’ve seen are those moments when people forget what it is. When we don’t even recognize the level of interoperability taking place—when seamlessly communicating across disciplines and jurisdictions has simply become the way teams operate—that’s when we’ve achieved interoperability.”³⁰

Before the ICTP assessment began, the U.S. Department of Homeland Security, SEARCH, and other professional organizations had developed guidelines for managing interoperability projects. Putting those guidelines into practice was often challenging, partly because the technologies were complex, the partnerships were new, or funding was limited. Yet many ICTP projects stood out for the best practices they demonstrated in getting the job done, and many projects generously gave their time to explain what worked for them and what did not. The knowledge, experience, and lessons they shared will be useful to their counterparts in other jurisdictions.

28. Hawkins, *Law Enforcement Tech Guide for Communications Interoperability*, 118; see also 117–134.

29. A second edition of the *Law Enforcement Tech Guide for Communications Interoperability* is planned for publication in 2012.

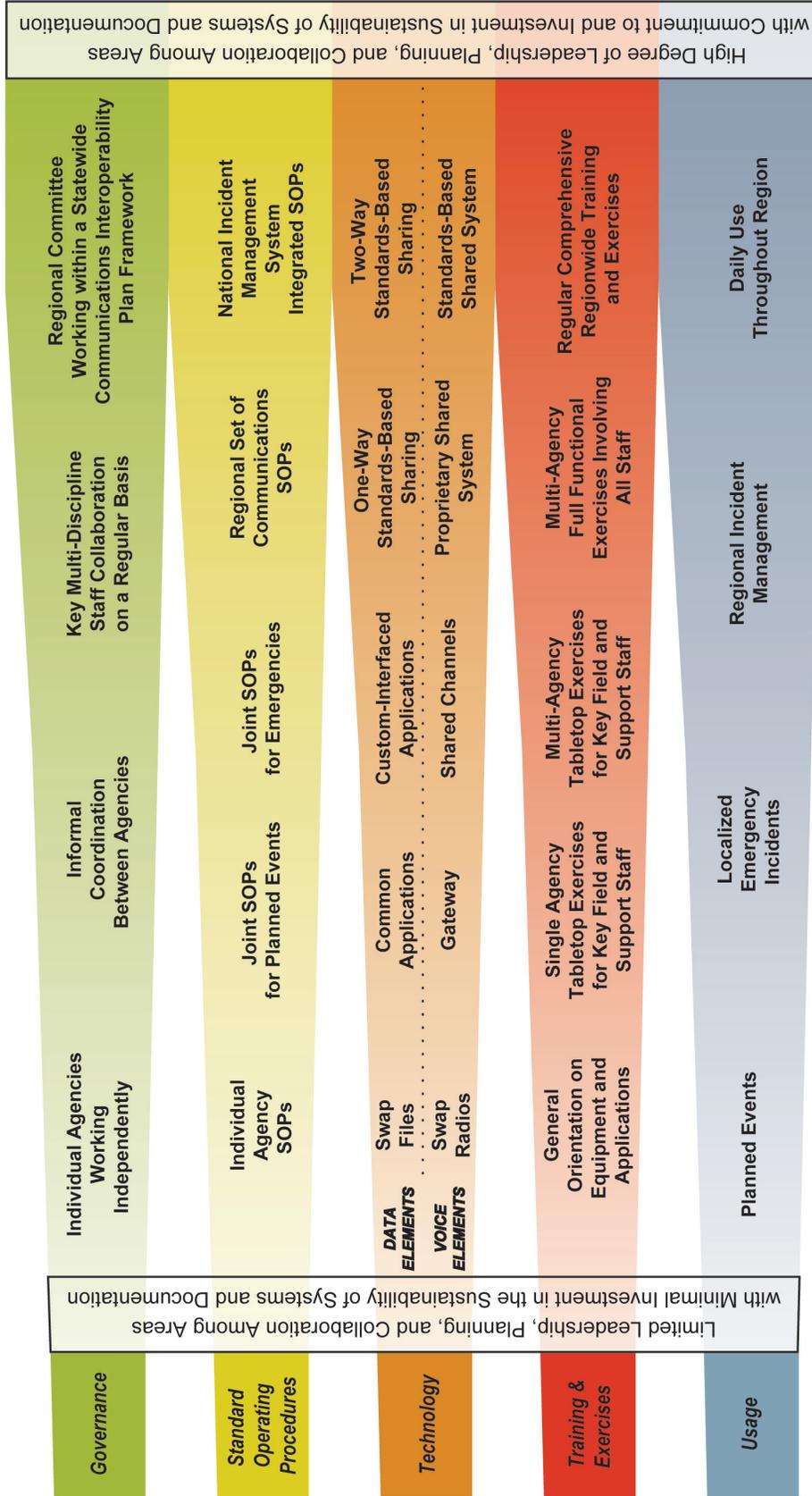
30. DHS (U. S. Department of Homeland Security), Command, Control and Interoperability Division. 2010. “Q&A with Ashley Strickland,” 7.

Appendix

SAFECOM Interoperability Continuum



Interoperability Continuum



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About the COPS Office

The Office of Community Oriented Policing Services (COPS Office) is the component of the U.S. Department of Justice responsible for advancing the practice of community policing by the nation's state, local, territory, and tribal law enforcement agencies through information and grant resources.

Community policing is a philosophy that promotes organizational strategies that support the systematic use of partnerships and problem-solving techniques, to proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime.

Rather than simply responding to crimes once they have been committed, community policing concentrates on preventing crime and eliminating the atmosphere of fear it creates. Earning the trust of the community and making those individuals stakeholders in their own safety enables law enforcement to better understand and address both the needs of the community and the factors that contribute to crime.

The COPS Office awards grants to state, local, territory, and tribal law enforcement agencies to hire and train community policing professionals, acquire and deploy cutting-edge crime fighting technologies, and develop and test innovative policing strategies. COPS Office funding also provides training and technical assistance to community members and local government leaders and all

levels of law enforcement. The COPS Office has produced and compiled a broad range of information resources that can help law enforcement better address specific crime and operational issues, and help community leaders better understand how to work cooperatively with their law enforcement agency to reduce crime.

- Since 1994, the COPS Office has invested nearly \$14 billion to add community policing officers to the nation's streets, enhance crime fighting technology, support crime prevention initiatives, and provide training and technical assistance to help advance community policing.
- By the end of FY2011, the COPS Office has funded approximately 123,000 additional officers to more than 13,000 of the nation's 18,000 law enforcement agencies across the country in small and large jurisdictions alike.
- Nearly 600,000 law enforcement personnel, community members, and government leaders have been trained through COPS Office-funded training organizations.
- As of 2011, the COPS Office has distributed more than 6.6 million topic-specific publications, training curricula, white papers, and resource CDs.

COPS Office resources, covering a wide breath of community policing topics—from school and campus safety to gang violence—are available, at no cost, through its online Resource Information Center at www.cops.usdoj.gov. This easy-to-navigate website is also the grant application portal, providing access to online application forms.

From 2003 through 2006, the U.S. Department of Justice, Office of Community Oriented Policing Services (COPS Office) awarded 65 grants totaling \$250 million to local law enforcement agencies under the Interoperable Communications Technology Program (ICTP). These grants funded multidisciplinary and multijurisdictional agency projects to increase voice interoperability and data sharing capabilities.

The COPS Office *Interoperable Communications Technology Program (ICTP) Assessment: Best Practices and Lessons Learned* report describes the findings of an assessment study conducted by the Institute for Law and Justice, examining the grant implementation process of the ICTP grantees. It highlights ten best practices used by the grantees to improve interoperability and to build stronger multiagency and multidisciplinary partnerships.



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