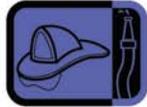# Interoperable Communications Training and Exercises:

Creating Processes, Tools, and Techniques

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Introduction

Public safety agencies historically have depended on their own stand-alone radio communication systems for daily emergency responses and support activities. While these stand-alone radio communication systems, for the most part, are effective for individual agencies, they often are incompatible with radio systems of other agencies within the same response area. The inability of public safety officials to readily communicate with one another during an incident to provide coordinated instructions and incident command and control threatens the public's safety and at times results in unnecessary loss of lives and property.[1]

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1 This *Issue Brief* draws from content in *Law Enforcement Tech Guide for Communications Interoperability: A Guide for Interagency Communications Projects* by Dan Hawkins, published by the U.S. Department of Justice Office of Community Oriented Policing Services, 2006. Available from the COPS Office Response Center, 800.421.6770, and electronically at **http://www.cops.usdoj.gov/ric/ResourceMain.aspx?RID=238**.

During the past several years, many agencies at all levels of government have attempted to correct this incompatible communications problem by establishing agreed-on plans and procedures that improve their ability to communicate with each other when called on for assistance. In addition, many agencies are creating cooperative partnerships to provide more effective methods of planning and implementing new technology to assist in providing reliable, seamless, communications interoperability. As more cities, counties, and states implement new technology and broaden their current policies and procedures to improve communications interoperability, a crucial ingredient for success will be conducting **training and exercises**, which will enable practitioners to practice using the technology. The lessons learned during these practice exercises, in particular, can be used to update and/or change a jurisdiction's documented plans and procedures.

To establish effective communications training and exercise programs, an agency needs well-defined and standardized policies and procedures that provide for its day-to-day operational needs. Agencies that have adopted a standard method for creating policies and procedures usually find them much easier to develop and maintain. In addition, standardized policies and procedures are typically easier to understand and follow by agency staff.

Interagency communications procedures are effective only if used. Procedures that are used regularly become part of a responder's natural reactions. During the stress of emergencies, responders will most reliably perform the tactics they have learned, exercised, and used often. In addition, supplemental training and exercises are required for any interagency communications system to work effectively during routine events, special task force operations, or large-scale emergencies.
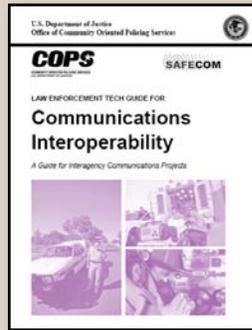
It is no longer considered acceptable to have the latest proven technology with well-maintained equipment and interoperable communication capabilities *if the end users do not understand how to use the equipment or follow established procedures to accomplish their tasks.* Managers and planners should lay the groundwork for automatic responder actions and reactions during emergencies by establishing routine interagency communications checks and by making sure they are practiced during training sessions and exercises. It should never be presumed that every written policy and each procedure established will immediately become part of every responder's "catalog of knowledge."

In late 2003, Homeland Security Presidential Directive 8 (HSPD-8), "National Preparedness," was released.[2] Its purpose: to strengthen preparedness capabilities at all levels of government for terrorist attacks, major disasters, and other emergencies. Three of the national priorities set forth in HSPD-8 are relevant to this *Issue Brief.* They are:

1. Implementing the National Incident Management System (NIMS)[3]

2. Strengthening information sharing

3. Strengthening communications interoperability.

Law Enforcement Tech Guide for Communications Interoperability: A Guide for Interagency Communications Projects provides further information on NIMS in the context of interoperability. Produced by SEARCH under COPS Office sponsorship, it is available from the COPS Office Response Center, 800.421.6770, and at **http://www.cops.usdoj.gov/ric/ResourceMain.aspx?RID=238**.

The National Response Plan (NRP) provides a concept of operations with which state and local emergency operations plans are to be aligned and are supported by or built on standard operating procedures (SOP) that are to be consistent with NIMS guidelines and standards.[4]

There are four mission areas within the NRP: **prevent**, **protect**, **respond**, and **recover**. *Interoperable communications is listed as a required common capability for each mission area.* By aligning the NRP with state and local government emergency response plans, integrating NIMS, and developing policies and procedures that fall in step with the NRP, state and local jurisdictions should reap two important benefits:

1. Standardizing emergency response activities

2. Developing emergency first responders and their support agencies into better equipped, knowledgeable, and capable team members.

Communications Interoperability Training

The first step in developing a training plan is to define the subject, in this case "interoperable communications," which can be described as follows:

> *The ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.*
>
> — Department of Homeland Security SAFECOM Program

The supporting communications systems must be reliable for each agency that uses them; have sufficient capacity for normal day-to-day use, as well as in emergency response situations during which a significant increase in usage will occur; and be incorporated into agency plans and procedures for effective, efficient, and user-friendly communications.

Interoperable communications training is the process of instilling skills and improving performance of emergency responders through effective use of communications policies, procedures, and technologies. It also includes conducting educational briefings for elected officials, as well as municipal, state, and federal managers and administrators, by providing the following information about communications interoperability:

- Defining communications interoperability and providing concrete examples

- Listing the operational goals and objectives the technology is intended to support

- Providing simplified network drawings and overviews of the communications systems

- Creating interest and excitement by providing live demonstrations of communications interoperability

- Giving information on upcoming short-term improvements and upgrades.

Training is but one of the many components of an interoperable communications systems. Other components include the following:

Interoperable Communications:

The ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.

Interoperable Communications Training:

The process of instilling skills and improving performance of emergency responders through effective use of communications policies, procedures, and technologies.

- Building an interagency foundation, including partnerships and a decision-making structure that includes agency sponsors, as well as operational and technical committees

- Establishing interagency communication needs, particularly operational requirements, to firmly guide outcomes

- Managing acquisition, implementation, and ongoing operations

- Developing policies and procedures that determine how systems are used.

Training and participation in realistic exercises should start during the implementation of an interagency system and continue through a process of continuous improvement throughout the system's life cycle. Standardized policies and procedures created for interagency communications should be explained and followed as part of the training and exercise program.

There are several ways to provide effective communications training. The subjects may be varied and shaped by the system, an agency's needs, and the particular audience. Some of the more common training methods, types of delivery, and audiences are explained below, along with recommendations for training aids and materials and training types.

Training Methods and Delivery
■ Train in Context

One of the most effective ways to train in practical skills is within the context of how the skills will actually be used. In effect, end users are not trained to use radios; they are trained to *communicate* while doing their jobs. This means that communications training is most effective when it is accomplished as part of other training. An example of this hands-on, practical approach to training would be requiring a firefighter to report a task completion via his radio after ventilating a roof with a power saw. The delivery of

this training method is usually in the field and under realistic job conditions.[5]

■ Direct Delivery

As the name implies, this is training provided from the communications technology or services vendor directly to an agency's staff. This method should provide for both verbal instruction and hands-on training. Asking as many questions as possible will ensure that the entire audience receives the benefit of the answers provided. The vendor should provide training materials and point-of-contact information for any follow-up questions. This training method can be delivered in the classroom, on the web, or by video teleconference.

■ Train-the-Trainer

This approach provides communications training to a select few agency representatives who, in turn, train their fellow employees. The same considerations apply as with direct delivery (ask questions and get training materials). This approach allows more staff within large agencies to receive training that may not have been possible under the direct-training method because of prohibitive costs.

Training Aids/Materials

Agencies should provide a training agenda or syllabus for each direct or train-the-trainer communications training session. It is also advisable to offer a communications system overview that provides a basic understanding of how the technology works and how it is being used (see **Recommended Training Types** chart). If the training involves radios, make sure that operational radios are available during the training sessions. Finally, provide copies of the training presentation(s), equipment operating instructions, and brochures to the trainees.

5 *Law Enforcement Tech Guide for Communications Interoperability: A Guide for Interagency Communications Projects*, p. 214, further addresses communications "training in context."

Recommended Training Types

Interoperable Communications System Overview	End-User Equipment (mobiles and portables)	Exercises	Specialized Training

• Present at every training opportunity
• Explain how the system operates
• Provide simple network diagrams
• Reinforce with brochures listing the system's advantages, interagency accomplishments, and preparations for any short-term system improvements.
	• Train in context as often as possible
	• Provide classroom-direct training every 6 months
	• Have operational equipment on hand, and allow audience to practice with it
	• Incorporate radio use into other types of training (e.g., pursuit driving, firearms use)
	• Emphasize these key training points:
	  — Keep battery charged
	  — Do not remove battery/antenna while the radio is turned on
	  — Wait for the talk permit tone (trunked radio systems) before speaking
	  — There is no talk permit tone for conventional radios/channels
	  — "Bonk" means system is busy.
		• Provide as many opportunities as practical, train in context
		• Use discussion-based seminars, workshops, tabletop exercises, and simulated games to establish familiarity, work out concepts of operations, and find gaps among current capabilities, procedures, and training
		• Use operations-based drills, functional, and full-scale exercises to test and train capabilities in realistic conditions
		• Practice interagency communications protocols
		• Practice use of interagency policies and procedures
		• Plan exercise scenarios that practice emergency response plans
		• Implement recommended improvements that result from the exercise training into the agency's policies and procedures.
			• NIMS Communications Unit/Leader
			• Deployable Mobile Command Post Team
			• Technician/Equipment Maintainers
			• Policy, Plans, and Procedure Development
			• Emergency Operations Planning
			• Exercise Planning
			• Concept of Operations and Tactical Interoperable Communications Plan Development.

Training Audiences

- New recruit academies (police, fire, and emergency medical)
- Current public safety end users
- Emergency Operations Center personnel
- Dispatchers
- Support agencies (e.g., public works, utilities, public transit, health and human services)
- Mutual aid partners (e.g., Red Cross, schools, Salvation Army)
- Representatives from other agencies within the same response area.

Communications Interoperability Exercises: Practice and Preparation

Exercises are a critical component of an agency's overall training program. Conducting exercises provides the opportunity to train first responders and support organizations so they can practice prevention, reduce area vulnerabilities, implement plans and procedures, and sharpen recovery capabilities in a risk-free environment. Exercises allow participants to improve skills in using both their interoperable communications hardware and software tools and to provide them with the opportunity to gain an objective assessment of their capacity to prevent, respond to, and recover from a disaster.

Exercises also offer the opportunity to train skills in context. Using a standardized exercise process, along with meaningful evaluations, provides the means to train and progressively develop skills. From the perspective of communications interoperability, exercises provide an ideal opportunity to stress-test the entire system. A standardized exercise program includes a progressive set of exercises that are evaluated, with results incorporated back into the program for further training.

The Department of Homeland Security Exercise and Evaluation Program (HSEEP)[6] provides extensive guidance for designing, conducting, and evaluating exercises. Discussion- and operations-based exercises are addressed in detail. HSEEP is currently under revision to further incorporate National Planning Scenarios and the Target Capabilities List of the National Response Plan.

Discussion-Based Exercises

HSEEP focuses on four kinds of discussion-based exercises: *seminars, workshops, operational simulation games,* and *tabletop exercises.*

Seminars and workshops are familiar to most people and are designed to provide an exchange of ideas on a particular subject, provide information and updates on issues that may affect a targeted audience, and can be regularly scheduled meetings for dialogue in a specialized area of interest.
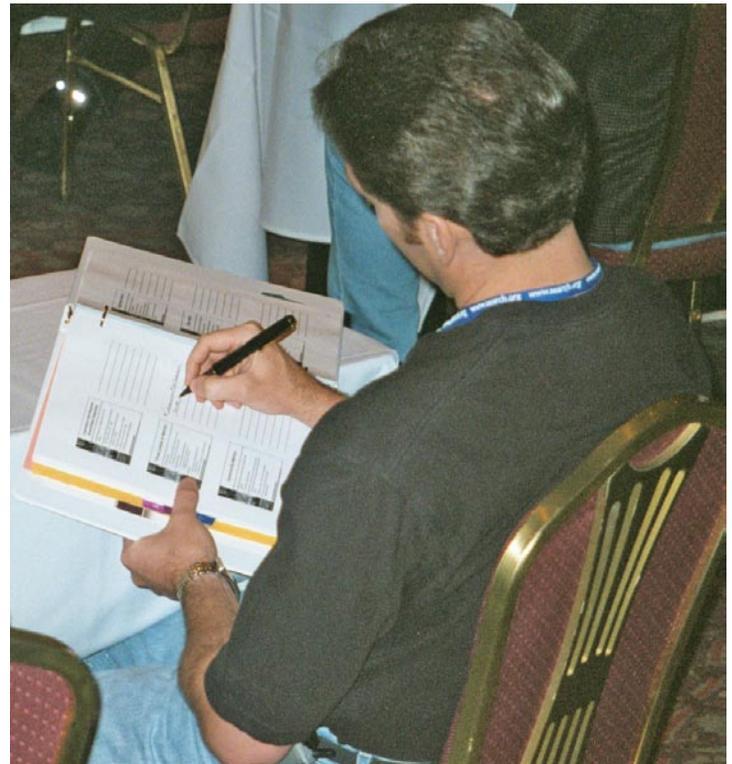
According to HSEEP, **operational simulation games** are becoming an increasingly sophisticated and useful component of exercise programs but offer little in the way of communications training for first responders and their support agencies.

Tabletop exercises are probably the most familiar kind of discussion-based exercises. They offer the opportunity to introduce new policies and procedures, identify problems as they are tested through discussion, and are scripted so that they might be further tested operationally.

Operations-Based Exercises

Operations-based exercises provide for actual training and practice using participants, equipment, and plans in a field environment. They provide the means to validate policies and procedures, while testing the technology. HSEEP identifies three kinds of operations-based exercises: *drills, functional exercises,* and *full-scale exercises.*

Drills are usually limited in scope, testing one part of the overall system in isolation as realistically as possible. An example for communications might be a drill of a technician team that is responsible for deploying a field gateway communications system. Procedures discussed during a tabletop exercise can be tested in a more realistic environment, although still in isolation from the larger response system. This allows managers and planners to evaluate the procedures, as well as the drill's concept of operations (design) for subsequent improvements.

Functional exercises are also limited in scope but might include several deployment teams to not only test deployment procedures, but also to test the equipment for future use. An example might be to deploy both a communications technician team and a radio operator team with the agency's mobile command post. The exercise will test deployment procedures, command post setup, and potential future use. The exercise is still limited and evaluation is a key component of the process on continuing improvement.

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6 See **https://hseep.dhs.gov/.**

HSEEP notes that functional exercises are designed to exercise the direction and control of resources, rather than systems. In our example, the mobile command post would not be thoroughly tested for functionality, capacity, and coverage, but rather for its swift, safe deployment and operational command.

Full-scale exercises, by definition, are multijurisdictional exercises that utilize the full response system. Communications is tested as a part of the larger effort and provides realism to the exercise participants as to how the communications interoperability system is managed and used during near "real operations." Full-scale exercises are intended to stress-test systems under realistic circumstances and time frames.

Exercise planning requires cooperation, coordination, and buy-in from all participants. Exercise scenarios are developed and goals and objectives for the exercise are determined based on the scenarios. In most cases, depending on the size and complexity of the exercise, a Concept of Operations document is produced that maps how to carry out the exercise, reinforcing already established plans, policies, and procedures. The communications support component of an exercise, whether it is discussion- or operations-based, requires parallel planning to ensure that all participants are aware of how to successfully integrate the communication tools and technology provided to ensure successful operations.

Develop Readiness Assessment

Developing an exercise in combination with a communications interoperability readiness assessment has shown to be an effective way to carry out parallel planning. The assessment should be scalable, allowing communication planners and managers to select and use only those components that meet the needs of whatever kind of exercise is being conducted. The work flow elements for this assessment are as follows:

- **Interviews**
  — Prepare a standard communications interoperability readiness questionnaire, identify key exercise participants, conduct interviews, and compile results.

- **Gap Analysis**
  — Document communications interoperability readiness gaps, develop a corrective action work breakdown structure (WBS), and provide exercise planners/managers with gap analysis results for subsequent exercise improvements.

- **Tactical Interoperable Communications Plan (TICP)[7]**
  — Provide a brief overview of the exercise, goals and objectives, exercise scenario(s), and a basic explanation of what interoperable communications hardware and software will be used.
  — List all agencies that will be participating in the exercise with key participant point of contact information.
  — Supply the primary and secondary points of contact that can be reached for questions regarding the exercise and this plan.
  — Include an equipment and capabilities inventory, along with points of contact for activating and supporting resources.
  — Exercise interoperability equipment plans that match resources to response structures (e.g., swap radios, gateway, shared channels, and/or shared system).
  — Include standardized technical policies and procedures for tactical

7 In 2005, the U.S. Department of Homeland Security established grant guidance requiring 75 metropolitan regions to develop tactical interoperable communications plans. See guidance and a template for these plans at **http://www.ojp.usdoj.gov/odp/docs/TICPGuidanceandTemplate.pdf**.

interoperable communications covering areas such as:

- Equipment management and deployment
- Maintenance of radio caches
- Standard equipment configurations
- Outage responsibilities and standards for repairs
- Spare equipment availability
- Gateway configuration, maintenance, deployment, and use
- Preventive maintenance.

- **Concept of Operations (CONOPS): Operational Plans/Procedures for Tactical Interoperable Communications During the Exercise**
  — Present a brief overview of the exercise, goals and objectives, exercise scenario(s), and a basic explanation of what interoperable communications hardware and software will be used.
  — Document how available interoperability resources will be used during the exercise within the NIMS structure to support the Incident Command, Operations, Planning, Logistics, and Finance organizational sections.
  — Provide instructions for deploying the Communications Unit and establishing the Incident Communications Center (ICC).
  — Identify appropriate levels of Communications Unit staffing based on the duration of the exercise.
  — Supply instructions for activating an Incident Dispatch Team.
  — Include interagency operational procedures to assist in providing "less problematic" communications, such as:
    - Use of plain language—eliminating codes, acronyms, and jargon

- Provide for positive message acknowledgments
- Use standardized operational unit reporting.

- **Outreach and Training Support**
  — Develop and distribute exercise overview and communications interoperability capabilities brochures.
  — Supply radio equipment operating instructions, as applicable.
  — Provide "quick reference" radio channel assignment cards.
  — Produce and have available exercise "Messages and Themes" brochures for the media and VIPs.

- **Distribute Support Equipment and Information**
  — If cached radios are used, distribute radios with appropriate programming and operating instructions, a spare battery (if available), and quick reference channel assignment cards.

  — Exercise TICP document.
  — Exercise CONOPS document.
  — Provide recipients with adequate time to review and understand requirements (8–10 working days prior to the start of the exercise).

- **Conduct/Evaluate Exercise**
  — Use neutral party evaluators.
  — Schedule daily exercise debriefings that allow for discussions of what went well and what did not (document these).
  — At the end of the exercise, hold a debriefing for planners, facilitators, controllers, and evaluators (document this).
  — Plan and carry out exercise evaluations with as much attention to detail as the rest of the exercise.
  — Exercise evaluations are necessary for a process of continuous improvement.

- **Develop and Administer Exercise Exit Poll**
  — Conduct post-exercise interviews with key participants.
  — Use the information gathered, along with the exercise evaluation debriefings, to develop an After-Action Report.

- **After-Action Report**
  — Provide a written record of the exercise and capture details more broadly.
  — Make recommendations for continuous improvement.
  — Exercise planners and managers should implement recommendations when and where appropriate.
  — Under HSEEP, After-Action Reports are prepared for all exercises except workshops and seminars, where a summary report suffices.

Figure 1 shows a diagram representing the steps of a combined exercise and readiness assessment process.
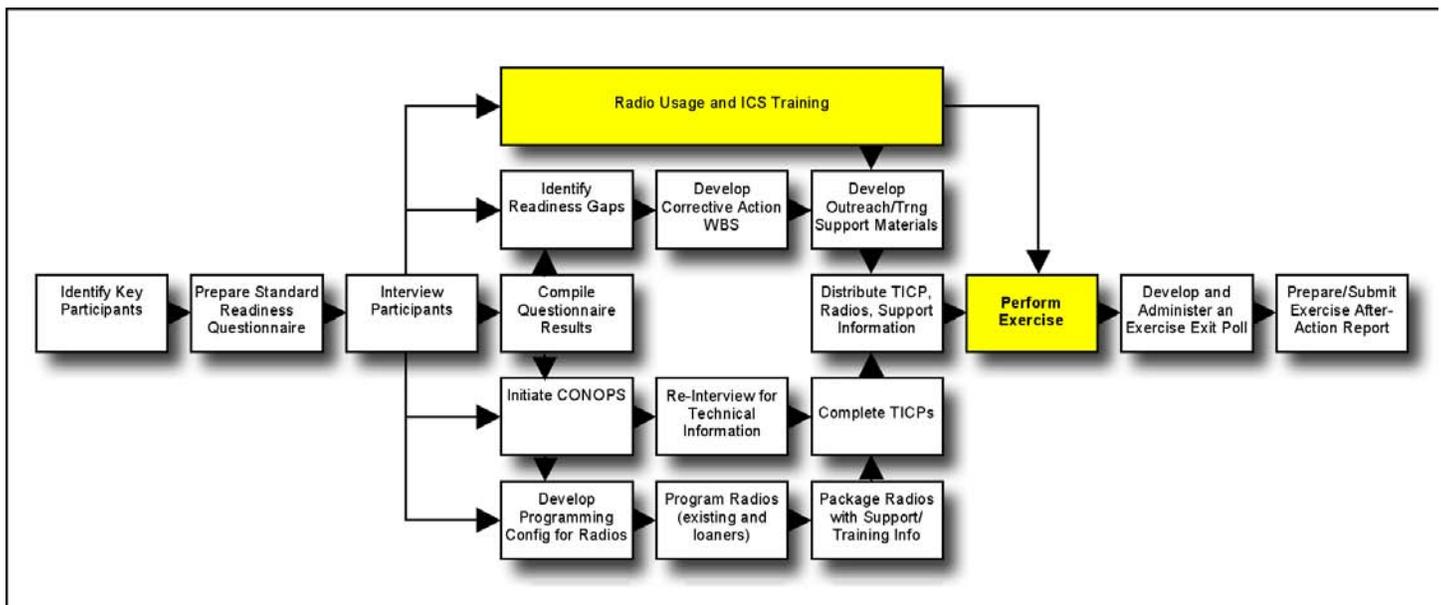

Figure 1: Exercise Preparedness Process and Documentation Trail

Conclusion

Communications is not an independent element of emergency response that can be adequately exercised and evaluated in isolation. **It is through integrated exercises that communications can be trained in context, tested, evaluated, and set for continuous improvements.** The more exercises that occur and improvements made, equipment training classes given, educational overviews presented, training aids provided, and policy/procedure reviews/updates conducted, the better. These will assist your agency or region in becoming better prepared to prevent, respond to, and recover from a real-world incident. ■
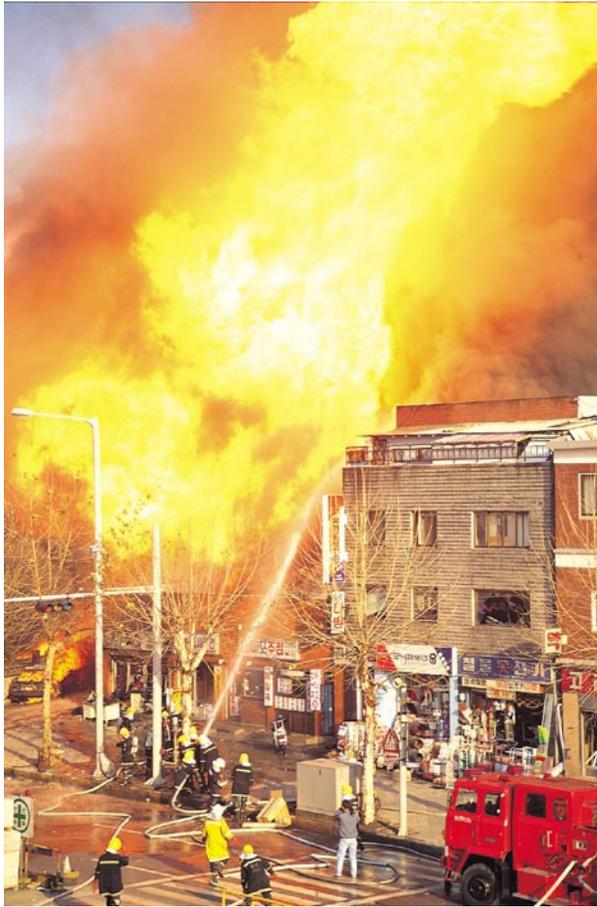
Technical Assistance Available

SEARCH is the technical assistance (TA) provider to the U.S. Department of Justice Office of Community Oriented Policing Services (COPS) Interoperable Communications Technology Program (ICTP). SEARCH is a national nonprofit organization that has provided more than 37 years of expert assistance to state and local criminal justice agencies on the use of information and identification technology. SEARCH has a long-standing program of providing direct, no-cost, tailored TA to law enforcement and public safety agencies in planning for, procuring, implementing, and managing information technology.

Areas of Assistance:

- Effective governance structures development

- Strategic planning

- Infrastructure assessment and development

- Needs analysis and assessment

- Operational requirements development

- Policy and procedure development

- Risk management

To apply for TA in these areas or review additional SEARCH TA focus areas, see **http://www. search.org/services/ta/**.

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