

After 9/11 there was a significant expansion and refocusing on homeland security issues. This was true not only at OLES but also in every local jurisdiction. And while interoperability issues have been known and potential technology to address the needs available, post 9/11 has seen new determination at the federal and state levels as well as at the local levels to make interoperability a reality. Post 9/11 has seen the concentrated efforts of the federal government as demonstrated by the establishment of Department of Homeland Security (DHS) and steady evolution of programs within DHS to address needs of the emergency response community.

The DHS mission focuses on (1) preventing terror attacks and (2) responding to terror attacks. Part of response is having necessary equipment, and a second part is having information. The focus of the current workshop is getting building information out to the emergency responder. The goals are collaboration and sharing about the future of emergency response. This work goes beyond the traditional law enforcement focus of OLES and beyond the terror focus of DHS, because it is useful for any building emergency in the everyday work of emergency responders.

*Chief Ronny Coleman: "Future Information Needs for the Fire Service"*

Chief Coleman began his talk by describing the contributions of two men in order to provide a historical basis for his talk.

- Sir Eyre Massey Shaw, London Fire Brigade, who authored "A Complete Manual of the Organization, Machinery, Discipline, and General Working of the Fire Brigade of London" in 1876. A quote from this manual, "If you wish to control a problem, you must know more about the problem than anyone else and if you need to know more about the problem, you must coin a terminology, a lexicon, that allows you to understand it and not use imperial rhetoric." So, don't just be random about your collection of information, have a systems approach to it. In 1876, the London Fire Brigade was already developing fire pre-plans for buildings.
- Lloyd Layman authored "Fire Fighting Tactics" in 1953 (first published in 1940 under the title: "Fundamentals of Fire Fighting Tactics") and developed the concept of "size-up." Size-up encompasses facts, probabilities, possibilities, plan of action, etc. for an incident. "If you are going to rush into an emergency, you better have your information together."

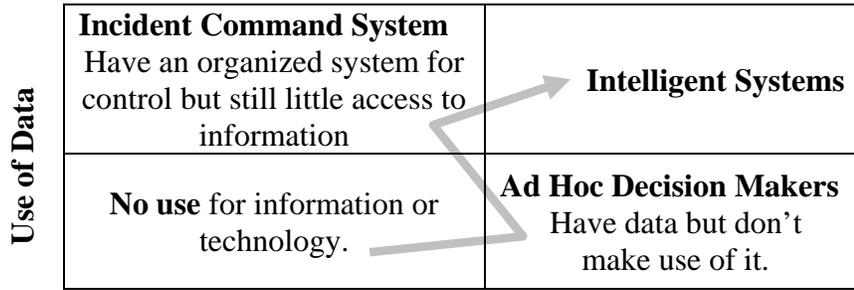
"Today (2004) I would characterize the Fire Service as having one foot firmly planted in the 1870's and the other foot firmly planted in the 1950's and grasping to catch up with technology."

The first issue the Chief discussed was Risk Assessment. It is a limitation and potential liability for fire departments that very few communities know about Risk Assessment, and there is a great need to have better knowledge of Risk Assessment. He is working to develop RAVE, Risk Hazard and Value Evaluation, which is a computer-based methodology for risk assessment of buildings. It addresses the questions of:

- What is in the building?
- What can hurt you in the building?
- What do you need to know about the building?

Without a model to understand how everything fits together, there is a gap between the fire community and the technology community. The Chief gave his perspective in the following chart which provides an overview of how fire departments across the country are using data and technology and how the use of technology evolves.

## Fire Department Use of Data and Technology

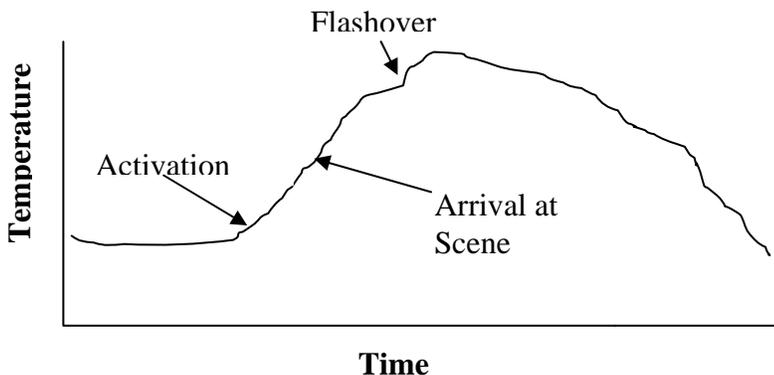


**DATA, How Much You Know**

Fire departments typically follow the path of the arrow in their use of data and technology from the No Use phase, to the Ad Hoc decision makers who have no systematic use of the data they have collected, to the typical large department today that has an ICS but still doesn't get all their data (nor potentially useful data from other sources) to the fire ground. A few fire departments are currently evolving to the intelligent systems phase.

Intelligent systems are the end goal, and those systems need to supply information at three levels: to the fire fighter, the incident commander, and the department. The first fire fighters on the scene need information fast to make correct decisions. An example showing the benefit of building information can be seen in evaluating the fire service requirement of "2 in – 2 out" for a building fire. The current situation for fire fighters arriving on scene is that they have little information with which to make decisions and can only enter the building if there is a backup crew for rescue. If information about the condition in the building were available, then in cases without IDLH (immediately dangerous to life or health) intervention could occur without the need for a backup crew.

The graph below shows the development of a typical fire in a building. Most current technology introduced to the fire service recently has focused on getting the fire truck to the scene as quickly as possible (CAD, GIS, 800 MHz radio). The time between alarm activation and fire truck arrival is typically four or five minutes, and this is where the big money is spent, rather than taking information available before the fire and making that available to the incident commander.



The fire service is reluctant to adopt technology until its 100% worthy of their acceptance. They will not accept partial solutions and don't like unreliable solutions. The reason is the consequence of failure at the scene of the fire. This issue needs to be addressed.

The Chief is part of a group "Mapping the Future of Fire." Most fire departments have file cabinets full of information that is unavailable at the scene of the emergency. Fire agencies use defensive record keeping which accounts for the large amount of collected data. The challenge is to make use of this data at the fire scene. More and more metropolitan fire departments are going to use their mobile data terminals to bring these data to the fire ground although there are technical issues. The project is answering the question of "is it possible to use GIS and Fire Department Data in the planning process to make a better fire ground performance?" The key is that the data has to be used prior to activation or applied between activation and arrival to be effective.

An example of the difference between waiting for something to happen and using data before activation can be found in a study conducted by Chief Oliver of the Wilson, NC, Fire Department. Using a combination of data on hydrant water flow, required water flow, and GIS it was determined that several locations in Wilson had insufficient water flow. This deficiency was corrected which prevented potential fire ground problems.

As fire departments develop the capability to use data on the fire ground, they also need to identify reliable sources for data. The Chief noted several outside sources of data available to fire departments:

- The Insurance Services Offices of the US (ISO) has an extensive commercial building database.
- City building department and GIS department
- Arson Bureau and hazardous material records

Obtaining building plans and other fire ground information requires the fire department to work with other city agencies and organizations such as ISO.

In summary:

1. Fire service will not adopt a technology unless they have a chance to break it first. New technology must be taken to the firehouse level. You have to pilot test.
2. You can't wait until a product is "perfect" before you pilot test it.
3. You have to get the technology into the training environment before it begins to work.

There are three stages of technology in the fire service today:

1. It won't work!
2. It works and I can't afford it.
3. How did we ever get along without that before?

Some final thoughts on making it work:

- Anything that can be done to connect data systems with communication and activation systems will compress the time between activation and arrival and increase the efficiency and the effectiveness of the fire department.
- The fire service is ready, willing, but not quite capable of adopting technology. Most of the energy and effort is going into dispatch and radio systems and not into support systems for the incident commander. Need to get information to the IC level. And need to get it into the training system.
- Technology costs money. What is needed are applications that are affordable for a large number of entities to use on a real-time basis. Fire departments cannot be expected to supply the funding

for new technology. The good news is that there is a growing interest in the private sector (e.g. Building Owners and Managers Association) in private-public partnerships to make the technology work.

- And last but not least, “Facts make a difference.”

*Col. Joel Leson: “Interoperability and Standardization for First Responders”*

“It isn’t just the fire service. Everything the chief (Chief Coleman) said is as true, in many instances, in the police service as it is in the fire service.” The police service is no better off at implementing the technology. Of the 20,000 members of the International Association of Chiefs of Police (IACP), seventy percent are made up of departments of 25 or less. While the large departments can handle the new technology, the small departments have problems.

In a study of EMS, fire, and police needs [“Incident Command Technology Systems for Public Safety,” report prepared for DOJ, NIJ Office of Science and Technology, by The Center for Technology Commercialization, Inc., August, 2002], the following list of first responder (fire and police) technology needs was given:

- An effective command and control system for managing critical incidents;
- Communications systems to allow all first responder disciplines and agencies to speak to each other;
- Coordination of resources;
- Safety systems including tracking and monitoring of personnel;
- Access to real-time, accurate information;
- Broad-based training and scenarios; and
- Access to a clearinghouse or database of available technology solutions to assist in managing critical incidents.

The implementation of these needs will only be successful if we can get it to the street and are willing to spend the necessary money. As Chief Coleman stressed, only a few communities have reached a level of expertise where they can use the technology properly or afford it.

What do we need to fix the problem? Money is the first step but it must be spent wisely. We must get into the threat assessment business in order to figure out where to direct the money. The second step is education. The IACP is preparing to use workshops to start the educational process. The goal is to get people to the point where use of technology is second nature. “We have to make sure that every young person that goes on a payroll is funded and trained.” We need to develop a complete transparency in operations between fire, police, and EMS.

*Mr. Don Hewitt: “A Responder Knowledge Base for Police and Fire”*

Don presented an overview of the Responder Knowledge Base (RKB), a trusted knowledge base for emergency responders, online at [www.rkb.mipt.org](http://www.rkb.mipt.org). Prior to the development of the RKB there was no reliable unbiased source of practical information about the performance of equipment needed for safe and effective response to emergencies. The RKB was developed as part of Project Responder, sponsored by the Oklahoma City National Memorial Institute for the Prevention of Terrorism (MIPT). Funding is also received from the Office for Domestic Preparedness, Department of Homeland Security.