

Interoperability, Infrastructure, and Decision-Making

By Freeland Abbott

Even before September 11th, and certainly before Hurricanes Katrina and Rita, emergency responders were grappling with interoperability problems that prevented their effective cooperation. The September 11th Commission noted pointedly that New York City firefighters and police responders with incompatible radios were unable to share potentially life-saving information. Considering state, federal, military, and non-government responders makes the challenge even more daunting.

This situation resulted in Department of Human Services funding to resolve those difficulties for “next time”. Sadly, Katrina demonstrated that we still have far to go.

“Interoperability” is a multi-leveled concept. Software applications are considered interoperable if they share a common data format such that information created and stored by users of one application can be accessed and manipulated by users of another. The rise of the Web, and of Web-based applications and standards, represents a great step forward in this regard. However, application interoperability requires a means of exchanging the common data, which is what the fire and police departments lacked. Data and application interoperability together are of little use without organizational interoperability. Agencies’ policies and procedures must allow for the contributions and actions of other organizations, and their personnel must be willing and able to adapt to the specific resources and needs of the moment: If buses are needed and school systems have buses and drivers available, then police and medical services must be able to interoperate with school dispatchers.

Data and application interoperability are both issues of infrastructure: The systems and structures that are in place before an event. These are largely technological aspects: They are comparatively easily resolved, but require physical resources to function. After September 11th, the infrastructure of New York would have been largely intact had it been interoperable. For Katrina, wind and floods largely eliminated telephone, antenna, and electricity facilities, as well as all systems depending on them. Contingency planning for large-scale disasters must consider the risks and consequences of infrastructure damage.

Although there are technologies that can facilitate organizational interoperability, at its heart this is a human problem; one of culture, to facilitate creative thinking and a flexible organization; one of training, to develop procedures that marry both organizational consistency and situation-specific variation; and one of communication, to work efficiently even with unexpected partners or without expected infrastructure.

The New Orleans emergency preparedness plan was pilloried in the New York Times recently (Sept. 11, 2005; David Brooks’ “The Best-Laid Plan: Too Bad It Flopped”), largely for its lack of actual planning amidst the assignment of on-going “coordination” and education responsibilities. That criticism is partially a strawman: Certainly, the document described is not a disaster response plan, but what are our agencies supposed to do at non-disaster times if not to train and rehearse?

A more accurate criticism of the New Orleans planning concerns the implicit assumption of infrastructure availability. During a major storm, planners should expect that communications systems, electricity, and roadways will be damaged, even as they expect flooding to occur. Yet, at the very time when the normal

communication infrastructure was incapacitated, the Louisiana National Guard lost much of its satellite communications gear that was stored in flooded depot locations. Better planning should have either stored the gear on high ground, or positioned it in a safe location as Katrina approached.

That is one of many concrete examples of a failure to account for the infrastructure needed for a coordinated response. Without such infrastructure, data could not be exchanged, which by itself would have prevented any interoperability at the organizational level. Organizational interoperability additionally requires decision-makers to be able to adapt to unexpected difficulties, and to new opportunities.

Typically, agencies prepare for disasters through exercises. Live exercises are extremely expensive, especially for multi-agency events. So-called “table top” exercises (a group of people talking) risk losing their connection to reality, and certainly to the unexpected. In either case, unexpected partners are rarely invited. And although a good exercise scenario attempts to include some complications, these are often limited by the author’s expectations:

- Telephones work.
- Shelter locations are known.
- Roads either are passable, or can be repaired within a short time.
- Airplanes are vehicles, not weapons.

At the level of senior decision-making, these assumptions - often presumed by staff members who work under the actual decision-maker - are particularly risky, because they create unrecognized habits of expectation. While some exercises may have the purpose of practicing the routine, reinforcing what must be automatic and rote responses, it is particularly important at the senior level that other exercises be designed with the express purpose of challenging those unrecognized habits. If the intended sources are unavailable, where else could communications, or buses, or personnel be found? If agency leaders are to be better prepared to respond to complex real-world events, a senior decision maker exercise should require such open-ended exploration and then be able to accommodate creative solutions.

After September 11th, we witnessed not only a national outpouring of emotion, but also of response. Responder teams from across the nation and the world worked together, and were supported by civilian efforts (for example, to feed those working the Trade Center site). By now we have all heard stories of Katrina’s response, in which firefighters were held in Atlanta for sensitivity training and medical personnel at Louis Armstrong Airport were prevented from contributing due to non-“federalized” status. Both September 11th and Hurricane Katrina were tragedies; the first somewhat lightened by a success story of interoperability, the second compounded both by its far more extensive damage to infrastructure and by an abject failure of interoperability at all levels.

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