

WHO ARE WE?

BY FRANK LUCIER AND JOHN CLAY

The National Institute for Urban Search and Rescue (NIUSR) is a non-profit organization dedicated to finding improved ways of saving lives in times of disaster, both nature and human caused. NIUSR was incorporated in 1977 and is designed to function as a horizontal corporation. To describe the organization as a think tank would not be completely accurate. NIUSR is where new ideas are brought to the table and, because of the diverse group of people in the organization, a synergy is created and those ideas are developed into functioning systems or programs. They are then freely given to the governmental organization that will have the responsibility for implementing them. And this is done because it's the right thing to do.

Managed by Lois Clark McCoy, the organization's dynamic leader, NIUSR is composed of business executives, independent business owners, and both active and retired professionals from government and military. All work by members and staff is pro bono.

The motto for the Institute is "Press On!" and that is what they do. NIUSR areas of focus are:

- Stimulating and supporting the development of technology and training enhancements for the "first responder" (police, fire fighters, paramedics, etc.);
- Recommending better ways to manage and use all the resources available to carry out or support disaster response operations;
- Working with federal, state and local government officials, including military authorities, to promote cooperation, sound policies and the support needed to ensure effective response to public needs during and immediately after disastrous events; and
- To facilitate the sharing of systems and information developed by this Country with others around the world in times of need.

The costs of the development of systems and programs are borne by the Institute through the companies and organizations represented on our Executive Board and Advisory Panels.

The overarching goal of the NIUSR is to identify how America, in the long-term, can broaden and upgrade a comprehensive emergency mitigation, response and recovery system to lessen the disaster impact to its citizens, reduce the devastation to their property and to the nation's economy, and share this with others around the world.

NIUSR's vision goes beyond conventional economic and social models to the creation of an environment that fosters continuous innovation, self-reliance, and a care for all persons in distress, regardless of their location, nationality or circumstances.

WHAT DO WE DO?

NIUSR works on the leading edge of strategic planning for the future in emergency response to fill the gaps in national emergency systems as our society and culture hurtle rapidly into the next millennium. The Future means the next 10 years, and perhaps the next 20 years, not the next quarterly program reviews, or the next quarter's "bottom line."

°NIUSR s current focus:

eXtreme Information Infrastructure (XII)

The events of Sept. 11th exposed a serious challenge in the way those responsible for emergency response gather data from the scene and other sources, sort it out, and communicate other critical information. Responding agencies, using different communication platforms and protocols, could not quickly communicate with each other. Policy makers and emergency managers across the nation found themselves having to rely on CNN and other news media to receive the most current information on the response. The problem is not new but the war on terrorism and the immensity of the effort to coordinate information and dozens of responding agencies to an attack has brought new urgency to finding a solution.

As one of the main focuses of NIUSR is the establishment of a national crisis information system, permitting all involved in the crisis management and response, to plug into an interlinking, open system. To accomplish this NIUSR has conducted a four-year development program called the XII project. A series of demonstrations has shown selected improvements which could be introduced now to radically improve our response to a major urban disaster.

Funded, developed, and demonstrated by a consortium of private companies, these technologies include the use a new telecommunications technology to establish and then maintain a robust, disciplined international and national communications network that can withstand the strains that have collapsed networks during past emergencies.°Such an inter-linking crisis information system is not available to the civilian sector of the United States today. NIUSR is working to change that.

°On March 12th of this year, the National Institute for Urban Search and Rescue (NIUSR) participated in a Department of Defense funded capability demonstration of disaster management technology, which if deployed nationally, could revolutionize how first responder agencies manage disasters. The Domestic Emergency Response Information Services (DERIS) project was funded following the events of 9-11 to demonstrate the ability of existing commercial off-the-shelf technology and civilian telecommunication networks to

support real-time information exchange and collaboration between first responder agencies and local, state and federal agencies.° The four pillars of DERIS — a united responder community, the federation of networks, the web portal, and the vital applications — represent the crucial elements of an incident command system, and are derived from NIUSR. DERIS provides single sign-on access to mission-critical web-based applications through a secure portal website, allowing multiple users with different protocols, systems, and means and speeds of network connectivity (i.e., microwave, T1, DSL, wireline/wireless modem, etc.) to access the latest information and communicate directly with each other using voice, video, text messaging, email and facsimile.°

The DERIS demonstration project linked four metro cities (Chicago, San Diego, Los Angeles, and Arlington, VA) and demonstrated how secure access to weather and other GIS information, imagery, technical information, on-scene video, digital photography and other expert information resources could enhance agency effectiveness. Standards and protocols used to manage DERIS information flow are based on NIUSR s XII concept, which was designed to support a common operational picture and real-time command and control for domestic response. At the conclusion of the demonstration most observers felt DERIS not only promoted interoperability, but also demonstrated how collaborating agencies could overcome cultural and organizational barriers to information exchange. °

Interstate Communications Expressway (ICE)

ICE has been developed by NIUSR to in the effort to establish a framework for an interstate communications network. By simply using the model of the Interstate Highway System, calling the new capability the Interstate Communications Expressway, NIUSR had a working model of federal, state and local cooperation for a present-day system.

The ICE would transport vital information in the way the Interstate Highways transport goods and people. Using a model that has increased the economy of every state gives credence to its value-added for each state.

It is understood by all State governors that, while the federal dollar builds the Interstate Highways, the State dollar builds the onramps to connect their State Highways. Not only do they pay for these on-ramps, but the states must build them to the federal specifications, i.e. two lanes, guard rails, etc.

In addition, local communities have county roads, and cities have city maintained access roads. Again, these are maintained by local, county or state budgets, depending on who owns the particular road. Simply by changing the name of the proposed communications network, it creates a visual that all can follow.

The ICE does not dictate to any state what the internal state of local highway system must be. It can have 2 lane roads or 6 lane roads. It can have bridges or underpasses. However in order to build access onramps to the Interstate, it must conform to ICE standards. NIUSR is working to establish this system of communications.

Decision Making Under Stress Simulation Training (DMUS)

DMUS has been adapted from the U.S. Marine Corps Warfighting Labs "Decision Making Under Stress" simulation training program that has been given to troops preparing for duty in Kosovo, Afghanistan and Iraq.

The NIUSR strategic training program is focused on the multi-agency command personnel of all levels. Essential to the DMUS training program is a knowledge based information management system. NIUSR has developed the ROSE Knowledge Management System. The ROSE Comprehensive Knowledge Management System consists of the following pieces:

1. Integrated redundant, bundled network.
2. Open system with multiple levels of security
3. Quick Portal that collects data from stakeholders
4. Imagery System and Bandwidth
5. Intelligent Information Management Facility that provides near real-time situation awareness and decision support.
6. Directory (the Internet version of your telephone book)
7. Smart hub where data is mapped to an information structure that provides context and allows intelligent software agents to automatically reason about events and collaboratively develop alternative courses of action.
8. Robust retrieval system that can handle 1000s of dissimilar requests simultaneously.
9. Distributes the requested information to the users over the integrated open network.

In the complex decision making process for multi-jurisdiction crisis events of today, knowledge management, to assist in making informed decisions, is essential to an effective response. It is not yet clearly understood that Knowledge Management is a skill that is supported by technology. It is not, in itself, a technology. Knowledge management represents a dramatic enough change in thinking that such change must have commitment and leadership at the highest level of each organization and agency and NIUSR is working to accomplish this.

Community Preparedness Program

"Take a hand in your own survival" has been a focus of NIUSR since its inception. NIUSR has been a strong supporter of the Community Emergency Response Team (CERT) program sponsored by the Department of Homeland Security that trains civilians in basic disaster skills.

NIUSR currently is working on two projects to make the concept of having a trained population much closer to fruition. The first project is being conducted through San Diego State University and involves using the internet, the University's Visualization Laboratory and trained CERTs to develop an internet based system for damage assessment and reporting. Currently public safety organizations are not equipped to receive information from the public during a disaster. This type of system will provide first responders with much more information than is currently possible in a much short time period, leading to a more effective response.

The second project is the development of an internet based CERT training program. With the inclusion of the CERT program into President Bush's Citizens Corps initiative, the program has grown at an exponential rate. But communities that have been training for almost twenty years have trained less than two percent of their populations. The problem lies with the delivery system. An internet based program that is accessible to all then tied back to the community organization creates a more effective delivery system and a more prepared Country.

Synergy Strike Force

NIUSR's Synergy Strike Force is an inter-disciplinary group assembled to conduct shadow operations at major domestic events. These operations are community readiness operations that provide critical cooperative communications in fracture overlay to enable collaborative community and public safety response to any civil-social crisis that may take place during a major event.

These are network-centric operations that exploit state-of-the-art information and network technologies to integrate widely dispersed human decision makers, situational sensors, and human response capabilities into a highly adaptive, comprehensive system.

Each one of the following operations was conducted to learn by doing thus developing new operational concepts and enabling technologies.

Burning Man, August 2002 used to develop or refine:

- Wireless communications
- Complex cultural analysis

Shadow Bowl, January 2003 Super Bowl, used to develop or refine:

- Community communications augmentation
- Mass causality medical reach-back
- Vulnerability analysis and threat assessment
- Indications and warning/situation awareness

Sky Castle/Fair Play, June 2003, used to develop or refine:

- Special events communications augmentation
- Citizens-centric data fusion center
- Predictive intelligence model

Burning Man, August 2003, used to develop or refine:

- Mobile communications for subject matter expert reach-back
- Environmental monitoring

DARPA Grand Challenge/Desert Bloom, March 2004, used to develop or refine:

- Special event situational intelligence plan
- Distributed sensor network
- Real-time tracking system
- Cyber-citizens portal

Burning Man, August 2004, used to develop or refine:

- Consensual tagging and tracking
- Visual recognition by video

Indonesia, January 2005, assisted in tsunami relief effort by helping establish communications systems and facilitating data transfers.

Military Medical Technology Transfer

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The fourth program focus is the transfer of advanced methods of technology from military research into trauma treatment and transport of casualties in war. These advances have a direct correlation with trauma in the urban environment from both natural and man-made disasters. The impetus for this effort is the naval medical component of the 3rd U.S. Fleet and Balboa Naval Hospital in San Diego. This effort continues at the present with an active effort on going.

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