Late one Saturday night, a 911 call comes in . . . shots fired at a nearby convenience store. When officers arrive they find a clerk, wounded and unconscious. Their only clue—a spent shell casing. An attempt to match ballistic results with the national Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)/Federal Bureau of Investigation criminal ballistic imaging database—the National Integrated Ballistic Information Network—proves a dead end. But these officers have another avenue: a Reference Ballistic Imaging Database (RBID) that contains records of test firings of all new guns sold in their State.

The RBID matches the casing to a gun sold the week before, and the seller’s records provide the buyer’s name and address. Although the gun could have been stolen, lost, or resold in the meantime, the database has led the officers at least one step closer to finding a suspect.

Only New York and Maryland now have RBIDs, still in the early stages of development. As these relatively new databases yield more promising investigative results, interest in RBIDs by other States will grow. When that interest leads to development, these States can turn to “Ballistic Identification Capability Modeling—A Guide for State Program Establishment,” a computer-based impact analysis model and handbook to help legislators and law enforcement officials evaluate the pros and cons of establishing and operating an RBID (referred to by ATF as a State Legislative Database).

An RBID contains images of shell casings (and possibly bullets) obtained from test firings, generally of new handguns prior to sale. It is distinct from a ballistic image database of shell casings and projectiles recovered from crime scenes. A criminal ballistic image database is useful for relating multiple crimes, whereas an RBID can be used to determine the original owner of a legally purchased firearm that has been linked to a crime. RBIDs, however, may have potential technical, economic, and policy issues associated with their development and use.

Developed by the Center for Criminal Justice Technology (CCJT) and released in February 2002, the model received extensive input from the Maryland State Police Crime Laboratory, the New York State Police Forensic Investigation Center, ATF, and Forensic Technology, Inc., a vendor of ballistics identification technology. CCJT came up with the idea for the model through day-to-day dealings with criminal justice agencies, then proposed it to the National Institute of Justice (NIJ). After reviewing the project idea and plans, NIJ agreed that the idea qualified for congressional funding under a cooperative agreement.

The model consists of four user input worksheets and two results worksheets. The worksheets can help States identify and understand relevant issues, determine program feasibility, determine the number of equipment units and floor space needed, estimate needed manpower and associated costs, and develop plans and cost projections. The handbook provides an overview of ballistic imaging technology, a more complete explanation of operations in Maryland and New York, and a detailed description of how the planning model works.

By using the model, planners will know to consider such factors as geographic population distribution, firearms sales patterns, the types of images to be captured (e.g., casings, projectiles, both), and the structure of the imaging system (e.g., firings conducted by manufacturers, State police, both). California has used the model for preliminary planning and indicated that it helped produce a January 2003 report to the State legislature on the feasibility of developing an image database.

Potential benefits to States from implementing an RBID include closing more cold cases, reducing the time needed to close cases, and removing criminals from the street. If neighboring States also implement RBID systems, and they work together to ensure database compatibility and interstate cooperation, the benefits could be even greater.

[Editor’s note: See related article, “National Ballistics Database Study,” on page 12.]

The Center for Criminal Justice Technology is operated by Mitretek Systems, a nonprofit company that conducts research in a number of areas, including criminal justice. To download a no-cost copy of Ballistic Identification Capability Modeling—A Guide for State Program Establishment (Adobe® PDF) and Planning Model for a Reference Ballistic Imaging System (Microsoft® Excel® file), access www.mitretek.org/home.nsf/CriminalJustice/products and scroll to bottom of page. For information about the National Integrated Ballistic Information Network, visit www.atf.gov/nibin.

(See The Eyes Have It, page 2)
As a substitute teacher and a volunteer, I had to be concerned that they might use it to identify people at banks and fill out forms. Anderson says, “I think this is a wonderful program that could become part of the daily routine at all three schools.”

The study, conducted at Plumsted’s New Egypt Elementary School, New Egypt Middle School, and New Egypt High School, involved installation of iris scanners for the study group and companion video monitor/intercom/buzzers for the control group and those not participating in the study. (Although control group members also had iris scans in the system’s database, T-PASS was programmed not to admit them during the test period.)

“We think everything is safe here, but you see [violence in schools] on the news and it’s always in the back of your mind,” says Wendy Artz, who is the mother of an elementary school student and a substitute teacher. “I think this is a wonderful program that helps give a sense of security to the kids.”

Despite occasional problems caused by glare from the students’ glasses, the system was easy to use. “It’s very simple. You just walk up, press a button, look in, and then you hear the door click. It takes maybe 2 seconds.” Before Plumsted Township installed 11 T-PASS cameras (5 outdoors, 6 indoors) in the 3 schools, Midgett says she never dreamed anything like this existed. “At first, I wondered why we needed it, because our school system is so safe and so small, but when I found out more about it, it sounded like a good opportunity for our school to test this out.”

Midgett did note a serious problem—tailgating. Evaluators found that tailgating was the second most common form of entry into schools. “If there’s someone body right behind you, do you let them in, or do you say ‘no’ and shut the door in their face?” Midgett says. Evaluators recommended that system developers consider modifying the technology to help prevent tailgating, perhaps by adding an infrared sensor that could detect the entry of a second person. They also recommended tying the iris-scan database into a program that would automatically print a visitor’s badge from database information, so parents would not need to stop in the office for a badge.

Evaluators also suggested an additional computer monitor in the office dedicated to the video camera/buzzer system. Office staff must now minimize other work on their computers to pull up the video camera picture for identification. Evaluators cautioned against such common problems as propping doors and leaving them unlocked, and they suggested refinements to improve outdoor use.

Dean says users need to line their eyes up properly with the scanners and stand between 5 and 24 inches from the lens. The scanner takes a black-and-white picture, using barely visible, near-infrared light. In a few seconds, the system scans a database capable of containing millions of records. (Plumsted’s total now approaches 1,000.) If the system finds a match, the user is admitted. This “one-to-many” matching process spares the user from carrying a biometric ID card; in a “one-to-one” matching system, the user first scans the card, then presents an eye to verify that the two match.

Teacher Scott Jacobs, who has extremely dark eyes, fingerprints, and I kept smearing the fingerprints—the police officers were very patient with me!” With this system, you only had to look in the scanner, and it’s so much simpler. I can really see this as the wave of the future.”

Another glasses-wearing parent, Kim Midgett, says she has never needed to take her glasses off for the scanner. “It’s very simple. You just walk up, press a button, look in, and then you hear the door click. It takes maybe 2 seconds.” Before Plumsted Township installed 11 T-PASS cameras (5 outdoors, 6 indoors) in the 3 schools, Midgett says she never dreamed anything like this existed. “At first, I wondered why we needed it, because our school system is so safe and so small, but when I found out more about it, it sounded like a good opportunity for our school to test this out.”

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Teacher Scott Jacobs, who has extremely dark eyes, expected the scanner to have difficulty matching his irises, but has found that the scanner works “amazingly” well. “It gives us a lot of control over who comes in and out of the schools,” he says. “Long before 9/11, I thought we should have more control for greater school safety. This brings us right on the cutting edge . . . we’ve arrived and we have something that’s unique.”

Dean says no school systems had tried iris-scan technology when it was brought to his attention in 2002, although several airports and hospitals were using the technology for security purposes. With the school board’s permission, Dean applied to NJ for a $293,360 Technology to Improve School Safety Grant to install the iris-scan system.

“This was the first grant I had ever applied for, and I certainly didn’t expect to get it. It was a total surprise,” Dean says. “I think they selected us because the school system is small and relatively safe, and that makes it as good a place as any to undertake a controlled experiment. If you thrust this kind of technology into a bigger school, you might encounter more problems.”

On grant award, Plumsted administrators “embarked on a very robust education campaign. We met with everybody in the community and the reaction was very positive,” Dean says. Although the small rural community has been relatively crime free, an October 2001 shooting rampage by a soldier stationed at nearby Fort Dix made residents aware that such incidents could happen anywhere. School administrators began to think more about school safety issues.

“If the kids grow up with this, they’re going to think this is normal to need an iris scan to unlock a door,” Dean says. “The bottom line is, people feel safer in our schools than they did before, and that’s the most important thing. When you feel safer, you can learn more. You can’t teach a student if they feel uneasy and unsafe. Kids have enough other baggage to contend with.”

For more information on the implementation of Plumsted, New Jersey’s Teacher–Parent Authorization Security System, contact Michael Dean, 609–758–6800 or e-mail deamb@newegypt.us. For a copy of the evaluation titled “Safe Kids, Safe Schools: Evaluating the Use of Iris Recognition Technology in New Egypt, New Jersey,” contact the National Criminal Justice Reference Service at 800–851–3420.
It sounds like a nightmare conjured up in the 2 a.m. darkness.

A runaway chemical reaction in a railcar results in an explosion and fire. Responding fire, law enforcement, and security personnel attempt to communicate, but each department uses a different radio frequency. What follows is awkward and time-consuming dispatch relays to convey critical information from the incident site to adjacent roadblocks, from the roadblocks to the command center.

Unfortunately, it wasn’t a bad dream; it was a real incident at a major chemical plant near Lake Jackson, Texas, in 2002. The incident made Lake Jackson Police Chief Paul Hromadka and Capt. J.R. Dunlap realize they needed an interoperability solution—a way local public safety agencies could talk to one another.

“We realized that we really needed to find some way to talk to each other. There could be other disasters, even more major than this. We could have a terrorist incident, or a Columbine-type situation,” Dunlap says. “Dispatch relays are awkward, and they eat time. Losing time sometimes can mean losing property, or life, or both. And there’s always the possibility of misinformation. That incident made us start looking, and the ACU–1000 seemed like the best and most cost-efficient solution.”

The ACU–1000 is a switch that can interconnect dissimilar radio systems. It was developed privately and extensively tested in an operational setting with assistance from the National Institute of Justice (NIJ). The ACU–1000 allows wireless communication systems to be combined at the audio baseband by using the received audio from one radio system as the source audio for one or more transmitters of differing technologies.

However, even the most cost-efficient solution can represent a significant expenditure for a department of less than 50 sworn officers, particularly when no one has had the opportunity to use the equipment and test its capabilities. Hromadka and his department turned to the manufacturer and NIJ’s National Law Enforcement and Corrections Technology Center (NLECTC)—Northeast in Rome, New York, for help in making their choice. The manufacturer agreed to provide equipment for a free onsite demonstration, and NLECTC–Northeast agreed to provide onsite technical assistance during installation. When it became apparent in May 2003 that workers at a local chemical plant would strike, Lake Jackson requested a stepped-up timetable to allow the department to test the equipment during the strike. Just 3 days before the start of the strike, staff from NLECTC–Northeast arrived in Lake Jackson. Two days later, the dispatch center had a working ACU–1000 audio gateway to provide interoperability between the different radio frequencies used by the Lake Jackson Police Department, the neighboring Clute and Freeport police departments, the Brazoria County Sheriff’s Department, and security forces from two chemical plants. Installation included an ETS–I Ethernet connection that allowed dispatchers to control the ACU–1000 from their dispatch consoles, eliminating the need to move to access the equipment. In addition, dispatchers and senior Lake Jackson officers were trained on system use.

“NLECTC–Northeast was great. They not only sent someone down to set it up, the center’s staff person remained available by phone practically around the clock for the duration of the strike,” Dunlap says. Although Dunlap reported that no major incidents took place during the 10-day strike, it gave Lake Jackson a good opportunity to test the equipment’s ability and determine that the ACU–1000 represented the right interoperability solution for them. Dunlap says the department plans to purchase equipment as soon as funding becomes available.

Interoperability is one of the research missions of NIJ’s Communications Technology Program (CommTech). Through CommTech, NIJ hopes to solve both short- and long-term interoperability problems involving wireless public safety telecommunications and information technology applications. CommTech is helping bridge the gap in emergency communication by identifying, adopting, and developing interoperability solutions that include open-architecture standards for voice, data, image, and video communication systems. These solutions will allow multiple parties to exchange information on the spot—no matter where that “spot” is—fixed facilities, mobile platforms, even personal devices. The NLECTC system then helps take these developed solutions to the field as part of its mission to assist local and State agencies.

For more information on the Lake Jackson Police Department’s experience with the ACU–1000, contact Capt. J.R. Dunlap, 979–415–2700 or JRDunlap@brazosport.cc.tx.us. For more information on interoperability assistance offered by the National Law Enforcement and Corrections Technology Center–Northeast, contact Charles Stephenson, 315–339–6184 or Charles.Stephenson@L-3Com.com. To find out more about the National Institute of Justice’s CommTech program, log on to www.ojp.usdoj.gov/nij/scientech/commtech.htm.
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Awards: TechBeat has received numerous awards, including the 1998 Best of Category, Excellence in Printing Award from the Printing & Graphic Communications Association; the first-place 1998 Blue Pencil Award for Most Improved Periodical from the National Association of Government Communicators; the 1999 Silver Inkwell Award of Merit from the International Association of Business Communicators; and the APEX 2001 Award of Excellence for Magazines and Newspapers—Printed.

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Online News Summary
Online News Summary includes article abstracts on law enforcement, corrections, and forensics technologies that have appeared in major newspapers, magazines, and periodicals and on national and international wire services and websites.

Frequently Asked Questions
Frequently Asked Questions offers detailed information based on thousands of calls to our information specialists.

Publications
Publications from NIJ and NLECTC that you can view or download to your system.

Calendar of Events
Calendar of Events lists upcoming meetings, seminars, and training.

Links
Links takes you to other important law enforcement and corrections websites.

For help establishing an Internet connection, linking to JUSTNET, or finding needed technology and product information, call the NLECTC Information Hotline at 800–248–2742.
This initial evaluation showed that the robot, which at that time cost approximately $30,000, met many basic requirements in the report. It could lift 35 pounds vertically from a point 18 inches in front of its body, climb stairs at angles of up to 40 degrees, and operate at a 300-yard range. It had easily removable batteries, fit the aisles of buses and airplanes and into the trunk of a car, and weighed less than 130 pounds. It operated at temperatures ranging from –40 to 120 degrees Fahrenheit and in heavy rain or snow, and it had the capability to fire a disrupter, deploy digital x-rays, and provide views from multiple color cameras.

More than a dozen evaluators from local and State law enforcement agencies; fire departments; the FBI; the Bureau of Alcohol, Tobacco, Firearms and Explosives; and the U.S. Navy put the robot through its paces. All the evaluating agencies tested the robot using the same three scenarios: (1) inspecting and rendering safe a suspect package in an open area, such as the front steps of a building, a table in a lobby, or a parking lot; (2) inspecting and rendering safe a bomb factory in...
San Diego: It’s Super Bowl 2003. Thousands of fans are in town during a period of heightened security. A wireless video server allows the San Diego Police Department to watch the crowds in the stadium, a high-traffic intersection downtown, and a waterfront command center.

New York City: Firefighters decontaminate toxic substances and harmful organisms in the air or on surfaces in seconds using a system that delivers an electromechanical activation of hydrogen peroxide, leaving only a fine mist of water and oxygen.

U.S.-Mexican Border: Hundreds of miles of remote countryside between the two countries must be monitored for illegal immigration and other activities. The U.S. Border Patrol can now track what goes on in this no-man’s land with an intrusion detection system that is deployed through hidden sensors—seismic, magnetic, infrared, and cameras—linked to a satellite network that allows remote viewing from a central location.

What has the government done lately to protect public safety? Its technology experts scour the country for cutting-edge technologies developed by public and private entities that law enforcement and public safety agencies can use.

Universities, laboratories, and startup companies have created tremendous technological research and development (R&D) resources in the United States. At the same time, law enforcement and corrections agencies need technologies that do more with less. But the gulf between early research and an available product can be wide. Trying to wade through the morass of Federal paperwork, filing requirements, and figuring out the needs of the public safety market can keep the most determined entrepreneur from turning an inspired idea into a useful product.

In December 2003, the Office of Law Enforcement Technology Commercialization (OLETC)—part of the National Law Enforcement and Corrections Technology

“The CCAT–OLETC partnership brings together homeland security and law enforcement technologies to better serve the public.”
Center (NLECTC) system—and the Center for the Commercialization of Advanced Technology (CCAT) formed a partnership to assist inventors and entrepreneurs who are looking to enter the public safety market.

OLETC, which is funded through the Department of Justice’s National Institute of Justice (NIJ), was established in 1995 to help commercialize innovative technologies for public safety. “Our objective is to bring research and private industry together to put affordable, market-driven technologies in the hands of law enforcement and corrections professionals,” says OLETC President and CEO Lawrence A. Kosiba. “The OLETC-CCAT partnership will attract even more breakthrough technologies that can be brought to market through our innovative commercialization processes.”

CCAT is a public/private partnership dedicated to speeding up the commercialization of promising technologies to aid homeland security and law enforcement. CCAT is based in San Diego, home to the NLECTC system’s Border Research and Technology Center (BRTC), which played a crucial role in bringing OLETC and CCAT together. “San Diego is a city that seems to breed emerging cutting-edge technology,” says Lou Kelly, chairman of the board and president and chief operating officer of Lockheed Martin ORINCON Technologies. San Diego, which has several U.S. installations, hosts a number of biotech and other technology-based enterprises and startup companies. Based on discussions among a group of industry, government, and academic representatives, the idea for CCAT—to use this group’s experience to bring new technologies to the field—was born.

To enhance their ability to serve the public safety and homeland security markets, OLETC and CCAT signed a memorandum of understanding (MOU). “Law enforcement is on the front lines when it comes to homeland security,” Kosiba notes. “The CCAT-OLETC partnership brings together homeland security and law enforcement technologies to better serve the public.”

OLETC will provide guidance during CCAT’s application review process and counsel CCAT clients whose technologies relate to law enforcement or public safety. In return, CCAT will provide market studies, business plans, and product development funding to OLETC-assisted entities that pass CCAT’s proposal review process. For CCAT clients who address technology needs identified by NIJ, OLETC will provide access to two of its offerings—the annual Mock Prison Riot® and its Commercialization Planning Workshops®.

Kosiba adds that the partnership opens up OLETC’s expertise to CCAT. “It also provides an avenue for OLETC clients to have access to capital through the CCAT grant process,” he says. “It allows two talented organizations to come together to support law enforcement and corrections. To make the path to commercialization work, you need to leverage the millions of dollars that have already been spent on technology and the tremendous amount of expertise that exists in the Nation. CCAT is a perfect opportunity for OLETC clients to gain access to funding and CCAT services and capabilities that will enable them to take their technology to market.”

BRTC initiated the talks that led to the MOU between OLETC and CCAT. The center works with the Department of Homeland Security’s U.S. Immigration and Customs Enforcement and U.S. Customs and Border Protection components, the Office of National Drug Control Policy, U.S. Attorneys’ Offices, and law enforcement agencies to strengthen technology capabilities and awareness on the Nation’s borders.

According to BRTC director Chris Aldridge, the OLETC-CCAT collaboration leverages Federal programs and dollars to help take technologies from prototype to product. CCAT’s Kelly points out that most CCAT clients can demonstrate their products on the laboratory bench but not in the field. “We can get it ready to go to the field for demonstration by putting money into making the technology more rugged, perhaps repackaging it, adding mobility, and generally making it appropriate for law enforcement use,” he says.

OLETC provides commercialization assistance for technologies that will add genuine value to the public safety and law enforcement fields, based on recommendations from NLECTC’s national advisory council of about 100 law enforcement, corrections, and forensic science professionals. OLETC’s Commercialization Planning Workshops match inventors with business and marketing professionals and law enforcement and corrections practitioners who provide feedback and guidance on the technology and proposed business plan. OLETC provides market research and evaluation; application and competitive analysis; and information on intellectual property, licensing, strategic partnerships, and capital formation. It also evaluates the proposed technology, provides demonstration opportunities, and coaches participants in project management and commercialization planning. In addition to the workshops, OLETC’s annual Mock Prison Riot offers a unique technology testbed—a 4-day showcase that allows corrections officers and tactical teams from all over the country to use and evaluate new technologies in a number of riot situations.

CCAT has aided in the commercialization of many technologies, not only those described at the beginning of the article, but also information systems that can deter possible threats and biowarfare. CCAT conducts national solicitations every 90 to 120 days to identify promising technologies from academia, government laboratories, and industry. Since July 2001, it has issued 112 awards in excess of $8.2 million to 62 technology companies, law enforcement agencies, and government labs to develop innovative products. The consortium provides a range of services, including research and prototype development funding, business planning, market analyses, and assistance in moving technologies through developmental milestones necessary for successful commercialization.

“Some startup companies do not do business with the government because they can’t figure out how to work within all the rules and regulations, the acquisition process, and seemingly onerous accounting practices,” Kelly says. “But at the same time, that segment of the business world develops a huge amount of leading-edge technology.”

CCAT’s partners include two universities, the U.S. Navy, and ORINCON, a defense and commercial contractor that provides commercial perspectives to academia and government on introducing new products to the market. OLETC’s academic partners are San Diego State University’s (SDSU’s) and the University of California—San Diego’s (UCSD’s) Jacobs School of Engineering, and USCD CONNECT, an entrepreneurial outreach program for startup businesses. The Space and Naval Warfare Systems Center–San Diego (SSC–SD), a naval laboratory, links CCAT with Department of Defense (DOD) sources of advanced technologies. SSC–SD identifies technologies that have defense and/or alternative-use potential and participates in the testing and evaluation of new technologies. In addition, SSC–SD is a technology partner for BRTC in promoting these technologies for law enforcement applications. Funding comes from Congress through DoD’s Office of Naval Research.

Although the OLETC-CCAT partnership is in its infancy, OLETC project managers have already participated in CCAT grant reviews and CCAT representatives have attended meetings of OLETC’s advisory council. Twice a year, inventors present technologies to the council, which provides feedback on the technology’s potential ability to meet the needs of law enforcement and corrections.

Since the beginning, BRTC has participated in CCAT’s application review process by providing feedback from law enforcement and corrections practitioners. “We have depended on the input of BRTC and now OLETC,” Kelly says, “because as CCAT goes out to search for technologies for this sector, we need to know what’s important to the practitioners.” BRTC also helps CCAT demonstrate technologies, particularly those with border security applications.

For more information on commercialization assistance provided through the Office of Law Enforcement Technology Commercialization, including its annual Mock Prison Riot and Commercialization Planning Workshops, visit the center’s website at www.oletc.org or call 888–306–5382. For more information on the Center for the Commercialization of Advanced Technology, visit www.ccatsandiego.org or contact Lou Kelly, 858–783–1102 or lkelly@orincon.com. For more information about the Border Research and Technology Center, visit www.nlectic.org/brtc or call 888–656–BRTC (2782).
The National Law Enforcement and Corrections Technology Center (NLECTC) is a program of the National Institute of Justice (NIJ), offering no-cost assistance in helping agencies large and small implement current and emerging technologies.

The NLECTC system was established in 1994 by NIJ’s Office of Science and Technology to deliver information and technology assistance to more than 18,000 police departments; 50 State correctional systems; thousands of prisons, jails, and parole and probation departments; and other public safety organizations.

Contact NLECTC for:

**Technology Identification**
The NLECTC system provides information and assistance to help agencies determine the most appropriate and cost-effective technology to solve an administrative or operational problem. We deliver information relating to technology availability, performance, durability, reliability, safety, ease of use, customization capabilities, and interoperability.

**Technology Assistance**
Our staff serves as proxy scientists and engineers. Areas of assistance include unique evidence analysis (e.g., audio, video, computer, trace, and explosives), systems engineering, and communications and information systems support (e.g., interoperability, propagation studies, and vulnerability assessments).

**Technology Implementation**
We develop technology guides, best practices, and other information resources that are frequently leveraged from hands-on assistance projects and made available to other agencies.

**Property Acquisition**
We help departments take advantage of surplus property programs that make Federal excess and surplus property available to law enforcement and corrections personnel at little or no cost.

**Equipment Testing**
In cooperation with the Office of Law Enforcement Standards (OLES), we oversee the development of standards and a standards-based testing program in which equipment such as ballistic- and stab-resistant body armor, double-locking metallic handcuffs, and semi-automatic pistols is tested on a pass/fail basis. NLECTC also conducts comparative evaluations—testing equipment under field conditions—on patrol vehicles; patrol vehicle tires and replacement brake pads; and cut-, puncture-, and pathogen-resistant gloves. NLECTC also has evaluated emerging products to verify manufacturers’ claims. The primary focus of OLES is the development of performance standards and testing methods to ensure that public safety equipment is safe, dependable, and effective.

**Technology Demonstration**
We introduce and demonstrate new and emerging technologies through such special events, conferences, and practical demonstrations as the Mock Prison Riot (technologies for corrections) and an annual public safety technology conference. On a limited basis, NLECTC facilitates deployment of new technologies to agencies for operational testing and evaluation.

**Capacity Building**
We provide hands-on demonstrations of the latest technologies to address such operational issues as crime and intelligence analysis, geographic information systems, explosives detection and disablement, inmate disturbances and riots, and computer crime investigation.

**Technology Information**
NLECTC disseminates information to the criminal justice community at no cost through educational bulletins, equipment performance reports, guides, consumer product lists, news summaries, meeting/conference reports, videotapes, and CD-ROMs. NLECTC also publishes TechBeat, an award-winning quarterly newsmagazine. Most publications are available in electronic form through the Justice Technology Information Network (JUSTNET) at www.justnet.org. Hard copies of all publications can be ordered through NLECTC’s toll-free number, 800–248–2742, or via e-mail at asknlectc@nlectc.org.

**Technology Commercialization**
Our law enforcement and corrections professionals, product and commercialization managers, engineers, and technical and market research specialists work together to identify new technologies and product concepts. They then work with innovators and industry to develop, manufacture, and distribute these new, innovative products and technologies.

**Technology Needs Assessment**
Our national body of criminal justice professionals—the Law Enforcement and Corrections Technology Advisory Council (LECTAC)—ensures that we are focusing on the real-world needs of public safety agencies.

Because most of the country’s law enforcement and corrections services are provided at the local level, the NLECTC system is composed of five regional centers and is complemented by several specialty offices and a national center. Most centers and offices are co-located with or supported by federally funded technology partners so they can leverage unique science and engineering expertise.
Bob Griffiths, director of NLECTC–Northwest, says that the 200-plus page document can be used like an encyclopedia. Readers with special interests can look among hundreds of entries, broken down into 24 categories, for the technology they need. They may find that the Russians have already developed exactly what they are looking for. It’s designed to let folks know there are other technologies and products out there—that they can look beyond the traditional public safety markets in the United States, Canada, and Europe. Russia has a strong history of technology development. They have come up with some useful tools that we have not developed, partly because they’ve been dealing with the terrorism problem a lot longer.”

Griffiths cites a number of Russian innovations and their potential uses that are found in the catalog:

- Ultrasonic electronic surveillance devices for undercover operations and wiretapping.
- Tunneling detection devices to maintain secure perimeters.
- Portable explosive suppression systems that fit in the trunk of a car. Patrol officers can deploy these to lessen the impact of an explosion (in case an improvised explosive device detonates before the bomb squad arrives). The catalog also suggests placing them in such public places as trash bins.
- Sophisticated equipment to detect explosive devices sent through the mail.
- Advanced forensic kits to examine documents and analyze handwriting and fingerprints.
- “Invisible ink” verification markings that come into view under specific conditions. These range from crayons for tagging carton to clear ink cartridges for inkjet printers.
- Durable personal protective equipment, including shields, ballistic vests, and helmets made with materials not now in use in the United States.
- Identification successful technology and technology development. They have come up with some useful tools that we have not developed …

Russia has a strong history of technology development. As they have since summer 2002, the Russians will continue to provide NLECTC–Northwest with technological descriptions.

According to Griffiths, the technology exchange project started when G&H International, a Washington, D.C.-based company, helped bring NLECTC–Northwest staff together with officials from the Russian Ministry of Interior (the national police force). Because G&H has branch operations in Russia and works extensively with NIJ, the company saw a ready match between the two agencies.

“The Russians asked if we were interested in documentation on their technology, and we said give us some samples,” Griffiths says. “We were absolutely fascinated by what we read and asked for more. They provided an immense amount of information in January 2003, and it grew into the catalog. While neither NIJ nor NLECTC–Northwest endorses any of the products in the catalog, we look forward to our own testing and evaluation to demonstrate their potential value to American public safety efforts.”

NLECTC–Northwest called on expert translators and NLECTC system engineers to develop the catalog and review the technologies. This translation and review process led to information exchanges between U.S. law enforcement representatives and officials from several Russian agencies, including the St. Petersburg police, the National Police Training Center, the National Laboratory for Equipment Development, and the Ministry of Emergency Situations (roughly equivalent to the U.S. Department of Homeland Security). In February 2004, 10 Russian officials traveled to Anchorage to meet with representatives from NIJ, NLECTC, and other public safety agencies in the first Joint American-Russian Police Technology Forum.

“As American law enforcement and other public safety agencies cannot operate alone in protecting our citizens,” Griffiths says. “As demonstrated by bombings and acts of terrorism in Moscow and other areas of Russia, collaboration among public safety professionals across international borders is vital. We may be separated by great distances, different languages, and different alphabets, but we are colleagues with a common mission—a mission in which we speak the same language and face the same challenges.

“We know that on the ‘large scale,’ discussions and meetings are taking place between our countries.

Unfortunately, at the operational level, collaborative information exchange occur less often. Those who would most benefit from meetings and discussions—police, fire, medical, and emergency services—have not been involved. This is what prompted the first joint forum.”

The forum’s principal objectives were to—

- Initiate a series of working group meetings to share and discuss technologies that will support first responders (police, fire, medical, and search and rescue), especially in cold and remote areas.
- Identify successful technology and equipment developed for cold and remote areas.
- Determine what technology requirements exist for first responders who operate in cold and remote areas.
- Identify joint technology projects on which first responders from both countries could collaborate.

A report on the 4-day forum is available through NLECTC–Northwest. The next joint forum is tentatively planned for October 2004 in St. Petersburg, Russia. “The Russians have two motives in sharing their information with us: to find a new market for their technology and to establish strong relationships with their U.S. counterparts.”

The U.S.-Russian collaboration is not the first joint country exchange for NIJ. For many years, the Institute has maintained a close working relationship with counterparts in the United Kingdom, Canada, and Israel.

For a copy of the Russian Law Enforcement Technical Devices Catalog, submit a request on agency letterhead to the National Law Enforcement and Corrections Technology Center–Northwest, 3000 C Street, Suite 304, Anchorage, AK 99503–3875. For a copy of the Joint American-Russian Police Technology Forum Report, call 866-569-2969 or e-mail nlectc_nw@ctsc.net.
Iowa Prisons Take Part in Antigang Project

Associated Press

Iowa’s prison system will use “data mining” software to monitor inmates participating in prison threat groups, according to Larry Brimeyer of the Iowa Department of Corrections. The National Institute of Justice is sponsoring the antigang project, which uses software to evaluate inmate-related information, including criminal histories, participation in treatment programs, and visiting lists, stored in Iowa’s Department of Corrections’ computer system. Brimeyer notes that examining the visiting lists could be particularly helpful in discovering visitors that act as liaisons for inmates held in different institutions. Brimeyer estimates that nearly 50% of the roughly 8,600 inmates held in Iowa prisons are gang members.

Police Gather To View Hands-Free Cruiser Technology

Union Leader and New Hampshire Sunday News

The University of New Hampshire (UNH) hosted a demonstration for representatives from about 50 State police departments of a voice-activated computer system designed for police officers. Users can touch a control on the steering wheel and then speak a command to turn on the strobe lights, connect to a different radio frequency, or perform other tasks. The Project 54 system includes a global positioning system and a remote handheld device to read barcodes on driver’s licenses and already has been installed in about 90 State and local patrol cars.

Fingerprinting Bioterror Agents

Law Enforcement Technology

Stable isotope fingerprint technology developed by the Chemical Sciences Division at Oak Ridge National Laboratory (ORNL) provides a more accurate method for pinpointing the origin of chemical or biological agents compared to conventional procedures. Scientists examine the ratios of carbon and nitrogen to determine if two batches of chemical or biological agents were made by a single lab or person. Juske Horita, who led the project at ORNL, notes that “all biologically essential elements” contain stable isotopes, which act as fingerprints for identifying bacteria. Current technologies, including DNA analysis, can identify but not determine the source of chemical or biological agents, which hinders law enforcement investigations of chemical or biological attacks. Horita believes stable-isotope fingerprint technology should work for identifying most chemical and biological agents and recommends creating a database of stable-isotope fingerprints. He adds that investigators can use the technology to identify the geographic location of laboratories that produce chemical or biological agents used in terrorist attacks. University of Utah biology professor James Eldering notes that the analysis of stable isotopes and trace alkaloids found in cocaine has enabled investigators to identify areas of origin.

To Cache a Thief

Corporate Counsel

Fortunately, computer forensic experts have tools to help them detect electronic forgeries, the incinerations of which are on the rise. Fakers often try to manipulate an electronic document or an e-mail to make it seem as if the document contained information that it had not previously contained or was written ten years before. In one example, the accomplice of a prison inmate attempted to forge a faked order reducing the inmate’s sentence. Other examples of electronic fraud include when perpetrators electronically bake their Windows® documents to have the appearance that those documents were drafted at an earlier date. Luckily, computer forensic experts can foil electronic fraud by using tools to analyze cached material in the unallocated free space of computers’ hard drives and by physically examining where certain data is stored on a hard drive. Forensic experts also can tell if documents have been defragmented or tampered with to help them determine whether electronic documents and e-mails are legitimate.

Prisoners’ Lawyers Replaced by Computers in Georgia

National Journal’s Technology Daily

Georgia has introduced a program that replaces some government-funded lawyers with computers. The lawyers helped prison inmates challenge their sentences and convictions, as well as prison conditions, but the State has terminated its contract with the Center for Prisoners’ Legal Assistance and has placed the burden on the State to handle their legal issues. Some inmates want to handle their legal issues themselves and computers loaded with Westlaw® legal database information. Bill Amideo, the chief legal counsel for Georgia’s Corrections Department, says that the system will give inmates better assistance at a lower cost, but critics argue that it could impair inmates’ ability to protect their legal rights. According to Amideo, inmates were not pleased because they had trouble getting in touch with their lawyers, and many inmates want to handle their own affairs. The computers are an update of the prison library, in a way. Some critics say that many inmates do not even know how to operate the computers, let alone handle legal research, and some are functionally illiterate. Amideo counters that the State prison system will provide librarians and paralegals to assist, as well as translators for inmates who do not speak English. The Georgia State Bar Association is checking to see if the new program puts librarians and paralegals in the position of breaking the law by offering legal advice.

Reliving 9/11, With Fire as Teacher

New York Times

The National Institute of Standards and Technology is hosting a Federal investigation of the September 2001 terrorist attacks in the United States, which includes the re-creation of a fire in the north World Trade Center building. Other parts include tearing steel, heat-ting structural supports, and checking insulation; so far research has shown how easy heat leaks through damaged insulation and how parts of the building’s structure may have been prone to fail in a major fire. The findings eventually could mean safety recommendations for high-rises and will probably advance knowledge of fire and how it affects structure. Studying the effects of fire on buildings has lagged behind studying the effects of high winds and earthquakes until now.

Wisconsin Prisoners Tracked by .Net Computer News

The sheriff in Douglas County, Wisconsin, grow irritated about law enforcement efforts being wasted as different counties had no way of alerting each other when they both had prisoners that needed to be transferred to the same place. Emerald Systems CEO Phil Brandes worked with 54 county sheriffs to develop the prisoners exchange and transport scheduling (PETS) system, which uses Microsoft.Net technology. The system, which is accessible to all 72 Wisconsin counties, is estimated to save $3 million in expenses yearly for the transfer of prisoners between counties, jails, and prisons. A comment space on the PETS application allows officers to put in pertinent information such as whether a prisoner is violent or has communicable diseases. For more information, access www.gem.com/vdli_net/daily-updates/2598f-1.html.

Simulating Bomb Blasts

eEngineering Online

The U.S. Government’s Technical Support Working Group has signed a $4.2 million contract with the University of California, San Diego (USCD) Jacobs School of Engineering to create an explosion replication device. The simulator is expected to be completed by early next year. UCSD engineers will work with MTS Systems Corporation, which also builds labs that analyze car crashes and military weapons. The explosion investigation lab will allow scientists to reconstruct a blast’s shock waves using hydraulic equipment to gauge the impact on columns, walls, floors, windows, and other structures. The lab also will explore new ways to lessen the effect of blasts, including a composite overlay system.
Fly Like Birds

**Ne.ws**
Sunil K. Agrawal of the University of Delaware is designing and building flying robots inspired by the hummingbird and the hawkmoth. Potential applications range from military surveillance to industrial maintenance to enhanced law enforcement and search and rescue operations. Agrawal says the hummingbird is a particularly valuable biological model because of its ability to hover, which would be a critical feature in effective surveillance. An early permutation of the robotic bird was constructed out of balsa wood and spattered paper wings that flapped under the power of rubber band engines; a later design featured battery-powered wings and drew the attention of real birds when it flew, Agrawal notes. The robot bird's current design has mylar wings and a body made from carbon fiber composite, which reduces its weight dramatically and makes the frame less fragile. Agrawal says the research team's current efforts focus on minimizing the robot's mass and power requirements, while later initiatives will seek to make the machine small enough to fit in the palm of a hand as well as integrate flight controls. “We want to demonstrate that the flapping wing machines can be built and optimized and, eventually, we would like to expand from a single flying machine to a group of cooperative flying machines,” he adds. The National Science Foundation, the National Institutes of Health, the U.S. Air Force, and the National Institute of Standards and Technology are funding Agrawal's research. For more information, access http://www.ne.ws/article/view/502903/.

Troops in Iraq Get High-Tech Noisemaker To Keep Enemies Away

**SiliconValley.com**
The U.S. Army and Marines have purchased San Diego-based American Technology's Long Range Acoustic Device to dispel hostile crowds and ward off potential attacks using a high-pitched tone with a frequency of up to 3,100 hertz that can be used at distances of up to 300 yards. The 45-pound, dish-shaped device measures 33 inches in diameter and can emit sound of up to 150 decibels. It can be programmed to emit sound files containing warning messages which, if they fail to disperse a crowd, can turn into a tight beam of noise. The tool was developed after the 2002 attack on the USS Cole off Yemen as a way to keep small boat operators away from U.S. warships.

Columbus Police Add Twist To Bait Cars

**Associated Press**
Police in Columbus, Ohio, put out a specially equipped car about once a month for 3 days at a time to catch auto thieves. The engine is disabled and the doors are locked after a crook enters the vehicle once a month for 3 days at a time to catch auto thieves. The engine is disabled and the doors are locked after a crook enters the vehicle. Lt. Marie Ballo says that the bait car caught 10 thieves in just 2 days during 1 week.

State, City Unite Anticrime Tools

**Chicago Tribune**
Illinois is merging its criminal database into the Chicago Police Department's computer system so as to spot crime patterns more easily and analyze suspicious activity throughout the State, according to officials. “Information gained by making a dozen phone calls now will be a mouse click away,” notes Chicago Police Superintendent Philip Cline. Some of the system will be available by the end of next year. The system also will provide real-time information to officers in the field; police officials are looking at wireless devices. Chicago’s suburban police departments, but the merger would give all of the State’s 1,200 local law enforcement departments access.

Fiber–Optic Warning System Installed at Causeway

**Associated Press**
Officials have launched a fiber-optic warning system at the South Padre Island causeway in Texas. The system—the first of its kind in the country—takes action if anything shaking the bridge's stability occurs. The $800,000 system has a pair of fiber-optic cables that thickness of a fountain pen that are linked across the bridge's north side. They are stretched in areas and are weakened in sections; if part of the bridge breaks, one or both will break, transmitting signals to computers that will initiate a railroad-style gate to close the bridge. The system also automatically notifies law enforcement agencies if an emergency occurs.

National Criminal Justice Reference Service

In addition to funding the National Law Enforcement and Corrections Technology Center, the National Institute of Justice (NIJ) and other Federal agencies support the National Criminal Justice Reference Service (NCJRS), assisting a global community of policymakers, practitioners, researchers, and the general public with justice-related research, policies, and programs.

NCJRS offers reference and referral services, publications, onsite and offsite conference support, and other technical assistance. The easiest way to access NCJRS is online.

Start at http://www.ncjrs.org. The NCJRS website showcases the latest criminal and juvenile justice and drug policy information. Take advantage of—

• Topic-specific resources.
• Online registration and ordering.
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Stay informed. Register at http://puborder.ncjrs.org/register to receive—

• **NCJRS Catalog.** A bimonthly periodical that highlights recent publications and products and contains a convenient online order form.

• **JUSTINFO.** A biweekly electronic newsletter that includes links to full-text versions of printed publications.

• **E-mail notifications.** Periodic messages about new publications and resources that match your specific interests.

Ask questions. Share comments. Get answers to your questions or share suggestions about NCJRS services at—

• http://askncjrs.ncjrs.org (questions)
• http://tellncjrs.ncjrs.org (comments)

NCJRS Contact Information at a Glance

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The National Law Enforcement and Corrections Technology Center is supported by Cooperative Agreement #96-MU-MU–K01 awarded by the U.S. Department of Justice, National Institute of Justice. Analyses of test results do not represent product approval or endorsement by the National Institute of Justice, U.S. Department of Justice; the National Institute of Standards and Technology, U.S. Department of Commerce; or Aspen Systems Corporation. Points of view or opinions contained within this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.

The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, Bureau of Justice Statistics, Office of Juvenile Justice and Delinquency Prevention, and Office for Victims of Crime.
To help in Federal policy development relating to a national ballistics database, the National Institute of Justice funded the National Academy of Sciences in 2003 to independently assess the technical feasibility, accuracy, and technical capability of such a database to aid in criminal investigations. The 30-month study will focus on fundamental issues, such as:

- Uniqueness of ballistic images.
- Ability of imaging systems to capture unique characteristics and extract reproducible information from ballistic impressions.
- Probability the ballistics evidence presented would lead to a match with an image in the database.
- Development of base rates for crimes that produce ballistic evidence.
- Probabilities and consequences of false positives and negatives.
- Operational utility of such a database in solving crimes.

Findings, conclusions, and recommendations of the study will be published. Additional information on this initiative can be found at the website of the National Academy of Sciences, www.nas.edu. Click on Current Projects on the menu on the left side, then enter the project number, LJXX-I-13-01-A, into the search field. Also see related article, “Ballistic Fingerprints on File,” on page 1.