

## **CORRECTIONAL TECHNOLOGY: PLOTTING A COURSE FOR THE '90S**

Military technology may seem an odd starting place for a discussion on technology in corrections. But consider that the Department of Defense (DoD) annually spends billions of dollars on research and development (R&D) and that its investments produce valuable military systems, products and devices, and important spin-off technologies useful for law enforcement and for society in general. Because sophisticated weapon systems call for highly accurate, high-speed data processing, the military has invested heavily in this technology. Advances in the computer science field -- including distributed processing, microprocessors, time sharing and Internet -- are just a few technologies that have resulted from military R&D. The spin-offs derived by law enforcement -- timely and accurate data base queries for vehicle identification numbers, outstanding warrants and fingerprints, as well as data communication links between headquarters and remote terminals in prisons, jails or police cars -- are all made possible through technological advances sponsored by military R&D.

Ordinarily, law enforcement benefits indirectly from military R&D investments; however, this relationship is gradually changing as a result of recent developments in world events. Large-scale, global conflict is becoming less likely. Because of the greater resemblance between today's military missions and civil law enforcement, the military's R&D programs currently include systems and technologies useful for "operations other than war," such as civil disturbances and peacekeeping missions. The reduced-worldwide threat is increasing pressure on the military to curb spending and to invest in some technologies with dual-use applications, especially technologies with both military and civilian value. The law enforcement community now has an excellent opportunity to work together with the military to develop technologies with shared value. With this in mind, in 1994 the Department of Justice entered into an agreement with the DoD to develop dual-use technologies for law enforcement, a program coordinated by the National Institute of Justice' (NIJ) Division of Science and Technology and by DoD's premier R&D agency, the Advanced Research Programs Agency (ARPA). The Joint Program Steering Group (JPSG) was established to develop and manage this program.

Corrections can capitalize on recent global events, the ensuing changes in military R&D and programs such as the one NIJ and ARPA are coordinating through JPSG. However, this may be more difficult than it seems because the traditional approach to technology development in corrections is *liaise faire* -- whereas an integrated and more active approach is required.

### **R&D in the Navy and FBI**

The National Science Foundation (NSF) surveys federal agencies annually to determine amounts spent on R&D. Its figures do not reveal exactly how much money goes into the development of new technologies, but the figures are suggestive. DoD spent approximately \$38 billion on R&D in 1994. No one will argue that the U.S. Navy is not technologically sophisticated or that it does not place a high

value on research: The Navy spent nearly \$10 billion on R&D last year, supporting hundreds of thousands of employees and a host of federal research laboratories across the country.

How does the technology development process work in the Navy? To obtain a new product, Navy's end users may inform the appropriate segment in the engineering division that a ship, plane or some particular sensing device that meets certain operational specifications is needed. The fleet users provide the operational requirements, and the engineers either produce the required technologies or subcontract out the work.

Likewise, the Federal Bureau of Investigation (FBI) spends a great deal on technology development, far more than its obligation of \$10.7 million for R&D in 1994. For instance, the FBI receives roughly \$40 million to support its engineering center at Quantico, Va., and anywhere from \$300 million to \$400 million to support its engineering, fingerprinting and computing operations. The FBI's Quantico facility includes about 60 degree engineers. Almost 500 people work specifically on technology development. The FBI's technology effort also is enhanced substantially through joint technology development efforts coordinated with the military R&D establishment. In the FBI, specially trained "technology field agents" identify needed products and technologies. Although its program is small compared with the Navy's, it is impressive compared with corrections.

### **Technology Development In Corrections**

Four large state prison systems -- California, Florida, New York and Texas -- report that they spent nothing on new technology development in 1994. Although NSF tables show that the Federal Bureau of Prisons (BOP) spent \$6 million on R&D in 1994, only a small fraction of that amount --less than \$100,000 -- actually produced new technologies. The BOP, like the four state systems, invests heavily in computer system improvements and adaptations to off-the-shelf products and systems. Its spending on computer-system enhancements is reflected in the NSF's figures.

The two Justice Department agencies with oversight for technology development are NIJ and the National Institute of Corrections (NIC). NIJ's budget for technology development in law enforcement is \$9.3 million, which includes funds for disseminating technology information to law enforcement. About 30 percent of NIJ's annual spending goes for correctional technology. NIC's budget for technology development is much smaller than NIJ's, but NIC is creative in leveraging and working with other federal agencies. NIC spends about \$80,000 a year on technology development.

### **NIJ Program Changes May Benefit Corrections**

NIJ adjusted its Science and Technology program recently in a way that may help law enforcement capitalize on changes in the defense industry -- corrections should benefit as well. NIJ has been involved in technology development since its inception. Because law enforcement, more than corrections, has benefitted from NIJ's work, the corrections community might be unaware that NIJ has produced many technological advances. The list of NIJ efforts is impressive and includes the development, improvement, standardization or evaluation of body armor; riot helmets; weapons detectors; X-ray devices for bomb disarmament; vehicle locators; voice scramblers; night-vision equipment; switches for burglar alarms;

carbon monoxide indicators; less-than-lethal equipment like mace, stun guns and other disabling devices; trace metal detection for indicating whether a person has recently fired a weapon; offender identification through trace blood samples, semen and hair; dog training; bomb detection; and polygraph validation. There are fewer items on corrections' list: studies on prison fires, electronic monitoring and less-than-lethal technologies.

Although the list of NIJ projects reveals that many technologies generally are valuable to the entire law enforcement community, it also indicates NIJ's traditional bias toward developing better technologies for police. Where do project ideas originate? Can anything be done to establish a corrections agenda?

It is probably safe to assume that NIJ occasionally is directed by Department of Justice officials to work on specific technologies; however, the formal mechanisms for project selection include two panels of law enforcement experts that NIJ convenes regularly. The Law Enforcement Technology Advisory Council is comprised of 80 law enforcement professionals representing all levels of federal and state law enforcement. There are 23 federal law enforcement representatives from nine agencies. Corrections is represented by 10 individuals, including staff from the NIC and the American Correctional Association. The second committee NIJ convenes is the Burkhalter Group; corrections is represented on this group as well. The number of corrections officials on both panels has increased significantly in the past two years.

Two other features of the NIJ science and technology program also are noteworthy. First, NIJ represents the Department of Justice on the joint venture with DoD mentioned earlier. The purpose of this program is to identify technology needs and develop solutions of mutual value to the military and law enforcement. Congress allocated \$37.5 million to support this effort, and corrections is represented. Second, NIJ recently established regional centers for technology development in five cities. Two centers are especially relevant to corrections. The NIJ center at Charleston, S.C., was established specifically for testing and evaluating correctional technologies, while the center at Wheeling, W.Va., focuses on commercialization strategies and technology transfer to the private sector. Both centers will be important in developing a corrections technology agenda for the 1990s.

### **The Challenge for Corrections**

Although the military is sometimes criticized for ignoring cost considerations and for extravagances in the R&D arena, it also is well organized and effective when it comes to securing funding. In contrast, corrections is highly diversified and seldom of a single mind. It will be difficult, but not impossible, for corrections to capitalize on available opportunities.

Corrections policymakers need to consider the following strategies:

The potential value of the direct involvement of corrections with the military R&D community -- on projects like NIJ's with ARPA -- should not be underestimated. The potential payoffs such ventures might have are enormous. It will be up to corrections to make its needs and desires known. The technology committee recently formed by the Association of State Corrections

Administrators should be encouraged to become directly involved with this program. The increased presence of corrections officials on important NIJ panels also is desirable. It is important that corrections

representatives communicate technology needs and work directly with NIJ to ensure these needs are addressed.

NIJ's technology centers will be available to corrections. It is up to corrections to identify products and technologies for testing and evaluation at the Charleston center. Corrections can influence technology development by acting in concert to identify mutual interests in having particular products and technologies developed, and then purchasing products it asks industry to develop. The seemingly random technology development process in the field can be controlled better if corrections can display singularity of purpose and a mutual interest in purchasing products.

Finally, corrections should spend more on R&D. Investments in technology pay off, and relatively modest R&D resources can be deposited into coordinated R&D efforts with a resulting synergistic effect. Resources also can be leveraged by developing dual-use products in conjunction with the military or other government entities. These are not just abstractions. The BOP, for instance, obtained funding for a project through another federal R&D program, the

Technical Support Working Group, to develop a process for measuring illumination in prisons. Because the project could produce a device useful not only to the BOP, but also to the Department of Energy, the military establishment and the Federal Aviation Administration, no BOP funds will be expended, but the BOP will support the study by providing technical guidance.

**PHOTO (BLACK & WHITE):** Rep. Pat Schroeder (D-Colo.) checks out the prototype of a smart gun designed so that only the person carrying the gun can fire it. Such technology could make it safer to transport inmates from one facility to another.

**PHOTO (BLACK & WHITE):** Originally developed for military applications, the personal status monitor could be redesigned to track correctional officers during riots or other critical incidents.

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