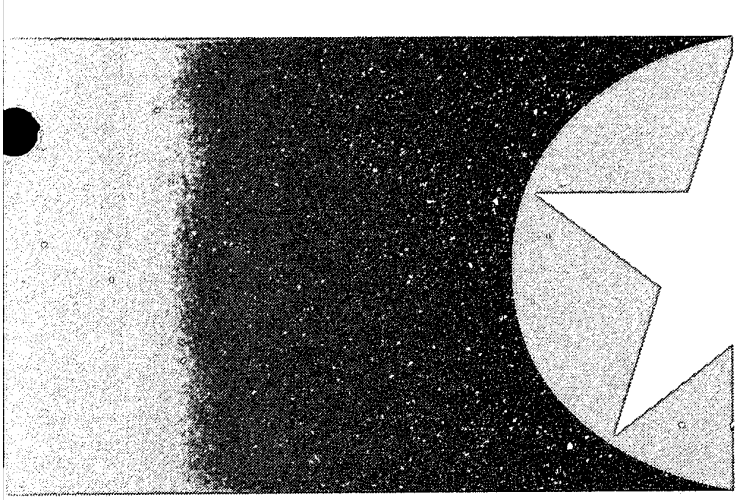


LAW ENFORCEMENT TECHNOLOGY for the 21st Century

Conference Report

National Institute of Justice

U.S. Department of Justice
National Institute of Justice
Science and Technology Division

LAW ENFORCEMENT TECHNOLOGY FOR THE 21ST CENTURY CONFERENCE REPORT

Washington Hilton Hotel
Washington, D.C.

June 20–22, 1994

National Institute of Justice

Jeremy Travis

Director

NCJ 152234

Supported by Cooperative Agreement #95–1J–CX–K002 awarded by the U.S. Department of Justice, Office of Justice Programs, National Institute of Justice. Points of view expressed in this document do not necessarily represent the official position of the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice; or Aspen Systems Corporation.

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 the Office for Victims of Crime.

Acknowledgments

Judge William H. Webster, Conference Chairman
Vice Adm. E.A. Burkhalter, Jr., USN (Ret.), Conference Vice Chairman

Keynote Speakers

Lloyd N. Cutler, Esq., Special Counsel to President Bill Clinton
Jane Harmon, U.S. Representative, California
Anita K. Jones, Ph.D., Director, Defense Research and Engineering, Department of Defense
James P. Moran, U.S. Representative, Virginia
Carol Petrie, former Acting Director, National Institute of Justice

Fred Friendly Program: Hard Choices for Law Enforcement

Columbia University Seminars on Media and Society, Graduate School of Journalism
Arthur R. Miller, Bruce Bromley Professor of Law, Harvard Law School, Moderator
Fred W. Friendly, Director
Ruth W. Friendly, Producer
Jay Ward Brown, Executive Editor
Marc Ganguzza, Technical Director

Conference Support

American Defense Preparedness Association
International Society for Optical Engineering

Planning Assistance and Conference Advisors

American Correctional Association
American Society for Industrial Security
International Association of Chiefs of Police
National Sheriffs' Association

Industry Sponsors

Alliant Techsystems, Inc.
AT&T Company
Booz-Allen & Hamilton Inc.
Eastman Kodak Company
GDE Systems, Inc.
ITT Electro-Optical Products Division
JAYCOR
PRC, Inc.
Science Applications International Corporation
TRW ESL
TRW Systems Integration Group
Westinghouse Electric Corporation

THE VICE PRESIDENT
WASHINGTON

June 20, 1994

National Institute of Justice
633 Indiana Avenue, NW
Washington, DC 20531

Dear Friends,

Thank you for your invitation to participate in the Law Enforcement Technology For the 21st Century Conference. I regret that I am unable to be there in person, but I am pleased to be able to provide this message.

In his State of the Union address, President Clinton called on Congress to pass this year the Administration's National Information Infrastructure -- a communications network that will forever change the way we live, work, learn, and communicate with each other here in the United States and around the world. It's a critical step to ensure the future competitiveness of our country and the long-term growth of our economy.

As you know, there also are societal benefits to an information infrastructure. In a speech to the Television Academy in January, I asked members of the communications industry to help make sure that all Americans -- rich and poor, urban and rural -- have access to the benefits of the National Information Infrastructure. I challenged the industry to wire every hospital, clinic, library and school in the next five years. I believe we can and must meet this challenge.

President Clinton and I are committed to making sure the goal of universal service is met so that all Americans can benefit from the communications revolution. As a nation we cannot tolerate -- nor in the long run can we afford -- a society in which some patients benefit from shared medical expertise and others do not, in which some children become fully educated and others do not, in which some adults have access to lifetime learning and others do not.

Advanced technology can serve the needs of society in helping to fight crime as well. By examining ways to use technology to make law enforcement operations more effective and efficient, this conference is strengthening the tools of the national anti-crime effort.

Congratulations to the National Institute of Justice, the American Defense Preparedness Association, the International Society for Optical Engineering and to all of the participants in the Law Enforcement Technology in the 21st Century Conference. Best wishes and keep up the good work.

Sincerely,

Al Gore

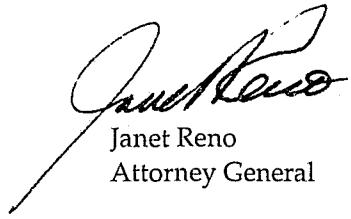
Table of Contents

Foreword

The Law Enforcement Technology for the 21st Century Conference was envisioned by its sponsors as an agent for significant change, a catalyst that would significantly advance the pursuit of technology for law enforcement and enable it to proceed under a different set of conditions than ever before—functioning as a dynamic forum through which individuals and representatives from many diverse "communities"—law enforcement, criminal justice, industry, defense, technology, congressional leaders, the executive branch, academia, media, and public policy communities—could conduct a dialog about issues of concern common to all.

Expanding on themes of several prior conferences held throughout the past 20 years, which *identified the need* for new technology for law enforcement, the present Conference was designed to *respond to an existing "window of opportunity"* that would escalate the advancement of this initiative. Each segment of the Conference—the dynamic opening session, which featured the Fred W. Friendly Program; the interactive panel "workshops" that convened in smaller groups to discuss technology issues in relation to general topics of pursuit, confrontation, and custody; and a panel that hosted discussion by representatives of industry on the "bottom line" of technological development for law enforcement—was designed to highlight the realistic technological needs for law enforcement and which technologies might fulfill those needs, to provide education about the limitations that exist in realizing the promise of new technologies, and to generate and advance creative discussion on what might be done to circumvent these impediments.

We believe that the success of this Conference, in promoting the visibility of this initiative and in fostering a dialog among those communities that are vital to the development of new technologies for law enforcement, will not be short lived, but will continue to be instrumental in cultivating and maintaining partnerships that will catapult the capabilities of law enforcement and the criminal justice system well into the 21st century.



Janet Reno
Attorney General

Introduction

Crime, Health, and the Economy are three of the most important concerns of the American people today. In addressing the issue of law enforcement needs, the Law Enforcement Technology for the 21st Century Conference, held June 20–22, 1994, brought home the interrelationship of all three of these concerns. Bringing new technologies to our law enforcement community will impact not only crime but our already overburdened health care system, which treats the victims of crime, as well as our economy, through technology transfer and increased dual-use technology development.

The issue of technology needs for law enforcement was addressed at one of the first national conferences on research needs for less-than-lethal technologies held in 1972. Cosponsored by the U.S. Department of Justice, the conference resulted from concern about the special crowd control problems posed by the racial disturbances and student violence of the 1960's. Conference participants urged that an effort be made to develop new less-than-lethal weapons for use by law enforcement agencies.

In 1986, a second conference was convened by Attorney General Edwin Meese to reassess the progress of less-than-lethal weapons development, to examine recent advances in technology, and to explore issues to be considered in future development efforts. Further impetus for the conference was provided by legal cases that had challenged the constitutionality of using deadly weapons, such as the 1985 Supreme Court decision in *Tennessee* v. *Garner*, which limited the permissible use of deadly force against fleeing felons.

These two conferences responded to the problem—the 1972 conference identified the need for less-than-lethal technologies; the 1986 conference provided a joint opportunity for scientists and law enforcement officials to discuss the utility and limitations of existing weapons and ways to improve the available technology.

Today, however, a strong climate of support exists at all levels of government and among the public for finding solutions to crime problems, developing different roles for Federal laboratories to address societal problems, and strengthening the U.S. economy and manufacturing base. The Law Enforcement Technology for the 21st Century Conference was held to respond to this existing "window of opportunity" that can serve to escalate these initiatives. By providing a forum for law enforcement, criminal justice, industry, defense, technology, congressional leaders, the executive branch, academia, media, and public policy communities, the Conference successfully established a common dialog through which partnerships can be built and from which technological advancement for law enforcement can more effectively evolve.

Jeremy Travis, Director
National Institute of Justice

This Conference followed collaborative efforts undertaken over a period of months: (1) letters dated June 3, 1993, from U.S. Attorney General Janet Reno to the Secretary of Defense and to the Director of the Central Intelligence Agency requesting support in identifying, developing, and adapting technologies for law enforcement use, and (2) a 5-year partnership formed by the Departments of Defense and Justice to jointly develop and share technologies that are necessary for both law enforcement and military operations other than war, formalized by a Memorandum of Understanding, which was signed in April 1994.

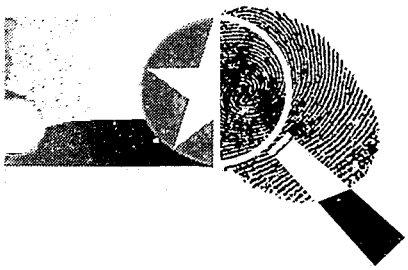
Kicking off the opening session of the Conference and establishing its interactive tone was a distinguished panel, the Fred W. Friendly Program (Columbia University Seminars on Media and Society, Graduate School of Journalism), which addressed through scenarios and role playing the "Hard Choices for Law Enforcement." The program set the stage for further discussion throughout the Conference on issues that included technology requirements of the Nation's law enforcement community; advantages and options technology can offer; how the partnership among Justice, Defense, and industry can address constraints in existing technology research and development; and the need for further public- and private-sector cooperation and how to accommodate that initiative.

Conference Structure

At breakout sessions, Conference participants examined the major issue of coordinating the needs of law enforcement agencies with the availability of advanced technology theories and products; how industry can determine which needs represent market opportunities and how to penetrate the law enforcement market; how to make the law enforcement markets viable; how industry can work within the constraints imposed by legal liability; and the role of the defense industry, particularly for dual-use and conversion technologies. Each breakout group had an assigned panel with a moderator and addressed issues within the general categories of pursuit, confrontation, and custody. The final day featured a single industry-oriented panel that discussed the problems faced by industry in addressing law enforcement and criminal justice technology requirements and products.

The Conference Chairman was Judge William Webster, former Director of the Central Intelligence Agency and the Federal Bureau of Investigation. Conference Vice Chairman was Vice Admiral E.A. Burkhalter, Jr. USN (Ret.), President, Burkhalter Associates, Inc.

Keynote addresses were delivered by Carol Petrie, former Acting Director, National Institute of Justice; Representative James P. Moran, U.S. House of Representatives, 8th District, Virginia; Representative Jane Harman, U.S. House of Representatives, 36th District, California; Lloyd Cutler, Esq., Special Counsel to the President; and Dr. Anita Jones, Director of Defense Research and Engineering. Text from each speaker's address appears throughout the report.



While the problem of crime, especially violent crime, has received significant national attention, there has been little discussion of the role that new technologies can play in addressing these problems. This is especially important as law enforcement agencies are faced with severe budget restrictions. Law enforcement is viewed in the broadest terms to include the criminal justice system of courts and corrections in addition to policing and investigations.

Although technology, in itself, will not solve the crime problem, new technologies can significantly increase the capabilities and efficiency of law enforcement operations. New technologies also can provide new options for law enforcement agencies seeking ways to reduce the use of violent or lethal force in confronting uncooperative suspects. Finally, new technologies are essential to assist law enforcement in simply maintaining some parity with the methods criminals employ trying to escape detection and avoid apprehension.

Currently there is very little technology research and development in the law enforcement community. What does exist is fragmented. The end of the Cold War offers a unique opportunity for change by applying the "fruits" of the national technology base to law enforcement needs. To accomplish this requires focusing on the important issues of defense conversion, technology transfer, and reinventing government. In the private sector, the unique nature of the fragmented law enforcement market (1/2 of the more than 17,000 agencies have 12 or less officers, and the corrections system has nearly 400,000 corrections officers) has made it very difficult for industry to meet law enforcement needs. Therefore, addressing the crucial issues is a first task in responding to what are truly national needs.

The Scope of the Problem

Each year, more than 23,000 people—nearly half the total number killed in the entire Vietnam War—are murdered. More than 170,000 are raped, and more than 6 million are victims of assaults. At least 13 million are victimized by property crimes, while about 1.5 million victims of violent crime are treated by our health care systems. The total economic cost of crime in this country—in a single year—comes to a staggering $70 billion (*Violent Crime in America*, International Association of Chiefs of Police, 1993).

Each year we spend more than $75 billion on the law enforcement and criminal justice systems (*Justice Expenditure and Employment, 1990*, Bureau of Justice Statistics [BJS], U.S. Department of Justice [DOJ]), another $50 billion on private security agencies, and untold amounts on often unsuccessful efforts to protect our homes and businesses (*Private Security: Patterns and Trends*, National Institute of Justice [NIJ], DOJ, August 1991).

If we could reduce crime by only 1 percent, it would mean 230 fewer murders, more than 1,700 fewer rapes, 60,000 fewer assaults, and at least 130,000 fewer property crimes. It would mean 15,000 fewer victims of crime burdening our already hard-pressed health care systems, and it would mean a savings of at least $700 million in economic costs—savings that would be realized each year.

If we had available technologies that eliminated the need for high-speed pursuits, what could it save our cities in terms of judgments?

If we could find a technology that would safely and effectively permit an alternative to incarceration for only 1 percent of our current prison population, it would save $159 million each year (*Prisoners in 1992*, BJS, DOJ, May 1993).

Opening Address Highlights

Judge William Webster, Conference Chairman

Judge William Webster, former director of the Federal Bureau of Investigation and Central Intelligence Agency, began his address with an observation that standards of professionalism are "at the root core of our goals for law enforcement." An important part of law enforcement professionalism is the availability of state-of-the-art tools. Judge Webster cited the 1992 civil disturbances in Los Angeles as an example of how the absence of technological tools can "create tremendous havoc." Law enforcement officers could not perform effectively because the communications system failed, and critical orders from their superiors were "totally blocked out." This experience underscores his belief that when law enforcement lacks the tools it needs to deal with major problems, "the public is always the loser."

Another key element of professionalism is the respect of law enforcement officers for the law itself. As interpretation of the law evolves and takes on new "standards of decency and requirements for privacy," an even higher level of professionalism, skills, and equipment will be required. Judge Webster stressed that, with the advent of community policing, the respect and good will of citizens becomes even more important, and he added, "We must do the work the American people expect of us in the way our Constitution demands of us."

Concerning development of less-than-lethal weapons Judge Webster stated. "If we could put a man on the moon, we ought to be able to give an officer a piece of equipment . . . that gives him an alternative to letting the suspect go or killing him." As law enforcement addresses the complex issues that arise from pursuit, confrontation, and custody, "we must learn to match strategy with skill . . . identify clearly our needs. We must assess the present landscape and we must convince those who control the funding that this is necessary and important."

In closing, Judge Webster noted that Conference participants "have an opportunity to confront some of these problems and move us forward toward the 21st century."

If we had available tools to reduce the consequences of violence in confrontations between police and suspects, what could they save us?

While there may be limits to the amount of improvement technology is capable of producing in the levels of crime, the promise of productivity improvements offered by technology is clear.

From 1970 to 1991, crimes per police officer increased more than 65 percent, while only 45 percent of all violent crimes are cleared from the books each year. (According to *Uniform Crime Reports*, published by the Federal Bureau of Investigation, law enforcement agencies clear an offense when at least one person is arrested, charged with the commission of an offense, and turned over to the courts for prosecution.) Because it is unlikely we can afford to double our expenditures on law enforcement, improving the productivity and effectiveness of policing is essential. Unfortunately, our efforts to leverage technology to obtain those productivity improvements have hardly been reassuring.

Part of the problem is a perception that law enforcement already has access to advanced technologies. Because Federal agencies have access, we tend to assume the same tools are available at the local level. Law enforcement research

and development (R&D) projects tend to be very small and progress very slowly. As a consequence, it is difficult to attract high-powered talent, and it is even harder to develop the critical mass required to make significant breakthroughs. At the same time, the market is extraordinarily fragmented. This fragmentation discourages the entry of major industry into the field, yet the potential market is very large. More importantly, we know it is difficult for individual law enforcement agencies to find the information they need to help them locate and purchase new technologies.

Supporting the smaller agencies—more than 90 percent of all law enforcement agencies—is the crucial challenge. Ninety-five percent of all law enforcement manpower is State and local, and the vast bulk of what we consider policing falls within local jurisdictior If we want to have an impact on crime, we must support law enforcement at the State and local levels.

Ninety-five percent of all law enforcement manpower is State and local. If we want to have an impact on crime, we must support law enforcement at the State and local levels.

The Role of NIJ

In contrast with the U.S. Department of Defense (DoD), no Federal-level agency drives the development, manufacture, or acquisition of specialized law enforcement equipment. In fact, law enforcement equipment purchases are made by the members of an intensely fragmented market. As a consequence, this market—with nearly 3 million potential individual customers from law enforcement, corrections, private security, and fire departments (data from the DOJ Bureau of Justice Statistics and the Bureau of the Census)—is large enough to sustain an industry, but too small to support the R&D base needed to create the new products it needs. In fact, there are virtually no products developed exclusively for law enforcement use (with the possible exception of handcuffs and batons).

Until recently, NIJ's role has been primarily one of funding the development of promising technologies in a few key areas. Only in the past 3 years has it also become one of identifying existing technologies (especially in the Defense and Intelligence communities), encouraging promising new concepts, and facilitating the transfer of already developed technologies to law enforcement use.

NIJ is working to leverage R&D efforts by industry and other Federal agencies.

By late 1992 and early 1993, a series of grants, cooperative agreements, and interagency agreements had been initiated by NIJ in an effort to form a broad-based technology identification, development, and transfer program that focused from the beginning on the practical needs of the user community. State and local law enforcement, as well as corrections departments and other users, have been and continue to be included as *the* essential components of the NIJ technology team. To ensure that policy and human factors issues are properly addressed in the collection and analysis of background data on use of force by law enforcement personnel, and to ensure that these issues are properly represented in considering technology development for law enforcement, social scientists and criminal justice researchers are also included as part of the NIJ team.

Because funding for technology development for law enforcement is severely limited, NIJ is working to leverage R&D efforts by industry and other Federal agencies. To start the search for new technologies, NIJ turned to the vast technical expertise that exists within the U.S. Department of Energy's national

Keynote Highlights

Carol Petrie, Former Acting Director, National Institute of Justice

"Fighting 20th-century crime with 19th-century weapons," is how Carol Petrie described current law enforcement tools to participants at the conference's opening session. NIJ has "a long history" of using technology to improve the tools of law enforcement. Lightweight body armor and the magic wand, a technique for quickly lifting fingerprints at a crime scene, are examples of recent NIJ research and development efforts.

Many technologies already exist that could be adapted to assist law enforcement. However, additional technologies are critically needed for "pursuing fleeing felons, quelling public disturbances, resolving potentially dangerous family altercations, and reducing injury and preventing deaths from firearms and other weapons."

Areas in which new technology applications could be particularly useful include identifying persons carrying handguns, tracking individuals on probation and parole, and apprehending those engaged in computer crimes.

The conference was organized to help NIJ develop a "much needed research and development strategy to carry law enforcement into the 21st century." To this end, the agenda will focus on three important issues: pursuit, confrontation, and custody and will address the challenges faced by the technology industry as it seeks to develop useful products for State and local law enforcement departments.

laboratories and, at the same time, to identify military and Intelligence community technologies that may be candidates for dual use under the Administration's Defense Reinvestment Initiative announced early in 1993.

The Justice/Defense Partnership

In June 1993, the Attorney General requested DoD's assistance in identifying technologies—both less-than-lethal and general technologies—with potential for declassification and transfer to or dual use by law enforcement. Following subsequent meetings between representatives of NIJ and the Office of the Director of Defense Research and Engineering, NIJ identified to the Advanced Research Projects Agency (ARPA, the research arm of DoD) three immediate priorities for development: a device capable of detecting weapons, the whole range of less-than-lethal technologies, and a version of a Personnel Status Monitor and Remote Surgical System that provides video and audio transmission capabilities and life-sign and location monitoring and is currently under development by DoD. These represent just a few of the efforts currently being explored with ARPA.

If we are to succeed in leapfrogging U.S. law enforcement from a dependence on weapons available in Wyatt Earp's time into the 21st century, at least six major elements should be undertaken to ensure that programs to transfer technology to law enforcement are more effective and more lasting than past efforts:

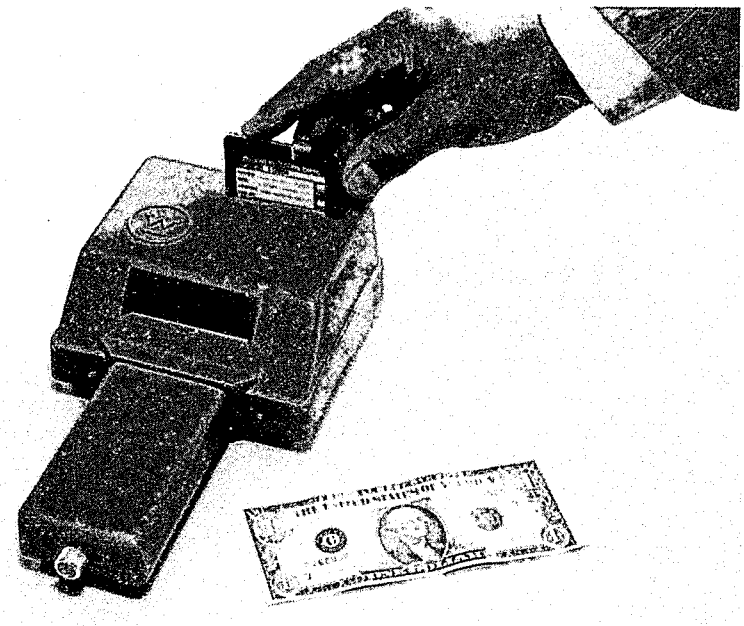
- Draw attention to the advantages technology can offer to law enforcement.

- Identify a principal focus for law enforcement technology efforts to coordinate their development, eliminate duplication, and ensure law enforcement's involvement.
- Create a mechanism to ease access to technological information by public safety agencies.
- Build on the emerging DoD/DOJ Joint Program Steering Group to establish a way to ensure public safety needs are always taken into account in the earliest stages of each Federal R&D effort.
- Establish a process to ensure the safety of law enforcement technologies, both for the public and the officer.
- Address the fragmented buying power of law enforcement.

Technology cannot fix each shortcoming. It cannot make up for poor judgment or compensate for inadequate or nonexistent training. It cannot fix the problems that result from poor officer screening or selection, and it can never replace competent leadership. But it can provide tools to increase options, make the police officer's job easier, increase the effectiveness of law enforcement, enhance productivity in law enforcement by reducing administrative overhead and improving responsiveness, limit the consequences of poor judgment, and improve the safety of the police and the public. Technology *can* save lives.

With the drawdown of Defense spending and a greatly enhanced focus on technology transfer to pressing national social needs, we have an extraordinary window of opportunity.

With the drawdown of Defense spending and a greatly enhanced focus on technology transfer by both DoD and the Intelligence community to addressing pressing national social needs, we have an extraordinary window of opportunity. More officers on the beat along with community policing are essential elements of any effective strategy; however, equally important is the development of new technologies that will provide law enforcement officers with tools that will allow them to meet the complex challenges of daily policing in a safe and effective manner. DOJ's partnership with Defense is the first of many steps in addressing the shortfalls in law enforcement R&D.



The Illicit Substance Detector (ISD) provides on the scene, laboratory quality detection of trace amounts of cocaine and heroin. The ISD can detect microscopic particles on any surface.

Keynote Highlights

Anita Jones, Director of Defense Research and Engineering

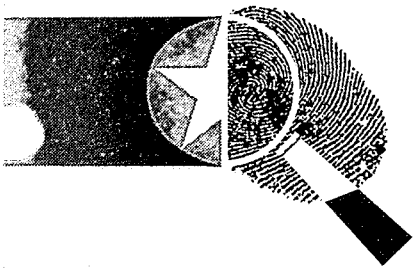
From a Department of Defense perspective, "the passing of the Cold War has changed the military mission to a more operational one requiring special tactics and equipment for peacekeeping and humanitarian aid." Since military functions have decreased, and law enforcement functions have increased in response to the rising incidence of crime, technologies can be developed and packaged so that they serve both military and law enforcement needs.

To develop and share new technologies, "the U.S. Departments of Justice and Defense have struck an alliance and have formalized the process by signing a Memorandum of Understanding."

"Technology programs executed out in industry provide collective expertise, and members of industry are primary and crucial players for transferring technology to the Defense Department."

"The law enforcement community must make choices to formulate products that are tailored for the needs of police, FBI agents, and defense members."

The law enforcement industry needs to "speak with one voice," and send a message back to Justice that they *do* want this technology and the great benefits that can be reaped from having it.



In 1974 Fred W. Friendly, with the support of the Ford Foundation and the Boston Globe, launched a seminar program to promote constructive dialog between the media and the law through the use of the classic Socratic method. Since then more than 600 seminars and workshops have been conducted, both in the United States and abroad, to examine the media and its relations with business, courts and public policy, government, the medical profession, and the military. The broad range of subject matter includes the Constitution and the Bill of Rights; national security and freedom of the press; criminal justice; liberal investigative reporting; anonymous sources; private lives versus a public press; campaign spending and the election process; medicine; ethics; the presidency; terrorism; and drug abuse. Since 1981, 85 of the conferences have been videotaped and broadcast. The videotapes have been distributed across the country to newsrooms, universities, businesses, government agencies, military institutions, and libraries.

In his introduction of the Fred W. Friendly Program presentation, Mr. Friendly noted that "Our purpose is not to make up anyone's mind, but to open minds and to make the agony of decisionmaking so intense—you can escape only by thinking."

Hard Choices for Law Enforcement: A Fred W. Friendly Program, Columbia University Seminars on Media and Society

Fred W. Friendly Program Panel

Moderator Arthur R. Miller, Bruce Bromley Professor of Law, Harvard Law School, led 14 distinguished panelists from law enforcement, the media, national and city governments, corrections, industry, and law, through a series of increasingly complex, hypothetical situations that mirror the tough choices faced daily by law enforcement officers and criminal justice agencies as they provide for the public safety.

Scenarios faced by the police in the town of "Idyllia" (as Mr. Miller rapidly shifted hypotheticals) included controlling an intoxicated, verbally abusive individual; diffusing a hostage situation; apprehending perpetrators fleeing by car; and preventing a violent ethnic confrontation at police headquarters. Also discussed by panelists was the role of the media in covering crime, the potential rights-of-privacy issues that may arise from the use of sophisticated technological devices, and strategies for preventing abuse of these technologies.

As the hypotheticals escalated in intensity, the panelists explored their options given their respective roles in each situation, constitutional issues raised by their choices for action, and the types of technology that could expand the options for law enforcement and increase efficiency, enhance effectiveness, and improve safety for suspects, the public, and law officers.

Any new technologies need to be portable and "right there when I need it" because when confronted with a situation, "I am one police officer, not superman."

Panelists' discussions throughout the program underscored the few choices currently available to law enforcement for confronting, pursuing, and apprehending criminals and enforced the need for improved technology to assist police as a "force multiplier" and prevent these situations from escalating dangerously. Officer David R. Thomas of the Montgomery County, Maryland, Police Department remarked that any new technologies need to be portable and "right there when I need it" because when confronted with a situation, "I am one police officer, not superman."

Keynote Highlights

Jane Harman, U.S. House of Representatives, California

There are hundreds of large and small aerospace companies eager to apply their technology to law enforcement problems, and they "have the knowledge and skills police can use."

An organized structure needs to be established through which industry can sell its products to State and local law enforcement agencies at a high enough volume to ensure profit, and through which those customers can compare products and identify the ones that meet their needs.

Police Departments need information on how technology can help them, and industry needs an opportunity to demonstrate virtual applications of its products so that officers know what products are available. Those agencies that are unable to afford this equipment need ways to acquire or have access to it.

Law enforcement technology must have Defense applications if it's to be supported with Defense funds. A vehicle management system using DoD's Global Positioning System is an example of linking the Defense industry and law enforcement.

The new partnership between the Federal Government and private-sector industry "is one of the more promising ways to reinvent government." By "organizing the market" through the establishment of a law enforcement technology center and "focusing industry resources" to build key products for new markets, "we will have healthier industry, more effective police departments, and safer communities."

Hard Choices—Limited Options

When police officers respond to a call, they step into the unknown. Each situation presents an enormous range of variables and a potential for violence, which requires split-second decisionmaking. Likewise, when the panel moderator confronted the panelists with the following rapidly shifting variations on a hypothetical situation, they were required to instantly "shift gears" and ask themselves how that altered circumstance would change their responses to the situation.

The man in the restaurant parking lot is young and appears drunk . . . he is incoherent, yelling in a foreign language, but not physically harming anyone . . . the officer calls for backup.

After several minutes, backup has still not arrived.

The man grabs a passing patron's arm . . . . the man reaches into his pocket.

The man advances toward the officer, swinging a dog leash with a chain attached to its end.

The man backs the officer against the wall, and the officer shoots him dead.

A gathering crowd at the restaurant becomes unruly and begins taunting the officer.

Becoming further agitated, the crowd marches on the police station and starts to demonstrate.

A hostage situation develops when the young man grabs a bystander in the parking lot and, using this person as a shield, backs into the restaurant.

Live television coverage is showing the deployment of the SWAT team, and those inside the restaurant could be viewing this on television.

A shot is heard from inside . . . . the suspect comes out with a hostage, grabs a car, and flees.

"There needs to be something else we can do in 1994 to give more tools, more options between pepper spray and shooting someone."

As the hypotheticals unfolded from moment to moment, panelists explored the need for information and the constitutional rights of citizens, and how these issues influence the choices that are made by the police, the mayor, and the news media.

Commenting on the proceedings and noting her concern, Patricia Schroeder (U.S. Representative, Colorado) said, "There needs to be something else we can do in 1994 to give more tools, more options between pepper spray and shooting someone."

Technology: Orwellian Specter or Useful Tool?

During the above hypothetical hostage situation, police were at a disadvantage because they had no information regarding what was happening inside the restaurant, while the hostage taker could have been viewing the SWAT team deployment on the local TV news broadcast. Sophisticated surveillance technology could have given the police an edge on what was happening inside the restaurant so they could have been better prepared to respond.

"If we don't start using the technology, the criminals are going to have the upper hand."

Panelists discussed the implications of surveillance technology for maintaining Constitutional rights to privacy, and how to determine when use of this technology is justified. Concern was voiced that this technology could be used inappropriately.

Responding to a comment about "electronic snooping," James K. "Chips" Stewart, former Director, NIJ, responded that the "Orwellian specter is being raised unnecessarily." Referring to exclusionary rules for improperly obtained evidence and effective controls governing the use of force, he believed that technology could be used "very justly . . . . It's not technology out of control."

Dr. Ruth Davis, former Assistant Secretary of Energy for Research Applications and Deputy Under Secretary of Defense for Research and Advanced Technology, reminded panelists that "technology doesn't play favorites; crooks can use it, just as police can." Mayor Kurt Schmoke of Baltimore, Maryland, acknowledged the importance of privacy issues and the need for "reasonable debate." But he added, "If we don't start using the technology, the criminals are going to have the upper hand."

Keynote Highlights

James P. Moran, U.S. House of Representatives, Virginia

"The United States established itself as the world superpower and won the Cold War because it invested in and continued to improve development of defense technology. It would be a serious mistake not to build upon that base to fight crime."

"We emerged from World War II with a greater national deficit and chose to invest in the future through the G.I. Bill, home ownership, the interstate highway system, and infrastructure. We need to do that again today by investing in technology." Through development of nonlethal technology the law enforcement industry can help reduce crime. Technology needs to improve communications, be able to detect firearms on individuals, improve intrastate and interstate communication about criminals and prior offenses.

Most people are not aware of the available technologies. Industry representatives must get out there and increase public awareness, reduce the prices of available technology, and go to State and local agencies and educate them on the technologies and where they can obtain them. Through these efforts, we can "improve the public's quality of life and trust in the criminal justice system."

Technology: The Force Multiplier

In each hypothetical situation, technology would have vastly increased the options of law enforcement, acting as a "force multiplier" to enhance the efficiency and effectiveness of law enforcement personnel. Speaking of provisions in the Crime Bill, which was then being considered by Congress, for 100,000 additional police officers, Representative Schroeder noted ". . . in my city, Denver, that means the equivalent of about 6 . . . . That is not going to stop crime . . . Everybody's been . . . saying this is great, the Federal Government's going to help you with 100,000 more police officers, but when you spread it out, it's not much . . . . That's why we have to talk about how to enhance those forces that are there, because there is not enough money [to hire unlimited numbers of police]."

The hypotheticals revealed that because law enforcement lacks sophisticated information-gathering and communications technology, and options provided by a range of less-than-lethal weapons, law enforcement cannot respond quickly and effectively to the many challenges of confrontation, pursuit, and custody. Enormous amounts of time and staff resources can be wasted, and without these tools the potential for violence, injury, and death can escalate rapidly.

Panelists discussed technologies that would accomplish the following:

- Complete forensics quickly.
- Separate out violent individuals in a crowd.

- Implement video and audio surveillance to monitor criminal activities (e.g., pick up conversations between criminals or between criminals and hostages).
- Detect body heat inside a building, so that police can determine where people are located.
- Lift prints on site at a crime scene.
- Create a two-way "dialog" with criminals, instead of the traditional bullhorn "monolog."
- Identify the criminal quickly by processing a verbal description or mugshot.
- Enable the officer to communicate the officer's actions to superiors in "real time," as the situation unfolds.

Technology: "It's not futuristic, it's not Star Wars, it's right here today."

Panelists noted that much of this technology is available or under development in the Defense and Intelligence communities. Mayor Schmoke observed that "It's not futuristic, it's not Star Wars, it's right here today."

Federal Government's Role in Technology Transfer

Panelists agreed that the Federal Government should take the lead in transferring this technology. Mayor Schmoke remarked that "We definitely need the assistance of the Federal Government because . . . [crime] has become a national problem, not just a local problem."

Representative Schroeder commented that while research for law enforcement has been about $4 million a year, research for defense has been about $30 billion. "There is a whole range of inventory available [in the Defense Department] . . . so much [technology] citizens have already paid for . . . . We need to get it out of the Department of Defense inventory and onto the street, with modifications so it can be used [by law enforcement]."

Referring to previous unsuccessful Federal efforts to transfer technology through the Law Enforcement Assistance Administration, Representative Schroeder described them as a disaster. "The Federal Government threw money out all over America . . . it wasn't coordinated, it wasn't interoperable, nobody really knew what they were buying, everybody got fancy new light bars for their cars . . . . That's why we're trying to do it differently this time." By creating a linkage between the Departments of Defense and Justice through a Memorandum of Understanding, funds will not be 'splattered around' and local law enforcement agencies will not be told to "just go buy something."

Considering that the country's 17,000 law enforcement agencies "all have their own standards and priorities," David Beck, Westinghouse Electric Corporation, stressed the need for "some type of center" to coordinate priorities, funding for developing technology and standardizing it, and funding for city police departments to acquire the technology—in order to get "technology into the hands of the people."

After stressing the need to also *prevent* crime, Mayor Marc H. Morial of New Orleans, Louisiana, observed:

> "The larger question is 'What is the appropriate role of the Federal Government to deal with a national crisis?' . . . This Nation made a judgment in the 40's, 50's, and 60's that the Cold War was of sufficient threat to this Nation that dollars upon dollars [were invested]. We put our best minds, our best scientists, our best engineers on trying to conquer that situation. We've got to make the same comprehensive commitment right now, in the 90's, if we're going make our communities safe."

Breakout Panels on Issues of Pursuit, Confrontation, and Custody

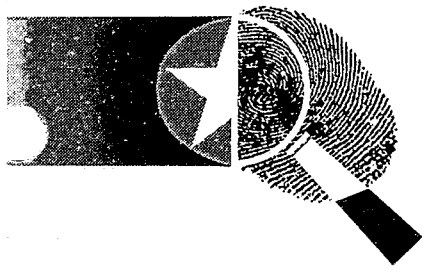
Objectives of the breakout panels:

- To examine the range of real-world issues, limitations, and policies that impact law enforcement's ability to accomplish its mission of public safety.
- To highlight the kinds of leveraged technologies that could provide "force multiplier" capabilities to law enforcement.

Panelists were chosen to provide the level of personal expertise and participation to foster a completely open and interactive forum for the discussion of law enforcement issues, requirements, and potential solutions. To ensure a comprehensive examination of the issues, all three panels included representatives from law enforcement, corrections, Defense, government laboratories, industry, Congress, local governments, the media, and the legal community.

To allow for a more interactive setting, Conference attendees were divided into three groups, each having an assigned panel with a moderator, addressing the general topics of pursuit, confrontation, and custody. Panelists were asked to consider all possible technologies, not limiting themselves to those that are currently available, and to emphasize State and local needs, while keeping in mind the issue of liability.

In general, the discussions emphasized the few choices currently available to law enforcement for confronting, pursuing, and apprehending criminals, and enforced the need for improved technology to assist in law enforcement.



Background

- *1 in 4—perhaps half—of all high-speed pursuits end in accidents.*
- *1 percent of high-speed pursuits result in fatalities.*
- *15 percent of injuries are to innocent bystanders.*
- *14 percent of injuries are to police.*

There is a need to develop technology that can assist law enforcement in dealing with fleeing suspects, from an individual fleeing on foot to a high-speed vehicle pursuit. Is there a safer means to stop a car than hot pursuit or road blocks? If we can't stop it, can we find a reliable way to track it? Can a "smart gun" increase the safety and confidence of an officer in a hot pursuit or in a confrontation? Are there other options besides a firearm to stop a suspect fleeing on foot?

Factors Inhibiting the Application of Law Enforcement Technology

Although police workloads have increased 65 percent since 1970, the application of new law enforcement technologies has not been readily applied to deal with the increasing crime rates. Panelists addressing the issue of pursuit agreed that, although the technology exists, the diversity within the 17,000 police agencies nationwide requires identification of the unique needs of each department. Other major factors that affect the lack of application of law enforcement technology include:

- Concern about departmental policies that adversely affect the work of law enforcement.
- Issues of liability that take away from the effectiveness of police officers.
- The principal emphasis placed by State and local municipalities on hiring additional personnel and upgrading existing equipment rather than on funding new technology.
- A lack of formal structure to coordinate technology transfer, so that the field is aware of what existing technology is available and who the manufacturers are.
- A lack of coordination and communication between industry and law enforcement to facilitate a process by which standards and requirements can be identified.

Departmental policies. In the area of pursuit, today's police officers are governed by departmental policies that dictate the procedures within the parameters of the law. Especially in dealing with high-speed pursuits, which have a 25-percent injury rate, the panelists found that current policies dictate an "either/or" approach. Policy is driven by capability, and especially in dealing with high-speed pursuits, which involve unique factors such as vehicle instability and pedestrian traffic, police officers are limited in their capabilities. They risk either being involved in a car crash or hoping the subject runs out of gas.

Pursuit Panels Summary

Although the technology exists, the diversity within the 17,000 police agencies nationwide requires identification of the unique needs of each department.

Keynote Highlights

Lloyd Cutler, Special Counsel to the President

"With the end of the Cold War, scientists should begin work on developing the means to detect concealed guns and ammunition."

A commission in the late 1960's had first issued this call for research. "Nothing has been done on the subject ever since," and "I doubt that 1 red cent of research money or 1 minute of research time has been devoted to that subject."

Some sort of tracer—chemical, radioactive, or magnetic—could be built into guns or ammunition to allow police to detect the presence of a concealed weapon. "It could be possible," he said, "to detect weapons carried by individuals, in cars, or in public housing projects. The possibilities are absolutely enormous."

Both conservatives and liberals agree on the need to detect concealed weapons. "The big issue may be money, and it could range from millions to billions of dollars."

As a result, many policies have had to be altered, ranging from only pursuing those individuals suspected of murder to abandoning high-speed pursuits altogether. Another problem cited with high-speed pursuit was the issue of constraining the driver's emotions. For example, the tire-puncture barrier strip may increase the driver's anger, creating a greater threat to public safety. Panelists agreed that technology must evolve within the context of the other factors.

The problems with pursuit of a fleeing suspect are danger to the officer, the public, and the suspect and the civil liability if something goes wrong. Regardless of what the offender has done, there are still concerns about the overall general safety of citizens, and the question is always raised: Was it worth it?

Does it serve public safety more if police officers pursue the subject or stop pursuing? In both urban and rural areas, the question of when to pursue a subject poses a challenge to any police officer. During those episodes when an officer must pursue a subject, too frequently department policy calls for the officer to request permission to pursue from many levels of superiors. Because of the time factor, there isn't an issue left because the suspect has gone. Therefore, guidelines and requirements must be developed to match technology to the needs of law enforcement.

It was noted that the U.S. Marshals Service, which is charged with the apprehension of Federal fugitives nationwide, recently implemented a new vehicle-chase policy, taking into account these criteria:

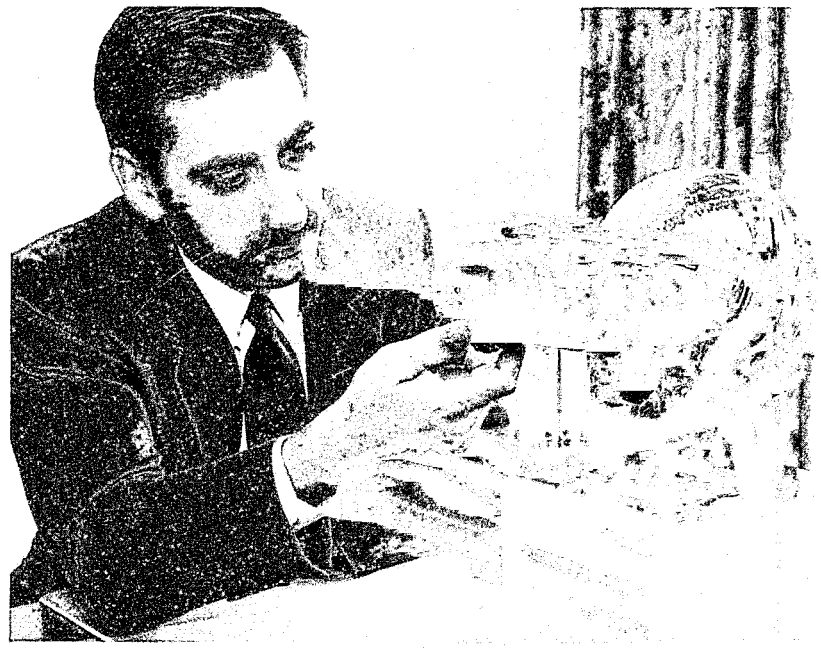
- What is the nature of the crime under investigation?
- What is the probability of being able to identify the defendant at some subsequent time?
- What is the potential liability to the government and the danger to others?

Panelists suggested that technologies may fail because not enough community awareness is engendered by police to convince citizens that a system works to their advantage.

Liability. A key factor that hinders law enforcement technology is the issue of liability. Liability and its effect on the advancement of technology require the field to look at opportunities that would reduce its impact. Especially in the area of pursuit, where vehicle pursuit is the most common high-liability area of law enforcement, other than physical arrest, panelists concluded that the field must examine ways to protect public safety as well as increase police performance.

Liability also plays a key role in both bodily invasive and nonbodily invasive approaches. Interpretations for bodily invasive approaches range from chemicals and electricity to the five senses—anything that might affect the individual's body. For example, pepper spray is bodily invasive since it immobilizes the body. Although the courts will allow police officers to use nonbodily invasive approaches, caution should be used when implementing those technologies that are bodily invasive.

The Night Enforcer night vision equipment, designed for surveillance activities, provides the law enforcement and criminal justice community with enhanced visibility in low-light conditions.
▼



Technology transfer. Today's technology reflects the work done by DoD, private industry, and national laboratories. However, panelists found that a false perception exists that the technology used in the military can be easily transferred to law enforcement. Because liability is not an issue in the military, technologists must understand the liability issue in working with the civilian sector and internalize this into DoD's programs. In addition, there are different issues inherent within the application of technology within the military and the law enforcement sector. Some DoD technologies could have law enforcement applications but some may not be legally, or from a safety standpoint, available to law enforcement. One participant noted that although the military technology currently exists, its application is a long way from being packaged for local law enforcement. As an example, he noted that in the military, the objective with technology is to send a broad beam to get the enemy into your net. With law enforcement application, the emphasis is on developing a narrow beam because of the issue of public safety. This difference requires that law enforcement technology be more focused, and the defense applicability must be adapted.

Further concern placed emphasis on making the technology user-friendly and readily accessible for the police officer. While the Federal sector has increased its research and development spending by 7.8 percent, research and development in the law enforcement field has decreased 19 percent. Much of today's

technology is too expensive for budget-driven local police departments to purchase, and panelists called on technologists to make equipment that is cost effective.

In transferring technology to law enforcement, panelists identified one key issue as beginning an open dialog between users and manufacturers to prevent a duplication of efforts. Procedural barriers must be broken down to bring classified information into law enforcement. By increasing communication, there would be a greater awareness of what technology is available not only from the military but also from private industry and national laboratories, which are concentrating on a broad range of technologies.

Creation of a national law enforcement technology center for law enforcement would provide a central point of coordination for all information, activities, and resources.

Coordination and communication. Because of the existing fragmentation within the technology fields, panelists agreed that the creation of a national law enforcement technology center for law enforcement would provide a central point of coordination for all information, activities, and resources.

Private industry faces problems in selling to law enforcement because the market is probably the hardest market to penetrate with any kind of reasonable volumes. A business has to answer as it considers development of a new product: Will the technology work? Is it reliable? Is it affordable? Can it sell? Is there a potential for a reasonable return on investment?

Some parts of the law enforcement market have been found to be lucrative, and private industry has moved in quickly. Cited as an example was Lojack™, the tracking device that is used in some jurisdictions to find stolen cars, which was privately developed.

However, complications for application of technology can be found in the testing itself. A recent study of nonlethal force concluded that, given the uniqueness of each individual, any technological device that is mildly incapacitating can be potentially fatal. Panelists commented on the severe limitations that this interpretation placed on research and development testing as well as the implications for liability.

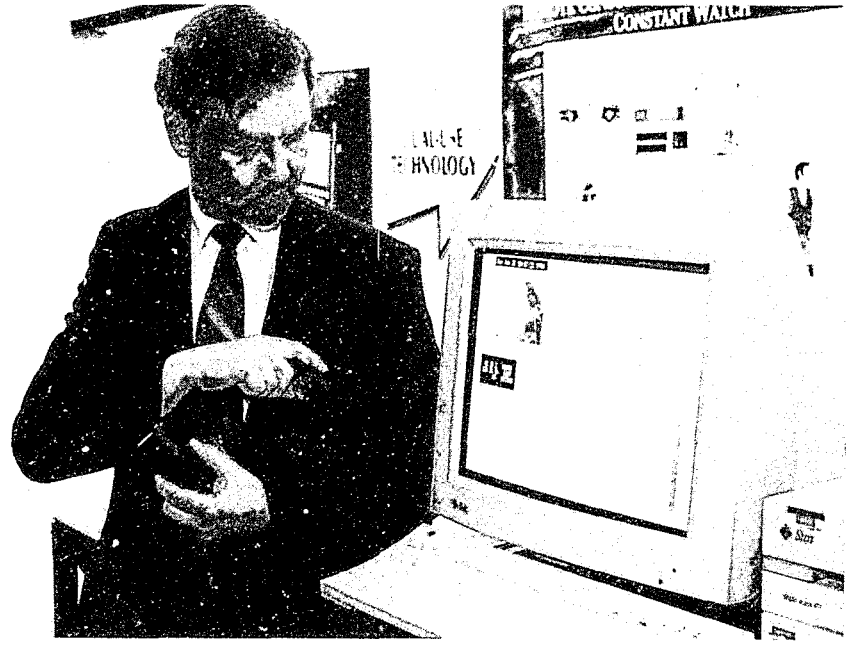
Additionally, according to law, in certain circumstances the law restricts an officer's immediate options. As a result, the legal system hinders the use of the existing technology, such as infrared technology, which requires a search warrant. Before a new technology is used, an adequate analysis of its impact and proper training for both the police officers and medical personnel are required.

Technologies

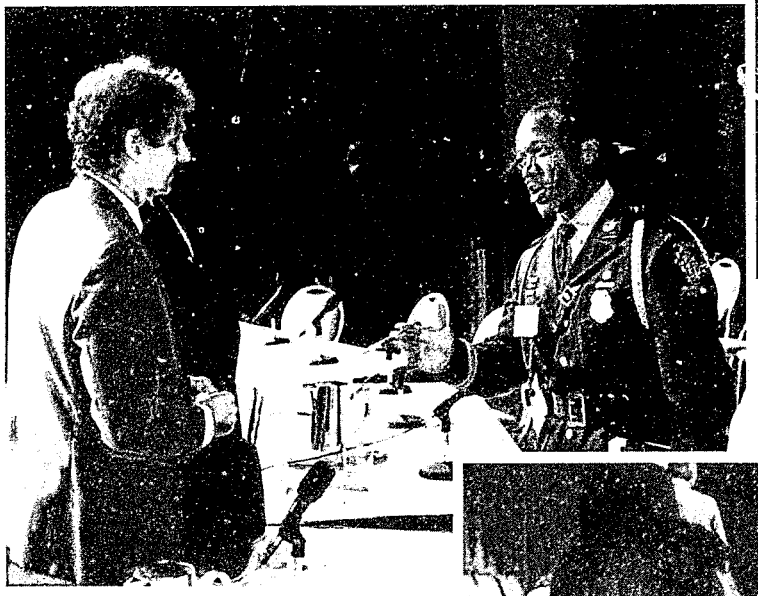
A wide range of technologies were mentioned for tagging and tracking vehicles, including the use of cellular phones for contact, such as was demonstrated in the pursuit of O.J. Simpson, a celebrity suspected of murder in Los Angeles, California. Also mentioned were sensors installed along the highway that would identify stolen cars as they drive by; retractable barriers deployed in front of fleeing vehicles; an electromagnetic pulse to disable cars by interfering with their electrical systems; paint darts, for marking vehicles for later interception; radio transmitters attached to cars, which allow for predeploying of cruisers; and phototechnology.

Prison authorities now are evaluating tracking devices, such as a bracelet with a radio transmitter, which could be used to determine a prisoner's location, help automate head counts, and assist in tracking escapees. Prisons also could be aided by coordinated information systems that could give authorities comprehensive material on an individual's criminal history, including information on questionings, arrests, court decisions, and incarceration.

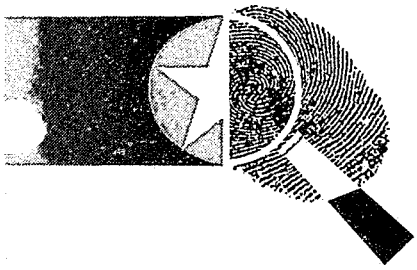
Participants suggested that other issues requiring examination are training; national standards; recruitment programs that draw from engineering and science schools; encryption, as a means to ensure that only law enforcement has access to and can operate some technologies; legislative attention to stricter legal sanctions imposed on suspects who flee police; safety of a person being pursued; guidelines to help determine when to chase and when to quit; a "strategic alliance" among industries to determine how to commercialize developments; and rebates and cost sharing, to encourage development of new technologies.



The Remote Consultation Information System is a portable communicator, which will provide officers in the field with miniature full-color video, two-way audio, a Global Positioning System, and vital life signs monitoring all linked to a remote computer workstation, providing real time communication with headquarters.




W.H.SMITH



Background

- *Nearly 100 officers die annually in confrontations.*
- *Approximately 300 subjects die annually in confrontations.*
- *Confrontations too often result in injuries, torts, riots, or public anger.*

Confrontations range from one-on-one confrontations between officers and suspects to group confrontations arising from civil disorders and hostage/barricade scenarios. The latter can take the form of a small- to a large-group situation. Are there technologies that can assist law enforcement and corrections in these situations? What is the potential of less-than-lethal technologies? What is the state of development of these potential new tools? What are the legal and policy issues involved in deploying them? What about other technologies to provide assistance in finding out what is occurring in a hostage situation? Are there technologies that can be transferred from the military community? What are the limiting factors?

The Application of Technology to Confrontational Situations

In a confrontational situation, the level of technology available to the police officer can mean the difference between life and death. The one-on-one situation between officer and criminal mandates different technological requirements, which has resulted in a wide-ranging discussion covering many diverse issues.

Confrontation Panels Summary

Dealing with confrontation involves:

- Training of personnel.
- Equipment.
- Situation control.
- The ability to call up additional resources.
- A plan to deal with various kinds of confrontation.

Panelists focused on the following issues to identify key factors in applying technology to confrontational situations:

- Limited funding.
- The role of liability in the application of new technology.
- Change of officer attitude and approaches to include prevention.
- An acquisition process to generate and coordinate new technologies.
- The importance of training in the application of new technologies.
- A collaboration among the Federal Government, private industry, and national laboratories to create a mature law enforcement market.

▲
The Modus Operandi Registrant Computer is a relational data base containing more than 250 data fields, which allows law enforcement the ability to retrieve detailed case reports on habitual offenders.

Funding. Law enforcement has traditionally emphasized increasing personnel and upgrading existing equipment rather than investing in technology. According to an audience participant (no source provided), one recent study cited showed that less than 20 percent of police departments in one State had a fax machine and 70 percent offered no training programs for officers. The wisdom of developing even more technologies was questioned when law enforcement is not using ones already available.

Unlike the Post Office and fire departments, which have exclusively designed cars for their use, State and local law enforcement agencies do not have the funding to develop specially designed cars for police use, even though they have been an identified need.

Liability. In contrast to military technology, civilian law enforcement agencies must be more sensitive to how they treat their suspects. This issue is underscored by the increased litigation stemming from police actions. Also, there is a lack of public/community support for law enforcement, which can result in a different public perspective regarding liability. For example, in the medical field, anesthesia is given only in an environment that can support complications. If anesthesia is given to a patient and the patient dies, the death is generally accepted by society and the courts as a consequence of the risk of surgery. However, if a law enforcement officer uses a chemical such as pepper spray to control a criminal and the person dies, public perception is not as "accepting."

In addition, although police have defined the legal metes and bounds under which they can use lethal force, the courts have not yet addressed issues of less-than-lethal weapons. No body of law exists that applies to today's new circumstances. Law enforcement must project what the courts may be likely to do.

Further, standards such as those established for body armor would help mitigate the issue of liability for law enforcement.

The issue of "liability" is associated with the American public's views. It is the public that decides when its liberty has been jeopardized, suggesting more community awareness is needed from police departments and other law enforcement officials to persuade the public of its need for certain technologies and why those technologies are in the public's best interest.

Prevention. Prevention can play a pivotal role in a confrontational situation. Citing an actual skyjacking incident, a panelist said that law enforcement's response was to "put sky marshals on the planes to shoot it out at 34,000 feet, with a plane full of people." This attitude has since been adjusted to focus on

preventive measures, such as the magnetometer to keep guns off planes and sterile concourses at airline gates. As a result, there are few skyjackings today.

Acquisition process. Unlike the military, which can identify its requirements because it knows what technologies are available, what the capabilities are, and what training is required, law enforcement has no such unified process that would help in determining requirements that can be logically filled by technology.

The acquisition process is driven by the user, and law enforcement requires a central process to bring together criminal justice with technology.

Technology is changing quickly, and the slowness in decisionmaking, coupled with the increase in crime and limited funds, have contributed to the limited availability of technology.

A slowness in decisionmaking on the part of government agencies was cited as a major factor hindering the acquisition process. All too frequently, by the time agencies have made a decision, the technology has already gone into the private sector. Technology is changing quickly, and the slowness in decisionmaking, coupled with the increase in crime and limited funds, have contributed to the limited availability of technology.

Training. Panelists agreed that better training in and research and testing of technologies is required to determine the applicability of technologies to law enforcement. Because officers in confrontational situations have little time to act, training can be critical in using the appropriate technology to subdue the criminal, protect the officer, and enhance public safety. Different techniques require different training.

Technology Requirements Must Simplify Options for Officers

Communication and coordination. Even as law enforcement's approach must change, so too must the roles of industry and private entrepreneurs who have been absent from the field of law enforcement technology. Because the market for law enforcement technology is so fragmented, coordination of efforts is required among Federal, State, and local levels to attract a stronger market.

Because the market for law enforcement technology is so fragmented, coordination of efforts is required among Federal, State, and local levels to attract a stronger market.

Despite the issues involving testing, accuracy, capability, and limitations of technology, a collaboration among the Federal Government, private industry, and national laboratories is required to further technological advancement.

A national technology center would serve as a central technology education and referral source for law enforcement—a "one-stop shop." The center would be a major force in creating a Federal private partnership for research and development investment to help move technology into the field. The center would serve both the immediate short-term needs of law enforcement and the long-term vision for the 21st century.

The key to technological development is developers working hand in hand with the end users.

Technologies

Participants discussed such technologies as a projectile delivery system that works like a range finder to detect a person's distance; the "Smart Gun"; tranquilizers; pepper spray; sensing devices, which could alert an officer confronting a suspect to that individual's vital signs, or monitor a prisoner's physical condition, or aid in weapons detection; DNA identification; radio systems; stun belt; personal communications systems; virtual reality simulation, which may be useful in officer training; and safety equipment, including personal armor and the Personal Status Monitor. For ease of use, it was noted that such technologies should be portable and lightweight.

Background

- *Inmate cost is more than $18,000 per year.*
- *Parole officers are overburdened.*
- *Staff and prisoners are at risk.*
- *Security is manpower intensive.*
- *Jail and prison needs are different.*

Custody involves a range of issues, including transportation of a suspect, incarceration, and probation/parole. Can new technologies assist an officer in controlling an out-of-control suspect during transport? What about a prisoner who refuses to leave a cell? Can new technologies help control riot situations? Can we better provide for the safety of corrections officers? Can electronic monitors provide an alternative to incarceration of nonviolent offenders? What technologies are under development, do they work, how can they be improved, and how can they be deployed where they might do the most good?

Need for Technology

Corrections agencies in the United States are experiencing phenomenal growth. Caring for inmates within prison facilities poses a tremendous challenge to the law enforcement technology field. While law enforcement technology research and development has decreased by 19 percent since 1985, statistics show that incarceration has increased 60 percent in that same period. For example, the State of California is building 30 more State prisons to supplement the 70 that currently exist. Statistics show that more than 90 percent of prison inmates are held in State and local facilities, so the issue of providing appropriate custody care is overwhelmingly on the shoulders of State and local law enforcement. The combination of overcrowded prisons and insufficient personnel makes the need for cost-effective technology even greater.

With that growth comes many problems associated with inmate management and staff management within the institution. Within prisons recently, officials have found coalitions of gangs, a suicide rate that is at an all-time high, and a homicide rate that is climbing.

Once an individual is in custody, the degree of responsibility increases dramatically for law enforcement agencies—for safety of the officer and the prisoner/suspect in a secure environment. There is increased accountability on the part of law enforcement due to rising litigation suits.

And, for every person behind bars, there may be three or four individuals under supervision outside; i. e., on parole, probation, or community-related service.

Major themes emerging from custody panel discussions included accountability on the part of law enforcement due to rising litigation suits; the impact of the private security industry on law enforcement; and the need for coordination and collaboration among diverse communities, such as law enforcement, industry, and Defense.

Custody Panels Summary

While law enforcement technology research and development has decreased by 19 percent since 1985, statistics show that incarceration has increased 60 percent in that same period.

Accountability. To target appropriate care within prison facilities, the increasing custodial duties and obligations of correctional officers have changed. Inmates are wards of the State who are in the care of law enforcement. Their presence requires a greater need for accountability today on the part of police officers. The introduction of technology, especially chemicals, such as pepper spray, has resulted in a new dimension in the dilemma of litigation suits. Because each person is unique, certain chemicals may cause ill effects. In the determination of whether to use drugs to control behavior, officers must consider each inmate's physiological makeup.

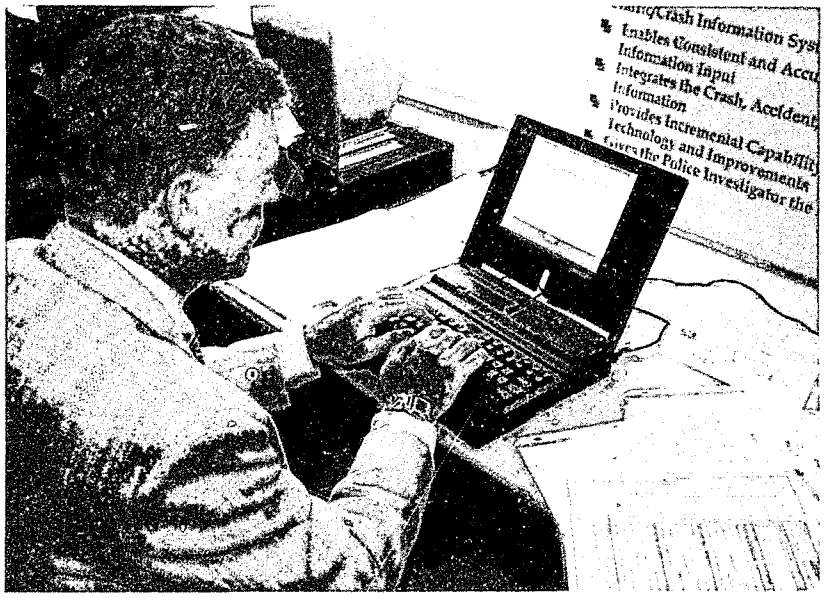
The medical issues involved in custody situations reflect the diverse nature of the inmates, some of whom may have diseases such as HIV/AIDS or tuberculosis or some of whom may suffer from mental illness. The issues of mental/physical health and special medication within a prison facility require a greater need for preventive measures. Therefore, officers must have access to each inmate's medical records, for example, if a situation arises that requires restraint. Panelists also highlighted other issues, such as prison conditions, inmates' rights, and procedures (i.e., searches) and acknowledged the diverse complaints that arise in custody issues that require a technology that responds to that diversity.

Transportation of prisoners is a major concern, in particular, positional asphyxia, as suspects have died enroute to jail after being handcuffed and placed in the back of police cars. Also, the rear-door design of cruisers does not allow officers to put offenders inside easily, and injuries result to both officers and prisoners.

Private security industry. Private security firms have made a tremendous impact on law enforcement, and created a new market within an already fragmented law enforcement field. In response to the rising crime rates, law enforcement has focused on increasing personnel, not technology, to meet the demands of overcrowded prisons. Because of limited Federal, State, and local funds, a new private security industry has evolved over the past 15 years, resulting in 1.5 million people trained to carry arms or be in a position to make a citizen's arrest. Just as a minimum of $75 billion is spent on law enforcement and criminal justice, $50 billion has also been spent on private security. The private security industry is more able to acquire and finance new technology because it does not have the same procurement restrictions as government.

The Enhanced Police Information Capability Program, or "Smart Police Car," allows law enforcement personnel to access essential information and complete all necessary paperwork at the scene of the incident.

▼



This new industry creates an important leverage when technology is addressed today. Because the private security industry's need for less-than-lethal protection represents a more reliable technology market, it may be beneficial for law enforcement to create a partnership with private security to work together on developing technology.

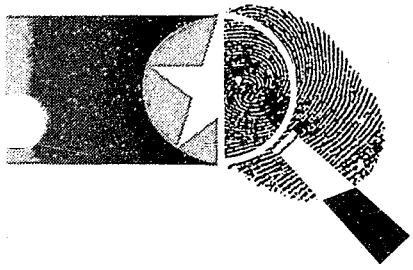
Coordination and collaboration. Coordination and collaboration among agencies would offset the fragmentation within the law enforcement field. In addition, most equipment suitable for law enforcement can be applied to uses in other public safety agencies. Panelists agreed that law enforcement must no longer depend on local individual budgets to lever initial testing, especially if law enforcement can adapt research from the military.

The needed technologies are here today. The question is, however, how do you bring them to the market?

Although fragmentation within the field has discouraged the entry of a major technological industry, coordination and collaboration would create a larger market, especially when combined with the 1.5 million employees within the private security industry. A national technology center for law enforcement would provide the opportunity for law enforcement, industry, national laboratories, and the Federal Government to collaborate in developing new technology. Creation of such a center would serve as a central point for all fields to transfer technology and assist in coordinating requirements for the law enforcement field.

Technologies

It was generally agreed that the needed technologies are here today. The question is, however, how do you bring them to the market? Technologies discussed included the stun belt; the exit monitoring system, which identifies a person through a picture and size of the hand; video surveillance; less-than-lethal devices such as pepper spray, gas, stun guns, inflatables, bean bags, nets, sticky foam, and aqueous foam; electronic monitoring; advanced personal armor for guards; robotics; rear seat airbag restraint system for prisoner and suspect transport; and the photo data base.



Objectives of the Industry Panel:

- *To examine the issues and policies that inhibit quality industry support of law enforcement.*
- *To identify the steps that need to be taken to help qualify industry to meet law enforcement technology requirements.*

What are the problems in transferring promising new technologies to law enforcement agencies—especially on the State and local levels? What role is there for the military and national laboratory communities? What kinds of problems are faced in conducting research and development for law enforcement? What role can industry play? Can anything be done to assist industry in finding out the requirements? Many of the new technologies are too costly for State and local agencies to purchase. Can anything be done about that? What about dealing with the fragmented law enforcement market? These and more questions were examined and discussed in this Industry Panel session.

Meeting the Technology Requirements

Panelists representing law enforcement, the legal profession, DoD, DOJ, technology industry, and national laboratories identified and discussed factors that may help industry meet law enforcement needs and possible hindrances to technology transfer to State and local law enforcement agencies.

Industry Panel Summary

"Window of Opportunity"

The impetus for linking Defense technology and law enforcement is the result of several converging factors. With the end of the Cold War, the military's role is focused more toward peacekeeping and humanitarian aid, and funds once allocated for national defense can now be directed toward solving domestic problems, among them escalating crime rates. Moreover, the character of crime itself has changed in recent years, becoming more violent and sophisticated and requiring new solutions. Panelist Harlin McEwen, Chief of Police in Ithaca, New York, remarked that the "technology area is a tremendous opportunity for us to increase our efficiency and be able to do more with less." And, the demands on law enforcement and its need for state-of-the-art equipment keep growing. One panelist observed that "police are becoming more and more the problem solvers of society, requiring them to supply more services to communities."

"Technology is a tremendous opportunity for us to increase our efficiency and be able to do more with less."

Much of the technology that can help law enforcement has already been developed by the Defense industry and simply needs to be reconfigured for this market. As panelist Herbert Blitzer (Eastman-Kodak) noted, "Industry has a tremendous inventory of technology; law enforcement has a tremendous inventory of problems."

Previous attempts to transfer high technology to local law enforcement agencies, notably by the former Law Enforcement Assistance Administration, have proved unsuccessful. However, recent developments have led to another "window of opportunity"—the present Administration is facilitating Defense/private-sector conversion through the new Technology Reinvestment Program,

and DoD and DOJ have recently formalized a partnership, through a Memorandum of Understanding, for dual-use technology and technology transfer.

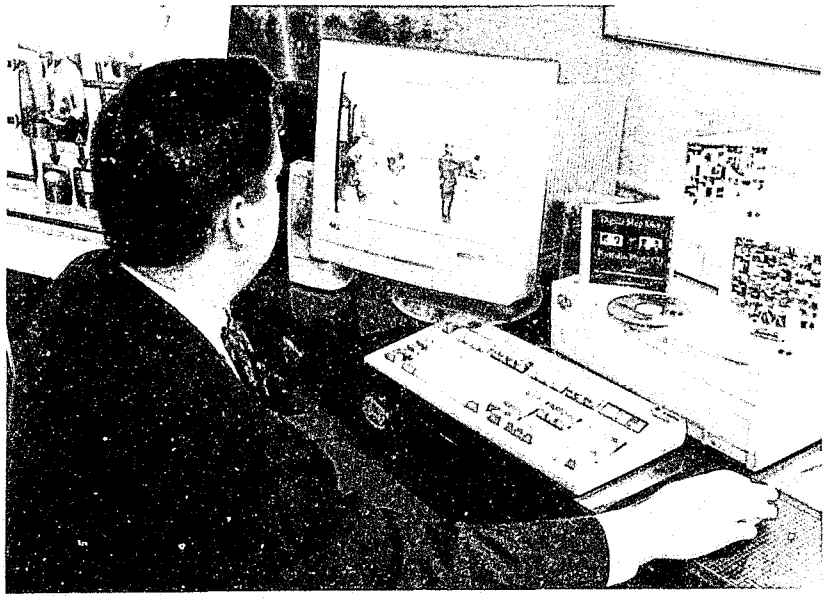
During the panel session, Dr. Gary Denman, Director of DoD's Advanced Research Projects Agency (ARPA), in referring to the Nation's crime problem, observed that "we need to view this as a national security issue . . . . We're at war . . . . We need to view this as a long-term strategic issue." At one point, panel moderator James K. "Chips" Stewart noted that "the military has figured out solutions" to a pressing national problem and "companies are trying to figure out a way to reach local level police . . . . Now, how do we convince people to get this started?"

Impediments to Technology Transfer

During the session, panelists and members of the audience identified impediments to developing high-technology products for law enforcement.

- Local police do not know what technology is available and how it can help them. But according to Mr. Blitzer, "If you can suggest a solution, they'll know right away if it will work."
- The thinking that hiring additional personnel will solve all problems needs to change. An Austin, Texas, police officer offered this perspective, "If we keep adding police officers to an outdated, outmoded archaic system of investigation and response to call services, we're still going to spin our wheels, only with a lot more wheels [police officers] to spin."
- Law enforcement must develop an internal management structure that can make the most effective use of technology. The 911 system was cited as an example of how a technological solution, intended to increase effectiveness, can "backfire" if it is not supported by changes in the infrastructure. In one example, according to Mr. Stewart, decisions about response priorities were transferred from the police chief to the person taking the 911 call, and as a result, "all of the department resources were hemorrhaged out on every call." It actually took longer for police to respond. Mr. Stewart went on to say that most departments will be unable to implement community policing "because they haven't thought the strategy through . . . . They have not changed their internal management structure to accommodate that new enforcement strategy."
- A "rapid and simple" process for technology transfer is required, according to Peter Bahnsen (BETAC International), the panel's self-professed "bureaucratic mechanic." He observed that products need to get to the field

This multimedia system provides a central evidence repository that contains crime scene photographs, case notes, witness statements, departmental forms, audio recordings, and video segments of a specific incident.
▼



"in less than a year; otherwise, they're obsolete," and added, "We have more technology than we know what to do with—we need to get it to the people who need it." An audience member suggested using an "alternative procurement process" in which an agency would advertise competitive bids for a "partner" to jointly develop solutions to the stated problem.

- Police and corrections do not have sufficient funds to purchase technology, and are not likely to reduce staff to pay for these products. According to Lt. Gen. Harley Hughes (Alliant Techsystems), the benefits of a technology must be communicated to the city council, the press, and most importantly, to the residents of a community "who have to foot the bill." Another panelist agreed that "we not only need to get the word out about products, we need to figure a way for local police to *buy* the products."
- The law enforcement market is fragmented, making it difficult for industry to earn a profit. Commenting on this "tough market," Neil Gallagher (ITT) noted that there are "17,000 customers [law enforcement agencies], each with different standards and different needs." A fragmented market precludes keeping costs down through "economies of scale" and mass production.

"Technology transfer works best in the 'pull mode.'" When law enforcement customers understand how technology can help them, their demand will "pull" the national labs and industry into providing solutions.

Before police and corrections agencies are willing to divert funds to technology, they must be convinced that these products will be effective. Mr. Stewart cited the prevention of airplane hijackings as an example of how technology can be used to solve a public safety problem. Gen. Paul Gorman observed that the Army's experience in Panama shows how technology can reduce personnel costs and increase staff performance, without diminishing safety. "The issue is the same for the police and the military—meeting security needs with fewer resources." He suggested that communications and intelligence technology can help law enforcement move from a reactive to proactive approach, and allow law enforcement to anticipate criminal activity by "moving in the bad guy's decision cycle."

Referring to panel discussion about "push/pull" approaches to product development, Dr. Theodore Saito (Lawrence Livermore National Laboratory) commented that "technology transfer works best in the 'pull mode.'" When law enforcement customers understand how technology can help them, their demand will "pull" the national labs and industry into providing solutions. The flip side of this equation is that customers are often reluctant to try out the very technologies that soon become indispensable to them. Using the rapid proliferation of fax machines as an example, Mr. Stewart noted that "sometimes you don't realize you need the technology until you have it."

Another concern is that law enforcement requires two product categories: "high cost/low use" and "high use/low cost." In a discussion of this issue, David Boyd (NIJ's Director of Science and Technology) posed the question, "How do we support high cost/low use technologies, manage them, and turn low use into high use/low cost?" Eric Wenaas (JAYCOR) believed that high cost/low use product development is "the perfect place for government to get involved." High use/low cost products are something "industry can take care of."

Former White House Counsel James H. Falk, Sr., described the challenge as follows:

> "How do we get there from here . . . the Federal Government has already spent a tremendous amount of money [on technology development]; we have a law enforcement community that knows what it wants and knows what it needs when it sees it; we have a law enforcement community that has difficulty figuring out how to afford what it wants . . . "

Next Steps: "Where Do We Go From Here?"

NIJ must assume leadership for this effort and serve as a "bridge" among labs, industry, Defense, law enforcement, corrections, and Congress.

The Industry panelists identified issues that need to be addressed before successful technology transfer can occur.

First, NIJ must assume leadership for this effort and serve as a "bridge" among labs, industry, Defense, law enforcement, corrections, and Congress.

Next, an institutionalized, national repository of information on law enforcement technology should be established and run through NIJ. This national center for law enforcement technology would serve several functions.

- Facilitate dialog between law enforcement and industry. Law enforcement could find out about existing products and the technologies available to create new products.
- Focus industry research on products that law enforcement needs. Police, corrections, and others in the law enforcement community could meet to identify and prioritize their needs and convey these needs to industry through the national center. Several panelists stressed that new technologies developed for law enforcement must be proven, easy to use, and inexpensive.
- Continue partnerships among industry, the Federal Government, and law enforcement.
- Create community support for the use of technology in law enforcement. Technology must prove its value before communities are likely to support its funding. Law enforcement representatives from across the country could meet to learn effective ways to communicate these benefits to community residents.
- Develop tangible proof that technology helps law enforcement. Congress can use this information to generate constituent support for funding.
- Create standards to guide product development and test products through NIJ-coordinated demonstrations and industry prototype demonstrations.
- Improve training, perhaps using simulation models already used in the military.
- Identify other nonlaw enforcement potential markets, such as private security firms.

The national center could help industry identify existing Defense technologies (e.g., command and control; communications) that could be reconfigured to law enforcement requirements, and if necessary, identify promising new technologies. Speaking about information systems technology, Dr. Donald Kerr (SAIC) noted,

> "There is a great deal of technology that's already been developed, that's never been integrated and applied to law enforcement domestic purposes .... A major early benefit would come from applying this technology, achieving interoperability through "open systems," for example, and "not spending a great deal of money on the new technology until some of its benefits have been achieved."

Dr. Terri Straeter (GDE Systems) also advised building "smaller systems to figure out what we're going to do, before we go to the big system." But before technology transfer and integration with existing systems can occur, a standardized "information architecture" must be created for law enforcement.

The center could help law enforcement prioritize its needs. Detection of concealed weapons was mentioned by Vice Adm. Burkhalter as "the highest priority we have today." Other priority areas identified by panelists for technology development included "dual use" Defense/law enforcement products (e.g., lethal and nonlethal capabilities), improved information systems to "free up" police officers, the "Smart Gun," and products to improve pursuit capabilities. Gen. Gorman recommended that technologies that help communities with health care, disaster relief, jurisprudence, and education would help attract community support for funding.

The Surity communication system offers secure voice, fax, data, cellular telephone, and video communications. Shown are the fax security device and the secure cellular telephone.

Additionally, there must be a way for cash-strapped police departments and corrections agencies to acquire these products, because they are unlikely to cut back on staff to free up funds for procurement. Possible solutions include:

- Placing a national tax or "user fee" on 911 calls, a percentage of which would go to law enforcement technology acquisition.
- Disseminating products to local law enforcement through loans (by the proposed Center) or donations (by industry) to "prime the pump" of public interest, create a demand community willingness to invest in these products.
- Warehousing "high cost/low use" products at the national technology center for use by local law enforcement as needed.

- Taking a percentage "off the top" of Federal seized asset-forfeiture funds and reinvesting it in technology. (The Drug Enforcement Agency has set a precedent for this.) Funds would not be taken from local seized forfeiture coffers, which are likely to be earmarked for other important local law enforcement needs.
- Lowering the cost of products by having law enforcement meet to prioritize their needs, thus enabling industry to mass produce these items.
- Decreasing industry overhead by simplifying the research and development contract procurement process. The present system is inefficient and requires an enormous amount of time (and overhead dollars) to satisfy Federal Government "waste and abuse" requirements.

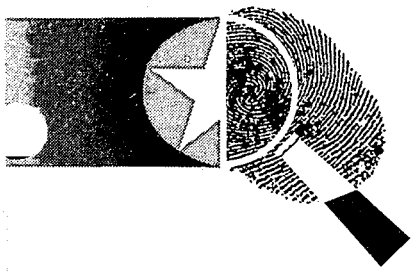
This Conference represented "a historic gain in a most vital area to satisfy one of our country's most critical needs."

However, simply acquiring these products is not enough; police must be able to use them to advantage. Department infrastructures need to be organized before technology can be efficient and effective. Chief McEwen noted the impracticality of "giving up officers before efficiencies are in place." Panelists recommended that local law enforcement be monitored to ensure that technology is "used wisely and well."

The potential of the law enforcement market is clear. Mr. Boyd recounted that it took NIJ a year to convince industry to produce the Magic Wand (a fingerprint detection device that sells for approximately $150 each)—taken from concept to commercial product in 18 months at an R&D investment under $100,000—but "within a month or so, 100,000 had been sold and 100,000 were backordered." Rear Adm. Thomas Brooks (AT&T Paradyne) believed that improved technology could help law enforcement address "the fundamental problem of law enforcement"—the inability of law enforcement personnel to communicate effectively, either because an infrastructure to support improved communications systems is not in place, or because "the information itself is not there to be shared."

To succeed in this technology transfer, many key issues must be addressed. Joseph Houston (SPIE) summed up industry's requirements this way: "We need a clearinghouse, we need to know what law enforcement needs, what standards to work with, so that companies can feel comfortable about getting sufficient return for investment . . . while providing for the public safety."

During closing remarks, Vice Adm. Burkhalter echoed the confidence expressed by Messrs. Falk and Gallagher and other panelists that the transfer of high technology to law enforcement could indeed be achieved. He remarked that he perceived "a clear change of direction for our national security infrastructure to swing around and support this most important national challenge." He added that "there's a lot to be gained by the creation of a [law enforcement technology] center," and he hoped Congress, through the Crime Bill, would allow this to happen. He stated that this Conference represented "a historic gain in a most vital area to satisfy one of our country's most critical needs."



"Law enforcement, industry, and Defense have taken the first step toward developing the technological tools for the next century," said David G. Boyd, NIJ's Director of Science and Technology.

In summarizing the Conference proceedings, Mr. Boyd relayed the mandate voiced by panelists and audience participants during the 3-day proceedings:

- Identify/establish a focus for law enforcement technology.
- Create a structure to ease field access to technology information for both law enforcement and industry.
- Encourage the development of law enforcement technologies.
- Ensure that law enforcement (users) stay in the loop.

Acknowledging that the Conference had accomplished its objectives—to increase visibility, educate, identify issues, initiate relationships, and foster a dialog—Mr. Boyd remarked that this Conference marks only the beginning. The goal now, he said, "is to maintain the momentum of this initiative."

Concluding Note

APPENDIX

Conference Panel Assignments

LAW ENFORCEMENT FOR THE 21ST CENTURY CONFERENCE PANEL ASSIGNMENTS

Fred Friendly Panel

Moderator

Arthur R. Miller, Bruce Bromley Professor of Law, Harvard Law School

Law Enforcement

Steven C. Bishop, Chief of Police, Kansas City, Missouri

Reuben R. Greenberg, Chief of Police, Charleston, South Carolina

James K. "Chips" Stewart, Principal for Justice Systems Technology, Booz-Allen & Hamilton Inc.; former Director, National Institute of Justice, and Commander, Criminal Investigations Division, Oakland Police Department, California

David R. Thomas, Police Officer, Police Training Academy, Montgomery County Police Department, Maryland

Judge William Webster, Millbank, Tweed, Hadley & McCloy; former Director of the FBI and CIA

Corrections

Chase Riveland, Secretary, Department of Corrections, State of Washington

Defense/Technology

Dr. Ruth Davis, President and Chief Executive Officer, The Pymatuning Group; former Assistant Secretary of Energy for Resource Applications and Deputy Under Secretary of Defense for Research and Advanced Technology

Industry

David Beck, Vice President and General Manager, Law Enforcement Systems Division, Westinghouse Electric Corporation, Baltimore, Maryland

Congressional

Patricia Schroeder, U.S. Representative, State of Colorado

State/Local Government

Marc H. Morial, Mayor, New Orleans, Louisiana

Kurt Schmoke, Mayor, Baltimore, Maryland

Media

Jack Ford, Esq., Anchor for Court TV, Legal Analyst for NBC–TV

Gabe Pressman, Journalist, WNBC–TV News, New York

Legal

David Rudovsky, Professor, School of Law, University of Pennsylvania, Philadelphia, Pennsylvania

Appendix

Breakout Panels: Pursuit, Confrontation, and Custody

Panel A

Moderator	James K. "Chips" Stewart, Principal for Justice Systems Technology, Booz-Allen & Hamiliton Inc.; former Director, National Institute of Justice, and Commander, Criminal Investigations Division, Oakland Police Department, California
Law Enforcement	Robert Cansler, Chief of Police, Concord, North Carolina
	Kathryn Stevens, Captain, Allen County Sheriff's Department, Indiana
Corrections	Perry Johnson, President, American Correctional Association
Defense	Lt. Gen. Harley Hughes, USAF(Ret.)
Technology	Raymond J. Mataloni, SPIE Fellow (Monday only)
Industry	Keith Hazzard, Chief Scientist, ESL/TRW (Pursuit Session)
	John Klebes, Advanced Product Engineering, Smith & Wesson (Confrontation Session)
	Hugh Sawyer, President, Wells Fargo Armored Service Corporation (Custody Session)
Government Laboratory	Garold L. Gresham, Scientist, Idaho National Engineering Laboratory (Pursuit Session)
	Doug Weiss, Project Manager, Sandia National Laboratories (Confrontation Session)
	Tommy D. Goolsby, Project Manager, Sandia National Laboratories (Custody Session)
Congressional	Andrea Camp, Legislative Assistant, Representative Patricia Schroeder (Colorado) (Monday only)
Media	Gordon Witkin, Senior Editor, U. S. News & World Report
Local Government	Mike Thompson, Director, Mayor's Office of Criminal Justice Planning, Los Angeles, California
Legal	James H. Falk, Sr., Falk Law Firm and former White House Domestic Counsel (Pursuit Session)
	John M. Falk, Falk Law Firm (Confrontation and Custody Sessions)
Special Representatives	Michael J. Russell, Russell and Associates
	Dr. Ed Brown, Army Research Laboratory

Breakout Panels: Pursuit, Confrontation, and Custody

Panel B

Moderator	Vice Adm. E. A. Burkhalter, Jr., USN(Ret.), Chairman, NIJ Less-Than-Lethal (LTL) Technology Panel (Pursuit Session)
	James H. Falk, Sr., Falk Law Firm and former White House Domestic Counsel (Confrontation and Custody Sessions)
Law Enforcement	Hubert Williams, President, Police Foundation (Monday only)
	William J. Burke, Chief of Police, Cook County Sheriff's Police Department, Illinois
Corrections	Norman Carlson, former Director, Bureau of Prisons (Pursuit Session)
	Jim Mahan, Chief, Security Technology, Federal Bureau of Prisons (Confrontation and Custody Sessions)
Defense	Joseph O. Knoefel, Director Security Systems Group, NISE East
	Gen. Carl W. Stiner, USA(Ret.), ARPA Advisory Group
Technology	Kevin Jackson, Project Director (NASA Technology Project), National Institute of Corrections
Industry	Randy Doblar, Director Business Development, Alliant Techsystems (Pursuit Session)
	Michael Jukoski, Program Manager, TECHMATICS, Inc. (Confrontation Session)
	Robert W. Mianowski, Senior Vice President, Wackenhut Corrections Corporation (Custody Session)
Government Laboratory	Harold Levie, Project Leader, Lawrence Livermore National Laboratory (Pursuit Session)
	Brian Andresen, Director, Forensic Science Center, Lawrence Livermore National Laboratory (Confrontation Session)
	Fred Mintz, Technical Staff, Jet Propulsion Laboratory (Custody Session)
Congressional	Scheduled congressional staff could not attend
Media	No representative
Local Government	Major Edward M. Buff, Commander Central District, Miami Police Department, Florida (substitute for Mayor Steve Clark)
Legal	Stephen A. Saltzburg, Professor, George Washington University National Law Center
Special Representatives	Harlin McEwen, Chief of Police, Ithaca, New York

Breakout Panels: Pursuit, Confrontation, and Custody

Panel C

Moderator	Gen. Paul Gorman, USA(Ret.), NIJ Less-Than-Lethal Technology Panel
Law Enforcement	Sylvester Daughtry, Chief of Police, Greensboro, North Carolina; President IACP
	George R. "Ray" Havens, Deputy Director, U. S. Marshals Service
Corrections	Susan Hunter, Chief, Prison Division, National Institute of Corrections (Pursuit Session)
	Peter M. Carlson, Asst. Director for Correctional Programs, BOP (Confrontation and Custody Sessions)
Defense	John Pennella, Chairman, Joint Program Steering Group for OOTW/LE, ARPA
Technology	Dr. William A. Bayse, Chief Scientist, Federal Bureau of Investigation (Monday only)
Industry	W. Richard Harden, Technology Manager, Law Enforcement Systems Division, Westinghouse Electric Corporation (Pursuit Session)
	Ron Orchid, Technologist, Pinkerton Design and Technology Group (Confrontation Session)
	Patricia Landry, Law Enforcement & Justice Marketing Manager, Digital Equipment Corporation (Custody Session)
Government Laboratory	Trudy Overlin, Scientist, Idaho National Engineering Laboratory (Pursuit and Custody Sessions)
	Vivian Baylor, Program Manager, Oak Ridge National Laboratory (Confrontation Session)
Congressional	Jack Chorowski, Staff, Senator Herb Kohl (Wisconsin) Senate Judiciary Committee (Pursuit Session)
	Chris D. Aldridge, Staff Member, House Armed Services Committee (Confrontation Session)
Media	No representative
Local Government	Laura Chick, Councilmember 3d District, Los Angeles, California, Member of City Council Public Safety Committee
Legal	Judge Benjamin L. Brown, General Counsel, National Institute of Municipal Law Officers (NIMLO)
Special Representatives	Robert A. Beck, Deputy Chief of Police, Anne Arundel County Police Department, Maryland
	Steve Small, Arms Program Liaison Officer, Joint Service Small Arms Program

Industry Panel

Moderator	James K. "Chips" Stewart, Principal, Justice Systems Technology, Booz-Allen & Hamilton Inc.; former Director, National Institute of Justice, and Commander, Criminal Investigations Division, Oakland Police Department, California
Law Enforcement	William J. Burke, Chief of Police, Cook County Sheriff's Police Department, Illinois
	Ray Mintz, Office of Enforcement Support, U. S. Customs Service
	Harlin McEwen, Chief of Police, Ithaca, New York
Defense	Dr. Gary L. Denman, Director Advanced Research Projects Agency (ARPA)
Technology	Gen. Paul Gorman, USA(Ret.), NIJ Less-Than-Lethal Technology Panel
	Joseph B. Houston, former President, SPIE
Industry	David Beck, Vice President and General Manager, Westinghouse Electric Corporation
	Lt. Gen. Harley Hughes, USAF(Ret.), Alliant Techsystems
	Dr. Eric Wenaas, President and Chief Executive Officer, JAYCOR
	Dr. Terry Straeter, Chief Executive Officer, GDE Systems, Inc.
	Rear Adm. Thomas Brooks, USN(Ret.), GM, Secure Communication Systems, AT&T Paradyne
	Dr. Donald M. Kerr, Corporate Executive Vice President, SAIC
	Grady Wright, Vice President and General Manager, TRW
	Peter F. Bahnsen, Senior Vice President, BETAC International Corporation
	Herbert Blitzer, Applications Manager, Law Enforcement Markets, Eastman Kodak Company
	Neil Gallagher, President and General Manager, ITT Electro Optics Products Division
	Dr. Jude E. Franklin, Vice President and Chief Technology Officer, PRC, Inc.
Government Laboratory	Dr. Theodore Saito, Physicist, Lawrence Livermore National Laboratory
	Dr. John Alexander, Program Manager, Los Alamos National Laboratory
Legal	James H. Falk, Sr., Falk Law Firm and former White House Domestic Counsel
NIJ Representatives	David G. Boyd, Director, NIJ Science & Technology Division
	Vice Adm. E. A. Burkhalter, Jr., USN(Ret.), Chairman, NIJ Less-Than-Lethal Technology Panel

U.S. Department of Justice
Office of Justice Programs
National Institute of Justice

Washington, D.C. 20531

Official Business
Penalty for Private Use $300

BULK RATE
POSTAGE & FEES PAID
DOJ/NIJ
Permit No. G–91