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A Look Forward

To build a stronger, more seamless, and more supportive partnership between all facets of law enforcement and the FBI, the Futures Working Group (FWG) formed on April 2, 2002. The FWG represents a partnership between the FBI and the Society of Police Futurists International (PFI), with its noble and ambitious goals that include the development of forecasts and strategies to ethically maximize the effectiveness of local, state, federal, and international law enforcement bodies as they strive to maintain peace and security in the 21st century.

This constitutes a formidable challenge as futurists see unprecedented levels of development and change in the first several years of the 21st century. Breakthrough technologies, such as nanotechnology, artificial intelligence,

and genetic engineering; changing demographic and cultural conditions; and the threat of international crime and terrorism will challenge the men and women of law enforcement in ways that no one in the profession could have hardly imagined a few short years ago.



Fortunately, the FWG stands ready to meet the challenge. Already, members of the group, who represent some of the best and the brightest in policing, have completed or are developing projects dealing with augmented reality applications for law enforcement, the future of community policing, a national

intelligence model for the 21st century, and training programs in applied futuristics for law enforcement. For more information on their activities, visit the FWG home page at <http://www.fbi.gov/hq/td/fwg/workhome.htm>.

Preparing for the Challenges Ahead

Practical Applications of Futures Research

By SANDY BOYD, Ed.D., ALBERTO MELIS, and
RICHARD MYERS



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*I never think of the future. It
comes soon enough.*

—Albert Einstein¹

Many people do nothing about the future. After all, the future will occur momentarily, whether they plan for it, benefit from it, or are surprised by it. People's expectations about the future, however, often run to extremes. For example, the archetypal 1950s' concept of the year 2000 consisted of flying machines in every garage and robots as servants. Yet, today's advances in the medical and computer fields

have transcended anything imagined a few decades ago.

Because of the reactive nature inherent in the daily workings of their profession, law enforcement officials also tend not to overly concern themselves about the future. After all, most law enforcement efforts, as well as training, focus on responding to existing threats to the public's safety. Even those law enforcement professionals concerned about the future and futures

research² usually concentrate on the next budget year, rather than on a 5- or 10-year strategic plan for their agencies.

But, the future is here and probably changing faster than anyone can envision. Many people can remember a world without automated teller machines or the ubiquitous cell phone, but these items, not to mention computers, have changed the world to the point that society no longer can function the way it did in the past. To this end, law enforcement professionals must understand the importance of futures research. To help illustrate this, the authors present three scenarios that depict probable, possible, and preferred outcomes of the future. Each scenario then poses a question that all law enforcement

agencies should answer based upon their preparedness to handle similar situations.

Probable scenario: A major terrorist attack on American soil resulted in law enforcement agencies scrambling to exchange information and intelligence. Unfortunately, the agencies found most of that information incompatible and inaccessible. How many agencies are prepared for a present, and now obvious, danger?

Possible scenario: During roll call on the swing shift, officers learned that another homicide occurred south of Main Street, so additional patrols must cover the area. They heard about daytime burglaries increasing near the high school, but the day shift can handle those. They find out that the group of homeless

people that suddenly appeared in the city has begun camping under a bridge, so more patrols must focus on that location. Finally, they learned that city council, once again, has denied the chief's request for more personnel to fight the growing crime problem. Although happy with all of the overtime, the patrol officers recognized that they can accomplish only so much with limited personnel and funds. How many agencies are prepared only for business as usual?

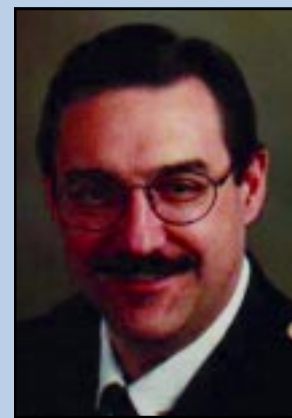
Preferred scenario: A chief's journal entry on a typical Sunday night showed that he logged onto the department's network from home and scanned the activities of the weekend, just in case the mayor should ask about pending cases or potential risks to the city at their breakfast meeting



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Monday. Luckily for the chief, the system, organized in order of importance, enabled him to review the incidents that the media had accessed previously. He read about the latest report of “cyber road rage,” where the suspect, incensed at a string of e-mails on a list serve, hacked into another citizen’s personal computer through a broadband Internet hookup. This effectively assaulted the victim’s computer and financial records. The department’s system mined and gathered information from the Internet, based on keywords that the chief input, and organized the data in a short, abridged format. The last item that the chief saw was a bulletin about the latest organized crime ring stealing stored harvested human organs and selling them on the black market. This meant that people who can afford it and need

transplants would have quicker access to these life-saving measures than those waiting on the medically generated priority list. How many agencies are prepared for such future challenges?

ENVISIONING THE FUTURE

The remedy to the questions posed by these scenarios lies in futures research and in preparing law enforcement officers to have the capacity not only to manage change but also to thrive on it. A world exists beyond traditional police exercises of annual budgeting, strategic planning for 3- to 5-year periods, and critical incident debriefings. Futures research leads to the examination of the probable, possible, and preferable outcomes of the future and provides a basis for decision making today that will lead to a preferable future.

Despite working in a dynamic environment, law enforcement professionals traditionally resist change, particularly organizational change. At a time when most of society struggles to keep pace with changes in technological and demographic areas, crucial institutions, such as law enforcement, must prepare for change not only to simply tolerate it but also to view it as an opportunity to make future communities safe. “Futures research offers both philosophical and methodological tools to analyze, forecast, and plan in ways rarely seen in policing in the past.”³ To this end, agencies can employ these techniques of futures research to help them determine organizational capacity, apply technologies, develop potential officers, identify and obtain necessary resources, and explore the profession’s direction.

Determining Organizational Capacity

Forecasting can be as simple as analyzing emerging trends and thinking about their potential outcomes. Law enforcement organizations are surrounded by data sources that readily feed into trend analysis. In their primary mission to preserve life, protect property, and prevent crime, law enforcement agencies rely heavily on information management, while the resultant data provide a rich basis for trend

analysis. Law enforcement administrators probably can identify interested members of their agencies who enjoy planning, demonstrate creativity, and understand emerging technologies. Whether individually or in teams, such organizational resources can help all members of an agency broaden their views of the future. Some future-forecasting methods call on topical “experts” to compare their ideas on what may lie ahead. In law enforcement organizations, numerous such experts daily participate in a dynamic environment to carry out the police mission.

Applying Technologies

Overall, government and law enforcement seem to lag behind the private sector in both the use of technologies and the development of expertise in such applications. A common theme among members of the Society of Police Futurists International⁴ is the fear that the law enforcement profession will never “catch up” with the necessary computer-based investigative skills to keep pace with criminals who use computer technology. But, technology involves much more than using computers to hack into systems or commit identity theft. Whether through nanotechnology, augmented reality, or biometrics, criminals always will attempt to steal, misuse, exploit, or employ technologies as an instrument of their

crimes. If law enforcement does not proactively anticipate such illicit uses, the victims of these crimes eventually will rely on private sources of relief, minimizing the role of police. When contemplating the impact that a single technology, such as DNA analysis, has played in combating lawlessness, it almost becomes unimaginable what forensic and investigative tools will emerge from the explosion in



Futures research leads to the examination of the probable, possible, and preferable outcomes of the future....



technology in the immediate future. Policing, therefore, must insert itself at the beginning of the creative processes that develop new products and techniques, instead of relying on the hand-me-down obsolescence from military and private sector sources.

Developing Potential Officers

By using forecasting and futures research methods, or even by simply scanning the literature of futurists, law enforcement administrators can develop profiles of the skills needed by officers of

the future. Administrators who watch trends to consider future profiles can contemplate how best to integrate testing and recruitment that will attract candidates most likely to fulfill the skill set needed. The fact that an agency considers trends and forecasts could represent a useful recruitment tool in a time of tight competition for the limited applicant pool. Perhaps as important as selecting the right future officers, helping existing officers cope with the increasing pace of change ranks as a necessity if law enforcement organizations are to prove effective in the future. Understanding where change may take them will help law enforcement leaders illuminate the pathways of change for their officers into the future.

Identifying and Obtaining Necessary Resources

Most governmental budget processes operate 1 to 2 years ahead, with some potential 5-year capital expenditure plans included. New human resources often are created in reaction to changes in the local environment, and, with the lag time to implement trained personnel, agencies always must play “catch up.” Futures research may help law enforcement leaders identify what they will need in the future. It also may make a case for them proactively lining up those resources so that these leaders can contribute to the

preferred outcomes, rather than reacting to the sudden realities.

Exploring the Profession's Direction

One of the most often discussed items within the law enforcement community centers on where the profession is headed. What will transcend its current efforts? In short, what comes after community policing? Futures research may constitute the only hope to predict with any degree of accuracy what is coming, rather than to guess haphazardly and only hope for something close to a correct assessment. "While not claiming to be predictive, futures research can develop intelligent forecasts concerning what is possible while indicating strategies for working toward desired goals. In a time of accelerating change, these methodologies can help...managers to cope successfully with uncertainty and move confidently into tomorrow."⁵

CONCLUSION

"My interest is in the future because I am going to spend the rest of my life there."⁶ These words provide strong evidence of the importance of futures research. By examining a variety of alternative outcomes to future situations, people can more readily see the consequences of their decisions.

Futures research can aid those facing the daunting task of

trying to accurately predict how to prepare for the challenges that lie ahead in today's ever-changing and increasingly fast-paced world.

No one is immune to these challenges, particularly those in the law enforcement profession. Advances in technology have created enormous changes in the types of crime perpetrated against society and in the way

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...law enforcement professionals must understand the importance of futures research.
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that law enforcement agencies must respond to protect their communities. Officers and administrators alike must prepare for even more diverse threats to the public's safety, many from yet-to-be invented sources. But, by planning for the risks, as well as the benefits, of modern advances, the law enforcement community can help ensure that those seeking a peaceful existence will triumph. ♦

Endnotes

¹ Retrieved on February 19, 2003, from http://www.quotationspage.com/quotes/Albert_Einstein.

² "Futures research encompasses both an evolving philosophy and a range of techniques. Its primary objective is to assist decision makers to understand better the potential consequences of present and future decisions by developing images of alternative futures. It has strong and sound historical origins in sociology, more recently in political science, and in the other social sciences. It has independent origins also in corporate and institutional planning, in strategic and long-range planning, and has significant contemporary roots in government, particularly in national security. Successful practice of futures research requires contributions both from established academic disciplines and from such cross-disciplinary fields as technology assessment, policy analysis, operations research, issues management, and many more." For additional information, see World Future Society, *Futures Research Quarterly*; retrieved on February 3, 2002, from <http://www.wfs.org/frq.htm>.

³ The Society of Police Futurists International; retrieved on February 3, 2002, from <http://www.policefuturists.org>.

⁴ "The Society of Police Futurists International (PFI) is an organization of law enforcement practitioners, educators, researchers, private security specialists, technology experts, and other professionals dedicated to improving criminal and social justice through the professionalization of policing. Futures research (long-range planning and forecasting) is the pivotal discipline that constitutes the philosophical underpinnings of PFI"; retrieved on February 3, 2002, from <http://www.policefuturists.org>.

⁵ Darlene E. Weingand, "Futures Research Methodologies: Linking Today's Decisions with Tomorrow's Possibilities," in *61st IFLA General Conference Proceedings, August 20-25, 1995*; retrieved on February 3, 2003, from <http://www.ifla.org/IV/ifla61/61-weid.htm>.

⁶ Charles F. Kettering, a well-known inventor, held over 200 patents; retrieved on February 3, 2003, from <http://www.quotemeonit.com/Kettering.html>.

The Future of Public/Private Partnerships

By Al Youngs



Doctors and nurses, attorneys and paralegals, parents and day care providers, presidents and aides—all people need support and assistance to accomplish their goals. Why should public law enforcement agencies be different?

Today's police departments are under monumental pressure to perform, keep crime rates low, and do it all with fewer resources. Agencies can accomplish this seemingly impossible mandate by forming supportive partnerships with private security providers.¹

A Historical Perspective

Privatization of law enforcement activities is not a new concept. Perhaps, the monopolization of policing by government is an aberration.² Only in the last 100 to 200 years has government effectively monopolized policing, which is not uniform across all countries. In Europe, for example, France led the way in the systematic

nationalization of policing in the 17th century. Nationalization followed fitfully throughout the rest of continental Europe, concentrated largely in towns and often deferring to the private authority of the landowning aristocracy. In England, policing remained largely in private hands until well into the 19th century. In the United States, where cities gradually governmentalized policing in the middle of the 19th century, private policing never really died. The constituent states did not begin to develop organized police forces until the early 20th century, and the national government did not do so until approximately a decade later. While the 1960s characterized a period of indifference toward private security and the 1970s one of changing perceptions and some mistrust of the industry, the 1980s and 1990s most likely will be regarded as the era of collaboration and joint ventures between public law enforcement and private security.³ Individual and corporate citizens policed by public law enforcement also increasingly are becoming the clients of private security, as illustrated by increases in the use of corporate security and the number of gated communities.

Lower Crime Rates, Higher Costs

In the late 1990s, serious crime continued to fall in the United States,⁴ reaching a 25-year low. The potential that criminals will receive punishment and that they will serve a longer amount of time both are higher today than in the last 30 years.

The economic boom of the late 1990s, which increased wages and rates of employment, impacted the reduction of crime. But, on the other hand, criminal punishment also increased. Compared to 1996, the probability of going to prison in 1997 for murder rose 13 percent, while it increased 1 percent for rape, 7 percent for robbery, and 11 percent for aggravated assault.⁵ Once convicted, prisoners now stay incarcerated longer. Compared to the 1980s, the median

sentence served by prisoners has risen for every category of serious crime except aggravated assault.⁶

Potential criminals respond to incentives.⁷ Crime decreases when expected punishment increases, and the reverse proves true as well. To achieve an even lower crime rate, law enforcement must continue to make crime less profitable by further increasing expected punishment. But, higher arrest rates require more money for police staffing, equipment, and procedures.⁸ Higher conviction and sentencing rates require more resources for prosecution and criminal courts. The need for more prison space also increases, and, although the cost of building and maintaining more prisons is high, the cost of not doing so appears to be higher.

The Time for Privatization

The hope of the public, as well as the goal for police departments, is to continue lowering crime rates. However, achieving this requires more policing and more cost precisely when law enforcement agencies face serious recruitment problems, additional equipment costs, a decrease in tax revenues, and legislative restrictions denying access to any surpluses. "Many municipalities and counties lack the necessary funds due to legislated limits on taxation and spending, inadequate bonding, capacities and voters' reluctance to approve special bonding obligations or other spending measures."⁹

Fortunately, privatization of certain police department functions has proven a powerful solution to the problem. The steady decline of governments' capital resources and their increasingly urgent search for ways to continue providing the services that citizens demand without

raising taxes are driving the privatization trend.¹⁰ Some federal agencies have saved as much as 50 percent by hiring contractors to provide services.¹¹

Police in today's environment typically spend less than 20 percent of their time on crime-related matters. In California, a police officer may cost \$100,000 a year, taking into account salary, benefits, and such overhead expenses as squad cars.¹² Faced with rising calls for service, this proves expensive for tasks, such as transporting prisoners, providing court security, conducting traffic control, and serving summonses. The real trend in the future will be contracting out the functions of public police that do not involve crimes or emergencies.

For example, the Fresno, California, Sheriff's Department reaped savings by outsourcing its transport of prisoners. The total cost for the department to transport a prisoner from San Diego to Fresno was \$284 using a private

firm. The same trip using sheriff's department personnel and equipment would cost three times as much.¹³

Police departments in 18 states currently use, or plan to use, private security guards to fill support roles.¹⁴ One firm provides security for six major public transit systems around the country, transports prisoners, maintains booking and security for a juvenile assessment center, and supplies security for court houses in 40 states. Other public-private partnerships exist coast to coast.

Just as corporations outsource many services to enable them to concentrate on core competencies, the use of private firms by law enforcement agencies frees them to concentrate their efforts on duties that only trained police officers can, and

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should, do. Over the past several decades, privatization in law enforcement has grown to such an extent that virtually every function, including security, jails, prisons, and court-related services, is being contracted out somewhere in the United States.¹⁵

Using private security on site at businesses, sporting venues, and malls is no new trend. But, agencies can outsource other duties that do not require the authority to make arrests or use deadly force. Such tasks include directing traffic, guarding prisoners, assisting at crime scenes, transporting prisoners, processing reports, and investigating accidents.

The Approach to Public-Private Partnerships

Public-private partnerships can provide many benefits, especially in terms of pairing law enforcement with a private security provider to save public monies. Agencies should consider several recommendations when determining whether to use this type of partnership.

- Services with the potential to be priced should be considered as candidates for private provision or user charges.
- To save money and help police officers become more available to perform the tasks that only they can conduct, agencies should privatize tasks that do not require the full range of skills of police officers.
- Private companies should provide such services as response to burglary alarms, and people with alarm systems should pay for the services that they demand.
- Private security can prove effective in a distinct geographic area; therefore, owners of apartment complexes should consider private



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policing. Further, agencies should encourage competition between apartment complexes to provide safer environments. Requiring publication of apartments' safety experience helps renters make informed decisions.

- Agencies should consider any relatively low-skill or specialized high-skill services as a candidate for transfer to private security.
- Departments should ensure that the cost of monitoring contractor compliance and performance should not exceed the savings from privatization.
- Agencies should request that their state legislatures consider whether the current legal status and regulations pertaining to private security are appropriate in view of the expanded role expected from them, such as emergency vehicle status and expanded powers of arrest.

- Problem-oriented policing offers the prospect of improved police-private partnerships in dealing with specific crime problems.

- The community policing approach offers hope for improving police performance and the community's sense of

participation.¹⁶ Like privatization, community policing helps society better determine the use of its scarce police resources. Further, it brings the police "back" to constituents. Successful community policing satisfies the desires of the community.

One Community's Experience

Lakewood, Colorado, offers an example of the benefits of outsourcing law enforcement tasks to private firms. Lakewood boasts a population of 145,000 within the metropolitan Denver area. Its

progressive approach to public-private partnerships in law enforcement is demonstrated by its track record—the city has contracted with outside firms for police department assistance for nearly 10 years. As a result, the Lakewood Police Department considers the public-private partnership beneficial. It helps in terms of deployment, as well as economically. “Paying a private security officer an hourly rate to guard a prisoner or a crime scene frees up police officers. Police don’t have to call in an officer on overtime or pull someone off patrol duty.”¹⁷

Lakewood’s current privatization efforts include the use of trained citizen volunteers for police administrative work, such as fingerprinting citizens and issuing parking tickets to violators of handicapped parking. Graduates of its citizen police academy volunteer with the Lakewood Police Department and serve as a surveillance unit regarding specific crimes, such as graffiti. Civilian investigative technicians conduct follow-up, question victims and suspects, and prepare affidavits.

Further, the Lakewood Police Department contracts with a private security firm to guard prisoners hospitalized in facilities in the Denver metropolitan area and to provide assistance in protecting crime scenes. These private security officers are specially selected for crime-scene detail based on their background and experience, and they often attend Lakewood Police Department roll calls for training (similarly, members of the Lakewood Police Department attend the security roll calls). These private security firm officers know the rules of evidence, and, in fact, many are certified police officers in the state of Colorado. They provide 24-hour assistance and typically respond with officers within 4 hours of the department’s request. In addition, for security

purposes, background investigations have been completed on each of these officers.

In Lakewood, the cost of an off-duty police agent is \$37 per hour, including vehicle. Many crime scenes take an average of 2 days to process. Because 24-hour protection is required, using private security at \$29 per hour for this assignment, a savings of nearly 22 percent, makes economic sense. Furthermore, the partnership has strengthened the lines of communication and trust between police and private security personnel. “In this partnership, everyone’s a winner. The police department is a winner in that we are providing essential services at a reduced cost. Through the private portion of it; it’s good for business; it employs people; it’s good for our economy.”¹⁸

Such moves to privatization are substantiated by the numbers. Private security guards outnumber public law enforcement officers by 3 to 1 nationally, and 4 to 1 in California.¹⁹ The trend is not confined to the United States; Canada, the United Kingdom, and Australia have approximately twice as many private guards as public police.

Conclusion

Today, law enforcement agencies have fewer resources to accomplish their goals. Departments can form partnerships

with private security firms to save money, as well as to free trained police officers to conduct duties that only they should address.

Public law enforcement entities can gain more efficient use of funds and personnel in public-private partnerships, in addition to extending their reach and effectiveness. Properly defined and managed, a partnership with a private enterprise can make the job of police officers more effective and rewarding and the results reported to voters more positive in the long run. ♦

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Public-private partnerships can provide many benefits....

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Endnotes

¹ For graphic representations of the trends on expenditures for law enforcement officers and number of police officers compared to private security agents, visit <http://www.ncpa.org/studies/s181/gif/s181c.gif> and <http://www.ncpa.org/studies/s181/gif/s181d.gif>.

² David H. Bayley and Clifford D. Shearing, U.S. Department of Justice, National Institute of Justice, *The New Structure of Policing: Description, Conceptualization, and Research Agenda* NCJ 187083 (Washington, DC, July 2001); retrieved on March 24, 2003, from <http://www.ncjrs.org/pdffiles1/nij/187083.pdf>.

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⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Wantland J. Smith, "Private Sector Development: A Winning Strategy for New Police Stations, Sheriff's Stations, and Jails," *The Police Chief*, August 1991, 29-33.

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¹¹ Ibid.

¹² Supra note 4.

¹³ Marty L. West, "Get a Piece of the Privatization Pie: Private Security Agencies," *The American Society for Industrial Security, Security Management* 37, no. 3 (March 1993): 54.

¹⁴ <http://www.ncpa.org/pi/crime>.

¹⁵ Bruce L. Benson, "Privatization in Criminal Justice," *Independent Policy Report, Independent Institute* (Oakland, CA, 1996), see <http://www.ncpa.org>.

¹⁶ Erwin A. Blackstone and Simon Hakim, "Police Services: The Private Challenge," *Independent Policy Report, Independent Institute* (Oakland, CA, 1996), 10-33.

¹⁷ Russell Ruffin, reporter, "Lakewood Police Utilize Private Security," *Law Enforcement Television News* (Denver, CO: Cherokee Productions).

¹⁸ Ibid.

¹⁹ <http://www.ncpa.org>.

Chief Youngs heads the community resources division of the Lakewood, Colorado, Police Department and serves as the acting assistant dean of the criminal justice program at the University of Phoenix in Lakewood.

Wanted: Notable Speeches

The *FBI Law Enforcement Bulletin* seeks transcripts of presentations made by criminal justice professionals for its Notable Speech department. Anyone who has delivered a speech recently and would like to share the information with a wider audience may submit a transcript of the presentation to the *Bulletin* for consideration.

As with article submissions, the *Bulletin* staff will edit the speech for length and clarity, but, realizing that the information was presented orally, maintain as much of the original flavor as possible. Presenters should submit their transcripts typed and double-spaced on 8 1/2- by 11-inch white paper with all pages numbered. When possible, an electronic version of the transcript saved on computer disk should accompany the document. Send the material to:

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Improving the View of the World Law Enforcement and Augmented Reality Technology

By THOMAS COWPER



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Today's rapidly changing society is driven by higher and higher levels of technological advancement. For good or bad, technology brings change. The events of September 11, 2001, have served to fuel the debate concerning the role that technology should play in people's lives, particularly future battles against terrorism in a free society.

The rate of change itself, however, is changing, significantly compressing the time that it takes for new technologies to

take hold and alter the way in which people live and interact with each other. Rapidly emerging technologies also afford criminals and terrorists new opportunities for exploiting, disrupting, and harming society. While human intelligence and traditional policing methodologies continue as important aspects of law enforcement, high-tech systems are becoming a principle, and undeniably necessary, means of maintaining domestic security. To employ emerging technologies

effectively and thwart their illicit use by criminals and terrorists, law enforcement officers need to understand fully the state of current technological capabilities and how those capabilities will change in the coming decades.

One of these emerging and powerful technologies, augmented reality (AR), uses wearable components to overlay virtual (computer-generated) information onto individuals' real-world view or into their real-world experiences in a way that improves and enhances their

abilities to accomplish a wide variety of tasks and missions. Still in the early stages of research and development, AR combines the real and the virtual, displaying information in real time, in a way that enhances the individual abilities of people operating in the real world.

Each weekend, millions of auto racing and football fans view one popular type of AR on television. Broadcasters display driver and speed information tagged to race cars hurtling around a track, as well as superimpose yellow first-down lines on a football field, to help fans better understand the real-time action of the events. Another popular AR application is the heads-up display (HUD), common in military fighter aircraft. While not a wearable application, the HUD superimposes aerodynamic and other aircraft system data onto the forward view of the cockpit canopy, allowing the pilot to see critical information about the flight situation while maintaining focus on the enemy target.

By using virtual graphics, three-dimensional maps, textual annotations, auditory information, and haptic (touch) sensations in a coordinated real-time presentation, AR brings together a variety of technologies to display information to individuals in a way that instantly applies to a given task or situation. The use

of AR technology may positively influence any situation enhanced or helped by the visual, audible, or haptic display of information not available or detectable by normal human senses.¹

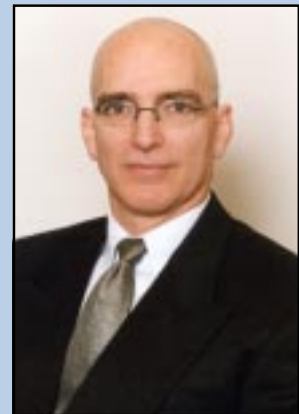
A fully interactive AR system may derive information from a multitude of sources. Data can be transmitted wirelessly from a computer network, accessed from the wearable computer carried by the AR user, acquired from embedded devices within a surrounding intelligent environment, and obtained from wearable sensor arrays scanning the immediate or visible location of the user. Linking individual users together on a wireless network could allow them to view each other's location and status to coordinate activities and take supportive action when appropriate.

Augmenting reality in this way also allows for some uniquely tailored applications in specific circumstances. Users of AR systems can block out certain aspects of the real world that might either detract from the task at hand, a process known as diminished reality, or they can filter out confusing information and see things not normally visible to the unaided eye, a freeze-frame process called mediated reality.

THE AR SYSTEM

Fundamentally, an AR system consists of a wearable computer, a head-mounted display (HMD), and tracking and sensing devices, along with advanced software and virtual three-dimensional-rendering applications. Depending on the intended use, the basic system could

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the New York State Police.*

incorporate a wide range of other components adapted for specific operational functions.²

AR is a mobile technology designed to improve situational awareness and speed human decision making. To accomplish this, the human-machine interface must streamline the process of input and output so that the user can maintain focus on the task at hand with minimal distraction. Traditional methods of computer input control (keyboard, mouse, and trackball) and output receptors (monitors and flat-panel displays) prove difficult, if not impossible, to use in a dynamic mobile environment. AR system development revolves around the use of modern interface devices, features, and methodologies that allow the user to concentrate on real-world tasks while seamlessly enhancing the real-world experience with useful data.

The coherent integration of supplemental visual data to the user via a see-through HMD constitutes the principle means of achieving an enhanced human-machine interface. High-quality HMDs for AR use are still under development, and several different approaches to accomplishing the display of visual data exist. An optical see-through HMD is a semitransparent display that allows the user to see the real world directly, projecting visual data on the inside of the screen in front of the user's

eyes. A video see-through HMD has an opaque display and uses head-mounted video cameras to provide the real-world view, incorporating both the video and virtual data onto the opaque screen. Each approach has benefits and drawbacks for law enforcement use, depending on the application and operational environment where used.

“AR is a mobile technology designed to improve situational awareness and speed human decision making.”

Another option for both optical and video see-through HMDs is a one-display configuration that mounts a single display over one eye, leaving the other eye completely unobstructed. The latest development in HMD technology, the virtual retinal display (VRD), uses low-powered laser light projected directly on the retina to display information. Providing the benefits of the optical see-through display, the VRD can exhibit high-resolution graphics, even in bright sunlight.

To be effective, such devices must overlay textual and graphical data precisely within the

user's field of view, correctly associated with relative real-world objects. For virtual images to be correctly and accurately overlaid or “registered” on the HMD, the AR system must have the capability to continuously track the user's head movements, exact position, viewing direction, and real-world orientation.³

AR systems employ a variety of mechanisms to accomplish this tracking, such as mechanical, magnetic, acoustic, inertial, and optical sensors or a hybrid combination of several of these technologies. Of particular concern to law enforcement is the need for the tracking system to function accurately outdoors in open terrain, as well as indoors. Outdoor tracking proves a much more difficult problem for AR systems and depends heavily on GPS (the U.S. Department of Defense's Global Positioning System), dead-reckoning techniques,⁴ compasses, and gyroscopes to achieve accurate image registration in unprepared environments.⁵ Sensing the entire environment in real time using a hybrid tracking system to accurately determine the location of the user, as well as natural and manmade terrain features, is a necessity and a hurdle that technology has yet to fully overcome.

Voice-activation, speech-recognition, and text-to-speech technologies take advantage of the most natural form of human communication. The use of

sonification—the translation of nonaudible data into an acoustic signal—can facilitate rapid interpretation and comprehension of data. Haptic interfaces allow users to feel various data components that lend themselves to touch or heat sensations. Augmented cognition programs using artificial intelligence could provide a comprehensive situational context to the user, combining location, the presence of other people and objects, actions presently occurring, user goals, and other situational components to help determine the best course of action.

While several current research programs in the United States are examining AR technology, until recently, none of them had explored the application of AR to policing. The Futures Working Group currently is working with the Naval Research Lab (NRL) in Washington, D.C., to examine AR applications for policing. Based upon NRL's battlefield augmented reality system for the U.S. military, a law enforcement augmented reality system test-bed project will look at potential uses of AR in policing and explore the various components and configurations to best serve the needs of the law enforcement community.

LAW ENFORCEMENT APPLICATIONS

Preliminary research indicates a number of likely law

enforcement applications where AR technology could advance officer performance well beyond current levels. The true strength of AR will rest with its ability to improve the situational awareness of an individual officer or networked team of officers by employing a number of related technologies, alone or in combination, to accomplish law enforcement-related tasks and



missions. Devices and technologies that could be incorporated into a law enforcement AR system include night and thermal imagers; biometric, chemical/biological, and explosive sensors; identification and tracking of moving and stationary objects; and real-time speech translation and text-to-speech systems.

Patrol duties, special weapons and tactics (SWAT) operations, investigative situations, training efforts, and management issues provide merely a partial list of potential uses. Only

the knowledge and creativity of law enforcement officers will limit the actual number and type of eventual applications for AR technology.

Patrol Duties

Uniformed patrol officers will have many potential uses for AR technology over a wide range of scenarios. Among them are a variety of applications to facilitate interaction with a diverse population and to detect criminals and crimes in progress.

- Real-time language translation, along with data on cultural customs and traditions, could strengthen police ties with minority groups and improve information flow to police.
- The immediate display of real-time intelligence about crimes and criminals in the patrol area could foster appropriate patrol actions to reduce crime.
- Facial, voiceprint, and other biometric recognition data of known criminals would allow officers to identify wanted subjects merely by observing people on the street.
- Integration of chemical, biological, and explosive sensors could notify officers immediately of any local contamination and recommend appropriate protective measures that they could

take for themselves and the public.

- The accessibility of scalable, three-dimensional maps (complete with building floor plans, sewer system schematics, public utility information, and public transportation routes) could improve situational awareness and response to problems.
- The availability of patrol car operator data and regional traffic management information could make driving safer and more efficient, especially in pursuit and rapid-response situations.

SWAT Operations

AR could make SWAT operations safer and more effective. Basically, it could improve situational awareness during dynamic and dangerous incidents, enhance communication between team members, and provide better coordination with command personnel.

- Advanced audio could moderate the audible intensity of gunshots and explosions, but provide superior hearing capabilities over long distances.
- Advanced optics could provide zoom, thermal, and infrared imaging for the location and apprehension of fleeing criminals.

- Identification friend or foe (IFF) technology, worn by every law enforcement officer, could reduce or eliminate friendly fire casualties by visually, audibly, or haptically highlighting fellow officers.
- The human-machine interface could expand to include robots and other mechanical devices that could extend human capabilities to remote locations through physical, virtual, and haptic interfaces.⁶

Of particular concern to law enforcement is the need for the tracking system to function accurately outdoors in open terrain, as well as indoors.

Investigative Situations

AR could enhance investigators' abilities to gather information, follow leads, and visualize large amounts of data. In turn, it would lead to an increase in the number of crimes solved and to the quicker identification and capture of dangerous criminals and terrorists.

- Speaker-recognition technology, under development, will give investigators the ability to accurately match voices against known criminals.⁷
- With advanced optics, investigators could lip-read from great distances in situations where listening devices would prove impractical.⁸
- Thermal imaging might improve interrogations by helping to indicate the truthfulness of subjects' statements.⁹
- AR video, audio, and sensing devices used to visualize blood patterns, blood stains, and other sensor-detectable forensic data could enhance crime scene investigations.
- Forensic pathology could benefit from various advanced medical imaging techniques to visualize traumatic penetrating wounds before physical autopsy.¹⁰
- The coordinated use of robots, unmanned ariel vehicles (UAVs), and law enforcement officers managed through an AR network could enhance surveillance operations.

Training Efforts

Training programs could use AR to simulate dangerous law

enforcement environments by blending real-world equipment and fellow trainees into realistic scenarios. Interactive simulations, such as shoot/don't shoot scenarios and use-of-force demonstrations, can add further realism to police training efforts.

Management Issues

Leadership from the front is a commonly talked about principle rarely employed in law enforcement. The primary reason for this lies in the difficulty leaders have with accessing and visualizing all of the available supervisory and management data while mobile.

- Using video feed from their personnel on the street, supervisors potentially could see what their people are seeing in real time.
- A three-dimensional map display of the community could contain location, activity, and status information.
- During critical incidents, supervisors could monitor the physiologic status of all personnel and make decisions concerning tactical deployment and dynamic action based upon those officers, both mentally and physically, best capable to perform.
- The use of visual, audible, and haptic cues from the supervisor could enhance

the coordination of widely dispersed units.

IMPLICATIONS FOR POLICING

AR remains an emerging technology unsuitable for law enforcement use today. Also, a number of issues with the technology currently exist that could make adoption by the law enforcement community and acceptance by the public a difficult prospect. Public sanction of civilian police with a futuristic



appearance could present a problem. Indeed, the apparent physical melding of law enforcement officers with powerful technology may induce a visceral negative reaction by some citizens.¹¹

Acceptance by law enforcement officers themselves may prove even more problematic. Bulk and mobility issues associated with the additional equipment could cause many officers to reject the advent of AR

systems, whereas appearance itself creates a major concern for numerous officers and law enforcement administrators. Many law enforcement agencies may not adapt readily to the detraction from the traditional police appearance that historically has connoted professionalism. Additionally, the AR system must be mobile, lightweight, and compact, conforming to the user's body in a way that makes it unobtrusive and nonhindering to the employment of other law enforcement equipment. It must be rugged and capable of withstanding extremes of cold and heat, as well as the rigors of street police work, attributes that the technology does not possess today. In addition, like many of the technologies available today, the cost of AR systems may inhibit agencies from purchasing them, at least initially. To this end, the law enforcement community will need to address all of these potential problems and weigh the risks and benefits of employing AR technology.

CONCLUSION

Augmented reality is a completely human-centered technology. Unlike the quest for artificial intelligence, robotics, or some other "smart-technology" research designed to eliminate the need for humans in favor of decision making by computers, AR will enhance human performance directly, allowing people

to work both faster and smarter and in full control of technology, instead of it controlling them.

AR could give law enforcement officers tremendous physical and sensory enhancement that remains completely under the user's control and responsibility. In this post-September 11th age, characterized by the criminal and terrorist exploitation of existing technologies and the serious threat that they pose to free societies, AR could become a potent tool for improved policing. The future prevention and timely termination of crimes and terrorist attacks may depend on the individual law enforcement officer's ability to rapidly process and analyze available data and take immediate action in an extremely short time frame, precisely the kind of potential capability offered by AR. Research and development efforts are underway that dramatically will improve the underlying technology in a few years. To take full advantage of the enhanced capabilities when they occur, the law enforcement profession should understand these efforts fully so it can develop the policies and strategies necessary for effective implementation. The Futures Working Group AR project, in partnership with the Naval Research Lab, will study the potential of AR and help foster the effective implementation of such systems for law enforcement use. ♦

Endnotes

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“ Preliminary research indicates a number of likely law enforcement applications where AR technology could advance officer performance well beyond current levels. ”

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The Future of Simulation Technology for Law Enforcement *Diverse Experience with Realistic Simulated Humans*

By Chris Forsythe, Ph.D.

Placed in a life-threatening, rapidly developing situation, individuals with true expertise exhibit the capacity to assess the available cues, interpret events, and quickly reach a decision concerning an appropriate course of action. In contrast, when presented with identical circumstances, a novice will display either indecisiveness, failing to comprehend events, or reach a hasty judgment by overlooking or misinterpreting vital cues. This observation applies to interactions with suspects, bystanders, and the individual's own team members. What characteristics underlie expert decision making? How can simulation technologies be used both as training and tactical tools to accelerate and enhance decision making by law enforcement personnel?

People long thought, and often used as the basis for training, that expert decision making involved a thorough consideration of the alternative courses of action and careful evaluation of the pros and cons to identify an optimum decision. However, when experts in the field were studied making real-life decisions in stressful circumstances with accountability for the outcome of individual actions, a very different pattern of behavior emerged. These individuals rarely attempted to identify alternative courses of action, and, quite often, they only considered a single solution. Furthermore, instead of committing the resources of time, attention, and mental effort to an evaluation of alternative courses of action, experts devoted these resources to understanding the cues available to them. Once the

expert had collected sufficient cues, familiar patterns emerged within these cues. The expert recognized the "situation" and, accompanying this recognition, implicit knowledge of the actions appropriate to the situation, as well as expectations of what might or might not happen, emerged. This pattern of behavior has been observed for expert decision making within a variety of contexts, including personnel involved in fire fighting, military and aviation operations, and medical and business professions.¹

Simulation as a Tool for Training Decision Making

Because of the differences between expert decision makers and novices, how might technology and, in particular, simulation technology, be employed to enhance decision-making capabilities? Tremendous investment has been placed in technologies, such as expert systems and decision support systems that seek to automate the decision-making process. While offering great promise, such technologies often have failed to meet

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expectations. Researchers have documented several problems and, in general, these technologies tend to promote disengagement by the human decision maker. Humans step aside and let the technology take over, sacrificing situation awareness and, most alarmingly, sometimes doubting their own expertise in favor of the technology. Thus, the law enforcement profession must use caution when adopting any technical solution that removes the human decision maker from the process.

Experts have experience that covers a sufficient number of events to allow them to recognize subtle patterns of cues and see similarities between ongoing and past events. With this recognition, experts anticipate what to expect next, and what actions will, or will not, be successful.

Simulation-based trainers have become commonplace tools for enabling individuals to acquire experience operating equipment, ranging from automobiles and aircraft to the control stations of nuclear power plants. However, in training law enforcement personnel, the requirements for simulation-based training are somewhat different. Law enforcement personnel need experience making decisions in situations in which other *people*, whether suspects, bystanders, or team members, are primary features. In these areas, future simulation technologies stand to have the greatest impact for law enforcement personnel.

Many current simulations, as well as computer games, incorporate human entities and allow participants to interact with those entities. It might seem that the ability for trainees to gain experience in a law enforcement role already exists. Many people are concerned that the

synthetic humans used to populate most current simulations do not provide a sufficient level of behavioral realism.²

For many years, within the simulation and computer-gaming industry, researchers have placed a heavy emphasis on accurately modeling the characteristics of equipment and providing a high degree of realism in computer graphics, sound, and other sensory experiences. Substantially less emphasis has been placed on the behavioral realism of simulated humans. In many cases, synthetic humans have been provided simplistic and predictable behavioral routines that

are highly susceptible to gaming (i.e., once the behavioral routine is recognized, players exploit this knowledge of the underlying software to their advantage).

In other cases, sophisticated artificial intelligence and machine learning have been employed to create simulated entities with a broad repertoire of behavior and flexibility to adapt behavior during the course of a single or multiple

simulations. Behavioral breadth and flexibility are only two of many factors that contribute to the realism of simulated humans. Probably, the most important attribute missing with nearly all current artificial intelligence-based simulator entities is the ability to think like humans. Granted, countless illustrations of machine reasoning exist. However, human experts prove extremely competent without much reliance on the logical operations that characterize typical machine reasoning. In contrast, realistic, human-like entities should use the knowledge and experiences unique to them to extract patterns from cues present in the environment, resulting in their recognition of “situations.” People base everyday interactions on

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...simulated humans
may be attributed
experiential knowledge
comparable to a life
history.
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an implicit understanding of this basic human cognitive process, and simulated entities must behave similarly for simulation-based training to realize its potential as a source of experience in attaining expertise in a law enforcement role.

Simulation Technology for Law Enforcement

As a training system for law enforcement, simulation technology must enhance the objective of allowing personnel to gain experience with a breadth of social interactions characteristic of those encountered by law enforcement. With simulation-based trainers, available technology spans a wide gambit with fully immersive virtual reality, using head-mounted displays and bodysuits at one end and text-based systems presented on a desktop computer at the other. Given a reasonably high level of fidelity with respect to the tasks being trained, little or no additional gain in training occurs from having high fidelity in other dimensions of the simulation.

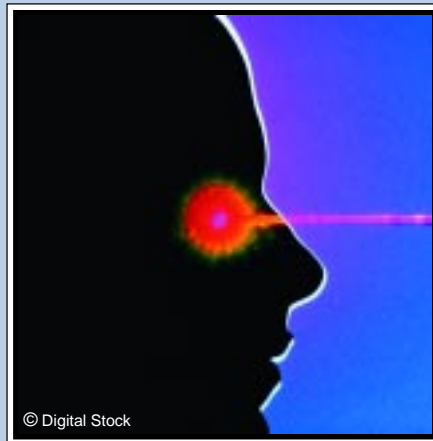
A notional simulator trainer might include a three-dimensional computer graphic representation of a variety of residential, commercial, industrial, and other settings with an ability to naturally move about, look around, and direct actions (e.g., aim a firearm, point); a variety of computer graphic representations of human figures that move naturally, display appropriate gestures and expressions, and exhibit realistic patterns of speech; and a capability for the trainee to speak naturally and the simulator to comprehend that speech and direct the behavior of simulated humans accordingly. While an integrated system currently is not available off the shelf, each of these technical

capabilities exists with varying degrees of maturity and integration. Fully integrated systems should be available and affordable within the next 5 to 10 years.

Current research and development at one research laboratory provides a framework for creating highly realistic simulated humans. Specifically, these synthetic entities process cues and interpret situations in a manner consistent with decision-making processes, presenting a computer-based entity human-like at the level of its most basic cognitive operations.

Within the framework developed by this laboratory, the behavior of simulated entities is a direct product of the knowledge attributed to those entities. At the most basic level, this knowledge consists of three components. First, situations occur where knowledge involves contexts conducive to specific actions, although the action may be to do nothing. For example, “take a hostage,” “don protective clothing,” and “hide” each might denote situations. Second, cues exist, such as “presence of marksmen,” “sound of a diversionary device,” or “availability of a hiding place.” Finally, knowledge of the patterns and combinations of cues that give rise to recognition of different situations must be present.

At a slightly more sophisticated level, the knowledge attributed to simulated entities would include emotional associations with cues and situations. Emotional processes are important to achieving realism due to their influence on the attention directed to cues and situations. Specifically, when a cue has a strong emotional association (e.g., association between a snake and fear), attention is focused on that cue while other



equally salient or important cues are neglected. Given simulated humans that respond in this manner, trainees may explore the use of tactics that seek to intentionally evoke an emotional response.

At an even more sophisticated level, simulated humans may be attributed experiential knowledge comparable to a life history. This is believed particularly important because, arguably, how people interpret a situation is as much a function of their unique life experiences as other knowledge that they might possess. In the course of a simulation scenario, various events may trigger the recall of past experiences, including emotional associations, with the simulated entity interpreting ongoing events relative to those past experiences. Furthermore, trainees may be provided full or partial knowledge of these past experiences, or even erroneous information, and allowed to use this information in their interactions with simulated entities.

Researchers are developing tools that will automate the process of creating simulated entities. Thus, unlike most current systems in which a single or a small collection of simulated entities exists, the number of simulated entities will be unlimited with each entity possessing unique knowledge, emotional associations, and life histories. Consequently, trainees may interact with a variety of individuals.

An even greater diversity of experience may be attained by presenting simulated entities that exhibit cognitive and behavioral characteristics consistent with various psychopathologies, as well as basic personality traits and degrees of intelligence. For example, by manipulating parameters underlying the cognitive operations

of simulated entities, certain personality traits (e.g., extroversion/introversion) may be manifested. Similarly, other adjustments may produce cognitive behavior typically observed with certain psychopathological conditions, such as schizophrenia. In addition, it also should be possible to simulate the effects of fatigue and certain psychogenic substances (e.g., amphetamines).

Other developments focus on creating the ability to represent, in a simulated entity, the knowledge and, to some extent, experiences typical of individuals from specific cultures or groups. Taking these capabilities a step further, it becomes possible to create entities representative of specific high-profile individuals. For example, this technique may be used with cult leaders for whom a vast record exists of their past experiences, writings, correspondences, and speeches.

Other Applications for Simulation

While future capabilities for simulation technology primarily address the needs for law en-

forcement training, two other applications also may prove useful. First, simulation may be employed in a mission rehearsal capacity. Before being sent to clear a building, trainees may conduct the operation, including potential interactions, using simulation. This would expose personnel to a wide array of various contingencies that might arise during the course of an operation. Furthermore, in high-profile cases, this same capability also may allow negotiators to explore various approaches in dealing with known individuals and to see the range of potential reactions certain tactics may produce.

Second, simulation may be used as an analysis tool. In this capacity, alternative tactics and

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...simulation may be employed in a mission rehearsal capacity.

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team compositions may be explored, lethal and non-lethal weapons assessed, and vulnerabilities in facility and other security operations identified.

Conclusion

Law enforcement personnel exhibit various characteristics during the decision-making process. To further enhance decision-making capabilities, agencies can use simulation technology as a training method for their officers to gain experience in various situations.

The key development in simulation technology that benefits the law enforcement profession involves the ability to interact in a natural manner with highly realistic and diverse simulated

humans. These capabilities are not yet available; however, rudimentary capabilities have been developed. Currently, research laboratories are working on simulation technologies to provide the full range of capabilities that the law enforcement profession needs, as well as to offer them in packages that departments can afford. ♦

Endnotes

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Private Investigation and Process

Serving by Raymond P. Siljander, Charles C. Thomas Publisher, Springfield, Illinois, 2001.

Private Investigation and Process Serving contains investigative, protective, and serving concepts; technical information; and investigative recording forms to support operations, all presented in nontechnical language. At the same time, it offers the extensive mental and physical skills required of an effective and competent private investigator and process service representative.

Section I covers many quality aspects. It contains outstanding peripheral information involving field tips for process servers with the greatest value to the reader being the manner in which the author illustrates a way of thinking “outside the box” that lends itself to the completion of the investigative mission. This section presents the minimum criteria that private investigators and servers must possess, including a list of tools, equipment, and supplies needed to sustain an investigation and meet the evidence needs of attorneys. It also contains examples and applications of “pretext” investigative techniques, such as establishing and using telephone lines and

numbers. The author shares comprehensive undercover investigative and interview strategies by private investigators that law enforcement officers can use when interviewing and interrogating subjects. He discusses techniques of determining the signs of innocence or guilt, identifying and responding to suspect and subject resistance, and understanding “roping” methodologies, including eyewitness identification and testimony aspects.

Section II addresses process serving as an officer of the court, ranging from training and licensing requirements, liabilities, and unacceptable investigative behaviors to what constitutes proper and improper server rules and criminal charges for their violation. It also covers types of serves (e.g., complaints, summons, detainers, subpoenas, and protection orders) and fees chargeable to the court (e.g., client and affidavit billing with written examples). This section’s major contribution is the identification of 88 field tips for servers, with an excellent caution and important-to-know statement.

The author addresses physical surveillance through the practical application eyes of the private investigator, with extensive experiences ranging from personal and physical qualifications of a surveillant to conducting fixed (e.g., structure, concealed area, and motor vehicle) and mobile (e.g., motor vehicle and foot) surveillance. He also covers other topics from identifying subjects and selecting proper surveillance techniques for case effectiveness to using various locating and tracking systems and aids for visual surveillance extension and enhancement.

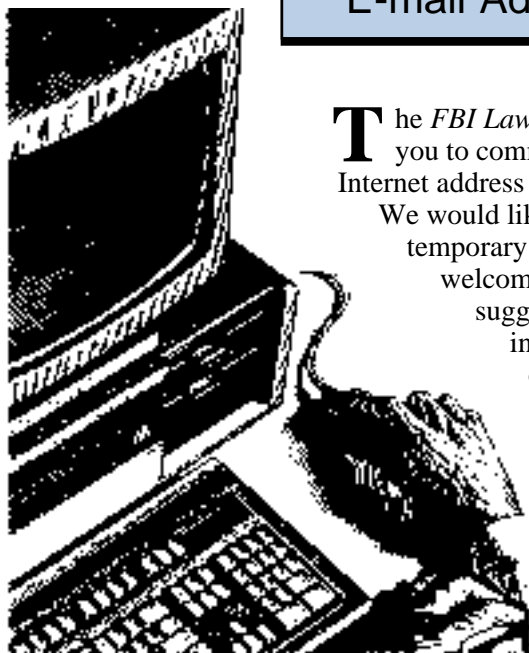
The book presents well-documented information on bodyguard service (executive protection), which includes techniques for

conducting risk management, vulnerability analysis, and threat assessment and for planning protective programs. It also describes walking and driving defensive and offensive protection methods of executive protection and safety, as well as the functional techniques and methods employed by bodyguards, including report writing requirements, forms, and examples. In the business management portion of the book, the author emphasizes that the private process server must be adept at reading the operational environment, behavior clues, neighborhood dynamics, and the predictable nature of people.

Overall, *Private Investigation and Process Serving* stands as an excellent work that can assist practicing criminal and defense attorneys and their staff members who should find its contents beneficial in many aspects of case preparation where they need assistance from a private investigator. It also can help the aspiring, as well as the experienced, member of the private investigative service.

Reviewed by
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The *Bulletin's* E-mail Address



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Educating and Training the Future Police Officer

By MICHAEL BUERGER, Ph.D.

The vision of a college-educated police profession is a dream almost a century old and, moreover, a dream still unrealized. Both policing and higher education are tradition-bound institutions with divergent interests. The internal concerns of each occupation has had greater immediacy than a discussion of how to build an educational curriculum with common purpose and benefit. Though advancements have been made since the 1960s, the old issues remain salient, even as current events and rapidly evolving technology add new ones.

As new challenges present themselves, policing still is struggling to realize the benefits of older commitments and reforms. It is time for a new dialogue between the law enforcement and academic communities to better integrate education with the training and service needs of



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agencies. By cooperatively identifying current and future needs, police professionals and academicians may develop tools to address both lingering promises and emerging challenges. To this end, a look at the existing system of criminal justice education, the history of the uneasy alliance of policing and education, the differences between education and training, and the future needs of

the law enforcement profession can offer some guidance for creating a stronger link between education, training, and an end result of improved police services.¹

A THREE-TIERED SYSTEM

Over the years, criminal justice education has developed three distinct types of programs,

linked in many ways to the entry-level qualifications of policing. The first step on the ladder remains the high school diploma or general equivalency degree (GED), which seems to depict the “industry standard” despite considerable change elsewhere. An improvement over the previous era’s lack of educational standards, it, nonetheless, remains a relatively modest criterion. Once hired, the recruit attends a police training academy (ranging from about 400 hours to almost a year, depending upon jurisdiction) to study a wide range of topics, most of which the state Police Officer Standards and Training (POST) Board or equivalent body has mandated. Topics covered include domestic violence, defensive driving, multiculturalism, interpersonal communications, firearms retention, the criminal code, basics of forensics, introduction to weapons of mass destruction, and many others compressed into as short a program as possible.

The associate degree, a 2-year program, constitutes the middle rung on the higher education ladder. Some programs offer purely academic courses; others incorporate basic law enforcement certification into their 2-year curricula. Many states have integrated their mandate-based police training into their 2-year programs on a preservice basis. Students who complete criminal

justice programs in those settings often earn both an associate degree and certification necessary for employment.

At the third level, an increasing number of police agencies now require the 4-year bachelor’s degree as a hiring credential. Generally regarded as part of the social sciences, 4-year criminal justice programs focus more on research than on skills training, in accordance with longstanding dictates of the disciplines. Students learn criminal

“The future will create new training needs not currently standard in either college programs or police training academies.”

justice from a systems perspective and generally are taught skills in research methods and statistics, rather than interviewing or managing problem individuals. Bachelor of arts and bachelor of science degrees are awarded either by an independent criminal justice department or from programs within another discipline, typically sociology, public affairs, or political science. The 4-year programs

continue to follow the social science model, offering knowledge about the system and developing skills to study the system. Training academies instill the skills to function adequately within the field as currently constituted (and hopefully lay the groundwork for successfully coping with changes in the social and legal environments).

Speaking broadly, the law enforcement profession apparently has not known what to do with a college education. Although college-educated persons have succeeded in policing, “education” seems to remain tied in an abstract way to professionalization and more optional than necessary. For example, the degree from the substandard institution can carry as much weight as that from a flagship university; professional development through additional training can count as much or more in promotional processes than mere education; and training itself still begins at the level of the least skilled, rather than the more educated. In addition, the assertion that the credential indicates a more rounded person, of broader vision, who can be molded into a superior police officer remains difficult to prove in more than anecdotal terms. Nor has the criminal justice degree necessarily proven itself valuable as a preparation credential; after all, many of today’s college-educated officers hold degrees from

other disciplines, ranging from English literature to chemical engineering.

On the other hand, higher education has taken great pains to distinguish itself from “training,” even though a portion of police academy training already falls under the guise of the liberal arts discipline in some states. Many programs rightfully boast of widening their students’ perceptions and ability to think critically about topics, but most criminal justice curricula focus on understanding criminal justice theory and practice through the lens of social science research. In turn, the best students possibly may leave educational institutions with well-honed skills of analysis more suited for academia than for their chosen occupation. If they present themselves for employment with abilities that their employers will never ask them to use but without those with direct application to their professional lives, then the net result is the “educated individual” whose professional development begins only after being hired.

In the end, though, both training and education compete with a cultural view that experiential learning constitutes the only real preparation for police work. The platitude of “Listen, kid, forget all that stuff you learned in college or at the academy” still can be heard in some

quarters. Experience even has a toehold in the hiring queue, as many agencies accept 2 years of military service in lieu of 2 years of college, apparently on the grounds that the experience is somehow equivalent to a formal education.²

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A SHORT HISTORY

The awkward marriage of policing and education is a legacy of the 1967 *Report of the President’s Commission on Law Enforcement and the Administration of Justice*, which forced a formerly insular profession to confront the weaknesses in its structure. In the wake of widespread dissatisfaction over crime rates, police relations with minority citizens, and police handling of civil rights and antiwar protests, the report proffered “better-educated police officers” as a vehicle for change.

Criminal justice education grew out of the handful of police science programs that existed at the time. It expanded rapidly with the availability of Law Enforcement Education Program (LEEP) funds from the Omnibus Crime Control and Safe Streets Act of 1968. The creation and rapid expansion of those programs proved erratic, as practitioners often were thrust into faculty roles to meet demand. This led to criticisms that the educational component was weak, with credit given for training (or, worse, for “war stories”) containing no thinking component comparable to the established collegiate majors.

As a result, the criminal justice discipline continues to fight a battle for legitimacy within the educational community, seeking to shed the early stigma of “Handcuffing 101.” The antidote within higher education has involved replicating the methods and standards of criminal justice’s parent disciplines—sociology, psychology, and political science—emphasizing research methods and statistical analysis as a way of understanding system outcomes. Except in rare cases, the 4-year programs have not developed personal skills components comparable to the clinical portion of medical training. Overall, graduates may appear better prepared to become social scientists, rather than

police officers, although exceptions to such a sweeping statement certainly could exist.³

Since the 1970s, economic forces have altered the framework. As legislative mandates have added to the skills core of traditional training curricula, employer-sponsored training has become more expensive. To compensate, mechanisms for preservice certification, which places the financial burden for training on the prospective employee, have created training programs in academic settings. As a result, despite misgivings, 4-year programs end up giving academic credit for completing police academy training in some systems under the transfer rules that carry 2-year students into the 4-year institutions (even though the actual number of credit hours tends to be limited).

DIFFERENT GOALS

Education and training are fundamentally different tasks, though in an ideal world they should complement each other. Education should prepare students to succeed in any training regimen or philosophy or in any occupation, regardless of their academic major. The process of education is less a transfer of fact or philosophy than that of obtaining the skills of learning how to learn. A college education is designed to build within each student the ability to critically

assess new situations, undertake new learning as needed, and even to question the “facts” and underlying assumptions of existing canons of knowledge, when necessary. Educated individuals who graduate from college or university possess abilities that transcend even the most specific vocational aspirations (e.g., singular areas of study, such as premed and prelaw), as well as multiple changes in career trajectory.



By comparison, training systematically builds particular skills to achieve certain ends. The oft-expressed idea that a person “falls back on training” in high-stress situations embodies one aspect of training goals, the repeated achievement of a desired action (and result) in a variety of contexts. Although the “Handcuffing 101” pejorative of higher education implied that skills training is physical (and education, therefore, mental),

police academy training curricula also contain a growing number of topics that embody a learning component quite different from the strictly tactical mastery of wrist locks and Weaver stances, such as the nuances of domestic violence and child abuse, multicultural issues, and legal rights of the accused. Moreover, several dimensions distinguish criminal justice education from police academy training, including the amount of time spent on material, the different educational and experiential credentials of the instructors, the nature of testing and grading, and the scope of application beyond a particular vocational setting.

While the course title “Criminal Law” may appear the same, a university may feel that the “cookbook” approach of some police academy training courses—learning the material elements of each category of offenses in the criminal code—does not compare to the broader approach that examines the underlying philosophy of law, the nature of legal reasoning that informs U.S. Supreme Court opinions, and other similar issues. By the same token, though, law enforcement agencies need someone who can write a report that materially supports an affidavit and court complaint for robbery or burglary. Therefore, in a well-developed system, the collegiate

process would feed well-prepared individuals into a police training process that capitalizes on their education, thus creating a complementary approach to improving police services.

DIFFERENT STRENGTHS, DIFFERENT WEAKNESSES

The future will create new training needs not currently standard in either college programs or police training academies. New developments in technology will create a need for investigators who can cope with the criminal uses of those technologies. The sheer volume of financial crimes perpetrated via computer hacking and identity theft will exceed the capacity of federal agencies to investigate. If local police do not adapt to the need, private resources likely will fill the gap or leave local jurisdictions and their constituents without legal recourse.

Most police training curricula and most traditional social science-based criminal justice programs lack the ability to prepare students to deal with technology-based crime or with financial crime. Those skills are taught in business and computer science programs in universities and elsewhere. Originally promoted as an interdisciplinary field of study, criminal justice has narrowed. The struggle of criminal justice programs for legitimacy within the higher

education sphere has forced them to hew close to the doctrinal requirements of the parent disciplines: sociology, psychology, and public administration. Doctoral-level faculty come from those disciplines and may model their programs on their own courses of study.

The social scientists who teach how to draw valid conclusions by analyzing databases do not have the skills to teach students to deal with distraught, intoxicated, scared and aggressive,

Education and training are fundamentally different tasks, though in an ideal world they should complement each other.

or deceitful individuals. Nor are they necessarily the best persons to teach students how to recognize behavioral manifestations of mental illness or emotional disturbance; those clinical skills are taught by nursing or social work programs.

It also may be that police instructors do not have those skills either, preferring norm-driven instruction that focuses on

officer safety. Historically, few practitioner instructors met (or even understood) the levels of scholarship demanded by colleges and universities, though that has changed dramatically in recent years. Practitioners able to integrate macro-level social science knowledge with street-level experiential learning remain a scarce commodity.

That said, there should be no reason that a preferred college education cannot be an interdisciplinary course of study that encompasses both understanding and a usable skill set that undergirds subsequent training. A variety of baccalaureate programs have a clinical component that involves developing skills with direct application to the job market under the tutelage of seasoned practitioners. The medical and psychological sciences have such a mix, as do accredited programs in social work. Many criminal justice programs allow or require internship or practicum experiences, providing a framework to develop a comparable “clinical” aspect to criminal justice education.

With all of these factors in mind, what can the law enforcement and academic communities do to improve the balance between educating and training future police officers? Three main models—creating a new model of interdisciplinary criminal justice degree;

modifying the existing social science curricula to similar effect; and placing greater emphasis at the point of hiring upon the course of study, rather than on mere possession of a degree—demonstrate some possible approaches.

Model 1: A New Interdisciplinary Approach

The faculty of the top academic criminal justice programs came from a wide range of fields, such as sociology, psychology, urban planning, political science, and public affairs. They applied the tools of those disciplines to the study of the criminal justice system, offering different perspectives and raising different questions. In the more than 30 years since that time, the field has become homogenized, with a fairly standard set of curricular offerings common to most programs, built upon an ever-expanding body of research findings.

In a newly multidisciplinary approach, criminal justice programs might require a specified number of hours in accounting, computer science, and ethnic studies, in addition to the social science core of criminal justice. If the old concern that “the new kids don’t know how to talk with people” remains, then the programs might consider including drama classes, public speaking, or even courses in the great

antithesis of policing, social work, that require students to interact in person with people. The whole idea is to use the academic environment to teach the thornier social lessons so difficult to approach in police training settings. The academic atmosphere is different, less politically or emotionally charged, and the venue allows for a more pluralistic (i.e., not “all cops”) exploration of the issues raised.

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Teaching “multiculturalism” or “cultural sensitivity” in a police training environment often results in an awkward experience for instructor and attendees alike. Exposure to different cultures through educational study may be a better, more results-oriented approach. The exploration of new ideas occurs over a longer time and requires a different level of engagement than an 8-hour in-service training

session. Using literature and a variety of media, educators can present and discuss related issues in a manner that police training typically does not accommodate. Understanding of other cultures becomes a foundation—even if a fairly narrow one—upon which police training can build, as opposed to a bolt-on module that flies in the face of police cultural norms and becomes something to be endured, rather than adopted.

Model 2: Adapting Existing Programs

Creating new programs represents a visionary approach that may be possible in institutions that do not have a criminal justice program. The larger reality is that the institutions with existing criminal justice programs are unlikely to make radical changes without cause. Issues of academic tenure and contractual matters are as real as their counterparts in policing. The study of criminal justice will continue as a social science pursuit, with the programs serving those who aspire to the professoriat, as well as those with ambitions toward becoming police officers, detectives, or federal agents.

Change in academia will not come about without a strong signal from the receiving professions, those who ultimately will hire the products of academic endeavors. If the field speaks with a

concerted voice about the need for certain skills and emphasizes hiring individuals with those skills, then academia will move to provide them. For example, it is gratifying—if a bit surprising—to have police agencies complain about the lack of writing skills of some college graduates and interns. Given the competitive marketplace of higher education, “employability of graduates” remains a selling point for many institutions.

Model 3: Course of Study, Not Major

The third option does not require institutional change on the part of academia. Instead, it places the onus on the aspiring police professional. If the field signals that it considers proof of certain skills, acquired in an academic setting, as a bona fide occupational qualification, the existing programs will make the recommendation, and the students will seek the courses themselves. Academia already gives such direction concerning second languages and accounting skills (for those who aspire to be federal investigators); it easily could do the same for clinical skills. Students will have to surmount institutional barriers, such as the unavailability of prerequisite courses and those requiring academic major status. Nevertheless, if the field provides the signal, an impetus exists for institutional adaptation,

and it well may be that this third model might ultimately turn into the first, a third-generation criminal justice major that is multidimensional.

CONCLUSION

During a coffee-break conversation at a training session, a police officer said to the author, “No offense, Doc, but I could teach the useful parts of your 4-year program in a day.” His point

“By cooperatively identifying current and future needs, police professionals and academicians may develop tools to address both lingering promises and emerging challenges.”

was essentially correct if the only things that counted were the factoids students could recall 3 years after graduation. The author countered with the observation that he could fill the 4-year curriculum with war stories and the students would leave the program as ignorant as the day they arrived.

Both points were equally valid and equally off the mark. Without integration, neither

formal study nor secondhand experience is an adequate preparation for the demanding tasks of police work. Experience is an important teacher, to be sure, but the old adage remains that fools can learn from their own mistakes. Wise individuals minimize their mistakes by learning from the mistakes and successes of others. Both training and education share the mandate to make such learning possible. A future in which the two endeavors complement each other can occur, but appears unlikely to happen of its own accord. A dialogue that explores the needs of the law enforcement profession and the capacities and possibilities of the academic field is needed to fuel such change; the challenges of the future should create the spark. ♦

Endnotes

¹ The author based this article on his experiences as a police officer and academician, as well as his close association with numerous law enforcement professionals.

² Such a view is anathema in academic circles. Instead, the value of military service is recognized as a complementary process and as a maturing influence, but not as comparable to formal education.

³ The author acknowledges the probability of local exceptions. It is not possible, however, to know the offerings of every program in the United States without an extensive research effort far beyond the scope of this article.

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The Bulletin Notes

Law enforcement officers are challenged daily in the performance of their duties; they face each challenge freely and unselfishly while answering the call to duty. In certain instances, their actions warrant special attention from their respective departments. The *Bulletin* also wants to recognize those situations that transcend the normal rigors of the law enforcement profession.



Officer Horner

Early one morning, Officer Cody Horner of the Shakopee, Minnesota, Police Department observed smoke pouring out of the windows and roof of an apartment building. Officer Horner entered a hallway of the building but, after pounding on two apartment doors and alerting occupants of the fire, was forced to retreat from the heavy smoke. After gaining air outside, Officer Horner crawled into the same hallway and alerted many more residents of the growing fire. Numerous occupants exited the building during this time. The local fire department advised that because of Officer Horner's willingness to put his life in danger, all of the residents of the apartment building eluded the fire and reached safety.



Officer Guest

During a tropical storm, Officer Rodger Guest of the Bedford, New York, Police Department responded to a residence that had partially collapsed and shifted on its foundation due to fallen trees and a mudslide. Two residents were trapped in the basement, which was rapidly filling with storm water that already had risen above waist level. Upon arrival, Officer Guest found all normal entryways to the basement blocked. After locating a small opening in the foundation, he crawled under a porch and began to break away stone and mortar. Assisted by local firefighters, Officer Guest made an opening large enough to pull the homeowners to safety. Officer Guest's efficient response was instrumental in saving the trapped residents.



Officer Evans

While off duty but in uniform, Officer Lee Evans of the West Windsor Township, New Jersey, Police Department received notification of a motor vehicle accident in which the car involved had plunged into a 12-foot-deep canal. Officer Evans immediately arrived at the scene and, observing the vehicle sinking into the frigid waters with a man trapped inside, entered the water without concern for his own safety. With the help of four passing motorists, Officer Evans broke out the rear window of the vehicle and then remained with the individual, bringing him to the surface of the water. After helping the victim to the bank of the canal, Officer Evans, with the assistance of onlookers, lifted the man out of the water. Officer Evans' quick and selfless actions under extreme pressure saved the motorist's life.

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Patch Call



The patch of the Unalaska, Alaska, Department of Public Safety depicts the southwest portion of Alaska's coastline and the Aleutian Islands along with a crab and a fishing vessel, which represent the staple of the city's economy. Unalaska's shipping port, the International Port of Dutch Harbor, is a leading seafood producer.



The patch of the Mississippi Highway Patrol features an eagle with extended pinions, holding a palm branch and a bundle of arrows in its talons. The red, white, and blue on the eagle's chest symbolize the American flag. The phrase, "Virtute et Armis," or "By Valor and Arms," serves as the motto of Mississippi.