Using Technology for Problem Solving

by Julie Wartell
and Fiona Greenhalgh

Have you seen the headline "Using Computer Technology to `Follow the Money'"? How about "Computer Gets Credit for Arrest" or "Web Technology Helps Trace Kids"?

Whether it was link analysis, stated phone dialing system or an innovative use of the Internet, these were all real headlines based on actual stories. And this only reflects a few of the thousands of public safety success stories that probably could not have occurred without the help of technology.

information technology has emerged as an indispensable tool for law enforcement in the last decade. Some say the computer is changing policing today the way the two-way radio changed policing in the 1940s. A recent survey by the Bureau of Justice Statistics found that in 1997, 29 percent of police departments were using in-field computers or terminals, compared to only 5 percent in 1990. Similarly, a 1997 National Institute of Justice Crime Mapping Research Center survey found that 13 percent of law enforcement agencies were using computerized crime mapping, while another 20 percent planned to purchase mapping software within the year. In the 1980s, one would have been

hard pressed to find more than a handful of departments that used automated crime mapping.

So what does all this gee-whiz technology do for problem solving? Information technology supports problem solving in a number of ways. What if you could identify problems easier and quicker? How about helping you better analyze a complex problem with lots of suspect, victim. and location information? Maybe your response entails educating a neighborhood about an auto theft problem- would you prefer to walk door-to-door or use technology to get the same message out? Perhaps a quick and simple way to evaluate your efforts might please your supervisor, the community or even the City Council.

Our tour starts at the beginning of the. process—getting the information. From there, we will take you through the SARA problem-solving model.

Getting the Information

You can't identify a problem without first being able to access crime- and disorder-related information. How often have you made copies of all the reports you think might be related, read them trying to look for patterns, and then discovered that there is information missing or maybe you can't even read the officer's handwriting? Mobile computers and field reporting systems are new technologies

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that improve the quality of the information obtained from officers in the field. Officers carry laptops with them in the field and take reports using multiple data entry screens to capture all the elements of a report. Pre-defined options help officers make better data entry choices and reduce the time it takes to complete a report. Once completed, the reports are electronically entered into a records management system where the people who need them, such as records, investigation, and crime analysis can view accurate, legible reports.

Scanning

Scanning is about identifying your problem. Identifying a problem means looking for multiple incidents that are related. Officers might identify a problem based on their own repeated response to similar incidents. But what if the incidents occur across different watches, when other officers are responding? If the officers are not talking to each other, the problem may never be identified. Technology can help identify problems that might be less obvious to a single patrol officer.

Crime analysis units help identify problems by using information from the Records Management System (RMS) to create crime bulletins that identify similarities in locations, victims, suspects, days of the week, time of day and targets.

Computer. Aided Dispatch (CAD) can be used to identify locations that get repeat calls for police service. A calls-for-service report uses technology to help officers see the calls that may be coming in on another watch or on their day off, or show supervisors and managers the problem locations,

Diagrams referred to as "likely" charts use incident information to create a simple chart that shows the most frequent day and time of any number of related incidents. Not only can this be used to better identify a problem, but can be used also in the response phase, when deciding on tactics.

Finally, off-the-shelf software-in conjunction with CAD, RMS, or other data sources-with spreadsheets, databases, charts and graphs can help identify similarities in incidents that might indicate the need for some problem solving.

Analysis

Doing analysis involves asking and answering as many questions as possible about the suspect, victim and location to better understand the problem. Analysis cannot be done without people brainpower both in asking the initial questions and in deciding how to analyze the gathered information. But, much of the analysis can be done more efficiently and more effectively using technology.

Like scanning, basic analysis can be done with spreadsheets and databases. If you were trying to analyze the prescription fraud problem in your city, would you want to read through two binders of cases and try to remember patterns? Or would you prefer to use your database to quickly ascertain the most prevalent pharmacy targets, the demographics of the repeat offenders, and the most frequent drug acquired? Computerized data can be used to analyze victim and suspect information by age or m.o.; auto theft by make, model and year; or a residential burglary problem by point of entry or single versus multi-family dwelling.

More complex analysis can be done with a Geographic Information System (GIS). A GIS takes your database analysis one step further—into space. Using a GIS, your analysis can extend to visualizing the problem on a map, predicting where the next crime might occur, such as analyzing auto thefts in relation to auto recoveries. Another feature of a GIS is that you can examine multiple types of data in relation to one another. Where are the parolees living in relation to the burglary incidents? Are the auto thefts occurring in residential or commercial areas? In parks, parking lots or driveways? How far are the shoplifters traveling to the stores where they are committing thefts?

Another handy analysis tool is a Link Analysis program. Have you ever worked on a problem where there are several suspects and associates, multiple crime locations, and even more vehicles involved? A Link Analysis chart can make sense of this information and assist you with who is connected to who and what and maybe even why.

Response

Use of information technology is one facet of an effective response. Problems that require enforcement can use technology tools to narrow down the targets. If educating and involving the community best resolves the problem, other technology may come in handy.

If you need to notify a community about auto thefts occurring in their neighborhood, you could walk door to door and contact the residents. Or, to make that system more efficient, you could use an automated notification system to blanket the target area with a pre-recorded phone message informing citizens of the auto thefts and what they can do to protect themselves. These systems can be linked with your GIS to narrow down the necessary calls quickly and easily. You would probably waitt to give the community information about the times and locations of these auto thefts, so you'd hand out a copied summary and map of the last month's activity at the next neighborhood meeting. Or, if you use web technology, you could hand out the address of your department's web site instead, where crime statistics and maps by neighborhood are updated regularly.

Assessment

Now that you've responded to the problem, you probably want to know if your responses worked, Technology can assist you-whether it's charts and graphs, maps or a more complex evaluation. For the data, you'll likely go back to the CAD, RMS, another database or GIS. Use the charts and graphs to show changes in numbers of calls for service, crimes, arrests, citizen complaints, etc. Use maps to show reductions in incidents or displacement (movement of the problem). Charts, graphs and maps are easy to

do, people prefer them over lots of numbers and complex tables, and everyone would like to see if all of their effort was worth it, right?

in Conclusion

So now that everyone is problem solving and using a variety of technologies, how can we capture this information and use it as a resource? Once again, technology can turn a bulky, paper filing system into a neat and useful tracking and resource system.   any departments are now tracking their problem-solving or POP projects in a computer.

Your agency can create its own application or purchase a commercial one, such as POP Track. POP Track is an example of a user-friendly application that runs queries and reports about your agency's problem solving efforts. It also contains a customized resource database for contacts, agencies and phone numbers that your department uses for problem solving.

Another form of a POP resource database is POPNet. POPNet is manag ⊂ PERF and contains extensive information about POP projects from around the world. If you would like to find out ideas for analysis, response and assessment for disorderly conduct, auto thefts or other problems, check out what others have done on POPNet.

At this point you might be thinking, "Sure, this all sounds real cool, but my agency doesn't have the budget for all this fancy technology." Believe it or not, there are lots of cheap and free things you can do to improve your agency's use of information technology. First, check out what other agencies are doing and copy them-no need to "reinvent the wheel." Use off-the-shelf software when you can't custom design your own, and find out what's available free from the government or other agencies (such as PERF's POPNet). Web space is often available for free. Find some and develop your own site!

Finally, its important to remember that information technology doesn't replace the knowledge and experience of your officers, investigators and analysts, but it certainly enhances it. Access to current information through the use of the latest technology helps officers do their jobs better and also foster good working relationships with the communities they serve.

Endnotes

1. Reaves, B.A. and A.L. Goldberg *(2000). Local Police Departments 1997.* U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, February *2000.*

2. Mamalian, C.A., N.G. La Vigne, and the staff of the Crime Mapping Research Center (1999). *The Use of Computerized Crime Mapping by Law Enforcement: Survey Results.* National Institute of Justice Research Preview, January 1999.

3. "Likely" charts may be unique to San Diego PD, but similar approaches of finding the most frequent days and times are also done by other departments.

4. For more information about POP Track, see www.leanet.com or call (888) 696-LEAN.

5. For more information about POPNet, see www.PoliceForum.org or call PERF at (202) 466-7820.

Julie Wartell is currently a Senior Research and Technology Associate with the Institute for Law and Justice. In addition to having been a Crime Analyst with the San Diego Police Department and a Fellow with the NIJ Crime Mapping Research Center, Julie has done analysis and problem-solving training to officers and analysts throughout the country.

Fiona Greenhalgh has been a Crime Analyst with the San Diego Police Department for eight-and-one-half years. She is currently assigned to the Crime Prevention Unit where she works with officers on problem solving and neighborhood policing issues.

Herman Goldstein Award Call for Submissions

The Police Executive Research Forum (PERF) is soliciting nominations for its eighth annual Herman Goldstein Award for Excellence in Problem-Oriented Policing. The award recognizes innovative and effective problem-oriented policing (POP) projects that have achieved measurable success in reducing specific crime, disorder or public safety problems. The award will be presented at the Eleventh Annual International Problem-Oriented Policing Conference in San Diego, California, December 2-5, 2000. Winners will have the opportunity to present their work to a plenary session of the conference.

This competition recognizes exemplary problem-oriented policing projects. Though many previous winning projects have focused on a very specific problem in a specific neighborhood, you are encouraged to consider problems that are much larger and affect many people. Keep in mind that problems are not only geographically focused. For example, a problem may affect certain types of-people or occur---

at a certain time. Be creative: we are seeking projects that successfully resolved any type of recurring problem faced by police. Examples include drug-dealing in a strip mall, loitering day laborers, trespassers at a high school, `911 hang-ups', prostitution on a major thoroughfare, drug-dealing and gang activity in a neighborhood, drunk driving throughout a large metropolitan region, disorder and criminal activity in an apartment complex and thefts from construction sites.

The award honors Professor Herman Goldstein, who conceived and developed the theory of problem.-oriented policing. As professor emeritus at the University of Wisconsin Law School, Professor Goldstein continues to advance POP and to inspire police officers around the world.

Eligibility

All employees of governmental policing agencies worldwide who directly deliver police services to the public are eligible for the award. Agencies may submit as many nominations as they wish, While problem-oriented policing is frequently associated with the term community policing, this award process is not designed to honor all policing initiatives that fall under the "community policing" heading. Rather, the Goldstein Award exists to recognize problem-oriented approaches to specific crime and disorder problems. Submissions must address all four phases of the SARA problem-solving model. Previously submitted entries are not eligible, except that previous non-finalist and non-winning entries may be resubmitted if significant new work has been completed. To resubmit, the entry mu.st include 1) a complete summary of all the changes from the prior submission. 2) a copy of the prior submission, and 3) a detailed explanation of why the resubmission is warranted (e.g., further analysis and assessment data, or new responses devised and used.)

Watch your mailboxes for a brochure with complete submission information, or visit PERF's website at **www.PoliceForum.org** to download a copy of the brochure. **The submission deadline is May 12, 2000.** Send packages to the Police Executive Research Forum (PERT), 1120 Connecticut Ave., NW, Suite 930, Washington, DC 20036, U.S.A., Attention: Herman Goldstein Award. Direct inquiries to Jim Burack at (202) 466-7820 or e-mburack@policeforum.org.

take those suggestions into consideration because the policed, the citizens, often know better than anyone does what will be most effective. It was also clear the Serbs wanted action and to see that we were listening.

One way to do that was to show a willingness to try new strategies. It may be no more than covering a few new checkpoints or sending out patrols on different routes, but at least it is different. Just doing more of the same, when it is only marginally effective, is probably not the best strategy when the perception of inaction is prevalent. At one point, a few Marine military police put together a scheme to run neighborhood watch-style citizen patrols to accompany military patrols. Because of some legitimate concerns about how to constitute the patrols, the plan was dropped. But it showed Marine willingness to consider stepping beyond orthodox military solutions.

The Value of Problem-Oriented Policing

There was a need to understand the value of data collection and analysis. For example, mapping hot spots and c t patterns would have assisted in the placement of checkpoints and patrol mutes, and establishment of deployment patterns and shift schedules. While we generally knew that the flashpoints were the ethnically mixed neighborhoods and fault lines between ethnic neighborhoods, better data gathering and analysis could have been helpful.

Another example involved the curfew. The commanding general in the U.S. sector implemented a curfew—a sensible measure to reduce nighttime violence and arsons, and make the nighttime environment safer for the peacekeepers. But how were the hours devised? What kind of analysis was there that ensured maximum reduction of violence balanced against the antipathy earned by inconveniencing citizens?

The concept of problem-oriented policing would have proved valuable for commanders. Forces needed to understand the various problems we confronted. For example, we received many reports each day of apartment burglaries, many of them

in-progress incidents. Forces were frequently unavailable to respond immediately. Because of the impact of these incidents on the Serbs, we needed to better understand what was driving these incidents. Were they ethnically motivated? Motivated by financial reward? Encouraged by organized crime? Returning refugees looking for a home?

Although without reliable data on many of the break-ins, based on conversations with some complainants, we believed that there was a mix of causes. Rather than respond to each report, which was impossible, the Civil Affairs team devised a proactive response: post signs in Albanian and Serbian (and in English for the benefit of the Marines and UN) advising that breaking into or squatting in apartments was illegal. The signs included the NATO symbol and the U.S. flag to project authority and we posted them in about 50 apartment buildings in mixed neighborhoods. While lacking the data to understand the scope of the problem, we knew enough to recognize that there were multiple causes and that a non-traditional response might be more successful ultimately in reducing the incidents and building perceptions.

Reactive policing in that environment is limited in its effectiveness. We know that random preventive patrol is not a terribly effective deployment strategy. Police or military omnipresence was unreasonable in that environment because of the large territory, the relative small size of the force and `force protection' limitations. When troops patrolled, they went out with at least two vehicles, two long-barreled weapons, and a minimum of four Marines, and usually more. While this concentration of power served to protect the Marines and ensure Marines could respond to any hostile actions if necessary, it limited patrol coverage. Since patrol resources were valuable, they needed to be used most effectively with proactive, preventive strategies.

No Neat Division of Tasks

Military forces engaged in any type of peacekeeping operation need to be prepared to police. Whether in Kosovo, Bosnia, Haiti or Somalia, "order maintenance" and criminal justice issues are at the center of

the conflict. Policing is fundamental to a secure and viable society, so it can not be neglected by a peacekeeping force that is the first to arrive on the ground.

There is no neat division between security tasks expected of a military peacekeeping force like the Marines in Kosovo, and policing tasks that must wait for `professional' civilian police officers from the United Nations or other international organization. Although Pentagon policymakers are hesitant to suggest or support the notion of using military forces for policing functions in these peacekeeping operations, the reality is that much of what they do is what police do-maintain order and security, prevent crime and reduce conflict. Although there appears to be recent progress, at least in the United States, to establish some rapidly deployable United Nations civilian police forces, the military will be first on the scene, and important policing tasks cannot be delayed until the arrival of police specialists.

What military peacekeepers do in the early phases of an operation sets the tone and builds the foundation for all that follows and so it is critical that U.S. and allied military forces make a commitment to better understanding what we have learned about policing and their applicability to peacekeeping operations. This is not to suggest that America's combat forces be transformed into police. But I do believe American national security policymakers need to accept the fact that so long as we send American military forces on peacekeeping missions, there will be a policing aspect to those missions, and our forces need to be prepared.

Jim is PERF's Counsel and Director of Operations and has been with PERF since 1995, A major in the US. Marine Reserve, 4th Civil Affairs Group, Washington, D. C., Jim was called to active duty as the commander of the Civil Affairs detachment supporting the 26th Marine Expeditionary Unit for Operation Joint Guardian in Kosovo from June August 1999. He was in the city of Gnjilane in southeastern Kosovo. With funding from the State Department, Jim directed a PERF technical assistance project to the US. International Police Task Force (IPTF) in Bosnia. He served on the IPTF planning briefly in 1996 in Sarajevo.

Police Director, Memphis, Tennessee- The City of Memphis seeks a police director to implement change and strong leadership to its police department. The police director is the highest commissioned position in the department and reports to the mayor who was recently elected to his third term. The successful applicant must possess experience managing broad-based change, proven exemplary communication, leadership, organizational and management skills. Experience with and a strong commitment to community- and problem-oriented policing is required.

A four-year college degree and a minimum of eight years of command-level experience in a diverse urban setting are required (or an equivalent combination of education and experience).

The Police Executive Research Forum (PERF) is assisting the city with the selection process. The city offers a very competitive salary and a generous benefits package. You may find additional information at the Memphis Police Department's website, www.memphispolice.org, or at the City of Memphis website, www.ci.memphis.tn.us. To apply, send a resume, five professional references and a one-page letter summarizing your qualifications by April 7, 2000. Apply to: Police Executive Research Forum, 1120 Connecticut Avenue NW, Suite 930, Washington, D.C. 20036, Attn: Memphis Police Director Search.

The City of Memphis is an Equal Opportunity Employer.

Executive Director, Northern Virginia Criminal Justice Training Academy- The Northern Virginia Criminal Justice Training Academy (NVCJTA) provides both basic and in-service training to more than 2000 officers annually from 17 area police departments and sheriff's offices. NVCJTA operates with a staff of 30 and a budget of $2.4, million in a 71,500-square foot state-of-the-art facility on 27 acres in Ashburn, Virginia (Loudoun County). It was the nation's first academy to be CALEA accredited. The Executive Director reports to the Academy Executive Committee and Board of Directors.

Responsibilities include

1) planning, organizing and directing Academy activities in response to the needs of participating agencies;

2) providing leadership to ensure goals are met;

3) preparing and administering the budget;

4) planning for future needs;

5) ensuring compliance with state mandates and certification standards;

6) preparing Board and Executive Committee agenda; and

7) evaluating the effectiveness of training programs.

The successful candidate should have demonstrated achievement and experience in managing or administering criminal justice training or education programs. Senior military command experience at an officer candidates school will be considered, as leadership development should be an important part of future curricula. A bachelor's degree is required; an advanced degree is preferred. Candidates with senior-level police management experience are also encouraged to apply.

The Police Executive Research Forum (www.Pol.iceForum.org) is assisting the Academy (www.nvcja.org) with the selection process. Generous benefits package to include a vehicle. Salary range is $75,000 to $91,000 DOQ.

To apply, send a resume, a one-page letter summarizing your qualifications and five professional references, by May 15, 2000 to Police Executive Research Forum, Attn: Northern Virginia Academy Search, 1120 Connecticut Ave., NW, Suite 930, Washington, DC 20036

The Northern Virginia Criminal Justice Training Academy is an Equal Opportunity Employer.

Commissioner, Kentucky State Police- The Commonwealth of Kentucky seeks a civilian police commissioner to lead its state police agency of approximately 1000 officers and 700 civilians. Headquartered in Frankfort, the Kentucky State Police has 16 posts and six forensic labs located throughout the state that provide a full range of police services to 120 counties. The agency is the only provider of police services in many parts of the state and is currently pursuing accreditation through CALEA. The state capital of Frankfort is located in central Kentucky on the Kentucky River and is known for its quality of life and historical charm.

The Commissioner reports to the Secretary of the Justice Cabinet. The department's budget is $124M. The successuF . ant must possess proven exemplary communication, leadership, organizational and management skills and have experience in strategic planning and budgeting. Must be committed to contemporary policing practices. Experience with legislative issues preferred,

A four-year college degree and a minimum of eight years of administrative experience in criminal justice are required (or an equivalent combination of education and experience). An advanced degree is preferred.

The Police Executive Research Forum (PERF) (www.policeforum.org) is assisting the State with the selection process. Salary DOQ. You will find additional information at these websites: frankfortky.org, www.state.ky.us

To apply, send a resume, a list of five professional references and a one-page letter summarizing your qualifications by

May 15, 2000. Apply to Police Executive Research Forum, 1120 Connecticut Avenue, NW, Suite 930, Washington, DC 20036, Attn: Kentucky Search

The Commonwealth of Kentucky is an Equal Opportunity Employer.

Police Chief, Front Royal, Virginia- The Town of Front Royal is seeking a proven professional for the position of police chief for its state-accredited department. The department of 38 employees (29 officers) and four crossing guards has a budget of $2.1 million. Reporting to the Town Manager, the successful applicant must possess strong communication, leadership, organizational and management skills. Experience with and a strong commitment to community- and problem- oriented policing is preferred.

A four-year college degree and a minimum of five years of command-level experience are required (or an equivalent combination of education and experience).

The Police Executive Res tum (PERF) is assisting the town with the selection process. The position offers a salary in the $60s and a generous benefits package, You may find additional information at The Front Royal/Warren County Chamber of Commerce website, www,frontroyalchamber, com.

To apply, send a resume, five professional references and a one-page letter summarizing your qualifications by April 14, 2000. Apply to: Police Executive Research Forum, 1120 Connecticut Avenue NW, Suite 930, Washington, D.C. 20036, Attn: Front Royal Search.

The Town of Front Royal is an Equal Opportunity Employer.

Debate. Discuss. Question

PERF's 2000 Annual Meeting Not To Be Missed

PERF returns to the Nation's Capital for our millennium meeting at the completely refurbished and upgraded Omni Shoreham, 2500 Calvert Street NW, Washington D.C., 20008. The hotel is just off Connecticut Avenue, next to picturesque Rock Creek Park, and is only a brief Metro ride from the heart of the city.

Partial list of Topics and Speakers
Wednesday, May 10, 1:30 p.m.
to Saturday, May 13, 11 a.m.

- **PERF Town Meeting: Discussion of Today's Hot Topics**

- **The Future of Policing in Northern Ireland:** Sir Ronnie Flanagan, Chief Constable, Royal Ulster Constabulary; Commissioner John Timoney, Philadelphia Police Dept.

- **Sleepless in Seattle-the WTO Disturbances:** Chief Norm Stamper, Seattle Police Dept.

- **Drug Control Policy Debate:** Dr. Ethan Nadelmann, Director and Founder, Lindesmith Center; Chief Charles Ramsey, Metropolitan Police Dept., Washington, D.C.

- **Strategic Planning:** Dr. George Kelling, Rutgers University

- **Re-entry and Convict Release-Breaking the Cycle of Crime:** Dr. Robert Roberts, Tulane University

- **Race, Diversity and Policing:** Deputy Commissioner Ian Blair, Metropolitan Police, London

- **"Militarization" of the Police?:** Dr. Peter Kraska, Eastern Kentucky Univ.

- **Cybercrime:** David E. Green, Deputy Chief, Computer Crime & Intellectual Property, Dept. of Justice

- **Measuring What Matters:** Dr. Mark Moore, Harvard University

- **Transnational Crime**

- **Debating Issues in Police Integrity**

- **Dealing with the Mentally** Ill

- **Gun Violence**

- **1999 Herman Goldstein Award for Excellence in Problem-Oriented Policing-Winner:** Green Bay, Wisconsin, Police Department

- **Focus on Technology**

- **Police Budgeting**

- **Public Safety Perspective on Abortion Conflict**

Conference Rate

A limited number of rooms are available at the conference rate of $135.00 single or double occupancy. **After April 9, accommodation will be offered on a space available basis at the regular room rate.** Reservations can be made by calling the Omni Shoreham at 2021234-0700. All reservation requests must be accompanied by a first-night room deposit, or guaranteed with a major credit card.

Fees

- PERF Member Registration: $325
- PERF Nonmember Registration: $365
- 2nd, 3rd and 4th from one agency: $275 member, $315 nonmember
- 5th and up from one agency: $160 member, $180 nonmember
- One-day fee: $180 (indicate Thursday or Friday)
- Spouse/guest fee: $75

Watch your mail for a registration brochure, or visit the Conferences section of www.PoliceForum.org to register online!